Main catalogue 2018 | 19

Edition India

LAPP

hello

Dear customers
and business partners,

I am delighted to present our new main catalogue for 2018/19 in its brand-new design. As ever it has over 1,000 pages, and guides you through our enormous range of reliable products, covering virtually the entire world of connection technology. We hope you like the layout and design, and that you can find the relevant products and information for your requirements in an instant.

As a successful global player, we enjoy a strong position in international markets and can help our customers wherever they are. This catalogue is part of that. Available in 16 languages, it is proof of our commitment to our customers. You can also choose to browse our high-quality branded products either in printed form or online. Click, flip through or swipe: the decision is yours.

Our company has long been characterised by continuity and progressive thinking. One example of this is our management team, which has now welcomed the third generation of the Lapp family. This is a strong signal of how we intend to remain a reliable partner in future. A partner who focuses on helping you remain successful in the long term. LAPP is there for you wherever you are in the world. No matter where you contact us and what you order from us, you will recognise us by our consistent company logo: simply LAPP.

That is why, as a technology pioneer, we provide you with the solutions for a successful future – perfectly harmonised and ready for the challenges of the digital world. I hope you enjoy finding out more about our products.

Yours sincerely,

Andreas Lapp

legend

Industries

- Automation
- e-Mobility
- Food & Beverage
- Mechanical and Plant Engineering
- Oil & Gas
- Rail
- Solar Energy
- Wind Energy

Product characteristics

- Suitable for outdoor use
- Good chemical resistance
- Flame-retardant
- Wide clamping range
- Halogen-free
- Heat-resistant
- Cold-resistant
- Corrosion-resistant
- Maximum vibration protection
- Mechanical resistance
- Assembly time
- Low weight
- Oil-resistant
- Optimum strain relief
- Space requirement
- Power chain
- Clean room
- Robust
- Acid-resistant
- Reliability
- Integrated SKINTOP® cable gland
- Voltage
- Connector with standard housing unit
- Interference signals
- Temperature-resistant
- Torsion-resistant
- Torsion load
- UV-resistant
- Waterproof
- Variety of approval certifications

Please note:
The purpose of the icons is to provide you with a quick overview and a rough indication of the product features to which the corresponding information relates. You can find details of product characteristics in the “technical data” sections on the product pages.

news

Power and control cables **Page**
ÖLFLEX® SERVO 719 99
ÖLFLEX® SERVO 719 CY 100
ÖLFLEX® SERVO 728 CY 101
ÖLFLEX® SERVO 7TCE 103
ÖLFLEX® VFD 2XL 104
ÖLFLEX® VFD 2XL with Signal 105
ÖLFLEX® SERVO FD 796 CP 109
ÖLFLEX® CHAIN PN 126
ÖLFLEX® CHAIN TM 129
ÖLFLEX® CHAIN TM CY 130
ÖLFLEX® ROBUST FD 133
ÖLFLEX® ROBUST FD C 134
ÖLFLEX® CHAIN 90 P 135
ÖLFLEX® CHAIN 90 CP 136
ÖLFLEX® CHAIN 819 P 137
ÖLFLEX® CHAIN 819 CP 138
H1Z2Z2-K 158
ÖLFLEX® SOLAR XLWP 159
ÖLFLEX® CHARGE 162
H05Z1-K 223
H07Z1-K 224
UNITRONIC® SPIRAL LiF2Y11Y 258
UNITRONIC® SPIRAL 260
Pre-wired front plug for
PLC SIMATIC® S7-1500 270

Data communication systems
UNITRONIC® FD Li2YCY (TP) A BE . . 307
UNITRONIC® FD Li2YCY (TP) A BA . . 308
UNITRONIC® BUS HEAT 6722 366
UNITRONIC® TRAIN 367
UNITRONIC® SENSOR 384
UNITRONIC® ROBUST S/A FD 386
UNITRONIC® SENSOR
PVC M12 | M12-M12 396

Data communication systems
for ETHERNET technology
ETHERLINE® Cat.7 FLEX 428
ETHERLINE® FESTOON PN Cat.5e . . 437
ETHERLINE® PN Cat.6$_A$ FC 442
ETHERLINE® PN Cat.6$_A$ FLEX FC . . . 443
ETHERLINE® PN Cat.7 447
ETHERLINE® PN Cat.7 FLEX 448
ETHERLINE® TORSION Cat.7 449
ETHERLINE® TRAIN 450
ETHERLINE® ACCESS M05T/M08T . . 456
ETHERLINE® ACCESS U05T/U08T . . 457
ETHERLINE® LAN 200 Cat.5e 464
ETHERLINE® LAN 350 Cat.6 465
ETHERLINE® LAN 500 Cat.6$_A$ 466
ETHERLINE® LAN 1000 Cat.7$_A$ 467
ETHERLINE® LAN 1600 Cat.7$_A$ 468
ETHERLINE® LAN 1000
Cat.7 OUTDOOR 469
ETHERLINE® LAN RJ45 Cat.6$_A$ 471
Connector RJ45 Cat.6$_A$
Hirose TM31 473

Industrial connectors
EPIC® MH 2 555
EPIC® MH 3 556
EPIC® MH 3+4 557
EPIC® MH 4 558
EPIC® MH 6 559
EPIC® MH 8 560
EPIC® MH 12 561
EPIC® MH 17 562
EPIC® MH 20 563
EPIC® MH 36 564
EPIC® MH Gigabit Modul 565
EPIC® MH BUS 566
EPIC® MH Coax 1.6mm 567
EPIC® MH Potential set 568
EPIC® MH D-SUB 568
EPIC® MH 0 blind modul 569
EPIC® MH 6 multi frame 570
Power module: HC2 573
EPIC® MC BUS 580
EPIC® MH 0.8mm
contacts stamped 584
EPIC® MH 1.0mm
contacts stamped 585
EPIC® MH 1.0mm
contacts machined 585
EPIC® H-D 1.6 stamped
contacts-on-reel 589
EPIC® MC 2.5 stamped
contacts-on-reel 593
EPIC® MH 4.0mm Contacts 595
EPIC® MH 8.0mm Contacts 596
EPIC® TOOL DIE 8.0mm 597
EPIC® MC Coax-Contacts 598
EPIC® Docking Frame 628
EPIC® SOLAR TOOL CSC 674
EPIC® SOLAR 4 Splitter 675
CHARGE KIT charging station 676
Mobile CHARGE box 677
EVCS2 Tester type 2 678

Cable glands
SKINTOP® MS-M 696
SKINTOP® MSR-M 696
SKINTOP® GRIP-M 699
SKINTOP® MS-HF-M 705
SKINTOP® MS-HF-M GRIP 706
SKINTOP® MS-HF-M SC 707
SKINTOP® MS-HF-M BRUSH 708
SKINTOP® MS-M ATEX BRUSH 710
SKINTOP® INOX/
SKINTOP® INOX-R 712
SKINTOP® INOX SC 713
SKINTOP® HYGIENIC/
SKINTOP® HYGIENIC-R 714
SKINTOP® HYGIENIC SC 715
SKINTOP® DIX-M AUTOMATION 719
SKINTOP® MULTI 721
SKINTOP® BRUSH ADD-ON 24 725
SKINDICHT® MINI NBR 738
SKINDICHT® MINI FKM 738
SKINDICHT® SM-M INOX 745
SKINTOP® COLD NPT 765
SKINTOP® INOX NPT 768
SKINTOP® GMP-GL NPT 769
SKINDICHT® SM-NPT 770
SKINDICHT® SM-NPT INOX 770
SKINMATIC® MH Set 815

Protective cable conduit systems
and cable carrier systems
SILVYN® MSK-M FPS-EDU 841
SILVYN® FPAX NPT 864
SILVYN® SSU 894
SILVYN® SSUE 894
SILVYN® FG 919
SILVYN® E-KIT 922

Marking systems
DYMO® XTL 300/500 956

Tools and cable accessories
KNIPEX Diagonal cutter 979
KNIPEX X-Cut® Compact
diagonal cutter 979
KNIPEX High leverage
diagonal cutter 979

content

Company information 2

ÖLFLEX®
Power and control cables 19

UNITRONIC®
Data communication systems 271

ETHERLINE®
Data communication systems
for ETHERNET technology 413

HITRONIC®
Optical transmission systems 475

EPIC®
Industrial connectors 521

SKINTOP®
Cable glands 679

SILVYN® Protective cable conduit
systems and cable carrier systems 817

FLEXIMARK®
Marking systems 927

Tools and cable accessories 975

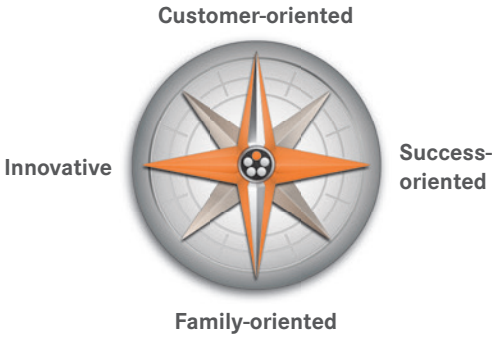
Appendix

Appendix: selection tables
technical tables
index of products 1063

Andreas Lapp,
Matthias Lapp,
Ursula Ida Lapp,
Alexander Lapp,
Siegbert Lapp.

family

On course for success



Family business and global player
LAPP is both. The history of our company has been one of success and expansion ever since it was founded in 1959 by Ursula Ida and Oskar Lapp. It remains resolutely family owned to this day. We safeguard our success by staying close to our customers and markets, maintaining our innovative strength and brand quality, and being a reliable partner. We provide continuity, always guided in our thoughts and actions by our values.

Success built on family values
At LAPP, we maintain values that promote cooperation and enable relationships with employees, suppliers and customers based on partnership and trust. Good relations and mutual respect are key elements of our company culture and a central plank of company policy. We know that our successful business development of the last decades is down in particular to our 3,770 skilled and dedicated staff around the world, as well as the reliable partnership with our customers.

With 17 production facilities, over 40 sales companies and hundreds of dedicated consultants, we are always close to the individual needs and challenges of our customers all over the globe. We are constantly developing our products and system solutions, setting standards in safety, quality and functionality. This is why we are one of the world's leading manufacturers of integrated solutions and branded products in cable and connection technology. As our success story enters its third generation, we are aware of our duty to the future.

> www.lappkabel.com/company

about us

Headquarters 4.0

Goodbye isolated individual offices! LAPP's new European headquarters in Stuttgart-Vaihingen features an open-space design, modern architecture and short distances that enable all-new forms of cooperation. Individual departments are no longer physically separated. Everything is bright and open. Plants are used to separate space, absorb noise and improve air quality. Height-adjustable desks allow staff to concentrate better and work more healthily. The open office design aims to improve communication, teamwork, knowledge exchange, creativity and mobile working. This workplace concept is being rolled out worldwide.

Open office, open cooperation

Our new headquarters presents an entirely new concept of office life. Digital, connected and flexible, it improves communication and cooperation, benefiting both our employees and customers. Our new spatial design allows us to react even more quickly and directly to our customers' needs. This is because departments that cooperate often are placed closer to each other. Sales and all sales-related departments have now, for example, been brought together under one roof.

Despite this, there is still plenty of room for individuality and quiet places where staff can go for greater concentration. As such, the building features team zones, think tanks, lounges and project zones. Staff can also work in the espresso bar on the ground floor or on the roof terrace if they so wish. Here they can use bistro tables and even sun loungers.

LAPP

industry solutions

Tailored industry solutions

www.lappkabel.com/industries

From E-mobility and wind energy to Industry 4.0, our global success is driven by pioneering innovations for a huge variety of sectors and markets. We offer specialised cable connection solutions for all industries, precisely tailored to their respective requirements. On the following pages, you can explore the areas in which our products are used and find out how we can help take your business forward with our industry-specific solutions.

The road to the future

Transport is changing. From electric cars to modern rail vehicles, high-performance connection technology is a vital part of future mobility. Based on 60 years of experience in the development and production of electric cables, connectors and accessories, we have steadily developed and expanded our range of products for railway technology. With LAPP brands we provide reliable solutions that make no compromises when it comes to safety, quality and function. Our products meet tough national and international norms and standards like EN 45545-2, and are used in the high-speed trains of Korea Train eXpress (KTX), for example. Our production facility for ÖLFLEX® TRAIN is certified in line with IRIS (International Rail Industry Standard).

www.lappkabel.com/rollingstock

mobility

321

Our range of rail technology products covers over 321 cable types and 485 connectors, along with cable glands, protective conduits and accessories. We have over a million metres of cable in storage for the rail industry.

485

1,000,000

food & beverage

Hygiene first

In the food and beverage industry, operating conditions are complex and challenging. The most important thing here is hygiene. With this in mind, the cables and accessories used have to meet demanding requirements and must withstand various chemical, thermal and mechanical loads. Our extensive standard range really does stand the test under these tough operating conditions. Alongside this, we offer a variety of refined solutions that were developed and carefully tested specifically for the food and beverage industry in our in-house laboratory and test facilities. For unbeatable quality, safety and function.

> www.lappgroup.com/hygienicdesign

© Maiwolf/LAPP

ÖLFLEX®

System solutions made by LAPP

With ÖLFLEX® CONNECT, we completed the step from component supplier to system supplier, offering complete solutions from a single source – from specialised cable assemblies and industry-standard servo connections to complex high-speed drag chain systems. We are constantly expanding our engineering, production and assembly capacities around the world.

The benefits for you:

- No capital expenditure for own production facilities
- Lean supply base leads to lower operating costs
- Low inventory levels thanks to complete assemblies
- Excellent functional reliability

ÖLFLEX® CONNECT CABLES

Cable systems made by LAPP

Our product range stretches from single cores and multi-core cables through to EMC-shielded cables, all of which can be fitted with a wide selection of crimp contacts, connectors and housings. We also offer highly flexible and durable spiral cables in premium quality, as well as glass fibre assemblies, which we can produce, test and deliver in both standard and custom lengths.

Our comprehensive range of services:

- Cable cutting as required
- Unwinding with specified bending radius
- Stripping, crimping, heat shrinking
- Markings & printings
- Testing

CONNECT

ÖLFLEX® CONNECT SERVO

Servo systems made by LAPP

As a leading manufacturer of assembled servo cable systems, we offer solutions for all industry standards for customers from different areas of mechanical engineering and drive systems. These range from the cost-effective **basic line** for applications free of aggressive environmental influences, to the **core line** that is specially designed for dynamic applications, right up to the highly dynamic performance class of the **extended line**. LAPP therefore offers the right solution for every set of requirements.

basic line | core line | extended line

ÖLFLEX® CONNECT CHAIN

Power chain systems made by LAPP

When it comes to assembled drag chains, you can benefit from our extensive know-how and many years of experience.

basic chain | core chain | extended chain

basic chain
Nylon or steel drag chains with highly flexible cables, cable protection conduits, hydraulic or pneumatic hoses with **no termination** such as connectors or flanges

core chain
Nylon or steel drag chains with highly flexible cables, cable protection conduits, hydraulic or pneumatic hoses **including termination** (connectors, flanges)

extended chain
Nylon or steel drag chains with highly flexible cables, cable protection conduits, hydraulic or pneumatic hoses **including termination** (connectors, flanges) **and functional units** such as towing arms or supporting structures

ÖLFLEX® CONNECT CHAIN

System solutions made by LAPP

LAPP is there throughout all project phases – from design to component selection to assembly. Our experts work with you every step of the way:

1 Technical evaluation

- On-the-spot meeting
- Definition of project scope
- One contact person during project phase
- Planning and timing

2 Initial CAD design of the cable chain system

- Incl. cable layout

3 Complete project management

- Documentation
- Drawings
- Selection of components (BOM)
- Cost and interface controlling

4 Completion of chain system design

- Delivery to operation site
- On-site installation service by LAPP specialists
- Shipping in professional LAPP packaging
- After-Sales-Services

Built upon our deep expertise in cable technology we have the capabilities to specify and assemble the right SILVYN® cable chain to protect the cable in any application. With **ÖLFLEX® CONNECT** CHAIN you get populated cable chains – from light duty nylon to steel or a combination of nylon and steel cable.

Our cable chain service

What can be included in a cable chain system:

- Nylon or steel cable chains in accordance with application requirements
- Highly flexible power, control, signal and data network cables including accessories (cable lugs, connectors, etc.)
- Protective cable conduits with conduit glands
- Hydraulic hoses with fittings
- Pneumatic hoses
- Towing arms or other functional units
- CAD drawing of your chain including cable layout (optimal placement and separation of all energy lines in a chain)

Upon request, comprehensive test reports and individual installation instructions can be provided.

Three system packages – the choice is yours

Optimize your assembly, procurement and logistics processes with three distinct system packages.

	basic chain	core chain	extended chain
Series: Nylon, Steel or Robot	•	•	•
All media, incl. layout (cables, hoses)	•	•	•
Accessories (channels, rollers)	•	•	•
Terminations (connectors, fittings)		•	•
No electrical installation needed		•	•
100 % electrical testing		•	•
No cable cutting loss		•	•
Plug-and-Play system		•	•
Multi-chain/ nested chain applications			•
Functional units (supporting structures, towing arms, cabinets)			•

Please find more info here:

Online configurator

Configure your individual **ÖLFLEX® CONNECT** CHAIN here online incl. all media (cables, hoses)

Optimized for tablet:

www.lappkabel.com/chainconfigurator

ÖLFLEX® CONNECT CHAIN catalogue

Find complete **ÖLFLEX® CONNECT** CHAIN catalogue here online or download as pdf

www.lappkabel.com/catalogues

Chain-Engineering Guide

50 pages full of technical expert know-how around your chain configuration

www.lappkabel.com/chainguide

service & quality

Uncompromising quality – worldwide

You will always be on the safe side with branded products from LAPP. At our headquarters in Stuttgart-Vaihingen, we put our products through their paces in one of the most modern cable testing facilities in the world. Here we simulate all kinds of movements and determine the service life of cables and wires. The result: uncompromising quality from LAPP.

Trial and test centre

At our trial and test centre in Stuttgart, we thoroughly test our products and constantly monitor electrical and mechanical parameters. Specialised teams also test all products in their intended field of use – sometimes in extremely hot or cold conditions or with particular environmental influences.

Customised solutions

You will always be on the safe side with branded products from LAPP. Whether it's a standard product or a customised special production: every product launched has undergone a demanding development process. Only once the prototypes have been thoroughly tried and tested does production begin.

Perfect projects

We turn challenging projects into success stories. That is what drives us. From fibre-optic networks and control cables to power supply, you can put your trust in the infrastructure and product expertise of our outstanding project teams. Benefit from expert consulting and an all-round service that leaves nothing to be desired.

Working closely together, we determine what you need, create a precise schedule, develop the right solution for your specific requirements, clarify delivery times and product details, and coordinate logistics. Protect your resources, benefit from our expertise, and reap the rewards.

> www.lappkabel.com/service/project-business

Reliably connecting the world

70,000 m² of storage space in Germany alone allows us to keep 48,000 km of ÖLFLEX® constantly in stock.

24/7
Always there for you

Who actually likes waiting for a product or service? We won't leave you hanging – we offer speedy delivery to anywhere in the world. After all, we have a close-knit network of logistics centres. With the finest in high-tech quality, we guarantee a smooth delivery service.

Logistics services
Find out about our range of logistics services. Simple length cutting straight from our drum packaging. Customised kanban solutions. Organisation systems, customised labels and much more. If you can't find an appropriate solution for your needs, we are happy to advise you personally.

www.lappkabel.com/service/logistics

logistics

8 brands

Uncompromising quality – worldwide

ÖLFLEX®
Power and control cables

ÖLFLEX® has become synonymous with power and control cables. Our flexible and oil-resistant cables satisfy the highest demands and can withstand even the very toughest conditions.

UNITRONIC®
Data communication systems

Our high-quality UNITRONIC® data network cables and field bus components provide a forward-looking solution for all applications in industrial machinery and plant engineering. From transmission of simple control signals to field bus signals in complex network structures – we offer a dependable cabling and connection solution for almost every situation.

ETHERLINE®
Data communication systems for ETHERNET technology

Our ETHERLINE® branded products open up a secure, fast and reliable path to the future of Ethernet applications, e. g. PROFINET®. The systems are made up of durable and robust cables and connection components for passive and active network technology, and deliver an effective solution for almost any application, particularly in an industrial environment.

HITRONIC®
Optical transmission systems

HITRONIC® fibre optic cables make transmitting large data volumes easy: fault free, bug proof and at almost light speed. Even electromagnetic radiation does not interfere with the transmission. The HITRONIC® range includes the ideal solution for indoor or outdoor use, for demanding conditions, and even for use in power chains.

EPIC®
Industrial connectors

EPIC® industrial connectors can be found everywhere in industrial machinery and plant engineering, for measuring, control and drives. EPIC® is a flexible system of housings, inserts and contacts: all extremely robust, absolutely safe and simplicity itself to assemble.

SKINTOP®
Cable glands

Simply feed in the cable and twist. That's it. Our SKINTOP® cable glands provide secure connections in no time. The universal systems are simple but effective. They secure and centre the cable, hermetically seal it and guarantee optimum strain relief.

SILVYN®
Protective cable conduit systems and cable carrier systems

The universal range of SILVYN® protection and guidance systems protect cables effectively against dust, moisture, mechanical, thermal and chemical influences. The versatile SILVYN® CHAIN range of energy supply chains also protects and guides cables in dynamic applications.

FLEXIMARK®
Marking systems

The requirement: permanent marking. The solution: FLEXIMARK®. These sophisticated systems mean that a clear overview inside a control cabinet is no longer just a pipe dream. From simple labels for manual marking through to electronic markings, the FLEXIMARK® range is guaranteed to be permanent.

1

ÖLFLEX®

Power and control cables

ÖLFLEX® has become synonymous with power and control cables. Our flexible and oil-resistant cables satisfy the highest demands and can withstand even the very toughest conditions.

Application range

- Industrial machinery, machine tools, plant and equipment engineering
- Measurement, control, heating and air conditioning systems
- Wind power and photovoltaic systems
- Public buildings, airports and stations.
- Medical technology, chemical industry, composting plants and sewage works
- Food and beverage industry
- Power drive systems
- Robot applications
- Railway applications

Various applications

PVC outer sheath and coloured cores
ÖLFLEX® CLASSIC 100 300/500 V 27
ÖLFLEX® CLASSIC 100 450/750 V 29
ÖLFLEX® CLASSIC 100 YELLOW 30
ÖLFLEX® CLASSIC 100 CY 31
ÖLFLEX® CLASSIC 100 SY 32
ÖLFLEX® CLASSIC 100 BK 0,6/1 kV 33
PVC outer sheath and numbered cores
ÖLFLEX® SMART 108 34
ÖLFLEX® CLASSIC 110 35
ÖLFLEX® CLASSIC 110 BK 38
ÖLFLEX® CLASSIC 110 LT 39
ÖLFLEX® CLASSIC 110 ORANGE 40
ÖLFLEX® CLASSIC 110 CY 41
ÖLFLEX® CLASSIC 110 SY 42
ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV 43
ÖLFLEX® CLASSIC 110 CY BLACK 0,6/1 kV 44
ÖLFLEX® CLASSIC 115 CY 45
Intrinsically safe circuits
ÖLFLEX® EB 47
ÖLFLEX® EB CY 48
PVC sheath, certified
ÖLFLEX® 140* 49
ÖLFLEX® 140 CY* 50
ÖLFLEX® 150 51
ÖLFLEX® 150 CY 52
ÖLFLEX® 191 53
ÖLFLEX® 191 CY 54
ÖLFLEX® CONTROL TM 55
ÖLFLEX® CONTROL TM CY 56
ÖLFLEX® TRAY II 57
ÖLFLEX® TRAY II CY 58
ÖLFLEX® SF 59
Halogen-free
ÖLFLEX® CLASSIC 100 H 60
ÖLFLEX® CLASSIC 110 H 61
ÖLFLEX® CLASSIC 110 CH 62
ÖLFLEX® CLASSIC 130 H 63
ÖLFLEX® CLASSIC 135 CH 64
ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV 66
ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV 67

Harsh conditions

High mechanical and chemical resistance
ÖLFLEX® PETRO C HFFR 0,6/1 kV 69
ÖLFLEX® ROBUST 200 70
ÖLFLEX® ROBUST 210 71
ÖLFLEX® ROBUST 215 C 72
ÖLFLEX® CLASSIC 400 P 73
ÖLFLEX® CLASSIC 400 CP 74
ÖLFLEX® CLASSIC 415 CP 75
ÖLFLEX® 408 P 76
ÖLFLEX® 409 P 77
ÖLFLEX® 440 P 78
ÖLFLEX® 440 CP 79
ÖLFLEX® 450 P 80
ÖLFLEX® 500 P 81
ÖLFLEX® 540 P 82
ÖLFLEX® 540 CP 83
ÖLFLEX® 550 P* 84
Rubber cables
H05RR-F 85
H05RN-F 86
H07RN-F 87
H07RN-F, enhanced version 88
H07ZZ-F 90
H01N2-D 91
NSSHÖU 92
NSGAFÖU 1,8/3 kV 93
NSHXAFÖ 1,8/3 kV 94
H07RN8-F 95

Servo applications

PVC sheath
ÖLFLEX® SERVO 2YSLCY-JB 97
PVC sheath, certified
ÖLFLEX® SERVO 9YSLCY-JB 98
ÖLFLEX® SERVO 719 99
ÖLFLEX® SERVO 719 CY 100
ÖLFLEX® SERVO 728 CY 101
ÖLFLEX® SERVO 7DSL 102
TPE sheath, certified
ÖLFLEX® SERVO 7TCE 103
ÖLFLEX® VFD 2XL 104
ÖLFLEX® VFD 2XL with Signal 105

Power chain applications

Servo applications - power drive systems
ÖLFLEX® SERVO FD 781 CY 107
Servo applications - power drive systems, certified
ÖLFLEX® SERVO FD 796 P 108
ÖLFLEX® SERVO FD 796 CP 109
ÖLFLEX® SERVO FD 798 CP 111
ÖLFLEX® SERVO FD 7DSL 112
SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS 113
SERVO cables in acc. to INDRAMAT® Standard INK 115
SERVO cables in acc. to LENZE® Standard 116
Special Encoder and resolver cables 117
Various applications
ÖLFLEX® CLASSIC FD 810 118
ÖLFLEX® CLASSIC FD 810 CY 119
Various applications, certified
ÖLFLEX® CHAIN 809 SC 120
ÖLFLEX® CHAIN 809 SC CY 121
ÖLFLEX® FD 90 122
ÖLFLEX® FD 90 CY 123
ÖLFLEX® CHAIN 809 124
ÖLFLEX® CHAIN 809 CY 125
ÖLFLEX® CHAIN PN 126
ÖLFLEX® FD 891 127
ÖLFLEX® FD 891 CY 128
ÖLFLEX® CHAIN TM 129
ÖLFLEX® CHAIN TM CY 130
Harsh conditions
ÖLFLEX® CLASSIC FD 810 P 131
ÖLFLEX® CLASSIC FD 810 CP 132
ÖLFLEX® ROBUST FD 133
ÖLFLEX® ROBUST FD C 134
Harsh conditions, certified
ÖLFLEX® CHAIN 90 P 135
ÖLFLEX® CHAIN 90 CP 136
ÖLFLEX® CHAIN 819 P 137
ÖLFLEX® CHAIN 819 CP 138
ÖLFLEX® FD 891 P 139
ÖLFLEX® FD 855 P 140
ÖLFLEX® FD 855 CP 141
ÖLFLEX® PETRO FD 865 CP 142
ÖLFLEX® CHAIN 896 P 143

Robotics

Torsion, articulated robot
ÖLFLEX® ROBOT 900 P 144
ÖLFLEX® ROBOT 900 DP 145
Torsion, articulated robot, certified
ÖLFLEX® ROBOT F1 146
ÖLFLEX® ROBOT F1 (C) 147

Special applications

Special single cores
LiFY 149
LiFY 1 kV 150
ESUY Copper Earthing Cable 151
X00V3-D Copper Earthing Cable 152
Commercial vehicles
ÖLFLEX® TRUCK 170 FLRYY 153
ÖLFLEX® TRUCK 470 P FLRYY11Y 154
ÖLFLEX® TRUCK 170 TWIN 155
Photovoltaic
H1Z2Z2-K 158
ÖLFLEX® SOLAR XLWP 159
Wind energy
ÖLFLEX® TORSION FRNC 160

ÖLFLEX® TORSION D FRNC 160
eMobility
ÖLFLEX® CHARGE 162
Temperature measurement (extension and compensating cables)
Extension- and compensating cables, paired 163
Extension- and compensating cables, multi-paired 166

Conveyor technology

Reelable
ÖLFLEX® CRANE NSHTÖU 169
ÖLFLEX® CRANE VS (N)SHTÖU 170
ÖLFLEX® CRANE PUR 171
With support element
ÖLFLEX® CRANE 172
For push-button control units
ÖLFLEX® CRANE 2S 173
For lifts
ÖLFLEX® LIFT 174
ÖLFLEX® LIFT T 175
Flat cables
ÖLFLEX® CRANE F 176
ÖLFLEX® CRANE CF 177
ÖLFLEX® LIFT F 178

Expanded ambient temperatures

PVC cables (-20°C to +90°C)
ÖLFLEX® HEAT 105 MC 180
Cross-linked cables (-55°C to +125°C)
ÖLFLEX® HEAT 125 MC 181
ÖLFLEX® HEAT 125 C MC 182
Silicone cables (-50°C to +180°C)
ÖLFLEX® HEAT 180 SiHF 183
ÖLFLEX® HEAT 180 H05SS-F EWKF 184
ÖLFLEX® HEAT 180 MS 185
ÖLFLEX® HEAT 180 C MS 186
ÖLFLEX® HEAT 180 EWKF 187
ÖLFLEX® HEAT 180 EWKF C 188
ÖLFLEX® HEAT 180 GLS 189
FEP cables (-100°C to +205°C)
ÖLFLEX® HEAT 205 MC 190
ÖLFLEX® HEAT 205 PTFE/FEP 190
PTFE cables (-190°C to +260°C)
ÖLFLEX® HEAT 260 MC 191
ÖLFLEX® HEAT 260 C MC 192
ÖLFLEX® HEAT 260 GLS 193
Glass fibre cables (above +260°C)
ÖLFLEX® HEAT 350 MC 194
ÖLFLEX® HEAT 1565 MC 195
Cross-linked single cores (-55°C to +125°C)
ÖLFLEX® HEAT 125 SC 196
Silicone single cores (-50°C to +180°C)
ÖLFLEX® HEAT 180 SiF 198
ÖLFLEX® HEAT 180 SiF A 199
ÖLFLEX® HEAT 180 SiD 200
ÖLFLEX® HEAT 180 SiF/GL 201
ÖLFLEX® HEAT 180 SiZ 201
ÖLFLEX® HEAT 180 FZLSi 201
FEP single cores (-100°C to +205°C)
ÖLFLEX® HEAT 205 SC 202
PTFE single cores (-190°C to +260°C)
ÖLFLEX® HEAT 260 SC 203
Glass fibre single cores (above +260°C)
ÖLFLEX® HEAT 350 SC 204
ÖLFLEX® HEAT 1565 SC 205
ÖLFLEX® HEAT 650 SC 206

Control Cabinet Single Cores

Various applications
LiY 208
LiY with twin colour helix insulation 209
H05V-K <HAR> 210
H05V-K in big one-way cardboard box 211
X05V-K with twin colour helix insulation 212
H07V-K <HAR> 213
H07V-K in big one-way cardboard box 215
X07V-K with twin colour helix insulation 216
Harmonised and certified
MULTI-STANDARD SC 1 217
MULTI-STANDARD SC 2.1 218
MULTI-STANDARD SC 2.2 221
Halogen-free
H05Z1-K 223
H07Z1-K 224
H05Z-K 90°C 225
H07Z-K 90°C 226
EMC-optimised design
LiYCY 228
Li2YCY 228

Building Installation

VDE standard cables
NYM-J 230
(N)HXMH 231
Cables for direct burial
NYY-J, NYY-O 232
N2XH 234
N2XCH 236
NYCY 237
NYCWY 238
NAYY-J, NAYY-O 239

ÖLFLEX® CONNECT Systems Solutions

ÖLFLEX® CONNECT Servo assemblies
ÖLFLEX® SERVO Basic Line according to Siemens 6FX5002 (PVC) 241
ÖLFLEX® SERVO Core Line for Siemens 6FX5002 (PVC) 242
ÖLFLEX® SERVO Core Line for Siemens 6FX8002 (PUR) 243
ÖLFLEX® SERVO Extended Line according to Siemens 6FX8002 (PUR) 244
ÖLFLEX® SERVO Extended Line acc. Bosch Rexroth / Indramat (PUR) 245
ÖLFLEX® SERVO Core Line acc. Lenze (PVC) 246
ÖLFLEX® SERVO Core Line acc. Lenze (PUR) 247
ÖLFLEX® SERVO Core Line acc. SEW (PVC) 248
ÖLFLEX® SERVO Core Line acc. SEW (PUR) 249
ÖLFLEX® SERVO Core Line acc. Allen Bradley / Rockwell (PVC) 250
ÖLFLEX® SERVO Core Line acc. Allen Bradley / Rockwell (PUR) 251
Spiralised
ÖLFLEX® SPIRAL 400 P 252
SPIRAL H07BQ-F BLACK 254
ÖLFLEX® SPIRAL 540 P 255
ÖLFLEX® SPIRAL 540 P with angular, isolated ground plug 257
UNITRONIC® SPIRAL LiF2Y11Y 258
UNITRONIC® SPIRAL 260
Connection and extension cables
ÖLFLEX® PLUG H03VV-F Net Connection Cable* 262
ÖLFLEX® PLUG H05VV-F Net Connection Cable* 263
ÖLFLEX® PLUG Extension Cable 540 P safety yellow* 265
ÖLFLEX® PLUG CEE Connection/ Extension Cable without phase shifter* 266
ÖLFLEX® PLUG CEE connecting cable with phase shifter* 267
Pre-wired front-end connector
Pre-wired front plug for PLC SIMATIC® S7-300 268
Pre-wired front plug for PLC SIMATIC® S7-400 269
Pre-wired front plug for PLC SIMATIC® S7-1500 270

ÖLFLEX® CONNECT

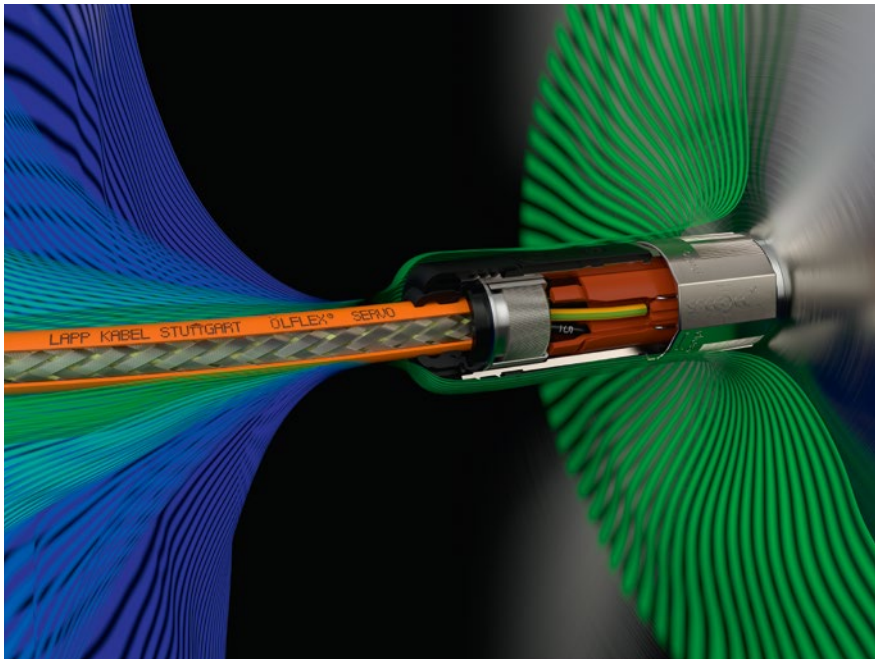
Systems Solutions made by LAPP

ÖLFLEX® CONNECT SERVO

Core Line: Your smart alternative

Our Core Line is equipped with a new, tamper-proof connector, which is not screwed but pressed. The 360° screen contact makes a huge improvement to EMC screening (Factor 4). In addition, the Core Line cable design enables a semi-automated production process to ensure a constantly high level of process quality and a globally standardised quality standard.

- Global quality standard thanks to a semi-automated production process
- 360 degree screen contact for optimum screening
- New servo cable design with all the necessary approvals
- Tamper-proof connector



Three product lines
Exactly the right product for your individual needs. Our servo solutions provide you with cables in 3 classes: Basic Line, Core Line and Extended Line.

	Basic Line	Core Line	Extended Line
Price	●●○○○	●●●○○	●●●●○
Performance	●●○○○	●●●●○	●●●●●

ÖLFLEX® CONNECT Delivery Programme

Customer service and flexibility are top priority at LAPP. As a result, we are now offering more servo shipping options tailored to your needs.
Our three delivery options:

STANDARD
Standard delivery times for all common articles.

Fast LANE
Your alternative for small orders in short notice.

MRO-STOCK
Selected types in stock. Subject to availability.

Please find more info here:

Servo configurator

Find your **ÖLFLEX® CONNECT** SERVO assembly within seconds online:

www.lappkabel.com/servoconfigurator

ÖLFLEX® CONNECT SERVO Brochure

More information and facts about our **ÖLFLEX® CONNECT** SERVO assemblies:

www.lappkabel.com/catalogues

ÖLFLEX® CONNECT Delivery programme

More info about our servo delivery options here:

www.lappkabel.com/servoshipping

ÖLFLEX® CONNECT CABLES

Cable assemblies

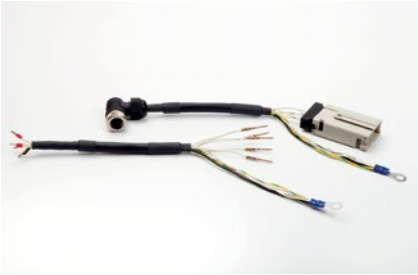
Our wide array of cables, connectors and accessories that we have engineered, enables us to respond quickly to your requirements – from smaller orders to large-scale projects. Our systems solutions assembly sites around the world all operate to the same operating standards to deliver the renowned LAPP quality.

Cable harness with different connectors and end sleeves

Extruded e-mobility cabling

Examples of products from our portfolio:

Cable with ring eyelets



Cable with heat shrink tube, crimps and circular connector

Cable with circular connector and earth cable with heat shrink tube

Find out more about our cable assemblies on www.lappgroup.com/systems

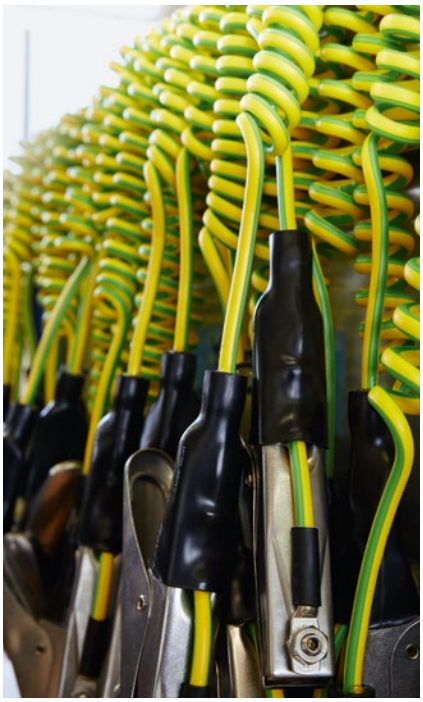
Spiral cables

When producing spiral cables, we have a wealth of expertise at our disposal. Flexibility and durability are key factors for applications requiring long-term high performance. It is also crucial to have the appropriate insulation and the right conductor material. With LAPP, your spiral cables are definitely in safe hands.

Features

- PUR or rubber outer sheath to withstand high mechanical stress
- Extension lengths of up to 3.5x the unextended spiral length
- High restoring force
- Various cable cross sections from 0.14 to 2.5 mm²
- Unextended lengths of > 2.0 m are customizable

Find our spiral cable options from page 252 onwards



Spiral Cable Configurator

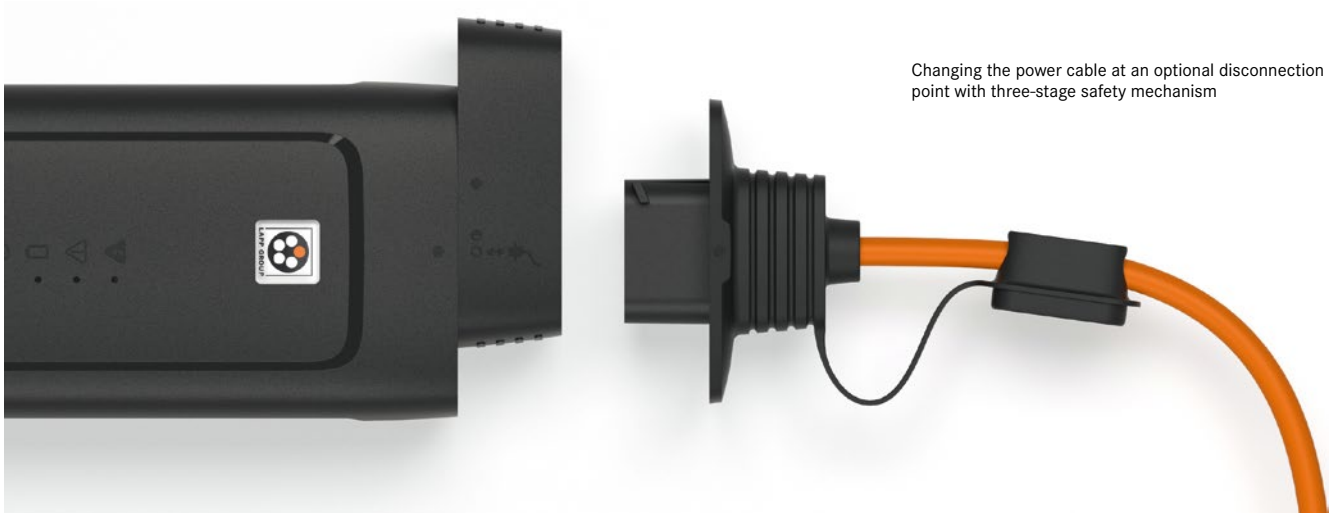
Discover our spiral cable configurator online here:

www.lappkabel.com/spiralconfigurator

Mode 2 - Charging cable

Certified worldwide

Wallbox light and portable charging station – the new Mode 2 charging cable from LAPP is both. With a wall holder for the garage wall, it replaces an expensive wallbox and is always on hand as a mobile charging station in your boot – anywhere in the world.



Changing the power cable at an optional disconnection point with three-stage safety mechanism

WORLDWIDE FLEXIBILITY

- Charging at any household socket around the world possible:
  The power cable can be disconnected at an optional disconnection point on the control box (IC-CPD) and replaced with country-specific variants.
- With a 32 A power cable e.g. CEE connector), quick charging with alternating current is possible up to 11 kW.
- On the vehicle side, the control box is equipped with either a type 1, 2 or GB coupling (32 A 1-phase or 16 A 3-phase).

USER-FRIENDLY

- 100% user-friendly:
  Simply plug in. Current does not need to be adjusted.
- Automatic detection of the maximum charging current through coding in the power cable.
- The charging procedure is fully automatic and is ended as soon as the battery is charged.

ELEGANT

- Nominated for the German Design Award 2018
- Unique design: Variable colour of cable and connector

SAFE

- Certified worldwide (UL/IEC/CQC)
- One of the first Mode 2 charging cables on the market to fulfil IEC standard 62752
- Maximum safety through integrated differential current sensor for AC and DC
- Temperature sensors in power connector and control box:
  Detection of impermissible heat build-up, reduction of charging current and interruption of the charging procedure if the permissible temperature is exceeded.
- A three-stage safety mechanism prevents the disconnection point from being opened under load
- Water-tight (IP 67 when closed)
- Rollover safe

GERMAN DESIGN AWARD NOMINEE 2018

Mode 3 - Charging cable

The right solution for all areas of application

The Mode 3 charging cable from LAPP has connector systems in all standards (Type 1, 2, GB) for charging at all AC charging stations worldwide. The HEAVY DUTY and DESIGN variants meet different requirements in terms of application and their design. HELIX, spiral and smooth designs are available as different cable forms to choose from.

HEAVY DUTY
The robust HEAVY DUTY line is suitable for particularly demanding professional applications, e.g. public charging stations, carsharing or parcel services.
The connector, which is made of solid material and is directly injection moulded, consists of a hard component in the connector and a soft component around the handle and anti-kink protection, which creates a secure grip in these areas.
The HEAVY DUTY connector is hazard-free, even under extremely high levels of stress. This reduces your maintenance and service costs.

DESIGN
With the new DESIGN line, LAPP has developed a connector system that is even better at fulfilling our customers' design requirements.
The DESIGN connector's housing consists of three shells, enabling customised design variations in all colour combinations. Using your corporate colours and your logo guarantees consistent implementation of your corporate design, so the charging system will become an integral part of your electric vehicle.
The light material and slim shape of the DESIGN connector makes it ideal for everyday use in the private sector.

HELIX
The patented LAPP HELIX is a spiralised quick-charge cable that rolls back up to automatically take its original shape after charging is complete. As such, users don't have to spend time rolling it up by hand – the HELIX is quick and safe to store away.
The HELIX is 40 percent lighter than standard coiled cables with the same usable length, thus making it even easier to handle.

Various applications

ÖLFLEX® CLASSIC 100 300/500 V

Colour-coded PVC control cable

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For nominal voltage U0/U: 450/750V or higher conductor cross-sections see ÖLFLEX® CLASSIC 100 450/750V

Benefits

- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage
- HIgh flexibility due to short-twisted conductor layers

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
- Dry or damp rooms that are subject to medium mechanical loads
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- High-quality alternative to control cable types YSLY or YY

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1

Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC outer sheath, grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 100 300/500 V				
00100004	2 X 0.5	4.8	9.6	35
00100014	3 G 0.5	5.1	14.4	42
00101224	3 X 0.5	5.1	14.4	42
00100024	4 G 0.5	5.7	19.2	54
00101234	4 X 0.5	5.7	19.2	54
00100034	5 G 0.5	6.2	24	63
00101244	5 X 0.5	6.2	24	63
0010004	6 G 0.5	6.7	28.8	73
0010005	7 G 0.5	6.7	33.6	81
0010006	8 G 0.5	8.0	38.4	97
0010007	10 G 0.5	8.6	48	116
0010008	12 G 0.5	8.9	58	133
0010009	14 G 0.5	9.5	67	151
0010010	16 G 0.5	10.0	76	169
0010011	21 G 0.5	11.7	99	223
0010012	24 G 0.5	12.4	114	254
0010016	40 G 0.5	15.4	192	404
00100214	2 X 0.75	5.4	14.4	45
00100224	3 G 0.75	5.7	21.6	55
00101254	3 X 0.75	5.7	21.6	55
00100234	4 G 0.75	6.2	28.8	66
00101264	4 X 0.75	6.2	28.8	66

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
00100244	5 G 0.75	6.7	36	79
00101274	5 X 0.75	6.7	36	79
0010025	6 G 0.75	7.3	43.3	104
0010026	7 G 0.75	7.3	50.4	109
0010027	8 G 0.75	8.8	56	123
0010028	9 G 0.75	9.4	63	144
0010029	10 G 0.75	9.6	72	153
0010030	12 G 0.75	9.9	86.4	176
0010031	15 G 0.75	10.9	108	211
0010032	18 G 0.75	11.7	129.6	268
0010033	21 G 0.75	13.0	151	293
0010034	25 G 0.75	13.8	180	374
0010036	40 G 0.75	17.3	288	571
0010037	50 G 0.75	19.2	360	698
00100414	2 X 1.0	5.7	19.2	53
00100424	3 G 1.0	6.0	28.8	65
00102034	3 X 1.0	6.0	28.8	65
00100434	4 G 1.0	6.5	38.4	79
00102044	4 X 1.0	6.5	38.4	79
00100444	5 G 1.0	7.1	48	94
00102054	5 X 1.0	7.1	48	94
0010045	6 G 1.0	8.0	58	124
0010046	7 G 1.0	8.0	67	131

Power and control cables

LAPP

Various applications • PVC outer sheath and coloured cores

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0010047	8 G 1.0	9.5	77	146
0010049	10 G 1.0	10.2	96	183
0010050	12 G 1.0	10.5	115	215
0010052	16 G 1.0	11.8	154	282
0010053	18 G 1.0	12.7	173	315
0010054	20 G 1.0	13.4	192	350
0010056	25 G 1.0	14.7	240	449
00100634	2 X 1.5	6.3	28.8	68
00100644	3 G 1.5	6.7	43.2	84
00101284	3 X 1.5	6.7	43.2	84
00100654	4 G 1.5	7.2	57.6	104
00101294	4 X 1.5	7.2	57.6	104
00100664	5 G 1.5	8.1	72	128
00101304	5 X 1.5	8.1	72	128
0010068	7 G 1.5	8.9	101	166
0010069	8 G 1.5	10.6	115	205
0010071	12 G 1.5	12.0	173	307
0010072	14 G 1.5	12.7	202	349
0010074	18 G 1.5	14.4	259	465
0010076	25 G 1.5	16.9	360	655
1120800	2 X 2.5	7.5	48	100
1120801	3 G 2.5	8.1	72	132
1120802	4 G 2.5	8.9	96	163
1120803	5 G 2.5	10.0	120	200
1120804	7 G 2.5	11.1	168	267

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1120805	2 X 4	9.2	77	160
1120806	3 G 4	9.9	115.2	201
1120807	4 G 4	10.8	153.6	263
1120808	5 G 4	12.1	192	315
1120809	7 G 4	13.4	269	407
1120810	3 G 6	11.7	174	289
1120811	4 G 6	13.0	230	352
1120812	5 G 6	14.5	288	470
1120813	7 G 6	16.0	403	600
1120814	3 G 10	14.6	288	466
1120815	4 G 10	16.2	384	590
1120816	5 G 10	18.1	480	722
1120817	3 G 16	17.0	460.8	720
1120818	4 G 16	18.8	614.4	1067
1120819	5 G 16	21.2	768	1370
1120820	3 G 25	21.0	720	1250
1120821	4 G 25	23.5	960	1582
1120822	5 G 25	26.4	1200	1998
1120823	3 G 35	23.7	1008	1700
1120824	4 G 35	26.4	1344	2106
1120825	5 G 35	29.6	1680	2635
1120826	3 G 50	29.1	1440	2200
1120827	4 G 50	32.4	1920	2800
1120828	5 G 50	36.5	2400	3600

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 5G50 max. 500 m; ≥ 5G95 max. 400; ≥ 3G120 max. 500 m; ≥ 4G120 max. 300; ≥ 4G185 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® 100 refer to page 276
- ÖLFLEX® CLASSIC 100 H refer to page 60
- ÖLFLEX® CLASSIC 100 BK 0,6/1 kV refer to page 33

Accessories

- SKINTOP® CLICK refer to page 687
- Detectable Cable ties refer to page 1042
- TY - FAST® cable ties refer to page 1041
- STAR STRIP stripping tool refer to page 985

ÖLFLEX® CLASSIC 100 450/750 V

Colour-coded PVC power and control cable

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For nominal voltage U0/U: 300/500V and conductor cross-sections below 2,5mm² see ÖLFLEX® CLASSIC 100 300/500V

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 450/750 VAC
In protected and fixed installations: U0/U: 600/1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Benefits

- High electrical performance due to 4 kV test voltage
- HIgh flexibility due to short-twisted conductor layers

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
- Dry or damp rooms that are subject to medium mechanical loads
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1

Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC outer sheath, grey (similar RAL 7001)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 100 450/750 V				
0010086	2 X 2,5	8.9	48	128
0010087	3 G 2,5	9.6	72	162
00100933	3 X 2,5	9.6	72	162
00100883	4 G 2,5	10.7	96	203
00100893	5 G 2,5	11.8	120	242
0010091	7 G 2,5	13.1	168	321
0010092	8 G 2,5	15.8	192	385
0010100	2 X 4	10.4	76.8	187
0010210	3 G 4	11.2	115.2	244
00101013	4 G 4	12.5	154	297
00101023	5 G 4	13.7	192	355
0010103	7 G 4	15.2	269	471
0010105	3 G 6	12.6	173	318
00101063	4 G 6	13.8	230	394
00101073	5 G 6	15.6	288	489
0010108	7 G 6	17.3	403	651
0010301	3 G 10	15.9	288	516
00101093	4 G 10	17.6	384	650
00101103	5 G 10	19.7	480	792
0010111	7 G 10	21.7	672	1058
0010302	3 G 16	18.3	461	728

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
00101123	4 G 16	20.4	614	1087
00101133	5 G 16	22.8	768	1118
0010303	3 G 25	23.0	720	1388
00101153	4 G 25	25.4	960	1582
00101163	5 G 25	28.5	1200	1771
0010304	3 G 35	25.6	1008	1766
00101173	4 G 35	28.5	1344	2106
00101183	5 G 35	31.9	1680	2635
0010305	3 G 50	31.0	1440	2556
00101193	4 G 50	34.5	1920	2943
00103133	5 G 50	38.6	2400	3936
0010306	3 G 70	35.3	2016	3182
00101203	4 G 70	39.4	2688	4092
00103143	5 G 70	44.1	3360	4800
0010307	3 G 95	41.3	2736	4675
00101213	4 G 95	45.8	3648	5290
00103153	5 G 95	51.6	4560	5600
0010308	3 G 120	47.6	3456	5626
00103093	4 G 120	53.1	4608	6994
00103113	4 G 150	57.4	5760	7500
00103123	4 G 185	62.8	7104	8300

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 5G50 max. 500 m; ≥ 5G95 max. 400; ≥ 3G120 max. 500 m; ≥ 4G120 max. 300; ≥ 4G185 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 100 300/500 V refer to page 27
- ÖLFLEX® CLASSIC 100 H refer to page 60
- ÖLFLEX® CLASSIC 100 BK 0,6/1 kV refer to page 33

Accessories

- SKINTOP® CLICK refer to page 687
- Detectable Cable ties refer to page 1042
- TY - FAST® cable ties refer to page 1041
- STAR STRIP stripping tool refer to page 985

ÖLFLEX® CLASSIC 100 YELLOW

Yellow outer sheath for special warning purposes

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For warning purposes

Benefits

- High electrical performance due to 4 kV test voltage

Application range

- For electrical circuits that remain ‚live' after the main switch has been disconnected
- Service sockets and illumination circuits in electrical switchboards and cabinets
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1

Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Outer sheath: PVC, yellow (similar to RAL 1016)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
VDE 0293-308, refer to Appendix T9

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 450/750 VAC
In protected and fixed installations: U0/U: 600/1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 100 YELLOW; U0/U: 450/750 V				
0010400	3 G 1.5	8.1	43	95
00104023	4 G 1.5	8.9	58	117
00104033	5 G 1.5	10.0	72	144
0010401	3 G 2.5	9.6	72	152
00104043	4 G 2.5	10.7	96	205
00104053	5 G 2.5	11.8	120	225

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 450 P refer to page 80
- ÖLFLEX® 540 P refer to page 82

Accessories

- SKINTOP® CLICK refer to page 687
- STAR STRIP stripping tool refer to page 985

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- EMC-compliant

ÖLFLEX® CLASSIC 100 CY

Colour-coded and screened PVC control cable

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
Up to 1.0 mm²: U0/U: 300/500 V
From 1.5 mm²: U0/U: 450/750 V
Fixed, protected installation: U0/U: 600/1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Benefits

- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Conveyor and transport systems
- Servo drives
- In EMC-sensitive environments (electromagnetic compatibility)

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, transparent

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 100 CY; U0/U: 300/500 V				
0035001	2 X 0,5	7.0	41	75
0035002	3 G 0,5	7.3	46	83
00350033	4 G 0,5	7.9	55	99
00352013	5 G 0,5	8.4	66	112
0035202	7 G 0,5	8.9	80	132
0035004	2 X 0,75	7.4	46	86
0035005	3 G 0,75	7.9	57	100
00350063	4 G 0,75	8.4	64	115
00350163	5 G 0,75	8.9	77	130
0035203	7 G 0,75	9.7	102	161
0035220	2 X 1,0	7.9	56	98
0035221	3 G 1,0	8.2	65	111
00352223	4 G 1,0	8.7	78	130
00352233	5 G 1,0	9.5	89	153
0035204	7 G 1,0	10.2	113	185
ÖLFLEX® CLASSIC 100 CY; U0/U: 450/750 V				
0035000	2 X 1,5	9.9	65	132
0035458	3 G 1,5	10.3	79	170
00354593	4 G 1,5	11.3	97	204
00354603	5 G 1,5	12.6	116	246
0035461	7 G 1,5	13.9	149	320
0035011	3 G 2,5	11.8	146	211
00350173	4 G 2,5	13.5	167	310
00350123	5 G 2,5	14.6	200	326

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0035289	7 G 2,5	15.9	288	444
00350183	4 G 4	15.1	237	403
00350133	5 G 4	16.5	328	478
00350193	4 G 6	16.6	318	521
00350143	5 G 6	18.2	441	624
0034953	3 G 10	18.9	414	690
00350213	4 G 10	21.1	558	843
00352903	5 G 10	23.1	714	1004
0034954	3 G 16	21.7	607	910
00350223	4 G 16	23.9	804	1164
00350153	5 G 16	26.8	1050	1812
0034955	3 G 25	26.6	936	1330
00350233	4 G 25	29.4	1289	1903
00350243	5 G 25	32.6	1446	2374
0034956	3 G 35	29.4	1258	1370
00350253	4 G 35	32.4	1693	2489
00350263	5 G 35	36.0	1975	2771
0034952	3 G 50	35.1	1748	2590
00350273	4 G 50	38.8	2342	3362
00350283	4 G 70	43.7	3035	3719
00350293	4 G 95	50.4	4055	5849
00354303	4 G 120	56.8	5225	7509
00354313	4 G 150	62.2	6300	7800
00354323	4 G 185	67.8	7753	9866

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G50 max. 500 m; ≥ 4G95 max. 400 m; ≥ 4G120 max. 300 m; ≥ 4G150 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 9YSLCY-JB refer to page 98
- ÖLFLEX® SERVO 2YSLCY-JB refer to page 97

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- 3M Scotch™ 1183 screening tape refer to page 1030
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702

ÖLFLEX® CLASSIC 100 SY

Colour-coded PVC control cable with steel wire braiding

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Steel wire braiding for extra mechanical protection

Benefits

- Extra mechanical protection due to braided steel wire

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Areas with high mechanical stress

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1

Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC inner sheath, grey
- Braid of galvanized steel wires
- PVC outer sheath, transparent

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
Up to 1.5 mm²: U0/U: 300/500 V
From 2.5 mm²: U0/U: 450/750 V
From 2.5 mm², in the case of fixed and protected installations: U0/U: 600/1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 100 SY; U0/U: 300/500 V				
0016022	2 X 0,75	8.2	14.4	97
0016023	3 G 0,75	8.5	21.6	108
00160243	4 G 0,75	9.2	28.8	126
00160253	5 G 0,75	9.7	36	146
0016027	7 G 0,75	10.3	50	172
0016031	12 G 0,75	12.9	86	260
0016042	2 X 1,0	8.5	19.2	137
0016043	3 G 1,0	8.8	29	154
00160443	4 G 1,0	9.5	38.4	180
00160453	5 G 1,0	10.1	48	202
0016047	7 G 1,0	11.0	67	242
0016064	2 X 1,5	9.3	29	172
0016065	3 G 1,5	9.7	43	191
00160663	4 G 1,5	10.2	58	217
00160673	5 G 1,5	11.1	72	268
0016069	7 G 1,5	11.9	101	311
0016072	12 G 1,5	15.4	173	499
0016075	18 G 1,5	17.6	259	652
0016077	25 G 1,5	20.3	360	913

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 100 SY; U0/U: 450/750 V				
0016087	2 X 2,5	12.1	48	245
0016088	3 G 2,5	12.6	72	278
00160893	4 G 2,5	13.9	96	339
00160903	5 G 2,5	15.2	120	397
0016092	7 G 2,5	16.3	168	470
0016101	2 X 4	13.6	76.8	329
00161023	4 G 4	15.7	154	457
00161033	5 G 4	17.1	192	545
0016106	3 G 6	15.8	173	544
00161073	4 G 6	17.2	230	687
00161083	5 G 6	18.8	288	798
00161103	4 G 10	21.3	384	1009
00161113	5 G 10	23.3	480	1197
00161133	4 G 16	24.1	614	1384
00161143	5 G 16	26.8	768	1740
00161163	4 G 25	29.4	960	2021
00161173	5 G 25	32.6	1200	2464
00161183	4 G 35	32.4	1344	2570
00161193	5 G 35	36.0	1680	3185
00161203	4 G 50	38.8	1920	3514

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G35 max. 500 m; ≥ 4G95 max. 400 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 SY refer to page 42

Accessories

- Ratchet cutter refer to page 980
- KT cable shears

ÖLFLEX® CLASSIC 100 BK 0,6/1 kV

Info

- Good outdoor performance

Benefits

- High electrical performance due to 4 kV test voltage

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
  Stage applications
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Suitable for outdoor applications
- Each dimension with nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm: For applications where a strengthened outer sheath may turn out to be advantageous

Product features

- Flame-retardant according IEC 60332-1-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396
- Flexible down to -30°C

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: PVC, cold-resistant
- PVC outer sheath, cold-resistant, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 600/1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 100 BK 0,6/1 kV				
1120457	3 G 1,0	9.0	29	112
1120459	5 G 1,0	10.4	48	152
1120462	2 X 1,5	9.6	29	123
1120463	3 G 1,5	10.1	43	144
1120464	4 G 1,5	10.8	58	170
1120465	5 G 1,5	11.7	72	199
1120469	3 G 2,5	11.3	72	182
1120470	4 G 2,5	12.2	96	225
1120474	4 G 4	13.8	154	324
1120475	4 G 6	15.1	230	442

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Other sizes and screened types are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV refer to page 66
- ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV refer to page 43

Accessories

- FLEXIMARK® Stainless steel kit refer to page 963
- SKINTOP® MS-M refer to page 696
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 698

ÖLFLEX® SMART 108

Cost-effective VDE-registered PVC control cable

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to DIN EN 60228 (VDE 0295), class 5 / IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- VDE certificate of conformity with factory surveillance
- Only available in standard lengths and standard packagings

Benefits

- SMART: good price/performance ratio the ÖLFLEX® SMART 108 has everything a flexible control cable needs
- SMART: environmentally friendly internal sheath layer made from recycled PVC with the same high quality of the TM2 model

Application range

- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Dry or damp rooms that are subject to medium mechanical loads
- Main dimensions available, further dimensions see ÖLFLEX® CLASSIC 110
- For extended applications and individual lengths, see ÖLFLEX® CLASSIC 110

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- Oil resistance: see data sheet

Norm references / Approvals

- VDE reg. no. 8639

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation, TI2
- Two-layer PVC outer sheath, TM2; outside silvergrey

Article number	Number of cores and mm² per conductor	Standard length (m) and standard packaging						Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
		50 m / RG	100 m / RG	200 m / RG	200 m / DR	500 m / DR	1000 m / DR			
ÖLFLEX® SMART 108										
17520099	2 X0,5		100	200		500	1000	4.8	9.6	35
10030099	3 G0,5		100	200		500	1000	5.1	14.4	42
17530099	3 X0,5		100	200		500	1000	5.1	14.4	42
10040099	4 G0,5		100	200		500	1000	5.7	19.2	54
17540099	4 X0,5		100	200		500	1000	5.7	19.2	54
10050099	5 G0,5		100	200		500	1000	6.2	24	63
10070099	7 G0,5	50	100	200		500	1000	6.7	33.6	81
18020099	2 X0,75		100	200		500	1000	5.4	14.4	45
11030099	3 G0,75		100	200		500	1000	5.7	21.6	55
18030099	3 X0,75		100	200		500	1000	5.7	21.6	55
11040099	4 G0,75		100	200		500	1000	6.2	28.8	66
18040099	4 X0,75		100	200		500	1000	6.2	28.8	66
11050099	5 G0,75	50	100	200		500	1000	6.7	36	79
11070099	7 G0,75	50	100	200		500	1000	7.3	50	101
18520099	2 X1,0		100	200		500	1000	5.7	19.2	53
12030099	3 G1,0		100	200		500	1000	6.0	28.8	65
12040099	4 G1,0	50	100	200		500	1000	6.5	38.4	79
12050099	5 G1,0	50	100	200		500	1000	7.1	48	94
12070099	7 G1,0	50	100	200		500	1000	8.0	67	126
19020099	2 X1,5		100	200		500	1000	6.3	29	68
13030099	3 G1,5	50	100	200		500	1000	6.7	43	84
13040099	4 G1,5	50	100	200		500	1000	7.2	58	104
13050099	5 G1,5	50	100	200		500	1000	8.1	72	128
13070099	7 G1,5	50	100		200	500	1000	8.9	101	166
19520099	2 X2,5	50	100	200		500	1000	7.5	48	101
14030099	3 G2,5	50	100	200		500	1000	8.1	72	132
14040099	4 G2,5	50	100		200	500	1000	8.9	96	163
14050099	5 G2,5	50	100		200	500	1000	10.0	120	200
14070099	7 G2,5	50	100		200	500	1000	11.1	168	267

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Standard packaging: ring = RG, drum = DR
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 refer to page 35
- ÖLFLEX® CLASSIC 110 BK refer to page 38

Accessories

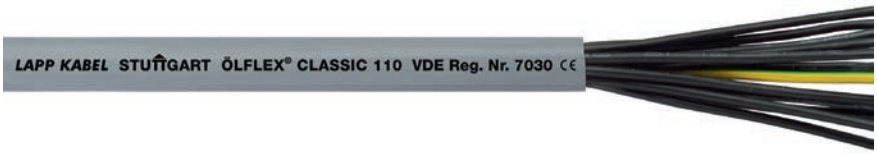
- EPIC® Industrial connectors refer to page
- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU

ÖLFLEX® CLASSIC 110

VDE-registered oil-resistant PVC control cable for a wide range of applications

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- VDE certificate of conformity with factory surveillance



Benefits

- Wide choice of standardized lengths and individual cuts
- Very broad range, items with up to 100 conductors

Application range

- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Dry or damp rooms that are subject to medium mechanical loads
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- In power chains for a travelling distance up to 5 m and 0,2 ... 1 million bending cycles, for following dimensions: 0,5 to 2.5mm² and 2 to 7 conductors

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- Oil-resistant according to DIN EN 50290-2-22 (TM54)

Norm references / Approvals

- VDE reg. no. 7030 for the following sizes:
  up to 2.5 mm²: 2 - 65 cores
  from 4 mm²: 2 - 7 cores
  from 25 mm²: 2 - 5 cores

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC outer sheath, grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to DIN EN 60228 (VDE 0295), class 5 / IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Occasional flexing: 10 x outer diameter
In power chains: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -15°C to +70°C
In power chains: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Standard length (m) and standard packaging							Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
		25	50	100	200	300	500	1000			
ÖLFLEX® CLASSIC 110											
1119752	2 X0.5			100	200	300	500	1000	4.8	9.6	35
1119003	3 G0.5			100	200	300	500	1000	5.1	14.4	42
1119753	3 X0.5			100	200	300	500	1000	5.1	14.4	42
1119004	4 G0.5			100	200	300	500	1000	5.7	19.2	54
1119754	4 X0.5			100	200	300	500	1000	5.7	19.2	54
1119005	5 G0.5			100	200	300	500	1000	6.2	24	63
1119755	5 X0.5			100	200	300	500	1000	6.2	24	63
1119007	7 G0.5		50	100	200	300	500	1000	6.7	33.6	81
1119757	7 X0.5		50	100	200	300	500	1000	6.7	33.6	81
1119010	10 G0.5		50	100	200	300	500	1000	8.6	48	116
1119012	12 G0.5		50	100	200	300	500	1000	8.9	58	131
1119014	14 G0.5		50	100			500	1000	9.5	67	153
1119018	18 G0.5		50	100			500	1000	10.5	86.4	188
1119021	21 G0.5		50	100			500	1000	11.7	101	221
1119025	25 G0.5		50	100			500	1000	12.4	120	261
1119030	30 G0.5		50	100			500	1000	13.3	144	304
1119035	35 G0.5		50	100			500	1000	14.5	168	356
1119040	40 G0.5		50	100			500	1000	15.4	192	400
1119052	52 G0.5		50	100			500		17.3	250	517
1119061	61 G0.5		50	100			500		18.5	293	603

Power and control cables

LAPP

Various applications • PVC outer sheath and numbered cores

Article number	Number of cores and mm² per conductor	Standard length (m) and standard packaging							Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
		25	50	100	200	300	500	1000			
1119065	65 G0.5		50	100			500		19.6	312	644
1119080	80 G0.5		50	100			500		21.1	384	780
1119100	100 G0.5		50	100			500		23.6	480	975
1119802	2 X0.75			100	200	300	500	1000	5.4	14.4	45
1119103	3 G0.75			100	200	300	500	1000	5.7	21.6	55
1119803	3 X0.75			100	200	300	500	1000	5.7	21.6	55
1119104	4 G0.75			100	200	300	500	1000	6.2	28.8	66
1119804	4 X0.75			100	200	300	500	1000	6.2	28.8	66
1119105	5 G0.75		50	100	200	300	500	1000	6.7	36	79
1119805	5 X0.75		50	100	200	300	500	1000	6.7	36	79
1119107	7 G0.75		50	100	200	300	500	1000	7.3	50	101
1119807	7 X0.75		50	100	200	300	500	1000	7.3	50	101
1119109	9 G0.75		50	100	200	300	500	1000	9.4	65	137
1119110	10 G0.75		50	100	200	300	500	1000	9.6	72	150
1119112	12 G0.75		50	100	200	300	500	1000	9.9	86	171
1119812	12 X0.75		50	100	200	300	500	1000	9.9	86	171
1119115	15 G0.75		50	100			500	1000	10.9	108	209
1119117	15 X0.75		50	100			500	1000	10.9	108	209
1119116	16 G0.75		50	100			500	1000	11.1	115.2	220
1119118	18 G0.75		50	100			500	1000	11.7	130	244
1119121	21 G0.75		50	100			500	1000	13.0	151	286
1119125	25 G0.75		50	100			500	1000	13.8	180	337
1119126	26 G0.75		50	100			500	1000	14.2	187.2	350
1119134	34 G0.75		50	100			500	1000	15.9	245	448
1119141	41 G0.75		50	100			500	1000	17.4	296	538
1119150	50 G0.75		50	100			500		19.2	360	648
1119151	51 G0.75		50	100			500		19.2	367	646
1119161	61 G0.75		50	100			500		20.5	439	779
1119165	65 G0.75		50	100			500		21.8	468	832
1119180	80 G0.75		50	100			500		23.6	576	1019
1119200	100 G0.75		50	100			500		26.4	718	1271
1119852	2 X1,0			100	200	300	500	1000	5.7	19.2	53
1119203	3 G1,0			100	200	300	500	1000	6.0	28.8	65
1119853	3 X1,0			100	200	300	500	1000	6.0	28.8	65
1119204	4 G1,0		50	100	200	300	500	1000	6.5	38.4	79
1119854	4 X1,0		50	100	200	300	500	1000	6.5	38.4	79
1119205	5 G1,0		50	100	200	300	500	1000	7.1	48	94
1119855	5 X1,0		50	100	200	300	500	1000	7.1	48	94
1119206	6 G1,0		50	100	200	300	500	1000	8.0	58	113
1119207	7 G1,0		50	100	200	300	500	1000	8.0	67	126
1119857	7 X1,0		50	100	200	300	500	1000	8.0	67	126
1119208	8 G1,0		50	100	200	300	500	1000	9.5	77	149
1119209	9 G1,0		50	100	200	300	500	1000	10.0	86	164
1119210	10 G1,0		50	100	200	300	500	1000	10.2	96	180
1119212	12 G1,0		50	100	200	300	500	1000	10.5	115	205
1119862	12 X1,0		50	100	200	300	500	1000	10.5	115	205
1119214	14 G1,0		50	100			500	1000	11.2	134	238
1119216	16 G1,0		50	100			500	1000	11.8	153.6	266
1119218	18 G1,0		50	100			500	1000	12.7	173	320
1119868	18 X1,0		50	100			500	1000	12.7	173	320
1119220	20 G1,0		50	100			500	1000	13.4	192	330
1119870	20 X1,0		50	100			500	1000	13.4	192	330
1119225	25 G1,0		50	100			500	1000	14.7	240	408
1119226	26 G1,0		50	100			500	1000	15.1	249	424
1119234	34 G1,0		50	100			500	1000	17.1	326	551
1119236	36 G1,0		50	100			500	1000	17.4	346	578
1119241	41 G1,0		50	100			500	1000	18.8	394	661
1119250	50 G1,0		50	100			500		20.6	480	797
1119256	56 G1,0		50	100			500		21.4	538	888
1119261	61 G1,0		50	100			500		22.1	586	958
1119265	65 G1,0		50	100			500		23.6	624	1033
1119280	80 G1,0		50	100			500		25.3	768	1251
1119300	100 G1,0		50	100			500		28.3	960	1560
1119902	2 X1,5			100	200	300	500	1000	6.3	29	68
1119303	3 G1,5	25	50	100	200	300	500	1000	6.7	43	84
1119903	3 X1,5		50	100	200	300	500	1000	6.7	43	84
1119304	4 G1,5	25	50	100	200	300	500	1000	7.2	58	104
1119904	4 X1,5		50	100	200	300	500	1000	7.2	58	104
1119305	5 G1,5	25	50	100	200	300	500	1000	8.1	72	128
1119905	5 X1,5		50	100	200	300	500	1000	8.1	72	128
1119306	6 G1,5		50	100	200	300	500	1000	8.4	86.4	157
1119307	7 G1,5	25	50	100	200	300	500	1000	8.9	101	166
1119907	7 X1,5		50	100	200	300	500	1000	8.9	101	166
1119308	8 G1,5		50	100			500	1000	10.6	115	210
1119313	8 X1,5		50	100			500	1000	10.6	116	210
1119309	9 G1,5		50	100			500	1000	11.4	130	221
1119310	10 G1,5		50	100			500	1000	11.6	143	243
1119311	11 G1,5		50	100			500	1000	11.6	158	258
1119312	12 G1,5	25	50	100			500	1000	12.0	173	279
1119912	12 X1,5		50	100			500	1000	12.0	173	279
1119314	14 G1,5		50	100			500	1000	12.7	202	323
1119316	16 G1,5		50	100			500	1000	13.4	230.4	361
1119318	18 G1,5	25	50	100			500	1000	14.4	259	407
1119321	21 G1,5		50	100			500	1000	15.7	302	469
1119325	25 G1,5	25	50	100			500	1000	16.9	360	560

Article number	Number of cores and mm² per conductor	Standard length (m) and standard packaging							Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
		25	50	100	200	300	500	1000			
1119326	26 G1,5		50	100			500	1000	17.3	374.4	582
1119332	32 G1,5		50	100			500	1000	18.7	461	704
1119334	34 G1,5		50	100			500	1000	19.4	490	746
1119341	41 G1,5		50	100			500	1000	21.3	591	895
1119350	50 G1,5		50	100			500		23.5	720	1089
1119361	61 G1,5		50	100			500		25.2	878	1309
1119365	65 G1,5		50	100			500		26.7	936	1398
1119952	2 X2,5	25	50	100	200	300	500	1000	7.5	48	101
1119403	3 G2,5	25	50	100	200	300	500	1000	8.1	72	132
1119404	4 G2,5	25	50	100	200	300	500	1000	8.9	96	163
1119405	5 G2,5	25	50	100	200	300	500	1000	10.0	120	200
1119407	7 G2,5	25	50	100			500	1000	11.1	168	267
1119412	12 G2,5	25	50	100			500	1000	14.8	288	445
1119414	14 G2,5		50	100			500	1000	15.8	336	515
1119418	18 G2,5	25	50	100			500	1000	17.8	432	648
1119425	25 G2,5	25	50	100			500	1000	20.8	600	890
1119434	34 G2,5		50	100			500	1000	24.4	816	1208
1119450	50 G2,5		50	100			500		29.4	1200	1754
1119503	3 G4	25	50	100			500	1000	9.9	115	201
1119504	4 G4	25	50	100			500	1000	10.8	154	249
1119505	5 G4	25	50	100			500	1000	12.1	192	294
1119507	7 G4	25	50	100			500	1000	13.4	269	407
1119511	11 G4		50	100			500	1000	17.6	422	634
1119512	12 G4		50	100			500	1000	18.1	461	660
1119603	3 G6	25	50	100			500	1000	11.7	172.8	289
1119604	4 G6	25	50	100			500	1000	13.0	230	365
1119605	5 G6	25	50	100			500	1000	14.5	288	447
1119607	7 G6	25	50	100			500	1000	16.0	403	600
1119613	3 G10	25	50	100			500	1000	14.6	288	466
1119614	4 G10	25	50	100			500	1000	16.2	384	590
1119615	5 G10	25	50	100			500	1000	18.1	480	722
1119617	7 G10	25	50	100			500	1000	20.0	672	968
1119624	4 G16		50	100			500		18.8	614	1087
1119625	5 G16		50	100			500		21.2	768	1370
1119627	7 G16		50	100			500		23.4	1075	1779
1119634	4 G25		50	100			500		23.5	960	1582
1119635	5 G25		50	100			500		26.4	1200	1998
1119636	7 G25		50	100			500		29.1	1680	2825
1119644	4 G35		50	100			500		26.4	1344	2106
1119645	5 G35		50	100			500		29.6	1680	2635

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 191 refer to page 53

Accessories

- SKINTOP® CLICK refer to page 687

ÖLFLEX® CLASSIC 110 BK

VDE-registered oil-resistant PVC control cable with black outer sheath for a wide range of applications

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- With black outer sheath, UV-resistant
- VDE certificate of conformity with factory surveillance

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to DIN EN 60228 (VDE 0295), class 5 / IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Occasional flexing: 10 x outer diameter
In power chains: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -15°C to +70°C
In power chains: -5°C to +70°C
Fixed installation: -40°C to +80°C

Benefits

- Suitable for outdoor applications
- Wide choice of standardized lengths and individual cuts

Application range

- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Dry or damp rooms that are subject to medium mechanical loads
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- In power chains for a travelling distance up to 5 m and 0,2 ... 1 million bending cycles, for following dimensions: 0,5 to 2.5mm² and 2 to 7 conductors
- Suitable for outdoor applications

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- UV and weather-resistant according to ISO 4892-2

Norm references / Approvals

- VDE reg. no. 7030 for the following sizes:
  up to 2.5 mm²: 2 - 65 cores
  from 4 mm²: 2 - 7 cores
  from 25 mm²: 2 - 5 cores

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC outer sheath, black (RAL 9005)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110 BK				
1119809	2 X0,75	5.4	14.4	45
1119871	3 G0,75	5.7	21.6	55
1119892	3 X0,75	5.7	21.6	55
1119872	4 G0,75	6.2	28.8	66
1119893	4 X0,75	6.2	28.8	66
1119873	5 G0,75	6.7	36	79
1119874	7 G0,75	7.3	50.4	101
1119875	12 G0,75	9.9	86.4	171
1119876	18 G0,75	11.7	130	244
1119877	25 G0,75	13.8	180	337
1119878	34 G0,75	15.9	245	448
1119894	2 X1,0	5.7	19.2	53
1119244	3 G1,0	6.0	28.8	65
1119895	3 X1,0	6.0	28.8	65
1119245	4 G1,0	6.5	38.4	79
1119896	4 X1,0	6.5	38.4	79
1119246	5 G1,0	7.1	48	94
1119897	5 X1,0	7.1	48	94
1119247	7 G1,0	8.0	67.2	126
1119248	12 G1,0	10.5	115	205
1119249	18 G1,0	12.7	173	290
1119251	25 G1,0	14.7	240	390
1119252	34 G1,0	17.1	326	551
1119898	2 X1,5	6.3	28.8	68
1119020	3 G1,5	6.7	43.2	84
1119899	3 X1,5	6.7	43.2	84

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1119879	4 G1,5	7.2	57.6	104
1119900	4 X1,5	7.2	57.6	104
1119880	5 G1,5	8.1	72	128
1119911	5 X1,5	8.1	72	128
1119881	7 G1,5	8.9	101	166
1119913	7 X1,5	8.9	101	166
1119882	12 G1,5	12.0	173	279
1119883	18 G1,5	14.4	259	407
1119884	25 G1,5	16.9	360	560
1119914	2 X2,5	7.5	48	100
1119885	3 G2,5	8.1	72	132
1119886	4 G2,5	8.9	96	163
1119887	5 G2,5	10.0	120	200
1119888	7 G2,5	11.1	168	267
1119889	12 G2,5	14.8	288	444
1119890	18 G2,5	17.8	432	648
1119891	25 G2,5	20.8	600	890
1119915	3 G4	9.9	115.2	201
1119916	4 G4	10.8	154	249
1119917	5 G4	12.1	192	315
1119918	4 G6	13.0	230	365
1119919	5 G6	14.5	288	447
1119920	4 G10	16.2	384	590
1119921	5 G10	18.1	480	722
1119922	4 G16	18.8	614	1087
1119923	5 G16	21.2	768	1370

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 LT refer to page 39
- ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV refer to page 43

Accessories

- SKINTOP® CLICK refer to page 687

ÖLFLEX® CLASSIC 110 LT

Cold flexible PVC control cable, suitable for low temperatures as well as outdoor use

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- UV and weather-resistant according to ISO 4892-2

Benefits

- Inexpensive control cable for flexing outdoor use
- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Freezing plants, cold storage
- Suitable for outdoor applications
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Flame-retardant according IEC 60332-1-2
- Flexible down to -30°C
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

Norm references / Approvals

- Based on EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: PVC, cold-resistant
- Cores twisted in layers
- Outer sheath: PVC, cold-resistant, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110 LT				
1120730	2 X0,75	5.4	14.4	45
1120731	3 X0,75	5.7	21.6	55
1120732	3 G0,75	5.7	21.6	55
1120733	4 X0,75	6.2	28.8	66
1120734	4 G0,75	6.2	28.8	66
1120735	5 G0,75	6.7	36	79
1120736	7 G0,75	7.3	50.4	101
1120737	12 G0,75	9.9	86.4	171
1120738	18 G0,75	11.7	130	244
1120739	25 G0,75	13.8	180	337
1120740	2 X1,0	5.7	19.2	53
1120741	3 X1,0	6.0	28.8	65
1120742	3 G1,0	6.0	28.8	65
1120743	4 X1,0	6.5	38.4	79
1120744	4 G1,0	6.5	38.4	79
1120745	5 G1,0	7.1	48	94
1120746	7 G1,0	8.0	67.2	126
1120747	12 G1,0	10.5	115	205
1120748	18 G1,0	12.7	173	300
1120749	25 G1,0	14.7	240	408
1120750	2 X1,5	6.3	29	68
1120751	3 X1,5	6.7	43	84

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1120752	3 G1,5	6.7	43	84
1120753	4 X1,5	7.2	58	104
1120754	4 G1,5	7.2	58	104
1120755	5 X1,5	8.1	72	128
1120756	5 G1,5	8.1	72	128
1120757	7 X1,5	8.9	101	166
1120758	7 G1,5	8.9	101	166
1120759	12 G1,5	12.0	173	279
1120760	18 G1,5	14.4	259	407
1120761	25 G1,5	16.9	360	560
1120762	2 X2,5	7.5	48	101
1120763	3 G2,5	8.1	72	132
1120764	4 G2,5	8.9	96	163
1120765	5 G2,5	10.0	120	200
1120766	7 G2,5	11.1	168	267
1120767	12 G2,5	14.8	288	445
1120768	18 G2,5	17.8	432	648
1120769	25 G2,5	20.8	600	890
1120770	4 G4	10.8	154	249
1120771	5 G4	12.1	192	305
1120772	4 G6	13.0	230	365
1120773	5 G6	14.5	288	447

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 H refer to page 61
- ÖLFLEX® ROBUST 210 refer to page 71

Accessories

- FLEXIMARK® Stainless steel kit refer to page 963
- SKINTOP® MS-M refer to page 696
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 698

ÖLFLEX® CLASSIC 110 ORANGE

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For warning purposes and for exempted circuits according to EN 60204-1, e.g. circuits for maintenance or interlocking circuits

Benefits

- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage

Application range

- According to EN 60204-1 (VDE 0113-1), conductors of control circuits that are supplied by an external power source and/or remain live when the main switch is deactivated must be orange
- Electrical lighting and socket circuits for maintenance or repair purposes
- Undervoltage protection circuits
- Interlocking control circuits
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Orange cores with black numbers
- Outer sheath: PVC, orange (similar to RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Orange cores with black numbers

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110 ORANGE				
0019700	2 X1,0	5.7	19.2	53
0019701	3 G1,0	6.0	28.8	65
0019702	3 X1,0	6.0	28.8	65
0019706	4 G1,0	6.5	38.4	80
0019708	4 X1,0	6.5	38.4	80
0019709	5 G1,0	7.1	50	95
0019710	2 X1,5	6.3	29	68
0019711	3 G1,5	6.7	43	85
0019718	4 G1,5	7.2	58	105
0019720	5 G1,5	8.1	72	128

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- H07V-K <HAR> refer to page 213
- Orange-coloured single cores

Accessories

- SKINTOP® CLICK refer to page 687

ÖLFLEX® CLASSIC 110 CY

Screened PVC control cable with transparent outer sheath

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- VDE reg. no. 7030
- EMC-compliant

Benefits

- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Conveyor and transport systems
- In EMC-sensitive environments (electromagnetic compatibility)

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

Norm references / Approvals

- VDE reg. no. 7030

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, transparent

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110 CY				
1135752	2 X0,5	7.0	41	75
1135003	3 G0,5	7.3	45.5	83
1135753	3 X0,5	7.3	45.5	83
1135004	4 G0,5	7.9	55	99
1135754	4 X0,5	7.9	55	99
1135005	5 G0,5	8.4	66	112
1135755	5 X0,5	8.4	66	112
1135007	7 G0,5	8.9	80.5	132
1135757	7 X0,5	8.9	80.5	132
1135012	12 G0,5	11.3	138.5	202
1135762	12 X0,5	11.3	138.5	202
1135018	18 G0,5	13.3	156.4	289
1135025	25 G0,5	15.2	250	378
1135030	30 G0,5	16.1	297	429
1135040	40 G0,5	18.2	343	542
1135802	2 X0,75	7.4	46	86
1135103	3 G0,75	7.9	57.9	100
1135803	3 X0,75	7.9	57.9	100
1135104	4 G0,75	8.4	64	115
1135804	4 X0,75	8.4	64	115
1135105	5 G0,75	8.9	77.4	130
1135805	5 X0,75	8.9	77.4	130
1135107	7 G0,75	9.7	102	161
1135807	7 X0,75	9.7	102	161
1135112	12 G0,75	12.3	177	247
1135812	12 X0,75	12.3	177	247
1135118	18 G0,75	14.5	243	356
1135818	18 X0,75	14.5	243	356
1135125	25 G0,75	16.6	307.3	465
1135134	34 G0,75	18.9	323.2	601
1135840	40 X0,75	20.5	369.4	734
1135141	41 G0,75	20.6	488	728
1135852	2 X1,0	7.9	56	98
1135203	3 G1,0	8.2	65.3	111
1135853	3 X1,0	8.2	65.3	111
1135204	4 G1,0	8.7	78.1	130
1135854	4 X1,0	8.7	78.1	130
1135205	5 G1,0	9.5	89.4	153
1135207	7 G1,0	10.2	113.3	185
1135212	12 G1,0	13.3	188.1	307
1135216	16 G1,0	14.6	216	390
1135218	18 G1,0	15.5	286	418
1135225	25 G1,0	17.5	388.5	544

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1135234	34 G1,0	20.3	505	738
1135241	41 G1,0	22.0	578	864
1135250	50 G1,0	23.8	688	1011
1135902	2 X1,5	8.5	65	117
1135303	3 G1,5	8.9	83	136
1135903	3 X1,5	8.9	83	136
1135304	4 G1,5	9.6	100	163
1135904	4 X1,5	9.6	100	163
1135305	5 G1,5	10.3	125	188
1135905	5 X1,5	10.3	125	188
1135307	7 G1,5	11.3	149	237
1135907	7 X1,5	11.3	149	237
1135312	12 G1,5	14.8	280	393
1135318	18 G1,5	17.2	389	538
1135325	25 G1,5	20.1	535	745
1135334	34 G1,5	22.8	702	964
1135341	41 G1,5	24.7	844.6	1123
1135350	50 G1,5	27.1	1006	1372
1135402	2 X2,5	9.9	112	165
1135403	3 G2,5	10.3	146	192
1135404	4 G2,5	11.3	167	233
1135405	5 G2,5	12.6	200	283
1135407	7 G2,5	13.9	288	371
1135412	12 G2,5	17.6	477.3	585
1135502	2 X4	11.4	120	247
1135504	4 G4	13.4	237	347
1135505	5 G4	14.7	280	413
1135602	2 X6	13.6	180	353
1135604	4 G6	15.8	318	485
1135605	5 G6	17.3	441	702
1135607	7 G6	18.8	530	950
1135702	2 X10	16.4	256	492
1135615	3 G10	17.4	362.4	507
1135614	4 G10	19.0	518	735
1135616	5 G10	21.3	595	847
1135617	7 G10	23.2	796	1039
1135622	2 X16	18.6	390	698
1135624	4 G16	22.2	804	1395
1135623	5 G16	24.4	935	1440
1135626	4 G25	26.9	1161	1730
1135627	5 G25	30.0	1400	2090
1135625	4 G35	30.2	1543	2210
1135628	5 G35	33.2	1901	2710

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products. / *OD = Outer diameter

ÖLFLEX® CLASSIC 110 SY

Steel-wire braided PVC control cable with transparent outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- VDE reg. no. 7030
- Steel wire braiding for extra mechanical protection

Benefits

- Extra mechanical protection due to braided steel wire
- High electrical performance due to 4 kV test voltage

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Areas with high mechanical stress
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1

Norm references / Approvals

- VDE reg. no. 7030

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC inner sheath, grey
- Braid of galvanized steel wires
- PVC outer sheath, transparent

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110 SY				
1125752	2 X0,5	7.8	10	87
1125003	3 G0,5	8.1	15	95
1125004	4 G0,5	8.5	19.2	107
1125005	5 G0,5	9.2	24	123
1125007	7 G0,5	9.7	33.6	147
1125010	10 G0,5	11.6	48	196
1125012	12 G0,5	11.9	58	213
1125014	14 G0,5	12.5	67	237
1125018	18 G0,5	13.9	86.4	291
1125021	21 G0,5	14.9	101	332
1125025	25 G0,5	15.6	120	375
1125030	30 G0,5	16.5	144	422
1125040	40 G0,5	18.8	192	545
1125061	61 G0,5	21.9	293	773
1125802	2 X0,75	8.2	14.4	97
1125103	3 G0,75	8.5	21.6	108
1125104	4 G0,75	9.2	28.8	126
1125105	5 G0,75	9.7	36	146
1125107	7 G0,75	10.3	50	172
1125109	9 G0,75	12.4	65	224
1125112	12 G0,75	12.9	86	260
1125115	15 G0,75	14.1	108	315
1125118	18 G0,75	14.9	130	355
1125125	25 G0,75	17.0	180	465
1125134	34 G0,75	19.3	245	596
1125150	50 G0,75	22.8	360	832
1125852	2 X1,0	8.5	19.2	106
1125203	3 G1,0	8.8	28.8	119
1125204	4 G1,0	9.5	38.4	141
1125205	5 G1,0	10.1	48	164
1125207	7 G1,0	11.0	67	200
1125208	8 G1,0	12.5	77	234
1125209	9 G1,0	13.2	86	260
1125212	12 G1,0	13.9	115	309
1125214	14 G1,0	14.4	134	345
1125218	18 G1,0	15.9	173	415
1125220	20 G1,0	16.8	192	455

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1125225	25 G1,0	18.1	240	548
1125234	34 G1,0	20.5	326	714
1125241	41 G1,0	22.2	394	832
1125250	50 G1,0	24.2	480	987
1125902	2 X1,5	9.3	29	128
1125303	3 G1,5	9.7	43	151
1125304	4 G1,5	10.2	58	173
1125305	5 G1,5	11.1	72	202
1125307	7 G1,5	11.9	101	248
1125308	8 G1,5	14.0	115	301
1125312	12 G1,5	15.4	173	396
1125314	14 G1,5	15.9	202	438
1125318	18 G1,5	17.6	259	580
1125325	25 G1,5	20.3	360	713
1125332	32 G1,5	22.1	461	876
1125350	50 G1,5	27.1	720	1305
1125403	3 G2,5	11.1	72	206
1125404	4 G2,5	12.1	96	249
1125405	5 G2,5	13.2	120	295
1125407	7 G2,5	14.3	168	373
1125412	12 G2,5	18.2	288	586
1125418	18 G2,5	21.4	432	823
1125425	25 G2,5	24.4	600	1093
1125503	3 G4	12.7	115	285
1125504	4 G4	14.0	154	348
1125505	5 G4	15.1	192	410
1125507	7 G4	16.4	269	519
1125604	4 G6	16.2	230	482
1125605	5 G6	17.7	288	579
1125607	7 G6	19.2	403	740
1125614	4 G10	19.4	384	731
1125615	5 G10	21.5	480	889
1125617	7 G10	23.4	672	1146
1125624	4 G16	22.4	614	1384
1125625	5 G16	24.6	768	1740
1125626	4 G25	26.9	960	1680
1125630	5 G25	30.0	1200	2050
1125629	4 G35	30.2	1344	2170

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 100 SY refer to page 32

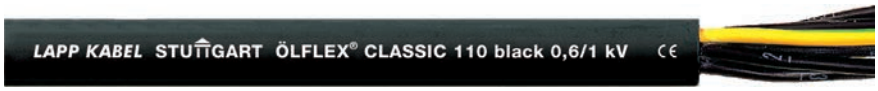
Accessories

- SKINTOP® MS-M refer to page 696
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 698

ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV

Info

- Good outdoor performance



Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
  Stage applications
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Each dimension with nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm: For applications where a strengthened outer sheath may turn out to be advantageous
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Flame-retardant according IEC 60332-1-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

Norm references / Approvals

- Based on VDE 0250-1 and HD 627-1 S1

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- PVC outer sheath, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Static/Occ. moved: 4/15xOD*

Nominal voltage
U0/U: 600/1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110 BLACK				
1120232	2 X0,75	8.3	14.4	81
1120233	3 G0,75	8.7	21.6	93
1120234	3 X0,75	8.7	21.6	93
1120235	4 G0,75	9.2	29	108
1120237	5 G0,75	9.9	36	126
1120241	7 G0,75	10.7	51	162
1120248	12 G0,75	13.4	86	236
1120251	18 G0,75	15.4	130	334
1120259	41 G0,75	21.6	296	713
1120266	2 X1,0	8.6	19.2	98
1120267	3 G1,0	9.0	29	112
1120268	3 X1,0	9.0	29	112
1120269	4 G1,0	9.6	38.4	131
1120270	4 X1,0	9.6	38.4	131
1120271	5 G1,0	10.4	48	152
1120274	7 G1,0	11.1	67	196
1120280	12 G1,0	14.0	116	286
1120284	18 G1,0	16.1	173	419
1120290	25 G1,0	18.6	240	572
1120294	34 G1,0	21.3	326	764
1120298	41 G1,0	23.2	394	891
1120306	2 X1,5	9.6	29	123
1120307	3 G1,5	10.1	43	165
1120308	3 X1,5	10.1	43	144
1120309	4 G1,5	10.8	58	170
1120311	5 G1,5	11.7	72	199
1120314	7 G1,5	12.6	101	261
1120320	12 G1,5	16.1	173	399
1120322	14 G1,5	17.0	202	448
1120324	18 G1,5	18.8	259	547
1120328	25 G1,5	21.7	360	770

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1120330	34 G1,5	24.9	490	996
1120333	50 G1,5	29.8	720	1427
1120339	2 X2,5	10.8	48	147
1120340	3 G2,5	11.3	72	182
1120342	4 G2,5	12.2	96	225
1120343	4 X2,5	12.2	96	225
1120344	5 G2,5	13.3	120	266
1120346	7 G2,5	14.4	168	354
1120349	12 G2,5	18.7	288	540
1120350	14 G2,5	19.8	336	613
1120351	18 G2,5	22.0	432	788
1120353	25 G2,5	25.8	600	1094
1120360	4 G4	13.8	154	324
1120361	5 G4	15.1	192	385
1120362	7 G4	16.4	269	513
1120366	4 G6	15.1	230	442
1120367	5 G6	16.8	288	526
1120368	7 G6	18.2	403	705
1120370	4 G10	18.7	384	707
1120371	5 G10	20.7	480	881
1120374	4 G16	21.3	614	1100
1120375	5 G16	23.6	768	1600
1120376	7 G16	26.2	1075	1890
1120378	4 G25	26.2	960	1600
1120379	5 G25	29.0	1200	2050
1120382	4 G35	29.1	1344	2400
1120383	5 G35	32.5	1680	2900
1120385	4 G50	35.6	1920	3400
1120387	4 G70	40.7	2688	5050
1120389	4 G95	46.8	3648	6010
1120390	4 G120	53.5	4608	7500

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products. / *OD = Outer diameter

Similar products

- ÖLFLEX® CLASSIC 100 BK 0,6/1 kV refer to page 33
- ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV refer to page 66

Accessories

- SKINTOP® MS-M refer to page 696
- Ratchet cutter refer to page 980
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 698
- KT cable shears

ÖLFLEX® CLASSIC 110 CY BLACK 0,6/1 kV

Info

- Good outdoor performance
- EMC/Screened

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
  Power stations
- For frequency converter-powered 3-phase AC motors
- In EMC-sensitive environments (electromagnetic compatibility)
- Servo Drive Connection Cable
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Each dimension with nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm: For applications where a strengthened outer sheath may turn out to be advantageous

Product features

- Flame-retardant according IEC 60332-1-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

Norm references / Approvals

- Based on VDE 0250-1 and HD 627-1 S1

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- PVC inner sheath, black
- Tinned-copper braiding
- PVC outer sheath, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Static/Occ. moved: 6/20xOD*

Nominal voltage
U0/U: 600/1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110 CY BLACK				
1121232	2 X0,75	10.5	46	183
1121233	3 G0,75	10.9	56	210
1121235	4 G0,75	11.4	67	214
1121236	4 X0,75	11.4	67	214
1121237	5 G0,75	12.1	78	272
1121241	7 G0,75	12.9	97	242
1121247	12 G0,75	15.8	168	464
1121251	18 G0,75	18.0	229	616
1121254	25 G0,75	20.7	296	762
1121266	2 X1,0	10.8	52	198
1121267	3 G1,0	11.2	66	228
1121268	3 X1,0	11.2	66	228
1121269	4 G1,0	11.8	79	261
1121270	4 X1,0	11.8	79	261
1121271	5 G1,0	12.6	93	300
1121274	7 G1,0	13.3	117	335
1121280	12 G1,0	16.4	204	522
1121284	18 G1,0	18.7	280	687
1121290	25 G1,0	21.6	369	884
1121306	2 X1,5	11.8	69	243
1121307	3 G1,5	12.3	87	214
1121308	3 X1,5	12.3	87	273
1121309	4 G1,5	13.0	102	290
1121310	4 X1,5	13.0	102	290

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1121311	5 G1,5	13.9	125	352
1121314	7 G1,5	15.0	180	448
1121320	12 G1,5	18.7	281	690
1121324	18 G1,5	21.8	391	938
1121328	25 G1,5	25.1	518	1180
1121340	3 G2,5	13.5	123	315
1121342	4 G2,5	14.6	168	349
1121344	5 G2,5	15.7	204	515
1121346	7 G2,5	17.0		619
1121349	12 G2,5	21.7	421	936
1121360	4 G4	16.2	238	587
1121361	5 G4	17.7	302	689
1121362	7 G4	19.0	396	828
1121367	4 G6	17.7	318	715
1121368	5 G6	19.2	419	862
1121372	4 G10	21.7	574	875
1121373	5 G10	23.0	612	1037
1121377	4 G16	24.3	809	1656
1121378	5 G16	26.7	935	1500
1121381	4 G25	29.8	1165	2179
1121385	4 G35	32.7	1683	2893
1121388	4 G50	39.6	2368	4094
1121391	4 G70	44.5	3261	5467
1121394	4 G95	51.0	4055	5849
1121397	4 G120	58.1	5225	7509

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*OD = Outer diameter

Similar products

- ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV refer to page 67

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702

ÖLFLEX® CLASSIC 115 CY

Screened PVC control cable with small outer diameter

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Thin and light, without inner sheath
- EMC-compliant

Benefits

- Space-saving installation due to small cable diameters

Application range

- Measurement and control technology
- Office machines and systems for data processing

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- High degree of screening low transfer impedance (max. 250 Ω/km at 30 MHz)

Norm references / Approvals

- Based on EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- Plastic foil wrapping
- Tinned-copper braiding
- PVC outer sheath, grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
Core/core: 4000 V
Core/screen: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 115 CY				
1136752	2 X0,5	5.8	36	45
1136003	3 G0,5	6.1	43	59
1136753	3 X0,5	6.1	43	59
1136004	4 G0,5	6.5	49	71
1136754	4 X0,5	6.5	49	71
1136005	5 G0,5	7.0	57	86
1136755	5 X0,5	7.0	57	86
1136007	7 G0,5	7.5	69	105
1136757	7 X0,5	7.5	69	105
1136012	12 G0,5	9.9	104	200
1136762	12 X0,5	9.9	104	200
1136018	18 G0,5	11.5	141	275
1136768	18 X0,5	11.5	141	275
1136025	25 G0,5	13.4	211	350
1136775	25 X0,5	13.4	211	350
1136802	2 X0,75	6.2	43	56
1136103	3 G0,75	6.5	52	70
1136803	3 X0,75	6.5	52	70
1136104	4 G0,75	7.0	61	95
1136804	4 X0,75	7.0	61	95
1136105	5 G0,75	7.7	72	108
1136805	5 X0,75	7.7	72	108
1136107	7 G0,75	8.3	89	127
1136807	7 X0,75	8.3	89	127
1136112	12 G0,75	10.9	138	232
1136118	18 G0,75	12.7	211	315
1136125	25 G0,75	14.8	280	435
1136825	25 X0,75	14.8	280	435
1136852	2 X1,0	6.5	51	71
1136203	3 G1,0	6.8	62	86
1136853	3 X1,0	6.8	62	86
1136204	4 G1,0	7.3	74	98
1136854	4 X1,0	7.3	74	98
1136205	5 G1,0	8.1	88	121
1136855	5 X1,0	8.1	88	121

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1136207	7 G1,0	8.8	112	147
1136857	7 X1,0	8.8	112	147
1136212	12 G1,0	11.5	185	285
1136218	18 G1,0	13.9	268	395
1136225	25 G1,0	15.9	354	486
1136902	2 X1,5	7.1	65	86
1136303	3 G1,5	7.5	82	112
1136903	3 X1,5	7.5	82	112
1136304	4 G1,5	8.2	100	135
1136904	4 X1,5	8.2	100	135
1136305	5 G1,5	8.9	119	148
1136905	5 X1,5	8.9	119	148
1136307	7 G1,5	9.9	154	192
1136907	7 X1,5	9.9	154	192
1136312	12 G1,5	13.0	268	365
1136318	18 G1,5	15.6	373	520
1136325	25 G1,5	17.9	530	734
1136334	34 G1,5	20.8	683	944
1136403	3 G2,5	8.9	118	151
1136404	4 G2,5	9.9	147	188
1136405	5 G2,5	11.0	176	270
1136407	7 G2,5	11.9	253	340
1136412	12 G2,5	16.0	355	540
1136418	18 G2,5	19.0	569	782
1136425	25 G2,5	22.2	827	1358
1136504	4 G4	11.6	248	305
1136507	7 G4	14.4	355	500
1136604	4 G6	14.2	343	440
1136607	7 G6	17.0	505	672
1136614	4 G10	17.2	495	680
1136615	5 G10	19.5	592	824
1136624	4 G16	20.2	800	1050
1136625	5 G16	22.6	895	1285
1136634	4 G25	25.1	1075	1413
1136635	5 G25	28.0	1400	1976
1136638	4 G35	28.0	1576	2070

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® ROBUST 215 C refer to page 72
- ÖLFLEX® CLASSIC 110 CY refer to page 41

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- 3M Scotch™ 1183 screening tape refer to page 1030
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702

ÖLFLEX® SERVO FD 796 CP
ÖLFLEX® HEAT 125 C MC
ÖLFLEX®

ÖLFLEX® EB

Control cable for intrinsically safe circuits according to IEC 60079-14 / EN 60079-14 / VDE 0165-1

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For use within intrinsically safe circuits - type of protection ‚i‘
- UV and weather-resistant according to ISO 4892-2

Benefits

- Space-saving installation due to small cable diameters
- Suitable for outdoor applications

Application range

- For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2

Product features

- UV and weather-resistant according to ISO 4892-2
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- Outer sheath: PVC, sky blue similar to RAL 5015

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Mutual capacitance
Core/core approx. 140 nF/km

Inductivity
approx. 0.52 mH/km

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
Core/core: 3000 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® EB without protective conductor GN/YE				
0012420	2 X 0,75	5.4	14.7	50
0012421	3 X 0,75	5.7	22.1	60
0012430	4 X 0,75	6.2	29.4	81
0012422	5 X 0,75	6.7	36.8	88
0012423	7 X 0,75	7.3	51.5	115
0012425	12 X 0,75	9.9	88.2	185
0012427	18 X 0,75	11.7	132.3	282
0012429	25 X 0,75	13.8	183.8	393
0012440	2 X 1,0	5.7	19.7	57
0012441	3 X 1,0	6.0	29.6	73
0012443	5 X 1,0	7.1	49.4	105
0012444	7 X 1,0	8.0	69.1	138
0012446	12 X 1,0	10.5	118.4	231

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0012448	18 X 1,0	12.7	177.7	331
0012401	2 X 1,5	6.3	29	80
0012402	3 X 1,5	6.7	43	105
0012403	4 X 1,5	7.2	58	125
0012404	5 X 1,5	8.1	72	139
ÖLFLEX® EB with protective conductor GN/YE				
0012501	3 G 1.5	6.7	43	105
0012502	4 G 1.5	7.2	58	125
0012503	5 G 1.5	8.1	72	139
0012504	7 G 1.5	8.9	101	180
0012505	12 G 1.5	12.0	173	339
0012506	18 G 1.5	14.4	259	513
0012507	25 G 1.5	16.9	360	698

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® EB CY (TP) refer to page 283

Accessories

- FLEXIMARK® Stainless steel kit refer to page 963
- SKINTOP® K-M ATEX plus blue refer to page 695

ÖLFLEX® EB CY

Control cable for intrinsically safe circuits according to IEC 60079-14 / EN 60079-14 / VDE 0165-1

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For use within intrinsically safe circuits - type of protection ‚i‘
- UV and weather-resistant according to ISO 4892-2

Benefits

- Space-saving installation due to small cable diameters
- Copper wire braid screening of the ÖLFLEX® EB CY protects signal transmission within intrinsically safe circuits against electromagnetic interference
- Suitable for outdoor applications

Application range

- For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2
- In EMC-sensitive environments (electromagnetic compatibility)

Product features

- Flame-retardant according IEC 60332-1-2
- High degree of screening low transfer impedance (max. 250 Ω/km at 30 MHz)
- UV and weather-resistant according to ISO 4892-2

Norm references / Approvals

- Based on EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- Plastic foil wrapping
- Tinned-copper braiding
- Outer sheath: PVC, sky blue similar to RAL 5015

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Mutual capacitance
Core/core approx. 160 nF/km
Core/screen approx. 250 nF/km

Inductivity
approx. 0.52 mH/km

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
Core/core: 3000 V
Core/screen: 2000 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® EB CY screened; without inner sheath				
0012640	2 X 0.75	6.2	43	56
0012641	3 X 0.75	6.5	52	70
0012642	4 X 0.75	7.0	61	95
0012643	5 X 0.75	7.7	72	108
0012644	7 X 0.75	8.3	89	168
0012645	12 X 0.75	10.9	138	216
0012646	18 X 0.75	12.7	211	315
0012647	25 X 0.75	14.8	280	435
0012650	2 X 1,0	6.5	51	84
0012651	3 X 1,0	6.8	62	110

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0012652	5 X 1,0	8.1	88	156
0012653	7 X 1,0	8.8	112	192
0012654	12 X 1,0	11.5	185	285
0012655	18 X 1,0	13.9	268	395
0012656	25 X 1,0	15.9	354	656
0012660	2 X 1,5	7.1	65	87
0012661	3 X 1,5	7.5	82	112
0012662	5 X 1,5	8.9	119	148
0012663	7 X 1,5	9.9	154	193
0012664	12 X 1,5	13.0	268	365
0012666	25 X 1,5	17.9	530	734

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® EB CY (TP) refer to page 283

Accessories

- 3M Scotch™ 1183 screening tape refer to page 1030
- SKINTOP® K-M ATEX plus blue refer to page 695

ÖLFLEX® 140*

H05VV5-F (EN 50525-2-51)

Info

- Oil-resistant according to EN 50363-4-1: TM5
- Harmonised (HAR): H05VV5-F

Benefits

- High acceptance in Europe due to Harmonisation

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Machine tools
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 50363-4-1: TM5

Norm references / Approvals

- EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 12.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 140 H05VV5-F				
0011000	3 G 0.5	5.5 - 7.0	14.4	62.4
0011104	4 G 0.5	6.2 - 7.9	19.2	68.2
0011001	5 G 0.5	6.8 - 8.6	24	87.1
0011002	7 G 0.5	8.3 - 10.4	33.6	118.7
0011003	12 G 0.5	10.4 - 12.9	58	198
0011004	18 G 0.5	12.3 - 15.3	86.4	266.9
0011005	25 G 0.5	14.8 - 18.3	120	380.4
0011006	34 G 0.5	17.2 - 21.2	163.2	509
0011009	3 G 0.75	6.0 - 7.6	21.6	75.6
0011204	4 G 0.75	6.6 - 8.3	28.8	83.9
0011010	5 G 0.75	7.4 - 9.3	36	113.3
0011011	7 G 0.75	9.0 - 11.3	50	145
0011012	12 G 0.75	11.0 - 13.7	86	244.9
0011013	18 G 0.75	13.2 - 16.4	130	327.7
0011014	25 G 0.75	15.8 - 19.5	180	466.4
0011015	34 G 0.75	18.4 - 22.6	245	626.5
0011241	41 G 0.75	20.1 - 24.7	296	748
0011018	3 G 1,0	6.3 - 8.0	28.8	89.3
0011304	4 G 1,0	6.9 - 8.7	38.4	98.6
0011019	5 G 1,0	7.8 - 9.8	48	132.1
0011020	7 G 1,0	9.5 - 11.8	67	169.3

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0011021	12 G 1,0	11.8 - 14.6	115	285.9
0011022	18 G 1,0	14.0 - 17.2	173	405.2
0011023	25 G 1,0	16.8 - 20.7	240	569.5
0011024	34 G 1,0	19.6 - 24.0	326	741.7
0011341	41 G 1,0	21.4 - 26.2	394	886
0011027	3 G 1.5	7.4 - 9.4	43	109.8
0011404	4 G 1.5	8.2 - 10.2	58	140.7
0011028	5 G 1.5	9.1 - 11.4	72	175
0011029	7 G 1.5	11.3 - 14.1	101	224.2
0011030	12 G 1.5	13.8 - 17.0	173	361.7
0011031	18 G 1.5	16.5 - 20.3	259	518.3
0011032	25 G 1.5	19.8 - 24.3	360	729.9
0011033	34 G 1.5	23.1 - 28.2	490	946.6
0011036	3 G 2.5	9.0 - 11.2	72	162.4
0011504	4 G 2.5	10.1 - 12.5	96	203.3
0011037	5 G 2.5	11.0 - 13.7	120	251.1
0011038	7 G 2.5	13.6 - 16.8	168	326
0011039	12 G 2.5	16.8 - 20.6	288	553.3
0011045	14 G 2.5	18.3 - 22.7	336	611
0011040	18 G 2.5	20.2 - 24.8	432	795.2
0011041	25 G 2.5	24.2 - 29.6	600	1109.6

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 150 refer to page 51

Accessories

- SKINTOP® CLICK refer to page 687

ÖLFLEX® 140 CY*

H05VVC4V5-K (EN 50525-2-51)

Info

- Oil-resistant according to EN 50363-4-1: TM5
- Harmonised (HAR): H05VVC4V5-K and EMC compliant

Benefits

- High acceptance in Europe due to Harmonisation

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Machine tools
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- In EMC-sensitive environments (electromagnetic compatibility)

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 50363-4-1: TM5
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

Norm references / Approvals

- EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 140 CY H05VVC4V5-K				
0035700	3 G 0.5	8.0 - 10.0	47	111.3
0035701	4 G 0.5	8.5 - 10.7	58	132.7
0035702	5 G 0.5	9.3 - 11.6	69	162.7
0035703	7 G 0.5	10.8 - 13.5	86	207.7
0035704	12 G 0.5	13.1 - 16.2	142	295
0035710	3 G 0.75	8.3 - 10.4	55	129.4
0035711	4 G 0.75	9.1 - 11.3	67	163.6
0035712	5 G 0.75	9.7 - 12.1	77.4	188.6
0035713	7 G 0.75	11.5 - 14.3	109	246.9
0035714	12 G 0.75	13.8 - 17.1	166	354.3
0035715	18 G 0.75	16.1 - 19.8	257.3	517
0035716	25 G 0.75	18.7 - 23.0	318.6	677.8
0035717	34 G 0.75	21.4 - 26.2	409.4	860.6
0035720	3 G 1,0	8.8 - 11.0	62	144.8
0035721	4 G 1,0	9.4 - 11.7	78.3	180.8
0035722	5 G 1,0	10.3 - 12.8	91	209

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0035723	7 G 1,0	12.2 - 15.1	118	273
0035724	12 G 1,0	14.5 - 17.9	198	427.6
0035725	18 G 1,0	16.9 - 20.8	303.6	598.6
0035726	25 G 1,0	19.8 - 24.2	411.9	791.8
0035727	34 G 1,0	22.6 - 27.7	516.3	1003.9
0035730	3 G 1.5	9.7 - 12.1	83	189.7
0035731	4 G 1.5	10.7 - 13.2	97.8	221.6
0035732	5 G 1.5	11.8 - 14.7	118	261.8
0035733	7 G 1.5	14.1 - 17.4	218	356.7
0035734	12 G 1.5	16.7 - 20.6	309.7	559.4
0035735	18 G 1.5	19.5 - 24.0	411.4	767.6
0035736	25 G 1.5	22.9 - 28.0	546.5	1049
0035740	3 G 2.5	11.3 - 14.0	115	241.5
0035741	4 G 2.5	12.6 - 15.5	163	298.3
0035742	5 G 2.5	13.9 - 17.2	191	363.7
0035743	7 G 2.5	16.5 - 20.3	288.9	487.2
0035744	12 G 2.5	19.8 - 24.3	516.6	743.6

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 150 CY refer to page 52

Accessories

- KMK Label holders refer to page 962
- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702

ÖLFLEX® 150

Oil resistant multi-standard cable with H05VV5-F and AWM approval

Info

- Oil-resistant according to EN 50363-4-1: TM5
- Harmonised (HAR): H05VV5-F and UL recognized

Benefits

- Wide application range due to multiple certifications

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Machine tools
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2015: please see the catalogue appendix table T29

Product features

- Flame-retardant according to IEC 60332-1-2 and UL 1581 §1061 Cable Flame Test
- Oil-resistant according to EN 50363-4-1: TM5

Norm references / Approvals

- H05VV5-F (EN 50525-2-51)
- UL AWM Style 21098
  CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 12.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
HAR U0/U: 300/500 V
UL/CSA: 600 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing:
HAR: -5°C to +70°C
UL/CSA: +90°C
Fixed installation:
HAR: -40°C to +70°C
UL/CSA: +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 150				
0015002	2 X 0.5	5.9	9.6	47
0015003	3 G 0.5	6.2	14.4	62.4
0015004	4 G 0.5	6.8	19.2	68.2
0015005	5 G 0.5	7.4	24	87.1
0015007	7 G 0.5	9.0	33.6	118.7
0015012	12 G 0.5	11.1	58	198
0015018	18 G 0.5	13.2	86.4	328
0015025	25 G 0.5	16.0	120	380.4
0015034	34 G 0.5	18.1	164	509
0015041	41 G 0.5	19.7	197	595
0015102	2 X 0.75	6.3	14.4	61
0015103	3 G 0.75	6.7	21.6	75.6
0015104	4 G 0.75	7.2	28.8	83.9
0015105	5 G 0.75	8.1	36	113.3
0015107	7 G 0.75	9.9	50	145
0015112	12 G 0.75	12.0	86	244.9
0015118	18 G 0.75	14.4	130	327.7
0015125	25 G 0.75	17.1	180	466.4
0015134	34 G 0.75	19.7	245	626.5
0015141	41 G 0.75	21.6	296	748
0015202	2 X 1,0	6.6	19.2	80
0015203	3 G 1,0	7.0	28.8	79
0015204	4 G 1,0	7.8	38.4	98.6
0015205	5 G 1,0	8.6	48	132.1
0015206	6 G 1,0	9.5	57.6	150

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0015207	7 G 1,0	10.4	67	169.3
0015212	12 G 1,0	12.8	115	285.9
0015218	18 G 1,0	15.1	173	405.2
0015225	25 G 1,0	18.0	240	569.5
0015234	34 G 1,0	20.9	326	741.7
0015241	41 G 1,0	22.8	394	886
0015250	50 G 1,0	25.0	480	1072.2
0015302	2 X 1.5	7.6	28.8	95
0015303	3 G 1.5	8.3	43	109.8
0015304	4 G 1.5	9.0	58	145
0015305	5 G 1.5	10.1	72	168
0015307	7 G 1.5	12.5	101	224.2
0015312	12 G 1.5	15.1	173	361.7
0015318	18 G 1.5	18.0	259	518.3
0015325	25 G 1.5	21.4	360	729.9
0015334	34 G 1.5	25.0	490	946.6
0015341	41 G 1.5	27.2	591	1136
0015402	2 X 2.5	9.2	48	159
0015403	3 G 2.5	9.9	72	170
0015404	4 G 2.5	10.8	96	210
0015405	5 G 2.5	12.1	120	257
0015407	7 G 2.5	14.7	168	340
0015412	12 G 2.5	17.9	288	580
0015418	18 G 2.5	21.6	432	850
0015425	25 G 2.5	25.6	600	1166

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 600 m drum or 8 x 75 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 140* refer to page 49
- ÖLFLEX® 191 refer to page 53

Accessories

- SKINTOP® CLICK refer to page 687
- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU

ÖLFLEX® 150 CY

Screened and oil-resistant multi-standard cable with H05VVC4V5-K and AWM approval

Info

- Oil-resistant according to EN 50363-4-1: TM5
- Harmonised (HAR): H05VVC4V5-K and UL recognized
- EMC-compliant

Benefits

- Wide application range due to multiple certifications

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- In EMC-sensitive environments (electromagnetic compatibility)
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2015: please see the catalogue appendix table T29

Product features

- Flame-retardant according to IEC 60332-1-2 and UL 1581 §1061 Cable Flame Test
- Oil-resistant according to EN 50363-4-1: TM5
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

Norm references / Approvals

- H05VVC4V5-K (EN 50525-2-51)
- UL AWM Style 21098
  CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
HAR U0/U: 300/500 V
UL/CSA: 600 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing:
HAR: -5°C to +70°C
UL/CSA: +90°C
Fixed installation:
HAR: -40°C to +70°C
UL/CSA: +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 150 CY				
0015602	2 X 0.75	8.5	40	109
0015603	3 G 0.75	8.9	51	125
0015604	4 G 0.75	9.6	70	157
0015605	5 G 0.75	10.3	77	180
0015607	7 G 0.75	12.3	93	226
0015612	12 G 0.75	14.8	155	325
0015702	2 X 1.0	8.8	46.4	121
0015703	3 G 1.0	9.4	76	145
0015704	4 G 1.0	10.0	80	180
0015705	5 G 1.0	11.0	95	203
0015707	7 G 1.0	13.0	118	273

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0015712	12 G 1.0	15.6	195	425
0015802	2 X 1.5	10.0	59.2	151
0015803	3 G 1.5	10.5	84	159
0015804	4 G 1.5	11.4	94.8	211
0015805	5 G 1.5	12.7	122	241
0015807	7 G 1.5	15.1	143	306
0015812	12 G 1.5	17.8	254	480
0015903	3 G 2.5	11.9	120	245
0015904	4 G 2.5	13.2	170	295
0015905	5 G 2.5	14.7	205	365
0015907	7 G 2.5	17.5	241	480

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 600 m drum or 8 x 75 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 140 CY* refer to page 50
- ÖLFLEX® 191 CY refer to page 54

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702

ÖLFLEX® 191

Oil-resistant multi-standard cable with AWM approval

Info

- Conductor cross-section up to 120 mm²
- Further items with 0,5 and 0,75 mm²: see ÖLFLEX® 150
- Oil-resistant according to EN 50363-4-1: TM5

Benefits

- High electrical performance due to 4 kV test voltage
- For various applications

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Machine tools
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2015: please see the catalogue appendix table T29

Product features

- Flame-retardant according to IEC 60332-1-2 and UL 1581 §1061 Cable Flame Test
- Oil-resistant according to EN 50363-4-1: TM5

Norm references / Approvals

- UL AWM Style 21098
  CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
HAR U0/U: 300/500 V
UL/CSA: 600 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
UL/CSA: -5°C to +90°C
Fixed installation: -40°C to +70°C
UL/CSA: +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 191				
0011222	7 G 0.75	8.3	50.4	116
0011223	9 G 0.75	10.5	64.8	152
0011224	12 G 0.75	11.2	86.4	194
0011113	3 G 1.0	6.7	28.8	66
0011114	4 G 1.0	7.2	38.4	81
0011115	5 G 1.0	8.1	48	95
0011116	7 G 1.0	8.9	67.2	125
0011117	12 G 1.0	12.0	115.2	211
0011118	18 G 1.0	14.4	172.8	309
0011119	25 G 1.0	17.3	240	413
0011136	2 X 1.5	6.9	28.8	74
0011137	3 G 1.5	7.3	44	91
0011138	4 G 1.5	8.2	58	112
0011139	5 G 1.5	9.0	72	136
0011140	7 G 1.5	10.0	101	179
0011125	9 G 1.5	12.6	129.6	230
0011142	12 G 1.5	13.4	173	313
0011143	18 G 1.5	16.1	260	444
0011144	25 G 1.5	19.5	360	620
0011150	3 G 2.5	8.4	72	138

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0011151	4 G 2.5	9.1	96	182
0011152	5 G 2.5	10.2	120	216
0011153	7 G 2.5	11.3	168	286
0011160	3 G 4	9.9	115.2	202
0011161	4 G 4	10.8	154	245
0011162	5 G 4	12.1	192	310
0011167	7 G 4	13.4	268.8	470
0011165	4 G 6	13.0	231	398
0011166	5 G 6	14.5	288	479
0011169	4 G 10	16.5	384	559
0011170	5 G 10	18.4	480	782
0011172	4 G 16	22.1	615	904
0011173	5 G 16	24.3	768	1171
0011175	4 G 25	25.2	960	1299
0011176	5 G 25	28.0	1200	1640
0011178	4 G 35	28.1	1344	2119
0011179	5 G 35	31.5	1680	2606
0011205	4 G 50	35.7	1920	2898
0011206	4 G 70	43.0	2688	4052
0011207	4 G 95	47.2	3648	5430
0011208	4 G 120	51.0	4608	6290

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 600 m drum or 8 x 75 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 150 refer to page 51
- ÖLFLEX® CONTROL TM refer to page 55
- ÖLFLEX® TRAY II refer to page 57

Accessories

- SKINTOP® CLICK refer to page 687
- SKINTOP® ST-M refer to page 684
- Ratchet cutter refer to page 980

- SKINTOP® ST-M Small PU
- KT cable shears

ÖLFLEX® 191 CY

Screened and oil-resistant multi-standard cable with AWM approval

Benefits

- High electrical performance due to 4 kV test voltage
- Multifunctional application possibilities

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- In EMC-sensitive environments (electromagnetic compatibility)
- Mainly used in dry, damp and wet interiors (including water-oil mixtures), but not for outdoor use
- For fixed installation under medium mechanical load conditions, and applications with occasional flexing at free, non-continuously recurring movement without tensile load or compulsory guidance
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2015: please see the catalogue appendix table T29

Product features

- Flame-retardant according to IEC 60332-1-2 and UL 1581 §1061 Cable Flame Test
- Oil-resistant according to EN 50363-4-1: TM5
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

Norm references / Approvals

- UL AWM Style 21098
  CSA AWM I A/B II A/B
- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC core insulation
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, high oil-resistance, grey (similar to RAL 7001)

Info

- Conductor cross-section up to 120 mm²
- Further items with 0,75 mm²: see ÖLFLEX® 150 CY
- Oil-resistant according to EN 50363-4-1: TM5

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
HAR U0/U: 300/500 V
UL/CSA: 600 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
UL/CSA: -5°C to +90°C
Fixed installation: -40°C to +70°C
UL/CSA: +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 191 CY				
0011234	7 G 0.75	10.5	85.9	187
0011202	2 X 1.0	8.4	48	126
0011180	3 G 1.0	8.8	55.8	122
0011181	4 G 1.0	9.6	80.8	157
0011182	5 G 1.0	10.3	89.4	183
0011183	7 G 1.0	11.2	99.9	207
0011184	12 G 1.0	14.6	175.7	342
0011185	18 G 1.0	17.0	241.7	472
0011186	25 G 1.0	20.1	341.7	648
0011302	2 X 1.5	9.0	64.7	156
0011187	3 G 1.5	9.6	89.1	166
0011188	4 G 1.5	10.3	96.6	191
0011189	5 G 1.5	11.3	111.2	222
0011190	7 G 1.5	12.1	145.2	270
0011191	12 G 1.5	16.1	257	464
0011192	18 G 1.5	18.7	382.8	679
0011193	25 G 1.5	23.0	546.2	952
0011194	3 G 2.5	10.8	111.1	221

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0011195	4 G 2.5	11.4	140.6	269
0011196	5 G 2.5	12.9	167.3	325
0011197	7 G 2.5	14.1	240	421
30010542	12 G 2.5	17.9	414.9	769
30010543	18 G 2.5	22.0	626.1	1102
30010544	4 G 4	13.6	236.7	462
30010545	5 G 4	14.9	277.8	535
30010546	7 G 4	16.2	393.4	735
30010548	4 G 6	15.8	317.1	574
3023130	5 G 6	17.3	413.7	737
30010547	7 G 6	18.8	563.8	950
3023131	4 G 10	19.5	550.4	946
30010639	4 G 16	24.7	819.1	1189
3023132	4 G 25	28.7	1165	1692
30010928	4 G 35	32.0	1683	2700
3026535	4 G 50	39.7	2342	3362
3025946	4 G 70	44.8	3229	4490
3025947	4 G 95	50.0	4010	5540
3026536	4 G 120	55.4	5012	6960

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 600 m drum or 8 x 75 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 150 CY refer to page 52
- ÖLFLEX® CONTROL TM CY refer to page 56
- ÖLFLEX® TRAY II CY refer to page 58

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- Ratchet cutter refer to page 980
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702
- KT cable shears

ÖLFLEX® CONTROL TM

ÖLFLEX® Control Cable PVC 0.6/1kV UL TC-ER WTTC AWM 1000V WET OIL RES I+II CSA AWM

Info

- Torsion resistant for drip loops
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- (UL) SUN. RES. approval in preparation

Benefits

- Many certifications/ use types
- Cost-saving, fast installation omitting protection systems

Application range

- Industrial machinery; plant engineering
- Compliant with Tool machines: (UL) MTW
- Unprotected 600V operation on cable tray in the USA, incl. 6 ft. Exposed Run laying sections
- USA Wind Turbine Tray Cable (WTTC)

Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I & II
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Technically resistant to sunlight and ozone

Norm references / Approvals

- USA: (UL) TC [E171371], -ER > 2 conductors, (UL) MTW [E155920], (UL) WTTC [E323700], (UL) THHN/THWN (> 1.5 mm²/16 AWG) [E172162], UL AWM Style 20886 [E100338]
- From June 2018: Sunlight Resistant (Sun. Res.), Direct Burial (Dir. Bur.), Submersible Pump Cable (> 1.5 mm²/16 AWG, and < 8 conductors), (UL) PLTC (< 6 mm²/10 AWG) [E216027], (UL) ITC (< 6 mm²/10 AWG) [E196134], (UL) DP-1 [E233406]
- UL OIL RES I/ II, 75°C WET, 90°C DRY, NFPA 79 2012 + 2015 Edition
- CAN: c(UL) CIC/ TC 600V FT4 [E171371], CSA AWM I/II A/B FT1

Product Make-up

- Fine-wire strand made of bare copper wires
- Insulation: PVC with nylon sheath (PA skin)
- Outer jacket: Specially formulated thermoplastic polymer
- Color of the outer jacket: Gray

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers

Conductor stranding
Fine-wire, bare copper strand

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Static/Occ. moved: 5/15xOD*

Nominal voltage
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000 V
UL AWM: 600 V
CSA AWM: 1000 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
-40°C (static)/ -25°C (occ. moved) to +90°C (AWM: +105°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CONTROL TM				
281803	3 G 1.0	7.4	28.8	82
281804	4 G 1.0	8.0	38.4	95
281805	5 G 1.0	8.6	48	112
281807	7 G 1.0	9.3	67	144
281812	12 G 1.0	12.0	115	247
281818	18 G 1.0	14.7	173	365
281825	25 G 1.0	16.7	240	464
281602	2 X 1.5	7.3	28.8	74
281603	3 G 1.5	8.1	43	100
281604	4 G 1.5	8.8	58	119
281605	5 G 1.5	9.5	72	141
281607	7 G 1.5	10.3	101	183
281609	9 G 1.5	11.9	129.6	247
281612	12 G 1.5	14.1	172.8	328

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
281618	18 G 1.5	16.4	259	403
281625	25 G 1.5	18.6	360	596
281403	3 G 2.5	8.9	72	125
281404	4 G 2.5	9.8	96	175
281405	5 G 2.5	10.7	120	185
281407	7 G 2.5	11.6	168	244
281203	3 G 4	10.6	115	165
281204	4 G 4	11.5	154	220
281205	5 G 4	12.6	192	269
281207	7 G 4	14.6	269	482
281004	4 G 6	14.5	231	382
281005	5 G 6	15.8	288	457
280804	4 G 10	17.7	384	615
280805	5 G 10	19.4	480	771
280604	4 G 16	22.5	615	864

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*OD = Outer diameter

Similar products

- ÖLFLEX® TRAY II refer to page 57

Accessories

- SKINTOP® MS-M refer to page 696
- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 698

ÖLFLEX® CONTROL TM CY

ÖLFLEX® Control Cable PVC Screened 0.6/1kV UL TC-ER WTTC AWM600V OIL RES CSA AWM

Info

- Torsion resistant for drip loops
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- EMC/Screened

Benefits

- Many certifications/ use types
- Cost-saving, fast installation omitting protection systems
- Electromagnetic field screening

Application range

- Industrial machinery; plant engineering
- Unprotected 600V operation on cable tray in the USA, incl. 6 ft. Exposed Run laying sections
- Compliant with Tool machines: (UL) MTW
- USA Wind Turbine Tray Cable (WTTC)

Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I & II
- Technically resistant to sunlight and ozone
- High degree of screening low transfer impedance (max. 250 Ω/km at 30 MHz)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Norm references / Approvals

- USA: (UL) TC [E171371], -ER > 2 conductors, (UL) MTW [E155920], (UL) WTTC [E323700], (UL) THHN/THWN (> 1.5 mm²/16 AWG) [E172162], UL AWM Style 20886 [E100338]
- From June 2018: Sunlight Resistant (Sun. Res.), Direct Burial (Dir. Bur.), Submersible Pump Cable (> 1.5 mm²/16 AWG, and < 8 conductors), (UL) PLTC (< 6 mm²/10 AWG) [E216027], (UL) ITC (< 6 mm²/10 AWG) [E196134], (UL) DP-1 [E233406]
- UL OIL RES I/ II, 75°C WET, 90°C DRY, NFPA 79 2012 + 2015 Edition
- CAN: c(UL) CIC/ TC 600V FT4 [E171371], CSA AWM I/II A/B FT1

Product Make-up

- Fine-wire strand made of bare copper wires
- Insulation: PVC with nylon sheath (PA skin)
- Aluminum-coated foil
- Tinned-copper braiding
- Outer jacket: Specially formulated thermoplastic polymer
- Color of the outer jacket: Gray

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers

Conductor stranding
Fine-wire, bare copper strand

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Static/Occ. moved: 5/20 x OD*

Nominal voltage
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000 V
UL AWM: 600 V
CSA AWM: 1000 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
-40°C (static)/ -25°C (occ. moved) to +90°C (AWM: +105°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CONTROL TM CY				
281803CY	3 G 1.0	8.1	49.5	119
281804CY	4 G 1.0	8.6	60.2	137
281805CY	5 G 1.0	9.3	81.4	149
281807CY	7 G 1.0	10.0	101.1	193
281812CY	12 G 1.0	12.8	161.4	281
281818CY	18 G 1.0	15.5	228.2	438
281825CY	25 G 1.0	17.5	326.4	574
281603CY	3 G 1.5	8.8	65	144
281604CY	4 G 1.5	9.4	81.9	173
281605CY	5 G 1.5	10.2	99.1	189

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
281607CY	7 G 1.5	11.1	140.4	246
281612CY	12 G 1.5	15.0	225.2	426
281618CY	18 G 1.5	17.2	321.7	552
281403CY	3 G 2.5	9.7	105.7	180
281404CY	4 G 2.5	10.4	135.6	223
281405CY	5 G 2.5	11.5	160.3	268
281407CY	7 G 2.5	12.4	213	327
281204CY	4 G 4	12.3	198.5	315
281205CY	5 G 4	14.2	242.7	388
281004CY	4 G 6	15.3	284.236	552
280804CY	4 G 10	18.5	458.4	857

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*OD = Outer diameter

Similar products

- ÖLFLEX® TRAY II CY refer to page 58

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701

ÖLFLEX® TRAY II

ÖLFLEX® Control Cable 0.6/1 kV, UL TC-ER 600V MTW AWM WET OIL/ SUN RES CSA TRAY

Info

- Torsion resistant for drip loops
- Broad application range (NFPA 70/NEC), NFPA 79 compliance
- Outdoor use in USA

Benefits

- Cost-saving, fast installation omitting protection systems
- Many certifications/ use types
- 75 °C WET Rating + Sunlight Resistant Rating: Outdoor use in the USA

Application range

- Industrial machinery; plant engineering
- Unprotected 600V operation on cable tray in the USA, incl. 6 ft. Exposed Run laying sections
- Compliant with Tool machines: (UL) MTW
- Outdoor use and Direct Burial in the USA
- USA Wind Turbine Tray Cable (WTTC)

Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I & II
- Water-resistant, UL 75°C WET rating
- UV resistant (SUN RES), Ozone resistant

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Norm references / Approvals

- USA: (UL) TC-ER [E171371], (UL) MTW [E155920], (UL) WTTC [E323700], Submersible Pump (14 - 2 AWG), (UL) PLTC-ER (18 - 12 AWG) [E216027], (UL) ITC-ER (18 - 12 AWG) [E196134], (UL) DP-1 [E233406], UL AWM (18 - 2 AWG) [E100338]
- UL OIL RES I/ II, 75°C WET, 90°C DRY, SUN RES, DIR BUR, NFPA 79 2012 + 2015 Edition
- CAN: c(UL) CIC/ TC 600V FT4 (< 250 kcmil) [E171371], CSA AWM I/II A/B FT1

Product Make-up

- Fine-wire strand made of bare copper wires
- Insulation: PVC+nylon sheath (PA skin)
- Outer jacket: Specially formulated thermoplastic polymer
- Color of the outer jacket: Black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers

Conductor stranding
Fine copper wire strands

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Static/Occ. moved: 5/15 x OD*

Nominal voltage
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000 V
UL/CSA: 1000 V (AWM)

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
-40°C (static)/ -25°C (occ. moved) to +90°C (AWM: +105°C)

Article number	Number of cores and mm² per conductor	AWG per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® Tray II					
221803	3 G 1.0		7.5	240	85
221804	4 G 1.0		8.1	38.4	98
221805	5 G 1.0		8.8	48	115
221807	7 G 1.0		9.5	67	149
221812	12 G 1.0		12.1	115	255
221818	18 G 1.0		14.9	173	365
221825	25 G 1.0		16.9	240	479
221603	3 G 1.5		8.3	43	103
221604	4 G 1.5		8.9	58	124
221605	5 G 1.5		9.7	72	146
221607	7 G 1.5		10.5	101	189
221609	9 G 1.5		12.1	130	255
221612	12 G 1.5		14.4	173	328
221618	18 G 1.5		16.6	259	431
221625	25 G 1.5		18.8	360	592
221641	41 G 1.5		25.0	591	931
221403	3 G 2.5		9.2	72	130
221404	4 G 2.5		10.0	96	159
221405	5 G 2.5		10.8	120	224
221407	7 G 2.5		11.8	168	252
221412	12 G 2.5		16.2	288	459
221418	18 G 2.5		18.7	432	654
221425	25 G 2.5		22.5	600	874
221204	4 G 4		11.7	153	226
221205	5 G 4		12.8	192	279
221004	4 G 6		14.7	231	394
221005	5 G 6		16.0	288	472
221007	7 G 6		17.4	405	661
220804	4 G 10		17.9	384	615
220805	5 G 10		19.6	480.6	771
220604	4 G 16		22.8	615	864
220605	5 G 16		24.9	768	1080
220404	4 G	4	27.8	960	1418
220204	4 G	2	32.3	1344	2077

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products. / *OD = Outer diameter

Similar products

- ÖLFLEX® CONTROL TM refer to page 55

Accessories

- SKINTOP® MS-M refer to page 696
- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 698

ÖLFLEX® TRAY II CY

ÖLFLEX® Control Cable 0.6/1 kV, UL TC-ER 600V AWM WET OIL/ SUN RES TRAY Screened

Benefits

- Many certifications/ use types
- Cost-saving, fast installation omitting protection systems
- 75 °C WET Rating + Sunlight Resistant Rating: Outdoor use in the USA
- Electromagnetic field screening

Application range

- Industrial machinery; plant engineering
- Unprotected 600V operation on cable tray in the USA, incl. 6 ft. Exposed Run laying sections
- Compliant with Tool machines: (UL) MTW
- Outdoor use and Direct Burial in the USA
- USA Wind Turbine Tray Cable (WTTC)

Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I & II
- Water-resistant, UL 75°C WET rating
- UV resistant (SUN RES), Ozone resistant
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Norm references / Approvals

- USA: (UL) TC-ER [E171371], (UL) MTW [E155920], (UL) WTTC [E323700], Submersible Pump (14 - 2 AWG), (UL) PLTC-ER (18 - 12 AWG) [E216027], (UL) ITC-ER (18 - 12 AWG) [E196134], (UL) DP-1 [E233406], UL AWM (18 - 2 AWG) [E100338]
- UL OIL RES I/ II, 75°C WET, 90°C DRY, SUN RES, DIR BUR, NFPA 79 2012 + 2015 Edition
- CAN: c(UL) CIC/ TC 600V FT4 (< 250 kcmil) [E171371], CSA AWM I/II A/B FT1

Product Make-up

- Fine-wire strand made of bare copper wires
- Insulation: PVC+nylon sheath (PA skin)
- Aluminum-coated foil
- Tinned-copper braiding
- Outer jacket: Specially formulated thermoplastic polymer
- Color of the outer jacket: Black

Info

- Outdoor use in USA
- Broad application range (NFPA 70/NEC), NFPA 79 compliance
- EMC/Screened

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers

Conductor stranding
Fine copper wire strands

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Static/Occ. moved: 5/20 x OD*

Nominal voltage
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000 V
UL/CSA: 1000 V (AWM)

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
-40°C (static)/ -25°C (occ. moved) to +90°C (AWM: +105°C)

Article number	Number of cores and mm² per conductor	AWG per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® Tray II CY					
2218030	3 G 1.0		8.2	35.1	119
2218040	4 G 1.0		8.8	55.2	137
2218050	5 G 1.0		9.4	65.8	149
2218070	7 G 1.0		10.1	86.9	193
2218120	12 G 1.0		12.9	149.3	330
2218180	18 G 1.0		15.7	214.2	438
2218250	25 G 1.0		17.7	354.2	574
2216030	3 G 1.5		8.9	59.8	144
2216040	4 G 1.5		9.6	74.5	173
2216050	5 G 1.5		10.3	93.5	189
2216070	7 G 1.5		11.3	130.5	246
2216120	12 G 1.5		15.1	213.8	426
2216180	18 G 1.5		17.3	312.4	515
2216250	25 G 1.5		19.6	415.6	708
2214030	3 G 2.5		9.8	91.2	180
2214040	4 G 2.5		10.7	125.7	223
2214050	5 G 2.5		11.6	150.1	268
2214070	7 G 2.5		12.5	201.2	327
2214120	12 G 2.5		16.9	333.6	595
2214180	18 G 2.5		19.5	487.6	784
2214250	25 G 2.5		23.3	685.1	1048
2212040	4 G 4		12.5	186.4	315
2212070	7 G 4		15.5	310.2	499
2210040	4 G 6		15.5	271.7	552
2208040	4 G 10		18.7	438.6	857
2206040	4 G 16		23.3	699.0	1208
2204040	4 G	4	28.6	1296.8	1982
2202040	4 G	2	33.2	1899.5	2903

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*OD = Outer diameter

Similar products

- ÖLFLEX® CONTROL TM CY refer to page 56

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701

ÖLFLEX® SF

Super-flexible H05VV-F power cable

Info

- Super-flexible cable for handheld equipment
- Ozone-resistant according to EN 50396

Benefits

- High acceptance in Europe due to Harmonisation

Application range

- Very suitable for domestic appliances, electrical power tools, and various handyman tools
- H05VV-F cable types may not be used in commercial premises, with the exception of offices.
- Not for permanent outdoor use.

Product features

- Flame-retardant according IEC 60332-1-2
- Highly flexible at cold temperatures
- Design and geometry in compliance with harmonisation document
- Ozone-resistant according to EN 50396

Norm references / Approvals

- H05VV-F acc. to EN 50525-2-11, from 6 cores: based on EN 50525-2-11

Product Make-up

- Super-fine strands of bare copper wire with an individual wire diameter of 0.07 mm
- PVC core insulation, cold-resistant
- PVC outer sheath, cold-resistant, orange (similar to RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Super-fine wire
(diameter of each wire is 0.07 mm)

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -15°C to +60°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SF				
0027590	2 X 0.75	6.4	14.9	50
0027591	3 G 0.75	7.0	22.3	60
00275923	4 G 0.75	7.7	29.7	73
00275933	5 G 0.75	8.7	37.1	88
0027594	7 G 0.75	10.4	51.5	109
0027600	2 X 1.0	6.8	20.1	74
0027601	3 G 1.0	7.4	30.2	87
00276033	5 G 1.0	9.2	50.8	130
0027701	3 G 1.5	8.7	44.8	116
00277023	4 G 1.5	9.9	61	166
00277033	5 G 1.5	11.1	72	184

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 500 P refer to page 81
- ÖLFLEX® 550 P* refer to page 84

Accessories

- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU
- STAR STRIP stripping tool refer to page 985

ÖLFLEX® CLASSIC 100 H

Halogen-free power and control cable, oil resistant and very flexible

Info

- CPR: Article number choice under www.lappkabel.com/cpr

Benefits

- Easy handling and installation due to very flexible cable type
- Wide application range due to excellent product features

Application range

- Public buildings like airports or railway stations
- Plant engineering, Industrial machinery Heating and air-conditioning systems Stage applications
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- Oil-resistant according to EN 50363-4-1 (TM5) and UL OIL RES I and UL OIL RES II
- Ozone-resistant according to EN 50396

Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51
- Based on EN 50525-3-11

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 450/750 VAC
In protected and fixed installations: U0/U: 600/1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 100 H				
0014150	2 X 1.5	7.6	28.8	91
0014151	3 G 1.5	8.3	43.2	114
0014152	4 G 1.5	9.0	57.6	140
0014153	5 G 1.5	10.1	72	176
0014156	2 X 2.5	9.0	48	133
0014157	3 G 2.5	9.7	72	167
0014158	4 G 2.5	10.8	96	207
0014159	5 G 2.5	11.9	120	260
0014162	3 G 4	11.4	115.2	240
0014163	4 G 4	12.7	153.6	303
0014164	5 G 4	13.9	192	372
0014166	3 G 6	12.7	172.8	320
0014167	4 G 6	13.9	230.4	400

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0014168	5 G 6	15.8	288	510
0014170	4 G 10	17.9	384	662
0014171	5 G 10	19.9	480	826
0014173	4 G 16	20.7	614.4	957
0014174	5 G 16	23.0	768	1193
0014176	4 G 25	25.4	960	1480
0014177	5 G 25	28.5	1200	1860
0014179	4 G 35	28.8	1344	1985
0014180	5 G 35	32.3	1680	2490
0014182	4 G 50	35.0	1920	2830
0014184	4 G 70	40.0	2688	3890
0014186	4 G 95	46.0	3648	5110
0014188	4 G 120	51.0	4608	6315

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G50 max. 500 m; ≥ 4G120 max. 400 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 125 MC refer to page 181
- ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV refer to page 66

Accessories

- SKINTOP® ST-HF-M refer to page 693

ÖLFLEX® CLASSIC 110 H

Halogen-free control cable, oil resistant and very flexible

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- High flexibility and oil-resistance
- VDE-certified

Benefits

- Easy handling and installation due to very flexible cable type
- Wide application range due to excellent product features
- Certified for maritime applications

Application range

- Public buildings like airports or railway stations
- Plant engineering, Industrial machinery Heating and air-conditioning systems Stage applications
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Intended for use under the European Construction Product Regulation (CPR), refer to catalogue appendix T14
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2015: please see the catalogue appendix table T29

Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-22 and IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- UL Cable Flame Test
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- Oil-resistant according to EN 50363-4-1 (TM5) and UL OIL RES I and UL OIL RES II
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

Norm references / Approvals

- UL AWM style 21089
- Based on EN 50525-3-11
- Based on EN 50525-2-51
- Germanischer Lloyd (GL) certificate no. 11 119-14 HH

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Cores twisted in layers
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V
UL: 600 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -30°C to +70°C (UL: +75°C)
Fixed installation: -40°C to +80°C (UL: +75°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110 H U0/U: 300/500 V				
10019900	2 X 0.5	5.1	9.6	41
10019901	3 G 0.5	5.4	14.4	49
10019902	3 X 0.5	5.4	14.4	49
10019903	4 G 0.5	5.8	19.2	58
10019904	4 X 0.5	5.8	19.2	58
10019905	5 G 0.5	6.3	24	69
10019906	7 G 0.5	6.9	33.6	87
10019907	12 G 0.5	9.1	57.6	141
10019910	2 X 0.75	5.5	14.4	51
10019911	3 G 0.75	5.8	21.6	61
10019912	3 X 0.75	5.8	21.6	61
10019913	4 G 0.75	6.3	28.8	73
10019914	4 X 0.75	6.3	28.8	73
10019915	5 G 0.75	6.9	36	87
10019916	5 X 0.75	6.9	36	87
10019917	7 G 0.75	7.5	50.4	111
10019918	7 X 0.75	7.5	50.4	111
10019919	9 G 0.75	9.6	64.8	150
10019920	12 G 0.75	10.1	86.4	186
10019921	18 G 0.75	12.0	129.6	265
10019922	25 G 0.75	14.1	180	365
10019960	2 X 1.0	5.8	19.2	59
10019961	3 G 1.0	6.1	28.8	72
10019962	3 X 1.0	6.1	28.8	72
10019963	4 G 1.0	6.6	38.4	87
10019964	4 X 1.0	6.6	38.4	87
10019965	5 G 1.0	7.3	48	104
10019967	7 G 1.0	8.1	67.2	138
10019968	8 G 1.0	9.7	76.8	164
10019969	12 G 1.0	10.7	115.2	225
10019970	14 G 1.0	11.4	134.4	261
10019971	18 G 1.0	12.9	172.8	328
10019972	25 G 1.0	15.0	240	445

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
10019973	41 G 1.0	19.2	393.6	719
10019930	2 X 1.5	6.4	28.8	76
10019931	3 G 1.5	6.8	43.2	94
10019980	3 X 1.5	6.8	43.2	94
10019932	4 G 1.5	7.4	57.6	115
10019933	5 G 1.5	8.3	72	142
10019934	7 G 1.5	9.0	100.8	184
10019981	8 G 1.5	10.8	115.2	218
10019982	9 G 1.5	11.6	129.6	245
10019935	12 G 1.5	12.2	172.8	308
10019936	14 G 1.5	13.0	201.6	357
10019937	18 G 1.5	14.6	259.2	449
10019938	25 G 1.5	17.2	360	617
10019927	34 G 1.5	19.8	489.6	821
10019944	2 X 2.5	7.6	48	113
10019945	3 G 2.5	8.3	72	146
10019946	4 G 2.5	9.0	96	180
10019947	5 G 2.5	10.1	120	221
10019948	7 G 2.5	11.2	168	295
10019949	12 G 2.5	15.1	288	491
10019950	4 G 4	10.8	153.6	268
10019951	5 G 4	12.1	192	328
10019952	7 G 4	13.4	268.8	438
10019953	4 G 6	13.0	230.4	391
10019954	5 G 6	14.5	288	478
10019975	7 G 6	16.0	403.2	638
10019851	4 G 10	16.2	384	635
10019852	5 G 10	18.1	480	775
10019849	4 G 16	18.8	614.4	930
10019853	5 G 16	21.2	768	1147
10019854	4 G 25	23.5	960	1442
10019855	5 G 25	26.4	1200	1773
10019856	4 G 35	26.6	1344	1917

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® CLASSIC 110 CH

Screened halogen-free control cable, oil resistant and very flexible

Benefits

- Easy handling and installation due to very flexible cable type
- Wide application range due to excellent product features
- Certified for maritime applications

Application range

- Public buildings like airports or railway stations
- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Intended for use under the European Construction Product Regulation (CPR), refer to catalogue appendix T14
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2015: please see the catalogue appendix table T29

Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-22 and IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- UL Cable Flame Test
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- Oil-resistant according to EN 50363-4-1 (TM5)
  and UL OIL RES I and UL OIL RES II
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

Norm references / Approvals

- UL AWM style 21089
- Based on EN 50525-3-11
- Based on EN 50525-2-51
- Germanischer Lloyd (GL) certificate no. 11 119-14 HH

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Cores twisted in layers
- Halogen-free inner sheath, grey
- Tinned-copper braiding
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- High flexibility and oil-resistance
- Items with higher cross-sections on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V
UL: 600 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -30°C to +70°C (UL: +75°C)
Fixed installation: -40°C to +80°C (UL: +75°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110 CH U0/U: 300/500 V				
10035030	2 X 0.5	7.1	29.1	85
10035031	3 G 0.5	7.4	35.1	95
10035032	3 X 0.5	7.4	35.1	95
10035033	4 G 0.5	8.0	41.4	111
10035034	4 X 0.5	8.0	41.4	111
10035035	5 G 0.5	8.6	48	126
10035036	7 G 0.5	9.1	59.9	148
10035037	12 G 0.5	11.5	91.4	226
10035040	2 X 0.75	7.7	35.4	101
10035041	3 G 0.75	8.0	43.8	114
10035042	3 X 0.75	8.0	43.8	114
10035043	4 G 0.75	8.5	52.8	130
10035044	4 X 0.75	8.5	52.8	130
10035045	5 G 0.75	9.3	62.3	153
10035046	5 X 0.75	9.3	62.3	153
10035047	7 G 0.75	9.9	79.5	183
10035048	7 X 0.75	9.9	79.5	183
10035050	12 G 0.75	12.5	123.2	280
10035051	18 G 0.75	14.8	188.6	399
10035052	25 G 0.75	16.9	247.5	522
10035055	2 X 1.0	8.0	41.4	112
10035056	3 G 1.0	8.4	52.1	127
10035057	3 X 1.0	8.4	52.1	127
10035058	4 G 1.0	8.9	73.5	157
10035059	4 X 1.0	8.9	73.5	157
10035060	5 G 1.0	9.7	83.2	171
10035061	7 G 1.0	10.3	97.2	210
10035062	12 G 1.0	13.6	168.7	347

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
10035063	18 G 1.0	15.7	235.4	474
10035064	25 G 1.0	17.8	312	611
10035065	41 G 1.0	22.4	508	969
10035067	2 X 1.5	8.6	53.2	134
10035068	3 G 1.5	9.0	69.1	155
10035069	3 X 1.5	9.0	69.1	155
10035070	4 G 1.5	9.8	85.8	186
10035071	5 G 1.5	10.5	102.8	215
10035072	7 G 1.5	11.4	134.2	269
10035073	12 G 1.5	15.0	232.8	445
10035074	18 G 1.5	17.4	327.8	610
10035075	25 G 1.5	20.4	463.2	843
10035089	3 G 2.5	10.5	102.8	220
10035090	4 G 2.5	11.4	129.4	265
10035091	5 G 2.5	12.7	157.5	322
10035092	7 G 2.5	14.0	223	422
10035093	12 G 2.5	17.9	360.5	659
10035094	4 G 4	13.6	207.6	390
10035095	5 G 4	14.9	251.5	463
10035096	7 G 4	16.2	333.9	588
10035097	4 G 6	15.8	294.8	516
10035098	5 G 6	17.3	356.1	616
10035099	7 G 6	18.8	479.3	792
10035380	4 G 10	19.1	461.1	789
10035381	5 G 10	21.4	586.6	998
10035382	4 G 16	22.3	727.6	1154
10035383	5 G 16	24.5	888.7	1389
10035384	4 G 25	27.0	1123.9	1807
10035386	4 G 35	30.4	1529.2	2321

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G50 max. 500 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® CLASSIC 130 H

Halogen-free control cable with improved fire characteristics

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For use within public buildings and industrial plants

Benefits

- Easy installation due to flexible design
- Certified for maritime applications

Application range

- Public buildings like airports or railway stations
- Plant engineering, Industrial machinery Heating and air-conditioning systems Stage applications
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2015: please see the catalogue appendix table T29

Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-22 and IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- UL AWM approval: refer to data sheet
- Based on EN 50525-3-11
- Based on EN 50525-2-51
- Germanischer Lloyd (GL) certificate no. 11 120-14 HH

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Cores twisted in layers
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V
UL: 600 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -25°C to +70°C (UL: +75°C)
Fixed installation: -40°C to +80°C (UL: +75°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 130 H				
1123000	2 X 0.5	5.1	9.6	36
1123001	3 G 0.5	5.4	14.4	42
1123002	3 X 0.5	5.4	14.4	42
1123003	4 G 0.5	5.8	19.2	55
1123004	4 X 0.5	5.8	19.2	55
1123005	5 G 0.5	6.3	24	65
1123006	5 X 0.5	6.3	24	65
1123008	7 G 0.5	6.9	33.6	80
1123009	7 X 0.5	6.9	33.6	80
1123010	8 G 0.5	8.2	38.4	103
1123012	10 G 0.5	8.8	48	112
1123013	12 G 0.5	9.1	57.6	128
1123017	18 G 0.5	10.8	86.4	189
1123020	25 G 0.5	12.7	120	260
1123021	30 G 0.5	13.6	144	294
1123032	2 X 0.75	5.5	14.4	47
1123033	3 G 0.75	5.8	21.6	56
1123034	3 X 0.75	5.8	21.6	56
1123035	4 G 0.75	6.3	28.8	69
1123036	4 X 0.75	6.3	28.8	69
1123037	5 G 0.75	6.9	36	83
1123038	5 X 0.75	6.9	36	83
1123041	7 G 0.75	7.5	50.4	104
1123042	7 X 0.75	7.5	50.4	104
1123046	10 G 0.75	9.8	72	149
1123047	12 G 0.75	10.1	86.4	172
1123048	12 X 0.75	10.1	86.4	172
1123051	18 G 0.75	12.0	129.6	252
1123054	25 G 0.75	14.1	180	352
1123056	34 G 0.75	16.3	244.8	466
1123066	2 X 1.0	5.8	19.2	55
1123067	3 G 1.0	6.1	28.8	67
1123068	3 X 1.0	6.1	28.8	67
1123069	4 G 1.0	6.6	38.4	83
1123070	4 X 1.0	6.6	38.4	83

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1123071	5 G 1.0	7.3	48	100
1123072	5 X 1.0	7.3	48	100
1123074	7 G 1.0	8.1	67.2	130
1123075	7 X 1.0	8.1	67.2	130
1123076	8 G 1.0	9.7	76.8	164
1123078	10 G 1.0	10.4	96	183
1123080	12 G 1.0	10.7	115.2	212
1123081	12 X 1.0	10.7	115.2	212
1123083	16 G 1.0	12.1	153.6	275
1123084	18 G 1.0	12.9	172.8	314
1123090	25 G 1.0	15.0	240	429
1123094	34 G 1.0	17.5	326.4	570
1123106	2 X 1.5	6.4	28.8	72
1123107	3 G 1.5	6.8	43.2	88
1123108	3 X 1.5	6.8	43.2	88
1123109	4 G 1.5	7.4	57.6	110
1123110	4 X 1.5	7.4	57.6	110
1123111	5 G 1.5	8.3	72	135
1123112	5 X 1.5	8.3	72	135
1123114	7 G 1.5	9.0	100.8	174
1123115	7 X 1.5	9.0	100.8	174
1123116	8 G 1.5	10.8	115.2	223
1123118	10 G 1.5	11.8	144	250
1123120	12 G 1.5	12.2	172.8	289
1123124	18 G 1.5	14.6	259.2	433
1123128	25 G 1.5	17.2	360	596
1123130	34 G 1.5	19.8	489.6	786
1123139	2 X 2.5	7.6	48	110
1123140	3 G 2.5	8.3	72	137
1123142	4 G 2.5	9.0	96	174
1123144	5 G 2.5	10.1	120	217
1123146	7 G 2.5	11.2	168	283
1123149	12 G 2.5	15.1	288	467
1123151	18 G 2.5	18.0	432	696
1123153	25 G 2.5	21.1	600	969
1123159	3 G 4	9.8	115.2	213

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1123160	4 G 4	10.8	153.6	267
1123161	5 G 4	12.1	192	331
1123162	7 G 4	13.4	268.8	432
1123166	3 G 6	11.7	172.8	303
1123167	4 G 6	13.0	230.4	388
1123168	5 G 6	14.5	288	480
1123169	7 G 6	16.0	403.2	626

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1123172	4 G 10	16.2	384	601
1123173	5 G 10	18.1	480	735
1123177	4 G 16	18.8	614.4	917
1123178	5 G 16	21.2	768	1148
1123181	4 G 25	23.5	960	1418
1123182	5 G 25	26.4	1200	1769
1123185	4 G 35	26.6	1344	1905

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV refer to page 66

Accessories

- SKINTOP® ST-HF-M refer to page 693

ÖLFLEX® CLASSIC 135 CH

Screened halogen-free control cable with improved fire characteristics

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For use within public buildings and industrial plants

Benefits

- Easy installation due to flexible design
- Space-saving installation due to small cable diameters
- Certified for maritime applications

Application range

- Public buildings like airports or railway stations
- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- In EMC-sensitive environments (electromagnetic compatibility)
- Note: for the use of AWM (Appliance Wiring Material) cables in industrial machinery (USA) according to NFPA 79 Ed. 2015: please see the catalogue appendix table T29

Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-22 and IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- UL AWM approval: refer to data sheet
- Based on EN 50525-3-11
- Based on EN 50525-2-51
- Germanischer Lloyd (GL) certificate no. 11 120-14 HH

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Cores twisted in layers
- Halogen-free plastic foil wrapping
- Tinned-copper braiding
- Outer sheath: Special halogen-free compound, grey (similar to RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V
UL: 600 V

Test voltage
Core/core: 4000 V
Core/screen: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -25°C to +70°C (UL: +75°C)
Fixed installation: -40°C to +80°C (UL: +75°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 135 CH				
1123200	2 X 0.5	5.9	36	51
1123201	3 G 0.5	6.2	43	61
1123202	3 X 0.5	6.2	43	61
1123203	4 G 0.5	6.6	49	72
1123204	4 X 0.5	6.6	49	72
1123205	5 G 0.5	7.1	57	85
1123206	5 X 0.5	7.1	57	85
1123208	7 G 0.5	7.7	69	103
1123209	7 X 0.5	7.7	69	103
1123213	12 G 0.5	10.1	104	165
1123217	18 G 0.5	11.8	141	236
1123220	25 G 0.5	13.7	224	324
1123232	2 X 0.75	6.3	43	60
1123233	3 G 0.75	6.6	52	77
1123234	3 X 0.75	6.6	52	77
1123235	4 G 0.75	7.1	61	87
1123236	4 X 0.75	7.1	61	87
1123237	5 G 0.75	7.9	72	106
1123238	5 X 0.75	7.9	72	106
1123241	7 G 0.75	8.5	89	129
1123242	7 X 0.75	8.5	89	129
1123247	12 G 0.75	11.1	138	211
1123248	12 X 0.75	11.1	138	211
1123251	18 G 0.75	13.0	211	307
1123254	25 G 0.75	15.1	280	413
1123266	2 X 1.0	6.6	51	79
1123267	3 G 1.0	6.9	62	88
1123268	3 X 1.0	6.9	62	88
1123269	4 G 1.0	7.4	74	106
1123270	4 X 1.0	7.4	74	106
1123271	5 G 1.0	8.3	88	124
1123272	5 X 1.0	8.3	88	124
1123274	7 G 1.0	8.9	112	155
1123275	7 X 1.0	8.9	112	155
1123280	12 G 1.0	11.7	185	250
1123281	12 X 1.0	11.7	185	250

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1123284	18 G 1.0	14.1	268	368
1123290	25 G 1.0	16.2	354	493
1123291	25 X 1.0	16.2	354	493
1123306	2 X 1.5	7.2	65	91
1123307	3 G 1.5	7.6	82	112
1123308	3 X 1.5	7.6	82	112
1123309	4 G 1.5	8.4	100	141
1123310	4 X 1.5	8.4	100	141
1123311	5 G 1.5	9.1	119	161
1123312	5 X 1.5	9.1	119	161
1123314	7 G 1.5	10.0	154	206
1123315	7 X 1.5	10.0	154	206
1123320	12 G 1.5	13.4	268	355
1123324	18 G 1.5	15.8	373	517
1123328	25 G 1.5	18.2	530	705
1123339	2 X 2.5	8.6	96	128
1123340	3 G 2.5	9.1	118	157
1123342	4 G 2.5	10.0	147	201
1123344	5 G 2.5	11.1	176	248
1123346	7 G 2.5	12.0	253	313
1123349	12 G 2.5	16.3	385	524
1123359	3 G 4	10.6	178	231
1123360	4 G 4	11.8	248	291
1123361	5 G 4	13.3	269	361
1123362	7 G 4	14.6	371	468
1123366	3 G 6	12.7	240	318
1123367	4 G 6	14.2	343	437
1123368	5 G 6	15.5	441	510
1123369	7 G 6	17.0	510	662
1123372	4 G 10	17.2	495	685
1123373	5 G 10	19.5	592	824
1123374	7 G 10	21.4	820	1067
1123377	4 G 16	20.2	736	1036
1123378	5 G 16	22.6	895	1285
1123381	4 G 25	25.1	1129	1663
1123382	5 G 25	28.0	1400	1976
1123385	4 G 35	28.2	1546	2052

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 CH refer to page 62
- ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV refer to page 67

Accessories

- SKINTOP® ST-HF-M refer to page 693
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701

ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV

0.6/1kVAC, Halogen-free, Flexible, IEC 60332-3, IEC 61034-2, UV/ ozone resistance, UL AWM 1000V

Info

- Outdoors
- Public buildings
- UL AWM recognized

Benefits

- Easy installation due to flexible design

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- For outdoor applications
- According to NFPA 79, 2015 Edition, subchapter 12.9.2: Use for industrial machinery operated in the USA on the basis of UL AWM (recognized) certification
- Each dimension with nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm: For applications where a strengthened outer sheath may turn out to be advantageous

Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396
- UL Cable Flame Test

Norm references / Approvals

- Based on EN 50525-3-11
- UL AWM (recognized) Style 21156 (outer jacket) with max. conductor temperature of +75 °C acc. to UL

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Outer sheath made of special halogen-free coumpound, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 600/1000 V
UL: 1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -25°C to +70°C
Fixed installation: -40°C to +80°C
UL: -25°C to +75°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV				
1123410	2 X 1.0	8.6	19.2	107
1123411	3 G 1.0	9.0	28.8	123
1123412	4 G 1.0	9.6	38.4	144
1123413	5 G 1.0	10.4	48	167
1123414	7 G 1.0	11.1	67.2	206
1123415	12 G 1.0	14.0	115.2	314
1123418	2 X 1.5	9.6	28.8	137
1123419	3 G 1.5	10.1	43.2	161
1123420	4 G 1.5	10.8	57.6	190
1123421	5 G 1.5	11.7	72	221
1123422	7 G 1.5	12.6	100.8	276
1123423	12 G 1.5	16.1	172.8	427
1123424	18 G 1.5	18.8	259.2	596
1123425	25 G 1.5	21.7	360	799
1123427	3 G 2.5	11.3	72	219

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1123428	4 G 2.5	12.2	96	262
1123429	5 G 2.5	13.3	120	307
1123430	7 G 2.5	14.4	168	390
1123431	12 G 2.5	18.7	288	624
1123432	18 G 2.5	22.0	432	879
1123433	25 G 2.5	25.8	600	1212
1123434	3 G 4	12.6	115.2	290
1123435	4 G 4	13.7	153.6	351
1123436	5 G 4	14.9	192	416
1123438	4 G 6	15.1	230.4	463
1123439	5 G 6	16.8	288	559
1123440	4 G 10	18.7	384	662
1123441	5 G 10	20.7	480	915
1123443	5 G 16	23.6	768	1296
1123444	4 G 25	26.2	960	1631

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 H refer to page 61
- ÖLFLEX® CLASSIC 130 H refer to page 63

Accessories

- SKINTOP® ST-HF-M refer to page 693

ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV

0.6/1kVAC, Halogen-free, Flexible, IEC 60332-3, IEC 61034-2, UV/ ozone resistance, UL AWM 1000V

Info

- Outdoors
- Public buildings
- EMC/Screened

Benefits

- Easy installation due to flexible design
- Space-saving installation due to small cable diameters

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- For outdoor applications
- According to NFPA 79, 2015 Edition, subchapter 12.9.2: Use for industrial machinery operated in the USA on the basis of UL AWM (recognized) certification
- Each dimension with nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm: For applications where a strengthened outer sheath may turn out to be advantageous

Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- UV and weather-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396
- UL Cable Flame Test

Norm references / Approvals

- Based on EN 50525-3-11
- UL AWM (recognized) Style 21156 (outer jacket) with max. conductor temperature of +75 °C acc. to UL

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Halogen-free plastic foil wrapping
- Tinned-copper braiding
- Outer sheath made of special halogen-free coumpound, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 600/1000 V
UL: 1000 V

Test voltage
Core/core: 4000 V
Core/screen: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -25°C to +70°C
Fixed installation: -40°C to +80°C
UL: -25°C to +75°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV				
1123460	2 X 1.0	9.4	39.5	120
1123461	3 G 1.0	9.8	51	140
1123462	4 G 1.0	10.4	62.8	165
1123463	5 G 1.0	11.2	76	191
1123464	7 G 1.0	11.9	97.2	231
1123465	12 G 1.0	15.0	169.1	360
1123466	18 G 1.0	17.3	238.2	494
1123467	25 G 1.0	19.8	315.5	643
1123468	2 X 1.5	10.4	53.2	149
1123469	3 G 1.5	10.9	69.5	177
1123470	4 G 1.5	11.6	86.5	209
1123471	5 G 1.5	12.5	104.3	243
1123472	7 G 1.5	13.4	136.5	300
1123473	12 G 1.5	17.3	238.3	486
1123474	18 G 1.5	20.2	355.4	691
1123475	25 G 1.5	23.1	475.1	914

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1123476	2 X 2.5	11.6	79.4	197
1123477	3 G 2.5	12.1	106.1	243
1123478	4 G 2.5	13.0	134.3	293
1123479	5 G 2.5	14.1	158.3	342
1123480	7 G 2.5	15.4	225	462
1123481	12 G 2.5	20.1	383.6	718
1123482	18 G 2.5	23.4	548.9	1011
1123483	25 G 2.5	27.4	761.7	1370
1123485	4 G 4	14.7	211.9	399
1123486	5 G 4	15.9	250.3	471
1123487	3 G 6	14.9	232.1	414
1123488	4 G 6	16.1	298.5	519
1123489	5 G 6	17.8	356.1	607
1123490	4 G 10	20.1	490.6	837
1123492	4 G 16	22.5	735.1	1157
1123493	5 G 16	25.0	888.7	1407
1123494	4 G 25	27.8	1126.6	1683

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 CH refer to page 62
- ÖLFLEX® CLASSIC 135 CH refer to page 64

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702

Harsh conditions

ÖLFLEX® PETRO C HFFR 0,6/1 kV

Chemically and mechanically robust cable for harsh environmental conditions - UL/cUL and GL/DNV certified

Info

- Resistant to oil and drilling fluids according to NEK TS 606:2016 (Oil & Mud)
- Highly flame retardant
- UL/cUL certified for North America

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Fire test
Flame-retardant acc. to IEC 60332-1-2, UL VW-1, Cable Flame Test, CSA FT 1
No flame-propagation according to IEC 60332-3-22 category A

Conductor stranding
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
IEC U0/U: 600/1000 V
UL/CSA: 1000 V

Test voltage
4000 V

Temperature range
Occasional flexing: -40°C to +90°C (UL/CSA: +80°C)
Fixed installation: -50°C to +90°C (UL/CSA: +80°C)

Benefits

- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Reduced flame spreading increase the protection against damage to persons and property in the event of a fire
- Wide temperature range for applications in harsh climatic environments
- Copper braiding screens the cable against electromagnetic interference
- Can be used in many applications from different industries due to its mechanical, thermal and chemical properties

Application range

- Onshore and offshore applications
- For electrical connection of drilling units, pumping stations, compressors or generators in harsh environmental conditions
- Particularly in wet areas of machine tools and transfer lines
- Chemical and petrochemical industry
- For indoor and outdoor use

Product features

- Resistant to oil and drilling fluids according to NEK TS 606:2016 and IEC 61892-4
- Fire behaviour:
  - Halogen-free according to VDE 0472-815
  - Flame-retardant according to IEC 60332-1-2
  - No flame propagation according to IEC 60332-3-22 cat. A
- UV-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396
- Salt water-resistant according to UL 1309

Norm references / Approvals

- Single-core versions:
  USA: UL AWM Style 11624
  Canada: cUL AWM II A/B
- Multi-core versions:
  USA: UL AWM Style 20234
  Canada: cUL AWM II A/B
- GL/DNV certified characteristics

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: polyolefin compound
- Cores twisted in layers
- Inner sheath: halogen-free compound
- Tinned copper screen braiding
- Outer sheath made of robust special polymer, colour black

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® PETRO C HFFR black - single core				
0023249	1 X 70	19.3	737	948
0023250	1 X 95	21.6	1002	1155
0023251	1 X 120	24.5	1254	1463
0023248	1 X 150	26.1	1553	1767
0023233	1 X 185	28.4	1912	2349
0023234	1 X 240	32.6	2475	2869
0023279	1 X 300	34.7	3075	3817
ÖLFLEX® PETRO C HFFR black - multi-core				
0023252	2 X 1.5	11.5	57	183
0023253	3 G 1.5	12.0	72	212
0023254	4 G 1.5	12.8	90	249
0023255	5 G 1.5	14.0	115	307
0023256	7 G 1.5	15.9	151	401
0023239	12 G 1.5	18.8	238	573
0023257	18 G 1.5	22.3	350	846
0023240	25 G 1.5	26.6	490	1183
0023278	3 G 2.5	13.5	105	276
0023242	4 G 2.5	14.6	147	347
0023244	5 G 2.5	15.7	171	401
0023245	7 G 2.5	18.3	233	547
0023258	12 G 2.5	22.3	378	840

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0023260	4 G 4	16.2	212	457
0023266	5 G 4	17.6	250	540
0023261	4 G 6	17.7	288	558
0023268	5 G 6	19.9	367	710
0023280	4 G 10	22.3	474	882
0023272	5 G 10	24.3	582	1069
0023281	4 G 16	24.9	716	1208
0023269	5 G 16	27.6	881	1483
0023267	4 G 25	30.2	1096	1785
0023270	5 G 25	33.4	1371	2206
0023262	4 G 35	33.6	1515	2314
0023282	5 G 35	37.1	1875	2847
0023246	4 G 50	39.3	2140	3264
0023271	5 G 50	43.4	2620	4002
ÖLFLEX® PETRO C HFFR blue - multi-core				
0023263	2 X 1.5	11.5	57	183
0023283	3 G 1.5	12.0	72	212
0023237	4 G 1.5	12.8	90	249
0023284	5 G 1.5	14.0	115	307
0023238	7 G 1.5	15.9	151	401
0023264	12 G 1.5	18.8	238	573
0023265	25 G 1.5	26.6	490	1183

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® ROBUST 200

Proven all-weather connection cable - resistant against a variety of chemical media

Info

- Good weather resistance
- Good chemical resistance
- Voltage class 450/750 V

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Agricultural equipment
- For indoor and outdoor use

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Flexible down to -40°C
- Low-capacitance design
- Colour-coded up to 5 cores

Norm references / Approvals

- Based on EN 50525-2-51
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation made of modified PP
- Cores twisted in layers
- Outer sheath made of special TPE
- Sheath colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 450/750 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBUST 200				
0021800	2 X 1.0	8.0	19.2	65
0021801	3 G 1.0	8.4	29	79
0021802	4 G 1.0	9.2	38.4	96
0021803	5 G 1.0	10.0	48	113
0021805	2 X 1.5	8.6	29	78
0021806	3 G 1.5	9.1	43	97
0021807	4 G 1.5	9.9	58	122
0021808	5 G 1.5	10.8	72	146
0021809	7 G 1.5	13.5	101	208
0021810	2 X 2.5	9.8	48	114
0021811	3 G 2.5	10.4	72	144
0021812	4 G 2.5	11.5	96	181
0021813	5 G 2.5	13.1	120	222

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0021814	7 G 2.5	15.9	168	312
0021816	3 G 4	12.4	115.2	215
0021817	4 G 4	14.0	154	273
0021818	5 G 4	15.8	192	333
0021822	4 G 6	15.7	230	378
0021823	5 G 6	17.2	288	463
0021825	4 G 10	19.4	384	570
0021826	5 G 10	21.4	480	770
0021828	4 G 16	22.4	614	885
0021829	5 G 16	24.6	768	1100
0021831	4 G 25	27.0	960	1365
0021833	4 G 35	29.7	1344	1773
0021836	4 G 50	36.2	1920	3454

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G16 max. 600 m; ≥ 4G25 max. 300 m; ≥ 4G50 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- H07RN-F, enhanced version refer to page 88
- ÖLFLEX® ROBUST 210 refer to page 71
- ÖLFLEX® ROBUST 215 C refer to page 72

Accessories

- FLEXIMARK® Stainless steel kit refer to page 963
- SKINTOP® MS-M refer to page 696
- SKINTOP® ST-HF-M refer to page 693
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 698

ÖLFLEX® ROBUST 210

Proven all-weather control cable resistant to a wide range of chemical media

Info

- Good weather resistance
- Good chemical resistance
- Reduced outer diameter

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Agricultural equipment
- For indoor and outdoor use

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Flexible down to -40°C
- Low-capacitance design
- Number-coded cores

Norm references / Approvals

- Based on VDE 0250 / 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation made of modified PP
- Cores twisted in layers
- Outer sheath made of special TPE
- Sheath colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBUST 210				
0021880	2 X 0.5	4.9	10	27
0021881	3 G 0.5	5.2	15	33
0021882	3 X 0.5	5.2	15	33
0021883	4 G 0.5	5.8	19.2	41
0021884	4 X 0.5	5.8	19.2	41
0021885	5 G 0.5	6.3	24	49
0021886	5 X 0.5	6.3	24	49
0021888	7 G 0.5	6.9	33.6	64
0021889	7 X 0.5	6.9	33.6	64
0021890	10 G 0.5	8.8	48	92
0021891	12 G 0.5	9.1	58	106
0021892	18 G 0.5	10.8	86.4	151
0021893	25 G 0.5	12.7	120	210
0021897	2 X 0.75	5.5	14.4	35
0021898	3 G 0.75	5.8	21.6	43
0021899	3 X 0.75	5.8	21.6	43
0021900	4 G 0.75	6.3	28.8	49
0021901	4 X 0.75	6.3	28.8	49
0021902	5 G 0.75	6.9	36	66
0021903	5 X 0.75	6.9	36	66
0021904	7 G 0.75	7.5	50	85
0021905	7 X 0.75	7.5	50	85
0021907	12 G 0.75	10.1	86	144
0021908	18 G 0.75	12.0	130	208
0021909	25 G 0.75	14.1	180	288
0021910	34 G 0.75	16.3	245	386
0021911	41 G 0.75	17.8	296	464
0021912	50 G 0.75	19.6	360	560
0021913	2 X 1.0	5.8	19.2	42
0021914	3 G 1.0	6.1	28.8	49
0021915	3 X 1.0	6.1	28.8	49
0021916	4 G 1.0	6.6	38.4	63
0021917	4 X 1.0	6.6	38.4	63
0021918	5 G 1.0	7.3	48	78
0021919	5 X 1.0	7.3	48	78
0021920	7 G 1.0	8.1	67	107
0021921	10 G 1.0	10.4	96	154

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0021922	12 G 1.0	10.7	115	178
0021923	18 G 1.0	12.9	173	262
0021924	25 G 1.0	15.0	240	357
0021925	34 G 1.0	17.5	326	484
0021926	41 G 1.0	19.2	394	582
0021927	50 G 1.0	21.0	480	703
0021928	2 X 1.5	6.4	29	56
0021929	3 G 1.5	6.8	43	72
0021930	3 X 1.5	6.8	43	72
0021931	4 G 1.5	7.4	58	91
0021932	4 X 1.5	7.4	58	91
0021933	5 G 1.5	8.3	72	108
0021934	5 X 1.5	8.3	72	108
0021936	7 G 1.5	9.0	101	149
0021937	7 X 1.5	9.0	101	149
0021938	10 G 1.5	11.8	143	215
0021940	12 G 1.5	12.2	173	234
0021941	18 G 1.5	14.6	259	369
0021942	25 G 1.5	17.2	360	510
0021943	34 G 1.5	19.8	490	683
0021945	50 G 1.5	24.0	720	999
0021946	2 X 2.5	7.6	48	86
0021947	3 G 2.5	8.3	72	115
0021949	4 G 2.5	9.0	96	131
0021951	5 G 2.5	10.1	120	178
0021953	7 G 2.5	11.2	168	241
0021954	12 G 2.5	15.1	288	405
0021963	3 G 4	10.1	115	180
0021964	4 G 4	11.1	157	228
0021965	5 G 4	12.4	192	280
0021966	7 G 4	13.6	269	377
0021967	4 G 6	13.3	230	332
0021968	5 G 6	14.8	288	407
0021969	4 G 10	16.5	384	541
0021970	5 G 10	18.4	480	620
0021971	4 G 16	18.8	614.4	806
0021972	4 G 25	23.5	960	1218
0021973	4 G 35	26.4	1344	1658

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils). / Single lengths for sizes: ≥ 4G16 max. 600 m; ≥ 4G25 max. 300 m; ≥ 4G50 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® ROBUST 215 C

Proven all-weather control cable - screened and resistant to a wide range of chemical media

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Agricultural equipment
- For indoor and outdoor use
- In EMC-sensitive environments (electromagnetic compatibility)

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Flexible down to -40°C
- Low-capacitance design
- Number-coded cores

Norm references / Approvals

- Based on VDE 0250 / 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation made of modified PP
- Cores twisted in layers
- Halogen-free plastic foil wrapping
- Tinned copper screen braiding
- Outer sheath made of special TPE
- Sheath colour: black

Info

- Good weather resistance
- Good chemical resistance
- EMC compliant copper screening

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
Core/core: 4000 V
Core/screen: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBUST 215 C				
0022700	2 X 0.5	5.9	36	42
0022701	3 G 0.5	6.2	43	52
0022702	3 X 0.5	6.2	43	52
0022703	4 G 0.5	6.6	49	59
0022704	4 X 0.5	6.6	49	59
0022705	5 G 0.5	7.1	57	68
0022706	5 X 0.5	7.1	57	68
0022708	7 G 0.5	7.7	69	85
0022709	7 X 0.5	7.7	69	85
0022711	12 G 0.5	10.1	104	136
0022712	18 G 0.5	11.8	141	189
0022713	25 G 0.5	13.7	211	265
0022717	2 X 0.75	6.3	43	50
0022718	3 G 0.75	6.6	52	60
0022719	3 X 0.75	6.6	52	60
0022720	4 G 0.75	7.1	61	72
0022721	4 X 0.75	7.1	61	72
0022722	5 G 0.75	7.9	72	88
0022723	5 X 0.75	7.9	72	88
0022724	7 G 0.75	8.5	89	110
0022725	7 X 0.75	8.5	89	110
0022727	12 G 0.75	11.1	138	177
0022728	18 G 0.75	13.0	211	247
0022729	25 G 0.75	15.1	280	347
0022730	34 G 0.75	17.5	380	460
0022733	2 X 1.0	6.6	51	60
0022734	3 G 1.0	6.9	62	70
0022735	3 X 1.0	6.9	62	70
0022736	4 G 1.0	7.4	74	85

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0022737	4 X 1.0	7.4	74	85
0022738	5 G 1.0	8.3	88	103
0022739	5 X 1.0	8.3	88	103
0022740	7 G 1.0	8.9	112	131
0022742	12 G 1.0	11.7	185	213
0022743	18 G 1.0	14.1	268	321
0022744	25 G 1.0	16.2	354	425
0022748	2 X 1.5	7.2	65	71
0022749	3 G 1.5	7.6	82	90
0022750	3 X 1.5	7.6	82	90
0022751	4 G 1.5	8.4	100	114
0022752	4 X 1.5	8.4	100	114
0022753	5 G 1.5	9.1	119	136
0022754	5 X 1.5	9.1	119	136
0022756	7 G 1.5	10.0	154	177
0022757	7 X 1.5	10.0	154	177
0022760	12 G 1.5	13.4	268	290
0022761	18 G 1.5	15.8	373	435
0022762	25 G 1.5	18.2	530	579
0022763	34 G 1.5	21.2	683	797
0022767	3 G 2.5	9.1	118	134
0022768	4 G 2.5	10.0	147	169
0022769	5 G 2.5	11.1	176	207
0022770	7 G 2.5	12.0	253	270
0022774	4 G 4	11.9	190	258
0022776	4 G 6	14.5	290	392
0022777	4 G 10	17.5	458	602
0022778	4 G 16	20.2	736.6	928
0022771	4 G 25	25.1	1126.7	1411
0022780	4 G 35	28.0	1540	1883

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Single lengths for sizes: ≥ 4G16 max. 600 m; ≥ 4G25 max. 300 m; ≥ 4G50 max. 250 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702

ÖLFLEX® CLASSIC 400 P

Abrasion- and oil-resistant control cable with PUR sheath for increased application requirements

Info

- High mechanical strength
- Good oil resistance
- The classic for multi-functional use

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Compatible with a multitude of acidic cleaning and disinfection solutions
- Also available as DESINA® compliant power cable with black outer sheath colour

Application range

- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Food production and packaging machinery
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for outdoor use

Product features

- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface
- Resistant to hydrolysis and microbes

Norm references / Approvals

- Based on VDE 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- Special polyurethane outer sheath (PUR)
- Sheath colour: Grey (similar RAL 7001)
- DESINA®: black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Flexible use: 12.5 x outer diameter / Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 400 P - sheath colour: grey				
1312802	2 X 0.5	4.8	10	32
1312003	3 G 0.5	5.1	15	43
1312803	3 X 0.5	5.1	15	43
1312004	4 G 0.5	5.7	19.2	50
1312804	4 X 0.5	5.7	19.2	50
1312005	5 G 0.5	6.2	24	59
1312805	5 X 0.5	6.2	24	59
1312007	7 G 0.5	6.7	34	73
1312807	7 X 0.5	6.7	34	73
1312010	10 G 0.5	8.6	48	109
1312012	12 G 0.5	8.9	57.6	125
1312018	18 G 0.5	10.5	87	180
1312025	25 G 0.5	12.4	120	250
1312034	34 G 0.5	14.3	164	333
1312041	41 G 0.5	15.7	197	400
1312852	2 X 0.75	5.4	14.4	41
1312103	3 G 0.75	5.7	21.6	51
1312853	3 X 0.75	5.7	21.6	51
1312104	4 G 0.75	6.2	28.8	62
1312854	4 X 0.75	6.2	28.8	62
1312105	5 G 0.75	6.7	36	74
1312855	5 X 0.75	6.7	36	74
1312107	7 G 0.75	7.3	50	97
1312857	7 X 0.75	7.3	50	97
1312110	10 G 0.75	9.6	72	142
1312112	12 G 0.75	9.9	86.4	163
1312118	18 G 0.75	11.7	129.6	234
1312125	25 G 0.75	13.8	180	324
1312134	34 G 0.75	15.9	244.8	431
1312141	41 G 0.75	17.4	295.2	529
1312902	2 X 1.0	5.7	19.2	48
1312203	3 G 1.0	6.0	28.8	61
1312903	3 X 1.0	6.0	28.8	61
1312204	4 G 1.0	6.5	38.4	74
1312904	4 X 1.0	6.5	38.4	74
1312205	5 G 1.0	7.1	48	89
1312905	5 X 1.0	7.1	48	89
1312207	7 G 1.0	8.0	67	116
1312210	10 G 1.0	10.2	96	171
1312212	12 G 1.0	10.5	115	197
1312218	18 G 1.0	12.7	173	289

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1312225	25 G 1.0	14.7	240	412
1312234	34 G 1.0	17.1	326.4	532
1312241	41 G 1.0	18.8	393.6	638
1312952	2 X 1.5	6.3	29	63
1312303	3 G 1.5	6.7	43	79
1312953	3 X 1.5	6.7	43	79
1312304	4 G 1.5	7.2	58	98
1312954	4 X 1.5	7.2	58	98
1312305	5 G 1.5	8.1	72	121
1312955	5 X 1.5	8.1	72	121
1312307	7 G 1.5	8.9	101	159
1312957	7 X 1.5	8.9	101	159
1312312	12 G 1.5	12.0	173	268
1312318	18 G 1.5	13.4	259.5	392
1312325	25 G 1.5	16.9	360	531
1312334	34 G 1.5	19.4	489.6	722
1312341	41 G 1.5	21.3	590.4	867
1312403	3 G 2.5	8.1	72	132
1312404	4 G 2.5	8.9	96	163
1312405	5 G 2.5	10.0	120	186
1312407	7 G 2.5	11.1	168	267
1312412	12 G 2.5	14.8	288	445
1312504	4 G 4	10.8	154	237
1312505	5 G 4	12.1	192	291
1312507	7 G 4	13.4	269	391
1312604	4 G 6	13.0	230.4	327
1312605	5 G 6	14.5	288	424
1312607	7 G 6	16.0	403	580
1312614	4 G 10	16.2	384	567
1312615	5 G 10	18.1	480	695
1312617	7 G 10	20.0	672	937
1312624	4 G 16	18.8	614.4	1064
ÖLFLEX® CLASSIC 400 P DESINA - sheath colour: black				
1312970	4 G 1.5	7.2	58	98
1312981	7 G 1.5	8.8	101	159
1312983	11 G 1.5	11.6	158	228
1312973	4 G 2.5	8.9	96	163
1312974	4 G 4	10.8	154	237
1312975	4 G 6	13.0	230.4	350
1312976	4 G 10	16.2	384	567
1312978	4 G 25	23.5	960	1582

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils). / DESINA® is a registered trademark of the German Machine Tool Builders' Association
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® CLASSIC 400 CP

Screened, abrasion- and oil-resistant control cable with PUR sheath for increased application requirements

Info

- High mechanical strength
- Good oil resistance
- EMC compliant copper screening

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Compatible with a multitude of acidic cleaning and disinfection solutions
- Additional robustness thanks to inner sheath
- Copper braiding screens the cable against electromagnetic interference

Application range

- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Food production and packaging machinery
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for flexible outdoor use

Product features

- High oil-resistance
- Abrasion and notch-resistant
- EMC-compliant
- Low-adhesive surface
- Resistant to hydrolysis and microbes

Norm references / Approvals

- Based on VDE 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- Special polyurethane outer sheath (PUR)
- Sheath colour: Grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 400 CP				
1313852	2 X 0.75	7.4	45	85
1313103	3 G 0.75	7.9	52	99
1313853	3 X 0.75	7.9	52	99
1313104	4 G 0.75	8.4	77	114
1313854	4 X 0.75	8.4	77	114
1313105	5 G 0.75	8.9	84	130
1313855	5 X 0.75	8.9	84	130
1313107	7 G 0.75	9.7	92	161
1313857	7 X 0.75	9.7	92	161
1313112	12 G 0.75	12.3	138	245
1313118	18 G 0.75	14.5	219	354
1313125	25 G 0.75	16.6	277	463
1313134	34 G 0.75	18.9	420	598
1313141	41 G 0.75	20.6	500	725
1313902	2 X 1.0	7.9	50	97
1313203	3 G 1.0	8.2	77	111
1313903	3 X 1.0	8.2	77	111
1313204	4 G 1.0	8.7	87	129
1313904	4 X 1.0	8.7	87	129
1313205	5 G 1.0	9.5	90	152
1313207	7 G 1.0	10.2	110	184
1313212	12 G 1.0	13.3	194	306
1313218	18 G 1.0	15.5	267	417
1313225	25 G 1.0	17.5	379	541
1313234	34 G 1.0	20.3	516	735

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1313241	41 G 1.0	22.0	610	860
1313952	2 X 1.5	8.5	77	116
1313303	3 G 1.5	8.9	85	135
1313953	3 X 1.5	8.9	85	135
1313304	4 G 1.5	9.6	100	162
1313954	4 X 1.5	9.6	100	162
1313305	5 G 1.5	10.3	120	187
1313955	5 X 1.5	10.3	120	187
1313307	7 G 1.5	11.3	152	236
1313957	7 X 1.5	11.3	152	236
1313312	12 G 1.5	14.8	267	392
1313318	18 G 1.5	17.2	400	536
1313325	25 G 1.5	20.1	572	742
1313334	34 G 1.5	21.9	754	960
1313341	41 G 1.5	24.7	874	1118
1313403	3 G 2.5	10.3	121	191
1313404	4 G 2.5	11.3	163	232
1313405	5 G 2.5	12.6	199	282
1313407	7 G 2.5	13.9	261	370
1313412	12 G 2.5	17.2	470	580
1313504	4 G 4	13.4	238	345
1313505	5 G 4	14.7	279	412
1313604	4 G 6	15.8	318	483
1313605	5 G 6	17.3	370	576
1313614	4 G 10	19.0	558	733
1313624	4 G 16	22.2	804	1340

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 415 CP refer to page 75
- ÖLFLEX® 440 CP refer to page 79

Accessories

- Conductor end sleeves
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701

ÖLFLEX® CLASSIC 415 CP

Screened, abrasion- and oil-resistante PUR control cable with reduced outer diameter

Info

- Thin and light, without inner sheath
- EMC compliant copper screening

Benefits

- Space and weight-saving installations due to small cable diameters
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Copper braiding screens the cable against electromagnetic interference

Application range

- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for outdoor use

Product features

- High oil-resistance
- Abrasion and notch-resistant
- EMC-compliant
- Low-adhesive surface
- Resistant to hydrolysis and microbes

Norm references / Approvals

- Core based on VDE 0812/0285
- Outer sheath based on VDE 0250/0285

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- Plastic foil wrapping
- Tinned-copper braiding
- Special polyurethane outer sheath (PUR)
- Sheath colour: Grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
Core/core: 4000 V
Core/screen: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 415 CP				
1314000	2 X 0.5	5.8	36	45
1314001	3 G 0.5	6.1	43	59
1314002	3 X 0.5	6.1	43	59
1314003	4 G 0.5	6.5	49	83
1314004	4 X 0.5	6.5	49	83
1314005	5 G 0.5	7.0	57	96
1314006	5 X 0.5	7.0	57	96
1314007	7 G 0.5	7.5	69	136
1314008	7 X 0.5	7.5	69	136
1314010	12 G 0.5	9.9	104	200
1314011	12 X 0.5	9.9	104	200
1314012	18 G 0.5	11.5	141	275
1314013	18 X 0.5	11.5	141	275
1314014	25 G 0.5	13.4	211	350
1314015	25 X 0.5	13.4	211	350
1314017	2 X 0.75	6.2	43	56
1314018	3 G 0.75	6.5	52	70
1314019	3 X 0.75	6.5	52	70
1314020	4 G 0.75	7.0	61	95
1314021	4 X 0.75	7.0	61	95
1314022	5 G 0.75	7.7	72	130
1314023	5 X 0.75	7.7	72	130
1314024	7 G 0.75	8.3	89	168
1314025	7 X 0.75	8.3	89	168
1314026	12 G 0.75	10.9	138	232
1314027	18 G 0.75	12.7	211	315
1314028	25 G 0.75	14.8	280	435
1314029	25 X 0.75	14.8	280	435
1314032	2 X 1.0	6.5	51	84
1314033	3 G 1.0	6.8	62	110
1314034	3 X 1.0	6.8	62	110
1314035	4 G 1.0	7.3	74	130
1314036	4 X 1.0	7.3	74	130
1314037	5 G 1.0	8.1	88	156

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1314038	5 X 1.0	8.1	88	156
1314039	7 G 1.0	8.8	112	192
1314040	7 X 1.0	8.8	112	192
1314041	12 G 1.0	11.5	185	285
1314042	18 G 1.0	13.9	268	395
1314043	25 G 1.0	15.9	354	656
1314046	2 X 1.5	7.1	65	97
1314047	3 G 1.5	7.5	82	125
1314048	3 X 1.5	7.5	82	125
1314049	4 G 1.5	8.2	100	165
1314050	4 X 1.5	8.2	100	165
1314051	5 G 1.5	8.9	119	193
1314052	5 X 1.5	8.9	119	193
1314053	7 G 1.5	9.9	154	245
1314054	7 X 1.5	9.9	154	245
1314055	12 G 1.5	13.0	268	365
1314056	18 G 1.5	15.6	373	553
1314057	25 G 1.5	17.9	530	734
1314058	34 G 1.5	20.8	683	944
1314061	3 G 2.5	8.9	118	188
1314062	4 G 2.5	9.9	147	236
1314063	5 G 2.5	11.0	176	270
1314064	7 G 2.5	11.9	253	340
1314065	12 G 2.5	16.0	355	589
1314066	18 G 2.5	19.0	569	978
1314067	25 G 2.5	22.2	827	1358
1314068	4 G 4	11.6	248	305
1314070	7 G 4	14.4	355	500
1314071	4 G 6	14.2	343	440
1314073	7 G 6	17.0	505	672
1314074	4 G 10	17.2	535	710
1314075	4 G 16	20.2	800	1050
1314076	4 G 25	25.1	1075	1570
1314077	4 G 35	28.0	1576	2070

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® ROBUST 215 C refer to page 72

Accessories

- Conductor end sleeves
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701

ÖLFLEX® 408 P

Abrasion- and oil-resistant control cable with PUR sheath for increased application requirements - VDE certified

Info

- Oil resistant and abrasion-proof
- Proved and certified quality
- Easy jacket stripping thanks to interstice-filling functional layer

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Interstice-filling functional layer ensures more saftey and efficiency during industrial and manual jacket stripping
- VDE-tested characteristics
- Good combination of quality and price

Application range

- Appliance and apparatus construction
- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for outdoor use

Product features

- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface
- Resistant to hydrolysis and microbes

Norm references / Approvals

- VDE Reg.No. 8744

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- Special outer sheath of polyurethane with interstice-filling functional layer
- Sheath colour: Grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Flexible use: 12.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -15°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 408 P				
1308802	2 X 0.5	4,8	9.6	32
1308003	3 G 0.5	5,1	14.4	39
1308803	3 X 0.5	5,1	14.4	39
1308004	4 G 0.5	5,7	19.2	49
1308804	4 X 0.5	5,7	19.2	49
1308005	5 G 0.5	6,2	24	59
1308805	5 X 0.5	6,2	24	59
1308007	7 G 0.5	6,7	33.6	73
1308807	7 X 0.5	6,7	33.6	73
1308010	10 G 0.5	8,6	48	116
1308012	12 G 0.5	8,9	57.6	129
1308018	18 G 0.5	10,5	86.4	184
1308025	25 G 0.5	12,4	120	256
1308852	2 X 0.75	5,4	14.4	42
1308103	3 G 0.75	5,7	21.6	51
1308853	3 X 0.75	5,7	21.6	51
1308104	4 G 0.75	6,2	28.8	62
1308854	4 X 0.75	6,2	28.8	62
1308105	5 G 0.75	6,7	36	75
1308855	5 X 0.75	6,7	36	75
1308107	7 G 0.75	7,3	50.4	95
1308857	7 X 0.75	7,3	50.4	95
1308110	10 G 0.75	9,6	72	153
1308112	12 G 0.75	9,9	86.4	170
1308118	18 G 0.75	11,7	129.6	245
1308125	25 G 0.75	13,8	180	340
1308902	2 X 1.0	5,7	19.2	49
1308203	3 G 1.0	6.0	28.8	60
1308903	3 X 1.0	6.0	28.8	60
1308204	4 G 1.0	6,5	38.4	74
1308904	4 X 1.0	6,5	38.4	74
1308205	5 G 1.0	7,1	48	90
1308905	5 X 1.0	7,1	48	90

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1308207	7 G 1.0	8.0	67.2	118
1308907	7 X 1.0	8.0	67.2	118
1308210	10 G 1.0	10,2	86	184
1308212	12 G 1.0	10,5	115.2	204
1308218	18 G 1.0	12,7	172.8	303
1308225	25 G 1.0	14,7	240	412
1308952	2 X 1.5	6,3	28.8	64
1308303	3 G 1.5	6,7	43.2	81
1308953	3 X 1.5	6,7	43.2	81
1308304	4 G 1.5	7,2	57.6	99
1308954	4 X 1.5	7,2	57.6	99
1308305	5 G 1.5	8,1	72	125
1308955	5 X 1.5	8,1	72	125
1308307	7 G 1.5	8,9	100.8	161
1308957	7 X 1.5	8,9	100.8	161
1308312	12 G 1.5	12.0	172.8	286
1308318	18 G 1.5	14,4	259.2	419
1308325	25 G 1.5	16,9	360	580
1308403	3 G 2.5	8,1	72	125
1308404	4 G 2.5	8,9	96	158
1308405	5 G 2.5	10.0	120	198
1308407	7 G 2.5	11,1	168	259
1308412	12 G 2.5	14,8	288	454
1308504	4 G 4	10,8	153.6	241
1308505	5 G 4	12,1	192	302
1308507	7 G 4	13,4	268.8	394
1308604	4 G 6	13.0	230.4	356
1308605	5 G 6	14,5	288	443
1308607	7 G 6	16.0	403.2	579
1308514	4 G 10	16,2	384	571
1308615	5 G 10	18,1	480	714
1308617	7 G 10	20.0	672	935
1308624	4 G 16	18,8	614.4	843

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® 409 P

Abrasion- and oil-resistant PUR control cable for increased application requirements - certified for North America

Info

- Oil resistant and abrasion-proof
- UL/cUL certified for North America
- Easy jacket stripping thanks to interstice-filling functional layer

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Interstice-filling functional layer ensures more saftey and efficiency during industrial and manual jacket stripping
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Good combination of quality and price

Application range

- Appliance and apparatus construction
- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Under consideration of the temperature range also suitable for outdoor use

Product features

- High oil-resistance
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Abrasion and notch-resistant
- UV-resistant according to ISO 4892-2
- Resistant to hydrolysis and microbes

Norm references / Approvals

- UL File No. E63634
- UL AWM Style 20234
- CUL AWM II A/B FT1

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- Special outer sheath of polyurethane with interstice-filling functional layer
- Sheath colour: black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Flexible use: 12.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V
UL/CSA: 1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 409 P				
1311852	2 X 0.75	6,9	14.4	61
1311103	3 G 0.75	7,2	21.6	71
1311104	4 G 0.75	7,7	28.8	84
1311105	5 G 0.75	8,3	36	100
1311107	7 G 0.75	8,9	50.4	122
1311110	10 G 0.75	10,8	72	180
1311112	12 G 0.75	11,1	86.4	198
1311118	18 G 0.75	12,8	129.6	275
1311125	25 G 0.75	14,5	180	364
1311902	2 X 1.0	7,2	19.2	69
1311203	3 G 1.0	7,5	28.8	81
1311204	4 G 1.0	8.0	38.4	97
1311205	5 G 1.0	8,7	48	117
1311207	7 G 1.0	9,3	67.2	142
1311210	10 G 1.0	11,4	96	212
1311212	12 G 1.0	11,7	115.2	234
1311218	18 G 1.0	13,5	172.8	327
1311225	25 G 1.0	15,4	240	437
1311952	2 X 1.5	7,8	28.8	87

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1311303	3 G 1.5	8,2	43.2	104
1311304	4 G 1.5	8,8	57.6	126
1311305	5 G 1.5	9,5	72	151
1311307	7 G 1.5	10,2	100.8	188
1311312	12 G 1.5	13.0	172.8	314
1311318	18 G 1.5	15.0	259.2	441
1311325	25 G 1.5	17,2	360	596
1311403	3 G 2.5	9,5	72	151
1311404	4 G 2.5	10,2	96	184
1311405	5 G 2.5	11,1	120	224
1311407	7 G 2.5	12.0	168	282
1311412	12 G 2.5	15,5	288	480
1311504	4 G 4	11,8	153.6	266
1311505	5 G 4	12,9	192	325
1311604	4 G 6	13,1	230.4	359
1311605	5 G 6	14,3	288	438
1311704	4 G 10	16,5	384	585
1311705	5 G 10	18,2	480	722
1311804	4 G 16	19,1	614.4	861
1311805	5 G 16	22,1	768	1107

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® 440 P

Abrasion- and oil-resistant all-weather control cable with TPE core insulation and PUR sheath - VDE certified

Info

- The robust multi-purpose control cable
- Halogen-free and flame-retardant
- VDE-tested and registered

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- VDE-tested characteristics

Application range

- Industrial machinery and machine tools
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Construction machinery
- Agricultural equipment
- For indoor and outdoor use

Product features

- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Abrasion and notch-resistant
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to hydrolysis and microbes
- Flexible down to -40°C

Norm references / Approvals

- VDE reg. no. 6582
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted in layers
- Special polyurethane outer sheath (PUR)
- Sheath colour: Grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 12.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 440 P				
0012800	2 X 0.5	5.8	10	39
0012801	3 G 0.5	6.1	14	46
0012802	4 G 0.5	6.6	19	53
0012803	5 G 0.5	7.3	24	65
0012804	7 G 0.5	8.8	34	92
0012805	12 G 0.5	10.9	58	149
0012806	18 G 0.5	12.9	86	207
0012807	25 G 0.5	15.7	120	274
0012813	2 X 0.75	6.2	14	48
0012814	3 G 0.75	6.5	22	53
0012815	4 G 0.75	7.1	29	67
0012816	5 G 0.75	8.0	36	81
0012817	7 G 0.75	9.7	50	119
0012818	12 G 0.75	11.7	86	193
0012819	18 G 0.75	14.1	130	269
0012820	25 G 0.75	17.1	180	378
0012825	2 X 1.0	6.5	19	57
0012826	3 G 1.0	6.9	29	61
0012827	4 G 1.0	7.7	38	82
0012828	5 G 1.0	8.4	48	107

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0012829	7 G 1.0	10.2	67	138
0012830	12 G 1.0	12.6	115	215
0012831	18 G 1.0	14.9	173	328
0012832	25 G 1.0	18.1	240	479
0012833	34 G 1.0	20.6	326	616
0012834	41 G 1.0	22.4	394	727
0012837	2 X 1.5	7.1	29	73
0012838	3 G 1.5	7.5	43	96
0012839	4 G 1.5	8.4	58	105
0012840	5 G 1.5	9.4	72	133
0012841	7 G 1.5	11.4	101	175
0012842	12 G 1.5	14.0	173	309
0012843	18 G 1.5	16.6	259	458
0012844	25 G 1.5	20.1	360	635
0012846	41 G 1.5	25.1	590	1003
0012850	3 G 2.5	9.2	72	142
0012851	4 G 2.5	10.0	96	184
0012852	5 G 2.5	11.2	120	220
0012853	7 G 2.5	13.8	168	294
0012854	12 G 2.5	16.9	288	489

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® ROBUST 210 refer to page 71
- ÖLFLEX® CLASSIC 400 P refer to page 73

Accessories

- Conductor end sleeves
- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU

ÖLFLEX® 440 CP

Screened, abrasion- and oil-resistant all-weather control cable with TPE insulation and PUR sheath - VDE certified

Info

- The robust multi-purpose control cable
- Halogen-free and flame-retardant
- VDE-tested and registered

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Additional robustness thanks to inner sheath
- Copper braiding screens the cable against electromagnetic interference

Application range

- Industrial machinery and machine tools
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Construction machinery
- Agricultural equipment
- For indoor and outdoor use

Product features

- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Abrasion and notch-resistant
- Halogen-free and flame-retardant (IEC 60332-1-2)
- EMC-compliant
- Flexible at low temperatures

Norm references / Approvals

- VDE reg. no. 6582
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted in layers
- Inner sheath made of TPE
- Tinned-copper braiding
- Special polyurethane outer sheath (PUR)
- Sheath colour: Grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x cable diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 440 CP				
0012901	3 G 0.5	8.3	44	100
0012902	4 G 0.5	8.8	52	120
0012903	5 G 0.5	9.7	61	139
0012904	7 G 0.5	11.2	75	175
0012906	12 G 0.5	13.7	131	276
0012907	18 G 0.5	15.7	168	376
0012908	25 G 0.5	18.5	212	485
0012911	2 X 0.75	8.4	45	104
0012912	3 G 0.75	8.7	52	119
0012913	4 G 0.75	9.5	67	126
0012914	5 G 0.75	10.2	75	165
0012915	7 G 0.75	11.9	96	210
0012917	12 G 0.75	14.5	160	331
0012919	25 G 0.75	20.3	283	596
0012925	2 X 1.0	8.7	49	117
0012926	3 G 1.0	9.3	60	132
0012927	4 G 1.0	9.9	78	163
0012928	5 G 1.0	10.8	88	187

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0012929	7 G 1.0	12.8	115	255
0012931	12 G 1.0	15.4	201	419
0012932	18 G 1.0	17.7	267	546
0012933	25 G 1.0	21.5	351	738
0012934	34 G 1.0	23.8	498	972
0012940	2 X 1.5	9.5	68	122
0012941	3 G 1.5	9.9	83	140
0012942	4 G 1.5	10.8	102	170
0012943	5 G 1.5	11.6	119	200
0012944	7 G 1.5	14.2	186	290
0012945	12 G 1.5	16.8	264	423
0012946	18 G 1.5	20.0	379	616
0012947	25 G 1.5	23.5	534	804
0012949	41 G 1.5	28.9	803	1360
0012950	3 G 2.5	11.4	121	194
0012951	4 G 2.5	12.6	145	307
0012952	5 G 2.5	14.0	205	413
0012953	7 G 2.5	16.4	259	533
0012954	12 G 2.5	20.1	407	795

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Conductor end sleeves
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701

ÖLFLEX® 450 P

Abrasion- and oil-resistant cable for handheld equipment with wear indicator

Info

- Cost-effective PVC/PUR dual sheath
- Integrated wear indicator

Benefits

- Good cost-benefit ratio
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- The signal colour of the outer sheath increases safety and visual perception
- Serious mechanical damages of the yellow outer jacket become visible due to the red inner sheath

Application range

- Portable handheld electrical devices such as drills, sanders, jig saws or grinders
- Power or extension cord
- Portable devices for the home and garden
- Under consideration of the temperature range also suitable for outdoor use

Product features

- Good oil resistance
- Abrasion and notch-resistant
- Flame-retardant according IEC 60332-1-2
- Low-adhesive surface
- Resistant to hydrolysis and microbes

Norm references / Approvals

- Based on VDE 0250 / 0285

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: Based on PVC
- Cores twisted together
- Inner sheath: PVC - colour red
- Outer sheath: PUR colour yellow

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 450 P				
0012101	2 X 1.0	8.0	19.2	82
0012102	3 G 1.0	8.4	29	89
0012202	3 G 1.5	9.3	43	120
00122033	4 G 1.5	10.1	58	160
00122043	5 G 1.5	10.9	72	179
0012302	3 G 2.5	10.8	72	186
00123043	5 G 2.5	13.6	120	283

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 540 P refer to page 82
- ÖLFLEX® 550 P* refer to page 84

Accessories

- SKINTOP® BS-M refer to page 689
- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU

ÖLFLEX® 500 P

Flexible, abrasion-, oil- and cold-resistant workshop cable with PUR outer sheath

Info

- High mechanical strength
- Good oil resistance
- Extra flexible conductor design

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath material
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- High flexibility simplifies installation when space is at a premium and use with electrical handheld devices
- The signal colour of the outer sheath increases safety and visual perception

Application range

- Portable handheld electrical devices such as drills, sanders, jig saws or grinders
- Portable devices for the home and garden
- Connection and extension cables

Product features

- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Abrasion and notch-resistant
- Flexible down to -40°C
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to hydrolysis and microbes

Norm references / Approvals

- Based on VDE 0285
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: TPE compound
- Cores twisted together
- PUR outer sheath
- Sheath colour: orange

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 500 P				
0012345	2 X 1.0	7.2	19.5	64
0012346	3 G 1.0	7.6	29	77
00123473	4 G 1.0	8.5	38.4	96
00123483	5 G 1.0	9.2	48	120
0012351	2 X 1.5	8.0	29	81
0012352	3 G 1.5	8.7	43	105.3
00123543	4 G 1.5	9.6	58	135
00123533	5 G 1.5	10.8	72	158.9
0012365	3 G 2.5	10.9	72	173.2
00123553	4 G 2.5	11.9	96	204
00123663	5 G 2.5	13.2	120	254

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 540 P refer to page 82
- ÖLFLEX® 550 P* refer to page 84

Accessories

- Marking systems
- Conductor end sleeves
- SKINTOP® CLICK refer to page 687
- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU

ÖLFLEX® 540 P

Cold-flexible, abrasion- and oil-resistant TPE/PUR connection cable for harsh conditions - VDE-registered

Info

- The proven building site cable
- Voltage class from 1.5 mm² 450/750 V
- VDE-tested and registered

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- The signal colour of the outer sheath increases safety and visual perception
- VDE-tested characteristics

Application range

- Connection and extension cables
- Construction machinery
- Building sites, camp sites, stage applications
- Agricultural equipment
- For indoor and outdoor use

Product features

- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Abrasion and notch-resistant
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Flexible down to -40 °C
- Resistant to hydrolysis and microbes

Norm references / Approvals

- VDE reg. no. 6583 up to 1.0 mm²
- VDE reg. no. 6584 from 1.5 mm²
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted together
- Outer sheath: PUR colour yellow
- DESIGN: Other sheath colours on request
- PRINT: Other sheath marking on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9
(7-cored version number-coded)

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
Up to 1.0 mm²: U0/U: 300/500 V
From 1.5 mm²: U0/U: 450/750 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -40 °C to +90 °C
Fixed installation: -50 °C to +90 °C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 540 P U0/U: 300/500 V				
0012452	2 X 0.75	6.2	14.4	52
0012453	3 G 0.75	6.7	21.6	63
00124543	4 G 0.75	7.3	28.8	80
00124553	5 G 0.75	8.2	36	98
0012456	7 G 0.75	9.9	51	126
0012457	2 X 1.0	6.7	19.2	53
0012458	3 G 1.0	7.1	29	72
00124593	4 G 1.0	7.7	38.4	96
00124603	5 G 1.0	8.6	48	117
0012461	7 G 1.0	10.4	68	147
ÖLFLEX® 540 P U0/U: 450/750 V				
0012462	2 X 1.5	8.3	29	82
0012463	3 G 1.5	8.8	43	108
00124643	4 G 1.5	9.8	58	147
00124653	5 G 1.5	10.7	72	164
0012466	7 G 1.5	13.4	101	267
0012467	2 X 2.5	9.7	48	142
0012468	3 G 2.5	10.3	72	161
00124693	4 G 2.5	11.4	96	220
00124703	5 G 2.5	12.7	120	245
0012471	7 G 2.5	15.8	168	321
0012474	3 G 4	12.3	115.2	262
00124753	4 G 4	13.6	154	284
00124763	5 G 4	15.2	192	355
00124783	4 G 6	15.4	230	440
00124793	5 G 6	17.1	288	530
00124813	4 G 10	20.1	384	615
00124823	5 G 10	22.3	480	735

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® 540 CP

Screened, cold-flexible, abrasion- and oil-resistant PUR connection cable for harsh conditions - VDE-registered

Info

- The proven building site cable
- Voltage class from 1.5 mm² 450/750 V
- VDE-tested and registered

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- The signal colour of the outer sheath increases safety and visual perception
- VDE-tested characteristics

Application range

- Connection and extension cables
- Construction machinery
- Building sites, camp sites, stage applications
- Agricultural equipment
- For indoor and outdoor use

Product features

- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Abrasion and notch-resistant
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Flexible down to -40°C
- EMC-compliant

Norm references / Approvals

- VDE reg. no. 6583 up to 1.0 mm²
- VDE reg. no. 6584 from 1.5 mm²
- Suitable for use in fresh water down to 10 m depth at max. water temperature of +40 °C according to EN 50565-2

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted together
- Inner sheath made of TPE
- Tinned copper screen braiding
- Outer sheath: PUR colour yellow

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9
(7-cored version number-coded)

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 12.5 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
Up to 1.0 mm²: U0/U: 300/500 V
From 1.5 mm²: U0/U: 450/750 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 540 CP U0/U: 300/500 V				
0012752	2 X 0.75	8.2	43.9	103
0012753	3 G 0.75	8.5	67.6	140
00127553	5 G 0.75	10.2	75	164
0012757	2 X 1.0	8.5	65.2	138
0012758	3 G 1.0	9.3	74.9	153
00127603	5 G 1.0	10.8	87.2	184
0012761	7 G 1.0	12.6	138.5	281
ÖLFLEX® 540 CP U0/U: 450/750 V				
0012762	2 X 1.5	10.5	67.7	159
0012763	3 G 1.5	11.0	82.3	181
00127643	4 G 1.5	12.0	101.8	218
00127653	5 G 1.5	13.7	143.3	287
0012766	7 G 1.5	16.6	195.7	394
0012767	2 X 2.5	11.9	92.4	213
0012768	3 G 2.5	12.5	119	263
00127693	4 G 2.5	14.2	168.2	334
00127703	5 G 2.5	15.7	204.7	416
00127753	4 G 4	17.0	240.1	476
00127783	4 G 6	18.4	355.5	634
00127793	5 G 6	20.5	452.9	770
00127813	4 G 10	22.3	577.8	993
00127823	5 G 10	25.3	681.2	1151

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 440 CP refer to page 79

Accessories

- SKINDICHT® SM-PE-M refer to page 744
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701

ÖLFLEX® 550 P*

Power cord with PUR outer sheath and European harmonisation (HAR)

Info

- High mechanical strength
- Good oil resistance
- H05BQ-F/H07BQ-F design standard

Benefits

- Harmonised use in Europe
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- The signal colour of the outer sheath increases safety and visual perception

Application range

- Portable handheld electrical devices such as drills, sanders, jig saws or grinders
- Building sites, camp sites, stage applications
- Construction machinery
- Agricultural equipment
- For indoor and outdoor use

Product features

- Oil-resistant
- Abrasion and notch-resistant
- Flexible down to -40°C
- Resistant to hydrolysis and microbes

Norm references / Approvals

- EN 50525-2-21
- H05BQ-F/H07BQ-F design standard

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: rubber compound
- Cores twisted together
- PUR outer sheath
- Sheath colour: orange

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
For flexible use:
12.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
Up to 1.0 mm²: U0/U: 300/500 V
From 1.5 mm²: U0/U: 450/750 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® 550 P U0/U: 300/500 V				
0013600	2 X 0.75	5.7 - 7.4	14.4	50
0013601	3 G 0.75	6.2 - 8.1	21.6	64
00136023	4 G 0.75	6.8 - 8.8	28.8	78
00136033	5 G 0.75	7.6 - 9.9	36	98
0013610	2 X 1.0	6.1 - 8.0	19.2	60
0013611	3 G 1.0	6.5 - 8.5	29	74
00136123	4 G 1.0	7.1 - 9.3	38.4	92
00136133	5 G 1.0	8.0 - 10.3	48	114
ÖLFLEX® 550 P U0/U: 450/750 V				
0013620	2 X 1.5	7.6 - 9.8	29	87
0013621	3 G 1.5	8.0 - 10.4	43	108
00136223	4 G 1.5	9.0 - 11.6	58	137
00136233	5 G 1.5	9.8 - 12.7	72	165
0013630	2 X 2.5	9.0 - 11.6	48	90
0013631	3 G 2.5	9.6 - 12.4	72	161
00136323	4 G 2.5	10.7 - 13.8	96	206
00136333	5 G 2.5	11.9 - 16.3	120	254

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® ROBUST 200 refer to page 70
- H05RN-F refer to page 86
- H07RN-F refer to page 87
- H07RN-F, enhanced version refer to page 88
- ÖLFLEX® 500 P refer to page 81
- ÖLFLEX® 540 P refer to page 82

Accessories

- Cutting tools for various applications
- Stripping tools
- SKINTOP® MS-M refer to page 696
- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 698

H05RR-F

Rubber cable for light mechanical stress and handheld devices used in households, kitchens, offices

Info

- Light mechanical stress

Benefits

- Type-compliant versions <HAR>-certified with „<HAR>“ testing and certification mark for accelerated granting of approvals if final application of cable is within the European CENELEC area

Application range

- Handheld and power supply devices according to EN 50565-2
- For lightweight workshop tools that are subject to light loads
- According to EN 50565-2: dry and damp rooms; only temporary use outdoors; not for industrial/commercial or agricultural facilities, except tailors/cutting workshops; not suitable for supplying industrial power tools
- Light & sound technology

Product features

- Ozone-resistant

Norm references / Approvals

- <HAR> cable type approval according to EN 50525-2-21

Product Make-up

- Bare copper wire according to HAR
- Core insulation: rubber compound, type EI 4
- Outer sheath: rubber compound, type EM3

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Coloured according to HD 308

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
4 to 8 x outer diameter (EN 50565-1)

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Current rating
According to IEC 60364-5-52/ VDE 0298-4
EN 50565-1/ VDE 0298-565-1

Temperature range
Flexible use: -25°C to +60°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
H05RR-F				
1600203	2 X 0.75	5.7 - 7.4	14.4	61
1600207	3 G 0.75	6.2 - 8.1	21.6	75
1600204	2 X 1.0	6.1 - 8.0	19.2	73
1600208	3 G 1.0	6.5 - 8.5	28.8	86
16002113	4 G 1.0	7.1 - 9.3	38.4	105
1600205	2 X 1.5	7.6 - 9.8	28.8	115
1600200	3 G 1.5	8.0 - 10.4	43.2	135
16002013	4 G 1.5	9.0 - 11.6	57.6	165
16002023	5 G 1.5	9.8 - 12.7	72	190
1600206	2 X 2.5	9.0 - 11.6	48	160
1600209	3 G 2.5	9.6 - 12.4	72	190
16002123	4 G 2.5	10.7 - 13.8	96	235
16002133	5 G 2.5	11.9 - 15.3	120	285

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- H05RN-F refer to page 86

H05RN-F

Rubber cable for handheld devices and chains of decorative lights

Info

- Oil-resistant

Benefits

- Type-compliant versions <HAR>-certified with „<HAR>“ testing and certification mark for accelerated granting of approvals if final application of cable is within the European CENELEC area

Application range

- According to EN 50565-2: for supplying devices in households, kitchens or offices under light mechanical stress; handheld inspection lamps
- According to EN 50565-2: provided the maximum conductor temperature of +60 °C, the maximum outer sheath surface temperature of +50 °C and the lack of ozone resistance are taken into account, suitable for permanent use outdoors with conventional mechanical stress

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404

Norm references / Approvals

- <HAR> cable type approval according to EN 50525-2-21

Product Make-up

- Bare copper wire according to HAR
- Core insulation: rubber compound, type EI 4
- Outer sheath: rubber compound, type EM2

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Coloured according to HD 308

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
4 to 8 x outer diameter (EN 50565-1)

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Current rating
According to IEC 60364-5-52/ VDE 0298-4
EN 50565-1/ VDE 0298-565-1

Temperature range
Flexible use: -25°C to +60°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
H05RN-F				
1600250	2 X 0.75	5.7 - 7.4	14.4	55
1600252	3 G 0.75	6.2 - 8.1	21.6	68
16002583	4 G 0.75	6.8 - 8.8	28.8	81
1600251	2 X 1.0	6.1 - 8.0	19.2	63
1600253	3 G 1.0	6.5 - 8.5	28.8	78

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- H07RN-F refer to page 87

H07RN-F

Heavy standard construction

Info

- Medium mechanical stress
- Oil-resistant

Benefits

- For mechanically more demanding applications
- 1000 V AC at protected + static laying
- Arrangements made of single-core, rubber-sheathed cables H07RN-F can be used for short circuit-proof and short-to-ground-proof installations in accordance with IEC 60364-5-52/ HD 60364-5-52/ VDE 0100 Part 520

Application range

- Handheld and power supply devices according to EN 50565-2
- Medium, mechanical stress
- Industrial, agricultural use
- According to EN 50565-2: In dry, damp and wet rooms as well as for fixed installation e.g. on the plaster

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404

Norm references / Approvals

- <HAR> H07RN-F cable type approval according to EN 50525-2-21

Product Make-up

- Bare copper wire according to HAR
- Core insulation: rubber compound, type EI 4
- Outer sheath: rubber compound, type EM2

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
4 to 8 x outer diameter (EN 50565-1)

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Current rating
According to IEC 60364-5-52/ VDE 0298-4
EN 50565-1/ VDE 0298-565-1

Temperature range
-25°C to +60°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
H07RN-F				
1600096	1 X 1.5	5.7 - 6.5	14,4	59
1600099	1 X 2.5	6.3 - 7.2	24	72
1600097	1 X 4	7.2 - 8.1	38.4	99
1600098	1 X 6	7.9 - 8.8	57.6	130
1600194	1 X 10	9.5 - 10.7	96	230
1600195	1 X 16	10.8 - 12.0	153.6	320
1600196	1 X 25	12.7 - 14.0	240	450
1600193	1 X 35	14.3 - 15.9	336	605
1600197	1 X 50	16.5 - 18.2	480	825
1600189	1 X 70	18.6 - 20.5	672	1090
1600190	1 X 95	20.8 - 22.9	912	1405
1600198	1 X 120	22.8 - 25.1	1152	1745
1600191	1 X 150	25.2 - 27.6	1440	1887
1600175	1 X 185	27.6 - 30.2	1776	2274
1600177	1 X 240	30.6 - 33.5	2304	2955
30015435	1 X 300	33.5 - 36.7	2880	3479
1600117	3 G 1,0	8.3 - 9.6	28.8	130
1600199	2 X 1,5	8.5 - 9.9	28.8	135
1600103	3 G 1,5	9.2 - 10.7	43.2	165
16001233	4 G 1,5	10.2 - 11.7	57.6	200
16001043	5 G 1,5	11.2 - 12.8	72	240
1600151	7 G 1,5	14.7 - 16.5	100.8	385
1600148	12 G 1,5	17.6 - 19.8	172.8	516
1600259	19 G 1,5	20.7 - 26.3	273.6	800
1600166	24 G 1,5	24.3 - 27.0	345.6	882
1600263	25 G 1,5	25.1 - 25.9	360	920
1600187	2 X 2,5	10.2 - 11.7	48	195
1600118	3 G 2,5	10.9 - 12.5	72	235
16001053	4 G 2,5	12.1 - 13.8	96	290
16001293	5 G 2,5	13.3 - 15.1	120	294

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1600152	7 G 2,5	17.1 - 19.3	168	520
1600154	12 G 2,5	20.6 - 23.1	288	810
1600156	19 G 2,5	25.5 - 31.0	456	1200
1600157	24 G 2,5	28.8 - 31.9	576	1298
1600186	2 X 4	11.8 - 13.4	76.8	270
1600119	3 G 4	12.7 - 14.4	115.2	320
16001063	4 G 4	14.0 - 15.9	153.6	395
16001303	5 G 4	15.6 - 17.6	192	485
1600161	7 G 4	20.1 - 22.4	268.8	681
1600120	3 G 6	14.1 - 15.9	172.8	360
16001073	4 G 6	15.7 - 17.7	230.4	475
16001313	5 G 6	17.5 - 19.6	288	760
1600121	3 G 10	19.1 - 21.3	288	880
16001083	4 G 10	20.9 - 23.3	384	1060
16001093	5 G 10	22.9 - 25.6	480	1300
1600122	3 G 16	21.8 - 24.3	460.8	1090
16001103	4 G 16	23.8 - 26.4	614.4	1345
16001113	5 G 16	26.4 - 29.2	768	1680
16001123	4 G 25	28.9 - 32.1	960	1995
16001133	5 G 25	32.0 - 35.4	1200	2470
1600124	3 G 35	29.3 - 32.5	1008	1910
16001143	4 G 35	32.5 - 36.0	1344	2645
16001363	5 G 35	35.7 - 39.5	1680	2810
16001153	4 G 50	37.7 - 41.5	1920	3635
1600126	5 G 50	41.8 - 46.6	2400	4050
16001163	4 G 70	42.7 - 47.1	2688	4830
16001283	4 G 95	48.4 - 53.2	3648	6320
16001323	4 G 120	53.0 - 57.5	4608	6830
16000883	4 G 150	58.0 - 63.6	5760	8320
1600141	4 G 185	64.0 - 69.7	7104	9800
1600183	4 G 240	72.0 - 79.2	9216	12800

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

H07RN-F, enhanced version

Halogen-free; Long-run submersion; Bending/Loop Torsion (WTG): -40°C to +90°C; UV/Ozone resistant

Info

- Halogen-free & Low Smoke density
- Loop Torsion/Flexible: -40°C to +90°C
- 100m long-run submersion

Benefits

- Arrangements made of single-core, rubber-sheathed cables H07RN-F can be used for short circuit-proof and short-to-ground-proof installations in accordance with IEC 60364-5-52/ HD 60364-5-52/ VDE 0100 Part 520
- More water-resistant than H07RN-F and H07RN8-F
- Conductor temperature range more suitable for outdoor installation and wider than H07RN-F, H07ZZ-F, H07BN4-F and NSSHÖU

Application range

- Medium, mechanical stress and industrial and agricultural use as well as for handheld and power supply devices (H07RN-F according to EN 50565-2)
- Drip loop torsion between the nacelle and the tower of wind turbine generators/ windmills
- Outdoors acc. EN 50565-2
- For buildings or industrial plants with a high density of people or valuable assets

Product features

- Oil resistant according to EN 60811-404; Good resistance to abrasion, atmospheric agents, grease and mineral oils
- UV-, Ozone- (acc. EN 60811), Cold- (-40 °C flexible at the conductor) and Heat-resistant (+90 °C at the conductor)
- Drip loop torsion resistant (wind turbine) ==>TW-0, TW-1 and TW-2: -40 °C to +'90 °C/ 2,000 cycles (5,000 cycles from +5 °C)/ torsion angle of +/-150 ° per metre at one revolution per minute
- Long-time water submersion (AD8) down to 100 m without interruption (no drinking water, minimum water temperature of +5 °C, standing water only, no areas with boat/ ship/ submarine traffic)
- Halogen-free according to EN 60754 (sub-parts -1 and -2), flame-retardant according to IEC 60332-1-2 and low smoke density (LS) according to EN 61034-2

Norm references / Approvals

- <HAR> H07RN-F cable type approval according to EN 50525-2-21

Product Make-up

- Conductor made of bare copper wires
- Core insulation: special rubber
- Outer sheath: special rubber compound

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Moved: 6 x Outer diameter
Fixed installation: 4 x Outer diameter

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V AC

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Current rating
According to IEC 60364-5-52/ VDE 0298-4
EN 50565-1/ VDE 0298-565-1

Temperature range
Moved: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
H07RN-F, enhanced version				
4533027	3 G 1.0	8.3 - 10.7	28.8	140
4533061	4 G 1.0	9.2 - 11.9	38.4	160
4533062	4 X 1.0	9.2 - 11.9	38.4	160
4533091	5 G 1.0	10.2 - 13.1	48	200
4533000	1 X 1.5	5.7 - 7.1	14.4	55
4533020	2 X 1.5	8.5 - 11.0	28.8	125
4533029	3 G 1.5	9.2 - 11.9	43.2	172
4533063	4 G 1.5	10.2 - 13.1	57.6	200
4533064	4 X 1.5	10.2 - 13.1	57.6	200
4533093	5 G 1.5	11.2 - 14.4	72	250
4533111	7 G 1.5	14,7 - 18,7	100.8	430
4533113	12 G 1.5	17.6 - 22.4	172.8	620
4533001	1 X 2.5	6.3 - 7.9	24	72
4533021	2 X 2.5	10.2 - 13.1	48	173
4533031	3 G 2.5	10.9 - 14.0	72	225
4533065	4 G 2.5	12.1 - 15.5	96	285
4533066	4 X 2.5	12.1 - 15.5	96	285
4533095	5 G 2.5	13.3 - 17.0	120	345
4533115	12 G 2.5	20.6 - 26.2	288	850
4533002	1 X 4	7.2 - 9.0	38.4	98
4533022	2 X 4	11.8 - 15.1	76.8	239
4533033	3 G 4	12.7 - 16.2	115.2	325
4533067	4 G 4	14.0 - 17.9	153.6	395
4533097	5 G 4	15.6 - 19.9	192	485
4533003	1 X 6	7.9 - 9.8	57.6	127
4533023	2 X 6	13.1 - 16.8	115.2	330
4533035	3 G 6	14.1 - 18.0	172.8	415
4533069	4 G 6	15.7 - 20.0	230.4	535

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
4533099	5 G 6	17.5 - 22.2	288	648
4533004	1 X 10	9.5 - 11.9	96	192
4533024	2 X 10	17,7 - 22,6	192	590
4533037	3 G 10	19.1 - 24.2	288	712
4533071	4 G 10	20.9 - 26.5	384	920
4533005	1 X 16	10.8 - 13.4	153.6	262
4533039	3 G 16	21.8 - 27.6	460.8	990
4533073	4 G 16	23.8 - 30.1	614.4	1290
4533006	1 X 25	12.7 - 15.8	240	375
4533041	3 G 25	26.1 - 33.0	720	1395
4533075	4 G 25	28.9 - 36.6	960	1930
4533101	5 G 25	32.0 - 40.4	1200	2500
4533007	1 X 35	14.3 - 17.9	336	493
4533043	3 G 35	29.3 - 37.1	1008	1815
4533077	4 G 35	32.5 - 41.4	1344	2470
4533103	5 G 35	35.7 - 45.1	1680	3250
4533008	1 X 50	16.5 - 20.6	480	675
4533045	3 G 50	34.1 - 42.9	1440	2470
4533079	4 G 50	37.7 - 47.5	1920	3320
4533105	5 G 50	41.8 - 53.0	2400	4408
4533009	1 X 70	18.6 - 23.3	672	914
4533081	4 G 70	42.7 - 54.0	2688	4420
4533107	5 G 70	47.5 - 60.0	3360	5863
4533010	1 X 95	20.8 - 26.0	912	1200
4533083	4 G 95	48.4 - 61.0	3648	5750
4533109	5 G 95	54.0 - 67.0	4560	7537
4533011	1 X 120	22.8 - 28.6	1152	1481
4533085	4 G 120	53.0 - 66.0	4608	6990
4533012	1 X 150	25.2 - 31.4	1440	1833
4533087	4 G 150	58.0 - 73.0	5760	8650
4533013	1 X 185	27.6 - 34.4	1776	2190
4533089	4 G 185	64.0 - 80.0	7104	9785
4533014	1 X 240	30.6 - 38.3	2304	2780
4533015	1 X 300	33.5 - 41.9	2880	3310
4533016	1 X 400	37.4 - 46.8	3840	4320
4533017	1 X 500	41.3 - 52.0	4800	5342

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Cable shears with double edge refer to page 980
- Ratchet cutter refer to page 980
- V 1311-A pressing pliers, hydraulic refer to page 1014
- STAR STRIP stripping tool refer to page 985
- PVL 1300 pressing pliers battery-operated refer to page 1015

H07ZZ-F

Machines, devices; halogen-free: events, locations with a high density of people and valuable assets

Info

- Halogen-free

Benefits

- Broad usages due to halogen-free materials
- According to VDE 0100-711, cables with low smoke emission are required in buildings for exhibitions, shows and stands without a fire alarm system
- Type-compliant versions <HAR>-certified with „<HAR>“ testing and certification mark for accelerated granting of approvals if final application of cable is within the European CENELEC area

Application range

- Stage technology
- For mobile equipment and machines
- According to EN 50565-2: In dry, damp and wet rooms as well as for fixed installation e.g. on the plaster
- For buildings or industrial plants with a high density of people or valuable assets

Product features

- Low amount of corrosive gases in the event of fire
- Flame-retardant according to IEC 60332-1-2 and bundle flame test according to IEC 60332-3-24
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Ozone-resistant acc. to EN 50363-6, EN 60811-403, EN 50396-8.1.3

Norm references / Approvals

- <HAR> H07ZZ-F cable type approval according to EN 50525-3-21

Product Make-up

- Conductor made of bare copper wires
- Core insulation: rubber compound, halogen-free
- Outer sheath: rubber compound, halogen-free

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
4 to 8 x outer diameter (EN 50565-1)

Nominal voltage
U0/U: 450/750 VAC
In protected and fixed installations: U0/U: 600/1000 V

Test voltage
2500 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

Temperature range
Static/Moved: -40°C/-5°C ...to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
H07ZZ-F				
1600810	3 G 1.5	9.2 - 11.9	43.2	125
1600811	4 G 1.5	10.2 - 13.1	57.6	155
1600812	5 G 1.5	11.2 - 14.4	72	190
1600815	14 G 1.5	18.8 - 21.3	201.6	570
1600816	18 G 1.5	20.7 - 26.3	259.2	750
1600820	3 G 2.5	10.9 - 14.0	72	185
1600821	4 G 2.5	12.1 - 15.5	96	235
1600822	5 G 2.5	13.3 - 17.0	120	290
1600823	7 G 2.5	17,1 - 21,8	168	520
1600825	14 G 2.5	22.2 - 25.0	336	860
1600836	4 G 4	14.0 - 17.9	153.6	325
1600837	5 G 4	15.6 - 19.9	192	410
1600841	4 G 6	15.7 - 20.0	230.4	440
1600842	5 G 6	17.5 - 22.2	288	550
1600844	4 G 10	20.9 - 26.5	384	770
1600845	5 G 10	22.9 - 29.1	480	950
1600847	4 G 16	23.8 - 30.1	614.4	1070
1600849	4 G 25	28.9 - 36.6	960	1570
1600851	4 G 35	32.5 - 41.1	1344	2040
1600852	4 G 50	37.7 - 47.5	1920	2810

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- H07RN-F refer to page 87
- H07RN-F, enhanced version refer to page 88

Accessories

- CLICK System
- Cable shears with double edge refer to page 980
- EASY STRIP stripping and cutting tool refer to page 988
- PEW 8.87 crimping pliers refer to page 1000

H01N2-D

Normative arc-welding cable

Info

- Arc welding cable according to EN 50525-2-81
- Formerly, VDE type NSLFFÖU

Benefits

- Type-compliant versions <HAR>-certified with „<HAR>“ testing and certification mark for accelerated granting of approvals if final application of cable is within the European CENELEC area

Application range

- Use the welding cable only under consideration of EN 50565-2
- For use on handheld electrode holder up to 100 V
- Can be used in dry or damp rooms
- For transmitting high currents from the electric welding device to the welding tool

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- <HAR> H01N2-D cable type approval according to EN 50525-2-81

Product Make-up

- Bare copper wire according to HAR
- Stranding approximately corresponds to class 6 up to 95 mm², and from 120 mm² approximately to class 5 acc. to VDE 0295
- Separator made of synthetic film or paper
- Outer sheath: rubber compound, type EM5

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000824
ETIM 5.0/6.0 Class-Description: Welding cable

Conductor stranding
H01N2-D according to EN 50525-2-81

Minimum bending radius
Flexible use: 12 x outer diameter

Nominal voltage
U0/U: 100/100 V

Test voltage
1000 V

Current rating
According to VDE 0298 Part 4, table 16
EN 50565-1/ VDE 0298-565-1

Temperature range
Flexible use: -25°C to +85°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
H01N2-D				
2310026	10	7.7 - 9.7	96	171
2210700	16	8.8 - 11.0	153.6	198
2210701	25	10.1 - 12.7	240	305
2210702	35	11.4 - 14.2	336	415
2210703	50	13.2 - 16.5	480	555
2210704	70	15.3 - 19.2	672	765
2210705	95	17.1 - 21.4	912	1010
2210706	120	19.2 - 24.0	1152	1262
2210707	150	21,1 - 26,4	1440	1610
2210708	240	25,8 - 32,1	2304	2520

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Cable shears with double edge refer to page 980

NSSHÖU

Mechanically robust rubber cable for mining and surface mining

Benefits

- For use at very high mechanical stress
- Single-core design suitable for robust connection cables for welding equipment
- Not antistatic

Application range

- For mining as well as surface mining
- Connection for moving equipment and machinery
- Under extreme environmental conditions
- Suitable for outdoor use, as well as in dry and damp interiors

Product features

- Flame retardant acc. to IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- High notch resistance
- Abrasion-resistant

Norm references / Approvals

- <VDE> NSSHÖU cable type approval according to VDE 0250-812

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation: rubber compound, type 3GI3
- Inner sheath: rubber-compound, type GM1b or 5GM5
- Outer sheath: rubber compound, type 5GM5

Info

- Mining
- Outdoors
- Oil-resistant

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Flexible use: 10 x outer diameter
Fixed installation: 5 x outer diameter

Nominal voltage
U0/U: 600/1000 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Current rating
According to VDE 0298 Part 4, Table 15

Temperature range
Flexible use: -25°C to +90°C
Fixed installation: -40°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NSSHÖU-O				
1600500	1 X 16	10.9	153.6	260
1600501	1 X 25	13.3	240	390
1600502	1 X 35	14.4	336	500
1600503	1 X 50	16.7	480	680
1600504	1 X 70	18.9	672	900
1600505	1 X 95	21.0	912	1150
1600506	1 X 120	23.3	1152	1440
1600507	1 X 150	25.2	1440	1750
1600508	1 X 185	28.4	1776	2180
1600509	1 X 240	31.4	2304	2790
NSSHÖU-J				
1600516	3 G 1.5	11.8	43.2	200
16005243	4 G 1.5	12.7	57.6	230
16005333	5 G 1.5	13.6	72	280
1600517	3 G 2.5	13.2	72	260
16005253	4 G 2.5	15.4	96	360
16005343	5 G 2.5	16.5	120	420
1600541	7 G 2.5	20.0	168	600
1600544	12 G 2.5	26.0	288	860
16005263	4 G 4	16.9	153.6	470
16005353	5 G 4	18.2	192	550
16005273	4 G 6	18.3	230.4	580
16005363	5 G 6	20.6	288	740
16005283	4 G 10	22.3	384	950
16005373	5 G 10	24.1	480	1100
16005293	4 G 16	26.1	614	1400
16005383	5 G 16	28.3	768	1720
16005303	4 G 25	31.2	960	2000
16005313	4 G 35	34.1	1344	2700
16005323	4 G 50	41.0	1920	3700

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. / Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- H07RN-F, enhanced version refer to page 88
- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 170
- ÖLFLEX® CRANE PUR refer to page 171

NSGAFÖU 1,8/3 kV

Flexible single-conductor rubber cable with 1.8/3 kV rated voltage

Info

- Public transport
- Control panel internal wiring

Benefits

- Arrangements made of single-conductor cables NSGAFÖU in accordance with VDE 0250 Part 602 with nominal voltage of at least U0/U: 1.8/3 kV can be used for short circuit-proof and short-to-ground-proof installation up to 1000 V in acc. with VDE 0100 Part 520 and VDE 0298 Part 3

Application range

- Wiring of machines, tools, devices, appliances and control cabinets
- Railway vehicles, buses; short-circuit-proof up to 1000 V in switching stations and power distributors
- No direct burial, except of lead-through through fire separations such as sand cups
- In ducts, tubes, pipes, conduits and closed installation channels
- Bundled or for connection of movable parts

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- Normative rated voltage classes U0/U 0.6/1 kVac and 3.6/6 kVac available on request
- The outer diameters stated in the part number table are maximum values

Norm references / Approvals

- <VDE> NSGAFÖU 1,8/3 kV cable type approval according to VDE 0250-602

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation: rubber compound, type 3GI3
- Outer coating: rubber compound, type 5GM3
- No outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Flexible use: 10 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 1.8/3 kV

Test voltage
6000 V

Current rating
According to VDE 0298 Part 4, Table 15

Temperature range
Flexible use: -25°C to +90°C
Fixed installation: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NSGAFÖU 1,8/3 kV				
1600300	1.5	7.0	14,4	60
1600301	2.5	7.5	24	70
1600302	4	9.0	38.4	90
1600303	6	9.5	57.6	120
1600304	10	11.0	96	180
1600305	16	13.0	153.6	250
1600306	25	15.0	240	390
1600307	35	16.5	336	470
1600308	50	18.0	480	625
1600309	70	20.5	672	880
1600310	95	24.0	912	1190
1600311	120	26.0	1152	1430
1600312	150	28.0	1440	1750
1600313	185	31.0	1776	2160
1600314	240	34.5	2304	2640
3026826	300	38.0	2880	3545

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Cable shears with double edge refer to page 980
- V 1311-A pressing pliers, hydraulic refer to page 1014
- PVL 1300 pressing pliers battery-operated refer to page 1015

NSHXAFÖ 1,8/3 kV

Halogen-free, flexible single-core rubber cable for public transport and wiring

Info

- Public transport
- Control panel internal wiring
- Halogen-free

Benefits

- Arrangements made of single-conductor cables NSHXAFö in accordance with VDE 0250 Part 606 with nominal voltage of at least U0/U: 1.8/3 kV can be used for short circuit-proof and short-to-ground-proof installation up to 1000 V in acc. with VDE 0100 Part 520 and VDE 0298 Part 3

Application range

- Wiring of machines, tools, devices, appliances and control cabinets
- Railway vehicles, buses; short-circuit-proof up to 1000 V in switching stations and power distributors
- No direct burial, except of lead-through through fire separations such as sand cups
- In ducts, tubes, pipes, conduits and closed installation channels
- Bundled or for connection of movable parts

Product features

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Flame-retardant according IEC 60332-1-2
- Normative rated voltage class 3.6/6 kVac available on request
- The outer diameters stated in the part number table are maximum values

Norm references / Approvals

- <VDE> NSHXAFÖ 1,8/3 kV cable type approval according to VDE 0250-606

Product Make-up

- Fine copper wire strands
- Core insulation: halogen-free rubber compound, type 3GI3
- Outer coating: halogen-free polymer compound, type HM3
- No outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Flexible use: 10 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 1.8/3 kV

Test voltage
6000 V

Temperature range
Flexing: -5°C to +90°C
Fixed installation: -25°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NSHXAFÖ 1,8/3 kV				
3022673	1.5	7.0	14.4	60
3022674	2.5	7.5	24	70
3022675	4	9.0	38.4	90
3022676	6	9.5	57.6	120
3022677	10	11.0	96	180
3022678	16	13.0	153,6	250
3022679	25	15.0	240	390
3022680	35	16.5	336	470
3022681	50	18.0	480	625
3022682	70	20.5	672	880
3022683	95	24.0	912	1190
3022684	120	26.0	1152	1430
3022685	150	28.0	1440	1750
3022686	185	31.0	1776	2160
3022687	240	34.5	2304	2718
3022688	300	38.0	2880	3470

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

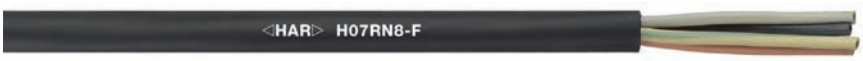
- Cable shears with double edge refer to page 980
- V 1311-A pressing pliers, hydraulic refer to page 1014
- PVL 1300 pressing pliers battery-operated refer to page 1015

H07RN8-F

Submersible pump cable; Formerly: „ÖLFLEX® AQUA RN8“

Info

- Use down to 10 m depth
- Submersible pump cable
- Oil-resistant



Benefits

- Submersion, considering application standards, e.g. EN 50565-2
- According to EN 50565-2, underwater use prohibited in areas with shipping traffic, moving water or where there is a risk of dangerous, mechanical damage
- High stresses
- Type-compliant versions <HAR>-certified with „<HAR>“ testing and certification mark for accelerated granting of approvals if final application of cable is within the European CENELEC area

Application range

- According to EN 50565-2: Dry or damp rooms, as well as outdoors and in industrial water
- For connecting mobile, electrical equipment in industrial water
- For use with submersible pumps
- Submersion acc. AD8 standard down to 10 m depth

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- Flexible

Norm references / Approvals

- <HAR> cable type approval according to EN 50525-2-21

Product Make-up

- Conductor made of bare copper wires
- Core insulation: rubber compound, type EI 4
- Outer sheath: rubber compound, type EM2

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
4 to 8 x outer diameter (EN 50565-1)

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

Temperature range
Conductor:
Fix/Moved:-40/-25°C to+60°C
Max. water temperature: +40°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
H07RN8-F				
1600600	1 X 4	7.2 - 9.0	38.4	100
1600601	1 X 6	7.9 - 9.8	57.6	120
1600602	1 X 10	9.5 - 11.9	96	180
1600604	1 X 25	12.7 - 15.8	240	400
1600606	3 G 1,5	9.2 - 11.9	43.2	141
1600609	4 G 1,5	10.2 - 13.1	57.6	205
1600620	7 G 1,5	14.0 - 17.5	100.8	385
1600607	3 G 2,5	10.9 - 14.0	72	210
1600610	4 G 2,5	12.1 - 15.5	96	260
1600621	7 G 2,5	16.5 - 20.0	168	520
1600611	4 G 4	14.0 - 17.9	153.6	356
1600612	4 G 6	15.7 - 20.0	230.4	475
1600613	4 G 10	20.9 - 26.5	384	837
1600614	4 G 16	23.8 - 30.1	614.4	1220
1600615	4 G 25	28.9 - 36.6	960	1770
1600616	4 G 35	32.5 - 41.1	1344	2304

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

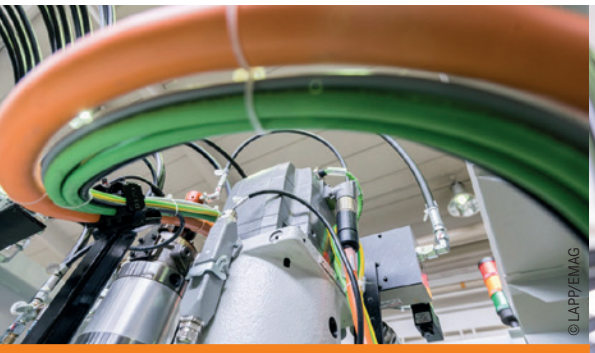
Similar products

- H07RN-F refer to page 87
- H07RN-F, enhanced version refer to page 88

Accessories

- CLICK System
- Cable shears with double edge refer to page 980
- EASY STRIP stripping and cutting tool refer to page 988
- PEW 8.87 crimping pliers refer to page 1000

Servo applications


© LAPP/EMAG

© LAPP/EMAG

© LAPP/EMAG

ÖLFLEX® SERVO 2YSLCY-JB

EMC-optimised motor cable, low-capacitance, double screened

Info

- EMC-optimised design
- 4-core design in transparent or black
- 3+3 symmetry reduces common-mode interference effects

Benefits

- EMC-compliant installation of power drive systems conforming to EN 61800-3
- High power transmission for large drives
- Longer cable connection possible between frequency converter and motor due to low capacitance design
- Symmetrical 3+3 Version supports the reduction of bearing currents
- Versions with black outer sheath are suitable for outdoor use

Application range

- Connecting cable between frequency converter and motor
- In dry, damp or wet interiors
- Paper industry
- Chemical industry
- Heavy industry

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0207 / 0250 / 0295

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PE
- Cores twisted concentrically (symmetrically splitted protective conductor of 3+3 version is gusset-filling divided between the power cores)
- Screening: wrapping of laminated aluminium foil in combination with tinned copper braiding
- 4-core version: optional transparent or black PVC outer sheath
- 3+3 core version: PVC outer sheath, black - cold flexible

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Colours according to HD 308 S2
VDE 0293-308

Conductor stranding
Fine wire according to VDE 0295
Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 600/1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor
Protective conductor of 3+3 version is gusset-filling divided between power cores

Temperature range
Flexing: -5°C to +70°C
3+3 core version: -15°C to +70°C
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO 2YSLCY-JB / 4-core version - transparent outer sheath				
0036425	4 G 1.5	11.4	95	230
0036426	4 G 2.5	12.4	150	300
0036427	4 G 4	15.6	235	485
0036428	4 G 6	17.0	320	630
0036429	4 G 10	19.6	533	860
0036430	4 G 16	22.1	789	1290
0036431	4 G 25	26.3	1236	1860
0036432	4 G 35	29.5	1662	2610
0036433	4 G 50	35.8	2345	2950
0036434	4 G 70	40.3	3196	3950
0036435	4 G 95	46.5	4316	5300
0036436	4 G 120	53.2	5435	6600
0036437	4 G 150	57.3	6394	7043
0036438	4 G 185	62.3	7639	8384
ÖLFLEX® SERVO 2YSLCY-JB BK / 4-core version - black outer sheath				
1136450	4 G 1.5	11.4	95	230
1136451	4 G 2.5	12.4	150	300
1136452	4 G 4	15.6	235	485
1136453	4 G 6	17.0	320	630
1136454	4 G 10	19.6	533	860
1136455	4 G 16	22.1	789	1290
1136456	4 G 25	26.3	1236	1860
1136457	4 G 35	29.5	1662	2610
1136458	4 G 50	35.8	2345	2950
1136459	4 G 70	40.3	3196	3950
1136460	4 G 95	46.5	4316	5300
1136461	4 G 120	53.2	5435	6600
1136462	4 G 150	57.3	6394	7043
1136463	4 G 185	62.3	7639	8384
ÖLFLEX® SERVO 2YSLCYK-JB / 3+3 core version - black outer sheath, cold flexible				
0036439	3 X 1,5 + 3 G 0,25	11.4	88	140
0036440	3 X 2,5 + 3 G 0,5	12.2	144	220
0036441	3 X 4 + 3 G 0,75	14.4	224	323
0036442	3 X 6 + 3 G 1,0	15.7	276	420
0036443	3 X 10 + 3 G 1,5	18.0	491	615
0036444	3 X 16 + 3 G 2,5	20.2	723	819
0036445	3 X 25 + 3 G 4	23.8	1136	1325
0036446	3 X 35 + 3 G 6	26.9	1535	1718
0036447	3 X 50 + 3 G 10	32.6	2156	2399
0036448	3 X 70 + 3 G 10	36.4	2871	3056
0036449	3 X 95 + 3 G 16	42.0	3953	4162
0036450	3 X 120 + 3 G 16	47.8	4836	5074
0036451	3 X 150 + 3 G 25	51.6	5412	6128
0036479	3 X 185 + 3 G 35	56.5	7041	7500
0036453	3 X 240 + 3 G 50	65.1	8986	9770

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

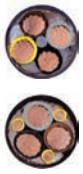
- ÖLFLEX® SERVO 9YSLCY-JB refer to page 98

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-SC-M refer to page 701
- SKINTOP® MS-M BRUSH refer to page 702

ÖLFLEX® SERVO 9YSLCY-JB

EMC-optimised motor cable, low-capacitance, double-screened, certified



Info

- EMC-optimised design
- 3+3 symmetry reduces common-mode interference effects
- AWM certification for USA and Canada

Benefits

- EMC-compliant installation of power drive systems conforming to EN 61800-3
- High power transmission for large drives
- Longer cable connection possible between frequency converter and motor due to low capacitance design
- Symmetrical 3+3 Version supports the reduction of bearing currents
- Versions with black outer sheath are suitable for outdoor use

Application range

- Connecting cable between frequency converter and motor
- In dry, damp or wet interiors
- Paper industry
- Chemical industry
- Heavy industry

Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- EN/VDE +90° C PP insulation

Norm references / Approvals

- USA: AWM Style 2570 or 20886, 1kV 80°C VW-1
  Canada: AWM I/II A/B 1kV 80°C FT1
- UL File No. E63634
- Based on VDE 0276, 0250, 0207

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: polypropylene (PP)
- Cores twisted concentrically (symmetrically splitted protective conductor of 3+3 version is gusset-filling divided between the power cores)
- Screening: wrapping of laminated aluminium foil in combination with tinned copper braiding
- 4-core design: transparent PVC outer sheath
- 3+3 core version: PVC outer sheath, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Colours according to HD 308 S2
VDE 0293-308

Conductor stranding
Fine wire according to VDE 0295
Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
4000 V

Protective conductor
Protective conductor of 3+3 version is gusset-filling divided between power cores

Temperature range
Flexing:
IEC: transparent -5°C to +80°C
IEC: black -5°C to +90 °C
UL/CSA: -5°C to +80°C
Fixed installation:
IEC: transparent -40°C to +80°C
IEC: black -40°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO 9YSLCY-JB / 4-core version - transparent outer sheath				
0037000	4 G 1,5	10.5	87	230
0037001	4 G 2,5	11.8	133	300
0037002	4 G 4	13.3	213	485
0037003	4 G 6	14.9	298	630
0037004	4 G 10	17.7	460	860
0037005	4 G 16	21.5	707	1290
0037006	4 G 25	26.3	1100	1860
0037007	4 G 35	29.7	1542	2610
0037008	4 G 50	35.8	2206	2950
0037009	4 G 70	40.9	3002	3950
0037010	4 G 95	45.4	4004	5300
0037011	4 G 120	49.8	5108	6600
0037012	4 G 150	56.1	6225	7043
0037013	4 G 185	61.4	7568	8384
0037014	4 G 240	67.9	9940	12150

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO 9YSLCY-JB / 3+3 core version - black outer sheath				
0037015	3 X 1,5 + 3 G 0,25	11.4	88	140
0037016	3 X 2,5 + 3 G 0,5	12.9	130	220
0037017	3 X 4 + 3 G 0,75	13.6	224	323
0037018	3 X 6 + 3 G 1,0	15.2	276	420
0037019	3 X 10 + 3 G 1,5	17.4	511	615
0037020	3 X 16 + 3 G 2,5	20.0	751	819
0037021	3 X 25 + 3 G 4	24.3	1204	1325
0037022	3 X 35 + 3 G 6	27.5	1535	1718
0037023	3 X 50 + 3 G 10	31.1	2156	2399
0037024	3 X 70 + 3 G 10	37.1	2980	3056
0037025	3 X 95 + 3 G 16	40.0	3953	4162
0037026	3 X 120 + 3 G 16	42.6	4836	5074
0037027	3 X 150 + 3 G 25	50.0	5412	6128
0037028	3 X 185 + 3 G 35	55.6	7077	7820

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 2YSLCY-JB refer to page 97

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-SC-M refer to page 701
- SKINTOP® MS-M BRUSH refer to page 702

NEW

ÖLFLEX® SERVO 719

Low capacitance servo cable with PVC outer sheath for static use - certified for North America

Info

- Successor of ÖLFLEX® SERVO 700
- Low-capacitance design

Benefits

- One common cable for multiple circuits
- Longer cable installation lengths thanks to low mutual capacitance cable design
- Multi-standard certification reduces part varieties and saves costs
- Space and weight-saving installations due to small cable diameters

Application range

- Connecting cable between servo controller and motor
- For static and occasionally flexible use
- Plant engineering
- Industrial machinery and machine tools
- Printing machines

Product features

- Low capacitance
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant

Norm references / Approvals

- USA: UL AWM Style 2570
  Canada: cUL AWM Style I/II A/B FT1
- UL File No. E63634

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: polypropylene (PP)
- Individual design depending on the item: power cores without or with one or two individually screened control core pairs twisted together in short lay lengths
- PVC outer sheath, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Single-paired versions: black; white
Double-paired versions: black with white numbers 5; 6; 7; 8
0,34mm² pairs: WH/BN/GN/YE

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Temperature range
Occasional flexing:
-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter (mm) approx.	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO 719				
1020060	4 G 1,5 + (2 x 0,75)	9.7	83.3	177
1020065	4 G 1,5 + (2 x 1,5)	10.8	108.3	214
1020061	5 G 1,5 + (2 x 0,75)	10.6	97.7	203
1020062	7 G 1,5 + (2 x 0,75)	11.5	126.5	241
1020063	4 G 2,5 + (2 x 0,75)	11.1	121.7	238
1020066	4 G 2,5 + (2 x 1,5)	12.2	146.7	276
1020064	7 G 2,5 + (2 x 0,75)	12.7	193.7	325
1020067	4 G 4 + (2 x 1,5)	13.9	204.3	360
1020068	4 G 6 + (2 x 1,5)	16.1	281.1	478
1020069	4 G 10 + (2 x 1,5)	18.2	434.7	654
1020071	4 G 0,75 + 2 x (2 x 0,34)	9.0	62.1	121
1020072	4 G 1,5 + 2 x (2 x 0,75)	11.6	111.6	203
1020073	4 G 2,5 + 2 x (2 x 1,0)	13.6	159.7	286
1020074	4 G 4 + 2 x (2 x 1,0)	15.3	217.3	377
1020075	4 G 4 + (2 x 1,0) + (2 x 1,5)	15.5	237.6	396
1020076	4 G 6 + (2 x 1,0) + (2 x 1,5)	17.4	314.4	512

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 719 CY refer to page 100

Accessories

- EPIC® POWER LS1
- SKINTOP® ST-M refer to page 684

ÖLFLEX® SERVO 719 CY

Screened, low capacitive servo cable with PVC outer sheath for static use - certified for North America

Benefits

- Suitable for use with servomotor product lines from leading drive manufacturers
- Longer cable installation lengths thanks to low mutual capacitance cable design
- Multi-standard certification reduces part varieties and saves costs
- Space and weight-saving installations due to small cable diameters
- Copper braiding screens the cable against electromagnetic interference

Application range

- Connecting cable between servo controller and motor
- For static and occasionally flexible use
- Plant engineering
- Industrial machinery and machine tools
- Printing machines

Product features

- Low capacitance
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant
- EMC-compliant

Norm references / Approvals

- USA: UL AWM Style 2570
  Canada: cUL AWM Style I/II A/B FT1
- UL File No. E63634

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: polypropylene (PP)
- Individual design depending on the item: Power cores without or with one or two individually shielded control core pairs twisted together in short lay lengths; Power cores with control core triplet twisted together in short lay lengths
- Tinned copper screen braiding
- PVC outer sheath, orange (RAL 2003)

Info

- Successor of ÖLFLEX® SERVO 700 CY and ÖLFLEX® SERVO 709 CY
- Product range extension

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Single-paired versions: individual design depending on the item black; white or brown; white
Double-paired versions: black with white numbers 5; 6; 7; 8
0.34 mm² pairs: WH/BN/GN/YE
Triplet: black with white numbers 1; 2; 3

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Temperature range
Occasional flexing:
-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter (mm) approx.	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO 719 CY				
1020010	4 G 1,5	8.4	83	130
1020011	4 G 2,5	9.9	125	190
1020012	4 G 4	11.7	191	273
1020013	4 G 6	13.7	290	394
1020014	4 G 10	16.7	452	581
1020015	4 G 16	20.1	721	884
1020016	4 G 25	24.3	1100	1348
1020017	4 G 35	27.7	1548	1840
1020018	4 G 50	33.7	2151	2645
1020040	4 G 0,75 + (2 x 0,5)	8.9	78	159
1020041	4 G 1 + (2 x 0,5)	9.3	88	147
1020044	4 G 1 + (2 x 1,0)	10.2	107	204
1020042	4 G 1,5 + (2 x 0,5)	10.3	111	180
1020045	4 G 1,5 + (2 x 1,0)	10.8	130	230
1020053	4 G 1,5 + (3 x 1,0)	11.5	145	225
1020019	4 G 1,5 + (2 x 1,5)	11.5	146	242
1020043	4 G 2,5 + (2 x 0,5)	11.7	158	247
1020046	4 G 2,5 + (2 x 1,0)	12.1	173	293
1020054	4 G 2,5 + (3 x 1,0)	12.9	188	290
1020020	4 G 2,5 + (2 x 1,5)	12.9	189	306
1020047	4 G 4 + (2 x 1,0)	14.3	250	373
1020055	4 G 4 + (3 x 1,0)	14.8	270	402
1020021	4 G 4 + (2 x 1,5)	15.0	271	420

Article number	Number of cores and mm² per conductor	Outer diameter (mm) approx.	Copper index (kg/km)	Weight (kg/km)
1020048	4 G 6 + (2 x 1,0)	16.0	334	485
1020022	4 G 6 + (2 x 1,5)	17.0	351	529
1020056	4 G 6 + (3 x 1,5)	17.0	370	537
1020049	4 G 10 + (2 x 1,0)	18.8	526	712
1020023	4 G 10 + (2 x 1,5)	19.5	540	752
1020057	4 G 10 + (3 x 1,5)	19.5	559	758
1020050	4 G 16 + (2 x 1,0)	22.3	772	991
1020058	4 G 16 + (3 x 1,5)	23.0	805	1151
1020024	4 G 0,75 + 2 x (2 x 0,34)	9.7	99	163
1020035	4 G 1 + 2 x (2 x 0,75)	11.3	126.4	207
1020025	4 G 1,5 + 2 x (2 x 0,75)	12.3	150	245
1020026	4 G 2,5 + 2 x (2 x 1,0)	14.7	223	357
1020027	4 G 4 + 2 x (2 x 1,0)	16.4	288	452
1020028	4 G 4 + (2 x 1,0) + (2 x 1,5)	16.6	307	469
1020029	4 G 6 + (2 x 1,0) + (2 x 1,5)	18.5	421	617
1020030	4 G 10 + (2 x 1,0) + (2 x 1,5)	22.1	588	852
1020031	4 G 16 + 2 x (2 x 1,5)	25.0	876	1162
1020032	4 G 25 + 2 x (2 x 1,5)	28.7	1227	1590
1020033	4 G 35 + 2 x (2 x 1,5)	30.6	1652	2023
1020034	4 G 50 + 2 x (2 x 2,5)	37.0	2264	2876

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

ÖLFLEX® SERVO 728 CY

Screened encoder cable with PVC outer sheath for static use - certified

Info

- Successor of ÖLFLEX® SERVO 720 CY
- Fits to various encoder systems

Benefits

- Suitable for use with encoders & resolvers from leading manufacturers
- Thin, optimised for weight and volume
- Multi-standard certification reduces part varieties and saves costs
- Easy to install

Application range

- Analogue and incremental encoders in servo drives
- For static and occasionally flexible use
- Measurement, control and electrical applications
- Industrial machinery and plant engineering
- Only for outdoor use within the indicated operating temperature range, with UV-protection

Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Low attenuation ensures a longer transmission distance
- Oil-resistant

Norm references / Approvals

- UL AWM Style 2464
- CUL AWM I/II A/B FT1
- UL File No. E63634

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: polypropylene (PP)
- Cores (or core pairs) twisted in layers or bundles
- Refer to data sheet for more details
- Non-woven wrapping
- PVC jacket, green (RAL 6018)

Technical data

Core identification code
Details see datasheet
ÖLFLEX® SERVO 728 CY

Conductor stranding
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
IEC: 30 V
UL & CSA: 300 V

Test voltage
C/C: 2000 V
C/S: 1000 V

Temperature range
Occasional flexing:
-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO 728 CY				
1020100	10x0,14+2x0,5	7.0	41	84
1020101	10x0,14+4x0,5	7.6	53	101
1020102	15x0,14+4x0,5	7.6	68	115
1020133	4x2x0,14+4x0,5	7.9	58	97
1020134	7x2x0,14+2x0,5	8.5	60	115
1020110	4x2x0,34+4x0,5	8.3	79	129
1020111	3x(2x0,14)+4x0,14+2x0,5	8.2	68	120
1020135	3x(2x0,14)+ 4x0,14+2x0,5+4x0,22	9.7	80	160
1020120	4x2x0,25+2x0,5	7.9	59	103
1020121	4x2x0,25+2x1,0	7.6	63	112
1020122	4x2x0,14+4x1,0+(4x0,14)	9.0	110	155
1020130	3x(2x0,14)+2x(0,5)	9.0	87	140
1020131	3x(2x0,14)+(3x0,14)	9.2	41	115
1020132	4x(2x0,14)+(2x1,0)	10.4	84	145
1020140	5x2x0,25	7.4	50	96
1020141	6x2x0,25	8.0	60	114

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 798 CP refer to page 111
- Special Encoder and resolver cables refer to page 117
- SERVO cables in acc. to SIEMENS® Standard 6FX 5008- (see online catalogue)

Accessories

- EPIC® SIGNAL M23 Housings
- EPIC® SIGNAL M23 Inserts
- EPIC® SIGNAL M23 Contacts, tools, accessories

ÖLFLEX® SERVO 7DSL

Low capacitive hybrid servo cable with PVC outer sheath for static use - certified for North America

Info

- Suitable for SCS open link and ACURO®link
- Suitable for Hiperface DSL® motor-feedback systems
- EMC-compliant

Benefits

- Only one connection line between drive and motor-feedback system. Instead of the encoder cable an integrated DSL pair takes over the signalling.
- Less cables and reduced connection costs
- Space and weight savings thanks to hybrid cable design
- Multi-standard certification reduces part varieties and saves costs
- Easy to install

Application range

- For fixed installation or applications with occasional movements
- Power drive systems in automation engineering
- Connecting cable between servo controller and motor
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines

Product features

- Maximum DSL transmission length: 100m
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant
- Low-capacitance design
- EMC-optimised design

Norm references / Approvals

- USA: UL AWM Style 2570
  Canada: cUL AWM Style I/II A/B FT1
- UL File No. E63634

Product Make-up

- Fine-wire, bare copper conductor (power cores and control pair) and 7-wire, tinned copper conductor (signal pair)
- Core insulation: polypropylene (PP)
- Individual design depending on the item: power cores without or with one screened control pair and one DSL signal pair twisted together
- Tinned-copper braiding
- PVC outer sheath, orange (RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Signal pair: white, blue
Control pair (optional): black with white numbers 5 + 6

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5
DSL pair: 7-wired

Minimum bending radius
For flexible use:
15 x outer diameter
Fixed installation: 5 x outer diameter

Nominal voltage
Power and control:
IEC: U0/U: 600/1000 V
UL: 1000 V
Signal pair: 300 V

Test voltage
Power and control: 4 kV
Signal pair: 1kV

Protective conductor
G = with GN-YE protective conductor

Temperature range
Flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +70°C (UL: +80°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Hybrid cables for fixed installation				
1023290	4 G 1,5 + (2 x 22AWG)	11.2	110	194
1023291	4 G 2,5 + (2 x 22AWG)	12.6	148	253
1023292	4 G 4 + (2 x 22AWG)	14.0	208	332
1023293	4 G 1,5 + (2 x 1,0) + (2 x 22AWG)	13.2	140	250
1023294	4 G 2,5 + (2 x 1,0) + (2 x 22AWG)	14.0	185	285
1023295	4 G 4 + (2 x 1,0) + (2 x 22AWG)	15.8	248	390

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
HIPERFACE DSL® is a registered trademark of SICK AG, ACURO®link and SCS open link are registered trademarks of Hengstler GmbH
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 719 CY refer to page 100

Accessories

- Protective cable conduit systems and cable carrier systems
- Circular connectors

NEW

ÖLFLEX® SERVO 7TCE

Multi-listed, flexible servo cable with optional pairs for brake and temperature sensor

Info

- Servo motor and drive connections
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- EMC-compliant

Benefits

- One common cable for multiple circuits
- Multi-standard certification reduces part varieties and saves costs
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Longer cable connection possible between frequency converter and motor due to low capacitance design
- UL TC-ER and c(UL) CIC/TC approved

Application range

- Connecting cable between servo controller and motor
- For fixed installation or applications with occasional movements
- Class 1 Division 2 per NEC Articles 336, 501
- Plant engineering
- Industrial machinery and machine tools

Product features

- Oil-resistant according to UL OIL RES I & II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- -40°C Cold Bend; -25°C Cold Impact
- Sunlight Resistant; Direct Burial

Norm references / Approvals

- UL TC-ER (exposed run) per UL 1277
- Class 1 Division 2 per NEC Articles 336, 501
- Flexible Motor Supply Cable per UL
- c(UL) CIC/TC FT4; cRU AWM I/II A/B FT4

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: XLPE
- Individual design depending on the item: power cores without or with one or two individually screened control core pairs twisted together in short lay lengths
- Tinned-copper braiding
- Outer sheath: Specially formulated thermoplastic elastomer (TPE), orange

Technical data

Core identification code
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Optional designs with
one pair of control cores: black; white
Two pairs of control cores: black with white numbers: 5, 6, 7, 8

Certifications
USA: UL TC-ER, Flexible Motor SupplyCanada: c(UL) CIC/TC FT4, cRU AWM I/II A/B FT4

Conductor stranding
Fine wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
UL TC: 600V
UL Flexible Motor Supply: 1000V
c(UL) CIC/TC: 600V
cRU AWM: 1000V
IEC U0/U: 600/1000 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor

Temperature range
Occasional flexing: -25°C to +90°C
Fixed installation: -40°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO 7TCE				
700730	4 G 1,5	9.8	88	143
700731	4 G 2,5	11.0	132	199
700732	4 G 4	12.8	199	286
700733	4 G 6	14.1	281	373
700734	4 G 1,5 + (2 x 1,5)	12.6	147	240
700735	4 G 2,5 + (2 x 1,5)	13.3	191	301
700736	4 G 4 + (2 x 1,5)	15.8	259	432
700737	4 G 6 + (2 x 1,5)	17.0	354	496
700738	4 G 1,0 + 2 x (2 x 1,0)	13.2	167	277
700739	4 G 1,5 + 2 x (2 x 1,0)	13.9	188	314
700740	4 G 2,5 + 2 x (2 x 1,0)	15.5	229	387
700741	4 G 4 + (2 x 1,0) + (2 x 1,5)	17.0	326	487
700742	4 G 6 + (2 x 1,0) + (2 x 1,5)	18.1	409	574

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 719 CY refer to page 100
- ÖLFLEX® TRAY II CY refer to page 58

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-SC-M refer to page 701
- SKINTOP® MS-M BRUSH refer to page 702

ÖLFLEX® VFD 2XL

Multi-listed, flexible VFD cable

Info

- VFD drive and motor connections
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- EMC-compliant

Benefits

- Reduced insulation wall thickness, thus space-saving installation
- Multi-standard certification reduces part varieties and saves costs
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Longer cable connection possible between frequency converter and motor due to low capacitance design
- UL TC-ER and c(UL) CIC/TC approved

Application range

- Connecting cable between Frequency converter and motor
- For fixed installation or applications with occasional movements
- Class 1 Division 2 per NEC Articles 336, 501
- Plant engineering
- Industrial machinery and machine tools

Product features

- Oil-resistant according to UL OIL RES I & II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- 90°C Wet or Dry; -40°C Cold Bend; -25°C Cold Impact
- Sunlight Resistant; Direct Burial

Norm references / Approvals

- UL TC-ER (exposed run) per UL 1277
- Class 1 Division 2 per NEC Articles 336, 501
- Flexible Motor Supply Cable per UL
- c(UL) CIC/TC FT4; cRU AWM I/II A/B FT4
- CE (50V - 1kV)

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: XLPE
- Aluminum-coated foil
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: Specially formulated thermoplastic elastomer (TPE), black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Black with white numbers

Certifications
USA: UL TC-ER, WTTC, Flexible Motor Supply
Canada: c(UL) CIC/TC FT4, cRU AWM I/II A/B FT4

Conductor stranding
Fine wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

Nominal voltage
UL TC: 600V/2000V
UL Flexible Motor Supply: 1000V
c(UL) CIC/TC: 600V
cRU AWM: 1000V
IEC U0/U: 600/1000 V

Test voltage
6000 V

Protective conductor
G = with GN-YE protective conductor

Temperature range
Occasional flexing: -25°C to +90°C
Fixed installation: -40°C to +90°C

Article number	Number of cores and mm²/AWG sizes per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® VFD 2XL				
700700	4 G 1,5	12.9	104.16	238
700701	4 G 2,5	14.8	148.8	292
700702	4 G 4	16.7	214.272	384
700703	4 G 6	18.0	296.112	476
700704	4 G 10	22.5	443.424	856
700705	4 G 16	25.9	770.784	1317
700706	4 G 4AWG	29.4	955.296	1570
700707	4 G 2AWG	33.8	1458.24	2173

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 719 CY refer to page 100
- ÖLFLEX® TRAY II CY refer to page 58

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-SC-M refer to page 701
- SKINTOP® MS-M BRUSH refer to page 702

NEW

ÖLFLEX® VFD 2XL with Signal

Multi-listed, flexible VFD cable with a pair for brake or temperature sensor

Info

- VFD drive and motor connections
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- EMC-compliant

Benefits

- One common cable for multiple circuits
- Multi-standard certification reduces part varieties and saves costs
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Longer cable connection possible between frequency converter and motor due to low capacitance design
- UL TC-ER and c(UL) CIC/TC approved

Application range

- Connecting cable between Frequency converter and motor
- For fixed installation or applications with occasional movements
- Class 1 Division 2 per NEC Articles 336, 501
- Plant engineering
- Industrial machinery and machine tools

Product features

- Oil-resistant according to UL OIL RES I & II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- 90°C Wet or Dry; -40°C Cold Bend; -25°C Cold Impact
- Sunlight Resistant; Direct Burial

Norm references / Approvals

- UL TC-ER (exposed run) per UL 1277
- Class 1 Division 2 per NEC Articles 336, 501
- Flexible Motor Supply Cable per UL
- c(UL) CIC/TC FT4; cRU AWM I/II A/B FT4
- CE (50V - 1kV)

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: XLPE
- Control pair with laminated aluminium film and tin-plated drain wire
- Barrier tape
- Aluminum-coated foil
- Tinned-copper braiding with drain wire
- Outer sheath: Specially formulated thermoplastic elastomer (TPE), black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Black with white numbers

Certifications
USA: UL TC-ER, WTTC, Flexible Motor Supply
Canada: c(UL) CIC/TC FT4, cRU AWM I/II A/B FT4

Conductor stranding
Fine wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

Nominal voltage
UL TC: 600V/2000V
UL Flexible Motor Supply: 1000V
c(UL) CIC/TC: 600V
cRU AWM: 1000V
IEC U0/U: 600/1000 V

Test voltage
6000 V

Protective conductor
G = with GN-YE protective conductor

Temperature range
Occasional flexing: -25°C to +90°C
Fixed installation: -40°C to +90°C

Article number	Number of cores and mm²/AWG sizes per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® VFD 2XL with Signal				
700710	4 G 1,5 + (2 x 1,0)	16.6	135.408	298
700711	4 G 2,5 + (2 x 1,0)	17.4	196.416	375
700712	4 G 4 + (2 x 1,0)	19.1	238.08	438
700713	4 G 6 + (2 x 1,0)	20.3	319.92	527
700714	4 G 10 + (2 x 2,5)	25.0	496.992	1027
700715	4 G 16 + (2 x 2,5)	28.2	749.952	1347
700716	4 G 4AWG + (2 x 2,5)	32.0	992.496	1674
700717	4 G 2AWG + (2 x 2,5)	35.6	1528.176	2351

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 610 m drum or 8 x 76 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

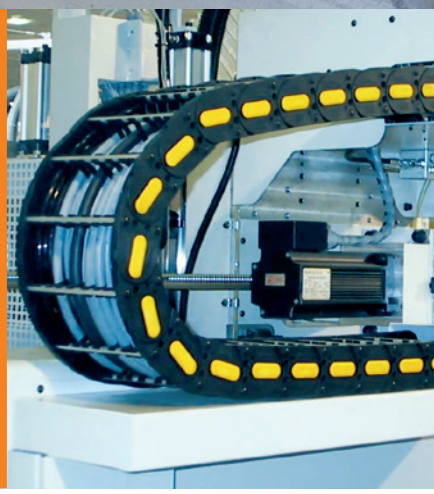
Similar products

- ÖLFLEX® SERVO 719 CY refer to page 100
- ÖLFLEX® TRAY II CY refer to page 58

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-SC-M refer to page 701
- SKINTOP® MS-M BRUSH refer to page 702

Power chain
applications



ÖLFLEX® SERVO FD 781 CY

Screened, low capacitive servo cable with PVC outer sheath for flexible power chain application

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- EMC-compliant

Benefits

- Well-proven and reliable
- Longer cable connection possible between frequency converter and motor due to low capacitance design
- Copper screening complies with EMC requirements and protects against electromagnetic interference

Application range

- Connecting cable between Frequency converter and motor
- In power chains or moving machine parts
- For power circuits in machine cabling
- In dry, damp or wet interiors with normal mechanical stress conditions
- Only for outdoor use within the indicated operating temperature range, with UV-protection

Product features

- Oil-resistant
- Flame retardant acc. to IEC 60332-1-2
- Low-adhesive surface

Norm references / Approvals

- Based on VDE 0250 / 0285
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- Cores twisted in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- PVC outer sheath, orange (RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 600/1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with gn-ye protective conductor

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Temperature range
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO FD 781 CY				
0036320	4 G 1.5	9.8	89	157
0036321	4 G 2.5	11.9	133.8	233
0036322	4 G 4	13.5	210.9	335
0036324	4 G 10	19.7	488.2	747
0036325	4 G 16	23.9	744.8	1109
0036327	4 G 35	33.3	1565.4	2264
0036328	4 G 50	38.3	2174.9	3090

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 796 CP refer to page 109
- SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS refer to page 113

Accessories

- Rectangular connectors
- EPIC® POWER LS1
- EMC

ÖLFLEX® SERVO FD 796 P

Servo cable with PUR outer sheath for highly dynamic power chain application - certified for North America

Info

- Extended Line Performance - Long travel lengths or high acceleration
- AWM certification for USA and Canada
- VDE-tested characteristics

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Longer cable connection possible between frequency converter and motor due to low capacitance design
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Multi-standard certification reduces part varieties and saves costs

Application range

- Connecting cable between servo controller and motor
- In power chains or moving machine parts
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines
- For indoor and outdoor use

Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- Abrasion and notch-resistant
- Oil-resistant

Norm references / Approvals

- VDE - reg - no. 8591 (≥ 4G1,5)
  UL AWM Style 20234
  cULus AWM I/II A/B, 1000V 80° FT1
  CSA AWM I/II A, 1000V 80° FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- According to P/N individual design: Power cores with one or with two control pair(s), twisted together in short lay length
- Non-woven wrapping
- PUR outer sheath, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Single-paired versions: black; white
Double-paired versions: black with white numbers 5; 6; 7; 8
0,34mm² pairs: WH/BN/GN/YE

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 2 kV

Protective conductor
G = with GN-YE protective conductor

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO FD 796 P				
0025319	4 G 1,5 + (2 x 1,5)	11.7	99	217
0025320	4 G 2,5 + (2 x 1,5)	13.1	134	270
0025321	4 G 4 + (2 x 1,5)	14.2	195	333
0025322	4 G 6 +(2 x 1,5)	16.0	272	403
0025323	4 G 10 + (2 x 1,5)	18.4	425	581
0025324	4 G 16 + (2 x 1,5)	22.1	656	887
0025326	4 G 0,75 + 2 x (2 x 0,34)	10.9	54	143
0025327	4 G 1,5 + 2 x (2 x 0,75)	12.3	103	209
0025328	4 G 2,5 + 2 x (2 x 1,0)	14.3	152	306
0025312	4 G 4 + 2 x (2 x 1,0)	15.4	218	381
0025329	4 G 4 + (2 x 1,0) + (2 x 1,5)	15.6	231	388
0025330	4 G 6 + (2 x 1,0) + (2 x 1,5)	17.1	308	460

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 796 CP refer to page 109

Accessories

- Protective cable conduit systems and cable carrier systems
- Circular connectors

NEW

ÖLFLEX® SERVO FD 796 CP

Screened servo cable with PUR outer sheath for highly dynamic power chain application - certified

Info

- Extended Line Performance - Long travel lengths or high acceleration
- Product range extension

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Suitable for use with servomotor product lines from leading drive manufacturers
- Longer cable connection possible between frequency converter and motor due to low capacitance design
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Copper braiding screens the cable against electromagnetic interference

Application range

- Connecting cable between servo controller and motor
- In power chains or moving machine parts
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines
- For indoor and outdoor use

Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- Abrasion and notch-resistant
- Oil-resistant

Norm references / Approvals

- VDE - Reg. - No. 8591
  (0027925,..926,..927,..930 pending)
  UL AWM Style 20234
  cULus AWM I/II A/B, 1000V 80° FT1
  CSA AWM I/II A, 1000V 80° FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- Individual design depending on the item: Power cores without or with one or two individually shielded control core pairs twisted together in short lay lengths; Power cores with control core triplet twisted together in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Single-paired versions: individual design depending on the item black; white or brown; white
Double-paired versions: black with white numbers 5; 6; 7; 8
0.34 mm² pairs: WH/BN/GN/YE
Triplet: black with white numbers 1; 2; 3

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing:
up from 7.5 x outer diameter (up to 16mm²)
up from 10 x outer diameter (from 25mm²)
Fixed installation: 4 x outer diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 2 kV

Protective conductor
G = with GN-YE protective conductor

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Number of cores and mm² per conductor	Outer diameter (mm) approx.	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO FD 796 CP				
0027950	4 G 1,5	9.1	79	140
0027951	4 G 2,5	10.6	129	197
0027952	4 G 4	11.9	186	268
0027953	4 G 6	14.5	296	397
0027954	4 G 10	17.5	449	591
0027955	4 G 16	21.6	716	955
0027956	4 G 25	25.2	1073	1337
0027957	4 G 35	28.6	1480	1769
0027958	4 G 50	33.4	2115	2468
0027930	4 G 0,75 + (2 x 0,5)	11.0	85.5	155
0027925	4 G 1 + (2 x 0,5)	11.5	97.4	164
0027931	4 G 1 + (2 x 1,0)	11.7	106.7	174
0027926	4 G 1,5 + (2 x 0,5)	12.0	117.2	187
0027948	4 G 1,5 + (2 x 1,0)	12.2	129.9	202

Power and control cables

LAPP

Power chain applications • Servo applications - power drive systems, certified

Article number	Number of cores and mm² per conductor	Outer diameter (mm) approx.	Copper index (kg/km)	Weight (kg/km)
0027932	4 G 1,5 + (3 x 1,0)	12.0	143.8	220
0027959	4 G 1,5 + (2 x 1,5)	11.6	135	261
0027927	4 G 2,5 + (2 x 0,5)	12.6	161.2	243
0027978	4 G 2,5 + (2 x 1,0)	13.5	169.2	253
0027933	4 G 2,5 + (3 x 1,0)	13.5	204.3	294
0027960	4 G 2,5 + (2 x 1,5)	13.4	188	318
0027981	4 G 4 + (2 x 1,0)	14.8	238.9	359
0027934	4 G 4 + (3 x 1,0)	14.7	250	361
0027961	4 G 4 + (2 x 1,5)	14.8	235	385
0027982	4 G 6 + (2 x 1,0)	16.8	339.5	469
0027962	4 G 6 + (2 x 1,5)	16.8	329	486
0027935	4 G 6 + (3 x 1,5)	16.5	381.4	505
0027983	4 G 10 + (2 x 1,0)	18.8	530.1	689
0027963	4 G 10 + (2 x 1,5)	19.4	515	701
0027936	4 G 10 + (3 x 1,5)	19.7	568.9	722
0027984	4 G 16 + (2 x 1,0)	22.8	786.7	985
0027964	4 G 16 + (2 x 1,5)	23.1	757	1048
0027937	4 G 16 + (3 x 1,5)	23.3	824.6	1030
0027965	4 G 25 + (2 x 1,5)	26.6	1147	1532
0027966	4 G 35 + (2 x 1,5)	30.9	1538	2097
0027967	4 G 50 + (2 x 1,5)	34.0	2181	2721
0027969	4 G 1,5 + 2 x (2 x 0,75)	12.2	159	313
0027970	4 G 2,5 + 2 x (2 x 1,0)	14.6	207	395
0027980	4 G 4 + 2 x (2 x 1,0)	16.1	274	466
0027971	4 G 4 + (2 x 1,0) + (2 x 1,5)	16.3	344	485
0027972	4 G 6 + (2 x 1,0) + (2 x 1,5)	18.1	436	588
0027973	4 G 10 + (2 x 1,0) + (2 x 1,5)	21.8	610	819
0027974	4 G 16 + 2 x (2 x 1,5)	25.5	801	1135
0027975	4 G 25 + 2 x (2 x 1,5)	28.8	1187	1559
0027976	4 G 35 + 2 x (2 x 1,5)	30.9	1588	2093
0027977	4 G 50 + 2 x (2 x 2,5)	36.3	2557	2920

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Circular connectors
- EMC

ÖLFLEX® SERVO FD 798 CP

Screened encoder cable with PUR outer sheath for highly dynamic power chain application - certified

Info

- Extended Line Performance - Long travel lengths or high acceleration
- Fits to various encoder systems
- AWM certification for USA and Canada

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Suitable for use with encoders & resolvers from leading manufacturers
- Thin, optimised for weight and volume
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments

Application range

- Connecting cable between servo controller and encoder/resolver
- Connecting cable between servo controller and speed generators
- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines
- For indoor and outdoor use

Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- Low-capacitance design
- Abrasion and notch-resistant
- Oil-resistant

Norm references / Approvals

- UL AWM Style 20236
- CSA AWM IA/B; IIA/B FT 1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Fine-wire or extra-fine wire, tinned-copper conductor
- Core insulation: polypropylene (PP)
- Cores (or core pairs) twisted in layers or bundles
- Refer to data sheet for more details
- Non-woven wrapping
- PUR outer sheath, green (RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Details see datasheet ÖLFLEX® SERVO FD 798 CP

Conductor stranding
Fine wire or extra-fine wire

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: 30 V
UL & CSA: 30 V

Test voltage
Core/core: 1500 V rms
Core/screen: 750 V rms

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO FD 798 CP				
0036910	4x2x0,34+4x0,5	8.9	79	125
0036911	3x(2x0,14)+2x(0,5)	8.9	70	120
0036912	3x(2x0,14)+4x0,14+2x0,5	8.8	68	110
0036913	3x(2x0,14)+4x0,14+2x0,5+4x0,22	9.4	80	130
0036914	9x0,5	8.8	71	110
0036915	4x2x0,25+2x1,0	8.8	63	109
0036916	6x2x0,25+2x0,5	10.3	67	121
0036917	10x0,14+2x0,5	7.7	41	82
0036918	10x0,14+4x0,5	8.1	54	98
0036920	4x2x0,14+4x0,5	8.2	51	95
0036921	4x2x0,25	7.6	38	75
0036923	8x2x0,18	7.8	51	85
0036924	4x2x0,18	6.4	30	52
0036926	12x0,22	6.9	44	73
0036927	4x2x0,25+2x0,5	8.5	62	98
0036928	2x2x0,14+2x(2x0,14)+4x0,5+(4x0,14)	9.1	79	135
0036929	2x(2x0,25)+2x0,5	8.7	46	98
0036930	2x2x0,25+2x0,5	7.3	38	72

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
DESINA® is a registered trademark of the German Machine Tool Builders' Association
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Circular connectors
- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® SERVO FD 7DSL

Low capacitive hybrid servo cable with PUR outer sheath for highly dynamic power chain application - certified

Info

- Suitable for SCS open link and ACURO®link
- Suitable for Hiperface DSL® motor-feedback systems
- Extended Line Performance - Long travel lengths or high acceleration

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Only one connection line between drive and motor-feedback system. Instead of the encoder cable an integrated DSL pair takes over the signalling.
- Less cables and reduced connection costs
- Space and weight savings thanks to hybrid cable design
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

Application range

- Power drive systems in automation engineering
- Connecting cable between servo controller and motor
- In power chains or moving machine parts
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines

Product features

- Maximum DSL transmission length: 100m
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- Low-capacitance design
- Oil-resistant

Norm references / Approvals

- UL AWM Style 21223
  cRU AWM I/II A/B FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine-wire, bare copper conductor (power cores and control pair) and 19-wire, tinned copper conductor (signal pair)
- Core insulation: polypropylene (PP)
- Individual design depending on the item: power cores without or with one screened control pair and one DSL signal pair twisted together
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Signal pair: white, blue
Control pair (optional): black with white numbers 5 + 6

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6
DSL pair: 19-wired

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 5 x outer diameter

Nominal voltage
Power and control:
IEC: U0/U: 600/1000 V
UL: 1000 V
Signal pair: 300 V

Test voltage
Power and control: 4 kV
Signal pair: 1kV

Protective conductor
G = with GN-YE protective conductor

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Temperature range
Flexing: -40°C to +90°C
(UL: +80°C)
Fixed installation: -50°C to +90°C
(UL: +80°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Hybrid cables for power chain applications				
1023275	4 G 1,5 + (2 x 22AWG)	11.2	115	198
1023276	4 G 2,5 + (2 x 22AWG)	12.6	160	269
1023277	4 G 4 + (2 x 22AWG)	14.0	218	343
1023274	4 G 1 + (2 x 0,75) + (2 x 22AWG)	11.8	133	202
1023278	4 G 1,5 + (2 x 1,0) + (2 x 22AWG)	13.2	152	256
1023279	4 G 2,5 + (2 x 1,0) + (2 x 22AWG)	14.0	195	313
1023280	4 G 4 + (2 x 1,0) + (2 x 22AWG)	15.8	268	407

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
HIPERFACE DSL® is a registered trademark of SICK AG, ACURO®link and SCS open link are registered trademarks of Hengstler GmbH
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 7DSL refer to page 102
- ÖLFLEX® SERVO FD 796 CP refer to page 109

Accessories

- Protective cable conduit systems and cable carrier systems
- Circular connectors

SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS

Motor and resolver/encoder cables - certified

Info

- Servo drives
- PUR outer sheath
- EMC-compliant

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

Application range

- Connecting cable between servo controller and encoder/resolver
- Connecting cable between servo controller and motor
- In power chains or moving machine parts
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines

Product features

- Dynamic power chain performance:
  Acceleration up to 50 m/s².
  Travel speeds up to 5 m/s.
  Travel distances up to 100 m.
- Abrasion and cut-resistant, halogen-free, oil-resistant
- Flame-retardant according to IEC 60332-1-2 & CSA FT1

Norm references / Approvals

- Power cable:
  VDE-registered
  UL AWM Style 21223
  CSA AWM I/II, A/B 1000 V 80° FT 1
- Signal cables:
  UL/CSA AWM Style 20236
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine strand made of copper wires:
  > Signal cables: tinned
  > Power cables: bare
- Core insulation: polypropylene (PP)
- Tinned-copper braiding
- PUR outer sheath
- Signal cables: green (RAL 6018)
- Servo cable: orange (RAL 2003)
- Refer to data sheet for more details

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Details see datasheet

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Power cable:
Fixed: 4 x Diameter
Dynamic:
1.5 mm² - 16 mm²: 7.5 x Diameter
25 mm² - 50 mm²: 10 x Diameter
Signal cable:
Fixed: 4 x Diameter
Dynamic: 8 x Diameter

Nominal voltage
Signal cables:
30 V AC/DC
Power cable:
- Power cores:
U0/U 600/1000 V (IEC)
1000 V (UL/CSA)
- Control cores:
24 V AC/DC (IEC)
1000 V (UL/CSA)

Test voltage
Power cable: 4 KV
Signal cables: 500 V

Protective conductor
G = with GN-YE protective conductor

Bending cycles & operation parameters
10 mio. cycles

Temperature range
Flexing: -20°C to +60°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Reference article no.	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Feedback / signal cables					
00277101	8 x 2 x 0,18	6FX8008-1BD11	7.8	54	85
00277111	4 x 2 x 0,38 + 4 x 0,5	6FX8008-1BD21	8.9	77	120
00277121	3 x (2 x 0,14) + 2 x (0,5)	6FX8008-1BD31	8.9	69	113
00277131	3 x (2 x 0,14) + 4 x 0,14 + 2 x 0,5	6FX8008-1BD41	8.8	66	101
00277141	3 x (2 x 0,14) + 4 x 0,14 + 2 x 0,5 + 4 x 0,22	6FX8008-1BD51	9.4	86	139
00277151	4 x 2 x 0,18	6FX8008-1BD61	6.4	34.25	53
00277161	2 x 2 x 0,18	6FX8008-1BD71	5.0	23.1	36
00277171	12 x 0,22	6FX8008-1BD81	6.9	48	76
00277992	2 x 2 x 0,15 + 1 x 2 x 0,38	6FX8008-2DC00	7.2	39	67
Motor cables					
0027784	4 G 1.5	6FX8008-1BB11-Plus	9.1	90	150
0027785	4 G 2.5	6FX8008-1BB21-Plus	10.6	132	220
0027786	4 G 4	6FX8008-1BB31-Plus	11.9	204	300
0027787	4 G 6	6FX8008-1BB41-Plus	14.5	315	450
0027788	4 G 10	6FX8008-1BB51-Plus	17.5	488	660
0027789	4 G 16	6FX8008-1BB61-Plus	21.6	769	1010

Power and control cables

LAPP

Power chain applications • Servo applications - power drive systems, certified

Article number	Number of cores and mm² per conductor	Reference article no.	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Servo cables					
0027790	4 G 1,5 + (2 x 1,5)	6FX8008-1BA11-Plus	11.6	146	230
0027791	4 G 2,5 + (2 x 1,5)	6FX8008-1BA21-Plus	13.4	187	300
0027792	4 G 4 + (2 x 1,5)	6FX8008-1BA31-Plus	14.8	258	380
0027793	4 G 6 + (2 x 1,5)	6FX8008-1BA41-Plus	16.8	365	530
0027794	4 G 10 + (2 x 1,5)	6FX8008-1BA51-Plus	19.4	560	765
0027795	4 G 16 + (2 x 1,5)	6FX8008-1BA61-Plus	23.1	816	1090
0027796	4 G 25 + (2 x 1,5)	6FX8008-1BA25-Plus	26.6	1166	1530
0027797	4 G 35 + (2 x 1,5)	6FX8008-1BA35-Plus	30.9	1554	2040
0027798	4 G 50 + (2 x 1,5)	6FX8008-1BA50-Plus	34.0	2188	2760

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only
Cables for power chain use should only be handled on drums prior to installation.
Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

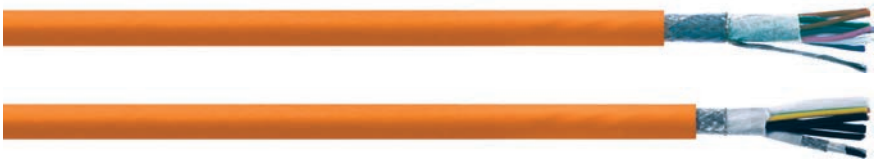
- ÖLFLEX® SERVO FD 796 CP refer to page 109

Accessories

- Circular connectors
- EMC

SERVO cables in acc. to INDRAMAT® Standard INK

Motor and resolver/encoder cables - certified



Info

- Servo drives
- PUR outer sheath
- EMC-compliant

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

Application range

- Connecting cable between servo controller and encoder/resolver
- Connecting cable between servo controller and motor
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines

Product features

- For horizontal travel distances up to 100m
- Abrasion and cut-resistant, halogen-free, oil-resistant
- Flame-retardant according to IEC 60332-1-2 & CSA FT1

Norm references / Approvals

- Power cable:
  UL Style 20234, CSA AWM I/II A/B
- Signal cables:
  UL Style 20236, CSA AWM I/II A/B
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- In accordance with INDRAMAT® standard INK (also suitable for pre-assembled versions, IKS and IKG)
- Core insulation: TPE
- Refer to data sheet for more details
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Details see datasheet

Conductor stranding
Extra-fine wire according to IEC 60228 class 6

Minimum bending radius
Power cable:
Fixed installation: 4 x outer diameter
For flexible use: 7.5 x outer diameter
Signal cables:
Fixed installation: 5 x outer diameter
For flexible use: 10 x outer diameter

Nominal voltage
Power cable:
- Power cores:
U0/U 600/1000 V (IEC)
1000 V (UL/CSA)
- Control cores:
250 V AC (IEC)
1000 V (UL/CSA)
Signal cables:
300 V (IEC), 300 V (UL/CSA)

Test voltage
Power cable:
Power cores: 4000 V
Control cores: 2000 V
Signal cables: 500 V

Protective conductor
G = with GN-YE protective conductor

Bending cycles & operation parameters
5 mio. cycles

Temperature range
Flexing: -30°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Reference article no.	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Feedback / encoder / resolver cables					
7072400	4 x 2 x 0,25 + 2 x 1,0	INK-0209	8.8	74	120
7072401	4 x 2 x 0,25 + 2 x 0,5	INK-0448	8.5	70	100
7072402	9 x 0,5	INK-0208	8.8	75	126
7072414	4 x 1,0 + 4 x 2 x 0,14 + (4 x 0,14)	INK-0532	9.7	81	140
7072415	2 x (2 x 0,25) + 2 x 0,5	INK-0234	8.7	46	90
7072416	2 x 2 x 0,25 + 2 x 0,5	INK-0750	7.6	35	92
Servo cables					
7072417	4 G 0,75 + 2 x 0,5	INK-0670	10.0	73	132
7072403	4 G 1,0 + 2 x (2 x 0,75)	INK-0653	11.5	170	226
7072404	4 G 1,5 + 2 x (2 x 0,75)	INK-0650	12.2	189	268
7072405	4 G 2,5 + 2 x (2 x 1,0)	INK-0602	15.1	212	320
7072406	4 G 4 + (2 x 1,0) + (2 x 1,5)	INK-0603	16.0	306	470
7072407	4 G 6 + (2 x 1,0) + (2 x 1,5)	INK-0604	18.8	366	600
7072408	4 G 10 + (2 x 1,0) + (2 x 1,5)	INK-0605	22.0	565	850
7072409	4 G 16 + 2 x (2 x 1,5)	INK-0606	25.2	838	1020
7072410	4 G 25 + 2 x (2 x 1,5)	INK-0607	28.0	1231	1420

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Indramat part designations (IKG, IKS, INK, INS, RKL and RKG) are registered trademarks of Bosch Rexroth AG, and are listed for comparison purposes only.
Cables for power chain use should only be handled on drums prior to installation. / Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SERVO cables in acc. to LENZE® Standard

Motor and resolver/encoder cables - certified

Benefits

- Motor cables with low-capacitance
- Multi-standard certification reduces part varieties and saves costs

Application range

- Connecting cable between servo controller and encoder/resolver
- Connecting cable between servo controller and motor
- Plant engineering
- Assembly lines, production lines, in all kinds of machines

Norm references / Approvals

- Resolver and encoder cable:
  UL AWM Style 2464 for fixed installation versions,
  UL AWM Style 21165 for highly flexible applications,
  CSA AWM I/II A/B
- Motor cable:
  UL AWM Style 2570 for fixed installation version,
  UL AWM Style 20940 for high flexibility use,
  CSA AWM I/II A/B
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Design according to LENZE® standard:
- Designs for fixed installation:
  PVC outer sheath, PP core insulation.
- Designs for highly flexible use:
  PUR outer sheath, TPE core insulation
- Refer to data sheet for more details
- Signal cables: green (RAL 6018)
- Servo cable: orange (RAL 2003)

Info

- Servo drives
- For static or highly flexible use
- EMC-compliant

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Encoder cables
- 7072508 (fixed installation)
bk/ye+bk/gn+bk/rd+bk/bu+bk/wh
- 7072517 (flexible use)
gn/ye+bu/rd+gy/pk+bk/vt+bn/wh
Resolver cables:
- 7072507 (fixed installation)
bk/ye+bk/gn+bk/rd+bk/wh
- 7072516 (flexible use)
gn/ye+bu/rd+gy/pk+bn/wh

Minimum bending radius
Flexible use: 10 x outer diameter
Fixed installation: 7.5 x outer diameter

Nominal voltage
Signal cables:
30 V (VDE), 300 V (UL/CSA)
Power cables:
- Power cores:
U0/U 0.6/1 kV (VDE),
600 V (UL/CSA)
- Control cores:
24 V (VDE)
600 V (UL/CSA)

Test voltage
Signal cable: 1.5 kV
Motor cable:
- Power cores: 4 kV
- Control cores: 2 kV

Protective conductor
G = with GN-YE protective conductor

Temperature range
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Motor cables for fixed installation				
7072500	4 G 1,0 + (2 x 0,5)	10.0	81	128
7072501	4 G 1,5 + (2 x 0,5)	11.2	106	173
7072502	4 G 2,5 + (2 x 0,5)	12.3	153	244
Screened encoder cable with PVC outer sheath for static use				
7072507	3 x (2 x 0,14) + 1 x (2 x 0,5)	9.3	43	91
7072508	4 x (2 x 0,14) + 1 x (2 x 1,0)	11.0	65	136
Motor cables for power chain application				
7072509	4 G 1,0 + (2 x 0,5)	10.0	81	151
7072510	4 G 1,5 + (2 x 0,5)	11.5	106	192
7072511	4 G 2,5 + (2 x 0,5)	13.2	153	271
7072512	4 G 4 + (2 x 1,0)	14.6	235	373
7072513	4 G 6 + (2 x 1,0)	16.8	316	477
7072514	4 G 10 + (2 x 1,0)	20.1	513	710
7072515	4 G 16 + (2 x 1,0)	23.8	710	1015
Resolver & encoder cable for power chain applications				
7072516	3 x (2 x 0,14) + 1 x (2 x 0,5)	10.0		107
7072517	4 x (2 x 0,14) + 1 x (2 x 1,0)	11.5	65	145

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Lenze® part designations (EWLM_, EWLR_, EWLE_, EWLL_, EYL and EYP) are registered trademarks of Lenze® AG, and are listed for comparison purposes only. DESINA® is a registered trademark of the German Machine Tool Builders' Association.
Cables for power chain use should only be handled on drums prior to installation.
Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Circular connectors
- EMC

Special Encoder and resolver cables

Compatible with various drive systems

Info

- Fits to various encoder systems
- PUR outer sheath
- AWM certification for USA and Canada

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

Application range

- Servo drives and servo assemblies
- In power chains or moving machine parts
- Plant engineering
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines

Product features

- Abrasion and notch-resistant
- Oil-resistant
- Flame-retardant according to IEC 60332-1-2 & CSA FT1

Norm references / Approvals

- UL/CSA AWM Styles please refer to data sheet
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Design according to specific OEM standard
- Refer to data sheet for more details
- PUR outer sheath
- Outer sheath colour: see part table

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

General
More technical information of the abovementioned servo cables are available upon request.

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Colour	Copper index (kg/km)	Weight (kg/km)
Suitable for Heidenhain					
70388718	4 x 2 x 0,14 + 4 x 0,5	8.5	black	48	92
70388719	3 x (2 x 0,14) + 2 x (0,5)	8.3	black	64	100
70388720	3 x (2 x 0,14) + 2 x (1,0)	9.1	black	64	115
70388721	4 x 2 x 0,14 + 4 x 0,5 + (4 x 0,14)	8.3	black	56	102
Suitable for ELAU					
70388722	3 x 2 x 0,25 + 2 x 0,5	8.4	green	44	95
Suitable for KEB					
70388724	3 x (2 x 0,14) + 2 x (0,5)	8.1	green	64	100
Suitable for Berger Lahr					
70388726	5 x 2 x 0,25 + 2 x 0,5	9.5	green	56	120
Suitable for B & R					
70388727	3 x 2 x 24AWG	6.5	green	28	60
70388728	5 x 2 x 0,14 + 2 x 0,5	7.8	green	40	80
Suitable for FANUC					
70388730	5 x 0,5 + 2 x 2 x 0,18	7.6	green	94	169
70388731	2 x 0,5 + 4 x 2 x 0,22	7.6	green	72	120
70388732	3 x 2 x0,18 + 6 x 0,5	8.7	green	105	189
70388733	3 x 2 x 0,18 + 6 x 1,0	8.7	green	140	252
70388734	5 x 2 x 0,18 + 6 x 0,5	8.7	green	114	205
70388735	10 x 2 x 24 AWG	9.0	green	60	121

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
The drive systems (Heidenhain, Elau, KEB, Controles Techniques, Berger Lahr, B & R, Fanuc) are registered trademarks that are listed for comparison purposes only. DESINA® is a registered trademark of the German Machine Tool Builders' Association.
Cables for power chain use should only be handled on drums prior to installation.
Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 798 CP refer to page 111
- SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS refer to page 113
- SERVO cables in acc. to INDRAMAT® Standard INK refer to page 115

Accessories

- Circular connectors
- EMC
- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CLASSIC FD 810

Highly flexible control cable with PVC core insulation and PVC sheath

Benefits

- Well-proven and reliable
- For various applications
- Good combination of quality and price
- Low particle emission at moved chain application

Application range

- In power chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- In damp or wet interiors
- Only for outdoor use within the indicated operating temperature range, with UV-protection

Product features

- Flame-retardant according IEC 60332-1-2
- Low-adhesive surface

Norm references / Approvals

- Core and outer sheath based on VDE 0245/0285
- Clean room classification for individual items on request
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- PVC outer sheath, grey (similar RAL 7001)

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- The classic for multi-functional use

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: 0°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC FD 810				
0026100	2 X 0.5	5.3	10	40
0026101	3 G 0.5	5.7	15	48
0026102	4 G 0.5	6.3	19.2	58
0026103	5 G 0.5	6.8	24	67
0026104	7 G 0.5	8	34	88
0026105	12 G 0.5	9.5	58	136
0026106	18 G 0.5	11.4	86.4	195
0026107	25 G 0.5	13.7	120	274
0026108	30 G 0.5	14.3	144	312
0026109	34 G 0.5	15.6	164	359
0026110	50 G 0.5	18.5	240	515
0026119	2 X 0.75	5.7	15	49
0026120	3 G 0.75	6.2	22	60
0026121	4 G 0.75	6.8	29	73
0026122	5 G 0.75	7.4	37	86
0026123	7 G 0.75	8.9	51	117
0026124	12 G 0.75	10.6	87	181
0026125	16 G 0.75	12	116	234
0026126	18 G 0.75	12.7	130	259
0026127	25 G 0.75	15.2	181	363
0026130	2 X 1.0	6.1	19	58
0026131	3 G 1.0	6.6	29	72
0026132	4 G 1.0	7.3	39	88
0026133	5 G 1.0	8	48	104
0026134	7 G 1.0	9.6	67	142
0026135	12 G 1.0	11.4	115	221
0026136	14 G 1.0	12.3	134.4	258
0026137	16 G 1.0	13	153	287
0026138	18 G 1.0	13.9	173	324
0026139	25 G 1.0	16.4	240	445
0026140	26 G 1.0	16.4	249.6	459

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0026141	34 G 1.0	18.9	326.4	595
0026142	41 G 1.0	20.6	394	712
0026143	50 G 1.0	22.3	480	854
0026144	65 G 1.0	25.4	624	1097
0026149	2 X 1.5	6.8	29	74
0026150	3 G 1.5	7.4	43.2	93
0026151	4 G 1.5	8.1	58	114
0026152	5 G 1.5	9.1	72	139
0026153	7 G 1.5	10.9	101	189
0026154	12 G 1.5	12.9	173	295
0026156	18 G 1.5	15.6	259	429
0026157	25 G 1.5	18.6	360	597
0026158	26 G 1.5	18.6	374.4	615
0026159	34 G 1.5	21.1	489.6	783
0026160	41 G 1.5	23	613	936
0026161	42 G 1.5	23	629	954
0026162	50 G 1.5	25	720	1134
0026170	3 G 2.5	9	72	145
0026171	4 G 2.5	10	96	179
0026172	5 G 2.5	11.2	120	218
0026173	7 G 2.5	13.6	168	303
0026174	12 G 2.5	16	288	473
0026175	14 G 2.5	17.2	336	548
0026180	3 G 4.0	10.6	120	214
0026181	4 G 4.0	11.7	160	266
0026182	5 G 4.0	13.1	200	325
0026183	4 G 6.0	13.9	230.4	396
0026184	5 G 6.0	15.5	288	484
0026185	4 G 10.0	17.6	384	644
0026186	5 G 10.0	19.6	480	785
0026187	4 G 16.0	21	615	922
0026188	5 G 16.0	23.6	768	1133

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® CLASSIC FD 810 CY

Highly flexible, screened control cable with PVC core insulation and PVC inner and outer sheath

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- The classic for multi-functional use
- EMC-compliant

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: 0°C to +70°C
Fixed installation: -40°C to +80°C

Benefits

- Well-proven and reliable
- For various applications
- Good combination of quality and price
- Additional robustness thanks to inner sheath
- Copper screening complies with EMC requirements and protects against electromagnetic interference

Application range

- In power chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Power circuits for electrical equipments used in automation engineering
- Assembly lines, production lines, in all kinds of machines
- Only for outdoor use within the indicated operating temperature range, with UV-protection

Product features

- Flame-retardant according IEC 60332-1-2
- Low-adhesive surface
- EMC-compliant

Norm references / Approvals

- Core and outer sheath based on VDE 0245/0285
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- PVC inner sheath, grey
- Tinned-copper braiding
- Non-woven wrapping
- PVC outer sheath, grey (similar RAL 7001)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC FD 810 CY				
0026200	2 X 0.5	6.9	33	74
0026201	3 G 0.5	7.3	39	84
0026202	4 G 0.5	7.9	46	98
0026203	5 G 0.5	8.4	54	110
0026204	7 G 0.5	9.8	70	143
0026205	12 G 0.5	11.3	100	201
0026206	18 G 0.5	13.4	153	287
0026207	25 G 0.5	15.9	202	394
0026208	30 G 0.5	16.5	228	432
0026219	2 X 0.75	7.3	39	85
0026220	3 G 0.75	7.8	48	99
0026221	4 G 0.75	8.4	59	116
0026222	5 G 0.75	9	69	133
0026223	7 G 0.75	10.7	90	178
0026224	12 G 0.75	12.4	129	253
0026226	18 G 0.75	14.9	205	368
0026227	25 G 0.75	17.4	271	496
0026229	30 G 0.75	18	320	549
0026230	2 X 1.0	7.7	46	97
0026231	3 G 1.0	8.2	57	114
0026232	4 G 1.0	8.9	70	134
0026233	5 G 1.0	9.8	81	159
0026234	7 G 1.0	11.4	110	207
0026235	12 G 1.0	13.4	182	314

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0026238	18 G 1.0	16.1	254	443
0026239	25 G 1.0	18.8	365	612
0026240	26 G 1.0	18.8	374	625
0026241	34 G 1.0	21.5	463	787
0026242	41 G 1.0	23.2	542	918
0026243	50 G 1.0	25.3	640	1120
0026249	2 X 1.5	8.4	58	117
0026250	3 G 1.5	9	75	139
0026251	4 G 1.5	9.9	91	169
0026252	5 G 1.5	10.9	112	201
0026253	7 G 1.5	12.7	145	262
0026254	12 G 1.5	15.1	247	404
0026255	16 G 1.5	16.8	314	503
0026256	18 G 1.5	17.8	348	560
0026257	25 G 1.5	21.2	498	793
0026259	34 G 1.5	23.9	700	1005
0026270	3 G 2.5	10.8	119	207
0026271	4 G 2.5	11.8	161	247
0026272	5 G 2.5	13.2	194	307
0026273	7 G 2.5	15.8	262	418
0026281	4 G 4	13.7	238	360
0026282	5 G 4	15.3	280	436
0026283	4 G 6	16.1	318	514
0026285	4 G 10	20.2	521	824
0026287	4 G 16	23.6	780	1207

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® FD 891 CY refer to page 128

Accessories

- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702
- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CHAIN 809 SC

Highly flexible, single core cable with PVC insulation and PVC sheath - certified for North America

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Multifunctional application possibilities
- Under consideration of the temperature range also suitable for flexible outdoor use
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute multi-core power cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Low-adhesive surface

Norm references / Approvals

- Based on VDE 0250 / 0285
- UL-AWM-Style 10107
  cRU AWM II A/B FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PVC
- PVC outer sheath, black (similar RAL 9005)

Info

- Basic Line Performance - Moderate travel lengths or acceleration
- Rated voltage 0,6/1 kV
- AWM certification for USA and Canada

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Black or green-yellow, other colours available on request

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 600 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Temperature range
Flexing: 0°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Core colour	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 809 SC					
1062900	6	7.4	green-yellow	57.6	101
1062901	6	7.4	black	57.6	101
1062902	10	9	green-yellow	96	158
1062903	10	9	black	96	158
1062904	16	9.9	green-yellow	153.6	217
1062905	16	9.9	black	153.6	217
1062906	25	11.3	green-yellow	240	307
1062907	25	11.3	black	240	307
1062908	35	13.1	green-yellow	336	427
1062909	35	13.1	black	336	427
1062910	50	15.9	green-yellow	480	611
1062911	50	15.9	black	480	611
1062912	70	17.6	green-yellow	672	778
1062913	70	17.6	black	672	778
1062914	95	19.8	green-yellow	912	1015
1062915	95	19.8	black	912	1015
1062916	120	23	green-yellow	1152	1296
1062917	120	23	black	1152	1296
1062918	150	24.8	green-yellow	1440	1597
1062919	150	24.8	black	1440	1597
1062920	185	27.1	green-yellow	1776	1971
1062921	185	27.1	black	1776	1971
1062922	240	30.6	green-yellow	2304	2419
1062923	240	30.6	black	2304	2419

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CHAIN 90 P refer to page 135
- ÖLFLEX® FD 90 refer to page 122

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CHAIN 809 SC CY

Highly flexible, screened single core cable with PVC insulation and PVC sheath - certified for North America

Info

- Basic Line Performance - Moderate travel lengths or acceleration
- AWM certification for USA and Canada
- EMC compliant copper screening

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Multifunctional application possibilities
- Under consideration of the temperature range also suitable for flexible outdoor use
- Copper braiding screens the cable against electromagnetic interference
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute screened multi-core motor cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Low-adhesive surface
- EMC-compliant

Norm references / Approvals

- Based on VDE 0250 / 0285
- UL-AWM-Style 10107
  cRU AWM II A/B FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PVC
- Non-woven wrapping
- Tinned-copper braiding
- Non-woven wrapping
- PVC outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Black, other colours are available upon request

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 600 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Temperature range
Flexing: 0°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 809 SC CY				
1062940	6	8.1	76	126
1062941	10	9.7	122	190
1062942	16	10.6	180	250
1062943	25	12	268	351
1062944	35	14.8	392	519
1062945	50	16.8	544	686
1062946	70	18.5	766	885
1062947	95	20.9	1020	1135
1062948	120	24.1	1272	1443
1062949	150	26.1	1593	1788
1062950	185	28.4	1941	2177
1062951	240	31.9	2518	2671
1062952	300	33.5	3116	3299

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CHAIN 90 CP refer to page 136
- ÖLFLEX® FD 90 CY refer to page 123

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® FD 90

Highly flexible, single core cable with PVC insulation and PVC sheath - certified for North America

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- Well-proven and reliable
- AWM certification for USA and Canada

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Multifunctional application possibilities
- Under consideration of the temperature range also suitable for flexible outdoor use
- Also suitable for fixed installation where space is limited
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute multi-core power cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- High oil-resistance
- Low-adhesive surface

Norm references / Approvals

- Based on VDE 0250 / 0285
- UL-AWM-Style 10107, cRU AWM II A/B FT1 ≥150mm²
- CSA AWM IA/B IIA/B FT 1 ≤ 120 mm²
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Non-woven wrapping
- Core insulation: PVC
- PVC outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Black or green-yellow, other colours available on request

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 3 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 600 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Temperature range
Flexing: -5°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Core colour	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® FD 90					
0026600	10	9	green-yellow	96	176
0026601	10	9	black	96	176
0026603	16	10.5	green-yellow	153.6	240
0026604	16	10.5	black	153.6	240
0026607	25	11.8	green-yellow	240	361
0026608	25	11.8	black	240	361
0026610	35	14.2	green-yellow	336	482
0026611	35	14.2	black	336	482
0026613	50	16.2	green-yellow	480	660
0026614	50	16.2	black	480	660
0026616	70	18.3	green-yellow	672	898
0026617	70	18.3	black	672	898
0026619	95	19.8	green-yellow	912	1179
0026620	95	19.8	black	912	1179
0026622	120	23.4	green-yellow	1152	1521
0026623	120	23.4	black	1152	1521
0026625	150	25.1	green-yellow	1440	1739
0026626	150	25.1	black	1440	1739
0026628	185	28.1	green-yellow	1776	2305
0026629	185	28.1	black	1776	2305
0026634	240	31.6	green-yellow	2304	2944
0026635	240	31.6	black	2304	2944
0026640	300	33.5	green-yellow	2880	3545
0026641	300	33.5	black	2880	3545

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® FD 90 CY

Highly flexible, screened single core cable with PVC insulation and PVC sheath - certified for North America

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- AWM certification for USA and Canada
- EMC compliant copper screening

Benefits

- Multi-standard certification reduces part varieties and saves costs
- For various applications
- Also suitable for fixed installation where space is limited
- Copper screening complies with EMC requirements and protects against electromagnetic interference
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute screened multi-core motor cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- High oil-resistance
- Low-adhesive surface
- EMC-compliant

Norm references / Approvals

- Based on VDE 0250 / 0285
- UL-AWM-Style 10107, cRU AWM II A/B FT1 ≥150mm²
- CSA AWM IA/B IIA/B FT 1 ≤ 120 mm²
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Non-woven wrapping
- Core insulation: PVC
- Tinned-copper braiding
- PVC outer sheath, orange (similar RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Black, other colours are available upon request

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 3 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 600 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Temperature range
Flexing: -5°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® FD 90 CY				
0026651	10	9.7	127.6	227
0026653	16	11.2	186.2	297
0026655	25	12.5	257.8	410
0026657	35	15.1	400.7	607
0026659	50	17.1	554.8	808
0026661	70	19.4	775.6	1081
0026663	95	20.9	1028.1	1382
0026665	120	24.5	1282.4	1752
0026667	150	26.2	1578	1924
0026669	185	29.2	1935	2611
0026671	240	32.9	2526	3372
0026673	300	34.8	3128.8	4105

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
DESINA® is a registered trademark of the German Machine Tool Builders' Association
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702
- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CHAIN 809

Highly flexible control cable with PVC core insulation and PVC sheath - certified for North America

Info

- Basic Line Performance - Moderate travel lengths or acceleration
- AWM certification for USA and Canada
- Further dimensions/colours on request

Benefits

- Good combination of quality and price
- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- In power chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Wiring of machines, tools, devices, appliances and control cabinets
- Assembly lines, production lines, in all kinds of machines

Product features

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Low-adhesive surface

Norm references / Approvals

- UL AWM Style 20886
- CUL AWM II A/B FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Fine-wire, bare copper strand
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- PVC outer sheath, grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
VDE: U0/U: 300/500 V
UL & CSA: 1000 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: 0°C to +70°C
(UL/CSA: +80°C)
Fixed installation: -40°C to +70°C
(UL/CSA +80°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 809				
1026700	2 X 0.5	5.2	10	40
1026701	3 G 0.5	5.5	15	48
1026702	4 G 0.5	6	20	58
1026703	5 G 0.5	6.5	24	67
1026704	7 G 0.5	7.7	34	88
1026705	12 G 0.5	9.2	58	136
1026706	18 G 0.5	11	87	195
1026707	25 G 0.5	13.3	120	274
1026708	2 X 0.75	5.6	15	49
1026709	3 G 0.75	6	22	60
1026710	4 G 0.75	6.5	29	73
1026711	5 G 0.75	7.1	37	86
1026712	7 G 0.75	8.5	51	117
1026713	12 G 0.75	10.3	87	181
1026714	18 G 0.75	12.2	130	259
1026715	25 G 0.75	14.8	181	363
1026716	2 X 1.0	5.9	19	58
1026717	3 G 1.0	6.3	29	72

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1026718	4 G 1.0	6.9	39	88
1026719	5 G 1.0	7.5	48	104
1026720	7 G 1.0	9	67	142
1026721	12 G 1.0	10.9	115	221
1026722	18 G 1.0	13.2	173	324
1026723	25 G 1.0	15.7	240	445
1026724	2 X 1.5	6.5	29	74
1026725	3 G 1.5	6.9	43.2	93
1026726	4 G 1.5	7.6	58	114
1026727	5 G 1.5	8.5	72	139
1026728	7 G 1.5	10.3	101	189
1026729	12 G 1.5	12.3	173	295
1026730	18 G 1.5	14.9	259	429
1026731	25 G 1.5	17.9	360	597
1026732	3 G 2.5	8.4	72	145
1026733	4 G 2.5	9.3	96	179
1026734	7 G 2.5	12.7	168	218
1026737	4 G 4.0	11.1	160	266

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC FD 810 refer to page 118

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CHAIN 809 CY

Highly flexible, screened control cable with PVC core insulation and PVC sheath - certified for North America

Info

- Basic Line Performance - Moderate travel lengths or acceleration
- AWM certification for USA and Canada
- EMC compliant copper screening

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
VDE: U0/U: 300/500 V
UL & CSA: 1000 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
Core/core: 4000 V
Core/screen: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: 0°C to +70°C (UL/CSA: +80°C)
Fixed installation: -40°C to +70°C (UL/CSA +80°C)

Benefits

- Good combination of quality and price
- Thin and light, without inner sheath
- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Copper screening complies with EMC requirements and protects against electromagnetic interference

Application range

- In power chains or moving machine parts
- In EMC-sensitive environments
- Suitable for use in measuring, control and regulating circuits
- Wiring of machines, tools, devices, appliances and control cabinets
- Assembly and production lines

Product features

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- EMC-compliant
- Low-adhesive surface

Norm references / Approvals

- UL AWM Style 20886
- CUL AWM II A/B FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Fine-wire, bare copper strand
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- Tinned-copper braiding
- PVC outer sheath, grey (similar RAL 7001)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 809 CY				
1026751	2 X 0.5	5.8	36	45
1026752	3 G 0.5	6.1	43	59
1026753	4 G 0.5	6.6	49	83
1026754	5 G 0.5	7.1	57	96
1026755	7 G 0.5	8.5	69	136
1026756	12 G 0.5	10	104	200
1026757	18 G 0.5	11.8	141	275
1026758	25 G 0.5	14.1	211	350
1026759	2 X 0.75	6.2	43	56
1026760	3 G 0.75	6.6	52	70
1026761	4 G 0.75	7.1	61	95
1026762	5 G 0.75	7.7	72	130
1026763	7 G 0.75	9.1	89	168
1026764	12 G 0.75	10.9	138	232
1026765	18 G 0.75	13	211	315
1026766	25 G 0.75	15.6	280	435
1026767	2 X 1.0	6.5	51	84
1026768	3 G 1.0	6.9	62	110

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1026769	4 G 1.0	7.5	74	130
1026770	5 G 1.0	8.3	88	156
1026771	7 G 1.0	9.8	112	192
1026772	12 G 1.0	11.7	185	285
1026773	18 G 1.0	14	268	395
1026774	25 G 1.0	16.7	354	486
1026775	2 X 1.5	7.1	65	97
1026776	3 G 1.5	7.5	82	125
1026777	4 G 1.5	8.4	100	165
1026778	5 G 1.5	9.1	119	193
1026779	7 G 1.5	10.9	154	245
1026780	12 G 1.5	13.3	268	365
1026781	18 G 1.5	15.7	373	553
1026782	25 G 1.5	18.7	530	734
1026783	3 G 2.5	9	118	188
1026784	4 G 2.5	10.1	147	236
1026785	7 G 2.5	13.5	253	340
1026788	4 G 4.0	11.9	248	305

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC FD 810 CY refer to page 119

Accessories

- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702
- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CHAIN PN

Highly flexible, PROFINET-compliant power cable - certified for North America

Info

- PROFINET-compliant design
- Basic Line for light & ordinary duty in power chain applications
- AWM certification for USA and Canada

Benefits

- Compact design
- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- In power chains or moving machine parts
- In dry, damp or wet interiors
- Suitable for use in measuring, control and regulating circuits
- Wiring of machines, tools, devices, appliances and control cabinets
- Only for outdoor use within the indicated operating temperature range, with UV-protection

Product features

- Designed for 2 million alternating bending cycles and travel distances up to 10 meter
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Low-adhesive surface

Norm references / Approvals

- UL AWM Style 20886
- CUL AWM II A/B FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Fine-wire, bare copper strand
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- Outer sheath: PVC, heat-resistant
- Sheath colour:
  4 cores: black (RAL 9005)
  5 cores: grey (RAL 7001)

Technical data

Core identification code
brown (L1), blue (N1), black (L2), white (N2)
5 cores: additionally grey (PE)

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
For flexible use:
Chains in self-supporting non-gliding arrangements: 10 x outer diameter
In chains in gliding arrangements: 12 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
VDE: U0/U: 300 V
UL & CSA: 1000 V

Test voltage
1500 V

Protective conductor
G = with protective conductor grey
X = without protective conductor

Bending cycles & operation parameters2 mio. cycles

Temperature range
Flexible: VDE 0°C to +90°C;
UL: up to +90°C
Fixed installation: VDE -40°C to +90°C;
UL/CSA: up to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN PN				
1026791	4 X 0.75	6.5	29	73
1026792	5 G 0.75	7.1	37	86
1026793	4 X 1.5	7.6	58	114
1026794	5 G 1.5	8.5	72	139
1026795	4 X 2.5	9.3	96	179
1026796	5 G 2.5	10.4	120	214

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® FD 891

Highly flexible control cable with PVC core insulation and PVC sheath - certified for North America

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- AWM certification for USA and Canada

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Under consideration of the temperature range also suitable for flexible outdoor use

Application range

- In power chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- Machine tools
- Plant engineering

Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- Oil-resistant
- Low-adhesive surface

Norm references / Approvals

- UL AWM Style 21098
- CSA AWM IA/B; IIA/B FT 1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- PVC outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: U_0/U 300/500 V
UL/CSA: 600 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -5°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® FD 891				
1026012	12 G 0.5	10.8	57.6	162
1026103	3 G 0.75	6.6	21.6	63
1026104	4 G 0.75	7.3	28.8	75
1026105	5 G 0.75	8	36	90
1026107	7 G 0.75	9.6	50.4	132
1026112	12 G 0.75	11.6	86.5	201
1026118	18 G 0.75	13.9	129.6	300
1026125	25 G 0.75	16.6	180	415
1026127	3 G 1.0	7.1	28.8	65
1026129	4 G 1.0	7.8	39	82
1026130	5 G 1.0	8.8	48	105
1026128	7 G 1.0	10.5	67.2	149
1026131	12 G 1.0	12.5	116	225
1026132	18 G 1.0	15	173	331
1026133	25 G 1.0	17.9	240	484
1026303	3 G 1.5	7.7	43.2	93
1026304	4 G 1.5	8.8	57.6	122
1026305	5 G 1.5	9.6	72	147

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1026307	7 G 1.5	11.6	100.8	219
1026312	12 G 1.5	13.9	172.8	322
1026318	18 G 1.5	16.9	259.2	478
1026325	25 G 1.5	20.1	360	670
1026334	34 G 1.5	23.6	489.6	897
1026403	3 G 2.5	8.8	72	129
1026404	4 G 2.5	9.8	96	167
1026405	5 G 2.5	11	120	212
1026407	7 G 2.5	13.4	168	304
1026412	12 G 2.5	15.8	288	452
1026504	4 G 4.0	11.8	153.6	263
1026505	5 G 4.0	13.2	192	325
1026507	7 G 4.0	16.1	268.8	469
1026604	4 G 6.0	13.7	230.4	368
1026614	4 G 10.0	17.9	384	588
1026624	4 G 16.0	24.1	614.4	1031
1026634	4 G 25.0	27.9	960	1530
1026644	4 G 35.0	31.1	1344	1959

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
DESINA® is a registered trademark of the German Machine Tool Builders' Association
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® FD 891 CY

Highly flexible, screened control cable with PVC insulation and PVC inner and outer sheath - certified

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- AWM certification for USA and Canada
- EMC compliant copper screening

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Under consideration of the temperature range also suitable for flexible outdoor use
- Copper screening complies with EMC requirements and protects against electromagnetic interference

Application range

- In power chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- Machine tools
- Plant engineering

Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- Oil-resistant
- Low-adhesive surface
- EMC-compliant

Norm references / Approvals

- UL AWM Style 21098
- CSA AWM IA/B; IIA/B FT 1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- PVC outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: U_0/U 300/500 V
UL/CSA: 600 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -5°C to +70°C (UL: +90°C)
Fixed installation: -40°C to +70°C (UL: +90°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® FD 891 CY				
1027003	3 G 0.5	7.9	38.9	89
1027004	4 G 0.5	8.5	47.3	102
1027005	5 G 0.5	9.2	55.3	127
1027007	7 G 0.5	10.9	81.1	177
1027012	12 G 0.5	12.6	99.9	234
1027018	18 G 0.5	15.5	160.1	381
1027025	25 G 0.5	17.7	203.9	472
1027103	3 G 0.75	8.2	49.2	105
1027104	4 G 0.75	8.9	59.9	123
1027105	5 G 0.75	10	68.6	155
1027107	7 G 0.75	11.6	91.7	206
1027112	12 G 0.75	13.8	152.1	304
1027118	18 G 0.75	16.3	204.4	425
1027292	3 G 1.0	8.7	56	124
1027301	4 G 1.0	9.8	70.2	155
1027293	5 G 1.0	10.6	84	182
1027294	7 G 1.0	12.3	108	237
1027295	12 G 1.0	14.7	178	352
1027302	18 G 1.0	17.3	255	497

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1027296	25 G 1.0	20.5	352	702
1027303	3 G 1.5	9.7	74.8	152
1027304	4 G 1.5	10.6	94.2	187
1027305	5 G 1.5	11.4	101.1	187
1027307	7 G 1.5	13.8	165.6	320
1027312	12 G 1.5	16.3	246.5	460
1027318	18 G 1.5	19.5	374.7	677
1027325	25 G 1.5	23.6	489.4	926
1027403	3 G 2.5	10.6	103.9	194
1027404	4 G 2.5	11.8	161.8	235
1027405	5 G 2.5	13	184.6	306
1027407	7 G 2.5	15.8	242.1	428
1027412	12 G 2.5	18.2	403.5	590
1027503	3 G 4.0	12.4	157.5	275
1027504	4 G 4.0	14	218.1	365
1027507	7 G 4.0	18.3	373.2	629
1027604	4 G 6.0	16.1	304.7	500
1027624	4 G 16.0	27.1	803.6	1357
1027634	4 G 25.0	31.3	1180.4	1879
1027644	4 G 35.0	34.3	1593.7	2360

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
DESINA® is a registered trademark of the German Machine Tool Builders' Association
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702
- SILVYN® CHAIN cable protection and guiding systems

NEW

ÖLFLEX® CHAIN TM

Highly flexible control cable with TC-ER, MTW, WTTC or CIC/TC listing acc. (UL) or c(UL) for North America

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- The normative multi-talent according NEC and NFPA 79
- Problem-free use in cable trays, industrial machines or wind turbines

Benefits

- Multi-standard certification offers universal application range, reduces part varieties and saves costs
- TC-ER and MTW listings enable open wiring on cable trays as well as the usage for industrial machines with only one cable
- Resistant to contact with many mineral oil-based lubricants and other chemical media
- Ideal for export-oriented machinery and equipment manufacturers thanks to high normative acceptance by the North American NEC (National Electrical Code)
- Under consideration of the temperature range also suitable for flexible outdoor use

Application range

- In power chains or moving machine parts
- Static open wiring on and between cable tray an industrial machine acc. NEC
- Industrial machinery and machine tools
- Wind turbine engineering
- Linear robots, automated handling equipment

Product features

- High oil-resistance, according to UL OIL RES I and UL OIL RES II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Sunlight Resistant; Direct Burial
- Water-resistant, UL 75°C WET rating

Norm references / Approvals

- Certifications USA (UL) & UL AWM:
  TC-ER Tray Cable-Exposed Run
  MTW Machine Tool Wire
  WTTC Wind Turbine Tray Cable
  PLTC-ER Power Limited Tray Cable
  ITC Instrumentation Tray Cable
  DP-1 Data Processing Cable
  AWM Style 20886
- Certifications Canada c(UL) & CSA AWM:
  CIC/TC Control Instrumentation Cable/ Tray Cable FT4, AWM I/II A/B FT4
- Class 1 Division 2 per NEC Article 501
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: PVC with nylon skin
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- Outer jacket: Specially formulated thermoplastic polymer
- Sheath colour: black (similar RAL 9005)

Technical data

Core identification code
Black with white numbers

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
UL/CSA: 600 V (TC, MTW, CIC), 1000 V (WTTC, AWM)
IEC: U_0/U 300/500 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor

Temperature range
Fixed installation:
-40°C (-25°C UL TC) to +90°C (UL TC, MTW, according AWM +105°C)
Flexing:
-25°C to +90°C (according UL MTW)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Weight (kg/km)
ÖLFLEX® CHAIN TM			
8718030	3 G 1.0	7.8	66
8718040	4 G 1.0	8.6	82
8718050	5 G 1.0	9.3	95
8718070	7 G 1.0	10.7	125
8718120	12 G 1.0	12.3	210
8718180	18 G 1.0	15.4	308
8718250	25 G 1.0	17.8	414
8716030	3 G 1.5	8.6	92
8716040	4 G 1.5	9.5	112

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Weight (kg/km)
8716050	5 G 1.5	10.3	134
8716070	7 G 1.5	12	180
8716120	12 G 1.5	14.7	311
8716180	18 G 1.5	17.2	443
8716250	25 G 1.5	20	621
8714040	4 G 2.5	10.6	180
8714070	7 G 2.5	14.5	286
8712040	4 G 4.0	12.4	295
8710040	4 G 6.0	15.2	397

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CHAIN TM CY

Highly flexible, screened control cable with TC-ER, MTW, WTTC or CIC/TC listing acc. (UL) or c(UL) for North America

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- The normative multi-talent according NEC and NFPA 79
- Problem-free use in cable trays, industrial machines or wind turbines

Benefits

- Multi-standard certification offers universal application range, reduces part varieties and saves costs
- TC-ER and MTW listings enable open wiring on cable trays as well as the usage for industrial machines with only one cable
- Resistant to contact with many mineral oil-based lubricants and other chemical media
- Ideal for export-oriented machinery and equipment manufacturers thanks to high normative acceptance by the North American NEC (National Electrical Code)
- Under consideration of the temperature range also suitable for flexible outdoor use

Application range

- In power chains or moving machine parts
- Static open wiring on and between cable tray an industrial machine acc. NEC
- Industrial machinery and machine tools
- Wind turbine engineering
- Linear robots, automated handling equipment

Product features

- High oil-resistance, according to UL OIL RES I and UL OIL RES II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Sunlight Resistant; Direct Burial
- Water-resistant, UL 75°C WET rating
- EMC-compliant

Norm references / Approvals

- Certifications USA (UL) & UL AWM:
  TC-ER Tray Cable-Exposed Run
  MTW Machine Tool Wire
  WTTC Wind Turbine Tray Cable
  PLTC-ER Power Limited Tray Cable
  ITC Instrumentation Tray Cable
  DP-1 Data Processing Cable
  AWM Style 20886
- Certifications Canada c(UL) & CSA AWM:
  CIC/TC Control Instrumentation Cable/ Tray Cable FT4, AWM I/II A/B FT4
- Class 1 Division 2 per NEC Articles 336, 501
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: PVC with nylon skin
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- Outer jacket: Specially formulated thermoplastic polymer
- Sheath colour: black (similar RAL 9005)

Technical data

Core identification code
Black with white numbers

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
UL/CSA: 600 V (TC, MTW, CIC), WTTC 1000 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor

Temperature range
Fixed installation:
-40°C (-25°C UL TC) to +90°C
(UL TC, MTW, according AWM +105°C)
Flexing:
-25°C to +90°C (according UL MTW)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Weight (kg/km)
ÖLFLEX® CHAIN TM CY			
8718030S	3 G 1.0	8.4	122
8718040S	4 G 1.0	9.1	158
8718050S	5 G 1.0	10	183
8718070S	7 G 1.0	11.4	207
8718120S	12 G 1.0	13.9	341
8718180S	18 G 1.0	16.1	472
8718250S	25 G 1.0	18.6	649
8716030S	3 G 1.5	9.2	170
8716040S	4 G 1.5	10.2	190

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Weight (kg/km)
8716050S	5 G 1.5	11	223
8716070S	7 G 1.5	12.7	269
8716120S	12 G 1.5	15.4	463
8716180S	18 G 1.5	18.1	679
8716250S	25 G 1.5	22.1	951
8714040S	4 G 2.5	11.4	269
8714070S	7 G 2.5	15.2	420
8712040S	4 G 4.0	13.1	463
8710040S	4 G 6.0	16.1	574

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CLASSIC FD 810 P

Highly flexible control cable with PVC core insulation and abrasion and oil resistant PUR sheath

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- Good oil resistance
- Further dimensions/colours on request

Benefits

- Well-proven and reliable
- Various applications
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

Application range

- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Power circuits for electrical equipments used in automation engineering
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- In dry, damp or wet interiors with normal mechanical stress conditions

Product features

- Flame-retardant according IEC 60332-1-2
- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface

Norm references / Approvals

- Core and outer sheath based on VDE 0245/0285
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in short lay lengths
- Non-woven wrapping
- PUR outer sheath, grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC FD 810 P				
0026300	2 X 0.5	5.3	10	36
0026301	3 G 0.5	5.7	15	44
0026302	4 G 0.5	6.3	19	53
0026303	5 G 0.5	6.8	24	62
0026304	7 G 0.5	8	34	82
0026305	12 G 0.5	9.5	58	129
0026306	18 G 0.5	11.4	86.4	185
0026319	2 X 0.75	5.7	15	44
0026320	3 G 0.75	6.2	22	55
0026321	4 G 0.75	6.8	29	67
0026322	5 G 0.75	7.4	37	80
0026323	7 G 0.75	8.9	51	109
0026324	12 G 0.75	10.6	87	172
0026326	18 G 0.75	12.7	130	247
0026327	25 G 0.75	15.2	181	346
0026330	2 X 1.0	6.1	20	52
0026331	3 G 1.0	6.6	29	66
0026332	4 G 1.0	7.3	39	82
0026333	5 G 1.0	8	48	97
0026334	7 G 1.0	9.6	67	117
0026335	12 G 1.0	11.4	115	211
0026338	18 G 1.0	13.9	173	310
0026339	25 G 1.0	16.4	240	426
0026341	34 G 1.0	18.9	326.4	571
0026342	41 G 1.0	20.6	394	684
0026343	50 G 1.0	22.3	480	822
0026344	65 G 1.0	25.4	624	1058

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0026349	2 X 1.5	6.8	29	68
0026350	3 G 1.5	7.4	43.2	86
0026351	4 G 1.5	8.1	58	106
0026352	5 G 1.5	9.1	72	131
0026353	7 G 1.5	10.9	101	178
0026354	12 G 1.5	12.9	173	281
0026355	16 G 1.5	14.6	230	365
0026356	18 G 1.5	15.6	259	411
0026357	25 G 1.5	18.6	360	571
0026359	34 G 1.5	21.1	489.6	753
0026361	42 G 1.5	23	629	919
0026362	50 G 1.5	25	720	1093
0026370	3 G 2.5	9	72	135
0026371	4 G 2.5	10	96	168
0026372	5 G 2.5	11.2	120	206
0026373	7 G 2.5	13.6	168	286
0026374	12 G 2.5	16	288	453
0026375	14 G 2.5	17.2	336	525
0026381	4 G 4	11.7	160	252
0026382	5 G 4	13.1	200	309
0029200	1 G 6	6.4	60	84
0026383	4 G 6	13.9	230	377
0029210	1 G 10	7.7	100	141
0026385	4 G 10	17.6	384	614
0026386	5 G 10	19.6	480	751
0029220	1 G 16	9.2	160	198
0026387	4 G 16	21	615	851

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® CLASSIC FD 810 CP

Highly flexible, screened control cable with PVC insulation, inner sheath and abrasion and oil resistant PUR jacket

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- Good oil resistance
- EMC compliant copper screening

Benefits

- Well-proven and reliable
- Various applications
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Additional robustness thanks to inner sheath
- Copper braiding screens the cable against electromagnetic interference

Application range

- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Power circuits for electrical equipments used in automation engineering
- Suitable for use in measuring, control and regulating circuits
- In dry, damp or wet interiors with normal mechanical stress conditions

Product features

- Flame-retardant according to IEC 60332.1.2
- High oil-resistance
- Abrasion and notch-resistant
- EMC-compliant
- Low-adhesive surface

Norm references / Approvals

- Core and outer sheath based on VDE 0245/0285
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in short lay lengths
- Non-woven wrapping
- PVC inner sheath
- Tinned-copper braiding
- PUR outer sheath, grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC FD 810 CP				
0026400	2 X 0.5	6.9	33	70
0026401	3 G 0.5	7.3	39	80
0026402	4 G 0.5	7.9	46	94
0026403	5 G 0.5	8.4	54	106
0026404	7 G 0.5	9.8	70	138
0026405	12 G 0.5	11.3	100	194
0026419	2 X 0.75	7.3	39	81
0026420	3 G 0.75	7.8	48	95
0026421	4 G 0.75	8.4	59	111
0026422	5 G 0.75	9	69	128
0026423	7 G 0.75	10.7	90	171
0026424	12 G 0.75	12.4	129	244
0026425	16 G 0.75	14.2	186	328
0026426	18 G 0.75	14.9	205	356
0026427	25 G 0.75	17.4	271	479
0026430	2 X 1.0	7.7	46	93
0026431	3 G 1.0	8.2	57	109
0026432	4 G 1.0	8.9	70	129
0026433	5 G 1.0	9.8	81	154
0026434	7 G 1.0	11.4	110	200
0026435	12 G 1.0	13.4	182	304

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0026438	18 G 1.0	16.1	254	429
0026439	25 G 1.0	18.8	365	593
0026449	2 X 1.5	8.4	58	112
0026450	3 G 1.5	9	75	133
0026451	4 G 1.5	9.9	91	163
0026452	5 G 1.5	10.9	112	193
0026453	7 G 1.5	12.7	145	252
0026454	12 G 1.5	15.1	247	391
0026456	18 G 1.5	17.8	348	542
0026457	25 G 1.5	21.2	498	767
0026470	3 G 2.5	10.8	119	199
0026471	4 G 2.5	11.8	161	238
0026472	5 G 2.5	13.2	194	297
0026473	7 G 2.5	15.8	262	403
0026474	12 G 2.5	18.2	410	589
0026475	14 G 2.5	19.8	490	702
0026481	4 G 4	13.7	238	349
0026483	4 G 6	16.1	318	499
0026484	5 G 6	17.7	410	596
0026485	4 G 10	20.2	521	842
0026487	4 G 16	23.6	780	1173

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® FD 855 CP refer to page 141

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702
- SILVYN® CHAIN cable protection and guiding systems

NEW

ÖLFLEX® ROBUST FD

Highly flexible, all-weather control cable with TPE sheath - resistant to a wide range of chemical media

Info

- New dimensions available !
- Extended Line Performance - Long travel lengths or high acceleration
- Good chemical resistance

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning
- Low particle emission at moved chain application

Application range

- In power chains or moving machine parts
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For indoor and outdoor use

Product features

- Highly resistant to oil and chemicals
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Hydrolysis-resistant to warm and hot water
- Good chemical resistance to ester-based hydraulic fluids
- Flexible down to -40°C

Norm references / Approvals

- Based on VDE 0250 / 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- Clean room classification for individual items on request
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire, tinned copper strands
- Core insulation: TPE
- Cores twisted together in extremely short lay lengths
- Non-woven wrapping
- Robust outer sheath made of special halogen-free TPE, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black cores with printed white numbers (VDE 0293-1)

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing:
up from 7.5 x outer diameter (at temperatures < 70 °C)
up from 10 x outer diameter (at max. temperature of 105 °C)
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -40°C to +105°C
Fixed installation: -50°C to +105°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBUST FD				
0026536	2 X 0.5	6.1	9.6	34
0026537	3 G 0.5	6.6	14.4	45
0026538	4 G 0.5	7.3	19.2	55
0026539	5 G 0.5	8	24	67
0026540	7 G 0.5	9.6	33.6	93
0026544	12 G 0.5	11.6	57.6	142
0026545	18 G 0.5	13.9	86.4	208
0026546	25 G 0.5	17.3	120	298
0026547	2 X 0.75	6.4	14.4	41
0026501	3 G 0.75	6.9	21.6	51
0026502	4 G 0.75	7.7	28.8	69
0026503	5 G 0.75	8.6	36	87
0026504	7 G 0.75	10.4	50.4	127
0026505	12 G 0.75	12.2	86.4	182
0026506	18 G 0.75	14.9	129.6	277
0026507	25 G 0.75	18.5	180	421
0026508	2 X 1.0	6.8	28.8	49
0026509	3 G 1.0	7.4	28.8	63
0026510	4 G 1.0	8.2	38.4	82
0026511	5 G 1.0	9.2	48	105

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0026516	7 G 1.0	11.1	67.2	157
0026517	12 G 1.0	13.3	115.2	226
0026518	18 G 1.0	15.9	172.8	345
0026519	25 G 1.0	19.8	240	547
0026548	2 X 1.5	8	28.8	73
0026521	3 G 1.5	8.9	43.2	90
0026522	4 G 1.5	9.9	57.6	118
0026523	5 G 1.5	11	72	149
0026524	7 G 1.5	13.4	100.8	233
0026525	12 G 1.5	15.8	172.8	322
0026526	18 G 1.5	18.9	259.2	494
0026527	25 G 1.5	23.5	360	695
0026531	4 G 2.5	11.8	96	181
0026532	5 G 2.5	12.9	120	228
0026533	7 G 2.5	15.7	168	329
0026534	12 G 2.5	18.7	288	491
0026541	4 G 4	13.8	153.6	261
0026551	4 G 6	14.8	230.4	356
0026561	4 G 10	20.1	384	596
0026571	4 G 16	23.8	614.4	910

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® FD 855 P refer to page 140

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® ROBUST FD C

Highly flexible, screened all-weather control cable with TPE sheath - resistant to a wide range of chemical media

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning
- Copper screening complies with EMC requirements and protects against electromagnetic interference

Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Assembly lines, production lines, in all kinds of machines
- For indoor and outdoor use

Product features

- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Highly resistant to oil and chemicals
- Hydrolysis-resistant to warm and hot water
- Good chemical resistance to ester-based hydraulic fluids
- Flexible down to -40°C

Norm references / Approvals

- Based on VDE 0250 / 0285
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire, tinned copper strands
- Core insulation: TPE
- Cores twisted together in extremely short lay lengths
- Non-woven wrapping
- Inner sheath made of TPE
- Tinned-copper braiding
- Robust outer sheath made of special halogen-free TPE, black (similar RAL 9005)

Info

- New dimensions available !
- Extended Line Performance - Long travel lengths or high acceleration
- Good chemical resistance

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black cores with printed white numbers (VDE 0293-1)

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Flexing:
up from 7.5 x outer diameter (at temperatures < 70 °C)
up from 10 x outer diameter (at max. temperature of 105 °C)
Fixed installation: 4 x Outer diameter

Nominal voltage
U0/U: 300/500 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -40 °C to +105 °C
Fixed installation: -50 °C to +105 °C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBUST FD C				
0026736	2 X 0.5	8.3	33.6	77
0026737	3 G 0.5	8.8	41.8	92
0026738	4 G 0.5	9.5	49.9	108
0026739	5 G 0.5	10.4	57.9	127
0026740	7 G 0.5	12	74.1	165
0026744	12 G 0.5	14.4	120.5	248
0026745	18 G 0.5	16.7	158	330
0026746	25 G 0.5	20.3	230.8	471
0026747	2 X 0.75	8.6	41.4	87
0026701	3 G 0.75	9.1	49.6	110
0026702	4 G 0.75	10.1	60.9	137
0026703	5 G 0.75	10.8	72.8	160
0026704	7 G 0.75	12.6	107.2	238
0026705	12 G 0.75	15	151.5	312
0026706	18 G 0.75	17.7	205.5	448
0026707	25 G 0.75	21.7	299.1	657
0026708	2 X 1.0	9	47.2	105
0026709	3 G 1.0	9.8	61.1	125
0026710	4 G 1.0	10.6	74.8	157
0026711	5 G 1.0	12.1	86.2	198

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0026716	7 G 1.0	13.9	132.3	278
0026717	12 G 1.0	16.1	189.1	370
0026718	18 G 1.0	18.7	277.5	549
0026719	25 G 1.0	23	369.6	784
0026748	2 X 1.5	10.2	59.4	127
0026721	3 G 1.5	10.9	79.8	163
0026722	4 G 1.5	12.1	99.2	210
0026723	5 G 1.5	13.6	129.7	264
0026724	7 G 1.5	15.8	175.2	370
0026725	12 G 1.5	18.4	257.1	498
0026726	18 G 1.5	22.1	378.9	749
0026727	25 G 1.5	27.1	555.5	1042
0026731	4 G 2.5	14.4	161.5	307
0026732	5 G 2.5	15.5	188.3	361
0026733	7 G 2.5	18.3	252.6	512
0026734	12 G 2.5	21.9	406.5	730
0026741	4 G 4	16.2	227.3	412
0026751	4 G 6	17.2	306.7	519
0026761	4 G 10	23.3	513.6	853
0026771	4 G 16	27.2	809.6	1273

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® PETRO FD 865 CP refer to page 142

Accessories

- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702
- SILVYN® CHAIN cable protection and guiding systems

NEW

ÖLFLEX® CHAIN 90 P

Highly flexible single core power cable with abrasion and oil resistant PUR sheath - certified for North America

Info

- Extended Line Performance - Long travel lengths or high acceleration
- Allrounder for indoor and outdoor use
- Improved characteristics in the event of a fire

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Longer cable installation lengths thanks to low mutual capacitance cable design

Application range

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute multi-core power cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems
- For indoor and outdoor use

Product features

- Flammability:
  - Halogen-free acc. to VDE 0472-815
  - Flame retardant acc. to IEC 60332-1-2 or UL/cUL VW-1, FT1
  - No flame propagation acc. to IEC 60332-3-24 Cat. C or /-25 Cat. D
- Good weather, UV and oil resistance
- Abrasion and notch-resistant
- Flexible at low temperatures
- Low-capacitance design

Norm references / Approvals

- USA: UL AWM Style 11624, VW-1
  Canada: cUL AWM I/II A, FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: TPE compound
- PUR outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Black or green-yellow, other colours available on request

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 3 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 1000 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Temperature range
Flexing: -35°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Core colour	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 90 P					
1026513	1.5	6.3	green-yellow	14.4	48
1026514	1.5	6.3	black	14.4	48
1026515	2.5	6.9	green-yellow	24	63
1026516	2.5	6.9	black	24	63
1026517	4	7.2	green-yellow	38.4	77
1026518	4	7.2	black	38.4	77
1026519	6	7.7	green-yellow	57.6	95
1026520	6	7.7	black	57.6	95
1026521	10	9.1	green-yellow	96	145
1026522	10	9.1	black	96	145
1026523	16	10.6	green-yellow	153.6	205
1026524	16	10.6	black	153.6	205
1026525	25	12.3	green-yellow	240	290
1026526	25	12.3	black	240	290
1026527	35	13.3	green-yellow	336	413
1026528	35	13.3	black	336	413

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Core colour	Copper index (kg/km)	Weight (kg/km)
1026529	50	15.9	green-yellow	480	535
1026530	50	15.9	black	480	535
1026531	70	18	green-yellow	672	776
1026532	70	18	black	672	776
1026533	95	19.9	green-yellow	912	998
1026534	95	19.9	black	912	998
1026535	120	22.5	green-yellow	1152	1249
1026536	120	22.5	black	1152	1249
1026537	150	24.6	green-yellow	1440	1486
1026538	150	24.6	black	1440	1486
1026539	185	27.2	green-yellow	1776	1788
1026540	185	27.2	black	1776	1788
1026541	240	32.1	green-yellow	2304	2381
1026542	240	32.1	black	2304	2381
1026543	300	34	green-yellow	2880	2964
1026544	300	34	black	2880	2964

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® CHAIN cable protection and guiding systems

NEW

ÖLFLEX® CHAIN 90 CP

Highly flexible, screened single core power cable with abrasion and oil resistant PUR sheath - certified for North America

Info

- Extended Line Performance - Long travel lengths or high acceleration
- Allrounder for indoor and outdoor use
- Improved characteristics in the event of a fire

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Longer cable installation lengths thanks to low mutual capacitance cable design
- Copper screening complies with EMC requirements and protects against electromagnetic interference

Application range

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- Specially designed for power circuits of servomotors driven by frequency converters
- This cable can substitute screened multi-core motor cables where space requirements or minimum bending radii cause problems
- Test systems in the automotive industry, vehicles and stationary fuel cell systems
- For indoor and outdoor use

Product features

- Flammability:
  - Halogen-free acc. to VDE 0472-815
  - Flame retardant acc. to IEC 60332-1-2 or UL/cUL VW-1, FT1
  - No flame propagation acc. to IEC 60332-3-24 Cat. C or /-25 Cat. D
- Good weather, UV and oil resistance
- Flexible at low temperatures
- Low-capacitance design
- EMC-compliant

Norm references / Approvals

- USA: UL AWM Style 11624, VW-1
  Canada: cUL AWM I/II A, FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: TPE compound
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Black, other colours are available upon request

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 3 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 1000 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Temperature range
Flexing: -35°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 90 CP				
1026547	1.5	7	23.8	60
1026548	2.5	7.6	41	90
1026549	4	7.9	58.8	100
1026550	6	8.4	81.3	120
1026551	10	9.8	123	180
1026553	16	11.3	187.7	240
1026555	25	13	280.6	340
1026557	35	14.2	398.9	480

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1026559	50	16.8	551.7	610
1026561	70	19.1	773.2	880
1026563	95	21.6	1036.6	1160
1026565	120	23.6	1277.7	1380
1026567	150	25.9	1618	1670
1026569	185	28.5	1957.3	1980
1026571	240	33.4	2511.7	2600
1026573	300	35.3	3117	3210

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 700
- SKINTOP® MS-HF-M BRUSH refer to page 708
- SKINTOP® MS-M BRUSH refer to page 702
- SILVYN® CHAIN cable protection and guiding systems

NEW

ÖLFLEX® CHAIN 819 P

Highly flexible control cable with PVC core insulation and robust, oil resistant outer sheath - certified

Info

- Basic Line Performance - Moderate travel lengths or acceleration
- High oil resistance
- UL/cUL certified for North America

Benefits

- Good combination of quality and price
- Durable thanks to robust sheath material
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- In power chains or moving machine parts
- Very suitable for oily wet areas within machinery and production lines
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- Indoor applications

Product features

- High oil-resistance
- Flammability:
  IEC/EN: 60332-1-2
  UL/CSA: Horizontal Flame, FT2
- Mechanically robust
- Low-adhesive surface

Norm references / Approvals

- USA: UL AWM Style 21576
  Canada: cUL AWM Style I/II A FT2
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- Outer sheath of Lapp-PU-Special Blend, black (similar RAL 9005)

Technical data

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC U0/U: 300/500 V
UL: 1000 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
Core/core: 4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +70°C (UL: +80°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 819 P				
1027800	2 X 0.5	5.2	9.6	30.7
1027801	3 G 0.5	5.5	14.4	39.2
1027802	4 G 0.5	6	19.2	48.5
1027803	5 G 0.5	6.5	24	58
1027804	7 G 0.5	7.7	33.6	79
1027805	12 G 0.5	9.2	57.6	121.1
1027806	18 G 0.5	11	86.4	177.9
1027807	25 G 0.5	13.3	120	250
1027810	2 X 0.75	5.6	14.4	37.9
1027811	3 G 0.75	6	21.6	49.4
1027812	4 G 0.75	6.5	28.8	61.5
1027813	5 G 0.75	7.1	36	74.5
1027814	7 G 0.75	8.5	50.4	105.6
1027815	12 G 0.75	10.3	86.4	163.3
1027816	18 G 0.75	12.2	129.6	239
1027817	25 G 0.75	14.8	180	334.8
1027820	2 X 1.0	5.9	19.2	43.1
1027821	3 G 1.0	6.3	28.8	56.5
1027822	4 G 1.0	6.9	39	71.3
1027823	5 G 1.0	7.5	48	86.2

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1027824	7 G 1.0	9	67	122.3
1027825	12 G 1.0	10.9	115.2	190.3
1027826	18 G 1.0	13.2	172.8	285.4
1027827	25 G 1.0	15.7	240	391.2
1027830	2 X 1.5	6.5	28.8	55.6
1027831	3 G 1.5	6.9	43.2	74.5
1027832	4 G 1.5	7.6	58	94.7
1027833	5 G 1.5	8.5	72	119.3
1027834	7 G 1.5	10.3	100.8	169.5
1027835	12 G 1.5	12.3	172.8	263.9
1027836	18 G 1.5	14.9	259.2	395.1
1027837	25 G 1.5	17.9	360	549.4
1027840	3 G 2.5	8.4	72	115.6
1027841	4 G 2.5	9.3	96	148.2
1027844	5 G 2.5	10.4	120	186
1027842	7 G 2.5	12.7	168	268.9
1027843	12 G 2.5	15.2	288	420.2
1027850	4 G 4	11.1	153.6	222.1
1027852	4 G 10	17.2	384	541
1027855	4 G 16	20.1	614.4	804.6
1027857	4 G 25	24.9	960	1259.5

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CHAIN 809 refer to page 124
- ÖLFLEX® CHAIN PN refer to page 126

ÖLFLEX® CHAIN 819 CP

Highly flexible, screened control cable with PVC core insulation and robust, oil resistant outer sheath - certified

Info

- Basic Line Performance - Moderate travel lengths or acceleration
- High oil resistance
- UL/cUL certified for North America

Benefits

- Good combination of quality and price
- Durable thanks to robust sheath material
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Multi-standard certification reduces part varieties and saves costs
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Copper braiding screens the cable against electromagnetic interference

Application range

- In power chains or moving machine parts
- In EMC-sensitive environments
- Very suitable for oily wet areas within machinery and production lines
- Assembly lines, production lines, in all kinds of machines
- Suitable for use in measuring, control and regulating circuits
- Indoor applications

Product features

- High oil-resistance
- Flammability:
  IEC/EN: 60332-1-2
  UL/CSA: Horizontal Flame, FT2
- Mechanically robust
- Low-adhesive surface
- EMC-compliant

Norm references / Approvals

- USA: UL AWM Style 21576
  Canada: cUL AWM Style I/II A FT2
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath of Lapp-PU-Special Blend, black (similar RAL 9005)

Technical data

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Flexing: up from 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC U0/U: 300/500 V
UL: 1000 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
Core/core: 4000 V
Core/screen: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +70°C (UL: +80°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 819 CP				
1027900	2 X 0.5	5.8	22.5	42.9
1027901	3 G 0.5	6.1	27.1	50.6
1027902	4 G 0.5	6.6	35.1	62.6
1027903	5 G 0.5	7.1	43.1	74.7
1027904	7 G 0.5	8.5	55.8	101
1027905	12 G 0.5	10	83.1	144.5
1027906	18 G 0.5	11.8	120	207.1
1027907	25 G 0.5	14.1	171	288.6
1027910	2 X 0.75	6.2	30.4	52.7
1027911	3 G 0.75	6.6	37.5	63.4
1027912	4 G 0.75	7.1	47.9	78
1027913	5 G 0.75	7.7	55.2	90.4
1027914	7 G 0.75	9.1	75.9	126.1
1027915	12 G 0.75	10.9	115.3	183.6
1027916	18 G 0.75	13	168	269.8
1027917	25 G 0.75	15.6	239.6	377
1027920	2 X 1.0	6.5	35.3	58.5
1027921	3 G 1.0	6.9	44.7	71.6
1027922	4 G 1.0	7.5	57.7	89.4
1027923	5 G 1.0	8.3	70.3	110.2

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1027924	7 G 1.0	9.8	92.7	149.2
1027925	12 G 1.0	11.7	148.7	224.4
1027926	18 G 1.0	14	224.1	331.3
1027927	25 G 1.0	16.7	299.5	449.2
1027930	2 X 1.5	7.1	47.9	73.8
1027931	3 G 1.5	7.5	62.5	92.6
1027932	4 G 1.5	8.4	80	118.9
1027933	5 G 1.5	9.1	97.5	142.7
1027934	7 G 1.5	10.9	129.7	194.9
1027935	12 G 1.5	13.3	211	301.9
1027936	18 G 1.5	15.7	319	447.8
1027937	25 G 1.5	18.7	428.1	606.5
1027940	3 G 2.5	9	97.4	138.9
1027941	4 G 2.5	10.1	124.8	178.2
1027944	5 G 2.5	11.2	148.7	215.4
1027942	7 G 2.5	13.5	206.5	301.6
1027943	12 G 2.5	16.2	347.5	478.5
1027950	4 G 4.0	11.9	187	256.1
1027952	4 G 10.0	18.2	452.1	606.5
1027955	4 G 16.0	21.3	699.5	884.2
1027957	4 G 25.0	26.3	1062.1	1349.7

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CHAIN 809 CY refer to page 125

ÖLFLEX® FD 891 P

Highly flexible control cable with PVC core insulation and abrasion and oil resistant PUR sheath - certified

Info

- Core Line Performance - Medium to increased travel lengths or acceleration
- Good oil resistance
- AWM certification for USA and Canada

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Suitable for use in measuring, control and regulating circuits
- Plant engineering
- In dry, damp or wet interiors with normal mechanical stress conditions

Product features

- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface

Norm references / Approvals

- UL rec. AWM Style 20234
- CRU AWM II A/B FT 1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- PUR outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: U_0/U 300/500 V
UL/CSA: 600 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +70°C (UL: +80°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® FD 891 P				
1028752	2 X 0.5	6.5	9.6	46
1028007	7 G 0.5	9.6	33.6	118
1028103	3 G 0.75	7.3	21.6	66
1028104	4 G 0.75	8	28.8	82
1028105	5 G 0.75	8.7	36	101
1028107	7 G 0.75	10.7	50.4	142
1028112	12 G 0.75	11.7	86.4	196
1028118	18 G 0.75	13.9	129.6	282
1028125	25 G 0.75	16.6	180	404
1028134	34 G 0.75	18.9	244.8	541
1028150	50 G 0.75	22.5	360	738
1028303	3 G 1.5	8.4	43.2	98
1028304	4 G 1.5	9.3	57.6	125
1028305	5 G 1.5	10.1	72	155
1028307	7 G 1.5	11.9	100.8	221
1028312	12 G 1.5	13.9	172.8	318

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1028318	18 G 1.5	16.9	259.2	484
1028325	25 G 1.5	20.1	360	671
1028334	34 G 1.5	23.1	489.6	910
1028952	2 X 2.5	8.9	48	102
1028403	3 G 2.5	9.3	72	134
1028404	4 G 2.5	10.3	96	173
1028405	5 G 2.5	11.3	120	217
1028407	7 G 2.5	13.4	168	312
1028412	12 G 2.5	15.8	288	460
1028503	3 G 4.0	10.9	115.2	197
1028504	4 G 4.0	12.1	153.6	257
1028507	7 G 4.0	16.1	268.8	471
1028604	4 G 6.0	13.7	230.4	363
1028614	4 G 10.0	17.9	384	605
1028624	4 G 16.0	23.4	614.4	973
1028634	4 G 25.0	27.6	960	1437

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
DESINA® is a registered trademark of the German Machine Tool Builders' Association
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® FD 855 P refer to page 140

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® FD 855 P

Halogen-free, highly flexible control cable with abrasion and oil resistant PUR sheath - certified

Info

- Extended Line Performance - Long travel lengths or high acceleration
- All-rounder with small bending radii
- UL/cUL certified for North America

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard certification reduces part varieties and saves costs
- Low particle emission at moved chain application
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments

Application range

- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- Assembly lines, production lines, in all kinds of machines
- For use in assembling & pick-and-place machinery
- For highly dynamic applications
- For indoor and outdoor use

Product features

- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Flexible down to -40°C
- Abrasion and notch-resistant
- Low-adhesive surface

Norm references / Approvals

- Based on VDE 0250 / 0285
- USA: UL AWM Style 21576
  Canada: cUL AWM Style I/II A FT2
- UL File No. E63634
- Clean room classification for individual items on request
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: TPE
- Cores twisted together in extremely short lay lengths
- Non-woven wrapping
- PUR outer sheath, grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: up from 5 x outer diameter
Fixed installation: 3 x outer diameter

Nominal voltage
IEC U0/U: 300/500 V
UL: 1000 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® FD 855 P				
0027530	2 X 0.5	5.1	10	34
0027531	3 G 0.5	5.5	14	40
0027532	5 G 0.5	6.6	24	55
0027533	6 G 0.5	7.1	29	63
0027534	7 G 0.5	7.7	34	76
0027535	12 G 0.5	9.1	58	114
0027536	18 G 0.5	10.9	86	165
0027537	20 G 0.5	11.5	96	180
0027538	25 G 0.5	13.4	120	219
0027540	30 G 0.5	13.6	144	251
0027541	36 G 0.5	14.7	173	290
0027545	2 X 0.75	5.6	14	42
0027546	3 G 0.75	6	22	50
0027547	4 G 0.75	6.7	29	60
0027548	5 G 0.75	7.3	36	71
0027549	7 G 0.75	8.8	50	99
0027550	12 G 0.75	10.3	86	158
0027551	18 G 0.75	12.4	130	219
0027552	20 G 0.75	13.3	144	240
0027553	25 G 0.75	15.5	180	309
0027555	36 G 0.75	16.9	259	411
0027560	2 X 1.0	6	19	50
0027561	3 G 1.0	6.5	29	61
0027562	4 G 1.0	7.2	38	70
0027563	5 G 1.0	7.8	48	93

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0027564	7 G 1.0	9.5	67	122
0027565	12 G 1.0	11.2	115	196
0027566	18 G 1.0	13.7	173	274
0027567	20 G 1.0	14.4	192	300
0027568	25 G 1.0	16.8	240	385
0027570	30 G 1.0	17	288	444
0027571	36 G 1.0	18.6	346	516
0027575	2 X 1.5	6.7	29	68
0027576	3 G 1.5	7.3	43	83
0027586	4 G 1.5	8	58	100
0027577	5 G 1.5	9	72	128
0027578	7 G 1.5	10.7	101	177
0027579	12 G 1.5	12.7	173	275
0027580	18 G 1.5	15.2	259	405
0027582	25 G 1.5	18.8	360	565
0027584	30 G 1.5	18.8	432	652
0027585	36 G 1.5	20.6	518	759
0027587	41 G 1.5	22.4	614	978
0027370	3 G 2.5	8.9	72	121
0027371	4 G 2.5	9.9	96	163
0027372	5 G 2.5	11	120	196
0027373	7 G 2.5	13.4	168	266
0027374	12 G 2.5	15.8	288	446
0027375	18 G 2.5	18.9	432	665
0027376	25 G 2.5	23.5	600	929

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® FD 855 CP

Halogen-free, highly flexible and screened control cable with abrasion and oil resistant PUR sheath - certified

Info

- Extended Line Performance - Long travel lengths or high acceleration
- EMC compliant copper screening
- UL/cUL certified for North America

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Multi-standard certification reduces part varieties and saves costs
- Copper screening complies with EMC requirements and protects against electromagnetic interference

Application range

- In power chains or moving machine parts
- Particularly in wet areas of machine tools and transfer lines
- For use in assembling & pick-and-place machinery
- Assembly lines, production lines, in all kinds of machines
- In EMC-sensitive environments
- For indoor and outdoor use

Product features

- Good mechanical, abrasion and notch-resistance
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- Flexible down to -40°C
- Low-adhesive surface
- EMC-compliant

Norm references / Approvals

- Based on VDE 0250 / 0285
- USA: UL AWM Style 21576 with add. VW-1
  Canada: cUL AWM Style I/II A/B FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: TPE
- Cores twisted together in extremely short lay lengths
- Non-woven wrapping
- Inner sheath made of TPE
- Tinned-copper braiding
- PUR outer sheath, grey (similar RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC U0/U: 300/500 V
UL: 1000 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® FD 855 CP				
0027605	2 X 0.5	6.7	32	67
0027606	3 G 0.5	7.1	40	79
0027607	5 G 0.5	8.2	53	107
0027608	6 G 0.5	8.7	59	121
0027609	7 G 0.5	9.5	67	132
0027610	12 G 0.5	10.9	97	190
0027611	18 G 0.5	12.9	131	245
0027612	20 G 0.5	13.5	156	281
0027613	25 G 0.5	15.6	190	367
0027615	30 G 0.5	15.8	222	408
0027616	36 G 0.5	16.9	251	459
0027620	2 X 0.75	7.2	40	79
0027621	3 G 0.75	7.6	47	96
0027622	4 G 0.75	8.3	58	112
0027623	5 G 0.75	8.9	65	126
0027624	7 G 0.75	10.6	85	165
0027625	12 G 0.75	12.1	127	231
0027626	18 G 0.75	14.6	198	330
0027628	25 G 0.75	17.7	259	459
0027630	36 G 0.75	19.5	348	605
0027635	2 X 1.0	7.6	45	93
0027636	3 G 1.0	8.1	55	109
0027637	4 G 1.0	8.8	68	126

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0027638	5 G 1.0	9.6	81	147
0027639	7 G 1.0	11.3	106	196
0027640	12 G 1.0	13.2	175	292
0027641	18 G 1.0	15.9	242	418
0027643	25 G 1.0	19.5	329	575
0027645	30 G 1.0	19.6	377	635
0027646	36 G 1.0	21.2	467	758
0027649	2 X 1.5	8.3	58	115
0027650	3 G 1.5	8.9	76	139
0027661	4 G 1.5	9.8	91	156
0027651	5 G 1.5	10.8	111	198
0027652	7 G 1.5	12.5	145	254
0027653	12 G 1.5	14.9	242	416
0027654	18 G 1.5	17.4	346	564
0027656	25 G 1.5	21.4	486	811
0027659	36 G 1.5	23.4	655	1066
0027380	3 G 2.5	10.7	110	194
0027381	4 G 2.5	11.7	136	234
0027382	5 G 2.5	12.8	180	293
0027383	7 G 2.5	15.6	246	418
0027384	12 G 2.5	18	377	629
0027385	18 G 2.5	21.5	569	912
0027386	25 G 2.5	26.5	765	1266

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® PETRO FD 865 CP refer to page 142

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® PETRO FD 865 CP

Halogen-free, highly flexible and screened control cable with abrasion and MUD-resistant PUR sheath - certified

Info

- Extended Line Performance - Long travel lengths or high acceleration
- Resistant to oil and drilling fluids according to NEK TS 606:2016 (Oil & Mud)
- EMC compliant copper screening

Benefits

- Suitable for contact with oil- and ester-based drilling muds as well as calcium bromide solutions
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Suitable for long horizontal drag chain travel distances
- Additional robustness thanks to inner sheath
- Wide temperature range for applications in harsh climatic environments
- Copper braiding screens the cable against electromagnetic interference

Application range

- Permanently moved power chains or machine parts in harsh environment
- Onshore and offshore applications
- In wet areas within machinery and production or assembly lines
- For use in assembling & pick-and-place machinery
- For indoor and outdoor use

Product features

- Salt water-resistant according to UL 1309
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Good weather, ozone, UV and oil resistance
- Good notch and abrasion resistance
- Flexible at low temperatures
- EMC-compliant

Norm references / Approvals

- DNV Det Norske Veritas certified
- Resistant to oil and drilling fluids according to NEK TS 606:2016 and IEC 61892-4
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: TPE
- Cores twisted in short lay lengths
- Non-woven wrapping
- Inner sheath made of TPE
- Tinned copper screen braiding
- Outer sheath made of robust special polymer, colour black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Flexing: up from 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -50°C to +80°C
Fixed installation: -60°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® PETRO FD 865 CP				
0023300	2 X 0.5	6.7	32	67
0023301	3 G 0.5	7.1	40	79
0023302	4 G 0.5	7.6	47	84
0023303	5 G 0.5	8.2	53	107
0023304	7 G 0.5	9.5	67	132
0023305	12 G 0.5	10.9	97	190
0023306	18 G 0.5	12.9	131	245
0023307	20 G 0.5	13.5	156	281
0023308	25 G 0.5	15.6	190	367
0023309	30 G 0.5	15.8	222	408
0023310	36 G 0.5	16.9	251	459
0023311	2 X 0.75	7.2	40	79
0023312	3 G 0.75	7.6	47	96
0023313	4 G 0.75	8.3	58	112
0023314	5 G 0.75	8.9	65	126
0023315	7 G 0.75	10.6	85	165
0023316	12 G 0.75	12.1	127	231
0023317	18 G 0.75	14.6	198	330
0023318	20 G 0.75	15.5	213	354
0023319	25 G 0.75	17.7	259	459
0023320	30 G 0.75	17.7	296	480
0023321	36 G 0.75	19.5	348	605
0023322	2 X 1.0	7.6	45	93
0023323	3 G 1.0	8.1	55	109
0023324	4 G 1.0	8.8	68	126
0023325	5 G 1.0	9.6	81	147
0023326	7 G 1.0	11.3	106	196
0023327	12 G 1.0	13.2	175	292
0023328	18 G 1.0	15.9	242	418

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0023329	20 G 1.0	16.6	269	427
0023330	25 G 1.0	19.2	329	575
0023331	30 G 1.0	19.6	377	635
0023332	36 G 1.0	21.2	467	758
0023333	2 X 1.5	8.3	58	115
0023334	3 G 1.5	8.9	76	139
0023335	4 G 1.5	9.8	91	156
0023336	5 G 1.5	10.8	111	198
0023337	7 G 1.5	12.5	145	254
0023338	12 G 1.5	14.9	242	416
0023339	18 G 1.5	17.4	346	564
0023340	20 G 1.5	18.3	377	562
0023341	25 G 1.5	21.4	486	811
0023342	30 G 1.5	21.4	821	821
0023343	36 G 1.5	23.4	655	1066
0023344	2 X 2.5	9.8	73	129
0023345	3 G 2.5	10.7	110	194
0023346	4 G 2.5	11.7	136	234
0023347	5 G 2.5	12.8	180	293
0023348	7 G 2.5	15.6	246	418
0023349	12 G 2.5	18	377	629
0023350	18 G 2.5	21.5	569	912
0023351	20 G 2.5	22.7	582	850
0023352	25 G 2.5	26.5	765	1266
0023353	4 G 4.0	13.9	205	311
0023354	5 G 4.0	15.4	250	381
0023355	4 G 6.0	16.2	289	423
0023356	5 G 6.0	17.8	354	512
0023357	4 G 10.0	20.4	475	672
0023358	5 G 10.0	22.3	582	814

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® CHAIN 896 P

Highly flexible, halogen-free power cable with low capacitive insulation and oil resistant PUR sheath - certified

Info

- Extended Line Performance - Long travel lengths or high acceleration
- Good oil resistance
- Rated voltage 0,6/1 kV

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Longer cable installation lengths thanks to low mutual capacitance cable design
- Wide temperature range for applications in harsh climatic environments

Application range

- In power chains or moving machine parts
- Applications in automation engineering
- Power circuits in industrial machines
- For use in assembling & pick-and-place machinery
- Particularly in wet areas of machine tools and transfer lines
- For indoor and outdoor use

Product features

- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Halogen-free materials
- High oil-resistance
- Low-capacitance design
- Flexible down to -40°C

Norm references / Approvals

- VDE - reg - no. 8661
  UL AWM Style 20234
  cULus AWM I/II A/B, 1000V 80° FT1
  CSA AWM I/II A, 1000V 80° FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: polypropylene (PP)
- Non-woven wrapping
- PUR outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing:
up from 7.5 x outer diameter (up to 16mm²)
up from 10 x outer diameter (from 25mm²)
Fixed installation: 4 x outer diameter

Nominal voltage
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Bending cycles & operation parameters
See Selection Table A2-1 in the appendix of our online catalogue

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 896 P				
1023229	4 G 1.5	9.6	58	120
1023230	5 G 1.5	10	72	143
1023238	4 G 2.5	11	96	174
1023239	5 G 2.5	12	120	210
1023245	4 G 4	12.5	154	242
1023246	5 G 4	13.7	192	316
1023248	4 G 6	14.3	231	335
1023249	5 G 6	15.7	288	439
1023250	4 G 10	17	384	503
1023251	5 G 10	18.9	480	663
1023252	4 G 16	21.2	615	810
1023253	5 G 16	23.8	768	1065
1023254	4 G 25	25.9	960	1254
1023255	5 G 25	29	1200	1582

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 796 P refer to page 108

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® ROBOT 900 P

Abrasion- and oil-resistant PUR robot cable for dynamic bending and torsion motions

Info

- Simultaneous bending and torsion
- Torsion angle up to +/- 360 °/m

Benefits

- Space-saving installation due to small cable diameters
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments

Application range

- Industrial machinery and machine tools
- Automated handling equipment
- Automotive industry
- In power chains or moving machine parts
- Inside of dresspacks of buckling arm robots and for use for gantry robots

Product features

- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Flexible at low temperatures
- Low-adhesive surface

Norm references / Approvals

- Designed for up to 5 million torsional motions
- For use in power chains: Please comply with assembly guideline Appendix T3
- For travel distances up to 10 m.

Product Make-up

- Fine or extra-fine strands made of bare copper wire
- Core insulation: TPE
- Cores twisted in layers
- Versions with additional center pair: 2 cores twisted to a pair, PTFE foil wrapping, layer of tinned copper wires
- Wrapping of PTFE tape
- PUR outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: black cores with white numbers

Mutual capacitance
C/C approx. 100 nF/km
C/S approx. 120 nF/km

Inductivity
approx. 0.7 mH/km

Conductor stranding
Fine wire or extra-fine wire

Torsion
Torsion load max. ± 360 °/m

Minimum bending radius
For flexible use: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
Up to 0,34 mm²: 48 V AC
From 0.5 mm² U0/U: 300/500 V

Test voltage
Up to 0.34 mm²: 1500 V
From 0.5 mm²: 3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBOT 900 P				
Core colours according to DIN 47100				
0028110	7 X 0.25	6.2	16.8	48
0028116	25 X 0.25	10.2	60	141
0028188	2 X 0.34	5.0	7	27
Numbered Cores				
0028145	18 G 0.5	11.2	86.4	120
0028146	25 G 0.5	13.3	120	254
0028160	4 G 0.75	6.6	28.8	63
0028164	14 G 0.75	11.2	100.8	199
0028170	2 X 1.0	6.2	19.2	47
0028171	3 G 1.0	6.5	29	61
0028172	4 G 1.0	7.0	38.4	76
0028174	7 G 1.0	9.3	67.2	131

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0028176	12 G 1.0	11.5	115.2	216
0028185	16 G 1,0 + (2 x 1,0)	16.0	195	376
0028178	18 G 1.0	13.2	172.8	287
0028186	23 G 1,0 + (2 x 1,0)	17.3	262	470
0028180	25 G 1.0	16.4	240	433
0028190	34 G 1.0	19.9	326.4	571
0028191	41 G 1.0	22.3	393.6	705
0028198	18 G 1.5	15.8	259.2	446
0028181	3 G 2.5	9.3	72	136
0028182	4 G 2.5	10.1	96	171
0028400	3 G 16	21.4	460.8	721
0028187	3 G 25	26.2	720	1178
0028189	3 G 35	28.8	1008	1559

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® ROBOT F1 refer to page 146

Accessories

- SILVYN® RILL PA 12 refer to page 848

ÖLFLEX® ROBOT 900 DP

Shielded, abrasion- and oil-resistant PUR robot cable for dynamic bending and torsion motions

Info

- Simultaneous bending and torsion
- Torsion angle up to +/- 180 °/m
- Copper screening

Benefits

- Space-saving installation due to small cable diameters
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Copper shielding protects against electromagnetic interference

Application range

- Industrial machinery and machine tools
- Automated handling equipment
- Automotive industry
- In power chains or moving machine parts
- Inside of dresspacks of buckling arm robots and for use for gantry robots

Product features

- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Flexible at low temperatures
- Low-adhesive surface

Norm references / Approvals

- Designed for up to 5 million torsional motions
- For use in power chains: Please comply with assembly guideline Appendix T3
- For travel distances up to 10 m.

Product Make-up

- Fine or extra-fine strands made of bare copper wire
- Core insulation: TPE
- Cores twisted in layers
- Wrapping of PTFE tape
- Spiral shield made of tinned copper wires
- PUR outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: black cores with white numbers

Mutual capacitance
C/C approx. 100 nF/km
C/S approx. 120 nF/km

Inductivity
approx. 0.7 mH/km

Conductor stranding
Fine wire or extra-fine wire

Torsion
Torsion load max. ± 180 °/m

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
Up to 0,34 mm²: 48 V AC
From 0.5 mm² U0/U: 300/500 V

Test voltage
Up to 0.34 mm²: 1500 V
From 0.5 mm²: 3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBOT 900 DP				
Core colours according to DIN 47100				
0028100	12 x 0,14	6.7	42.5	69
0028105	3 x 2 x 0,14	6.2	17	44
0028126	25 x 0,25	11.1	103.5	183
0028135	4 x 0,34	5.7	21.3	46
0028136	5 x 2 x 0,34	9.1	64.4	114
Numbered Cores				
0028195	12 G 1,5	14.0	259	395

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® ROBOT F1 (C) refer to page 147

Accessories

- SILVYN® RILL PA 12 refer to page 848

ÖLFLEX® ROBOT F1

Abrasion- and oil resistant PUR robot cable for high dynamic bending and torsion motions, UL/cUL AWM certified

Info

- Simultaneous bending and torsion
- Torsion angle up to +/- 360 °/m
- AWM certification for USA and Canada

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- Industrial machinery and machine tools
- Automated handling equipment
- Automotive industry
- In power chains or moving machine parts
- Inside of dresspacks of buckling arm robots and for use for gantry robots

Product features

- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Flexible at low temperatures
- Low-adhesive surface

Norm references / Approvals

- UL AWM Style 20940
  cUL AWM I/II A/B
- UL File No. E213974
- Designed for up to 10 million torsional motions
- For use in power chains: Please comply with assembly guideline Appendix T3
- For travel distances up to 10 m.

Product Make-up

- Extra-fine strands, 0.14 mm² - 0.5 mm² made of tinned copper wires, bare above
- Core insulation: TPE
- Cores (or core pairs) twisted in layers or bundles
- Wrapping of PTFE tape
- Wrapping made of tinned copper wires for versions with individually screened pairs
- PUR outer sheath, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: white cores with black numbers, cores of screened pair (2 x 1.0) are marked with no. 1 + 2

Conductor stranding
Extra-fine wire

Torsion
Torsion load max. ± 360 °/m

Minimum bending radius
Flexible use: 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: up to 0.34 mm² 250 Vss.
0.5 - 2.5 mm² U_0/U 300/500 V
UL/CSA: up to 1.5 mm² 600 V,
from 2.5 mm² 1000 V

Test voltage
Up to 0.34 mm²: 1500 V
From 0.5 mm²: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBOT F1				
Core colours according to DIN 47100				
0029590	7 X 0.25	6.7	16.8	62
0029591	12 X 0.25	9.0	30	122
0029592	18 X 0.25	10.6	45	156
0029593	25 X 0.25	12.5	60	205
0029594	2 X 0.34	4.6	7	38
0029595	3 X 0.34	4.8	10	40
0029596	4 X 0.34	5.2	15	48
0029599	12 X 0.34	9.4	40	130
0029600	18 X 0.34	11.2	60	170
0029601	25 X 0.34	13.1	83	220
Numbered Cores				
0029608	18 G 0.5	12.3	84	202
0029609	25 G 0.5	15.2	120	284
0029610	2 X 1.0	6.3	19	60
0029611	3 G 1.0	6.6	28	71
0029612	4 G 1.0	7.2	38	87

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0029614	7 G 1.0	9.2	65	141
0029615	12 G 1.0	12.4	110	237
0029616	14 G 1.0	13.2	128	257
0029617	16 G 1,0 + (2 x 1,0)	15.4	190	346
0029618	18 G 1.0	16.1	170	349
0029619	23 G 1 + (2 x 1,0)	18.0	250	461
0029620	25 G 1.0	18.3	240	407
0029621	34 G 1.0	21.1	320	600
0029622	41 G 1.0	23.6	390	753
0029624	4 G 1.5	8.2	57	114
0029625	5 G 1.5	9.1	72	141
0029627	7 G 1.5	10.5	101	187
0029629	12 G 1.5	14.3	170	294
0029630	18 G 1.5	17.5	259	450
0029631	25 G 1.5	22.2	360	661
0029632	3 G 2.5	9.1	72	136
0029641	4 G 6.0	13.3	220	330

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® RILL PA 12 refer to page 848

ÖLFLEX® ROBOT F1 (C)

Shielded, abrasion- and oil-resistant PUR robot cable for high dynamic bending and torsion motions, UL/cUL AWM certified

Info

- Simultaneous bending and torsion
- Torsion angle up to +/- 180 °/m
- AWM certification for USA and Canada

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Copper shielding protects against electromagnetic interference
- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers

Application range

- Industrial machinery and machine tools
- Automated handling equipment
- Automotive industry
- In power chains or moving machine parts
- Inside of dresspacks of buckling arm robots and for use for gantry robots

Product features

- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Flexible at low temperatures
- Low-adhesive surface

Norm references / Approvals

- UL AWM Style 20940
  cUL AWM I/II A/B
- UL File No. E213974
- Designed for up to 10 million torsional motions
- For use in power chains: Please comply with assembly guideline Appendix T3
- For travel distances up to 10 m.

Product Make-up

- Extra-fine strands, 0.14 mm² - 0.5 mm² made of tinned copper wires, bare above
- Core insulation: TPE
- Cores (or core pairs) twisted in layers or bundles
- Wrapping made of tinned copper wires for versions with individually screened pairs
- Wrapping of PTFE tape
- Spiral shield of tinned copper wires, version 12 G 1,5 and 18 G 1,5 with screen braiding
- PUR outer sheath, black (similar RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: white cores with black numbers, cores of screened pair (2 x 1.0) are marked with no. 5 + 6

Conductor stranding
Extra-fine wire

Torsion
Torsion load max. ± 180 °/m

Minimum bending radius
Flexible use: 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: up to 0.34 mm² 250 Vss.
0.5 - 2.5 mm² U_0/U 300/500 V
UL/CSA: up to 1.5 mm² 600 V,
from 2.5 mm² 1000 V

Test voltage
Up to 0.34 mm²: 1500 V
From 0.5 mm²: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBOT F1 (C)				
Core colours according to DIN 47100				
0029653	3 x 2 x 0,25	8.0	38	100
0029654	25 x 0,25	13.8	115	280
0029655	2 x 0,34	5.2	18	54
0029656	3 x 0,34	5.4	20	56
0029657	4 x 0,34	6.6	28	72
0029658	5 x 2 x 0,34	10.2	69	158
Numbered Cores				
0029689	12 G 1,5	15.4	230	380
0029690	18 G 1,5	18.5	340	550
0029664	4 G 1,5	8.8	75.1	120
0029665	4 G 2,5	10.3	116	200
0029691	4 G 1,5 + (2 x 1,0)	11.0	116	213
0029692	4 G 2,5 + (2 x 1,0)	12.0	150	270

Unless specified otherwise, the shown product values are nominal values at room temperature. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® RILL PA 12 refer to page 848

Special applications

LiFY

Flexible at cold temperatures, Class 6 single conductor for devices or measurements

Info

- Extremely flexible / Extra-finely stranded

Benefits

- Very soft PVC insulation that is flexible at low temperatures

Application range

- For use in and on mobile equipment
- For measuring assemblies in technical training sessions, education and electric laboratories

Norm references / Approvals

- Based on VDE 0812 and VDE 0250-1

Product Make-up

- Stranded copper wire
- Core insulation: Based on PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Extra-finely stranded IEC conductor class 6: 0.07 mm

Nominal voltage
Highly flexible LiFY cores:
up to 1.0 mm²: U0/U: 300/500 V,
from 1.5 mm²: U0/U: 450/750 V

Temperature range
Flexible use: -15°C to +70°C

Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	PU	black	blue	green/yellow	red
0.75	2.5	7.2	100	4560013S	4560014S	4560017S	4560016S
1	2.9	9.6	100	4560023S	4560024S	4560027S	4560026S
1.5	3.7	14.4	100	4560033S	4560034S	4560037S	4560036S
2.5	4.2	24	50	4560053S	4560054S	4560057S	4560056S
4	5.1	38.4	50	4560063	4560064	4560067	
6	6.0	57.6	50	4560073	4560074	4560077	4560076
10	7.4	96	50	4560083		4560087	4560086

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Cable shears with double edge refer to page 980
- DIN-assorted boxes conductor end sleeves refer to page 995
- PEW 8.87 crimping pliers refer to page 1000

LiFY 1 kV

Flexible at cold temperatures, Class 6 single conductor for devices or measurements

Info

- Extremely flexible / Extra-finely stranded

Benefits

- Very soft PVC insulation that is flexible at low temperatures

Application range

- For use in and on mobile equipment
- The 1000 V version with thick insulation wall is ideal for many measuring instruments such as multimeters.
- For measuring assemblies in technical training sessions, education and electric laboratories

Norm references / Approvals

- Based on VDE 0812 and VDE 0250-1

Product Make-up

- Stranded copper wire
- Core insulation: Based on PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Extra-finely stranded IEC conductor class 6: 0.07 mm

Nominal voltage
LiFY measurement cores:
U: 1000 VAC

Temperature range
Flexible use: -15°C to +70°C

Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	PU	black	blue	red
0.75	4.0	7.2	50	4560011S	4560021S	4560041S
1.5	4.0	14.4	50	4560012S	4560022S	4560042S

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Cable shears with double edge refer to page 980
- DIN-assorted boxes conductor end sleeves refer to page 995
- PEW 8.87 crimping pliers refer to page 1000

ESUY Copper Earthing Cable

Flexible single conductor for grounding and shorting as well as for grounding installation and potential equalisation

Info

- Grounding, Shorting prior to field maintenance
- Mechanically highly flexible

Benefits

- Very flexible despite a large cross-section

Application range

- Provides protection during repairs
- For earthing in high-voltage power installations of power companies and railway systems
- For earthing devices and potential equalisation on machine parts and EDP systems

Product features

- Flame-retardant according IEC 60332-1-2

Product Make-up

- Conductor made of bare copper wires
- Braiding made of bare copper wires
- Outer sheath: Based on PVC, transparent

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
refer to article table

Minimum bending radius
Flexible use: 12 x outer diameter

Test voltage
2000 V

Temperature range
Flexible use: -5°C to +70°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ESUY Copper Earthing Cable				
4571101	16	8.8	177	230
4571102	25	10.4	275	316
4571103	35	12.4	387	475
4571104	50	14.6	560	670
4571105	70	17.0	791	905
4571106	95	19.8	1069	1220

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- X00V3-D Copper Earthing Cable refer to page 152

Accessories

- Cable shears with double edge refer to page 980
- Ratchet cutter refer to page 980

X00V3-D Copper Earthing Cable

Flexible at cold temperatures, <HAR>-type single conductor for earthing and shorting

Info

- Grounding, Shorting prior to field maintenance
- Flexible at low temperatures

Application range

- Provides protection during repairs
- For earthing in high-voltage power installations of power companies and railway systems
- For earthing devices and potential equalisation on machine parts and EDP systems
- For applications in cold environments

Norm references / Approvals

- Based on VDE 0283 part 3 resp. EN 61138

Product Make-up

- Conductor made of bare copper wires
- Outer sheath: Based on PVC, transparent

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Based on VDE 0283 part 3 resp. EN 61138

Minimum bending radius
Flexible use: 12 x outer diameter

Test voltage
1000 V

Temperature range
Flexible use: -25°C to +55°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
X00V3-D Copper Earthing Cable				
4571110	16	8.1	153.6	170
4571111	25	9.5	240	290
4571112	35	11.0	336	400
4571113	50	13.2	480	550
4571114	70	15.8	672	770
4571115	95	18.3	912	1010

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ESUY Copper Earthing Cable refer to page 151

Accessories

- Cable shears with double edge refer to page 980
- Ratchet cutter refer to page 980

ÖLFLEX® TRUCK 170 FLRYY

Info

- For commercial verhicles
- For hazardous materials transportation

Benefits
- Special ADR approval
- ADR approval enables use in vehicles transporting hazardous goods

Application range
- For commercial verhicles
- Wiring of electrical equipments in all trailers and semi-trailers

Product features
- UV-resistant
- Resistant to cold temperatures
- Resistant to most oils, chemicals and weather conditions

Norm references / Approvals
- ISO 4141 and DIN/ISO 6722

Product Make-up
- Conductor made of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
ISO 4141-3

Capacity of data pairs
Related to length between cores, max. 50 pF/m and between each data transmission core and all other cores in the cable, max. 100 pF/m

Conductor stranding
Fine wire according to DIN/ISO 6722

Minimum bending radius
12 x outer diameter

Nominal voltage
60 V

Test voltage
5 kV rms for at least 5 min.

Temperature range
Area of application, Class A
Fixed installation: -40°C to +85°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Colour	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® TRUCK 170 FLRYY					
7027060	2 x 1,0	6.0	white-black	19.2	55
7027061	2 x 1,0	6.0	white-brown	19.2	55
7027000	2 x 1,5	6.6	white-black	28.8	68
7027001	2 x 1,5	6.6	white-brown	28.8	68
7027062	3 x 1,0	6.3	black-brown-blue	28.8	63
7027012	3 x 1,0	6.3	white/brown/blue, newest ISO design	28.8	63
7027063	4 x 1,0	6.8	white/black/red/brown	38.4	81
7027034	4 x 1,5	7.5	white/black/red/brown	57.6	106
7027064	5 x 1,0	7.5	white/brown/green/red/grey	48	97
7027065	5 x 1,0 + 1 x 2,5	9.0	1.0 = green/brown/red/blue/violet; 2.5 = white	72	133
7027066	5 x 1,0 + 1 x 2,5	9.0	1.0 = yellow/black/red/blue/violet; 2.5 = white	72	133
7027015	5 x 1,0 + 1 x 2,5	9.0	1.0 = brown/green/red/grey/violet; 2.5 = white, newest ISO design	72	133
7027016	5 x 1,0 + 1 x 2,5	9.0	1.0 = brown/yellow/red/grey/violet; 2.5 = white, newest ISO design	72	133
7027007	7 x 0,75	7.3	white/black/yellow/red/green/brown/blue		101
7027067	7 x 1,5	8.9	white/black/yellow/red/green/brown/blue	100.8	166
7027068	6 x 1,5 + 1 x 2,5	10.3	ISO 4141 1.5 = black/yellow/red/green/brown/blue; 2.5 = white	110.4	187
7027069	8 x 1,5 + 1 x 2,5	11.7	ISO 4141 + grey/violet	139.2	239
7027070	10 x 1,5 + 3 x 2,5 + 1x(2x1,5)	14.4	white with black numbers; 1.5 = no. 1 - 3, 5 - 8, 10 - 12; 2.5 = no. 4, 9, 13; 1.5 = no. 14, 15	244.8	391
7027010	10 x 1,5 + 3 x 2,5 + 1x(2x1,5)	14.4	ISO 12098	244.8	391
7027071	10 x 1,5 + 3 x 2,5	14.4	white with black numbers; 1.5 = no. 1 - 3, 5 - 8, 10 - 12; 2.5 = no. 4, 9, 13	216	367
7027035	2 x 0,75 + 2 x 1,5	7.2	0.75 = white-brown; 1.5 = yellow-green	43.2	85
7027017	5 x 1,5 + 2 x 2,5	10.3	1.5 = black/yellow/green/brown/blue; 2.5 = white/red	120	217
7027004	8 x 1,5 + 5 x 2,5	14.8	1.5 = yellow/blue/green/brown/red/black/pink/white-blue; 2.5 = white/orange/grey/white-black/white-red	235.2	360
7027073	9 x 1,5 + 4 x 2,5	14.8	white with black numbers; 1.5 = no. 2, 4 - 8, 10 - 12; 2.5 = no. 1, 3, 9, 13	225.6	352
7027074	4 x 6 + 1 x 1,5	13.7	1.5 = grey; 6.0 = brown/red/black/blue	244.8	352

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® TRUCK 470 P FLRYY 11Y

Info

- For commercial verhicles
- For hazardous materials transportation
- Hydrolysis and microbe resistant

Benefits

- Special ADR approval
- ADR approval enables use in vehicles transporting hazardous goods

Application range

- For commercial verhicles
- Wiring of electrical equipments in all trailers and semi-trailers

Product features

- UV-resistant
- Resistant to cold temperatures
- Resistant to most oils, chemicals and weather conditions
- Resistant to hydrolysis and microbes

Norm references / Approvals

- ISO 4141 and DIN/ISO 6722

Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based inner sheath
- Outer sheath made of special polyurethane

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
ISO 4141-3

Capacity of data pairs
Related to length between cores, max. 50 pF/m and between each data transmission core and all other cores in the cable, max. 100 pF/m

Conductor stranding
Fine wire according to DIN/ISO 6722

Minimum bending radius
12 x outer diameter

Nominal voltage
60 V

Test voltage
5 kV rms for at least 5 min.

Temperature range
Fixed installation: -40°C to +85°C
Area of application, Class A

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Colour	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® TRUCK 470 P FLRYY 11Y					
7027080	2 x 1,0	6.0	white-black	19.2	55
7027081	2 x 1,0	6.0	white-brown	19.2	55
7027020	2 x 1,5	6.6	white-black	28.8	68
7027021	2 x 1,5	6.6	white-brown	28.8	68
7027082	3 x 1,0	6.3	black-brown-blue	28.8	67
7027022	3 x 1,0	6.3	white/brown/blue, newest ISO design	28.8	67
7027083	4 x 1,0	6.8	white/black/red/brown	38.4	81
7027038	4 x 1,5	7.5	white/black/red/brown	57.6	106
7027084	5 x 1,0	7.5	white/brown/green/red/grey	48	97
7027085	5 x 1,0 + 1 x 2,5	9.0	1.0 = green/brown/red/blue/violet; 2.5 = white	72	133
7027086	5 x 1,0 + 1 x 2,5	9.0	1.0 = yellow/black/red/blue/violet; 2.5 = white	72	133
7027025	5 x 1,0 + 1 x 2,5	9.0	1.0 = brown/green/red/grey/violet; 2.5 = white, newest ISO design	72	133
7027087	6 x 1,5 + 1 x 2,5	10.3	ISO 4141 1.5 = black/yellow/red/green/brown/blue; 2.5 = white	110.4	187
7027130	7 x 0,75	7.3	white/black/yellow/red/green/brown/blue	50.4	101
7027088	7 x 1,5	8.9	white/black/yellow/red/green/brown/blue	100.8	166
7027089	8 x 1,5 + 1 x 2,5	11.7	ISO 4141 + grey/violet	139.2	239
7027090	10x1,5+3x2,5+1x(2x1,5)	14.4	white with black numbers; 1.5 = no. 1 - 3, 5 - 8, 10 - 12; 2.5 = no. 4, 9, 13; 1.5 = no. 14, 15	244.8	391
7027030	10x1,5+3x2,5+1x(2x1,5)	14.4	ISO 12098	244.8	395
7027091	10x1,5+3x2,5	14.4	white with black numbers; 1.5 = no. 1 - 3, 5 - 8, 10 - 12; 2.5 = no. 4, 9, 13	216	367
7027031	10x1,5+3x2,5	14.4	1.5 = yellow/green/blue/black/brown/red/pink/grey/white-black/white-blue; 2.5 = white/orange/white-red	216	367
7027046	2 x 0,75 + 2 x 1,5	7.2	0.75 = white-brown; 1.5 = yellow-green	43.2	85
7027092	2 x 6 + 3 x 1,5 ABS	12.1	DIN 72570 6.0 = red/brown; 1.5 = black/yellow/white	158.4	267
7027093	2x6+3x1,5+1x(2x1,5) EBS	12.1	DIN 72570 6.0 = red/brown; 1.5 = black/yellow/white; 1.5 = white-grey/white-brown	187.2	321
7027094	2x4+3x1,5+1x(2x1,5) EBS	11.9	4.0=red/brown; 1.5=black/yellow/white; 1.5=white-grey/white-brown	148.8	257
7027024	18 x 1,5	13.7	white with black numbers	259.2	407
7027032	25 x 1,5	16.1	white with black numbers	360	560

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® TRUCK 170 TWIN

Info

- Battery twin cable
- For commercial verhicles
- For hazardous materials transportation

Benefits

- Polarity identification is possible without stripping the sheath or external marking (the item designation is always printed on the positive pole). This rules out incorrect connections.
- No brushing of cores after stripping and therefore optimum subsequent handling, for example when crimping/contacting
- Special ADR approval

Application range

- Battery cable between the power source and the end user
- For commercial verhicles

Product features

- Double-sheathed version, extremely tough, for installation without corrugated tubing
- Very strong connection but offering easy separation of the cable by hand

Norm references / Approvals

- ADR approval TÜ.EGG.091-04

Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description:
Flexible cable

Minimum bending radius
15 x outer diameter

Nominal voltage
60 V DC

Test voltage
3000 V AC

Temperature range
Fixed installation: -40°C to +85°C
Area of application, Class A

Article number	Number of cores and mm² per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)
ÖLFLEX® TRUCK 170 TWIN PVC/PVC			
7027055	PVC/PVC 2 x 6,0	15.2 x 7.1	115.2
7027056	PVC/PVC 2 x 10,0	18.8 x 8.9	192
7027057	PVC/PVC 2 x 16,0	21.0 x 10.0	307.2
7027058	PVC/PVC 2 x 25,0	25.6 x 12.3	480
7027059	PVC/PVC 2 x 35,0	28.4 x 13.5	672
7027054	PVC/PVC 2 x 50,0	33.0 x 16.0	960
7027052	PVC/PVC 2 x 70,0	39.8 x 18.4	1344

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Details of the clamping force are available upon request, halogen-free.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

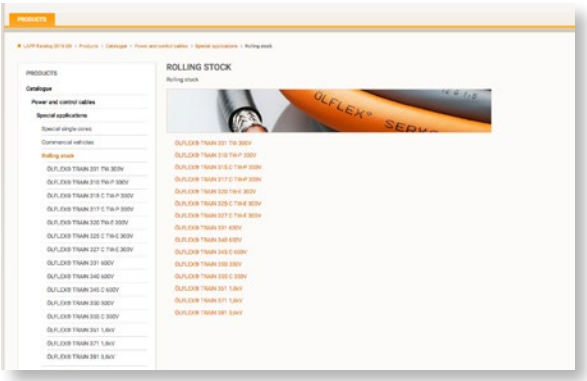
Selection from the LAPP product range

Based on decades of experience as a full-service provider for electrical cables, cable connections and accessories, LAPP has rounded out its portfolio with products for the railway industry and can now offer its customers high-quality solutions in this sector as well.

The table below provides an overview of our power and control cables for rail vehicles. You can find the right cable glands, connector inserts, protective conduit systems, crimping accessories and automation products in our special catalogue or this main catalogue.

ÖLFLEX® TRAIN – Product overview

Product	Type standard	Nominal voltage	Type	Number of cores	Cross-section mm²	Temperature	Shielding	Fire behaviour EN 45545-2	Fire behaviour NF 16-101
EN 50306 - Thin-wall cables									
ÖLFLEX® TRAIN 301 TW 300V	EN 50306-2	300/500 V	M	1	0.5 – 2.5	-45°C – +120°C		HL1 - HL3	C, F0
ÖLFLEX® TRAIN 310 TW-P 300V	EN 50306-4 1P	300/500 V	MM	4 – 48	0.5 – 2.5	-45°C – +120°C		HL1 - HL3	C, F0
ÖLFLEX® TRAIN 315 C TW-P 300V	EN 50306-4 3P	300/500 V	MM S	2 – 8	0.5 – 2.5	-45°C – +120°C	x	HL1 - HL3	C, F0
ÖLFLEX® TRAIN 317 C TW-P 300V	EN 50306-4 5P	300/500 V	MM S	2x2 – 7x2	0.5 – 1.5	-45°C – +120°C	x	HL1 - HL3	C, F1
ÖLFLEX® TRAIN 320 TW-E 300V	EN 50306-4 1E	300/500 V	MM	4 – 48	0.5 – 2.5	-45°C – +120°C		HL1 - HL3	C, F0
ÖLFLEX® TRAIN 325 C TW-E 300V	EN 50306-4 3E	300/500 V	MM S	2 – 8	0.5 – 2.5	-45°C – +120°C	x	HL1 - HL3	C, F0
ÖLFLEX® TRAIN 327 C TW-E 300V	EN 50306-4 5E	300/500 V	MM S	2x2 – 7x2	0.5 – 1.5	-45°C – +120°C	x	HL1 - HL3	C, F1
EN 50264 - Reduced wall thicknesses									
ÖLFLEX® TRAIN 331 600V	EN 50264-3-1	0.6/1 kV	M	1	1 – 300	-45°C – +120°C		HL1 - HL3	C, F0
ÖLFLEX® TRAIN 340 600V	EN 50264-3-2	0.6/1 kV	MM	2 – 4	1.5 – 50	-45°C – +120°C		HL1 - HL3	C, F0
ÖLFLEX® TRAIN 345 C 600V	EN 50264-3-2	0.6/1 kV	MM S	2 – 4	1.5 – 50	-45°C – +90°C	x	HL1 - HL3	C, F0
ÖLFLEX® TRAIN 350 300V	EN 50264-3-2	300/500 V	MM	2 – 40	1 – 2.5	-45°C – +90°C		HL1 - HL3	C, F0
ÖLFLEX® TRAIN 355C 300V	EN 50264-3-2	300/500 V	MM S	2 – 40	1 – 2.5	-45°C – +90°C	x	HL1 - HL3	C, F0
ÖLFLEX® TRAIN 361 1.8kV	EN 50264-3-1	1.8/3.6 kV	M	1	1.5 – 300	-45°C – +90°C		HL1 - HL3	C, F1
ÖLFLEX® TRAIN 371 1.8kV	EN 50264-3-1	1.8/3.6 kV	MM	1	1.5 – 300	-45°C – +90°C		HL1 - HL3	C, F1
ÖLFLEX® TRAIN 381 3.6kV	EN 50264-3-1	3.6/6 kV	MM	1	2.5 – 300	-45°C – +90°C		HL1 - HL3	C, F1



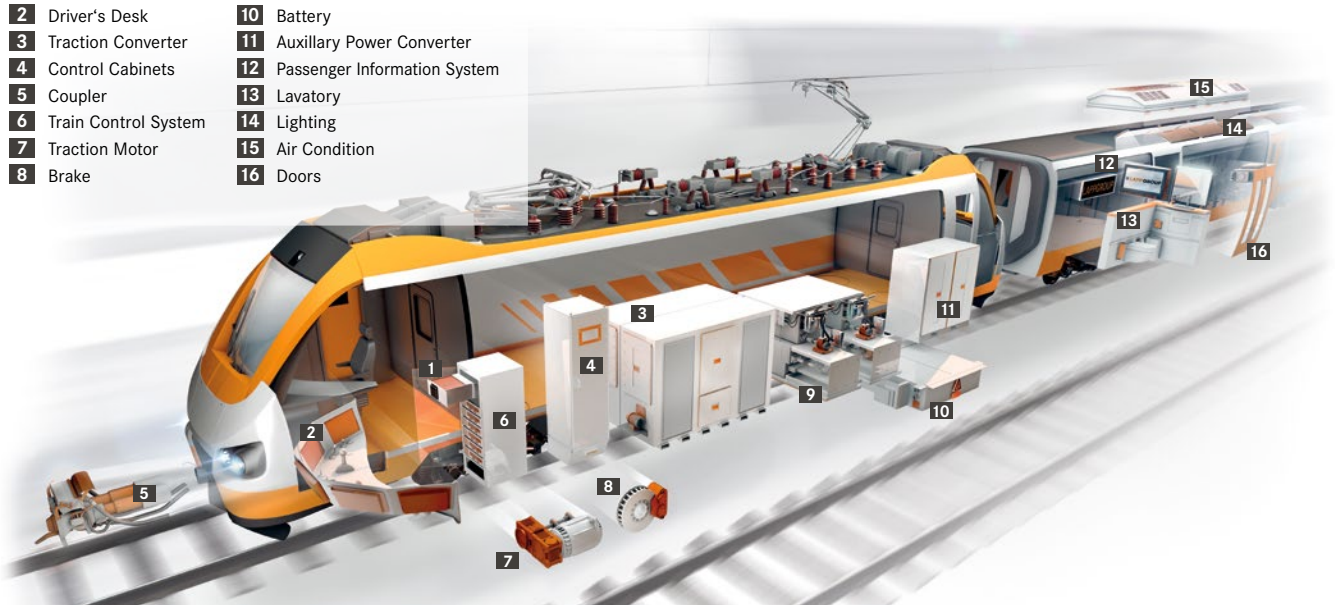
Online catalogue

Our online catalogue contains more detailed information about our ÖLFLEX® TRAIN products.

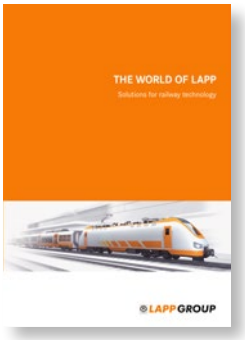
www.lappgroup.com/online-catalogue/train

Products for the railway industry at a glance

1 Brake
2 Driver's Desk
3 Traction Converter
4 Control Cabinets
5 Coupler
6 Train Control System
7 Traction Motor
8 Brake
9 Blower
10 Battery
11 Auxillary Power Converter
12 Passenger Information System
13 Lavatory
14 Lighting
15 Air Condition
16 Doors



Product	Areas of use	Product	Areas of use
ÖLFLEX® Power and control cables – EN 50306 - Thin-wall cables		**ÖLFLEX® Power and control cables – EN 50264 - Reduced wall thicknesses**	
ÖLFLEX® TRAIN 301 TW 300V	1 2 4 6 8 11 12 13 14 16	ÖLFLEX® TRAIN 331 600V	1 2 3 4 5 6 8 9 10 11 13 14 15 16
ÖLFLEX® TRAIN 310 TW-P 300V	1 4 6 8 11 12 13 15	ÖLFLEX® TRAIN 340 600V	1 3 4 5 8 9 11 13 15
ÖLFLEX® TRAIN 315 C TW-P 300V	1 4 6 8 11 12 13 15	ÖLFLEX® TRAIN 345 C 600V	1 3 4 5 8 11 13 15
ÖLFLEX® TRAIN 317 C TW-P 300V	1 2 3 4 6 8 11 12 13 15 16	ÖLFLEX® TRAIN 350 300V ÖLFLEX® TRAIN 355 C 300V	4 5 6 13
ÖLFLEX® TRAIN 320 TW-E 300V	1 3 8 11 16	ÖLFLEX® TRAIN 361 1.8kV	3 4 7 9 10 11 15
ÖLFLEX® TRAIN 325 C TW-E 300V	1 3 8 11 16	ÖLFLEX® TRAIN 371 1.8kV	3 4 5 7 9 10 11
ÖLFLEX® TRAIN 327 C TW-E 300V	1 3 5 6 8 11 15	ÖLFLEX® TRAIN 381 1.8kV	7
UNITRONIC® Data communication systems		**SKINTOP® Cable glands**	
UNITRONIC® TRAIN	1 2 3 4 5 6 8 10 11 13 14 15 16		1 3 4 5 6 7 8 9 10 11 12 13 15
ETHERLINE® Data communication systems for ETHERNET technology		**SILVYN® Protective cable conduit systems and cable carrier systems**	
ETHERLINE® TRAIN	1 2 3 4 5 6 8 11 12 13 15 16		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
EPIC® Industrial connectors		**FLEXIMARK® Marking systems**	
	1 2 3 4 5 6 8 9 10 11 12 15		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



Railway technology catalogue

Our railway technology catalogue contains our comprehensive and growing range of products for rail vehicles.

The catalogue is available to download here:
www.lappkabel.com/catalogues.html

H1Z2Z2-K

Cross-linked solar cables - type H1Z2Z2-K, certified according to EN 50618

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- H1Z2Z2-K (type according to EN 50618)
- Substitudes previous ÖLFLEX® SOLAR XLR-R

Benefits

- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- For outdoor applications
- Not suitable for direct burial, installation according to IEC 60364-5-52, respectively HD 60364-5-52

Application range

- For use in photovoltaic-systems with rated voltage 1500 V DC
- For the cabling between the solar modules and as extension cable between the module strings and the DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated PV systems

Product features

- Flame retardant acc. to IEC 60332-1-2
- Weather/UV-resistant acc. to EN 50618, appendix E
- Ozone-resistant according to EN 50396
- Good notch and abrasion resistance
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)

Norm references / Approvals

- H1Z2Z2-K (type according to EN 50618)
- Items with other cross-sections on request

Product Make-up

- Fine-wire, tinned-copper conductor
- Coreinsulation made of cross-linked copolymer
- Colour of core insulation: white
- Outer sheath made of cross-linked copolymer
- Outer sheath colour: black, red or blue

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
AC U0/U : 1,0/1,0 kV
DC U0/U : 1,5/1,5 kV
Max. permissible operating voltage: DC 1,8 kV

Test voltage
AC 6500 V

Current rating
Im compliance with EN 50618, Table A.3

Temperature range
-40°C to +120°C max. conductor temperature based on EN 60216-1
Ambient temperature range according to EN 50618: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
H1Z2Z2-K				
Core insulation: white / Outer sheath: black				
1023552	4	5.8	38.4	62
1023553	6	6.3	57.6	84
1023554	10	7.4	96	126
1023555	16	8.1	153.6	197
1023590	25	10.3	240	270
1023591	35	11.8	336	370
Core insulation: white / Outer sheath: red				
1023572	4	5.8	38.4	62
1023573	6	6.3	57.6	84
1023574	10	7.4	96	126
1023575	16	8.1	153.6	197
Core insulation: white / Outer sheath: blue				
1023582	4	5.8	38.4	62
1023583	6	6.3	57.6	84
1023584	10	7.4	96	126
1023585	16	8.1	153.6	197

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® CRIMPTOOL
- Cable shears with double edge refer to page 980
- EPIC® SOLAR 4 M refer to page 673
- EPIC® SOLAR 4 F refer to page 673
- KS 20 cable shears

NEW

ÖLFLEX® SOLAR XLWP

Electron beam cross-linked solar cables with optimized performance in water - EN 50618 type

Info

- Optimised cable design - constant high volume resistance even after long-term period in water
- H1Z2Z2-K (type according to EN 50618)
- Substitudes previous ÖLFLEX® SOLAR XLR WP

Benefits

- The alternative for long-term storage in water, e.g. as it can occur in case after flooding or in buried conduits
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- Extruded colour stripe serves as reverse polarity protection during installation.
- Exact quantity control during installation by meter marking on the cable sheath

Application range

- For underground installation in conduits, in which water, heat and moisture can accumulate
- For floating PV / canal top installations where cables are in contact with water or exposed to high humidity (see data sheet for more details)
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Suitable for direct burial: see data sheet

Product features

- Weather/UV-resistant acc. to EN 50618, appendix E
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLWP = X-Linked Water-Proof
  Proven electron beam cross-linked quality

Norm references / Approvals

- H1Z2Z2-K (type according to EN 50618)
- Items with other cross-sections on request

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Colour of core insulation: white
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: black respectively black with red stripe

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description:
Flexible cable

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
AC U0/U : 1,0/1,0 kV
DC U0/U : 1,5/1,5 kV
Max. permissible operating voltage:
DC 1,8 kV

Test voltage
AC 6500 V

Current rating
Im compliance with EN 50618, Table A.3

Temperature range
-40°C to +120°C max. conductor temperature based on EN 60216-1
Ambient temperature range according to EN 50618: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLWP				
Core insulation: white / Outer sheath: black				
1023601	4	5.8	38.4	68.1
1023602	6	6.4	57.6	91.6
1023603	10	7.6	96	138.6
1023604	16	9.1	153.6	209.7
Core insulation: white / Outer sheath: black with red stripe				
1023621	4	5.8	38.4	68.1
1023622	6	6.4	57.6	91.6
1023623	10	7.6	96	138.6
1023624	16	9.1	153.6	209.7

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Cable shears with double edge refer to page 980
- EPIC® SOLAR 4 M refer to page 673
- EPIC® SOLAR 4 F refer to page 673
- UNIVERSAL STRIP stripping tool refer to page 990
- KS 20 cable shears

ÖLFLEX® TORSION FRNC

Cold and oil-resistant cables for flexible applications under torsional load, halogen-free - 0.6/1 kV

Info

- Torsion resistant, Cold flexible and Oil resistant for drip loops
- Halogen-free, Highly flame retardant, Low smoke density

ÖLFLEX® TORSION D FRNC

Cold and oil-resistant cables for flexible applications under torsional load, halogen-free - 0.6/1 kV

Info

- Torsion resistant, Cold flexible and Oil resistant for drip loops
- Halogen-free, Highly flame retardant, Low smoke density

Application range

- Stationary or Flexible
- Torsion in Wind Turbines

Product features

- Torsion resistant up to ±150 °/m for the drip loop of wind turbine generators
- Resistant to weather, abrasion, temperature, sunlight (ISO 4892-2) and ozone (EN 50396)
- Resistant to splashes of sea water as well as broad oil resistance, incl. EN 60811-404 and UL OIL RES I + II
- Fire behaviour:
  - Halogen-free (IEC 60754-1);
  - Low corrosivity (IEC 60754-2);
  - Low smoke density (IEC 61034-2);
  - Highly flame retardant (IEC 60332-3-24 and -25; IEC 60332-1-2)

Norm references / Approvals

- UL AWM Style 21288

Product Make-up

- Extra-fine wire conductor made of bare copper
- Core insulation: polyolefin compound
- Optional, overall shielding (D version) reducing electromagnetic interferences by tinned copper wire wrapping
- Outer sheath: special compound, halogen-free, black (RAL 9005)

Technical data

Classification ETIM 5/6
ÖLFLEX® TORSION FRNC
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable
ÖLFLEX® TORSION D FRNC
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
HD 308 coloured up to 5 cores, from 6 cores all black with white numbers (except PE)
Paired signal cables: DIN 47100

Conductor stranding
IEC 60228, Cl. 6

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Flexible: 10x Outer diameter
Stationary: 6x Outer diameter

Nominal voltage
IEC U_0/U=0.6/1kV; UL 1kV

Test voltage
ÖLFLEX® TORSION FRNC
C/C: 4000 V
ÖLFLEX® TORSION D FRNC
C/C: 4000 V
C/S: 2000 V

Temperature range
-40°C to +90°C
UL: max. +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® TORSION FRNC				
1150373	12 G 1.0	13.2	115.2	274
1150378	16 G 1.0	14.8	153.6	392
1150271	3 G 1.5	9.0	43.2	131
1150272	4 G 1.5	9.7	57.6	156
1150273	5 G 1.5	10.6	72	183
1150275	7 G 1.5	12.6	100.8	253
1150279	12 G 1.5	15.3	172.8	386
1150311	3 G 2.5	10.4		181
1150312	4 G 2.5	11.3	96	242
1150313	5 G 2.5	12.4	120	258
1150350	3 G 4	11.9	115.2	254
1150351	4 G 4	13.0	153.6	313
1150357	5 G 6	16.0	288	486
1150362	5 G 10	20.5	480	799
ÖLFLEX® TORSION D FRNC - screened				
1150111	4 x 2.0 x 0.5	11.9	71	205
1150115	12 x 2.0 x 0.5	18.3	188	518
1150121	4 x 2.0 x 0.75	12.7	90	232
1150125	12 x 2.0 x 0.75	19.8	258	603
1150221	18 G 0.75	15.2	180	402
1150228	50 G 0.75	24.9	470	1079

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Drum
Details of the clamping force are available upon request, halogen-free.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

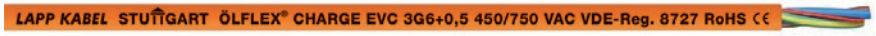
Similar products

ÖLFLEX® TORSION FRNC

- H07RN-F, enhanced version refer to page 88

ÖLFLEX® CHARGE

VDE EVC cable to charge electrically powered vehicles and for spiralization



Info

- VDE EVC type certified
- Halogen-free and flame-retardant
- Spiralizable

Benefits

- Charging process IEC 61851-1
- Low toxicity of flue in the event of fire
- Suitable for spiralization, except for 5G6mm²+1X0.5mm²

Product features

- Flame-retardant acc. IEC 60332-1-2 as well as Halogen-free acc. VDE-AR-E 2283-5/ appendices B+C, EN 50267-2-1, EN 50267-2-2, EN 50525-1/ appendix C, EN 60684-2
- UV-resistant acc. EN ISO 4892-2, 2.4.20, as well as ozone-resistant acc. EN 50396, 8.1.3, for outdoor use
- Cold-flexible as well as water-resistant according to AD6 of HD 516 and VDE-AR-E 2283-5, appendix I
- Resistance to acids and solutions according to EN 60811
- High resistance to usual vehicle chemicals according to VDE-AR-E 2283-5, appendix G

Norm references / Approvals

- <VDE> EVC cable type registration issued by the VDE according to the VDE application rule VDE-AR-E 2283-5

Product Make-up

- Finely stranded, bare copper conductors of IEC conductor class 5 acc. IEC 60228
- Core insulations of power cores made of special, halogen-free, cross-linked elastomer EVI-2 acc. VDE-AR-E 2283-5
- Core insulation control/ pilot core(s): Halogen-free, thermoplastic, special compound EVI-1 acc. VDE-AR-E 2283-5
- Halogen-free, outer sheath made of PUR in compliance with the normative compound EVM-1 acc. VDE-AR-E 2283-5
- Colour of the outer sheath: Orange similar to RAL 2003, further sheath colours on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002884
ETIM 5.0/6.0 Class-Description: Accessories E-Mobility

Core identification code
Power cores: colour-coded according to HD 308/VDE 0293-308
Control/ Pilot core: Red

Conductor stranding
Fine-wired/ Finely stranded according to IEC 60228, conductor class 5
Bare copper

Minimum bending radius
10 x outer diameter

Nominal voltage
U0/U = 450/750 V AC

Test voltage
At the core: 2.5 kV AC
At the finished cable: 3 kV AC

Protective conductor
Always with protective conductor (PE), hence uppercase „G“ as part of the dimension abbreviation

Temperature range
-25°C to +80°C
Maximum permissible conductor temperature: +90 °C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHARGE				
74880550	3G2,5+1X0,5	10.1	76.8	155
74880558	3G6+1X0,5	13.2	178	330
74880574	5G2,5+1X0,5	12.8	125	260
74880582	5G6+1X0,5	16	293	460

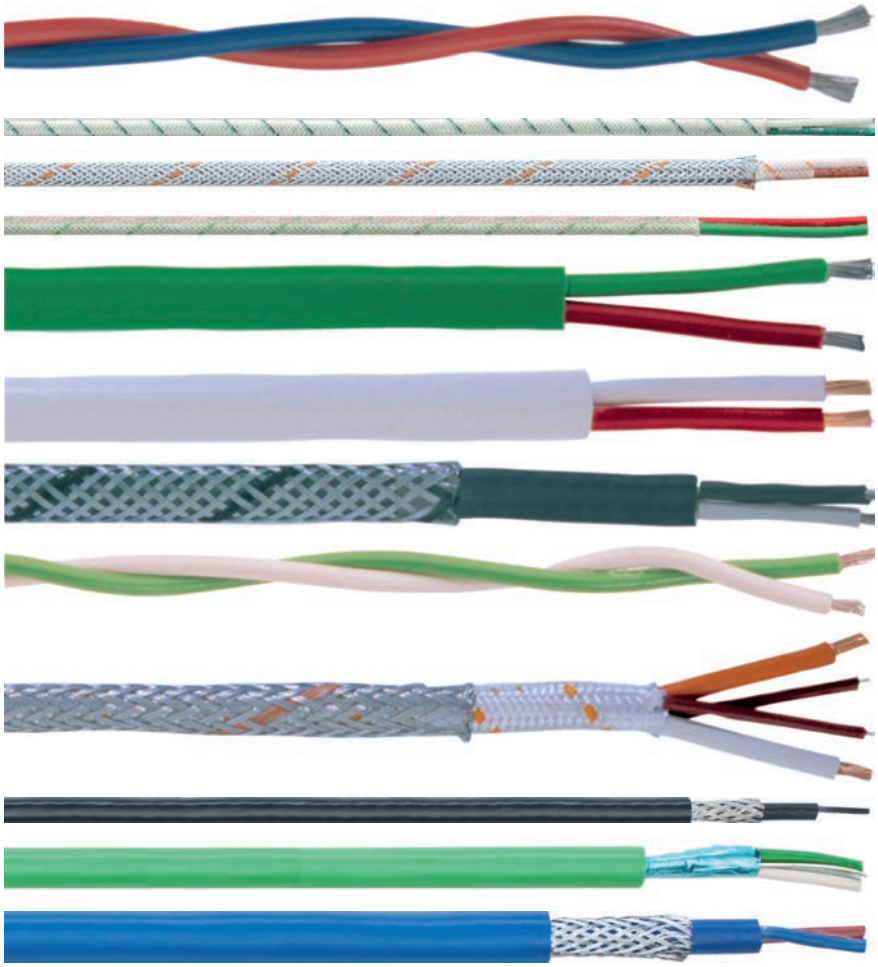
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Extension- and compensating cables, paired

PVC, silicone, FEP or glass fibre-insulated

Info

- Available in many different designs
- New: thermocouple cable type K



Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000838
ETIM 5.0/6.0 Class-Description:
Thermocouple cable

Based on
Limiting deviation in accordance with DIN and IEC in accordance with class 2

Conductor stranding
1.5 mm²: approx. 48 x 0.20 mm
0.75 mm²: approx. 24 x 0.20 mm
0.5 mm²: approx. 16 x 0.20 mm
0.22 mm²: approx. 7 x 0.20 mm

Minimum bending radius
Without metal braiding:
12 x cable diameter
With metal braiding:
15 x cable diameter

Temperature range
(referring to insulation and sheath material)
PVC: -5°C to +80°C
Silicone: -25°C to +180°C
Glass fibre: -25°C to +200°C
FEP: -100°C to +205°C
E-Glass: -25°C to +400°C

Norm references / Approvals

- Space-saving and flexible
- For more detailed information, see appendix T8 and data sheets

Application range

- Allows temperature measurement even in places where non-contact temperature measurement is not possible or reasonable
- The thermocouple is used to measure temperature as a part of monitoring the manufacturing process, thus the sheath material should be selected with reference to the maximum ambient temperature at its junction.
- Conductor materials (alloys):
  Fe/CuNi (LX, JX)
  Conductor alloys are identical to thermocouple alloys
- NiCr/Ni (K, KX, KCA)
  K and KX version - conductor alloys are identical to thermocouple alloys
  KCA version: compensating alloys (for KCA: Fe/CuNi), not identical to thermocouple alloys
- PtRh/Pt (RCB, SCB)
  Compensating alloys (for RCB, SCB: Cu/CuNi) are not identical to thermocouple alloys

Norm references / Approvals

- Colour identity code
  DIN 43710
  Negative conductor and outer sheath:
  Fe/CuNi: blue
  NiCr/Ni: green
  PtRh/Pt: white
  Positive conductor: always red
  IEC 60 584
  Positive conductor and outer sheath:
  Fe/CuNi: black
  NiCr/Ni: green
  PtRh/Pt: orange
  Negative conductor: always white

Product Make-up

- Design abbreviations:
  PVC: Polyvinylchloride
  SIL: Silicone rubber
  GL: Glass fibre
  FEP: Fluorinated ethylene propylene
  EGL: E-Glass fibre
  C: Copper braiding screen
  ST: Aluminium foil screen
  S: Steel wire braiding
- Design, for example PVC-PVC-S-PVC:
  - PVC core insulation
  - PVC inner sheath
  - Steel wire braiding
  - PVC outer sheath
- Examples shown (top to bottom):
  Fe/CuNi DIN 2 x 1.5 PVC
  NiCr/Ni IEC 2 x 1.5 GL-GL
  PtRh/Pt IEC 2 x 1.5 GL-GL-S
  NiCr/Ni DIN 2 x 1.5 SIL-GL
  NiCr/Ni DIN 2 x 1.5 PVC-PVC
  PtRh/Pt DIN 2 x 1.5 SIL-SIL
  Fe/CuNi IEC 2 x 1.5 SIL-SIL-S
  NiCr/Ni IEC 2 x 1.5 SIL
  PtRh/Pt IEC 2 x 1.5 SIL-GL-S
  Fe/CuNi IEC 2 x 0.22 PVC-PVC-C-PVC
  NiCr/Ni IEC 2 x 1.5 PVC-ST-PVC
  Fe/CuNi DIN 2 x 1.5 PVC-PVC-S-PVC

Power and control cables

LAPP

Special applications • Temperature measurement (extension and compensating cables)

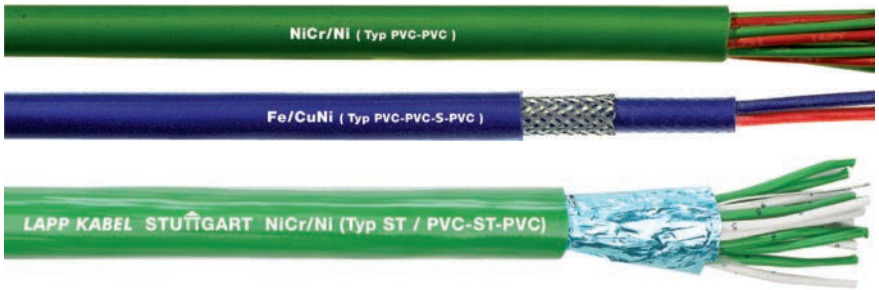
Article number	Reference/article designation	Thermocouple	Product Make-up	Cable design	Number of cores and mm² per conductor	Outer diameter [mm]	Outer dimensions, width x height (mm)	Weight (kg/km)
0.22 mm² extension and compensating cables								
0151051	KE 9-022 L	Fe/CuNi	DIN LX	PVC-PVC	2 x 0.22	4.0		22
0161051	KE 9-022 L	Fe/CuNi	IEC JX	PVC-PVC	2 x 0.22	4.0		22
0152051	KN 9-022 L	NiCr/Ni	DIN KCA	PVC-PVC	2 x 0.22	4.0		22
0162051	KN 9-022 L	NiCr/Ni	IEC KCA	PVC-PVC	2 x 0.22	4.0		22
0153051	KP 9-022 L	PtRh/Pt	DIN RCB, SCB	PVC-PVC	2 x 0.22	4.0		22
0163051	KP 9-022 L	PtRh/Pt	IEC RCB, SCB	PVC-PVC	2 x 0.22	4.0		22
0151052	KE 5-022 L-CY	Fe/CuNi	DIN LX	PVC-PVC-C-PVC	2 x 0.22	4.9		31
0161052	KE 5-022 L-CY	Fe/CuNi	IEC JX	PVC-PVC-C-PVC	2 x 0.22	4.9		31
0152052	KN 5-022 L-CY	NiCr/Ni	DIN KCA	PVC-PVC-C-PVC	2 x 0.22	4.9		31
0162052	KN 5-022 L-CY	NiCr/Ni	IEC KCA	PVC-PVC-C-PVC	2 x 0.22	4.9		31
0153052	KP 5-022 L-CY	PtRh/Pt	DIN RCB, SCB	PVC-PVC-C-PVC	2 x 0.22	4.9		31
0163052	KP 5-022 L-CY	PtRh/Pt	IEC RCB, SCB	PVC-PVC-C-PVC	2 x 0.22	4,9		31
1161011	KN FEP-SIL	NiCr/Ni	IEC KCA	FEP-SIL	2 x 0.22	3,8		22
1161007	K FEP-C-FEP	NiCr/Ni	IEC K	FEP-C-FEP	2 x 0.22	3.0		22
Thermocouple cable type K, 0,5 mm								
1161008	K FEP-FEP	NiCr/Ni	IEC K	FEP-FEP oválný	2 x 0.5		2.4 x 1.5	45
1161009	K GL-GL	NiCr/Ni	IEC K	EGL-EGL oválný	2 x 0.5		2.3 x 1.3	45
0.5 mm² extension and compensating cables								
0151030	KE 91 L	Fe/CuNi	DIN LX	PVC-PVC	2 x 0.5	5.4		45
0161030	KE 91 L	Fe/CuNi	IEC JX	PVC-PVC	2 x 0.5	5.4		45
0152040	KN 91 L	NiCr/Ni	DIN KCA	PVC-PVC	2 x 0.5	5.4		45
0162040	KN 91 L	NiCr/Ni	IEC KCA	PVC-PVC	2 x 0.5	5.4		45
0151040	KE 41 L-SIL	Fe/CuNi	DIN LX	SIL-SIL-S ovale	2 x 0.5		6.4 x 4.4	51
0161040	KE 41 L-SIL	Fe/CuNi	IEC JX	SIL-SIL-S ovale	2 x 0.5		6.4 x 4.4	51
0152030	KN 41 L-SIL	NiCr/Ni	DIN KCA	SIL-SIL-S ovale	2 x 0.5		6.4 x 4.4	51
0162030	KN 41 L-SIL	NiCr/Ni	IEC KCA	SIL-SIL-S ovale	2 x 0.5		6.4 x 4.4	51
0.75 mm² extension and compensating cables								
0151035	KE 92 L	Fe/CuNi	DIN LX	PVC-PVC	2 x 0.75	6.0		56
0161035	KE 92 L	Fe/CuNi	IEC JX	PVC-PVC	2 x 0.75	6.0		56
0152045	KN 92 L	NiCr/Ni	DIN KCA	PVC-PVC	2 x 0.75	6.0		56
0162045	KN 92 L	NiCr/Ni	IEC KCA	PVC-PVC	2 x 0.75	6.0		56
0151050	KE 42 L-SIL	Fe/CuNi	DIN LX	SIL-SIL-S ovale	2 x 0.75		6.4 x 4.4	58
0161050	KE 42 L-SIL	Fe/CuNi	IEC JX	SIL-SIL-S ovale	2 x 0.75		6.4 x 4.4	58
0152035	KN 42 L-SIL	NiCr/Ni	DIN KCA	SIL-SIL-S ovale	2 x 0.75		6.4 x 4.4	58
0162035	KN 42 L-SIL	NiCr/Ni	IEC KCA	SIL-SIL-S ovale	2 x 0.75		6.4 x 4.4	58
PVC-insulated versions 1,5 mm²								
0151001	KE 1 L	Fe/CuNi	DIN LX	PVC	2 x 1.5	5.4		40
0161001	KE 1 L	Fe/CuNi	IEC JX	PVC	2 x 1.5	5.4		40
0152001	KN 1 L	NiCr/Ni	DIN KCA	PVC	2 x 1.5	5.4		40
0162001	KN 1 L	NiCr/Ni	IEC KCA	PVC	2 x 1.5	5.4		40
0151010	KE 9 L	Fe/CuNi	DIN LX	PVC-PVC round	2 x 1.5	7.1		79
0161010	KE 9 L	Fe/CuNi	IEC JX	PVC-PVC round	2 x 1.5	7.1		79
0152010	KN 9 L	NiCr/Ni	DIN KCA	PVC-PVC round	2 x 1.5	7.1		79
0162010	KN 9 L	NiCr/Ni	IEC KCA	PVC-PVC round	2 x 1.5	7.1		79
0154010	KXN 9 L	NiCr/Ni	DIN KX	PVC-PVC round	2 x 1.5	7.1		79
0164010	KXN 9 L	NiCr/Ni	IEC KX	PVC-PVC round	2 x 1.5	7.1		79
0153010	KP 9 L	PtRh/Pt	DIN RCB, SCB	PVC-PVC round	2 x 1.5	7.1		79
0163010	KP 9 L	PtRh/Pt	IEC RCB, SCB	PVC-PVC round	2 x 1.5	7.1		79
0151017	KE 12 L	Fe/CuNi	DIN LX	PVC-PVC ovale	2 x 1.5		7.2 x 4.4	69
0161017	KE 12 L	Fe/CuNi	IEC JX	PVC-PVC ovale	2 x 1.5		7.2 x 4.4	69
0152017	KN 12 L	NiCr/Ni	DIN KCA	PVC-PVC ovale	2 x 1.5		7.2 x 4.4	69
0162017	KN 12 L	NiCr/Ni	IEC KCA	PVC-PVC ovale	2 x 1.5		7.2 x 4.4	69
0154011	KE 20 L	Fe/CuNi	DIN LX	PVC-ST-PVC	2 x 1.5	7.6		85
0164011	KE 20 L	Fe/CuNi	IEC JX	PVC-ST-PVC	2 x 1.5	7.6		85
0154012	KN 20 L	NiCr/Ni	DIN KCA	PVC-ST-PVC	2 x 1.5	7.6		85
0164012	KN 20 L	NiCr/Ni	IEC KCA	PVC-ST-PVC	2 x 1.5	7.6		85
0154013	KXN 20 L	NiCr/Ni	DIN KX	PVC-ST-PVC	2 x 1.5	7.6		85
0164013	KXN 20 L	NiCr/Ni	IEC KX	PVC-ST-PVC	2 x 1.5	7.6		85
0154014	KP 20 L	PtRh/Pt	DIN RCB, SCB	PVC-ST-PVC	2 x 1.5	7.6		85
0164014	KP 20 L	PtRh/Pt	IEC RCB, SCB	PVC-ST-PVC	2 x 1.5	7.6		85
0151011	KE 9 L-S	Fe/CuNi	DIN LX	PVC-PVC-S	2 x 1.5	8.0		140
0161011	KE 9 L-S	Fe/CuNi	IEC JX	PVC-PVC-S	2 x 1.5	8.0		140
0152011	KN 9 L-S	NiCr/Ni	DIN KCA	PVC-PVC-S	2 x 1.5	8.0		140
0162011	KN 9 L-S	NiCr/Ni	IEC KCA	PVC-PVC-S	2 x 1.5	8.0		140
0157514	KE 9 L-SY	Fe/CuNi	DIN LX	PVC-PVC-S-PVC	2 x 1.5	10.3		160
0167514	KE 9 L-SY	Fe/CuNi	IEC JX	PVC-PVC-S-PVC	2 x 1.5	10.3		160
0157513	KN 9 L-SY	NiCr/Ni	DIN KCA	PVC-PVC-S-PVC	2 x 1.5	10.3		160
0167513	KN 9 L-SY	NiCr/Ni	IEC KCA	PVC-PVC-S-PVC	2 x 1.5	10.3		160
0157515	KP 9 L-SY	PtRh/Pt	DIN RCB, SCB	PVC-PVC-S-PVC	2 x 1.5	10.3		160
0167515	KP 9 L-SY	PtRh/Pt	IEC RCB, SCB	PVC-PVC-S-PVC	2 x 1.5	10.3		160
Silicone-insulated versions 1.5 mm²								
0151003	KE 1 L-SIL	Fe/CuNi	DIN LX	SIL	2 x 1.5	5.4		40
0161003	KE 1 L-SIL	Fe/CuNi	IEC JX	SIL	2 x 1.5	5.4		40
0152003	KN 1 L-SIL	NiCr/Ni	DIN KCA	SIL	2 x 1.5	5.4		40
0162003	KN 1 L-SIL	NiCr/Ni	IEC KCA	SIL	2 x 1.5	5.4		40
0151022	KE 15 L-SIL	Fe/CuNi	DIN LX	SIL-SIL round	2 x 1.5	7.0		76
0161022	KE 15 L-SIL	Fe/CuNi	IEC JX	SIL-SIL round	2 x 1.5	7.0		76
0152022	KN 15 L-SIL	NiCr/Ni	DIN KCA	SIL-SIL round	2 x 1.5	7.0		76
0162022	KN 15 L-SIL	NiCr/Ni	IEC KCA	SIL-SIL round	2 x 1.5	7.0		76
0153022	KP 15 L-SIL	PtRh/Pt	DIN RCB, SCB	SIL-SIL round	2 x 1.5	7.0		76
0163022	KP 15 L-SIL	PtRh/Pt	IEC RCB, SCB	SIL-SIL round	2 x 1.5	7.0		76
0151023	KE 15 L-SIL-S	Fe/CuNi	DIN LX	SIL-SIL-S round	2 x 1.5	7.8		105
0161023	KE 15 L-SIL-S	Fe/CuNi	IEC JX	SIL-SIL-S round	2 x 1.5	7.8		105
0152023	KN 15 L-SIL-S	NiCr/Ni	DIN KCA	SIL-SIL-S round	2 x 1.5	7.8		105

Article number	Reference/article designation	Thermocouple	Product Make-up	Cable design	Number of cores and mm² per conductor	Outer diameter [mm]	Outer dimensions, width x height (mm)	Weight (kg/km)
0162023	KN 15 L-SIL-S	NiCr/Ni	IEC KCA	SIL-SIL-S round	2 x 1.5	7.8		105
0153023	KP 15 L-SIL-S	PtRh/Pt	DIN RCB, SCB	SIL-SIL-S round	2 x 1.5	7.8		105
0163023	KP 15 L-SIL-S	PtRh/Pt	IEC RCB, SCB	SIL-SIL-S round	2 x 1.5	7.8		105
0151007	KE 4 L-SIL-S	Fe/CuNi	DIN LX	SIL-SIL-S ovale	2 x 1.5		8.0 x 5.2	85
0161007	KE 4 L-SIL-S	Fe/CuNi	IEC JX	SIL-SIL-S ovale	2 x 1.5		8.0 x 5.2	85
0152007	KN 4 L-SIL-S	NiCr/Ni	DIN KCA	SIL-SIL-S ovale	2 x 1.5		8.0 x 5.2	85
0162007	KN 4 L-SIL-S	NiCr/Ni	IEC KCA	SIL-SIL-S ovale	2 x 1.5		8.0 x 5.2	85
0153007	KP 4 L-SIL-S	PtRh/Pt	DIN RCB, SCB	SIL-SIL-S ovale	2 x 1.5		8.0 x 5.2	85
0163007	KP 4 L-SIL-S	PtRh/Pt	IEC RCB, SCB	SIL-SIL-S ovale	2 x 1.5		8.0 x 5.2	85
0151019	KE 13 L-SIL	Fe/CuNi	DIN LX	SIL-GL ovale	2 x 1.5		6.0 x 3.3	50
0161019	KE 13 L-SIL	Fe/CuNi	IEC JX	SIL-GL ovale	2 x 1.5		6.0 x 3.3	50
0152019	KN 13 L-SIL	NiCr/Ni	DIN KCA	SIL-GL ovale	2 x 1.5		6.0 x 3.3	50
0162019	KN 13 L-SIL	NiCr/Ni	IEC KCA	SIL-GL ovale	2 x 1.5		6.0 x 3.3	50
0153019	KP 13 L-SIL	PtRh/Pt	DIN RCB, SCB	SIL-GL ovale	2 x 1.5		6.0 x 3.3	50
0151015	KE 11 L-SIL-S	Fe/CuNi	DIN LX	SIL-GL-S	2 x 1.5	6.7		82
0161015	KE 11 L-SIL-S	Fe/CuNi	IEC JX	SIL-GL-S	2 x 1.5	6.7		82
0152015	KN 11 L-SIL-S	NiCr/Ni	DIN KCA	SIL-GL-S	2 x 1.5	6.7		82
0162015	KN 11 L-SIL-S	NiCr/Ni	IEC KCA	SIL-GL-S	2 x 1.5	6.7		82
0153015	KP 11 L-SIL-S	PtRh/Pt	DIN RCB, SCB	SIL-GL-S	2 x 1.5	6.7		82
0163015	KP 11 L-SIL-S	PtRh/Pt	IEC RCB, SCB	SIL-GL-S	2 x 1.5	6.7		82
1161012	KP 11 L-SIL-S	NiCr/Ni	IEC KCA	SIL-GL-S oválný	2 x 1.5		6.8 x 4.1	82
Glass fibre-insulated versions 1.5 mm²								
0151005	KE 3 L	Fe/CuNi	DIN LX	GL-GL ovale	2 x 1.5		5.1 x 2.7	64
0161005	KE 3 L	Fe/CuNi	IEC JX	GL-GL ovale	2 x 1.5		5.1 x 2.7	64
0152005	KN 3 L	NiCr/Ni	DIN KCA	GL-GL ovale	2 x 1.5		5.1 x 2.7	64
0162005	KN 3 L	NiCr/Ni	IEC KCA	GL-GL ovale	2 x 1.5		5.1 x 2.7	64
0153005	KP 3 L	PtRh/Pt	DIN RCB, SCB	GL-GL ovale	2 x 1.5		5.1 x 2.7	64
0163005	KP 3 L	PtRh/Pt	IEC RCB, SCB	GL-GL ovale	2 x 1.5		5.1 x 2.7	64
0151006	KE 4 L-S	Fe/CuNi	DIN LX	GL-GL-S ovale	2 x 1.5		5.9 x 3.7	87
0161006	KE 4 L-S	Fe/CuNi	IEC JX	GL-GL-S ovale	2 x 1.5		5.9 x 3.7	87
0152006	KN 4 L-S	NiCr/Ni	DIN KCA	GL-GL-S ovale	2 x 1.5		5.9 x 3.7	87
0162006	KN 4 L-S	NiCr/Ni	IEC KCA	GL-GL-S ovale	2 x 1.5		5.9 x 3.7	87
0153006	KP 4 L-S	PtRh/Pt	DIN RCB, SCB	GL-GL-S ovale	2 x 1.5		5.9 x 3.7	87
0163006	KP 4 L-S	PtRh/Pt	IEC RCB, SCB	GL-GL-S ovale	2 x 1.5		5.9 x 3.7	87

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Extension- and compensating cables, multi-paired

PVC insulated - with and without steel wire armouring or foil screen



Info

- Version SY - Armoured against mechanical loads
  Version ST - Screened against electro-magnetical interference

Product Make-up

- Version Y:
  - Fine-wire conductor alloy
  - PVC core insulation
  - Cores twisted into layers
  - PVC outer sheath
- Version SY:
  - Design as version Y
  - Additional galvanised steel wire braiding
  - PVC outer sheath
- Version ST:
  - Design as verison Y
  - Cores twisted in pairs, pairs twisted in layers
  - Aluminium foil screening + drain wire
  - PVC outer sheath
- Design, for example PVC-PVC-S-PVC:
  - PVC core insulation
  - PVC inner sheath
  - Steel wire braiding
  - PVC outer sheath
- Design, for example PVC-ST-PVC:
  - PVC core insulation
  - STatic foil screen
  - PVC outer sheath
- Colour identity code
  DIN 43710
  Negative conductor and outer sheath:
  Fe/CuNi: blue
  NiCr/Ni: green
  PtRh/Pt: white
  Positive conductor: always red
  IEC 60 584
  Positive conductor and outer sheath:
  Fe/CuNi: black
  NiCr/Ni: green
  PtRh/Pt: orange
  Negative conductor: always white
- Extension-conductor alloys are identified with X, e.g. JX (Fe/CuNi)
  Compensating-conductor alloys are identified with C, e.g. KCA (NiCr/Ni)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000838
ETIM 5.0/6.0 Class-Description:
Thermocouple cable

Core identification code
From 4 cores in pairs with consecutively marked numbers (1-1, 2-2, 3-3, 4-4...)

Based on
Limiting deviation in accordance with DIN and IEC in accordance with class 2

Conductor stranding
48 x 0.20 mm

Minimum bending radius
For flexible use:
12.5 x outer diameter
Type SY with steel braid:
15 x outer diameter
Type ST with foil screen:
15 x outer diameter

Temperature range
(referring to insulation and sheath material)
Flexing: -5°C to +80°C
Fixed installation: -40°C to +80°C

Article number	Thermocouple	Product Make-up	Cable design	Number of cores and mm² per conductor	Outer diameter [mm]	Weight (kg/km)
Type Y without steel wire braiding						
0155001	Fe/CuNi	DIN-LX	PVC-PVC	4 x 1.5	8.2	130
0165001	Fe/CuNi	IEC-JX	PVC-PVC	4 x 1.5	8.2	130
0156001	NiCr/Ni	DIN-KCA	PVC-PVC	4 x 1.5	8.2	130
0166001	NiCr/Ni	IEC-KCA	PVC-PVC	4 x 1.5	8.2	130
0157001	PtRh/Pt	DIN-RCB/SCB	PVC-PVC	4 x 1.5	8.2	130
0167001	PtRh/Pt	IEC-RCB/SCB	PVC-PVC	4 x 1.5	8.2	130
0155002	Fe/CuNi	DIN-LX	PVC-PVC	6 x 1.5	10.2	200
0165002	Fe/CuNi	IEC-JX	PVC-PVC	6 x 1.5	10.2	200
0156002	NiCr/Ni	DIN-KCA	PVC-PVC	6 x 1.5	10.2	200
0166002	NiCr/Ni	IEC-KCA	PVC-PVC	6 x 1.5	10.2	200
0157002	PtRh/Pt	DIN-RCB/SCB	PVC-PVC	6 x 1.5	10.2	200
0167002	PtRh/Pt	IEC-RCB/SCB	PVC-PVC	6 x 1.5	10.2	200
0155003	Fe/CuNi	DIN-LX	PVC-PVC	8 x 1.5	11.2	238
0165003	Fe/CuNi	IEC-JX	PVC-PVC	8 x 1.5	11.2	238
0156003	NiCr/Ni	DIN-KCA	PVC-PVC	8 x 1.5	11.2	238
0166003	NiCr/Ni	IEC-KCA	PVC-PVC	8 x 1.5	11.2	238
0155005	Fe/CuNi	DIN-LX	PVC-PVC	12 x 1.5	13.3	335
0165005	Fe/CuNi	IEC-JX	PVC-PVC	12 x 1.5	13.3	335
0155007	Fe/CuNi	DIN-LX	PVC-PVC	16 x 1.5	15.0	447
0165007	Fe/CuNi	IEC-JX	PVC-PVC	16 x 1.5	15.0	447
0156007	NiCr/Ni	DIN-KCA	PVC-PVC	16 x 1.5	15.0	447
0166007	NiCr/Ni	IEC-KCA	PVC-PVC	16 x 1.5	15.0	447
0155010	Fe/CuNi	DIN-LX	PVC-PVC	24 x 1.5	19.0	555
0165010	Fe/CuNi	IEC-JX	PVC-PVC	24 x 1.5	19.0	555
0156010	NiCr/Ni	DIN-KCA	PVC-PVC	24 x 1.5	19.0	555
0166010	NiCr/Ni	IEC-KCA	PVC-PVC	24 x 1.5	19.0	555

Article number	Thermocouple	Product Make-up	Cable design	Number of cores and mm² per conductor	Outer diameter [mm]	Weight (kg/km)
Type SY with steel wire braiding						
0155501	Fe/CuNi	DIN-LX	PVC-PVC-S-PVC	4 x 1.5	11.4	240
0165501	Fe/CuNi	IEC-JX	PVC-PVC-S-PVC	4 x 1.5	11.4	240
0156501	NiCr/Ni	DIN-KCA	PVC-PVC-S-PVC	4 x 1.5	11.4	240
0166501	NiCr/Ni	IEC-KCA	PVC-PVC-S-PVC	4 x 1.5	11.4	240
0157501	PtRh/Pt	DIN-RCB/SCB	PVC-PVC-S-PVC	4 x 1.5	11.4	240
0167501	PtRh/Pt	IEC-RCB/SCB	PVC-PVC-S-PVC	4 x 1.5	11.4	240
0155502	Fe/CuNi	DIN-LX	PVC-PVC-S-PVC	6 x 1.5	13.0	355
0165502	Fe/CuNi	IEC-JX	PVC-PVC-S-PVC	6 x 1.5	13.0	355
0156502	NiCr/Ni	DIN-KCA	PVC-PVC-S-PVC	6 x 1.5	13.0	355
0166502	NiCr/Ni	IEC-KCA	PVC-PVC-S-PVC	6 x 1.5	13.0	355
0157502	PtRh/Pt	DIN-RCB/SCB	PVC-PVC-S-PVC	6 x 1.5	13.0	355
0167502	PtRh/Pt	IEC-RCB/SCB	PVC-PVC-S-PVC	6 x 1.5	13.0	355
0155503	Fe/CuNi	DIN-LX	PVC-PVC-S-PVC	8 x 1.5	13.8	410
0165503	Fe/CuNi	IEC-JX	PVC-PVC-S-PVC	8 x 1.5	13.8	410
0156503	NiCr/Ni	DIN-KCA	PVC-PVC-S-PVC	8 x 1.5	13.8	410
0166503	NiCr/Ni	IEC-KCA	PVC-PVC-S-PVC	8 x 1.5	13.8	410
0155505	Fe/CuNi	DIN-LX	PVC-PVC-S-PVC	12 x 1.5	17.9	550
0165505	Fe/CuNi	IEC-JX	PVC-PVC-S-PVC	12 x 1.5	17.9	550
0156505	NiCr/Ni	DIN-KCA	PVC-PVC-S-PVC	12 x 1.5	17.9	550
0166505	NiCr/Ni	IEC-KCA	PVC-PVC-S-PVC	12 x 1.5	17.9	550
0155507	Fe/CuNi	DIN-LX	PVC-PVC-S-PVC	16 x 1.5	19.4	730
0165507	Fe/CuNi	IEC-JX	PVC-PVC-S-PVC	16 x 1.5	19.4	730
0155510	Fe/CuNi	DIN-LX	PVC-PVC-S-PVC	24 x 1.5	23.8	847
0165510	Fe/CuNi	IEC-JX	PVC-PVC-S-PVC	24 x 1.5	23.8	847
Type ST with static overall screening						
0158500	Fe/CuNi	DIN-LX	PVC-ST-PVC	2 x 2 x 1.5	11.4	145
0168500	Fe/CuNi	IEC-JX	PVC-ST-PVC	2 x 2 x 1.5	11.4	145
0158501	NiCr/Ni	DIN-KCA	PVC-ST-PVC	2 x 2 x 1.5	11.4	145
0168501	NiCr/Ni	IEC-KCA	PVC-ST-PVC	2 x 2 x 1.5	11.4	145
0158503	Fe/CuNi	DIN-LX	PVC-ST-PVC	4 x 2 x 1.5	13.7	257
0168503	Fe/CuNi	IEC-JX	PVC-ST-PVC	4 x 2 x 1.5	13.7	257
0158504	NiCr/Ni	DIN-KCA	PVC-ST-PVC	4 x 2 x 1.5	13.7	257
0168504	NiCr/Ni	IEC-KCA	PVC-ST-PVC	4 x 2 x 1.5	13.7	257
0158506	Fe/CuNi	DIN-LX	PVC-ST-PVC	8 x 2 x 1.5	18.3	469
0168506	Fe/CuNi	IEC-JX	PVC-ST-PVC	8 x 2 x 1.5	18.3	469
0158507	NiCr/Ni	DIN-KCA	PVC-ST-PVC	8 x 2 x 1.5	18.3	469
0168507	NiCr/Ni	IEC-KCA	PVC-ST-PVC	8 x 2 x 1.5	18.3	469
0158509	Fe/CuNi	DIN-LX	PVC-ST-PVC	12 x 2 x 1.5	22.2	573
0168509	Fe/CuNi	IEC-JX	PVC-ST-PVC	12 x 2 x 1.5	22.2	573
0158510	NiCr/Ni	DIN-KCA	PVC-ST-PVC	12 x 2 x 1.5	22.2	573
0168510	NiCr/Ni	IEC-KCA	PVC-ST-PVC	12 x 2 x 1.5	22.2	573

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Conveyor technology

ÖLFLEX® CRANE NSHTÖU

Reelable cables for low and medium mechanical stress

Info

- Robust and efficient
- Suitable for outdoor use
- Integrated sheath supporting braid

Benefits

- Can be used as hawser, drum and towing cable as well as for energy supply chains
- Integrated supporting braid prevents undesirable cable twists, and the formation of so-called corkscrew effects

Application range

- For use in hoists, transport and conveyor systems
- Reeling/unreeling during operation without fixing
- In dry or damp interiors, outdoors, or not more than 2 weeks without interruption in industrial water
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- Good chemical, thermal and mechanical-resistance
- UV-resistant

Norm references / Approvals

- <VDE> NSHTÖU cable type certification acc. VDE 0250-814

Product Make-up

- Strands of tinned-copper wires
- Core insulation: rubber compound, type 3GI3
- Support braid integrated in the outer sheath
- Outer sheath: rubber compound, type 5GM3

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Flexible use:
Cables with outer diameter < 21,5 mm: 5 x outer diameter
Cables with outer diameter > 21,5 mm: 6,25 x outer diameter

Nominal voltage
U0/U: 600/1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Current rating
VDE 0298 Part 4

Temperature range
Flexible use: -25°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CRANE NSHTÖU				
0043006	3 G 1.5	14	43.2	190
00430053	4 G 1.5	14.8	57.6	220
00430073	5 G 1.5	15.7	72	260
0043008	7 G 1.5	18.2	100.8	380
0043009	12 G 1.5	23.9	172.8	720
0043010	18 G 1.5	23.9	259.2	770
0043011	24 G 1.5	27.1	345.6	1000
0043012	30 G 1.5	30.2	432	1320
0043013	3 G 2.5	15.5	72	250
00430303	4 G 2.5	16.9	96	330
00430143	5 G 2.5	18	120	390
0043015	7 G 2.5	20.6	168	510
0043016	12 G 2.5	27.4	288	970
0043017	18 G 2.5	27.4	432	1100

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0043018	24 G 2.5	31.6	576	1450
0043019	30 G 2.5	36.3	720	1950
00430203	4 G 4	18.4	153.6	440
00430333	5 G 4	19.6	192	520
00430213	4 G 6	19.8	230.4	530
00430343	5 G 6	21.7	288	690
00430223	4 G 10	23.4	384	830
00430003	5 G 10	25.2	480	1000
00430233	4 G 16	25.5	614.4	1170
00430323	5 G 16	27.5	768	1400
00430243	4 G 25	32.6	960	1830
00430253	4 G 35	34.8	1344	2280
00430263	4 G 50	40.6	1920	3220
00430283	4 G 70	44.8	2688	4200
00430293	4 G 95	51.2	3648	5530

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 170
- ÖLFLEX® CRANE PUR refer to page 171

Accessories

- Ratchet cutter refer to page 980
- STAR STRIP stripping tool refer to page 985
- KT cable shears

ÖLFLEX® CRANE VS (N)SHTÖU

Reelable cables for medium to high mechanical stress

Info

- Reinforced outer sheath design
- Central and tear-resistant supporting element
- Suitable for extreme tensile stress

Benefits

- The central supporting element absorbs the tensile loads that occur, thereby allowing reeling, unreeling and deflection for free-hanging cables even over large distances.
- Reeling, unreeling and guiding operations also impose tensile stresses on the cables
- Integrated supporting braid prevents undesirable cable twists, and the formation of so-called corkscrew effects

Application range

- For use in hoists, transport and conveyor systems
- Cables are reeled, unreeled, and guided by roller trains
- In dry or damp interiors, outdoors, or not more than 2 weeks without interruption in industrial water
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- Good chemical, thermal and mechanical-resistance

Norm references / Approvals

- Based on VDE 0250-814 (NSHTÖU)

Product Make-up

- Strands of tinned-copper wires
- Core insulation: rubber compound, type 3GI3
- Central supporting element
- Support braid integrated in the outer sheath
- Outer sheath: rubber compound, type 5GM5

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Flexible use: 7.5 x outer diameter

Nominal voltage
U0/U: 600/1000 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Current rating
VDE 298 Part 4

Temperature range
Flexible use: -25°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Tensile strength (N)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CRANE VS (N)SHTÖU					
0044008	7 G 1.5	18.8	2000	100.8	430
0044009	12 G 1.5	25.3	2000	172.8	820
0044010	18 G 1.5	25.3	2000	259.2	930
0044011	24 G 1.5	30.1	2000	345.6	1260
0044036	36 G 1.5	34	2000	518.4	1650
0044015	7 G 2.5	21.6	2000	168	630
0044016	12 G 2.5	29.4	2000	288	1150
00440333	5 G 4	19.6	2000	192	510
00440223	4 G 10	23.4	2000	384	830
00440233	4 G 16	25.5	2000	614.4	1170
00440323	5 G 16	27.5	2400	768	1400
00440243	4 G 25	32.6	3000	960	1850
00440253	4 G 35	34.8	4000	1344	2250
00440263	4 G 50	40.6	6000	1920	3200
00440283	4 G 70	44.8	8000	2688	4200
00440293	4 G 95	51.2	11000	3648	5550

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CRANE NSHTÖU refer to page 169
- ÖLFLEX® CRANE PUR refer to page 171

Accessories

- Ratchet cutter refer to page 980
- EASY STRIP stripping and cutting tool refer to page 988
- V 1311-A pressing pliers, hydraulic refer to page 1014
- STAR STRIP stripping tool refer to page 985
- KT cable shears
- PVL 1300 pressing pliers battery-operated refer to page 1015

ÖLFLEX® CRANE PUR

Reelable polyurethane cables for low, medium and high mechanical stress

Info

- Multifunctional application possibilities, flexible use down to -40°C
- Lightweight due to minimised diameters
- Halogen-free

Benefits

- Designed with a smaller outer diameter to save space and weight
- Cost-saving due to the use of smaller drums, guide rollers, as well as drive engines when possible
- Reeling, unreeling and guiding operations also impose tensile stresses on the cables
- The central supporting element absorbs the tensile loads that occur, thereby allowing reeling, unreeling and deflection for free-hanging cables even over large distances.
- Integrated supporting braid prevents undesirable cable twists, and the formation of so-called corkscrew effects

Application range

- For use in hoists, transport and conveyor systems
- Cables are reeled, unreeled, and guided by roller trains
- In dry or damp interiors, outdoors, or not more than 2 weeks without interruption in industrial water
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5

Product features

- Halogen-free and flame-retardant (IEC 60332-1-2)
- Oil-resistant according to EN 60811-404
- Good chemical, thermal and mechanical-resistance

Product Make-up

- Conductor made of bare copper wires
- Core insulation: TPE compound
- Central supporting element
- Support braid integrated in the outer sheath
- Outer sheath: PUR compound, halogen-free

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexible use: 7.5 x outer diameter

Nominal voltage
U0/U: 600/1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Current rating
VDE 298 Part 4

Temperature range
Flexible use: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Tensile strength (N)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CRANE PUR					
0045207	4 G 1.5	10.9	500	57.6	169
0045209	5 G 1.5	11.6	1000	72	197
0045210	7 G 1.5	12.9	2500	100.8	239
0045211	12 G 1.5	17.6	2500	172.8	401
0045212	18 G 1.5	17.5	2500	259.2	507
0045213	24 G 1.5	20.7	2500	345.6	673
0045215	30 G 1.5	28.9	3000	432	1100
0045214	36 G 1.5	31.4	3000	518.4	1350
0045216	4 G 2.5	12.2	500	96	227
0045218	5 G 2.5	13.2	2000	120	274
0045220	7 G 2.5	15.4	3000	168	358
0045221	12 G 2.5	21.6	3000	288	619
0045222	18 G 2.5	21.5	3000	432	793
0045223	24 G 2.5	25.5	3000	576	1123
0045224	30 G 2.5	34.7	3000	720	1641

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Tensile strength (N)	Copper index (kg/km)	Weight (kg/km)
0045225	4 G 4	14.3	1000	153.6	341
0045227	5 G 4	15.5	2000	192	411
0045228	4 G 6	16.6	1500	230.4	457
0045229	5 G 6	17.7	2000	288	538
0045235	7 G 6	21.5	2500	403	750
0045230	4 G 10	19.2	2000	384	674
0045237	5 G 10	21.6	2500	480	825
0045231	4 G 16	22.2	2500	614.4	966
0045238	5 G 16	25.6	3500	768	1222
0045232	4 G 25	27.6	3500	960	1506
0045233	4 G 35	31	4500	1344	2004
0045234	4 G 50	36.1	6000	1920	2838
0045240	3x25+3G6	25.7	2000	892.8	1380
0045241	3x35+3G6	27.6	2500	1180.8	1695
0045242	3x50+3G10	32.1	3500	1728	2307

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CRANE NSHTÖU refer to page 169
- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 170

Accessories

- Ratchet cutter refer to page 980
- EASY STRIP stripping and cutting tool refer to page 988
- KT cable shears

ÖLFLEX® CRANE

Highly flexible and weather-proof rubber cables with support element

Info

- Suitable for outdoor use
- Integrated supporting element
- Also suitable for power chains and cable trolley systems

Benefits

- Weather-resistant for harsh environmental conditions
- Very flexible due to extra-fine wire conductor design
- Cables up to a max. 24 cores can also be used in power chains

Application range

- Machinery and equipment that are permanently exposed to the weather; conveying and hoisting equipment; construction machinery; shipyard machinery
- Suitable for use in special conditions, such as not more than 2 weeks without interruption of submersion in industrial or sea water
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5
- For highly flexible applications, please follow the assembly guidelines for ÖLFLEX® FD cables in power chains; see appendix T3

Product features

- Flame-retardant according IEC 60332-1-2
- Not suitable for use on guide pulleys or drums under tensile load
- Refer to the article table for the tensile strength of the support element
- The cable should be installed in a way that the supporting element can absorb the tensile forces
- The mobility of the cores must not be affected by the clamps

Norm references / Approvals

- Based on VDE 0250

Product Make-up

- Conductor made of bare copper wires
- Core insulation: rubber compound
- Special supporting element as strain relief
- Outer sheath: rubber compound, type EM2

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
0.15 mm wire diameter at 1.0 mm²
0.20 mm wire diameter from 1.5 mm²

Minimum bending radius
Flexible use: 12.5 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexible use: -25°C to +80°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Tensile strength (N)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CRANE					
0039001	2 X 1,0	7.4	300	19.2	89
0039002	3 G 1,0	8.3	300	28.8	106
00390033	4 G 1,0	8.9	300	38.4	127
00390043	5 G 1,0	10.4	300	48	149
0039107	7 G 1,0	12.9	300	67.2	206
0039109	9 G 1,0	14.4	300	86.4	281
0039054	12 G 1,0	18.5	360	115.2	422
0039055	18 G 1,0	19.2	540	172.8	451
0039056	24 G 1,0	22.1	720	230.4	646
0039057	36 G 1,0	26.1	1080	345.6	863
0039017	2 X 1,5	8	300	28.8	108
0039018	3 G 1,5	8.7	300	43.2	128
00390193	4 G 1,5	9.9	300	57.6	158
00390203	5 G 1,5	10.9	300	72	188
0039061	7 G 1,5	14	315	100.8	260
0039208	8 G 1,5	15.2	360	115.2	300
0039209	9 G 1,5	15.9	405	129.6	375
0039210	10 G 1,5	17	450	144	427
0039058	12 G 1,5	19.9	540	172.8	557

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Tensile strength (N)	Copper index (kg/km)	Weight (kg/km)
0039059	18 G 1,5	20.9	810	259.2	608
0039060	24 G 1,5	23.4	1080	345.6	825
0039034	2 X 2,5	9.7	300	48	145
0039035	3 G 2,5	10.2	300	72	173
00390363	4 G 2,5	11.6	300	96	219
00390373	5 G 2,5	12.4	375	120	259
0039307	7 G 2,5	16.6	525	168	378
0039309	9 G 2,5	18.9	675	216	518
0039312	12 G 2,5	23.3	900	288	770
0039316	16 G 2,5	22.8	1200	384	749
0039318	18 G 2,5	24.4	1350	432	837
0039324	24 G 2,5	28.5	1800	576	1184
00390463	4 G 4	15.2	480	153.6	307
00390473	5 G 4	16.8	600	192	394
00390483	4 G 6	16.8	720	230.4	409
00390493	5 G 6	19.2	900	288	528
00390503	4 G 10	21.8	1200	384	698
00390513	5 G 10	24.6	1500	480	853
00390523	4 G 16	25.4	1920	614.4	974
00390533	5 G 16	28	2400	768	1226

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CRANE NSHTÖU refer to page 169
- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 170

Accessories

- CLICK System

ÖLFLEX® CRANE 2S

Flexible at cold temperatures, PVC cables with external steel supporting elements

Info

- Product change! Details were not fixed at time of going to press. Please refer to www.lappkabel.com/products.html

Benefits

- Two steel support elements that are integrated into the outer sheath on opposite sides absorb the tensile forces during operation
- Tensile strength of 2100 N per supporting element

Application range

- For connecting movable control panels and consoles
- As a self-supporting shaft cable; in high rack systems
- Suitable for outdoor applications
- Do not use for lift applications!
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3

Product features

- Flame-retardant according IEC 60332-1-2
- Flexible at low temperatures

Norm references / Approvals

- Based on VDE 0250

Product Make-up

- Conductor made of bare copper wires
- Special PVC-based core insulation
- Special textile wrapping to improve sliding movement between the sheath and cores
- Special PVC-based outer sheath
- Opposing, integrated steel supporting elements

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexible use: 20 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexible use: -15°C to +70°C

Article number	Number of cores and mm² per conductor	Cable Ø (mm)	Distance between strain wires (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CRANE 2S					
0027503	8 G 1,5	14.7	20	115	373
0027504	12 G 1,5	16.2	21	172.8	439
0027505	20 G 1,5	20.1	25	288	674

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EASY STRIP stripping and cutting tool refer to page 988

ÖLFLEX® LIFT

Flexible at cold temperatures, PVC lift cables with supporting element

Info

- Product change! Details were not fixed at time of going to press. Please refer to www.lappkabel.com/products.html

Benefits

- Special cable design for a long service life
- Very flexible due to extra-fine wire conductor design

Application range

- Lift cable that ensures the electrical integrity in various areas of lift construction
- Suitable for use in outdoor lifts
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5

Product features

- Flame-retardant according IEC 60332-1-2
- Good weather-resistance

Product Make-up

- Conductor made of bare copper wires
- Special PVC-based core insulation
- Supporting element made of hemp or aramid
- Fleece-wrapping between cores and sheath
- Special PVC-based outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000826
ETIM 5.0/6.0 Class-Description: Elevator cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Suspension length
refer to article table

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexible use: 20 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexible use: -15°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Max. suspension length (m)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® LIFT					
0027020	7 G 1.0	11.5	80	67.2	178
0027022	12 G 1.0	16.3	80	115.2	332
0027024	18 G 1.0	16.4	70	172.8	405
0027027	24 G 1.0	19.4	60	230.4	533
0027029	36 G 1.0	25.1	90	345.6	887

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® LIFT T refer to page 175

Accessories

- Ratchet cutter refer to page 980
- KT cable shears
- Round cable wedged clamps

ÖLFLEX® LIFT T

Flexible at cold temperatures, PVC lift cables with textile braiding and supporting element

Info

- Product change! Details were not fixed at time of going to press. Please refer to www.lappkabel.com/products.html

Benefits

- Special cable design for a long service life
- Able to withstand mechanical stress at high suspension lengths
- Very flexible due to extra-fine wire conductor design

Application range

- Lift cable that ensures the electrical integrity in various areas of lift construction
- Suitable for use in outdoor lifts
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- The assembly and handling guidelines for ÖLFLEX® CRANE cables can be found in the catalogue appendix, technical table T4; for ÖLFLEX® LIFT cables please see the catalogue appendix, technical table T5

Product features

- Flame-retardant according IEC 60332-1-2
- Good weather-resistance
- Flexible at low temperatures

Product Make-up

- Conductor made of bare copper wires
- Special PVC-based core insulation
- Supporting element made of hemp or aramid
- Fleece-wrapping between cores and sheath
- Support braid made of textile fibre blend
- Special PVC-based outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000826
ETIM 5.0/6.0 Class-Description: Elevator cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Suspension length
refer to article table

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexible use: 20 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexible use: -15°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Max. suspension length (m)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® LIFT T					
0027001	7 G 1.0	14.5	80	67	225
0027002	12 G 1.0	19.2	80	115	410
0027008	18 G 1.0	19.5	70	172.8	475
0027004	20 G 1.0	20.3	70	192	525
0027005	24 G 1.0	22.1	60	230	600
0027007	36 G 1.0	28.6	90	345.6	950

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® LIFT refer to page 174

Accessories

- Ratchet cutter refer to page 980
- KT cable shears
- Round cable wedged clamps

ÖLFLEX® CRANE F

Weather-resistant flat rubber cables

Info

- For outdoor cable trolley application
- Space-saving installation
- Also suitable for power chains and lift applications

Benefits

- Weather-resistant for harsh environmental conditions
- Flat cables need less space than round cables
- Smaller bending radii is possible

Application range

- As a lift control cable: max. 50 m suspension length
- In crane systems on building sites and shipyards for fixed installation, or for flexible use in cable trolley systems
- Sewage treatment plants, steelworks and high rack facilities
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0250-809 (NGFLGÖU)

Product Make-up

- Strands of bare or tinned-copper wires
- Core insulation: rubber compound
- Outer sheath: special rubber compound

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000825
ETIM 5.0/6.0 Class-Description: Flat cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Copper conductor according to VDE 0295/IEC 60228
up to 25 mm²: extra-fine wire, class 6
from 35 mm²: fine wire, class 5

Minimum bending radius
Flexible use: 10 x cable thickness
Fixed installation: 4 x cable thickness

Nominal voltage
U0/U: 300/500 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexible use: -25°C to +90°C
Fixed installation: -40°C to +90°C

Article number	Number of cores and mm² per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CRANE F				
0041041	4 G 1,5	17.5 x 6.2	57.6	200
0041042	5 G 1,5	21.5 x 6.2	72	240
0041043	7 G 1,5	29.0 x 6.2	100.8	360
0041044	8 G 1,5	31.5 x 6.2	115	370
0041045	10 G 1,5	40.0 x 6.5	144	520
0041046	12 G 1,5	47.0 x 6.5	172.8	620
0041047	4 G 2,5	21.0 x 7.5	96	280
0041048	5 G 2,5	27.0 x 7.5	120	400
0041049	7 G 2,5	35.0 x 7.5	168	520
0041050	8 G 2,5	39.0 x 7.5	192	550
0041051	12 G 2,5	56.0 x 8.0	288	800

Article number	Number of cores and mm² per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
0041052	4.0 G 4.0	26.0 x 9.0	153.6	410
0041053	7.0 G 4.0	42.0 x 9.0	268.8	700
0041054	4.0 G 6.0	29.0 x 9.5	230	600
0041055	5.0 G 6.0	35.0 x 9.5	288	650
0041056	7.0 G 6.0	42.0 x 9.5	403	850
0041057	4.0 G 10.0	33.0 x 11.0	384	800
0041059	4.0 G 16.0	38.0 x 13.0	614	1150
0041060	4.0 G 25.0	49.5 x 15.0	960	1700
0041061	4.0 G 35.0	55.0 x 17.0	1344	2360
0041062	4.0 G 50.0	63.0 x 19.0	1920	3000
0041063	4.0 G 70.0	71.0 x 22.0	2688	4000

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® LIFT F refer to page 178

Accessories

- Cable trolley systems
- Flat cable wedge clamps

ÖLFLEX® CRANE CF

Weather-resistant flat rubber cables with copper screening

Info

- For outdoor cable trolley application
- EMC-compliant

Benefits

- Weather-resistant for harsh environmental conditions
- Flat cables need less space than round cables
- Smaller bending radii is possible
- Copper braiding screens the cable against electromagnetic interference

Application range

- In crane systems on building sites and shipyards for fixed installation, or for flexible use in cable trolley systems
- Sewage treatment plants, steelworks and high rack facilities
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3
- As a lift control cable: max. 50 m suspension length

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0250-809 (NGFLGÖU)

Product Make-up

- Strands of bare or tinned-copper wires
- Core insulation: rubber compound
- Individual core screening consist of
  - plastic foil wrapping
  - tin-plated copper braiding
  - plastic foil wrapping
- Outer sheath: special rubber compound

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000825
ETIM 5.0/6.0 Class-Description: Flat cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Copper conductor according to VDE 0295/IEC 60228
up to 25 mm²: extra-fine wire, class 6
from 35 mm²: fine wire, class 5

Minimum bending radius
Flexible use: 10 x cable thickness
Fixed installation: 4 x cable thickness

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexible use: -25°C to +90°C
Fixed installation: -40°C to +90°C

Article number	Number of cores and mm² per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CRANE CF				
0041075	4 G 1,5	18.5 x 6.5	79	220
0041076	8 G 1,5	36.0 x 7.5	155	470
0041077	12 G 1,5	54.5 x 8.5	238	745
0041078	4 G 2,5	22.5 x 7.5	141	320
0041079	12 G 2,5	69.5 x 9.5	499	1180
0041080	4 G 4	29.0 x 10.5	219	505
0041081	4 G 6	31.0 x 10.5	302	605
0041082	4 G 10	36.0 x 11.5	472	840
0041083	4 G 16	41.5 x 13.5	687	1180
0041084	4 G 25	47.0 x 15.0	1114	1605
0041085	4 G 35	55.0 x 17.0	1482	2520
0041086	4 G 50	66.0 x 20.5	2238	3000

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

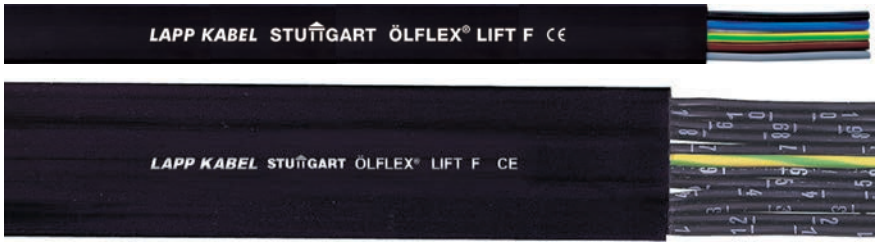
- ÖLFLEX® CRANE F refer to page 176
- ÖLFLEX® LIFT F refer to page 178

Accessories

- Cable trolley systems
- Flat cable wedge clamps

ÖLFLEX® LIFT F

Flexible at cold temperatures, PVC flat cables



Benefits

- Flat cables need less space than round cables
- Smaller bending radii is possible

Application range

- For hoisting equipment and conveyor systems
- Indoor cranes and high-rack facilities
- As supply line for moving machine parts
- According to VDE definition, this can also be used as a lift control cable with up to 35 m suspension length, and a maximum speed of travel at 1.6 m/s
- The application profiles for ÖLFLEX® CRANE and ÖLFLEX® LIFT cables can be found in the appendix, selection table A3

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on EN 50214/ VDE 0283-2 (H05VVH6-F or H07VVH6-F)
- Meets the requirements of the harmonised PVC flat cable H07VVH6-F

Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on PVC
- Outer sheath: Based on PVC

Info

- For cable trolley application
- Space-saving installation
- Also suitable for power chains and lift applications

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000825
ETIM 5.0/6.0 Class-Description: Flat cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
U0/U 300/500 V versions, fine wire according to VDE 0295 Class 5 or IEC 60228 Cl. 5
U0/U 450/750 V versions, extra-fine wire according to VDE 0295 Class 6 or IEC 60228 Cl. 6 (from nominal conductor cross section 10 mm²: finely stranded/ class 5)

Minimum bending radius
Flexible use: 10 x cable thickness

Nominal voltage
Up to 1.0 mm²: U0/U: 300/500 V
From 1.5 mm²: U0/U: 450/750 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexible use:
0 °C to +70 °C (up to 1.0 mm²)
-15 °C to +70 °C (as from 1.5 mm²)

Article number	Number of cores and mm² per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® LIFT F				
Nominal voltage U0/U: 300/500 V, temperature range: 0°C to +70°C				
0042020	12 G 1,0	36.0 x 4.7	115	392
0042021	16 G 1,0	48.5 x 4.7	153.6	521
0042022	20 G 1,0	59.0 x 4.7	192	645
0042023	24 G 1,0	71.5 x 4.7	230	772
Nominal voltage U0/U: 450/750 V, temperature range: -15°C to +70°C				
00420013	4 G 1,5	15.5 x 5.2	57.6	132
00420023	5 G 1,5	19.7 x 5.2	72	170
0042003	7 G 1,5	27.0 x 5.2	100.8	236
0042004	8 G 1,5	29.0 x 5.2	115	266
0042005	10 G 1,5	36.5 x 5.2	144	333
0042006	12 G 1,5	42.0 x 5.2	172.8	422
00420073	4 G 2,5	19.0 x 5.9	96	206
00420083	5 G 2,5	24.0 x 5.9	120	257
0042009	7 G 2,5	32.5 x 5.9	168	345
0042010	8 G 2,5	35.0 x 5.9	192	390
0042050	12 G 2,5	52.5 x 5.9	288	580
00420113	4 G 4	21.0 x 6.8	153.6	343
0042012	7 G 4	38.0 x 6.8	268.8	589
00420133	4 G 6	24.0 x 7.3	230	425
00420143	4 G 10	30.5 x 9.5	384	709
00420153	4 G 16	35.0 x 10.8	614	1015
00420163	4 G 25	42.0 x 13.0	960	1366

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

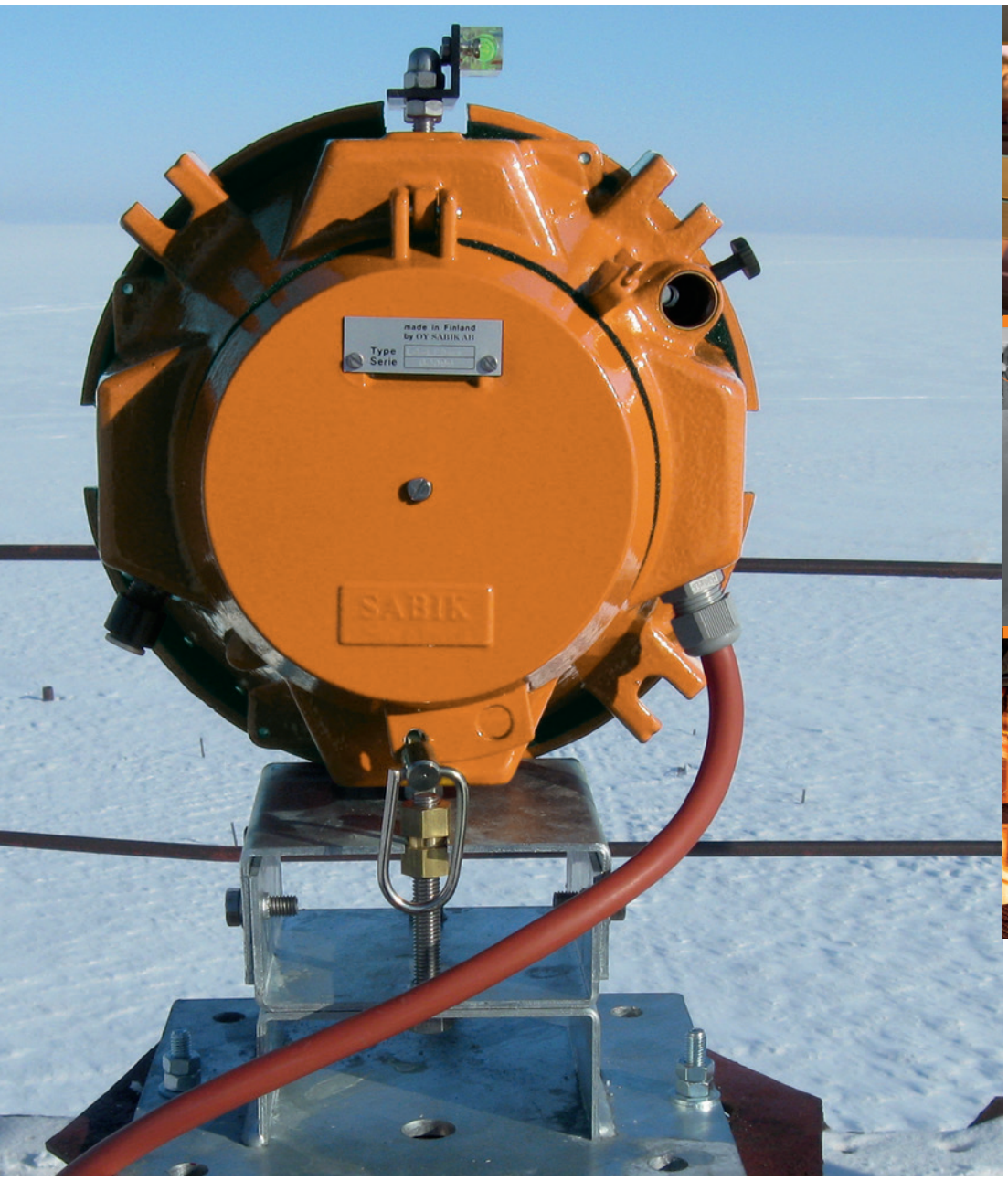
Similar products

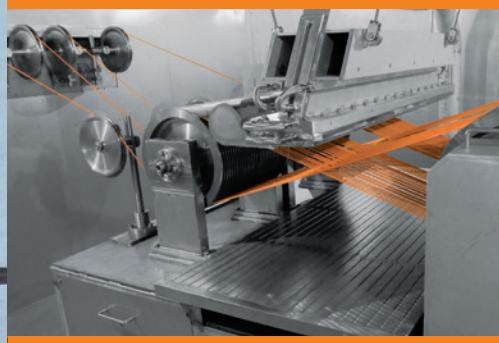
- ÖLFLEX® CRANE F refer to page 176

Accessories

- Cable trolley systems
- Flat cable wedge clamps

Expanded
ambient temperatures





ÖLFLEX® HEAT 105 MC

Colour-coded connection cables made of high heat-resistant PVC

Info

- Based on H05V2V2-F
- Further dimensions/colours on request

Benefits

- Possible to operate at higher peak temperature (almost 30% more) compared to conventional PVC cables

Application range

- For connection of motors, transformers, reels, plants, machines, appliances, switch cabinets and other installations with a higher operating or ambient temperature
- For indoor and outdoor use

Product features

- Resistant to acids, alkalis and certain oils at room temperature
- Flame-retardant according IEC 60332-1-2
- Good UV-resistance

Norm references / Approvals

- Based on EN 50525-2-11

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: PVC, high heat-resistance
- Cores twisted in layers
- Outer sheath: PVC, heat-resistant, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: ÖLFLEX® colour code, refer to Appendix T7

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2500 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: +5°C to +90°C
Fixed installation: -20°C to +90°C
Short-term: +105 °C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 105 MC				
0026001	2 X 0.75	6.2	14.4	53
0026002	3 G 0.75	6.5	21.6	62
00260033	4 G 0.75	7.1	28.8	76
00260043	5 G 0.75	8.0	36	95
0026005	7 G 0.75	9.7	50	113
0026006	2 X 1.0	6.5	19.2	61
0026007	3 G 1.0	6.9	29	74
00260083	4 G 1.0	7.7	38.4	89
00260093	5 G 1.0	8.4	48	110
0026010	7 G 1.0	10.2	67	130
0026011	2 X 1.5	7.5	29	78
0026012	3 G 1.5	8.1	43.2	98
00260133	4 G 1.5	8.9	57.6	122
00260143	5 G 1.5	10.0	72	144
0026015	7 G 1.5	12.3	101	180

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 125 MC refer to page 181

Accessories

- SKINTOP® CLICK refer to page 687
- Cable shears with double edge refer to page 980

ÖLFLEX® HEAT 125 MC

Electron beam cross-linked cables for more demanding application requirements

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Improved characteristics in the event of a fire
- GL - Germanischer Lloyd approved

Benefits

- For safety in areas with high density of people
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire
- Minimises damage to buildings and equipment caused by the formation of toxic acid fumes in fires
- Certified for maritime applications

Application range

- For the wiring and connection of lighting, heating appliances, control cabinets, and distributors in mechanical and plant engineering
- For use in traffic regulation systems and outdoors
- Coil winding, electromagnets, pumps, electrical systems
- Heat treatment plants, pressure die casting, heating and cooling technology
- For outdoor applications

Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Flame-retardant (IEC 60332-1-2, NF C 32-070 (C1) and NF-F 16-101 (Class C))
  - Low toxicity (EN 50305)
- No flame-propagation according to IEC 60332-3-22, IEC 60332-3-24 and IEC 60332-3-25 (Flame spread on vertical cable bundle)
- Oil-resistant acc. IEC 60227-1 (ST9) and EN 50264-1 (EM104)
- UV-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

Norm references / Approvals

- GL - Germanischer Lloyd approved
- Based on EN 50525-3-21 and EN 50525-3-41

Product Make-up

- Fine-wire, tinned-copper conductor
- Electron beam cross-linked polyolefin copolymer insulation
- Cores twisted in layers
- Outer sheath: electron beam cross-linked polyolefin copolymer, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
Up to 1.0mm² U0/U 300/500 V
From 1.5mm² U0/U 450/750 V
0.6/1kV from 1.5 mm² in the case of fixed and protected installation

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -35 °C to +120 °C
Fixed installation: -55°C to +125°C
Temporary (3.000h): up to +145°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 125 MC 300/500 V				
1024300	2 X 0.5	6.0	9.6	38
1024301	3 G 0.5	6.3	14.4	46
1024302	4 G 0.5	6.9	19.2	55
1024307	2 X 0.75	6.4	14.4	40
1024308	3 G 0.75	6.8	21.6	53
1024309	4 G 0.75	7.4	28.8	69
1024310	5 G 0.75	8.3	36	86
1024311	7 G 0.75	9.0	50	127
1024315	2 X 1.0	6.6	19.2	50
1024316	3 G 1.0	7.0	28.8	67
1024317	4 G 1.0	7.8	38.4	87
1024318	5 G 1.0	8.6	48	107
1024319	7 G 1.0	9.5	67	152
1024320	12 G 1.0	12.8	115	221

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 125 MC 450/750 V				
1024323	2 X 1.5	7.6	29	71
1024324	3 G 1.5	8,3	43	96
1024325	4 G 1.5	9.0	58	123
1024326	5 G 1.5	10,1	72	156
1024327	7 G 1.5	11,2	101	224
1024328	12 G 1.5	15,1	173	316
1024333	2 X 2.5	9.0	48	102
1024334	3 G 2.5	9.8	72	145
1024335	4 G 2.5	10.8	96	189
1024336	5 G 2.5	11.9	120	235
1024337	7 G 2.5	13.2	168	344
1024341	4 G 4	12.7	154	276
1024342	5 G 4	14.0	192	334
1024346	4 G 6	14.1	230	341
1024347	5 G 6	15.8	288	431

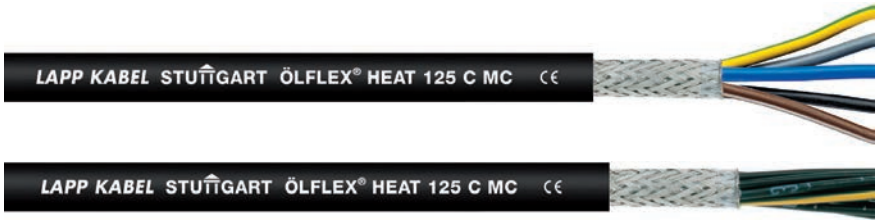
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Cable shears with double edge refer to page 980
- EASY STRIP stripping and cutting tool refer to page 988
- STAR STRIP stripping tool refer to page 985

ÖLFLEX® HEAT 125 C MC

Electron beam cross-linked cables for more demanding application requirements



Benefits

- For safety in areas with high density of people
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire
- Minimises damage to buildings and equipment caused by the formation of toxic acid fumes in fires
- Certified for maritime applications
- Copper braiding screens the cable against electromagnetic interference

Application range

- For outdoor applications
- For the wiring and connection of lighting, heating appliances, control cabinets, and distributors in mechanical and plant engineering
- For use in traffic regulation systems and outdoors
- Coil winding, electromagnets, pumps, electrical systems
- Heat treatment plants, pressure die casting, heating and cooling technology

Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Flame-retardant (IEC 60332-1-2, NF C 32-070 (C1) and NF-F 16-101 (Class C))
  - Low toxicity (EN 50305)
- No flame-propagation according to IEC 60332-3-22, IEC 60332-3-24 and IEC 60332-3-25 (Flame spread on vertical cable bundle)
- Oil-resistant acc. IEC 60227-1 (ST9) and EN 50264-1 (EM104)
- UV-resistant according to ISO 4892-2
- Ozone-resistant according to EN 50396

Norm references / Approvals

- GL - Germanischer Lloyd approved
- Based on EN 50525-3-21 and EN 50525-3-41

Product Make-up

- Fine-wire, tinned-copper conductor
- Electron beam cross-linked polyolefin copolymer insulation
- Cores twisted in layers
- Tinned-copper braiding
- Outer sheath: electron beam cross-linked polyolefin copolymer, black

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Improved characteristics in the event of a fire
- GL - Germanischer Lloyd approved

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Colour-coded according to VDE 0293-308, refer to Appendix T9 or black with white numbers refer to article table

Specific insulation resistance
>2 TOhm x cm

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 5 x outer diameter

Nominal voltage
Up to 1.0mm² U0/U 300/500 V
From 1.5mm² U0/U 450/750 V
0.6/1kV from 1.5 mm² in the case of fixed and protected installation

Test voltage
C/C 4000 V, C/S 2500 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Occasional flexing: -35 °C to +120 °C
Fixed installation: -55°C to +125°C
Temporary (3.000h): up to +145°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 125 C MC 300/500 V - colour-coded				
1024400	2 X 0.5	6.8	41	45
1024401	3 G 0.5	7.1	45.5	59
1024407	2 X 0.75	7.2	46	79
1024408	3 G 0.75	7.6	57.9	96
1024409	4 G 0.75	8.4	64	116
1024410	5 G 0.75	9.1	77.4	139
1024415	2 X 1.0	7.4	56	90
1024416	3 G 1.0	8.0	65.3	104
1024417	4 G 1.0	8.6	78.1	129
1024418	5 G 1.0	9.6	89.4	153
ÖLFLEX® HEAT 125 C MC 450/750 V - colour-coded				
1024423	2 X 1.5	8.6	65	114
1024424	3 G 1.5	9.1	83	132
1024425	4 G 1.5	10.0	100	163
1024426	5 G 1.5	11.1	125	200
1024433	2 X 2.5	10.0	112	157
1024434	3 G 2.5	10.7	146	198
1024435	4 G 2.5	11.6	167	236
1024436	5 G 2.5	12.9	200	287
1024441	4 G 4	13.7	237	317
1024446	4 G 6	15.1	318	404
1024451	4 G 10	19.3	558	669

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 125 C MC 300/500 V - Black with white numbers				
1024480	2 X 0.75	7.2	46	79
1024481	3 X 0.75	7.6	57.9	96
1024482	4 X 0.75	8.4	64	116
1024411	7 G 0.75	10.0	102	186
1024483	7 X 0.75	10.0	102	186
1024412	12 G 0.75	13.4	177	219
1024484	2 X 1.0	7.4	56	90
1024485	3 X 1.0	8.0	65.3	104
1024419	7 G 1.0	10.3	113.3	211
1024420	12 G 1.0	14.0	188.1	266
ÖLFLEX® HEAT 125 C MC 450/750 V - Black with white numbers				
1024486	2 X 1.5	8.6	65	114
1024487	4 X 1.5	10.0	100	163
1024427	7 G 1.5	12.0	149	273
1024488	7 X 1.5	12.0	149	273
1024428	12 G 1.5	16.3	280	371
1024489	3 X 2.5	10.7	146	198
1024490	4 X 2.5	11.6	167	236
1024437	7 G 2.5	14.4	288	385
1024438	12 G 2.5	19.3	477.3	569

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M BRUSH refer to page 702
- SKINTOP® MS-SC refer to page 777
- EASY STRIP stripping and cutting tool refer to page 988

ÖLFLEX® HEAT 180 SiHF

Silicone cables with extended temperature range

Info

- The classic for multi-functional use
- Further dimensions/colours on request

Benefits

- Flexibility simplifies installation where space is limited
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

Application range

- Areas with high ambient temperatures where insulating and sheath materials of conventional cables will embrittle after a short while
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

Product features

- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2), flame-retardant (IEC 60332-1-2)
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Norm references / Approvals

- Based on EN 50525-2-83

Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based core insulation
- Cores twisted in layers
- Silicone-based outer sheath, colour red-brown

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
-50 °C to +180 °C
(adequate ventilation required)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 180 SiHF				
0046001	2 X 0.75	6.4	14.4	59
0046002	3 G 0.75	6.8	21.6	70
00460033	4 G 0.75	7.6	28.8	89
00460043	5 G 0.75	8.5	36	112
0046005	6 G 0.75	9.2	43.2	131
0046006	7 G 0.75	9.2	50.4	136
0046007	2 X 1.0	6.6	19.2	66
0046008	3 G 1.0	7.0	29	79
00460093	4 G 1.0	7.9	38.4	101
00460103	5 G 1.0	8.8	48	127
0046012	7 G 1.0	9.5	67	156
0046013	2 X 1.5	7.6	29	90
0046014	3 G 1.5	8.0	43	109
00460153	4 G 1.5	8.8	58	134
00460163	5 G 1.5	9.6	72	163
0046018	7 G 1.5	10.4	101	202
0046039	12 G 1.5	14.0	173	361
0046040	16 G 1.5	16.2	230.4	478
0046041	20 G 1.5	17.5	288	574

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0046042	24 G 1.5	19.8	345.6	720
0046019	2 X 2.5	8.8	48	128
0046020	3 G 2.5	9.7	72	167
00460213	4 G 2.5	10.6	96	206
00460223	5 G 2.5	11.6	120	251
0046024	7 G 2.5	12.6	168	313
0046025	2 X 4	10.8	76.8	196
0046026	3 G 4	11.5	115	241
00460273	4 G 4	12.6	154	300
00460283	5 G 4	14.0	192	374
0046030	7 G 4	15.6	269	486
0046031	2 X 6	12.4	116	268
0046032	3 G 6	13.2	173	333
00460333	4 G 6	14.7	230	425
00460343	5 G 6	16.6	288	538
0046036	7 G 6	18.6	403	705
00460373	4 G 10	19.4	384	707
00460453	5 G 10	21.6	480	878
00460383	4 G 16	21.4	614	1004

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 H05SS-F EWKF refer to page 184
- ÖLFLEX® HEAT 180 EWKF refer to page 187

Accessories

- SKINDICHT® SHV-M FKM refer to page 737
- SILVYN® HIPROJACKET refer to page 917

ÖLFLEX® HEAT 180 H05SS-F EWKF

Europe-wide standardised silicone connection cables with increased mechanical performance

Info

- International use in combination with proven EWKF quality

Benefits

- Harmonised use in Europe
- Notch and tear-resistant silicone compounds reduce damage due to mechanical stress
- For harsh environments, more durable than conventional H05SS-F standardised cables
- Flexibility simplifies installation where space is limited
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

Application range

- Areas with high ambient temperatures and occasionally mechanical stress
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

Product features

- EWKF:
  Initial tear propagation and notch resistance
- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2), flame-retardant (IEC 60332-1-2)
- Good hydrolysis and UV-resistance
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Norm references / Approvals

- EN 50525-2-83 (H05SS-F)

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: based on EWKF silicone
- Cores twisted together
- Outer sheath: silicone-based EWKF, notch-resistant, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
-50 °C to +180 °C
(adequate ventilation required)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 180 H05SS-F EWKF				
0046900	2 X 0.75	6.4	14.4	54
0046901	3 G 0.75	7.0	21.6	67
00469023	4 G 0.75	7.6	28.8	87
00469033	5 G 0.75	8.5	36	105
0046904	2 X 1.0	6.8	19.2	63
0046905	3 G 1.0	7.2	28.8	81
00469063	4 G 1.0	7.9	38.4	98
00469073	5 G 1.0	8.8	48	121
0046908	2 X 1.5	8.4	28.8	84
0046909	3 G 1.5	8.9	43.2	103
00469103	4 G 1.5	9.9	57.6	128
00469113	5 G 1.5	10.9	72	154
0046912	2 X 2.5	9.8	48	141
0046913	3 G 2.5	10.4	72	158
00469143	4 G 2.5	11.6	96	195
00469153	5 G 2.5	12.9	120	241
0046916	3 G 4	12.3	115.2	239
00469173	4 G 4	13.7	153.6	312
0046919	3 G 6	14.0	172.8	345
00469203	4 G 6	15.6	230.4	451

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 EWKF refer to page 187
- ÖLFLEX® HEAT 180 EWKF C refer to page 188

Accessories

- SKINDICHT® SHV-M refer to page 736
- SILVYN® HIPROJACKET refer to page 917

ÖLFLEX® HEAT 180 MS

Certified silicone cables for North America (AWM recognized)

Info

- MS = Multi-Standard
  For use in the USA and Canada
- UL AWM Style 4476 (150 °C/600 V)
- Metric flexible conductor design

Benefits

- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Thicker cable design meets the requirements of the FT-1 flame test and also approved for the external interconnection of apparatuses and appliances
- Flexibility simplifies installation where space is limited
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

Application range

- Areas with high ambient temperatures where insulating and sheath materials of conventional cables will embrittle after a short while
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

Product features

- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2)
- Flame-retardant acc. to IEC 60332-1-2, Cable Flame Test, CSA FT 1
- Good hydrolysis and UV-resistance
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Norm references / Approvals

- UL AWM 4476 and cUL AWM II A/B Construction B, External wiring
- UL File No. E63634

Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based core insulation
- Cores twisted together
- Silicone-based outer sheath, colour black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5
(Refer to Appendix T16 for the matching US conductor sizes in AWG standard)

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V
Working voltage UL: 600 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
According to VDE: -50 °C to +180 °C
UL/cUL: up to +150°C
(adequate ventilation required)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 180 MS				
0046600	2 X 0.5	7.4	9.8	72
0046601	3 G 0.5	7.8	14.7	83
00466023	4 G 0.5	8.5	19.6	99
00466033	5 G 0.5	9.2	24.5	119
0046604	7 G 0.5	9.9	34.3	142
0046612	2 X 1.0	8.2	19.2	93
0046613	3 G 1.0	8.7	28.8	110
00466143	4 G 1.0	9.4	38.4	133
00466153	5 G 1.0	10.3	48	160
0046616	7 G 1.0	11.1	67.2	195
0046617	12 G 1.0	14.9	115.2	345
0046618	2 X 1.5	8.8	28.8	113
0046619	3 G 1.5	9.3	43.2	135
00466203	4 G 1.5	10.1	57.6	165

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
00466213	5 G 1.5	11.1	72	200
0046622	7 G 1.5	12.0	100.8	246
0046623	12 G 1.5	16.1	172.8	437
0046625	18 G 1.5	18.8	259.2	613
0046626	25 G 1.5	22.9	360	904
0046628	2 X 2.5	9.6	48	146
0046629	3 G 2.5	10.2	72	178
00466303	4 G 2.5	11.1	96	220
00466313	5 G 2.5	12.2	120	269
0046633	3 G 4	11.5	115.2	246
00466343	4 G 4	12.6	153.6	307
00466353	5 G 4	14.2	192	389
0046636	3 G 6	14.9	172.8	396
00466373	4 G 6	16.4	230.4	495
00466383	5 G 6	18.0	288	608

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 SiF A refer to page 199
- ÖLFLEX® HEAT 180 C MS refer to page 186

Accessories

- Cable shears with double edge refer to page 980

ÖLFLEX® HEAT 180 C MS

Screened and approved silicone cables for North America (AWM recognized)

Info

- MS = Multi-Standard
  For use in the USA and Canada
- UL AWM Style 4476 (150 °C/600 V)
- Metric flexible conductor design

Benefits

- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Thicker cable design meets the requirements of the FT-1 flame test and also approved for the external interconnection of apparatuses and appliances
- Flexibility simplifies installation where space is limited
- Copper braiding screens the cable against electromagnetic interference

Application range

- Areas with high ambient temperatures where insulating and sheath materials of conventional cables will embrittle after a short while
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

Product features

- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2)
- Flame-retardant acc. to IEC 60332-1-2, Cable Flame Test, CSA FT 1
- Good hydrolysis and UV-resistance
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Norm references / Approvals

- UL AWM 4476 and cUL AWM II A/B Construction B, External wiring
- UL File No. E63634

Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based core insulation
- Cores twisted together
- Tinned-copper screen braiding, interleaved plastic foil wrapping
- Silicone-based outer sheath, colour black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295, class 5/IEC 60228 class 5
(Refer to Appendix T16 for the matching US conductor sizes in AWG standard)

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V
Working voltage UL: 600 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
According to VDE: -50 °C to +180 °C
UL/cUL: up to +150°C
(adequate ventilation required)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 180 C MS				
0046701	3 G 0.5	8.6	43.4	100
0046702	4 G 0.5	9.3	55.4	122
0046703	5 G 0.5	10.0	60.2	137
0046708	2 X 1.0	9.0	48.2	104
0046709	3 G 1.0	9.5	65	131
0046710	4 G 1.0	10.2	74.6	152
0046711	5 G 1.0	11.0	91.5	181
0046712	7 G 1.0	11.9	117.9	228
0046716	2 X 1.5	9.6	65	126
0046717	3 G 1.5	10.1	79.4	152
0046718	4 G 1.5	10.9	101.1	186
0046719	5 G 1.5	11.8	122.7	222

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0046720	7 G 1.5	12.8	158.7	281
0046721	12 G 1.5	16.9	245.2	431
0046723	18 G 1.5	19.6	346.1	600
0046724	25 G 1.5	23.9	495.7	833
0046728	3 G 2.5	11.0	115.5	197
0046729	4 G 2.5	11.9	146.7	244
0046730	5 G 2.5	12.9	177.9	291
0046734	3 G 4	12.3	165.9	261
0046735	4 G 4	13.4	211.5	325
0046736	5 G 4	14.9	257.2	389
0046740	4 G 6	17.2	302.8	482
0046741	5 G 6	18.7	367.6	580
0046742	4 G 10	22.8	508.4	802

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 MS refer to page 185

Accessories

- Cable shears with double edge refer to page 980

ÖLFLEX® HEAT 180 EWKF

Silicone cables with increased mechanical characteristics

Info

- Proven notch-resistant EWKF quality
- Further dimensions/colours on request

Benefits

- Longer durability in harsh applications than conventional silicone cables
- Notch and tear-resistant silicone compounds reduce damage due to mechanical stress
- Due to the use of special additives in EWKF silicone, armoured cable versions will not be required
- Flexibility simplifies installation where space is limited
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

Application range

- Areas with high ambient temperatures and occasionally mechanical stress
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

Product features

- EWKF:
  Initial tear propagation and notch resistance
- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2), flame-retardant (IEC 60332-1-2)
- Good hydrolysis and UV-resistance
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Norm references / Approvals

- Based on EN 50525-2-83

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: based on EWKF silicone
- Cores twisted together
- Outer sheath: silicone-based EWKF, notch-resistant, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description:
Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295
Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
-50 °C to +180 °C
(adequate ventilation required)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 180 EWKF				
0046500	2 X 0.75	6.4	15	49
0046501	3 G 0.75	6.9	22	60
00465023	4 G 0.75	7.6	29	76
00465033	5 G 0.75	8.5	36	96
0046506	2 X 1.0	6.8	20	56
0046507	3 G 1.0	7.1	29	68
00465083	4 G 1.0	7.9	39	88
00465093	5 G 1.0	8.8	48	110
0046110	7 G 1.0	9.5	67.2	137
0046511	2 X 1.5	8.0	29	77
0046512	3 G 1.5	8.4	43	94
00465133	4 G 1.5	9.5	58	117
00465143	5 G 1.5	10.4	72	143

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0046115	7 G 1.5	11.0	101	180
0046116	12 G 1.5	14.9	173	319
0046117	16 G 1.5	17.1	230.4	424
0046119	24 G 1.5	21.0	345.6	637
0046520	2 X 2.5	9.4	48	110
0046521	3 G 2.5	9.8	72	146
00465223	4 G 2.5	11.1	96	181
00465233	5 G 2.5	11.9	120	222
0046131	3 G 4	11.5	114	213
00461323	4 G 4	12.5	152	267
00461333	5 G 4	13.9	190	334
0046141	3 G 6	13.2	174	297
00461423	4 G 6	14.7	232	381
00461433	5 G 6	16.5	290	481

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 H05SS-F EWKF refer to page 184
- ÖLFLEX® HEAT 180 EWKF C refer to page 188

Accessories

- SKINDICHT® SHV-M refer to page 736
- Cable shears with double edge refer to page 980

ÖLFLEX® HEAT 180 EWKF C

Screened silicone cables with increased mechanical characteristics

Info

- Proven notch-resistant EWKF quality
- EMC compliant copper screening

Benefits

- Longer durability in harsh applications than conventional silicone cables
- Notch and tear-resistant outer sheath material reduces mechanical damage
- Copper braiding screens the cable against electromagnetic interference
- Flexibility simplifies installation where space is limited
- Due to the use of special additives in EWKF silicone, armoured cable versions will not be required

Application range

- Areas with high ambient temperatures and occasionally mechanical stress
- Typical fields of application
  - Steel, ceramic and iron works
  - Bakery equipment and industrial furnaces
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Galvanisation technology

Product features

- EWKF:
  Initial tear propagation and notch resistance
- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2), flame-retardant (IEC 60332-1-2)
- Good hydrolysis and UV-resistance
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Product Make-up

- Fine-wire, tinned-copper conductor
- Cores twisted together
- Silicone-based core insulation
- Silicone-based inner sheath
- Tinned-copper screen braiding, interleaved plastic foil wrapping
- Outer sheath: silicone-based EWKF, notch-resistant, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
-50 °C to +180 °C
(adequate ventilation required)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 180 EWKF C				
0046301	2 X 0.75	8.6	37.5	104
0046302	3 G 0.75	8.9	46.1	118
00463033	4 G 0.75	10.2	57.3	152
00463043	5 G 0.75	10.9	67.3	176
0046307	2 X 1.0	9.0	43	116
0046308	3 G 1.0	9.7	55.7	142
00463093	4 G 1.0	10.9	67.8	175
00463103	5 G 1.0	11.6	80.3	203
0046312	7 G 1.0	12.3	113.9	250
0046313	2 X 1.5	10.8	58	166
0046314	3 G 1.5	11.2	74	188

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
00463153	4 G 1.5	12.0	91.4	222
00463163	5 G 1.5	12.8	121.7	273
0046318	7 G 1.5	13.6	157.2	341
0046320	3 G 2.5	12.8	121.2	271
00463213	4 G 2.5	13.9	150.9	328
00463223	5 G 2.5	14.8	180.5	387
00463273	4 G 4	16.0	218	448
00463283	5 G 4	17.2	262.9	531
0046330	3 G 6	16.4	240.5	489
00463313	4 G 6	17.9	304.7	591
00463323	5 G 6	19.4	370	706

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 C MS refer to page 186
- ÖLFLEX® HEAT 180 EWKF refer to page 187

Accessories

- Cable shears with double edge refer to page 980
- SKINTOP® MS-SC-M refer to page 701
- SKINTOP® MS-M BRUSH refer to page 702

ÖLFLEX® HEAT 180 GLS

Steel-armoured silicone cables for increased mechanical stress

Info

- Protected against thermal and mechanical loads

Benefits

- Close-meshed braid made of galvanised steel wires protects against mechanical damage
- Longer durability in harsh applications than conventional silicone cables
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

Application range

- Areas with high ambient temperatures and occasionally mechanical stress
- Typical fields of application
  - Steel and glass works
  - Cement and ceramic works
  - Foundries
  - Shipbuilding industry
  - Furnace construction

Product features

- Halogen-free (IEC 60754-1), no corrosive gases (IEC 60754-2), flame-retardant (IEC 60332-1-2)
- Only suitable for use in dry conditions
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based core insulation
- Cores twisted together
- Silicone-based outer sheath, colour red-brown
- Glass fibre wrapping
- Galvanised steel wire braiding

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
-50 °C to +180 °C
(adequate ventilation required)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 180 GLS				
0046201	2 X 0.75	7.6	14.4	84
0046202	3 G 0.75	8.0	21.6	96
00462033	4 G 0.75	8.8	28.8	118
00462043	5 G 0.75	9.7	36	145
0046205	6 G 0.75	10.4	43.2	167
0046206	7 G 0.75	10.4	50.4	171
0046207	2 X 1.0	7.8	19.2	92
0046208	3 G 1.0	8.2	28.8	106
00462093	4 G 1.0	9.1	38.4	132
00462103	5 G 1.0	10.0	48	161
0046212	7 G 1.0	10.7	67	205
0046213	2 X 1.5	8.8	29	119
0046214	3 G 1.5	9.2	43	140
00462153	4 G 1.5	10.0	57.6	168

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
00462163	5 G 1.5	10.8	72	212
0046218	7 G 1.5	11.8	101	255
0046237	12 G 1.5	15.4	173	433
0046219	2 X 2.5	10.0	48	162
0046220	3 G 2.5	10.9	72	217
00462213	4 G 2.5	12.0	96	260
00462223	5 G 2.5	13.0	120	310
0046224	7 G 2.5	14.0	168	362
0046226	3 G 4	12.9	115	300
00462273	4 G 4	14.0	154	365
00462283	5 G 4	15.4	192	446
00462313	4 G 6	16.1	230	500
00462343	4 G 10	20.8	384	807
00462353	4 G 16	22.8	614	1117

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 260 GLS refer to page 193

Accessories

- Cable shears with double edge refer to page 980

ÖLFLEX® HEAT 205 MC

Fluorinated ethylene propylene cables for harsh applications

Info

- Good chemical resistance
- Wide temperature application range
- Thin, light and robust

ÖLFLEX® HEAT 205 PTFE/FEP

4-cored version with PTFE insulation and special core identity code

Info

- EMC compliant copper screening

Benefits

- Space and weight-saving installations due to small cable diameters
- Resistant to contact with mostly all highly aggressive chemical media
- Low outgassing behaviour
- Due to good electrical and mechanical properties suitable for sensor technology

Application range

- For use in environments with very high operating temperatures, heavy usage of chemical agents or confined spaces
- Typical fields of application
  - Industrial furnace construction
  - Foundries
  - Chemical industry
  - Power plant engineering
  - Paint shop line technology
  - Heating elements
  - Polymer processing
  - Wind turbine engineering
- Sensor systems, e.g. level sensors

Product features

- ÖLFLEX® HEAT 205 made of FEP
  - Outstanding resistance against acids, solvents, lacquers, petrol, oils and many other chemical media
  - Difficult to inflame
  - High dielectric strength and high abrasion resistance
  - Low water absorption
  - Resistant to microbes
  - Adhesion free insulation materials
  - Weather and ozone resistant
  - Hydrophobic and dirt-repellent
  - High elongation and tear resistance
  - Resistant against hydraulic fluids

Product Make-up

ÖLFLEX® HEAT 205 MC

- Fine-wire, tinned-copper conductor
- FEP-based core insulation
- Cores twisted together
- FEP-based outer sheath, black

ÖLFLEX® HEAT 205 PTFE/FEP

- Fine-wire, silver-plated copper conductor
- PTFE-based core insulation
- Cores twisted together
- Tinned-copper braiding
- Outer sheath: FEP-based, white

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description:
Flexible cable

Core identification code
ÖLFLEX® HEAT 205 MC
Up to 5 cores: colour-coded acc. to VDE 0293-308
From 7 cores: ÖLFLEX® colour-codes, refer to Appendix T7
ÖLFLEX® HEAT 205 PTFE/FEP
Blue, red, grey, black

Conductor stranding
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
ÖLFLEX® HEAT 205 MC
2500 V
ÖLFLEX® HEAT 205 PTFE/FEP
C/C: 2500 V
C/S: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Fixed installation: -100°C to +205°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 205 MC				
0091200	2 X 0.25	3.1	5	17.2
0091201	3 G 0.25	3.3	7.5	22.2
00912023	4 G 0.25	3.6	10	27.5
0091210	2 X 0.5	3.8	9.8	21.6
0091211	3 G 0.5	4.0	14.7	32.8
00912123	4 G 0.5	4.4	19.6	44.4
0091220	2 X 0.75	4.2	14.4	31.5
0091221	3 G 0.75	4.6	21.6	46.1
00912223	4 G 0.75	4.9	29	57.9
0091230	2 X 1.0	4.5	19	41.6
0091231	3 G 1.0	4.8	29	55.6

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
00912323	4 G 1.0	5.3	38	70
0091100	3 G 1.5	5.6	43	70
00911033	4 G 1.5	6.1	58	98
00911013	5 G 1.5	6.8	72	117
0091102	7 G 1.5	7.4	101	184
0091236	3 G 2.5	6.6	72	86
00912353	4 G 2.5	7.3	96	115
00912373	5 G 2.5	8.2	120	144
00912423	4 G 4	8.7	154	180
00912433	5 G 4	9.6	192	225
ÖLFLEX® HEAT 205 PTFE/FEP				
30016373	4 X 0.75	5.9	49	78

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

ÖLFLEX® HEAT 205 MC

- ÖLFLEX® HEAT 260 MC refer to page 191

Accessories

- SKINDICHT® SHV-M refer to page 736
- Cable shears with double edge refer to page 980

ÖLFLEX® HEAT 260 MC

Polytetrafluoroethylene cables for most extreme loads

Info

- Excellent chemical, thermal and electrical performance
- Thin, light and robust

Benefits

- Space-saving installation due to small cable diameters
- Stress crack resistant to frequent ambient temperature fluctuations
- Due to good electrical and mechanical properties suitable for sensor technology
- Low outgassing behaviour

Application range

- For use in environments with very high operating temperatures, heavy usage of chemical agents or confined spaces
- ÖLFLEX® HEAT 260 has proven to be an effective solution in harsh environments such as paint shop lines
- Typical fields of application
  - Industrial furnace construction
  - Foundries
  - Chemical industry
  - Power plant engineering
  - Paint shop line technology
  - Heating elements
  - Polymer processing
  - Wind turbine engineering
- Sensor systems, e.g. level sensors

Product features

- ÖLFLEX® HEAT 260 made of PTFE
  - Outstanding resistance against acids, alkalis, solvents, lacquers, petrol, oils and many other chemical media
  - Difficult to inflame
  - High dielectric strength and high abrasion resistance
  - Low water absorption
  - Resistant to microbes
  - Adhesion-free insulation materials
  - Weather and ozone resistant
  - Hydrophobic and dirt-repellent
  - High elongation and tear resistance
  - Resists contact with liquid nitrogen
  - Resistant against hydraulic fluids

Product Make-up

- Fine-wire strand made of nickel-plated copper
- PTFE-based core insulation
- Cores twisted together
- PTFE-based outer sheath, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2500 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Fixed installation:
-190°C to +260°C
Short-term: up to +300°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 260 MC				
0091300	2 X 0.5	3.9	9.6	22
0091301	3 G 0.5	4.1	14.4	33
0091302	4 G 0.5	4.5	19.2	45
0091305	2 X 0.75	4.2	14.4	32
0091306	3 G 0.75	4.4	21.6	47
0091307	4 G 0.75	5.1	28.8	58
0091310	2 X 1.0	4.8	19.2	42
0091311	3 G 1.0	5.1	28.8	56
0091312	4 G 1.0	5.8	38.4	71
0091315	3 G 1.5	5.6	43.2	72
0091316	4 G 1.5	6.1	57.6	98
0091317	5 G 1.5	7.0	72	118
0091320	3 G 2.5	7.1	72	87
0091321	4 G 2.5	7.7	96	116
0091322	5 G 2.5	8.5	120	145

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 205 MC refer to page 190

Accessories

- SILVYN® HIPROJACKET refer to page 917
- EASY STRIP stripping and cutting tool refer to page 988
- STAR STRIP stripping tool refer to page 985

ÖLFLEX® HEAT 260 C MC

Copper-screened polytetrafluoroethylene cables for most extreme loads

Info

- Excellent chemical, thermal and electrical performance
- Thin, light and robust
- EMC compliant copper screening

Benefits

- Space and weight-saving installations due to small cable diameters
- Stress crack resistant to frequent ambient temperature fluctuations
- Resistant to contact with mostly all highly aggressive chemical media
- Low outgassing behaviour
- Due to good electrical and mechanical properties suitable for sensor technology

Application range

- For use in environments with very high operating temperatures, heavy usage of chemical agents or confined spaces
- ÖLFLEX® HEAT 260 has proven to be an effective solution in harsh environments such as paint shop lines
- Typical fields of application
  - Industrial furnace construction
  - Foundries
  - Chemical industry
  - Power plant engineering
  - Paint shop line technology
  - Heating elements
  - Polymer processing
  - Wind turbine engineering
- Sensor systems, e.g. level sensors

Product features

- Copper braiding of screened version complies with EMC requirements and protects against electromagnetic interference
- ÖLFLEX® HEAT 260 made of PTFE
  - Outstanding resistance against acids, alkalis, solvents, lacquers, petrol, oils and many other chemical media
  - Difficult to inflame
  - High dielectric strength and high abrasion resistance
  - Low water absorption
  - Resistant to microbes
  - Adhesion-free insulation materials
  - Weather and ozone resistant
  - Hydrophobic and dirt-repellent
  - High elongation and tear resistance
  - Resists contact with liquid nitrogen
  - Resistant against hydraulic fluids

Product Make-up

- Fine-wire strand made of nickel-plated copper
- PTFE-based core insulation
- Cores twisted together
- Special wrapping
- Nickel-plated copper braiding
- PTFE-based outer sheath, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
C/C: 2500 V
C/S: 2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Fixed installation:
-190°C to +260°C
Short-term: up to +300°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 260 C MC				
0091330	3 G 0.75	5.5	46	75
0091331	4 G 0.75	5.9	51	87
0091332	3 G 1.0	5.8	48	81
0091333	4 G 1.0	6.4	65	104
0091334	3 G 1.5	6.3	65	101
0091335	4 G 1.5	7.2	86	134
0091336	5 G 1.5	7.8	105	162
0091337	3 G 2.5	7.9	114	160
0091338	4 G 2.5	8.7	140	204
0091339	5 G 2.5	9.4	209	270

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EASY STRIP stripping and cutting tool refer to page 988
- STAR STRIP stripping tool refer to page 985

ÖLFLEX® HEAT 260 GLS

Steel-armoured PTFE cables for increased mechanical stress

Info

- Good thermal and mechanical performance
- Robust cable design
- GL - Germanischer Lloyd approved

Benefits

- Close-meshed braid made of galvanised steel wires protects against mechanical damage
- Small outer diameters for maximum saving of space and weight
- Germanischer Lloyd certification for use with ship diesel engines

Application range

- Extremely high temperatures and mechanical stress require special insulated and armoured cables
- Main applications
  - Ship-building
  - Signal systems
  - Monitoring devices
  - Diesel engines
  - Steam boiler units
  - Turbine manufacturing
- Electronics for industry and shipping, ship electrics

Product features

- Flame-retardant
- Stress crack resistant to frequent ambient temperature fluctuations
- High dielectric strength and high abrasion resistance
- High elongation resistance and tear strength
- Only suitable for use in dry conditions

Norm references / Approvals

- Germanischer Lloyd (GL) certificate no. 5449871 HH

Product Make-up

- Fine-wire strand made of nickel-plated copper
- PTFE-based core insulation
- Cores twisted together
- Impregnated glass fibre braiding
- Galvanised steel wire braiding

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
7-core version:
gn/ye, bl, bn, bk, bk, bk, tr

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
In fixed installations:
5 x cable diameter

Nominal voltage
U0/U 300/500 V
according to GL: 250 V

Test voltage
1500 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Fixed installation: -190°C to +260°C
According to GL: +205 °C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 260 GLS				
0091120	2 X 1.5	5.7	29	93
0091121	3 G 1.5	6.1	43	102
00911223	4 G 1.5	6.6	58	130
00911233	5 G 1.5	7.3	72	149
0091124	7 G 1.5	8.0	101	180

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 GLS refer to page 189

Accessories

- EASY STRIP stripping and cutting tool refer to page 988

ÖLFLEX® HEAT 350 MC

Suitable for use in ambient temperature from -50 °C to +350 °C

Info

- Voltage rating: 230/400 V
- For use in dry conditions

Benefits

- Low conductor-resistance due to the nickel-plated copper conductors
- Wide operating temperature range allows the product to be used in applications under Thermal Class C (>180°C).

Application range

- Blast furnaces and glassworks
- Chemical and power station construction
- Motor and furnace construction
- Extrusion and drying systems
- Lighting, apparatus and instrument industry

Product features

- Flame-retardant
- Halogen-free
- Only suitable for use in dry conditions
- ÖLFLEX® HEAT 1565 MC is recommended if the peak temperature of the application may briefly go beyond 350°C

Product Make-up

- Fine-wire strand made of nickel-plated copper
- Core insulation: glass fibre covering and impregnated glass fibre braids
- Cores twisted together
- Outer sheath: impregnated glass fibre braiding, white (natural)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Core identification code
Colours according to VDE 0293-308, refer to Appendix T9

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Fixed installation: 6 x outer diameter

Nominal voltage
U0/U 230/400 V

Test voltage
1500 V

Temperature range
Fixed installation: -50°C to +350°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 350 MC				
0091375	2 X 1.0	6.8	19.2	56
0091376	3 G 1.0	7.4	28.8	70
0091377	4 G 1.0	8.2	38.4	88
0091380	2 X 1.5	7.8	28.8	77
0091381	3 G 1.5	8.4	43.2	93
0091382	4 G 1.5	9.4	57.6	118
0091383	5 G 1.5	10.3	72	140
0091390	3 G 2.5	8.9	72	124
0091391	4 G 2.5	9.8	96	160
0091392	5 G 2.5	10.1	120	194

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 350 SC refer to page 204
- ÖLFLEX® HEAT 1565 MC refer to page 195

Accessories

- SILVYN® HIPROJACKET refer to page 917

ÖLFLEX® HEAT 1565 MC

Suitable for use in ambient temperatures between -195°C to +400°C

Info

- Short-term: up to +1565 °C
- For use in dry conditions

Benefits

- Low conductor-resistance due to the nickel-plated copper conductors
- Able to withstand temporary contact with molten metal or glass

Application range

- Guarantees the circuit even in areas with extremely high ambient temperatures
- Blast furnaces and coking plants
- Refineries
- Glassworks
- Aluminium and steelworks

Product features

- Flame-retardant
- Halogen-free
- Only suitable for use in dry conditions

Product Make-up

- Fine-wire strand made of nickel-plated copper
- MICA tape wrapping and impregnated glass fibre braiding
- Cores twisted together
- Outer sheath: MICA tape-wrapping, impregnated glass fibre braiding, red

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description:
Flexible cable

Core identification code
2-core cable:
blue, brown
4-core cable:
black, blue, yellow, red

Conductor stranding
Fine copper wire strands

Minimum bending radius
Fixed installation:
5 x cable diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2200 V

Temperature range
-195°C to +400°C
Short-term: up to +1565 °C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 1565 MC				
30020808	2 x 0.5	7.0	9.6	48
30020809	2 x 0.75	7.4	14.4	66
30016609	2 x 1.0	7.7	19.2	74
30016606	4 x 1.0	8.9	38.4	123
30016603	2 x 1.5	8.2	28.8	87
30016600	4 x 1.5	9.5	57.6	148
30020810	2 x 2.5	9.7	48	114
30020811	2 x 4	11.2	76.8	161

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® HIPROJACKET refer to page 917

ÖLFLEX® HEAT 125 SC

VDE tested single cores according to EN 50525-3-41 (H05Z-K & H07Z-K) for more demanding requirements

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- VDE-tested and -marked
- Improved characteristics in the event of a fire

Benefits

- For safety in areas with high density of people
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire
- Minimises damage to buildings and equipment caused by the formation of toxic acid fumes in fires
- Certified for maritime applications

Application range

- For the wiring and connection of lighting, heating appliances, control cabinets, and distributors in mechanical and plant engineering
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- Coil winding, electromagnets, pumps, electrical systems
- Heat treatment plants, pressure die casting, heating and cooling technology
- Suitable for assembling cable harnesses and wiring during switch cabinet installation

Product features

- Fire behaviour:
  - Flame-retardant (IEC 60332-1-2)
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Low toxicity (EN 50305)
- Extended fire behaviour:
  H05Z-K (0,5mm² up to 1,0mm²):
  see data sheet
  H07Z-K (≥ 1,5mm²):
  no fire propagation according to IEC 60332-3-24 respectively IEC 60332-3-25
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Abrasion and notch-resistant
- UV-resistant according to ISO 4892-2

Norm references / Approvals

- Type H05Z-K and H07Z-K according to EN 50525-3-41 with advanced features
- Germanischer Lloyd (GL) certificate no. 11118-14HH

Product Make-up

- Fine-wire, tinned-copper conductor
- Electron beam cross-linked polyolefin copolymer insulation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
Up to 1.0mm² U0/U 300/500 V
From 1.5mm² U0/U 450/750 V
0.6/1kV from 1.5 mm² in the case of fixed and protected installation

Test voltage
4000 V

Temperature range
Fixed installation: -55°C to +125°C
Temporary (3.000h): up to +145°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/ yellow	orange
ÖLFLEX® HEAT 125 SC - H05Z-K - U_0/U: 300/500 V											
0.5	2.2	100		4.8	8	1232003	1232001	1232106	1232002	1232000	1232009
0.5	2.2		3000	4.8	8		1232001K				
0.75	2.4	100		7.2	11	1233003	1233001	1233106	1233002	1233000	1233009
0.75	2.4		2500	7.2	11	1233003K	1233001K	1233106K	1233002K		1233009K
1	2.5	100		9.6	14	1234003	1234001	1234106	1234002	1234000	1234009
1	2.5		2500	9.6	14	1234003K	1234001K	1234106K	1234002K	1234000K	1234009K
ÖLFLEX® HEAT 125 SC - H07Z-K - U_0/U: 450/750 V											
1.5	3.0	100		14.4	21	1235003	1235001	1235106	1235002	1235000	1235009
1.5	3.0		2000	14.4	21	1235003K	1235001K	1235106K	1235002K	1235000K	1235009K
2.5	3.6	100		24	33	1236003	1236001	1236106	1236002	1236000	1236009
2.5	3.6		1200	24	33		1236001K				
4	4.3	100		38.4	49	1237003	1237001	1237106	1237002	1237000	1237009
6	4.8	100		57.6	67	1238003	1238001	1238106	1238002	1238000	
10	6.2	100		96	112	1239003	1239001		1239002	1239000	
16	7.2	100		153.6	172	1240003	1240001		1240002	1240000	
25	8.9	100		240	262		1241001			1241000	
35	10.1	100		336	362		1242001			1242000	
50	12.5	100		480	512		1243001			1243000	
70	14.2	100		672	710		1244001			1244000	
95	16.6	100		912	937		1245001			1245000	
120	18.2	100		1152	1159		1246001				
150	20.6	100		1440	1447		1247001			1247000	
185	22.5	100		1776	1790		1248001				
240	26.4	100		2304	2318		1249001				

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	dark blue	white	green	yellow	violet	red
ÖLFLEX® HEAT 125 SC - H05Z-K - U_0/U: 300/500 V											
0.5	2.2	100		4.8	8	1232114	1232105	1232006	1232005	1232007	1232104
0.75	2.4	100		7.2	11	1233114	1233105	1233006	1233005	1233007	1233104
0.75	2.4		2500	7.2	11	1233114K	1233105K				1233104K
1	2.5	100		9.6	14	1234114	1234105	1234006	1234005	1234007	1234104
1	2.5		2500	9.6	14	1234114K	1234105K				1234104K
ÖLFLEX® HEAT 125 SC - H07Z-K - U_0/U: 450/750 V											
1.5	3.0	100		14.4	21	1235114	1235105	1235006	1235005	1235007	1235104
1.5	3.0		2000	14.4	21	1235114K	1235105K				1235104K
2.5	3.6	100		24	33	1236114	1236105	1236006	1236005	1236007	1236104
4	4.3	100		38.4	49	1237114	1237105				1237104
6	4.8	100		57.6	67	1238114					1238104
10	6.2	100		96	112						1239104
16	7.2	100		153.6	172	1240114					1240104

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Cable shears with double edge refer to page 980
- UNIVERSAL STRIP stripping tool refer to page 990

ÖLFLEX® HEAT 180 SiF

Versatile single core cable with extended temperature range

Info

- Flexible fine-wire copper conductor

Benefits

- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

Application range

- Areas with high ambient temperatures where conventional core insulation materials will embrittle after a short while
- Typical fields of application
  - Control cabinet manufacturing
  - Appliances and apparatus engineering
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Furnace construction
  - Polymer processing
  - Generator and transformer manufacturing

Product features

- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Flame-retardant according IEC 60332-1-2
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based insulation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

Minimum bending radius
Fixed installation: 6 x core diameter
One bend at end of core:
3 x cable diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Temperature range
-50 °C to +180 °C
(adequate ventilation required)
Short-term: +200°C

Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/ yellow	orange	white
ÖLFLEX® HEAT 180 SiF										
0.25	1.9	2.4	5.4	0047003	0047001	0047106	0047002	0047000	0047009	0047105
0.5	2.1	4.8	9	0048003	0048001	0048106	0048002	0048000	0048009	0048105
0.75	2.4	7.2	12	0049003	0049001	0049106	0049002	0049000	0049009	0049105
1	2.5	9.6	15	0050003	0050001	0050106	0050002	0050000	0050009	0050105
1,5	2.8	14.4	20	0051003	0051001	0051106	0051002	0051000	0051009	0051105
2,5	3.4	24	32	0052003	0052001	0052106	0052002	0052000		0052105
4	4.2	38	50	0053003	0053001	0053106	0053002	0053000	0053009	0053105
6	5.0	58	73	0054003	0054001	0054106	0054002	0054000		0054105
10	6.6	96	118	0055003	0055001	0055106	0055002	0055000	0055009	0055105
16	7.4	154	177		0056001	0056106	0056002	0056000		0056105
25	9.2	240	277		0057001	0057106	0057002	0057000		
35	10.3	336	374		0058001		0058002	0058000		
50	12.2	480	530		0059001			0059000		
70	14.2	672	724		0060001		0060002			
95	16.6	912	982		0061001			0061000		0061105
120	18.0	1152	1219		0062001			0062000		
150	20.0	1440	1524		0063001					
185	22.5	1776	1915		0064001					

Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red	pink
ÖLFLEX® HEAT 180 SiF								
0.25	1.9	2.4	5.4	0047006	0047005	0047007	0047104	0047008
0.5	2.1	4.8	9	0048006	0048005	0048007	0048104	0048008
0.75	2.4	7.2	12	0049006	0049005	0049007	0049104	0049008
1	2.5	9.6	15	0050006	0050005	0050007	0050104	0050008
1,5	2.8	14.4	20	0051006	0051005	0051007	0051104	0051008
2,5	3.4	24	32	0052006	0052005	0052007	0052104	
4	4.2	38	50	0053006	0053005		0053104	
6	5.0	58	73	0054006	0054005		0054104	
10	6.6	96	118				0055104	
16	7.4	154	177				0056104	
25	9.2	240	277				0057104	
35	10.3	336	374				0058104	
50	12.2	480	530				0059104	

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Also available on large spools and non-returnable drums.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Other colours are available upon request

Similar products

- ÖLFLEX® HEAT 180 SiF A refer to page 199

ÖLFLEX® HEAT 180 SiF A

UL-AWM certified Silicone single core cable with extended temperature range

Info

- A for Advanced
  here: certification for USA and Canada
- UL AWM Style 3644 (150°C/1000 V)

Benefits

- Certified for the USA and Canada for export-oriented machine, appliance and apparatus manufacturers
- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

Application range

- Areas with high ambient temperatures where conventional core insulation materials will embrittle after a short while
- Typical fields of application
  - Control cabinet manufacturing
  - Appliances and apparatus engineering
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Furnace construction
  - Polymer processing
  - Generator and transformer manufacturing

Product features

- Fire behaviour:
  - Flame-retardant (IEC 60332-1-2)
  - Halogen-free (IEC 60754-1)
  - No corrosive gases (IEC 60754-2)
  - Low smoke density (IEC 61034-2)
  - Low toxicity (EN 50305)
- Flame retardance rating (UL): FT2 (Horizontal flame test)
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances

Norm references / Approvals

- UL AWM Style 3644
- UL File No. E63634

Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based insulation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

Minimum bending radius
Fixed installation: 6 x core diameter
One bend at end of core:
3 x cable diameter

Nominal voltage
UL: 1000 V
IEC: U_0/U 600/1000 V

Test voltage
3000 V

Temperature range
IEC: -50°C up to +180°C
UL (AWM): up to +150°C
(adequate ventilation required)

Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow	orange	dark blue
ÖLFLEX® HEAT 180 SiF A										
0.25	2.2	2.4	6.8	1249560	1249520	1249620	1249540	1249500	1249680	1249660
0.5	2.4	4.8	10.9	1249562	1249522	1249622	1249542	1249502	1249682	1249662
0.75	2.7	7.2	14	1249563	1249523	1249623	1249543	1249503	1249683	1249663
1	2.8	9.6	17.2	1249564	1249524	1249624	1249544	1249504	1249684	1249664
1,5	3.1	14.4	22.2	1249565	1249525	1249625	1249545	1249505	1249685	1249665
2,5	3.5	24	33.1	1249566	1249526	1249626	1249546	1249506	1249686	1249666
4	4.1	38	49.5	1249567	1249527	1249627	1249547	1249507		
6	5.5	58	78.3	1249568	1249528	1249628	1249548	1249508		
10	7.6	96	132.7	1249569	1249529		1249549	1249509		
16	8.4	154	192	1249570	1249530		1249550	1249510		
25	9.8	240	288.9		1249531		1249551	1249511		
35	10.9	336	386		1249532					
50	13.5	480	557.6		1249533					
70	15.5	672.2	775.2		1249534					
95	17.5	912	1004.4		1249535					

Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)	white	green	yellow	violet	red
ÖLFLEX® HEAT 180 SiF A								
0.25	2.2	2.4	6.8	1249600	1249720	1249700	1249640	1249580
0.5	2.4	4.8	10.9	1249602	1249722	1249702	1249642	1249582
0.75	2.7	7.2	14	1249603	1249723	1249703	1249643	1249583
1	2.8	9.6	17.2	1249604	1249724	1249704	1249644	1249584
1,5	3.1	14.4	22.2	1249605	1249725	1249705	1249645	1249585
2,5	3.5	24	33.1	1249606	1249726	1249706	1249646	1249586
4	4.1	38	49.5	1249607				1249587
6	5.5	58	78.3	1249608				1249588
10	7.6	96	132.7	1249609				1249589
16	8.4	154	192	1249610				1249590
25	9.8	240	288.9	1249611				1249591
35	10.9	336	386					1249592
50	13.5	480	557.6					1249593

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Cross-section 0.25 - 4 mm² only available as 100 m box
Other colours are available upon request

ÖLFLEX® HEAT 180 SiD

Silicone single core cable with solid conductor

Info

- Solid single copper conductor

Benefits

- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

Application range

- Areas with high ambient temperatures where conventional core insulation materials will embrittle after a short while
- Typical fields of application
  - Control cabinet manufacturing
  - Appliances and apparatus engineering
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Furnace construction
  - Polymer processing
  - Generator and transformer manufacturing

Product features

- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Flame-retardant according IEC 60332-1-2
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Product Make-up

- Tinned solid copper wire
- Silicone-based insulation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Solid single copper conductor

Minimum bending radius
Fixed installation: 6 x core diameter
One bend at end of core:
3 x cable diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Temperature range
-50 °C to +180 °C
(adequate ventilation required)
Short-term: +200°C

Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)	brown	black	blue	green/yellow	white
ÖLFLEX® HEAT 180 SiD								
0.5	2.0	4.8	9		0068001			0068105
0.75	2.2	7.2	12	0069003	0069001	0069002	0069000	0069105
1	2.3	9.6	15	0070003	0070001	0070002	0070000	0070105
1,5	2.6	14.4	20	0071003	0071001	0071002	0071000	0071105
2,5	3.2	24	32		0072001	0072002		
4	3.9	38	50		0073001			
6	4.6	58	64.5		0074001	0074002		

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Also available on large spools and non-returnable drums.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Other colours are available upon request

Similar products

- ÖLFLEX® HEAT 180 SiF refer to page 198
- ÖLFLEX® HEAT 180 SiF A refer to page 199

ÖLFLEX® HEAT 180 SiF/GL

Info

- With glass fibre protection braiding

ÖLFLEX® HEAT 180 SiZ

Info

- Separable twin conductor

ÖLFLEX® HEAT 180 FZLSi

Info

- 10 kV high-voltage ignition wire

Benefits

- Possesses insulating properties after combustion due to remaining SiO2 ash on the conductor

Application range

- Areas with high ambient temperatures where conventional core insulation materials will embrittle after a short while
- Typical fields of application
  - Control cabinet manufacturing
  - Appliances and apparatus engineering
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Furnace construction
  - Polymer processing
  - Generator and transformer manufacturing
- ÖLFLEX® HEAT 180 SiZ is suitable as electrical sensor cable in pipe systems for modern solar hot water systems

Product features

- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Flame-retardant according IEC 60332-1-2
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Norm references / Approvals

ÖLFLEX® HEAT 180 FZLSi

- Increased voltage rating is not subject to the Low Voltage Directive 2014/35/EU

Product Make-up

ÖLFLEX® HEAT 180 SiF/GL

- Fine-wire, tinned-copper conductor
- Silicone-based insulation
- Impregnated glass fibre braiding
- White, with natural glass fibre braiding

ÖLFLEX® HEAT 180 SiZ

- Fine-wire, tinned-copper conductor
- Silicone-based insulation
- Colour of core insulation: red
- Cores connected in parallel with a separating strip
- One of the two cores is marked for identification

ÖLFLEX® HEAT 180 FZLSi

- Fine-wire, tinned-copper conductor
- Silicone-based insulation
- Colour of core insulation: red

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

Minimum bending radius
Fixed installation: 6 x core diameter
One bend at end of core:
3 x cable diameter

Nominal voltage
Version SiF/GL / SiZ:
U0/U 300/500 V
Version FZLSi:
10 kV

Test voltage
Version SiF/GL / SiZ:
2000 V
Version FZLSi:
20 kV

Temperature range
-50 °C to +180 °C
(adequate ventilation required)
Short-term: +200°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 180 SiF/GL hook-up wire with glass fibre braiding				
0065102	0.5	2.5	4.8	11
0065103	0.75	2.8	7.2	14
0065104	1	2.9	9.6	17
0065105	1,5	3.2	14.4	23
0065106	2,5	3.8	24	36
0065107	4	4.6	38	54
0065108	6	5.4	58	80
0065109	10	7.6	96	133
0065110	16	8.4	154	198
0065111	25	10.2	240	301
0065112	35	11.3	336	401
0065113	50	13.4	480	567
ÖLFLEX® HEAT 180 SiZ twin conductor				
0065201	2 x 0.5	2.1 x 4.2	9.6	17
0065202	2 x 0.75	2.3 x 4.6	14.4	24
ÖLFLEX® HEAT 180 FZLSi high-voltage ignition wire				
2510001	1 (32 x 0,2)	7.0	9.6	68
2510005	1,5 (30 x 0,25)	7.6	14.4	83

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® HEAT 205 SC

For very high and low temperature requirements

Benefits

- Small outer diameters for maximum saving of space and weight
- Resistant to contact with mostly all highly aggressive chemical media

Application range

- For use in environments with very high operating temperatures, heavy usage of chemical agents or confined spaces
- Typical fields of application
  - Control cabinets with high heat generation
  - Measuring instruments
  - Furnaces and brickworks
  - Heating equipment and kitchen appliances
  - Electric motor building
  - Installations in the chemical industry

Product features

- ÖLFLEX® HEAT 205 made of FEP
  - Outstanding resistance against acids, solvents, lacquers, petrol, oils and many other chemical media
  - Difficult to inflame
  - High dielectric strength and high abrasion resistance
  - Low water absorption
  - Resistant to microbes
  - Adhesion free insulation materials
  - Weather and ozone resistant
  - Hydrophobic and dirt-repellent
  - High elongation and tear resistance
  - Resistant against hydraulic fluids

Product Make-up

- Fine-wire, tinned-copper conductor
- FEP core insulation
- FEP = fluorinated ethylene propylene

Info

- Now available as spools
- Thermal and chemical resistance
- Space and weight-saving

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire acc. to VDE 0295, class 5 / IEC 60228 class 5 from 0.5 mm²

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2500 V

Temperature range
Fixed installation: -100°C to +205°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow	orange	white
ÖLFLEX® HEAT 205 SC												
0.14	1.0	100		1.35	2.6		0080001		0080002			0080105
0.25	1.2	100		2.4	4	0081003	0081001	0081106	0081002		0081009	0081105
0.25	1.2		500	2.4	4	0081003S	0081001S		0081002S			
0.5	1.4	100		4.8	6.8	0082003	0082001	0082106	0082002	0082000	0082009	0082105
0.5	1.4		500	4.8	6.8	0082003S	0082001S		0082002S			
0.75	1.8	100		7.2	10.1	0083003	0083001		0083002	0083000		0083105
0.75	1.8		500	7.2	10.1	0083003S	0083001S		0083002S	0083000S		
1	1.9	100		9.6	12.8	0084003	0084001	0084106	0084002	0084000		0084105
1	1.9		500	9.6	12.8	0084003S	0084001S		0084002S	0084000S		
1.5	2.1	100		14.4	18	0085003	0085001		0085002	0085000		0085105
1.5	2.1		500	14.4	18	0085003S	0085001S		0085002S	0085000S		
2.5	2.6	100		24	29.5	0086003	0086001	0086106	0086002	0086000		0086105
2.5	2.6		500	24	29.5	0086003S	0086001S		0086002S	0086000S		
4	3.1	100		38	45	0087003	0087001		0087002	0087000		0087105
6	3.8			58	68	0088003	0088001		0088002	0088000		
10	4.7			96	116	0089003	0089001	0089106	0089002	0089000		0089105
16	6.6			154	175		0090001		0090002	0090000		

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red	transparent
ÖLFLEX® HEAT 205 SC										
0.14	1.0	100		1.35	2.6	0080006	0080005		0080104	0080010
0.25	1.2	100		2.4	4	0081006	0081005		0081104	0081010
0.25	1.2		500	2.4	4				0081104S	
0.5	1.4	100		4.8	6.8	0082006	0082005	0082007	0082104	0082010
0.5	1.4		500	4.8	6.8				0082104S	
0.75	1.8	100		7.2	10.1	0083006	0083005		0083104	0083010
0.75	1.8		500	7.2	10.1				0083104S	
1	1.9	100		9.6	12.8	0084006	0084005	0084007	0084104	0084010
1	1.9		500	9.6	12.8				0084104S	
1.5	2.1	100		14.4	18		0085005		0085104	0085010
1.5	2.1		500	14.4	18				0085104S	
2.5	2.6	100		24	29.5			0086007	0086104	0086010
2.5	2.6		500	24	29.5				0086104S	
4	3.1	100		38	45		0087005		0087104	0087010
6	3.8			58	68				0088104	0088010
10	4.7			96	116				0089104	0089010
16	6.6			154	175				0090104	

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Other colours are available upon request

Similar products

- ÖLFLEX® HEAT 260 SC refer to page 203

Accessories

- Diagonal cutter refer to page 979

ÖLFLEX® HEAT 260 SC

For use in the most extreme conditions

Info

- Excellent chemical, thermal and electrical performance
- Space and weight-saving

Benefits

- Small outer diameters for maximum saving of space and weight
- Resistant to contact with mostly all highly aggressive chemical media
- Stress crack resistant to frequent ambient temperature fluctuations

Application range

- For use in environments with very high operating temperatures, heavy usage of chemical agents or confined spaces
- Typical fields of application
  - Aerospace engineering
  - High-frequency engineering
  - Control cabinets with high heat generation
  - Measuring instruments
  - Furnaces and brickworks
  - Heating equipment and kitchen appliances
  - Electric motor building
  - Installations in the chemical industry

Product features

- ÖLFLEX® HEAT 260 made of PTFE
  - Outstanding resistance against acids, alkalis, solvents, lacquers, petrol, oils and many other chemical media
  - Difficult to inflame
  - High dielectric strength and high abrasion resistance
  - Low water absorption
  - Resistant to microbes
  - Adhesion-free insulation materials
  - Weather and ozone resistant
  - Hydrophobic and dirt-repellent
  - High elongation and tear resistance
  - Resists contact with liquid nitrogen
  - Resistant against hydraulic fluids
- Silver plated copper is characterized by good surface conductivity (skin effect) and good solderability

Product Make-up

- Silver-plated AWG copper conductor
- PTFE core insulation
- PTFE = Polytetrafluoroethylene

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
AWG conductor sizes: 7, 19 or 37 wires

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
3400 V

Temperature range
Fixed installation: -190°C to +260°C

AWG No. and wire number	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow	orange	white
ÖLFLEX® HEAT 260 SC										
28 (7)	0.8	0.9	2	0094003	0094001	0094106	0094002	0094000	0094009	0094105
26 (7)	0.9	1.4	2.7		0095001	0095106	0095002		0095009	0095105
26 (19)	0.9	1.5	2.9		0096001	0106011		0096000		
24 (7)	1.1	2.2	3.8	0097003	0097001		0097002			0097105
24 (19)	1.1	2.3	4	0098003	0098001	0098106	0098002	0098000		0098105
22 (7)	1.2	3.4	5.4	0099003	0099001		0099002			0099105
22 (19)	1.2	3.7	5.7	0100003	0100001		0100002		0100009	0100105
20 (7)	1.4	5.4	7.7	0101003	0101001		0101002			0101105
20 (19)	1.4	5.9	8.2	0102003	0102001	0102106	0102002	0102000	0102009	0102105
18 (7)	1.7	8.6	12		0103001					
18 (19)	1.7	9.3	12	0104003	0104001		0104002	0104000	0104009	0104105
16 (19)	2.0	11.8	16	0105003	0105001		0105002	0105000	0105009	0105105
14 (19)	2.4	18.7	23	0106003	0106001	0106106	0106002	0106000		0106105
12 (19)	2.8	29.6	35	0107003	0107001		0107002	0107000	0107009	0107105
10 (37)	3.4	45.6	51		0108001		0108002	0108000		0108105

AWG No. and wire number	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red
ÖLFLEX® HEAT 260 SC							
28 (7)	0.8	0.9	2	0094006	0094005	0094007	0094104
26 (7)	0.9	1.4	2.7	0095006		0095007	0095104
26 (19)	0.9	1.5	2.9	0096006			0096104
24 (7)	1.1	2.2	3.8				0097104
24 (19)	1.1	2.3	4	0098006			0098104
22 (7)	1.2	3.4	5.4	0099006	0099005	0099007	0099104
22 (19)	1.2	3.7	5.7		0100005		0100104
20 (7)	1.4	5.4	7.7	0101006			0101104
20 (19)	1.4	5.9	8.2	0102006	0102005	0102007	0102104
18 (7)	1.7	8.6	12				0103104
18 (19)	1.7	9.3	12	0104006	0104005	0104007	0104104
16 (19)	2.0	11.8	16	0105006	0105005	0105007	0105104
14 (19)	2.4	18.7	23	0106006	0106005		0106104
12 (19)	2.8	29.6	35	0107006	0107005		
10 (37)	3.4	45.6	51				0108104

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil 100m / Available as original coil goods only
Also available on large spools and non-returnable drums.
Photographs and graphics are not to scale and do not represent detailed images of the respective products. / Other colours are available upon request

Similar products

- ÖLFLEX® HEAT 205 SC refer to page 202

Accessories

- EASY STRIP stripping and cutting tool refer to page 988

ÖLFLEX® HEAT 350 SC

Suitable for use in ambient temperature from -50 °C to +350 °C

Info

- For use in dry conditions

Benefits

- Low conductor-resistance due to the nickel-plated copper conductors

Application range

- Wide operating temperature range allows the product to be used in applications under Thermal Class C (>180°C).
- Blast furnaces and glassworks
- Chemical and power station construction
- Motor and furnace construction
- Lighting, apparatus and instrument industry

Product features

- Flame-retardant
- Halogen-free
- Only suitable for use in dry conditions
- ÖLFLEX® HEAT 650 SC and ÖLFLEX® HEAT 1565 SC are recommended if the peak temperature of the application may go beyond +350°C

Product Make-up

- Fine-wire strand made of nickel-plated copper
- Core insulation: glass fibre covering and impregnated glass fibre braids
- Core insulation from 16 mm²: mica wrapping and impregnated glass fibre braid
- Colour of core insulation: white

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Fixed installation: 5 x outer diameter

Nominal voltage
U0/U 230/400 V

Test voltage
1500 V

Temperature range
Fixed installation: -50°C to +350°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 350 SC				
0091350	0.5	2.5	4.8	13
0091351	0.75	3.0	7.2	15
0091352	1	3.4	9.6	17
0091353	1,5	3.5	14.4	23
0091354	2,5	3.7	24	34
0091355	4	4.2	38.4	54
0091356	6	6.2	57.6	84
0091357	10	7.3	96	120
0091358	16	8.0	153.6	199
0091359	25	9.5	240	300
0091360	35	10.9	336	399
0091361	50	13.2	480	540

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 650 SC refer to page 206
- ÖLFLEX® HEAT 1565 SC refer to page 205

Accessories

- Cable shears with double edge refer to page 980

ÖLFLEX® HEAT 1565 SC

Suitable for use in ambient temperatures between -195°C to +400°C

Info

- Short-term: up to +1565 °C
- For use in dry conditions

Benefits

- Low conductor-resistance due to the nickel-plated copper conductors
- Able to withstand temporary contact with molten metal or glass

Application range

- Guarantees the circuit even in areas with extremely high ambient temperatures
- Blast furnaces and coking plants
- Refineries
- Glassworks
- Aluminium and steelworks

Product features

- Flame-retardant
- Only suitable for use in dry conditions

Product Make-up

- Fine-wire strand made of nickel-plated copper
- Mica tape wrapping
- Impregnated glass fibre braiding, core colour: red

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine copper wire strands

Minimum bending radius
Fixed installation: 5 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2200 V

Temperature range
-195°C to +400°C
Short-term: up to +1565 °C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT SC 1565				
3020780	0.75	2.9	7.2	16
3020781	1	3.0	9.6	19
3013234	1,5	3.3	14.4	24
3020782	2,5	3.8	24	35
3018942	4	4.8	38.4	56
3020783	6	5.6	57.6	86
3016697	10	6.2	96	123
3016698	16	7.9	153.6	203
3016699	25	9.2	240	295
3016771	35	10.6	336	404
3017861	50	12.2	480	545

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® HIPROJACKET refer to page 917

ÖLFLEX® HEAT 650 SC

Suitable for use in ambient temperature from -50°C to +700°C

Info

- For use in dry conditions

Benefits

- Suitable for areas where the installation temperature and ambient temperature is very high
- Good electrical conductivity due to nickel strand also at high temperatures

Application range

- Heating modules, electric heating devices, heat lockers
- Furnaces, electric ranges, night storage heater
- Heavy industry, iron and steel works, foundries, glass and ceramic processing, chemical industries
- Machinery, apparatus and power plant construction

Product features

- Flame-retardant
- Halogen-free
- Only suitable for use in dry conditions
- ÖLFLEX® HEAT 1565 SC is recommended if the peak temperature of the application may briefly go beyond 700°C

Product Make-up

- Strand made of nickel
- Core insulation: glass fibre covering and impregnated glass fibre braids

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire
see data sheet

Minimum bending radius
Fixed installation: 5 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
1800 V

Temperature range
Occasional flexing: -50°C to +650°C
Fixed installation: -50°C to +700°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Ni-index (kg/km)	Weight (kg/km)
ÖLFLEX® HEAT 650 SC				
1232650	0.5	2.4	4.8	13
1232651	0.75	2.5	7.6	15
1232652	1	2.7	9.7	17
1232653	1,5	3.0	14.8	23
1232654	2,5	3.5	23.5	34
1232655	4	3.9	38.6	54
1232656	6	4.6	57.9	84
1232657	10	6.8	96.5	120
1232658	16	7.5	152	199
1232659	25	9.0	236.4	300
1232660	35	10.4	332.8	399
1232661	50	12.7	481.1	540

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
No copper surcharge.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil ≤ 30 kg, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

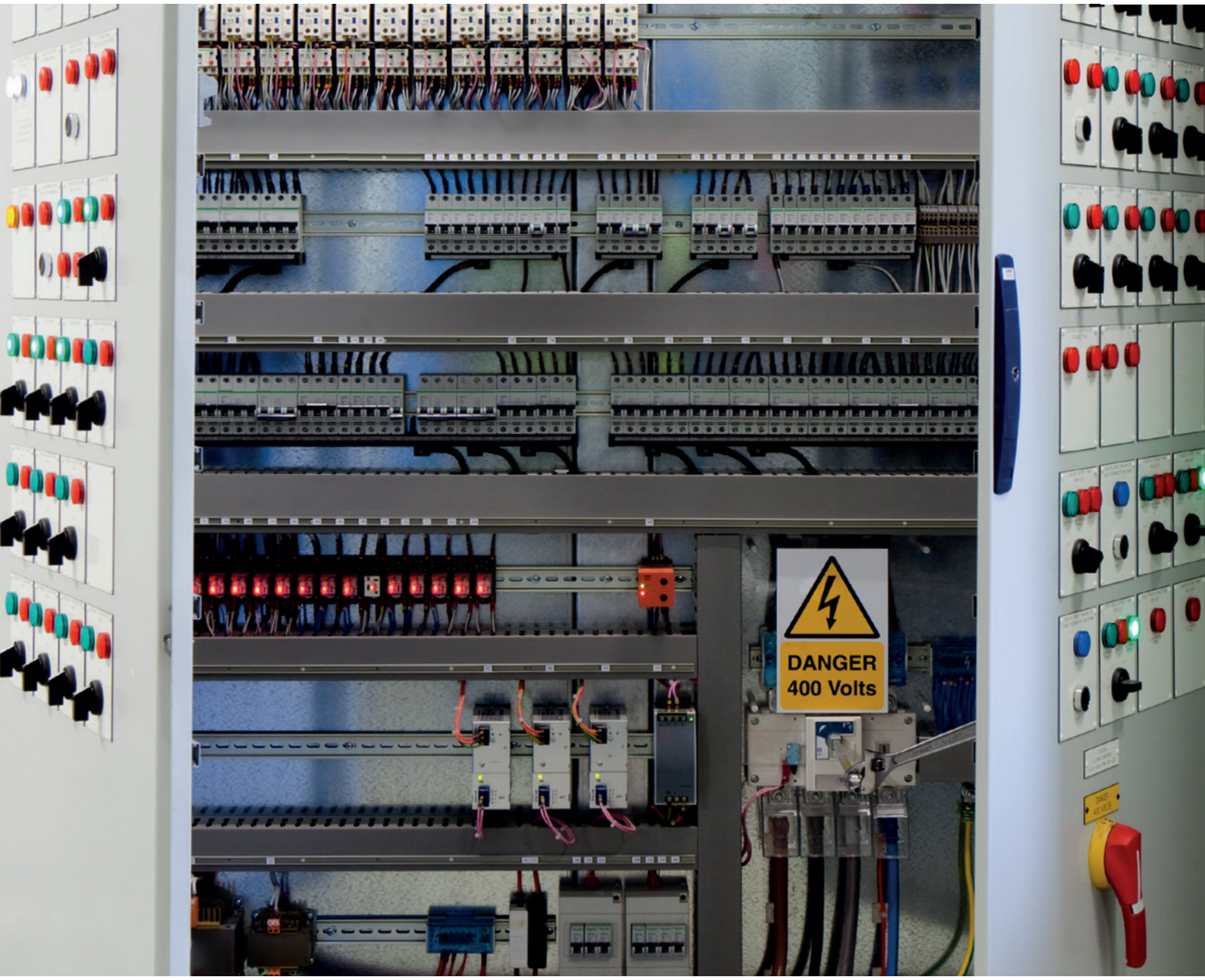
Similar products

- ÖLFLEX® HEAT 1565 SC refer to page 205

Accessories

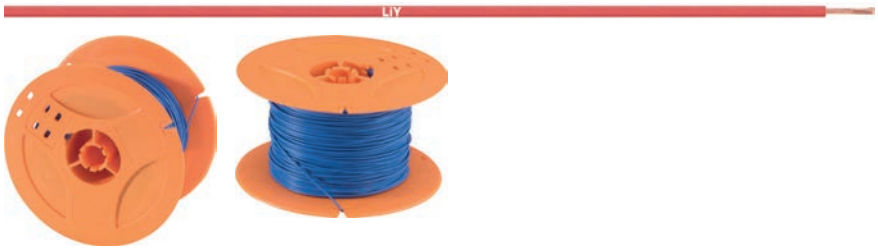
- Cable shears with double edge refer to page 980

Control Cabinet
Single Cores



LiY

Stranded hook-up wire for telecommunication devices and electronic components



Info

- PVC control hook-up wire
- Cost-effective

Application range

- Stranded hook-up wires for wiring of telecommunication devices and electronic components within devices

Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 150 mm; b = 85 mm

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Stranded copper wire
- Core insulation: PVC-based, type YI 2/TI 2 according to VDE 0207-4

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Peak operating voltage
500 V (0.14 mm²)
900 V (0.25 sq.mm)

Conductor stranding
0.14 mm²: ≥ 18 strands (each with 0.10 mm Ø)
0.25 mm²: ≥ 14 strands (each with 0.15 mm Ø)

Nominal voltage
Operating voltage < 50 VAC
UPP - peak-to-peak voltage: ≤ 250 V

Test voltage
1200 V (0.14 mm²)
2500 V (0.25 mm²)

Temperature range
Fixed installation: -30°C to +70°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	brown	black	grey	blue	green/yellow
0.14	1.1	500	1.35	4125003S	4125001S	4125106S	4125002S	4125000S
0.25	1.3	250	2.4	4126003S	4126001S	4126106S	4126002S	4126000S

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	orange	dark blue	white	green	yellow
0.14	1.1	500	1.35	4125009S		4125105S	4125006S	4125005S
0.25	1.3	250	2.4	4126009S	4126014S	4126105S	4126006S	4126005S

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	violet	red	pink
0.14	1.1	500	1.35	4125007S	4125104S	4125008S
0.25	1.3	250	2.4	4126007S	4126104S	4126008S

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

LiY with twin colour helix insulation

Stranded hook-up wire with telecommunication conductor and coloured stripes

Info

- PVC control hook-up wire
- Cost-effective
- Twin-colour spiralized PVC

Application range

- Stranded hook-up wires for wiring of telecommunication devices and electronic components within devices

Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 150 mm; b = 85 mm

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Stranded copper wire
- Core insulation: PVC-based, type YI 2/TI 2 according to VDE 0207-4
- Labelled with coloured stripes

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Peak operating voltage
900 V (0.25 sq.mm)

Conductor stranding
0.25 mm²: ≥ 14 strands (each with 0.15 mm Ø)

Nominal voltage
Operating voltage < 50 VAC
UPP - peak-to-peak voltage: ≤ 250 V

Test voltage
2500 V (0.25 mm²)

Temperature range
Fixed installation: -30°C to +70°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	blue/white	blue/black	brown/green	brown/white
0.25	1.5	250	2.4	4502262S	4502232S	4502282S	4502292S

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	green/white	orange/white	white/blue	white/red
0.25	1.5	250	2.4	4502342S	4502392S	4502442S	4502462S

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

H05V-K <HAR>

European <HAR> cable type certification

Benefits

- Cables' <HAR>marking also stands for the international endorsement of national certification institutes' testing marks and certificates, e. g. <VDE><HAR>. The <HAR>marking is of special importance in case of goods traffic between European countries.

Application range

- Internal wiring of devices
- Protected installation in and on lighting equipments
- Signal systems in and on plaster in tubes

Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- <HAR>

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

Temperature range
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
0.5	2.1 - 2.5	100		4.8	9	4510031	4510011	4510061	4510021	4510001
0.75	2.2 - 2.7	100		7.2	12	4510032	4510012	4510062	4510022	4510002
1	2.4 - 2.8	100		9.6	15	4510033	4510013	4510063	4510023	4510003
0.5	2.1 - 2.5		250	4.8	9	4510031S	4510011S	4510061S	4510021S	4510001S
0.75	2.2 - 2.7		250	7.2	12	4510032S	4510012S	4510062S	4510022S	4510002S
1	2.4 - 2.8		250	9.6	15	4510033S	4510013S	4510063S	4510023S	4510003S

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	orange	dark blue	white	green	yellow
0.5	2.1 - 2.5	100		4.8	9	4510091	4510141	4510051	4510121	4510111
0.75	2.2 - 2.7	100		7.2	12	4510092	4510142	4510052	4510122	4510112
1	2.4 - 2.8	100		9.6	15	4510093	4510143	4510053	4510123	4510113
0.5	2.1 - 2.5		250	4.8	9	4510091S	4510141S	4510051S	4510121S	4510111S
0.75	2.2 - 2.7		250	7.2	12	4510092S	4510142S	4510052S	4510122S	4510112S
1	2.4 - 2.8		250	9.6	15	4510093S	4510143S	4510053S	4510123S	

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	violet	red	ultra-marine blue	Dark blue/ white	transparent
0.5	2.1 - 2.5	100		4.8	9	4510071	4510041	4510161	4510921	
0.75	2.2 - 2.7	100		7.2	12	4510072	4510042		4510922	
1	2.4 - 2.8	100		9.6	15	4510073	4510043	4510163	4510923	
0.5	2.1 - 2.5		250	4.8	9	4510071S	4510041S			
0.75	2.2 - 2.7		250	7.2	12	4510072S	4510042S	4510162S		4510102S
1	2.4 - 2.8		250	9.6	15	4510073S	4510043S	4510163S		4510103S

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	pink
0.5	2.1 - 2.5	100		4.8	9	4510081
0.75	2.2 - 2.7	100		7.2	12	4510082
1	2.4 - 2.8	100		9.6	15	4510083
0.75	2.2 - 2.7		250	7.2	12	4510082S

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

H05V-K in big one-way cardboard box

Harmonised, flexible single conductor for protected, fixed installation

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Efficient
- <HAR>

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

Temperature range
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

Benefits

- Higher cost-effectiveness due to optimum processing volumes
- Single cores are embossed so that an additional, subsequent marking by ink jet printing is readable
- The comparatively low weight of the cardboard boxes makes handling easy
- Time-saving assembly

Application range

- Ideal for assembling to achieve longer operating times and trouble-free printing
- Suitable for assembling cable harnesses and wiring during switch cabinet installation

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

Conductor cross-section (mm²)	Outer diameter [mm]	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
0.5	2.1 - 2.5	3000	4.8	9	4511065K	4510011K	4511073K	4510021K	4510001K
0.5	2.1 - 2.5	9000	4.8	9				4510021E	
0.75	2.2 - 2.7	2500	7.2	12	4510032K	4510012K	4510062K	4510022K	4510002K
0.75	2.2 - 2.7	7500	7.2	12				4510022E	
1	2.4 - 2.8	2000	9.6	15	4510033K	4510013K	4510063K	4510023K	4510003K
1	2.4 - 2.8	6000	9.6	15		4510013E		4510023E	

Conductor cross-section (mm²)	Outer diameter [mm]	m/box	Copper index (kg/km)	Weight (kg/km)	orange	dark blue	white	green	yellow
0.5	2.1 - 2.5	3000	4.8	9		4511064K	4511072K		
0.5	2.1 - 2.5	9000	4.8	9		4511060E			
0.75	2.2 - 2.7	2500	7.2	12	4510092K	4510142K	4510052K	4510122K	4510112K
0.75	2.2 - 2.7	7500	7.2	12		4511061E			
1	2.4 - 2.8	2000	9.6	15	4510093K	4510143K	4510053K		4510113K
1	2.4 - 2.8	6000	9.6	15		4511062E			

Conductor cross-section (mm²)	Outer diameter [mm]	m/box	Copper index (kg/km)	Weight (kg/km)	violet	red	ultra-marine blue	blue/white	Dark blue/ white
0.5	2.1 - 2.5	3000	4.8	9	4511068K	4511071K	4510161K		4510921K
0.75	2.2 - 2.7	2500	7.2	12	4510072K	4510042K	4510162K	4510262K	4510922K
1	2.4 - 2.8	2000	9.6	15	4510073K	4510043K	4510163K	4510263K	4510923K

Conductor cross-section (mm²)	Outer diameter [mm]	m/box	Copper index (kg/km)	Weight (kg/km)	pink
0.75	2.2 - 2.7	2500	7.2	12	4510082K

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- H05V-K <HAR> refer to page 210

Accessories

- Diagonal cutter refer to page 979
- DIN-assorted boxes conductor end sleeves refer to page 995
- EASY STRIP stripping and cutting tool refer to page 988
- PEW 8.87 crimping pliers refer to page 1000

X05V-K with twin colour helix insulation

Application range

- Internal wiring of devices
- Protected installation in and on lighting equipments
- Signal systems in and on plaster in tubes

Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

Norm references / Approvals

- Based on EN 50525-2-31

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC
- Labelled with coloured stripes

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Twin-colour spiralized PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
4 x outer diameter (OD) if used as defined for H05V-K; 2 x OD for cautious bending

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

Temperature range
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	Weight (kg/km)	blue/white	Dark blue/ white	black/white	blue/black
0.5	2.1 - 2.5	250	4.8	9	4512261S	4512921S	4512221S	4512231S
0.75	2.2 - 2.7	250	7.2	12	4512262S	4512922S	4512222S	4512232S
1	2.4 - 2.8	250	9.6	15	4512263S	4512923S	4512223S	4512233S

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	m/box	Copper index (kg/km)	Weight (kg/km)	blue/green	blue / red	brown/black	brown/white
0.5	2.1 - 2.5	250		4.8	9	4512241S	4512251S		4512291S
0.75	2.2 - 2.7	250		7.2	12	4512242S	4512252S	4512272S	4512292S
0.75	2.2 - 2.7		4000	7.2	12		4512252K		
1	2.4 - 2.8	250		9.6	15	4512243S	4512253S		4512293S

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	Weight (kg/km)	yellow/white	violet/black	violet/white	orange/black
0.5	2.1 - 2.5	250	4.8	9	4512321S	4512351S	4512371S	4512381S
0.75	2.2 - 2.7	250	7.2	12	4512322S	4512352S	4512372S	4512382S
1	2.4 - 2.8	250	9.6	15		4512353S	4512373S	4512383S

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	m/box	Copper index (kg/km)	Weight (kg/km)	orange/white	red/black	red/white	white/black
0.5	2.1 - 2.5	250		4.8	9	4512391S	4512401S	4512421S	4512431S
0.75	2.2 - 2.7	250		7.2	12	4512392S	4512402S	4512422S	4512432S
1	2.4 - 2.8	250		9.6	15	4512393S	4512403S	4512423S	4512433S
1	2.4 - 2.8		2000	9.6	15	4512393K		4512423K	

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	Weight (kg/km)	white/blue	grey-black
0.5	2.1 - 2.5	250	4.8	9	4512441S	4512471S
0.75	2.2 - 2.7	250	7.2	12	4512442S	4512472S
1	2.4 - 2.8	250	9.6	15	4512443S	4512473S

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

H07V-K <HAR>

European <HAR> cable type certification

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- <HAR>

Benefits

- Cables' <HAR>marking also stands for the international endorsement of national certification institutes' testing marks and certificates, e. g. <VDE><HAR>. The <HAR>marking is of special importance in case of goods traffic between European countries.

Application range

- Laying in tubes, exposed or buried in plaster, and in closed installation ducts
- For direct laying on racks, troughs and tubes only as potential equalisation conductor

Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31
- No cable type certified core insulation colours according to EN 50525-1/ VDE 0285-525-1: transparent, green (single colour), yellow (single colour), all double colours (except of green-yellow and yellow-green)

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
According to EN 50565-1
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

Temperature range
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
1.5	2.8 - 3.4		150	14.4	22	4520031S	4520011S	4520061S	4520021S	4520001S
2.5	3.4 - 4.1		100	24	37	4520032S	4520012S	4520062S	4520022S	4520002S
1.5	2.8 - 3.4	100		14.4	22	4520031	4520011	4520061	4520021	4520001
2.5	3.4 - 4.1	100		24	37	4520032	4520012	4520062	4520022	4520002
4	3.9 - 4.8	100		38.4	45	4520033	4520013	4520063	4520023	4520003
6	4.4 - 5.3	100		57.6	71	4520034	4520014	4520064	4520024	4520004
10	5.7 - 6.8	100		96	120	4520035	4520015	4520065	4520025	4520005
16	6.7 - 8.1			153.6	187	4520036	4520016	4520066	4520026	4520006
25	8.4 - 10.2			240	290	4521031	4521011		4521021	4521001
35	9.7 - 11.7			336	399	4521032	4521012	4521062	4521022	4521002
50	11.5 - 13.9			480	559		4521013		4521023	4521003
70	13.2 - 16			672	776		4521014		4521024	4521004
95	15.1 - 18.2			912	1031		4521015		4521025	4521005
120	16.7 - 20.2			1152	1285		4521016			4521006
150	18.6 - 22.5			1440	1563		4521017			4521007
185	20.6 - 24.9			1776	1915		4521018			4521008
240	23.5 - 28.4			2304	2550		4521019			4521009

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	orange	dark blue	white	green	yellow
1.5	2.8 - 3.4		150	14.4	22		4520141S	4520051S		
2.5	3.4 - 4.1		100	24	37		4520142S	4520052S		
1.5	2.8 - 3.4	100		14.4	22	4520091	4520141	4520051	4520121	4520111
2.5	3.4 - 4.1	100		24	37	4520092	4520142	4520052	4520122	4520112
4	3.9 - 4.8	100		38.4	45	4520093	4520143	4520053	4520123	4520113
6	4.4 - 5.3	100		57.6	71	4520094	4520144	4520054	4520124	4520114
10	5.7 - 6.8	100		96	120	4520095	4520145	4520055		
16	6.7 - 8.1			153.6	187	4520096	4520146	4520056	4520126	
25	8.4 - 10.2			240	290	4521091				
35	9.7 - 11.7			336	399	4521092				

Power and control cables

LAPP

Control Cabinet Single Cores • Various applications

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	violet	red	ultra-marine blue
1.5	2.8 - 3.4		150	14.4	22		4520041S	
2.5	3.4 - 4.1		100	24	37		4520042S	
1.5	2.8 - 3.4	100		14.4	22	4520071	4520041	4520161
2.5	3.4 - 4.1	100		24	37	4520072	4520042	4520162
4	3.9 - 4.8	100		38.4	45		4520043	4520163
6	4.4 - 5.3	100		57.6	71	4520074	4520044	4520164
10	5.7 - 6.8	100		96	120		4520045	
16	6.7 - 8.1			153.6	187		4520046	
25	8.4 - 10.2			240	290		4521041	
35	9.7 - 11.7			336	399		4521042	
50	11.5 - 13.9			480	559		4521043	
70	13.2 - 16			672	776		4521044	

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*for conventional use, **for careful bending; „OD“ = outer diameter

Similar products

- MULTI-STANDARD SC 2.1 refer to page 218
- MULTI-STANDARD SC 2.2 refer to page 221

Accessories

- Mobile crimp tool crimping pliers refer to page 1017
- DIN-assorted boxes conductor end sleeves refer to page 995
- PEW 8.87 crimping pliers refer to page 1000
- FLEXIMARK® Collar Snap-on refer to page 960

H07V-K in big one-way cardboard box

Harmonised, flexible single conductor for protected, fixed installation

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Efficient
- <HAR>

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V AC

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

Temperature range
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

Benefits

- Higher cost-effectiveness due to optimum processing volumes
- Single cores are embossed so that an additional, subsequent marking by ink jet printing is readable
- The comparatively low weight of the cardboard boxes makes handling easy
- Time-saving assembly

Application range

- Ideal for assembling to achieve longer operating times and trouble-free printing
- Suitable for assembling cable harnesses and wiring during switch cabinet installation

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31
- No cable type certified core insulation colours according to EN 50525-1/ VDE 0285-525-1: transparent, green (single colour), yellow (single colour), all double colours (except of green-yellow and yellow-green)

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

Conductor cross-section (mm²)	Outer diameter [mm]	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
1.5	2.8 - 3.4	1500	14.4	22	4520031K	4520011K	4520061K	4520021K	4520001K
1.5	2.8 - 3.4	4000	14.4	22		4520011E		4520021E	4520001E
2.5	3.4 - 4.1	900	24	37	4520032K	4520012K	4520062K	4520022K	4520002K
2.5	3.4 - 4.1	2500	24	37		4520012E		4520022E	4520002E
4	3.9 - 4.8	600	38.4	45	4520033K	4520013K	4520063K	4520023K	4520003K
4	3.9 - 4.8	2000	38.4	45		4520013E			
6	4.4 - 5.3	400	57.6	71		4520014K		4520024K	4520004K
6	4.4 - 5.3	1500	57.6	71		4520014E		4520024E	4520004E

Conductor cross-section (mm²)	Outer diameter [mm]	m/box	Copper index (kg/km)	Weight (kg/km)	orange	dark blue	white	green	yellow
1.5	2.8 - 3.4	1500	14.4	22	4520091K	4520141K	4520051K		4520111K
1.5	2.8 - 3.4	4000	14.4	22		4520141E			
2.5	3.4 - 4.1	900	24	37	4520092K	4520142K	4520052K	4520122K	
4	3.9 - 4.8	600	38.4	45	4520093K	4520143K			
6	4.4 - 5.3	400	57.6	71	4520094K				

Conductor cross-section (mm²)	Outer diameter [mm]	m/box	Copper index (kg/km)	Weight (kg/km)	violet	red	blue/white	Dark blue/white
1.5	2.8 - 3.4	1500	14.4	22	4520071K	4520041K		
1.5	2.8 - 3.4	4000	14.4	22		4520041E		
2.5	3.4 - 4.1	900	24	37		4520042K		4520922K
4	3.9 - 4.8	600	38.4	45		4520043K	4520263K	4520923K
6	4.4 - 5.3	400	57.6	71		4520044K	4520264K	4520924K
6	4.4 - 5.3	1500	57.6	71		4520044E		

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- H05V-K <HAR> refer to page 210
- H07V-K <HAR> refer to page 213

Accessories

- Diagonal cutter refer to page 979
- DIN-assorted boxes conductor end sleeves refer to page 995
- EASY STRIP stripping and cutting tool refer to page 988
- PEW 8.87 crimping pliers refer to page 1000

X07V-K with twin colour helix insulation

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Twin-colour spiralized PVC

Application range

- Laying in tubes, exposed or buried in plaster, and in closed installation ducts
- For direct laying on racks, troughs and tubes only as potential equalisation conductor

Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

Norm references / Approvals

- Based on EN 50525-2-31

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC
- Labelled with coloured stripes

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
4 x outer diameter if used as defined for H07V-K; 2 x outer diameter for short-term bending

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

Temperature range
Fixed installation: -40°C to +80°C
Moved: +5°C to +70°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	Weight (kg/km)	blue/white	Dark blue/ white	black/red	black/white	blue/black	blue / red	brown/white
1.5	2.8 - 3.4	150	14.4	22	4522261S	4522921S	4522211S	4522221S	4522231S	4522251S	4522291S
2.5	3,4 - 4,1	100	24	37	4522262S	4522922S		4522222S		4522252S	4522292S

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	Weight (kg/km)	yellow/red	yellow/ white	violet/white	orange/ black	orange/ white	red/black	red/white
1.5	2.8 - 3.4	150	14.4	22	4522311S	4522321S	4522371S	4522381S	4522391S	4522401S	4522421S
2.5	3,4 - 4,1	100	24	37					4522392S		4522422S

Conductor cross-section (mm²)	Outer diameter [mm]	m/spool	Copper index (kg/km)	Weight (kg/km)	white/blue	white/red
1.5	2.8 - 3.4	150	14.4	22	4522441S	4522461S

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- X05V-K with twin colour helix insulation refer to page 212

Accessories

- DIN-assorted boxes conductor end sleeves refer to page 995
- EASY STRIP stripping and cutting tool refer to page 988
- PEW 8.87 crimping pliers refer to page 1000

MULTI-STANDARD SC 1

UL-recognised (AWM) + CSA AWM I A/B + <HAR> H05V-K, tinned-copper strands

Info

- Formerly: Multi-Standard single core UL-CSA-HAR 1007/1569

Benefits

- For use in the most important global markets
- Reduction in technical documentation
- Easy storage
- Increases the cost-effectiveness of the production process

Application range

- Factory wiring
- Internal wiring of devices
- Control cabinet wiring

Product features

- Flame-retardant according IEC 60332-1-2
- Flame-retardant according to UL VW1/ CSA FT1
- Oil-resistant

Norm references / Approvals

- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.
- Cable type certifications: <HAR> H05V-K acc. EN 50525-2-31, UL AWM styles 1007 & 1569 (by UL acc. UL standard UL 758, U.I. Lapp GmbH's UL AWM file number: E63634), CSA AWM I A/B (by CSA acc. CSA standard CSA C22.2 No. 210-05, CSA class 5851-01)

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Special PVC-based core insulation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

Nominal voltage
HAR / IEC: U0/U: 300/500 V;
UL (AWM): U: 300 V;
CSA (AWM I A/B): U: 300 V

Test voltage
2000 V

Temperature range
Fixed installation:
HAR/IEC: -40°C to +70°C;
UL (AWM): -40°C to +105°C;
CSA (AWM I A/B): -40°C to +105°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	brown	black	grey
0.5	2.5	100	4.8	9	4180403	4180401	4180406
0.75	2.6	100	7.2	12	4180503	4180501	4180506
1	2.8	100	9.6	15	4180603	4180601	4180606

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	blue	green/yellow	orange
0.5	2.5	100		4.8	9	4180402	4180400	4180409
0.75	2.6	100		7.2	12	4180502	4180500	
1	2.8	100		9.6	15	4180602	4180600	4180609
1	2.8		2000	9.6	15		4180600K	

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	dark blue	white	violet
0.5	2.5	100		4.8	9	4180414	4180405	
0.5	2.5		3000	4.8	9	4180414K		
0.75	2.6	100		7.2	12	4180514		4180507
0.75	2.6		2500	7.2	12	4180514K		
1	2.8	100		9.6	15	4180614	4180605	

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	red
0.5	2.5	100	4.8	9	4180404
0.75	2.6	100	7.2	12	4180504
1	2.8	100	9.6	15	4180604

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
The outer diameters stated in the part number table are maximum values.

Similar products

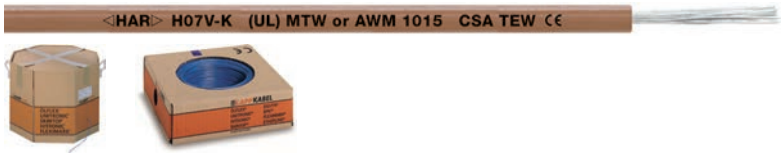
- H05V-K <HAR> refer to page 210
- MULTI-STANDARD SC 2.1 refer to page 218

Accessories

- DIN-assorted boxes conductor end sleeves refer to page 995
- EASY STRIP stripping and cutting tool refer to page 988
- PEW 8.87 crimping pliers refer to page 1000
- FLEXIMARK® Collar Snap-on refer to page 960

MULTI-STANDARD SC 2.1

USA: UL-listed (MTW), Canada: CSA (TEW), Europe: <HAR> H07V-K (depending on cross s.), tin-coated strands



Benefits

- For use in the most important global markets
- Reduction in technical documentation
- Easier storage; increases the cost-effectiveness of the production process
- Works with „Conductor end sleeves XL, insulated“

Application range

- Factory wiring
- Field wiring
- Internal wiring of devices
- Control cabinet wiring

Product features

- Flame-retardant according IEC 60332-1-2
- Flame-retardant according to UL VW1/ CSA FT1
- Oil-resistant

Norm references / Approvals

- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/ kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.
- Cable type certifications: <HAR> H07V-K acc. EN 50525-2-31, UL AWM style 1015 (by UL acc. UL standard UL 758, U.I. Lapp GmbH's UL AWM file number: E63634), (UL) MTW (by UL acc. UL standard UL 1063, U.I. Lapp GmbH's (UL) MTW file number: E198296), CSA TEW (by CSA acc. CSA standard CSA C22.2 No. 127, CSA class 5835-01)

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Special PVC-based core insulation

Info

- The all-rounder for many markets

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

Nominal voltage
HAR / IEC: U0/U: 450/750 V;
UL (AWM): U: 600 V;
UL (MTW): U: 600 V;
CSA (TEW): U: 600 V

Temperature range
Fixed installation:
HAR/IEC: -40°C to +70°C;
UL (AWM): -40°C to +105°C;
UL (MTW): -40°C to +90°C;
CSA (TEW): up to +105°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black
0.5	2.7	100		4.8	11	4160103	4160101
0.5	2.7		3000	4.8	11		4160101K
0.75	2.9	100		7.2	14	4160203	4160201
0.75	2.9		2500	7.2	14	4160203K	
1	3.1	100		9.6	16	4160303	4160301
1	3.1		2000	9.6	16	4160303K	4160301K
1.5	3.4	100		14.4	22	4160403	4160401
1.5	3.4		1500	14.4	22	4160403K	4160401K
2.5	4	100		24	37	4160503	4160501
2.5	4		900	24	37		4160501K
4	4.6	100		38.4	49	4160603	4160601
4	4.6		600	38.4	49		4160601K
6	5.1	100		57.6	67	4160703	4160701
6	5.1		400	57.6	67		4160701K
10	6.8	100		96	120	4160803	4160801
16	9	100		153.6	185	4160903	4160901
25	10.2	100		240	260	4161003	4161001
35	11.7			336	360		4161101
50	13.9			480	535		4161201
70	16			672	735		4161301
95	18.2			912	930		4161401
120	19.8			1152	1160		4161501

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	grey	blue
0.5	2.7	100		4.8	11	4160106	4160102
0.5	2.7		3000	4.8	11	4160106K	4160102K
0.75	2.9	100		7.2	14	4160206	4160202
0.75	2.9		2500	7.2	14		4160202K
1	3.1	100		9.6	16	4160306	4160302
1	3.1		2000	9.6	16		4160302K
1.5	3.4	100		14.4	22	4160406	4160402
1.5	3.4		1500	14.4	22	4160406K	4160402K
2.5	4	100		24	37	4160506	4160502
2.5	4		900	24	37	4160506K	4160502K
4	4.6	100		38.4	49	4160606	4160602
6	5.1	100		57.6	67	4160706	4160702
6	5.1		400	57.6	67		4160702K
10	6.8	100		96	120	4160806	4160802
16	9	100		153.6	185	4160906	4160902
25	10.2	100		240	260	4161006	4161002
35	11.7			336	360		4161102
50	13.9			480	535		4161202
95	18.2			912	930		4161402
120	19.8			1152	1160		4161502

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green/yellow	orange
0.5	2.7	100		4.8	11	4160100	4160109
0.5	2.7		3000	4.8	11		4160109K
0.75	2.9	100		7.2	14	4160200	4160209
0.75	2.9		2500	7.2	14		4160209K
1	3.1	100		9.6	16	4160300	4160309
1	3.1		2000	9.6	16	4160300K	4160309K
1.5	3.4	100		14.4	22	4160400	4160409
1.5	3.4		1500	14.4	22	4160400K	4160409K
2.5	4	100		24	37	4160500	4160509
2.5	4		900	24	37	4160500K	4160509K
4	4.6	100		38.4	49	4160600	4160609
4	4.6		600	38.4	49	4160600K	4160609K
6	5.1	100		57.6	67	4160700	4160709
6	5.1		400	57.6	67	4160700K	4160709K
10	6.8	100		96	120	4160800	4160809
16	9	100		153.6	185	4160900	4160909
25	10.2	100		240	260	4161000	4161009
35	11.7			336	360	4161100	
50	13.9			480	535	4161200	
70	16			672	735	4161300	
95	18.2			912	930	4161400	
120	19.8			1152	1160	4161500	

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	dark blue	white
0.5	2.7	100		4.8	11	4160114	4160105
0.5	2.7		3000	4.8	11	4160114K	
0.75	2.9	100		7.2	14	4160214	4160205
0.75	2.9		2500	7.2	14	4160214K	
1	3.1	100		9.6	16	4160314	4160305
1	3.1		2000	9.6	16	4160314K	4160305K
1.5	3.4	100		14.4	22	4160414	4160405
1.5	3.4		1500	14.4	22	4160414K	4160405K
2.5	4	100		24	37	4160514	4160505
2.5	4		900	24	37	4160514K	4160505K
4	4.6	100		38.4	49	4160614	4160605
6	5.1	100		57.6	67	4160714	4160705
6	5.1		400	57.6	67	4160714K	
10	6.8	100		96	120	4160814	4160805
16	9	100		153.6	185	4160914	4160905

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green	yellow
0.5	2.7	100		4.8	11	4160111	4160110
0.75	2.9	100		7.2	14		4160210
1	3.1	100		9.6	16	4160311	4160310
1.5	3.4	100		14.4	22	4160411	4160410
2.5	4	100		24	37	4160511	4160510
4	4.6	100		38.4	49	4160611	4160610
4	4.6		600	38.4	49		4160610K
6	5.1	100		57.6	67	4160711	4160710
10	6.8	100		96	120	4160811	4160810
16	9	100		153.6	185	4160911	4160910
25	10.2	100		240	260	4161011	4161010
35	11.7			336	360	4161111	
50	13.9			480	535	4161211	

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	violet	red
0.5	2.7	100		4.8	11	4160107	4160104
0.5	2.7		3000	4.8	11		4160104K
0.75	2.9	100		7.2	14	4160207	4160204
1	3.1	100		9.6	16	4160307	4160304
1	3.1		2000	9.6	16		4160304K
1.5	3.4	100		14.4	22	4160407	4160404
1.5	3.4		1500	14.4	22		4160404K
2.5	4	100		24	37	4160507	4160504
2.5	4		900	24	37		4160504K
4	4.6	100		38.4	49		4160604
6	5.1	100		57.6	67		4160704
6	5.1		400	57.6	67		4160704K
10	6.8	100		96	120		4160804
16	9	100		153.6	185		4160904
25	10.2	100		240	260		4161004
35	11.7			336	360		4161104

Power and control cables

LAPP

Control Cabinet Single Cores • Harmonised and certified

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	blue/white	pink
0.5	2.7	100		4.8	11	4160126	
0.75	2.9	100		7.2	14	4160226	
0.75	2.9		2500	7.2	14	4160226K	
1	3.1	100		9.6	16	4160326	4160308
1	3.1		2000	9.6	16	4160326K	
1.5	3.4	100		14.4	22	4160426	4160408
1.5	3.4		1500	14.4	22	4160426K	
2.5	4	100		24	37	4160526	
4	4.6	100		38.4	49	4160626	
6	5.1	100		57.6	67	4160726	
10	6.8	100		96	120	4160826	

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	white/blue
0.5	2.7		3000	4.8	11	4160144K
0.75	2.9	100		7.2	14	4160244
0.75	2.9		2500	7.2	14	4160244K
1	3.1	100		9.6	16	4160344
1	3.1		2000	9.6	16	4160344K
1.5	3.4	100		14.4	22	4160444
2.5	4	100		24	37	4160544
2.5	4		900	24	37	4160544K
4	4.6	100		38.4	49	4160644
6	5.1	100		57.6	67	4160744
10	6.8	100		96	120	4160844

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Non-harmonised, nominal cross-sections: 0.5 mm², 0.75 mm², 1 mm², 16 mm²
*for conventional use, **for careful bending; „OD“ = outer diameter
The outer diameters stated in the part number table are maximum values.

Similar products

- H07V-K <HAR> refer to page 213
- MULTI-STANDARD SC 2.2 refer to page 221

Accessories

- DIN-assorted boxes conductor end sleeves refer to page 995
- Conductor end sleeves XL, insulated refer to page 996
- PEW 8.87 crimping pliers refer to page 1000

MULTI-STANDARD SC 2.2

UL-listed (MTW), CSA (TEW), <HAR> H07V2-K: max. +90°C, UL (AWM): Umax = 1 kV, tinned-copper strands

Info

- Higher maximum conductor temperature - H07V2-K: +90 °C according to EN 50525-2-31
- Higher voltage range according to UL

Benefits

- For use in the most important global markets
- Reduction in technical documentation
- Easier storage; increases the cost-effectiveness of the production process
- Works with „Conductor end sleeves XL, insulated“

Application range

- Factory wiring
- Field wiring
- Frequency converter power supply
- Internal wiring of devices and in control cabinets
- Protected installation in and on lighting equipments

Product features

- Flame-retardant according IEC 60332-1-2
- Flame-retardant according to UL VW1/ CSA FT1
- Oil-resistant

Norm references / Approvals

- Multi-standard cables have conductor strands with nominal sizes in mm² or AWG/kcmil. The master size is mentioned in the table below, while the equivalent size of the other system can be found in the Appendix T16 of this catalogue. For this related secondary size the cross-section of the conductor mostly works out to be greater than the specified nominal value.
- Cable type certifications: <HAR> H07V2-K acc. EN 50525-2-31, UL AWM style 10269 (by UL acc. UL standard UL 758, U.I. Lapp GmbH's UL AWM file number: E63634), (UL) MTW (by UL acc. UL standard UL 1063, U.I. Lapp GmbH's (UL) MTW file number: E198296), CSA TEW (by CSA acc. CSA standard CSA C22.2 No. 127, CSA class 5835-01)

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Special PVC-based core insulation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

Nominal voltage
HAR / IEC: U0/U: 450/750 V;
UL (AWM): U: 1000 V;
UL (MTW): U: 600 V;
CSA (TEW): U: 600 V

Temperature range
Fixed installation:
HAR/IEC: -40°C to +90°C;
UL (AWM): -40°C to +105°C;
UL (MTW): -40°C to +90°C;
CSA (TEW): up to +105°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey
0.5	2.7	100		4.8	10	4150103	4150101	
0.75	2.9	100		7.2	13		4150201	
1	3.1	100		9.6	16	4150303	4150301	
1	3.1		2000	9.6	16		4150301K	
1.5	3.4	100		14.4	22	4150403	4150401	4150406
2.5	4	100		24	37	4150503	4150501	4150506
2.5	4		900	24	37		4150501K	
4	4.6	100		38.4	49	4150603	4150601	
4	4.6		600	38.4	49		4150601K	
6	5.1	100		57.6	71		4150701	4150706
10	6.8	100		96	120		4150801	
16	9	100		153.6	185		4150901	
25	10.2	100		240	260		4151001	
35	11.7			336	360		4151101	
50	13.9			480	535		4151201	
70	16			672	735		4151301	
95	18.2			912	930		4151401	

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	blue	green/yellow	orange
0.5	2.7	100	4.8	10	4150102		
0.75	2.9	100	7.2	13	4150202		
1	3.1	100	9.6	16	4150302	4150300	4150309
1.5	3.4	100	14.4	22	4150402	4150400	4150409
2.5	4	100	24	37	4150502	4150500	4150509
4	4.6	100	38.4	49	4150602	4150600	
6	5.1	100	57.6	71	4150702	4150700	
10	6.8	100	96	120	4150802	4150800	
16	9	100	153.6	185		4150900	
25	10.2	100	240	260		4151000	
35	11.7		336	360		4151100	

Power and control cables

LAPP

Control Cabinet Single Cores • Harmonised and certified

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	dark blue	white	yellow
0.5	2.7	100	4.8	10	4150114	4150105	
0.75	2.9	100	7.2	13	4150214	4150205	
1	3.1	100	9.6	16		4150305	
1.5	3.4	100	14.4	22	4150414	4150405	4150410
4	4.6	100	38.4	49	4150614	4150605	4150610

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	red
0.5	2.7	100	4.8	10	4150104
0.75	2.9	100	7.2	13	4150204
1	3.1	100	9.6	16	4150304
1.5	3.4	100	14.4	22	4150404
2.5	4	100	24	37	4150504
4	4.6	100	38.4	49	4150604
6	5.1	100	57.6	71	4150704

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Non-harmonsided, nominal cross-sections: 0.5 mm², 0.75 mm², 1 mm², 16 mm², 50 mm², 70 mm², 95 mm², 120 mm²
*for conventional use, **for careful bending; „OD“ = outer diameter
The outer diameters stated in the part number table are maximum values.

Similar products

- MULTI-STANDARD SC 2.1 refer to page 218

Accessories

- DIN-assorted boxes conductor end sleeves refer to page 995
- Conductor end sleeves XL, insulated refer to page 996
- EASY STRIP stripping and cutting tool refer to page 988
- PEW 8.87 crimping pliers refer to page 1000
- FLEXIMARK® Collar Snap-on refer to page 960

NEW

H05Z1-K

Harmonised; halogen-free to protect human life, the environment and material assets

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free and harmonised (HAR) up to +70°C
- For expanded ambient temperatures see H05Z-K 90°C

Benefits

- Protection of human life and the environment thanks to the avoidance of the formation of acid in case of fire
- Time-saving assembly

Application range

- For wiring of lamps, devices, switchgear cabinets and distribution boxes
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- In building with a high density of people or valuable assets
- For use in dry rooms
- For expanded ambient temperatures see H05Z-K 90°C

Product features

- The insulation material is halogen-free and free of other materials which could release toxic gases in the event of fire
- Low amount of corrosive gases in the event of fire
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-3-31

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free

Technical data

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V AC

Current rating
VDE 0298-4
EN 50565-1/ VDE 0298-565-1

Temperature range
During installation: +5°C up to +70°C
Fixed installation: -40°C up to +70°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	brown	black	grey
0.75	2.2 - 2.7	100	7.2	11	4724051	4724050	4724052
1	2.4 - 2.8	100	9.6	14	4724056	4724055	4724057

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	blue	green/yellow
0.75	2.2 - 2.7	100	7.2	11	4724053	4724054
1	2.4 - 2.8	100	9.6	14	4724058	4724059

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 125 SC refer to page 196
- H05Z-K 90°C refer to page 225

H07Z1-K

Harmonised; halogen-free to protect human life, the environment and material assets

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free and harmonised (HAR) up to +70°C
- For expanded ambient temperatures and higher conductor cross-sections see H07Z-K 90°C

Benefits

- Protection of human life and the environment thanks to the avoidance of the formation of acid in case of fire
- Time-saving assembly

Application range

- For wiring of lamps, devices, switchgear cabinets and distribution boxes
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- In building with a high density of people or valuable assets
- For use in dry rooms
- For expanded ambient temperatures and higher conductor cross-sections see H07Z-K 90°C

Product features

- The insulation material is halogen-free and free of other materials which could release toxic gases in the event of fire
- Low amount of corrosive gases in the event of fire
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-3-31

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free

Technical data

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
According to EN 50565-1
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

Nominal voltage
U0/U: 450/ 750 V

Test voltage
2500 V

Current rating
VDE 0298-4
EN 50565-1/ VDE 0298-565-1

Temperature range
During installation: +5°C up to +70°C
Fixed installation: -40°C up to +70°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	brown	black	grey
1.5	2.8 - 3.4	100	14.4	20	4724061	4724060	4724062
2.5	3.4 - 4.1	100	24	32	4724066	4724065	4724067
4	3.9 - 4.8	100	24	45	4724071	4724070	4724072
6	4.4 - 5.3	100	58	65	4724076	4724075	4724077
10	5.7 - 6.8	100	96	110	4724081	4724080	4724082
16	6.7 - 8.1	100	154	170	4724086	4724085	4724087

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	Copper index (kg/km)	Weight (kg/km)	blue	green/yellow
1.5	2.8 - 3.4	100	14.4	20	4724063	4724064
2.5	3.4 - 4.1	100	24	32	4724068	4724069
4	3.9 - 4.8	100	24	45	4724073	4724074
6	4.4 - 5.3	100	58	65	4724078	4724079
10	5.7 - 6.8	100	96	110	4724083	4724084
16	6.7 - 8.1	100	154	170	4724088	4724089

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*for conventional use, **for careful bending; „OD“ = outer diameter

Similar products

- ÖLFLEX® HEAT 125 SC refer to page 196
- H07Z-K 90°C refer to page 226

H05Z-K 90°C

Harmonised; halogen-free to protect human life, the environment and material assets

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free and harmonised (HAR)
- For expanded ambient temperatures see ÖLFLEX® HEAT 125 SC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V AC

Current rating
VDE 0298-4
EN 50565-1/ VDE 0298-565-1

Temperature range
During installation: -5°C up to +90°C
Fixed installation: -40°C up to +90°C

Benefits

- Protection of human life and the environment thanks to the avoidance of the formation of acid in case of fire
- Time-saving assembly

Application range

- For wiring of lamps, devices, switchgear cabinets and distribution boxes
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- In building with a high density of people or valuable assets
- For use in dry rooms
- For expanded ambient temperatures see ÖLFLEX® HEAT 125 SC

Product features

- The insulation material is halogen-free and free of other materials which could release toxic gases in the event of fire
- Low amount of corrosive gases in the event of fire
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-3-41

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue
0.5	2.1 - 2.6	100		4.8	9	4725031	4725011	4725061	4725021
0.5	2.1 - 2.6		3000	4.8	9	4725031K	4725011K	4725061K	4725021K
0.75	2.2 - 2.8	100		7.2	11	4725032	4725012	4725062	4725022
0.75	2.2 - 2.8		2500	7.2	11	4725032K	4725012K	4725062K	4725022K
1	2.4 - 2.9	100		9.6	14	4725033	4725013	4725063	4725023
1	2.4 - 2.9		2000	9.6	14	4725033K	4725013K	4725063K	4725023K

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green/yellow	orange	dark blue	white
0.5	2.1 - 2.6	100		4.8	9	4725001	4725091	4725141	4725051
0.5	2.1 - 2.6		3000	4.8	9	4725001K	4725091K	4725141K	4725051K
0.75	2.2 - 2.8	100		7.2	11	4725002	4725092	4725142	4725052
0.75	2.2 - 2.8		2500	7.2	11	4725002K	4725092K	4725142K	4725052K
1	2.4 - 2.9	100		9.6	14	4725003	4725093	4725143	4725053
1	2.4 - 2.9		2000	9.6	14	4725003K	4725093K	4725143K	4725053K

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red
0.5	2.1 - 2.6	100		4.8	9	4725121	4725111	4725071	4725041
0.5	2.1 - 2.6		3000	4.8	9	4725121K	4725111K	4725071K	4725041K
0.75	2.2 - 2.8	100		7.2	11	4725122	4725112	4725072	4725042
0.75	2.2 - 2.8		2500	7.2	11	4725122K	4725112K	4725072K	4725042K
1	2.4 - 2.9	100		9.6	14	4725123	4725113	4725073	4725043
1	2.4 - 2.9		2000	9.6	14	4725123K	4725113K	4725073K	4725043K

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	blue/white	pink
0.5	2.1 - 2.6	100		4.8	9		4725081
0.5	2.1 - 2.6		3000	4.8	9		4725081K
0.75	2.2 - 2.8	100		7.2	11		4725082
0.75	2.2 - 2.8		2500	7.2	11		4725082K
1	2.4 - 2.9	100		9.6	14		4725083
1	2.4 - 2.9		2000	9.6	14	4725263K	4725083K

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

H07Z-K 90°C

Harmonised; halogen-free to protect human life, the environment and material assets

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free and harmonised (HAR)
- For expanded ambient temperatures and higher conductor cross-sections see ÖLFLEX® HEAT 125 SC

Benefits

- Protection of human life and the environment thanks to the avoidance of the formation of acid in case of fire
- Time-saving assembly

Application range

- For wiring of lamps, devices, switchgear cabinets and distribution boxes
- For installation in tubes, on, in and under plaster as well as in closed installation ducts
- In building with a high density of people or valuable assets
- For use in dry rooms
- For expanded ambient temperatures and higher conductor cross-sections see ÖLFLEX® HEAT 125 SC

Product features

- The insulation material is halogen-free and free of other materials which could release toxic gases in the event of fire
- Low amount of corrosive gases in the event of fire
- Low smokes/low smoke density in the event of fire according to IEC 61034
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-3-41
- No cable type certified core insulation colours according to EN 50525-1/ VDE 0285-525-1: transparent, green (single colour), yellow (single colour), all double colours (except of green-yellow and yellow-green)

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
According to EN 50565-1
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

Nominal voltage
U0/U: 450/ 750 V

Test voltage
2500 V

Current rating
VDE 0298-4
EN 50565-1/ VDE 0298-565-1

Temperature range
During installation: -5°C up to +90°C
Fixed installation: -40°C up to +90°C

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue
1.5	2.8 - 3.5	100		14.4	20	4726031	4726011	4726061	4726021
1.5	2.8 - 3.5		1500	14.4	20	4726031K	4726011K	4726061K	4726021K
2.5	3.4 - 4.3	100		24	32	4726032	4726012	4726062	4726022
2.5	3.4 - 4.3		900	24	32	4726032K	4726012K	4726062K	4726022K
4	3.9 - 4.9	100		38.4	45	4726033	4726013	4726063	4726023
4	3.9 - 4.9		600	38.4	45	4726033K	4726013K	4726063K	4726023K
6	4.4 - 5.5	100		57.6	65	4726034	4726014	4726064	4726024
6	4.4 - 5.5		400	57.6	65	4726034K	4726014K	4726064K	4726024K
10	5.7 - 7.1	100		96	110	4726035	4726015	4726065	4726025
16	6.7 - 8.4	100		153.6	170	4726036	4726016	4726066	4726026
25	8.4 - 10.6	100		240	290	4726037	4726017	4726067	4726027
35	9.7 - 12.1			336	380	4726038	4726018	4726068	4726028
50	11.5 - 14.4			480	530	4726039	4726019	4726069	4726029
70	13.2 - 16.6			672	750	4727031	4727011	4727061	4727021
95	15.1 - 18.8			912	1000	4727032	4727012	4727062	4727022

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green/yellow	orange	dark blue	white
1.5	2.8 - 3.5	100		14.4	20	4726001	4726091	4726141	4726051
1.5	2.8 - 3.5		1500	14.4	20	4726001K	4726091K	4726141K	4726051K
2.5	3.4 - 4.3	100		24	32	4726002	4726092	4726142	4726052
2.5	3.4 - 4.3		900	24	32	4726002K	4726092K	4726142K	4726052K
4	3.9 - 4.9	100		38.4	45	4726003	4726093	4726143	4726053
4	3.9 - 4.9		600	38.4	45	4726003K	4726093K	4726143K	4726053K
6	4.4 - 5.5	100		57.6	65	4726004	4726094	4726144	4726054
6	4.4 - 5.5		400	57.6	65	4726004K	4726094K	4726144K	4726054K
10	5.7 - 7.1	100		96	110	4726005	4726095	4726145	4726055
16	6.7 - 8.4	100		153.6	170	4726006	4726096	4726146	4726056
25	8.4 - 10.6	100		240	290	4726007	4726097	4726147	4726057
35	9.7 - 12.1			336	380	4726008	4726098	4726148	4726058
50	11.5 - 14.4			480	530	4726009	4726099	4726149	4726059
70	13.2 - 16.6			672	750	4727001	4727091	4727141	4727051
95	15.1 - 18.8			912	1000	4727002	4727092	4727142	4727052

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red
1.5	2.8 - 3.5	100		14.4	20	4726121	4726111	4726071	4726041
1.5	2.8 - 3.5		1500	14.4	20	4726121K	4726111K	4726071K	4726041K
2.5	3.4 - 4.3	100		24	32	4726122	4726112	4726072	4726042
2.5	3.4 - 4.3		900	24	32	4726122K	4726112K	4726072K	4726042K
4	3.9 - 4.9	100		38.4	45	4726123	4726113	4726073	4726043
4	3.9 - 4.9		600	38.4	45	4726123K	4726113K	4726073K	4726043K
6	4.4 - 5.5	100		57.6	65	4726124	4726114	4726074	4726044
6	4.4 - 5.5		400	57.6	65	4726124K	4726114K	4726074K	4726044K
10	5.7 - 7.1	100		96	110	4726125	4726115	4726075	4726045
16	6.7 - 8.4	100		153.6	170	4726126	4726116	4726076	4726046
25	8.4 - 10.6	100		240	290	4726127	4726117	4726077	4726047
35	9.7 - 12.1			336	380	4726128	4726118	4726078	4726048
50	11.5 - 14.4			480	530	4726129	4726119	4726079	4726049
70	13.2 - 16.6			672	750	4727121	4727111	4727071	4727041
95	15.1 - 18.8			912	1000	4727122	4727112	4727072	4727042

Conductor cross-section (mm²)	Outer diameter [mm]	m/ring	m/box	Copper index (kg/km)	Weight (kg/km)	blue/white	pink
1.5	2.8 - 3.5	100		14.4	20		4726081
1.5	2.8 - 3.5		1500	14.4	20	4726261K	4726081K
2.5	3.4 - 4.3	100		24	32		4726082
2.5	3.4 - 4.3		900	24	32	4726262K	4726082K
4	3.9 - 4.9	100		38.4	45		4726083
4	3.9 - 4.9		600	38.4	45		4726083K
6	4.4 - 5.5	100		57.6	65		4726084
6	4.4 - 5.5		400	57.6	65		4726084K
10	5.7 - 7.1	100		96	110		4726085
16	6.7 - 8.4	100		153.6	170		4726086
25	8.4 - 10.6	100		240	290		4726087
35	9.7 - 12.1			336	380		4726088
50	11.5 - 14.4			480	530		4726089
70	13.2 - 16.6			672	750		4727081
95	15.1 - 18.8			912	1000		4727082

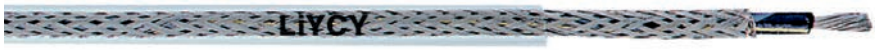
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
*for conventional use, **for careful bending; „OD“ = outer diameter

Similar products

- ÖLFLEX® HEAT 125 SC refer to page 196

LiYCY

Screened, PVC-based wiring single core



Benefits
- Prevention of electromagnetic interference to other components

Application range
- Wiring of measuring instruments, switch cabinets, electrical components, transmitters and receivers
- In EMC-sensitive environments

Product features
- Flame-retardant according IEC 60332-1-2
- The outer diameters stated in the part number table are maximum values

Norm references / Approvals
- Based on VDE 0812

Product Make-up
- Strands of tinned-copper wires
- Core insulation: Based on PVC
- Tinned-copper braiding
- Outer sheath: Based on PVC, transparent

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Peak operating voltage
350 V (not for power transmission)

Test voltage
800 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
LiYCY				
4530101	0.14	2.8	7	13
4530102	0.25	3.3	9	18
4530103	0.5	3.6	15	20
4530104	0.75	3.9	18	31
4530105	1	4.7	25	35.9
4530106	1.5	5.1	30	39
4530107	2.5	6	35	55.3

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SENSOR STRIP stripping tool refer to page 987

Li2YCY

Low-capacitance, screened wiring single-core with PVC-based outer sheath

Benefits
- Prevention of electromagnetic interference to other components

Application range
- Wiring of measuring instruments, switch cabinets, electrical components, transmitters and receivers
- In EMC-sensitive environments

Product features
- Flame-retardant according IEC 60332-1-2
- Low cable capacitance, short signal transmission time
- The outer diameters stated in the part number table are maximum values

Norm references / Approvals
- Based on VDE 0812

Product Make-up
- Strands of tinned-copper wires
- Core insulation: PE
- Wrapped screening made from tinned copper wire
- Outer sheath: Based on PVC, transparent

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000993
ETIM 5.0/6.0 Class-Description: Single core cable

Peak operating voltage
350 V (not for power transmission)

Test voltage
1200 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

Article number	Conductor cross-section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Li2YCY				
4550115	0.14	2.4	7	10
4550116	0.25	2.6	9	15
4550117	0.5	3.2	15	19.5
4550118	0.75	3.4	18	28
4550119	1	3.8	25	30

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil / Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Building
Installation

NYM-J

Standard cable for plaster, brickwork and immovable concrete

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Standard cable for plaster and brickwork

Application range

- For installation on or under the plaster
- In bricks and concrete, except direct embedding in vibrated or compressed concrete
- In dry, damp or wet interiors
- Also suitable for outdoor use if protected against direct sunlight

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- VDE 0250 Part 204

Product Make-up

- Bare copper wire conductor
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000043
ETIM 5.0/6.0 Class-Description: House wiring cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Single or multi-wire
≥ 16 mm²: multi-wire

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
J = with GN-YE protective conductor
O = without protective conductor

Temperature range
During installation: +5°C to +60°C
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NYM-J				
1600008	1 G 2,5	6.0	24	60
1600009	1 G 4	6.7	38	85
1600010	1 G 6	7.2	58	105
1600011	1 G 10	8.6	96	160
1600012	1 G 16	9.6	154	220
16000003	3 G 1,5	8.4	43	120
16000013	4 G 1,5	9.2	58	150
16000023	5 G 1,5	9.9	72	175
1600003	7 G 1,5	11.6	101	235
16000213	3 G 2,5	9.6	72	170
16000053	4 G 2,5	10.6	96	210
16000063	5 G 2,5	11.5	120	290
1600071	7 G 2,5	13.7	168	380
16010223	3 G 4	11.3	115	250
16000313	4 G 4	12.7	154	315
16000513	5 G 4	14.0	192	370
16010233	3 G 6	12.8	173	335
16000323	4 G 6	13.8	230	410
16000523	5 G 6	15.5	288	500
16000333	4 G 10	18.0	384	680
16000533	5 G 10	19.5	480	810
16000543	5 G 16	23.0	768	1200
16000353	4 G 25	26.0	960	1500
16000553	5 G 25	28.0	1200	1800

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- NYY-J, NYY-O refer to page 232
- (N)HXMH refer to page 231

Accessories

- Cable shears with double edge refer to page 980
- STAR STRIP stripping tool refer to page 985

(N)HXMH

Halogen-free; for plaster, bricks, concrete; at high density of people and valuable assets

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free alternative to the PVC installation cable NYM

Application range

- For installation on or under the plaster
- In bricks and concrete, except direct embedding in vibrated or compressed concrete
- In dry, damp or wet interiors
- For buildings or industrial plants with a high density of people or valuable assets

Product features

- Due to the use of halogen-free materials, the formation of toxic dioxins and furanes is considerably reduced in the event of a fire
- Minimizes damages to buildings and equipments that are caused by acidic fumes produced during combustion
- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24

Norm references / Approvals

- Based on VDE 0250 part 214

Product Make-up

- Bare copper wire conductor
- Core insulation: PE
- Filling compound over the core assembly
- Outer sheath: halogen-free polymer

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000043
ETIM 5.0/6.0 Class-Description: House wiring cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Single or multi-wire

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
U0/U: 300/500 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Maximum conductor temperature: +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
(N)HXMH				
16020003	3 G 1.5	8.5	43	120
16020013	4 G 1.5	9.3	58	145
16020023	5 G 1.5	10.0	72	170
1602003	7 G 1.5	10.8	101	210
16020103	3 G 2.5	9.4	72	160
16020123	5 G 2.5	11.0	120	230

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

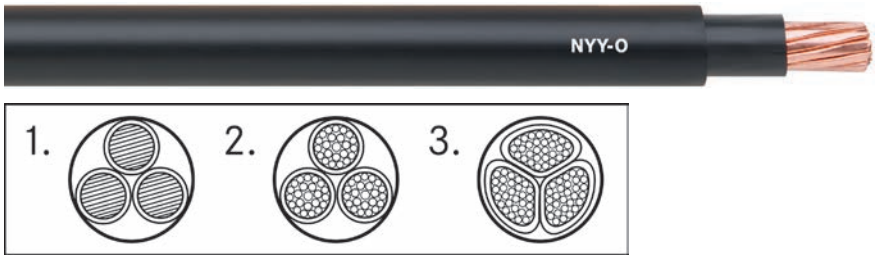
- NYM-J refer to page 230

Accessories

- STAR STRIP stripping tool refer to page 985

NYY-J, NYY-O

Fixed installation, direct burial; PVC cable with different application areas



Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Standard cable for direct burial with different application areas
- 0,6/1,0 kV alternative to the PVC installation cable NYM

Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

Product features

- Flame-retardant according IEC 60332-1-2
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Norm references / Approvals

- HD 603/VDE 0276-603 (for 1 to 5 cores)
- HD 627/VDE 0276-627 (as from 7 cores)

Product Make-up

- Bare copper wire conductor
- Abbreviations „re“, „rm“, „se“, „sm“:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
  m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Single or multi-wire

Minimum bending radius
Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter

Nominal voltage
U0/U: 0.6/1.0 kV

Test voltage
4000 V

Protective conductor
J = with GN-YE protective conductor
O = without protective conductor

Temperature range
During installation: -5°C to +50°C
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NYY-J				
1550030	1 x 25rm	13.0	240	380
1550038	1 x 35rm	14.0	336	447
1550032	1 x 50rm	15.0	480	650
1550033	1 x 70rm	17.0	672	864
1550035	1 x 120rm	21.0	1152	1400
1550037	1 x 185rm	25.0	1776	2080
15500013	3 x 1,5re	12.0	43	223
15500023	4 x 1,5re	13.0	58	256
15500033	5 x 1,5re	14.0	72	293
1550004	7 x 1,5re	15.0	101	360
1550005	10 x 1,5re	18.0	144	520
1550006	12 x 1,5re	19.0	173	560
1550084	14 x 1,5re	20.0	202	620
1550007	16 x 1,5re	21.0	230	680
1550008	19 x 1,5re	22.0	274	760
1550009	24 x 1,5re	24.0	346	900
1550086	30 x 1,5re	26.0	432	1100
15500103	3 x 2,5re	13.0	72	272
15500113	4 x 2,5re	14.0	96	316
15500123	5 x 2,5re	15.0	120	323
1550013	7 x 2,5re	16.0	168	450
1550090	10 x 2,5re	20.0	240	630

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1550091	12 x 2,5re	20.0	288	680
1550092	14 x 2,5re	21.0	336	790
1550094	19 x 2,5re	23.0	456	990
1550096	24 x 2,5re	26.0	576	1300
1550097	30 x 2,5re	28.0	720	1400
15500583	3 x 4re	15.0	115	373
15500203	4 x 4re	16.0	154	439
15500263	5 x 4re	17.0	192	510
15500593	3 x 6re	16.0	173	466
15500213	4 x 6re	17.0	230	547
15500273	5 x 6re	19.0	288	640
15500603	3 x 10re	18.0	288	629
15500223	4 x 10re	19.0	384	743
15500823	5 x 10re	21.0	480	899
15500613	3 x 16re	20.0	461	850
15500233	4 x 16re	22.0	614	1039
15500833	5 x 16re	23.0	768	1240
15500713	3 x 25rm/16re	25.0	874	1595
15500243	4 x 25rm	27.0	960	1620
15500153	3 x 35sm/16re	27.0	1162	1718
15500753	4 x 35sm	27.0	1344	1916
15500163	3 x 50sm/25rm	31.0	1680	2383
15500253	4 x 50sm	31.0	1920	2639
15500173	3 x 70sm/35sm	33.0	2352	3196
15500763	4 x 70sm	35.0	2688	3576
15500183	3 x 95sm/50sm	38.0	3216	4271
15500773	4 x 95sm	40.0	3648	4746
15500723	3 x 120sm/70sm	41.0	4128	5281
15500783	4 x 120sm	43.0	4608	5813
15500733	3 x 150sm/70sm	46.0	4992	6408
15500793	4 x 150sm	48.0	5760	7263
15500743	3 x 185sm/95sm	50.0	6240	7909
15500803	4 x 185sm	53.0	7104	8905
15500193	3 x 240sm/120sm	57.0	8064	10162
15500813	4 x 240sm	60.0	9216	11430
NYY-O				
1550205	1 x 10re	10.0	96	176
1550206	1 x 16re	11.0	154	239
1550207	1 x 25rm	13.0	240	380
1550208	1 x 35rm	14.0	336	447
1550209	1 x 50rm	15.0	480	650
1550210	1 x 70rm	17.0	672	864
1550211	1 x 95rm	19.0	912	1132
1550212	1 x 120rm	21.0	1152	1405
1550213	1 x 150rm	22.0	1440	1710
1550214	1 x 185rm	25.0	1776	2080
1550215	1 x 240rm	27.0	2304	2669
1550216	1 x 300rm	30.0	2880	3305
1550218	1 x 500rm	39.0	4800	5400
15502003	2 x 1,5re	11.0	29	210
15502193	2 x 2,5re	12.0	48	250
15502203	2 x 4re	14.0	77	360
15502213	2 x 6re	15.0	115	400
15502223	2 x 10re	17.0	192	500
15502533	4 x 16re	22.0	614	1039
15502543	4 x 25rm	27.0	960	1620
15502563	4 x 50sm	31.0	1920	2639
15502573	4 x 70sm	35.0	2688	3576
15502583	4 x 95sm	40.0	3648	4746

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

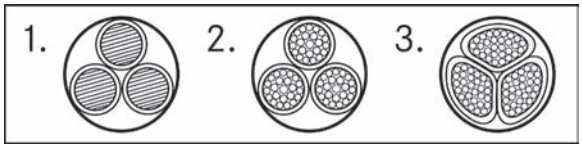
- NYCY refer to page 237
- NYCWY refer to page 238
- NAYY-J, NAYY-O refer to page 239

Accessories

- Cable shears with double edge refer to page 980
- Ratchet cutter refer to page 980
- V 1311-A pressing pliers, hydraulic refer to page 1014
- STAR STRIP stripping tool refer to page 985
- PVL 1300 pressing pliers battery-operated refer to page 1015

N2XH

Halogen-free power cable with rated voltage 0,6/1 kV for fixed installation



Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free alternative to the PVC installation cable NYY-J, NYY-O

Application range

- For installation on or under the plaster
- Fixed installation indoor, in air or concrete
- For buildings or industrial plants with a high density of people or valuable assets
- No direct burial or installation in water
- Outdoor laying only when protected from direct sunlight and other external impacts

Product features

- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- HD 604/VDE 0276-604

Product Make-up

- Bare copper wire conductor
- Abbreviations „re“, „rm“, „se“, „sm“:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
  m = multi-wire conductor;
- Core insulation: Cross-linked Polyethylen (XLPE)
- Filling compound over the core assembly
- Outer sheath: halogen-free, thermoplastic polyolefin compound

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Single or multi-wire

Minimum bending radius
Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter

Nominal voltage
U0/U: 0.6/1.0 kV

Test voltage
4000 V

Protective conductor
J = with GN-YE protective conductor
O = without protective conductor

Temperature range
During installation: -5°C up to +90°C
Fixed installation: -40°C up to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
N2XH-O				
1550556	1x1,5 RE	5.5	14	53
1550557	1x2,5 RE	5.8	24	58
3017600	1x4 RE	6.2	38	69
30017645	1x6 RE	6,5	58	90
30017646	1x10 RE	7,3	96	131
1550561	1x16 RE	8.6	154	197
30017648	1x25 RM	10,2	240	293
30017649	1x35 RM	11,3	336	389
30017650	1x50 RM	12,7	480	517
30017651	1x70 RM	14,6	672	717
30017652	1x95 RM	16,3	912	972
30017653	1x120 RM	18,3	1152	1215
3017601	1x150 RM	20.0	1440	1494
3017602	1x185 RM	22,6	1776	1855
3017603	1x240 RM	25,2	2304	2387
1112935	1x300 RM	27,9	2880	2971
30017654	2x1,5 RE	12.0	29	185
30017655	2x2,5 RE	13.0	48	220
30017656	2x4 RE	14.0	77	275
30017657	2x6 RE	15.0	115	335
30017658	2x10 RE	16.0	192	450
1550578	2x16 RE	18.0	307	625
3017605	2x25 RM	21.0	480	950
35002466	3x1,5 RE	8.9	43	125
1550581	3x2,5 RE	9.8	72	163

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
N2XH-J				
1112940	1x25 RM	10,2	240	293
1112941	1x35 RM	11,3	336	389
1112942	1x50 RM	12,7	480	517
1112943	1x70 RM	14,6	672	717
1112944	1x95 RM	16,3	912	972
1112945	1x120 RM	18,3	1152	1215
1112946	1x150 RM	20.0	1440	1494
1112947	1x185 RM	22,6	1776	1855
1112948	1x240 RM	25,2	2304	2387
1112949	1x300 RM	27,9	2880	2971
30017659	3x1,5 RE	8,9	43	125
30017660	3x2,5 RE	9,8	72	163
30017661	3x4 RE	10,8	115	219
30017662	3x6 RE	11,8	173	289
30017663	3x10 RE	13,6	288	431
1550601	3x16 RE	16.7	461	638
30017665	3x25 RM	20,2	720	1015
1550603	3x35 SM	22.3	1080	1231
1550604	3x50 SM	25.5	1440	1652
1550605	3x70 SM	30.0	2016	2455
1550606	3x95 SM	32.0	2736	3260
1550607	3x120 SM	35.0	3456	4000
1550608	3x150 SM	39.0	4320	5100
1550609	3x185 SM	44.0	5328	6160
1550610	3x240 SM	49.0	6912	8000
30017671	4x1,5 RE	9,7	58	147
30017672	4x2,5 RE	10,6	96	195
30017673	4x4 RE	11,7	154	266
30017674	4x6 RE	12,9	230	355
30017675	4x10 RE	15,2	384	547
1550616	4x16 RE	18.3	614	839
30017677	4x25 RM	22,6	960	1294
1550618	4x35 SM	25.8	1344	1605
1550619	4x50 SM	29.4	1920	2154
1550620	4x70 SM	34.4	2688	3047
1550621	4x95 SM	38.6	3648	4102
1550622	4x120 SM	42.4	4608	5062
1550623	4x150 SM	47.2	5760	6256
1550624	4x185 SM	52.0	7104	7751
1550625	4x240 SM	58.6	9216	10047
30017683	5x1,5 RE	10,5	72	174
30017684	5x2,5 RE	11,5	120	233
30017685	5x4 RE	12,7	192	319
30017686	5x6 RE	14,2	288	437
30017687	5x10 RE	17.0	480	682
1550631	5x16 RE	20.2	768	1036
30017689	5x25 RM	24,9	1200	1584
1550633	5x35 RM	28,4	1680	2155
30017690	7x1,5 RE	11,3	101	214
30017691	7x2,5 RE	12,4	168	291
30017692	7x4 RE	17.0	269	540
3017612	10x1,5 RE	14.0	144	299
3017613	10x2,5 RE	15,8	240	419
30017693	12x1,5 RE	14,7	173	342
30017694	12x2,5 RE	16,4	288	480
3017614	12x4 RE	21.0	461	805
3017615	14x1,5 RE	17.0	202	480
3017616	14x2,5 RE	19.0	336	635
3017617	19x1,5 RE	18.0	274	600
3017618	19x2,5 RE	21.0	456	810
3017619	24x1,5 RE	20,2	346	625
3017620	24x2,5 RE	24.0	576	990
3017621	30x1,5 RE	21,3	432	738
3017622	30x2,5 RE	23,7	720	1045
1550649	3x50/25 SM	28,5	1680	2100
1550650	3x70/35 SM	31,4	2352	2800
1550651	3x95/50 SM	34,9	3216	3750
1550652	3x120/70 SM	38.0	4128	4750
1550653	3x150/70 SM	43,3	4992	5750
1550654	3x185/95 SM	47,2	6240	7200
1550655	3x240/120 SM	53,4	8064	9300

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

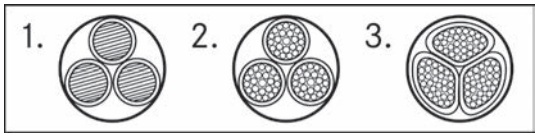
- NYY-J, NYY-O refer to page 232

Accessories

- Cable shears with double edge refer to page 980
- Ratchet cutter refer to page 980
- V 1311-A pressing pliers, hydraulic refer to page 1014
- PVL 1300 pressing pliers battery-operated refer to page 1015

N2XCH

Halogen-free power cable with concentric copper conductor



Benefits

- Concentric conductor above all as PE

Application range

- For installation on or under the plaster
- Fixed installation indoor, in air or concrete
- For buildings or industrial plants with a high density of people or valuable assets
- No direct burial or installation in water
- Outdoor laying only when protected from direct sunlight and other external impacts

Product features

- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- HD 604/VDE 0276-604

Product Make-up

- Bare copper wire conductor
- Abbreviations „re“, „rm“, „se“, „sm“:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
  m = multi-wire conductor;
- Core insulation: Cross-linked Polyethylen (XLPE)
- Filling compound over the core assembly
- Concentric conductor: bare copper wires
- Outer sheath: halogen-free, thermoplastic polyolefin compound

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Halogen-free alternative to the PVC installation cable NYCY
- With concentric copper conductor

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Single or multi-wire

Minimum bending radius
Single-core: 15 x outer diameter
Multi-core: 12 x outer diameter

Nominal voltage
U0/U: 0.6/1.0 kV

Test voltage
4000 V

Temperature range
During installation: -5°C up to +90°C
Fixed installation: -40°C up to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
N2XCH				
30017695	2x1,5 RE/1,5	11,1	53	172
30017696	2x2,5 RE/2,5	11,9	80	213
30017697	2x4 RE/4	14.0	122	322
30017698	2x6 RE/6	15.0	183	410
30017699	2x10 RE/10	17.0	311	550
1550661	2x16 RE/16	19.0	490	790
30017701	3x1,5 RE/1,5	11,5	67	190
30017702	3x2,5 RE/2,5	12,3	103	239
30017703	3x4 RE/4	13,5	160	314
30017704	3x6 RE/6	14,9	242	410
30017705	3x10 RE/10	16,8	406	600
1550667	3x16 RE/16	19.9	643	896
30017707	3x25 RM/16	25,3	1001	1360
30017708	3x35 RM/16	29,2	1400	1795
1550670	3x50 SM/25	32.0	2003	2460
1550671	3x70 SM/35	36.0	2794	3080
1550672	3x95 SM/50	39.0	3296	4310
1550673	3x120 SM/70	42.0	4785	5233
1550674	3x150 SM/70	48.0	5100	5788
1550675	3x185 SM/95	49.5	6381	7150
1550676	3x240 SM/120	54.0	8240	9273
30017716	4x1,5 RE/1,5	12,2	80	217
30017717	4x2,5 RE/2,5	13,2	129	275
30017718	4x4 RE/4	14,5	202	365
30017719	4x6 RE/6	15,9	296	479

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
30017720	4x10 RE/10	18.0	504	709
1550682	4x16 RE/16	21.5	796	1068
30017722	4x25 RM/16	25,6	1142	1526
30017723	4x35 RM/16	26,9	1526	1814
1550685	4x50 SM/25	29.6	2203	2405
1550686	4x70 SM/35	34.0	3082	3378
1550687	4x95 SM/50	38.5	4208	4568
1550688	4x120 SM/70	44.7	5388	5773
1550689	4x150 SM/70	46.6	6540	6921
1550690	4x185 SM/95	53.8	8195	8866
1550691	4x240 SM/120	57.6	10546	11167
30017730	7x1,5 RE/2,5	15.0	133	360
30017731	7x2,5 RE/2,5	16.0	200	378
30017733	7x4 RE/4	18.0	315	599
30017734	7x6 RE/6	19.0	470	850
1550696	10x1,5 RE/2,5	17,2	177	420
1550697	10x2,5 RE/4	18,9	287	550
30017735	12x1,5 RE/2,5	18.0	205	437
30017736	12x2,5 RE/4	19.5	334	589
30017737	12x4 RE/6	23.0	528	920
1550701	16x1,5 RE/4	20.0	275	686
1550702	16x2,5 RE/6	20,9	450	805
30017738	24x1,5 RE/6	22,7	413	764
30017739	24x2,5 RE/10	26.0	695	1189
30017740	30x1,5 RE/6	23,9	499	880
3017741	30x2,5 RE/10	26,6	840	1238

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- NYCY refer to page 237
- NYCWY refer to page 238

Accessories

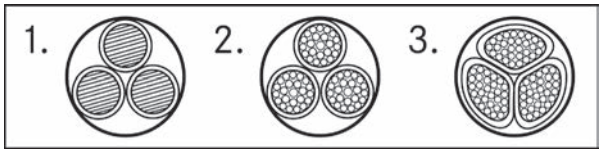
- Cable shears with double edge refer to page 980
- Ratchet cutter refer to page 980
- V 1311-A pressing pliers, hydraulic refer to page 1014
- PVL 1300 pressing pliers battery-operated refer to page 1015

NYCY

Fixed installation, direct burial; PVC cable with concentric, helical copper conductor and cross-conductive spiral

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- With concentric, helical copper conductor



Benefits

- Concentric conductor above all as PE

Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

Product features

- Flame-retardant according IEC 60332-1-2
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Norm references / Approvals

- HD 603/VDE 0276-603 for NYCY with 3 or 4 cores and the relevant additional concentric protective conductor
- HD 627/VDE 0276-627 for NYCY as from 7 cores and with the additional, concentric protective conductor

Product Make-up

- Bare copper wire conductor
- Abbreviations „re“, „rm“, „se“, „sm“:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
  m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Concentric, helical, outer conductor made of bare copper strands with inductance-reducing, cross-conductive copper bond counter spiral
- Outer sheath: Based on PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Single or multi-wire

Minimum bending radius
Fixed installation: 12 x outer diameter

Nominal voltage
U0/U: 0.6/1.0 kV

Test voltage
4000 V

Temperature range
During installation: -5°C to +50°C
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NYCY				
15503003	2 x 1,5re/1,5	14.0	52	245
15503103	3 x 1,5re/1,5	14.0	66	280
15503203	4 x 1,5re/1,5	15.0	81	302
1550330	7 x 1,5re/2,5	17.0	133	450
1550332	12 x 1,5re/2,5	20.0	205	580
1550337	24 x 1,5re/6	26.0	413	1100
15503113	3 x 2,5re/2,5	15.0	104	316
15503213	4 x 2,5re/2,5	16.0	128	360
1550350	7 x 2,5re/2,5	18.0	200	530
1550355	16 x 2,5re/6	23.0	451	950
15503223	4 x 4re/4	18.0	200	485
15503233	4 x 6re/6	19.0	297	616

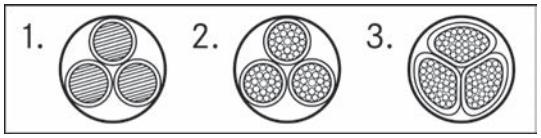
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- NYY-J, NYY-O refer to page 232

NYCWY

Fixed installation, direct burial; PVC cable with concentric, wave-like copper conductor and cross-conductive spiral



Benefits

- Concentric conductor above all as PE
- Easier connection due to the waveform of the concentric copper conductor

Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

Product features

- Flame-retardant according IEC 60332-1-2
- Current rating according to HD 603/ VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/ VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Norm references / Approvals

- HD 603/VDE 0276-603 for NYCWY with 3 or 4 cores and the relevant concentric protective conductor

Product Make-up

- Bare copper wire conductor
- Abbreviations „re“, „rm“, „se“, „sm“:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
  m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Concentric, wave-like, outer conductor made of bare copper strands with inductance-reducing, cross-conductive copper bond counter spiral
- Outer sheath: Based on PVC

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- With concentric, wave-like copper conductor

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9

Conductor stranding
Single or multi-wire

Minimum bending radius
Fixed installation: 12 x outer diameter

Nominal voltage
U0/U: 0.6/1.0 kV

Test voltage
4000 V

Temperature range
During installation: -5°C to +50°C
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
NYCWY				
15505003	2 x 10re/10	19.0	312	610
15505263	3 x 10re/10	20.0	408	775
15505403	4 x 10re/10	21.0	504	897
15505273	3 x 16re/16	22.0	643	1066
15505413	4 x 16re/16	24.0	796	1250
15505283	3 x 25rm/25	26.0	1003	1584
15505423	4 x 25rm/16	28.0	1142	1822
15505303	3 x 35sm/35	26.0	1402	1710
15505433	4 x 35sm/16	29.0	1526	2146
15505163	3 x 50sm/50	30.0	2000	2368
15505443	4 x 50sm/25	33.0	2203	3031
15505453	4 x 70sm/35	38.0	3082	4056
15505143	3 x 95sm/50	38.0	3296	4256
15505323	3 x 95sm/95	39.0	3791	4600
15505463	4 x 95sm/50	43.0	4208	5364
15505153	3 x 120sm/70	41.0	4236	5314
15505473	4 x 120sm/70	46.0	5388	6748
15505353	3 x 150sm/70	45.0	5100	6344
15505483	4 x 150sm/70	51.0	6540	8159
15505173	3 x 185sm/95	50.0	6383	8054

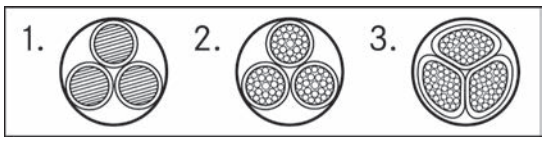
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: excluding copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NAYY-J, NAYY-O

Fixed installation, direct burial; PVC cable with solid aluminium conductors

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- With solid aluminium conductor



Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

Product features

- Flame-retardant according IEC 60332-1-2
- Maximum tensile strain for aluminium conductors during installation is 30 N/mm² according to HD 603/VDE 0276-603: Part 1 Appendix A.4.12 and Part 3-G point 4
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Norm references / Approvals

- HD 603/VDE 0276-603

Product Make-up

- Aluminium conductor
- Abbreviations „re“, „se“:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000057
ETIM 5.0/6.0 Class-Description: Low voltage power cable

Core identification code
According to VDE 0293-308 (table T9)

Conductor stranding
Single or multi-wire

Minimum bending radius
Fixed installation: 12 x outer diameter

Nominal voltage
U0/U: 0.6/1.0 kV

Test voltage
4000 V

Protective conductor
J = with GN-YE protective conductor
O = without protective conductor

Temperature range
During installation: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Alu index (kg/km)	Weight (kg/km)
NAYY-O				
3036547	1 x 70rm	18.0	203	410
3036548	1 x 95rm	20.0	276	570
3036549	1 x 120rm	21.0	348	620
3036550	1 x 150rm	23.0	435	735
3036551	1 x 185rm	25.0	536	845
3036552	1 x 240rm	28.0	696	1100
1552022	1 x 300rm	30.0	870	1379
NAYY-J				
1552010	4 x 35re	29.0	406	1170
1552011	4 x 50se	30.0	580	1305
1552012	4 x 70se	35.0	812	1730
1552013	4 x 95se	39.0	1102	2205
1552014	4 x 120se	42.0	1392	2655
1552015	4 x 150se	46.0	1740	3150
1552016	4 x 185se	51.0	2146	3925
1552017	4 x 240se	60.0	2784	4880

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Aluminium price basis: excludes aluminium. Refer to catalogue appendix T17 for the application and definition of „Metal price basis“ and „Metal index“.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

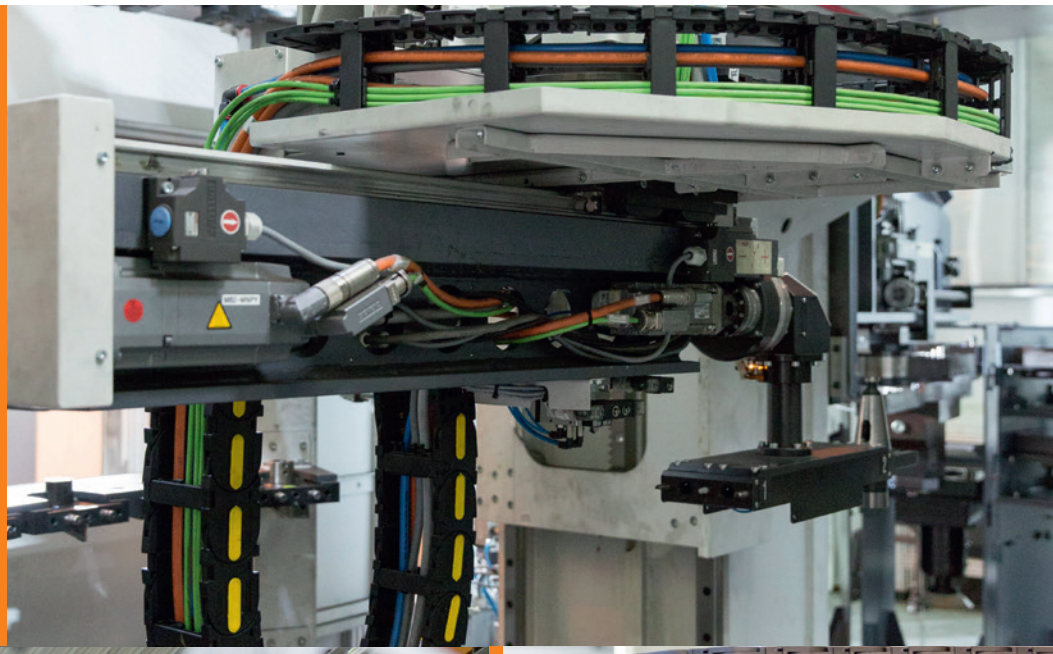
- NYY-J, NYY-O refer to page 232

Accessories

- Ratchet cutter refer to page 980
- V 1311-A pressing pliers, hydraulic refer to page 1014
- STAR STRIP stripping tool refer to page 985
- PVL 1300 pressing pliers battery-operated refer to page 1015
- Cable lugs and other connectors made of aluminium or bi-metal Al-Cu are available upon request

ÖLFLEX® CONNECT

Systems Solutions

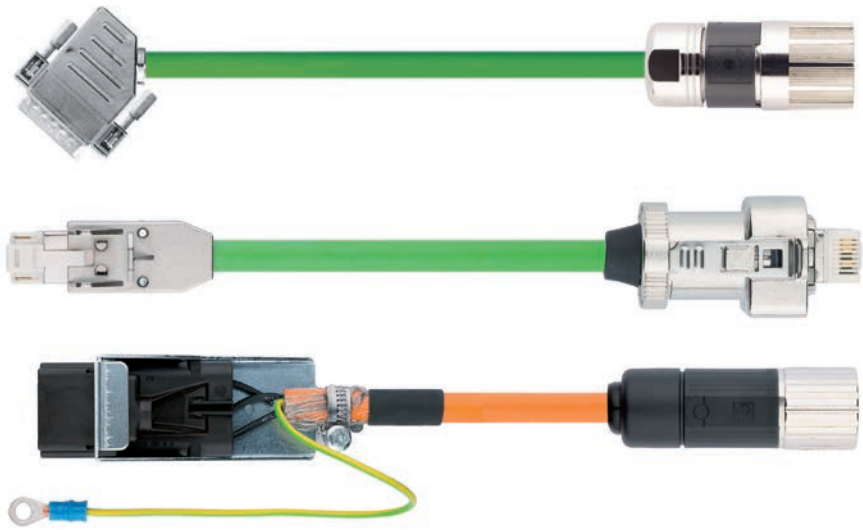


© Wolfram Scheible/LAPP/Bystronic glass

ÖLFLEX® SERVO Basic Line according to Siemens 6FX5002 (PVC)

Info

- Cables in application-oriented performance categories
- Connector with novel, safe screen connection
- PVC outer sheath



Benefits

- Regional manufactured worldwide available
- Lapp quality standards

Application range

- Food production and packaging machinery
- Woodworking Machinery

Product features

- PVC servo cable, shielded
- Basic Line for static and slowly moving applications with resistant PVC outer mantle
- Innovative connnector concept

Norm references / Approvals

- Design according to SIEMENS® standard 6FX 5002
- Flame-retardant according to IEC 60332-1-2, VW-1, FT1

Product Make-up

- Full range of types
- Brake wire with 1.5mm² wire gauge

Technical data

Core identification code
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Single-paired versions: black; white
Double-paired versions: black with white numbers 5; 6; 7; 8
0,34mm² pairs: WH/BN/GN/YE

Conductor stranding
Fine wire according to IEC 60228/VDE 0295, class 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

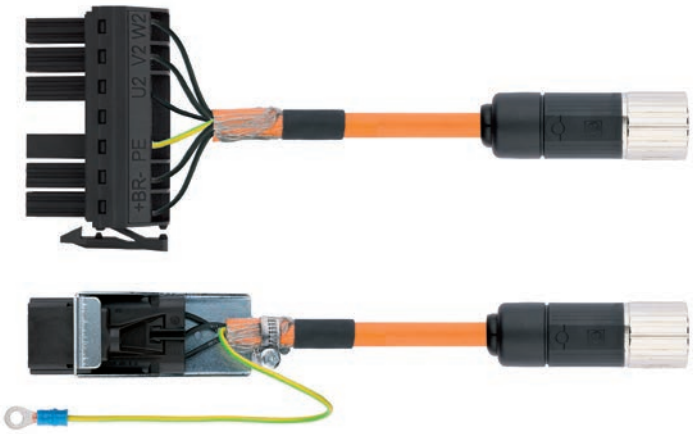
Protective conductor
G = with GN-YE protective conductor

Temperature range
Occasional flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -30°C to +80°C

Article number	Length (m)	SIEMENS® assembly designation	Copper index (kg/km)	Other dimensions	PU
ÖLFLEX® SERVO Basic Line according to Siemens 6FX5002 (PVC)					
5480002690	10.0	2DC10	37.37	Other lengths available	1
5480002715	10.0	2DC20	37.37	Other lengths available	1
5480002990	10.0	5CN05	88.88	Other lengths available	1
5480003015	10.0	5CN11	135.30	Other lengths available	1
5480003240	10.0	5CQ28	88.88	Other lengths available	1
5480003365	10.0	5CS01	90.20	Other lengths available	1
5480003565	10.0	5CS31	135.30	Other lengths available	1
5480004290	10.0	5DQ28	168.67	Other lengths available	1
5480004415	10.0	5DS01	171.18	Other lengths available	1
5480004515	10.0	5DS31	198.85	Other lengths available	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only
Other lengths and cable terminations are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further Article and length online https://servoconfigurator.lappgroup.com/

ÖLFLEX® SERVO Core Line for Siemens 6FX5002 (PVC)



Info

- Connector with novel, safe screen connection
- Custom length available

Benefits

- Regional manufactured worldwide available
- Lapp quality standards

Application range

- Food production and packaging machinery
- Woodworking Machinery
- For static and dynamic applications
- Chain application

Product features

- Core Line for light duty power chain applications
- New PVC servo cable, shielded
- Innovative connnector concept

Norm references / Approvals

- Design according to SIEMENS® standard

Product Make-up

- Brake wire with 1.5 mm² wire gauge

Technical data

Core identification code
Supply cores: colored with white printing
Brown with white printing: V / L2
Black with white printing: U/L1/C/L +
Gray with white printing: W/L3/D/L-
GN/GE protective conductorcontrol wires: WS; SW

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Chain application:7,5 x cable diameter
Fixed installation: 4 x cable diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Alternating bending cycles
5 mio. cycles

Temperature range
Chain application:-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

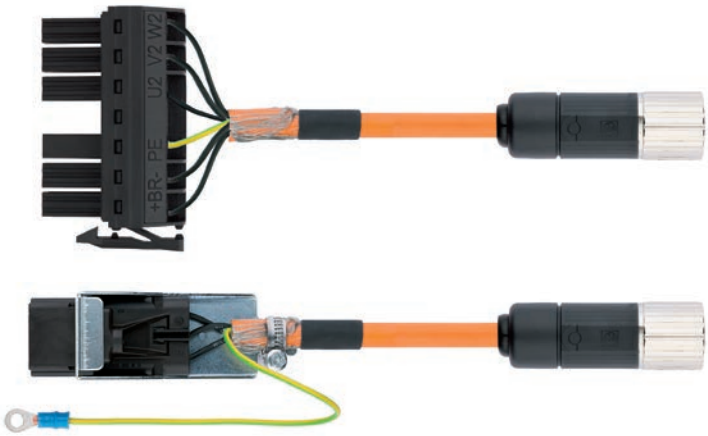
Article number	Length (m)	SIEMENS® assembly designation	Copper index (kg/km)	Other dimensions	PU
ÖLFLEX® SERVO Core Line for Siemens 6FX5002 (PVC)					
5480007020	10.0	5CA05	81.81	Other lengths available	1
5480007090	10.0	5CA15	121.20	Other lengths available	1
5480007510	10.0	5CN01	83.03	Other lengths available	1
5480007650	10.0	5CN11	123	Other lengths available	1
5480007720	10.0	5CN21	83.03	Other lengths available	1
5480007790	10.0	5CN31	123	Other lengths available	1
5480008210	10.0	5CQ15	121.20	Other lengths available	1
5480008630	10.0	5CS01	83.03	Other lengths available	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only
Other lengths and cable terminations are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further Article and length online https://servoconfigurator.lappgroup.com/

ÖLFLEX® SERVO Core Line for Siemens 6FX8002 (PUR)

Info

- Connector with novel, safe screen connection
- Custom length available



Benefits

- Regional manufactured worldwide available
- Lapp quality standards

Application range

- Specifically for machine tool building
- For highly dynamic applications
- Assembly and assembly machinesproduction lines
- Chain application

Product features

- New PUR servo cable, halogen-free & shielded
- Innovative connnector concept
- Core Line for light duty power chain applications

Norm references / Approvals

- Design according to SIEMENS® standard

Product Make-up

- Brake wire with 1.5 mm² wire gauge

Technical data

Core identification code
Supply cores: colored with white printing
Brown with white printing: V / L2
Black with white printing: U/L1/C/L +
Gray with white printing: W/L3/D/L-
GN/GE protective conductorcontrol wires: WS; SW

Conductor stranding
Fine wire according to IEC 60228/ VDE 0295, class 5

Minimum bending radius
Chain application:7,5 x cable diameter
Fixed installation: 4 x cable diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

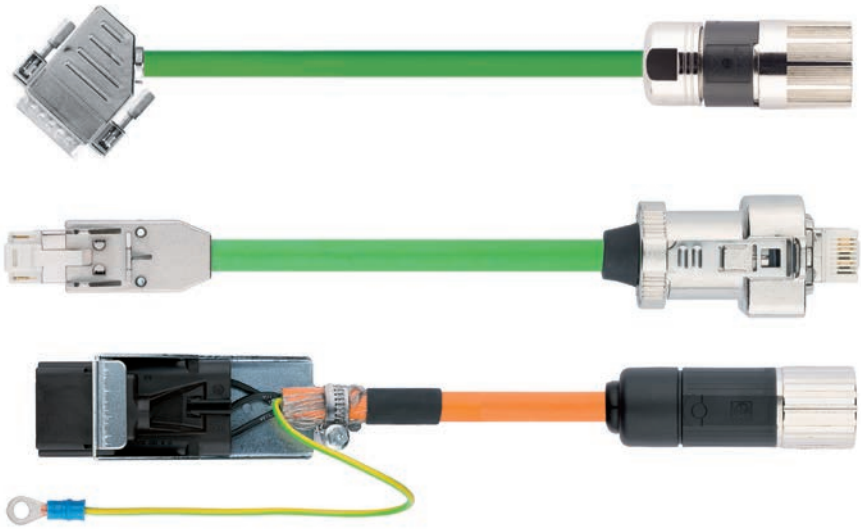
Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Length (m)	SIEMENS® assembly designation	Copper index (kg/km)	Other dimensions	PU
ÖLFLEX® SERVO Core Line for Siemens 6FX8002 (PUR)					
5480005390	10.0	5CS31	132.23	Other lengths available	1
5480000665	10.0	5CN01	83.03	Other lengths available	1
5480000715	10.0	5CN11	123	Other lengths available	1
5480000765	10.0	5CN31	123	Other lengths available	1
5480001065	10.0	5CS01	83.03	Other lengths available	1
5480048200	10.0	5CS06	82.05	Other lengths available	1
5480001115	10.0	5CS11	123	Other lengths available	1
5480001215	10.0	5CS21	83.03	Other lengths available	1
5480001765	10.0	5DN11	207.87	Other lengths available	1
5480001840	10.0	5DN41	276.96	Other lengths available	1
5480002115	10.0	5DS01	146.58	Other lengths available	1
5480049200	10.0	5CS06	144.86	Other lengths available	1
5480002215	10.0	5DS31	207.87	Other lengths available	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only
Other lengths and cable terminations are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further Article and length online https://servoconfigurator.lappgroup.com/

ÖLFLEX® SERVO Extended Line according to Siemens 6FX8002 (PUR)



Info

- Classical production and assembly
- Connector with novel, safe screen connection
- For the most demanding mechanical requirements

Benefits

- Regional manufactured worldwide available
- Lapp quality standards

Application range

- Specifically for machine tool building
- Designed for power chain use: for travel distances up to 100 m (horizontal)
- For very high dynamic motion sequences

Product features

- Extended Line for high mechanical stress in Power chains
- Proven for hightes dynamic stresses and long distances

Norm references / Approvals

- Design according to SIEMENS® standard 6FX 8002
- Flame-retardant according to IEC 60332-1-2, VW-1, FT1

Product Make-up

- Full range of types
- Brake wire with 1.5mm² wire gauge

Technical data

Core identification code
Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D /L-; GN/YE protective conductor
Optional designs with
one pair of control cores: black; white
Two pairs of control cores: black with white numbers: 5, 6, 7, 8

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
For flexible use:
7.5 x outer diameter (1.5-16 mm²)
10 x outer diameter (25-50 mm²)
Fixed installation: 4 x outer diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Alternating bending cycles
10 mio. cycles

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Length (m)	SIEMENS® assembly designation	Copper index (kg/km)	Other dimensions	PU
Assemblies for signal transmission systems					
5480000015	10.0	2AD00	68.68	Other lengths available	1
5480000065	10.0	2AH00	80.19	Other lengths available	1
5480000165	10.0	2CA31	80.80	Other lengths available	1
5480000290	10.0	2CH00	68.68	Other lengths available	1
5480000390	10.0	2DC10	38.38	Other lengths available	1
5480000415	10.0	2DC20	38.38	Other lengths available	1
5480000440	10.0	2EQ10	80.80	Other lengths available	1
5480004940	10.0	5CN51	303.40	Other lengths available	1
5480005290	10.0	5CS13	462.47	Other lengths available	1
5480005440	10.0	5CS51	303.40	Other lengths available	1
5480005990	10.0	5DN51	337.23	Other lengths available	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only
Other lengths and cable terminations are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further Article and length online https://servoconfigurator.lappgroup.com/

ÖLFLEX® SERVO Extended Line acc. Bosch Rexroth / Indramat (PUR)

Benefits
- Regional manufactured worldwide available
- Lapp quality standards

Application range
- Specifically for machine tool building
- For travel distances up to 10 m.
- For highly dynamic applications
- Assembly and assembly machinesproduction lines
- Chain application

Product features
- New PUR servo cable, halogen-free & shielded
- Innovative connnector concept
- Core Line for light duty power chain applications

Note
- Please comply with the assembly guidelines for cables in power chain systems.
- Maximum cable length must comply with the specifications set by the manufacturer of the respective servo drives
- The technical data correspond to the cables used

Product Make-up
- Other versions and lengths can be delivered upon request.

Technical data

Core identification code
Supply cores: colored with white printing
Brown with white printing: V / L2
Black with white printing: U/L1/C/L +
Gray with white printing: W/L3/D/L-
GN/GE protective conductorcontrol wires: WS; SW

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Chain application:7,5 x cable diameter
Fixed installation: 4 x cable diameter

Nominal voltageXD
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Length (m)	Article designation	OD in mm	Quality of cable	Number of cores and mm² per conductor	Copper index (kg/km)
ÖLFLEX® SERVO Extended Line acc. Bosch Rexroth / Indramat (PUR)						
5460000023	10.0	IKS4042	8.5	PUR	4x2x0,25+2x0,5	53
5460000024	10.0	IKS4038	9.7	PUR	4x1+4x2x0,14+4x0,14	81
5460000025	10.0	IKS4012	9.7	PUR	4x1+4x2x0,14+4x0,14	81
5460000026	10.0	IKS0204	8.5	PUR	4x2x0,25+2x0,5	53
5460000016	10.0	RKL4303	11.5	PUR	4G1,0+2x(2x0,75)	159
5460000017	10.0	RKL4308	15.1	PUR	4G2,5+2x(2x1,0)	212
5460000018	10.0	RKL4300	12.2	PUR	4G1,5+2x(2x0,75)	159
5460000019	10.0	RKL4304	12.2	PUR	4G1,5+2x(2x0,75)	159
5460000020	10.0	IKG4115	12.2	PUR	4G1,5+2x(2x0,75)	159
5460000021	10.0	IKG4139	15.1	PUR	4G2,5+2x(2x1,0)	212
5460000022	10.0	IKG4177	16	PUR	4G4+(2x1)+(2x1,5)	306

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Indramat part designations (IKG, IKS, INK, INS, RKL and RKG) are registered trademarks of Bosch Rexroth AG, and are listed for comparison purposes only.
Article numbers refer to genuine Lapp products.
Other designs and lengths are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further Article and length online https://servoconfigurator.lappgroup.com/

ÖLFLEX® SERVO Core Line acc. Lenze (PVC)

Benefits

- Regional manufactured worldwide available
- Lapp quality standards

Application range

- Food production and packaging machinery
- Woodworking Machinery
- For static and dynamic applications
- Chain application

Product features

- Core Line for light duty power chain applications
- New PVC servo cable, shielded
- Innovative connnector concept

Technical data

Core identification code
Supply cores: colored with white printing
Brown with white printing: V / L2
Black with white printing: U/L1/C/L +
Gray with white printing: W/L3/D/L-
GN/GE protective conductorcontrol wires: WS; SW

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Chain application:7,5 x cable diameter
Fixed installation: 4 x cable diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Alternating bending cycles
5 mio. cycles

Temperature range
Chain application:-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

Article number	Length (m)	OD in mm	Quality of cable	Outer dimensions (mm)	Article designation	Cable cross section	Copper index (kg/km)
ÖLFLEX® SERVO Core Line acc. Lenze (PVC)							
5450000268	10.0	12.2	Core-PVC	12.2	EYP-0003-A-1000-M04-A00	4G1,5+(2x1,0)	138
5450000269	10.0	12.2	Core-PVC	12.2	EYP-0004-A-1000-M04-A00	4G1,5+(2x1,0)	138
5450000270	10.0	13.7	Core-PVC	13.7	EYP-0005-A-1000-M04-A00	4G2,5+(2x1,0)	181
5450000271	10.0	12.2	Core-PVC	12.2	EYP-0003-A-1000-M01-A00	4G1,5+(2x1,0)	138

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Lenze® part designations (EWLM_, EWLR_, EWLE_, EWLL_, EYL and EYP) are registered trademarks of Lenze® AG, and are listed for comparison purposes only. DESINA® is a registered trademark of the German Machine Tool Builders' Association.
Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further Article and length online https://servoconfigurator.lappgroup.com/
Bendingradius: Resolvercable 15x Outerdiameter

ÖLFLEX® SERVO Core Line acc. Lenze (PUR)

Benefits
- Regional manufactured worldwide available
- Lapp quality standards

Application range
- Specifically for machine tool building
- For highly dynamic applications
- Assembly and assembly machinesproduction lines
- Chain application

Product features
- New PUR servo cable, halogen-free & shielded
- Innovative connnector concept
- Core Line for light duty power chain applications

Technical data

Core identification code
Supply cores: colored with white printing
Brown with white printing: V / L2
Black with white printing: U/L1/C/L +
Gray with white printing: W/L3/D/L-
GN/GE protective conductorcontrol wires: WS; SW

Conductor stranding
Fine wire according to IEC 60228/ VDE 0295, class 5

Minimum bending radius
Chain application:7,5 x cable diameter
Fixed installation: 4 x cable diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Length (m)	Article designation	OD in mm	Quality of cable	Cable cross section	Copper index (kg/km)
ÖLFLEX® SERVO Core Line acc. Lenze (PUR)						
5450000118	10.0	EYF-0020-A-1000-F01-A00	9.2	PUR	3x(2x0,14)+3x0,14	40
5450000122	10.0	EYF-0019-A-1000-A00-W04	11.5	PUR	4x(2x0,14)+(2x1,0)	65
5450000123	10.0	EYF-0019-A-1000-A00-S03	11.5	PUR	4x(2x0,14)+(2x1,0)	65
5450000124	10.0	EYF-0019-A-1000-F06-W04	11.5	PUR	4x(2x0,14)+(2x1,0)	65
5440000125	10.0	EYF-0019-A-1000-F06-S03	11.5	PUR	4x(2x0,14)+(2x1,0)	65
5450000242	10.0	EYP-0010-A-1000-M04-A00	12.3	Core-PUR	4G1,5+(2x1,0)	138
5450000243	10.0	EYP-0011-A-1000-M04-A00	12.3	Core-PUR	4G1,5+(2x1,0)	138
5450000244	10.0	EYP-0012-A-1000-M04-A00	13.8	Core-PUR	4G2,5+(2x1,0)	181
5450000245	10.0	EYP-0010-A-1000-M01-A00	12.3	Core-PUR	4G1,5+(2x1,0)	138

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Lenze® part designations (EWLM_, EWLR_, EWLE_, EWLL_, EYL and EYP) are registered trademarks of Lenze® AG, and are listed for comparison purposes only. DESINA® is a registered trademark of the German Machine Tool Builders' Association.
Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further Article and length online https://servoconfigurator.lappgroup.com/

ÖLFLEX® SERVO Core Line acc. SEW (PVC)

Benefits
- Regional manufactured worldwide available
- Lapp quality standards

Application range
- Food production and packaging machinery
- Woodworking Machinery
- For static and dynamic applications
- Chain application

Product features
- Core Line for light duty power chain applications
- New PVC servo cable, shielded
- Innovative connnector concept

Technical data

Core identification code
Supply cores: colored with white printing
Brown with white printing: V / L2
Black with white printing: U/L1/C/L +
Gray with white printing: W/L3/D/L-
GN/GE protective conductorcontrol wires: WS; SW

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Chain application:7,5 x cable diameter
Fixed installation: 4 x cable diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Length (m)	Article designation	OD in mm	Quality of cable	Cable cross section	Copper index (kg/km)
ÖLFLEX® SERVO Core Line acc. SEW (PVC)						
5440000011	10.0	01994875	8.4	PVC	5x2x0,25	51.6
5440000012	10.0	13327429	8.4	PVC	5x2x0,25	51.6
5440000013	10.0	13602659	8.4	PVC	5x2x0,25	51.6
5440000014	10.0	13324535	9	PVC	6x2x0,25	58.5
5440000015	10.0	13621998	9	PVC	6x2x0,25	58.5
5440000016	10.0	18127843	9	PVC	6x2x0,25	58.5
5440000171	10.0	13324853	12.5	Core-PVC	4G1,5+(3x1,0)	144.2
5440000172	10.0	13332139	13.9	Core-PVC	4G2,5+(3x1,0)	187.2
5440000173	10.0	13332147	16.5	Core-PVC	4G4+(3x1,0)	270.9

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
SEW® is a registered trademark of SEW Eurodrive GmbH & Co KG, Ernst-Blickle Str. 42, D-76646 Bruchsal
Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further Article and length online https://servoconfigurator.lappgroup.com/
Bendingradius: Resolvercable 15x Outerdiameter

ÖLFLEX® SERVO Core Line acc. SEW (PUR)

Benefits
- Regional manufactured worldwide available
- Lapp quality standards

Application range
- Specifically for machine tool building
- For highly dynamic applications
- Assembly and assembly machinesproduction lines
- Chain application

Product features
- New PUR servo cable, halogen-free & shielded
- Innovative connnector concept
- Core Line for light duty power chain applications

Technical data

Core identification code
Supply cores: colored with white printing
Brown with white printing: V / L2
Black with white printing: U/L1/C/L +
Gray with white printing: W/L3/D/L-
GN/GE protective conductorcontrol wires: WS; SW

Conductor stranding
Fine wire according to IEC 60228/ VDE 0295, class 5

Minimum bending radius
Chain application:7,5 x cable diameter
Fixed installation: 4 x cable diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Length (m)	Article designation	OD in mm	Quality of cable	Cable cross section	Copper index (kg/km)
ÖLFLEX® SERVO Core Line nach SEW (PUR)						
5440000105	10.0	01993194	8.4	PUR	5x2x0,25	51.6
5440000106	10.0	13327437	8.4	PUR	5x2x0,25	51.6
5440000108	10.0	13324551	9.4	PUR	6x2x0,25	58.5
5440000174	10.0	13331221	12.9	Core-PUR	4G1,5+(3x1,0)	144.2
5440000175	10.0	13332155	14.1	Core-PUR	4G2,5+(3x1,0)	187.2
5440000176	10.0	13332163	16.3	Core-PUR	4G4+(3x1,0)	270.9

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
SEW® is a registered trademark of SEW Eurodrive GmbH & Co KG, Ernst-Blickle Str. 42, D-76646 Bruchsal
Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further Article and length online https://servoconfigurator.lappgroup.com/

ÖLFLEX® SERVO Core Line acc. Allen Bradley / Rockwell (PVC)

Info

- Connector with novel, safe screen connection
- Custom length available

Benefits

- Regional manufactured worldwide available
- Lapp quality standards

Application range

- Food production and packaging machinery
- Woodworking Machinery
- For static and dynamic applications
- Chain application

Product features

- Core Line for light duty power chain applications
- New PVC servo cable, shielded
- Innovative connnector concept

Technical data

Core identification code
Supply cores: colored with white printing
Brown with white printing: V / L2
Black with white printing: U/L1/C/L +
Gray with white printing: W/L3/D/L-
GN/GE protective conductorcontrol wires: WS; SW

Conductor stranding
Fine wire according to IEC 60228/ VDE 0295, class 5

Minimum bending radius
Chain application:7,5 x cable diameter
Fixed installation: 4 x cable diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Alternating bending cycles
5 mio. cycles

Temperature range
Chain application:-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

Article number	Length (m)	Article designation	OD in mm	Quality of cable	Number of cores and mm² per conductor	Copper index (kg/km)
ÖLFLEX® SERVO Core Line acc. Allen Bradley / Rockwell (PVC)						
5490000061	10.0	2090-CPBM7E7-16AA	12.7	PVC	4G1,5+(2x1,5)	142.7
5490000053	10.0	2090-CPBM7DF-16AA	12.7	PVC	4G1,5+(2x1,5)	142.7
5490000057	10.0	2090-CPWM7DF-16AA	8	PVC	4G1,5	81
5490000059	10.0	2090-CPWM7DF-14AA	11.1	PVC	4G2,5	120
5490000055	10.0	2090-CPBM7DF-14AA	4.3	PVC	4G2,5+(2x1,5)	202.8

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only
Other lengths and cable terminations are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Bendingradius: Resolvercable 15x Outerdiameter
Resolver Corecode acc. DIN 47100
Allen Bradley / Rockwell part designations are registered trademarks of Allen Bradley / Rockwell , and are listed for comparison purposes only

ÖLFLEX® SERVO Core Line acc. Allen Bradley / Rockwell (PUR)

Info

- Connector with novel, safe screen connection
- Custom length available

Benefits

- Regional manufactured worldwide available
- Lapp quality standards

Application range

- Specifically for machine tool building
- For highly dynamic applications
- Assembly and assembly machinesproduction lines
- Chain application

Product features

- New PUR servo cable, halogen-free & shielded
- Innovative connnector concept
- Core Line for light duty power chain applications

Technical data

Core identification code
Supply cores: colored with white printing
Brown with white printing: V / L2
Black with white printing: U/L1/C/L +
Gray with white printing: W/L3/D/L-
GN/GE protective conductorcontrol wires: WS; SW

Conductor stranding
Fine wire according to IEC 60228/ VDE 0295, class 5

Minimum bending radius
Chain application:7,5 x cable diameter
Fixed installation: 4 x cable diameter

Nominal voltage
Power cores and control cores:
IEC U0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor

Alternating bending cycles
5 mio. cycles

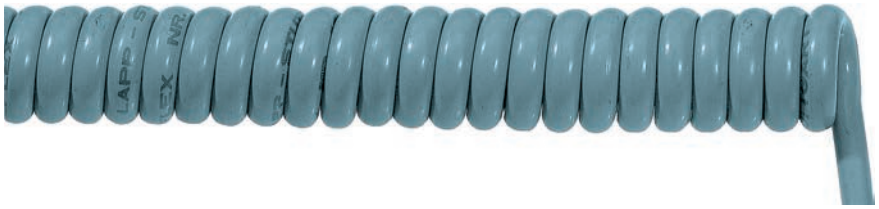
Temperature range
Flexing: -40°C to +90°C
(UL/CSA: +80°C)
Fixed installation: -50°C to +90°C
(UL/CSA: +80°C)

Article number	Length (m)	Article designation	OD in mm	Quality of cable	Number of cores and mm² per conductor	Copper index (kg/km)
ÖLFLEX® SERVO Core Line acc. Allen Bradley / Rockwell (PUR)						
5490000029	10.0	2090-CFBM4DD-CEAF	10.6	PUR	6x2x0,34	86.2
5490000031	10.0	2090-CFBM7E7-CEAF	10.6	PUR	6x2x0,34	86.2
5490000030	10.0	2090-CFBM4E7-CEAF	10.6	PUR	6x2x0,34	86.2
5490000054	10.0	2090-CPBM7DF-16AF	12.8	PUR	4G1,5+(2x1,5)	143
5490000056	10.0	2090-CPBM7DF-14AF	14.4	PUR	4G2,5+(2x1,5)	202.28
5490000039	10.0	2090-CPBM7DF-10AF	17.4	PUR	4G6+(2x1,5)	347.8
5490000058	10.0	2090-CPWM7DF-16AF	9.2	PUR	4G1,5	81
5490000060	10.0	2090-CPWM7DF-14AF	11.5	PUR	4G2,5	120

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only
Other lengths and cable terminations are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further Article and length online https://servoconfigurator.lappgroup.com/
Resolver Corecode acc. DIN 47100
Allen Bradley / Rockwell part designations are registered trademarks of Allen Bradley / Rockwell , and are listed for comparison purposes only

ÖLFLEX® SPIRAL 400 P

PUR spiral cable with increased chemical resistance



Info

- High resistance to benzols, benzines and other substances listed in Appendix T1
- High mechanical strength
- New: Now available in cross section 0,5 mm²

Benefits

- High restoring forces and extension lengths up to 3 times the unextended spiral length
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

Application range

- As control and power cables in machines
- Mechanical engineering
- Apparatus construction

Product features

- Resistant to microbes, hydrolysis and almost all mineral oils
- High chemical-resistance to benzols, benzenes and other agents listed in the selection table in Appendix T1
- Abrasion and notch-resistant

Norm references / Approvals

- Core based on VDE 0812/0285
- Outer sheath based on VDE 0250/0285

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Special PVC P8/1
- Use of talcum
- Outer sheath made of special polyurethane
- Length of straight ends: 1st end = 200 mm, 2nd end = 600 mm
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Nominal voltage
U0/U: 300/500 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexible use: +5°C to +50°C

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
ÖLFLEX® SPIRAL 400 P					
70002598	2 X 0.5	1500	500	5.5	20
70002599	2 X 0.5	3000	1000	5.5	20
70002600	2 X 0.5	4500	1500	5.5	20
70002601	2 X 0.5	6000	2000	5.5	20
70002602	3 X 0.5	1500	500	5.8	21
70002603	3 X 0.5	3000	1000	5.8	21
70002604	3 X 0.5	4500	1500	5.8	21
70002605	3 X 0.5	6000	2000	5.8	21
70002606	4 X 0.5	1500	500	6.2	21
70002607	4 X 0.5	3000	1000	6.2	21
70002608	4 X 0.5	4500	1500	6.2	21
70002609	4 X 0.5	6000	2000	6.2	21
70002610	5 X 0.5	1500	500	6.7	25
70002611	5 X 0.5	3000	1000	6.7	25
70002612	5 X 0.5	4500	1500	6.7	25
70002613	5 X 0.5	6000	2000	6.7	25
70002614	7 X 0.5	1500	500	7.6	29
70002615	7 X 0.5	3000	1000	7.6	29
70002616	7 X 0.5	4500	1500	7.6	29
70002617	7 X 0.5	6000	2000	7.6	29
70002618	12 X 0.5	1500	500	9.5	32
70002619	12 X 0.5	3000	1000	9.5	32
70002620	18 X 0.5	1500	500	11	42
70002621	18 X 0.5	3000	1000	11	42
70002622	2 X 0.75	1500	500	5.4	19.5
70002623	2 X 0.75	3000	1000	5.4	19.5
70002624	2 X 0.75	4500	1500	5.4	19.5
70002625	2 X 0.75	6000	2000	5.4	19.5
70002628	3 G 0.75	1500	500	5.7	20
70002629	3 G 0.75	3000	1000	5.7	20
70002630	3 G 0.75	4500	1500	5.7	20
70002631	3 G 0.75	6000	2000	5.7	20

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
70002634	4 G 0.75	1500	500	6.2	21
70002635	4 G 0.75	3000	1000	6.2	21
70002636	4 G 0.75	4500	1500	6.2	21
70002637	4 G 0.75	6000	2000	6.2	21
70002640	5 G 0.75	1500	500	6.7	24
70002641	5 G 0.75	3000	1000	6.7	24
70002642	5 G 0.75	4500	1500	6.7	24
70002643	5 G 0.75	6000	2000	6.7	24
70002726	7 G 0.75	1500	500	7.3	27
70002727	7 G 0.75	3000	1000	7.3	27
70002728	7 G 0.75	4500	1500	7.3	27
70002729	7 G 0.75	6000	2000	7.3	27
70002731	12 G 0.75	1500	500	9.9	35
70002732	12 G 0.75	3000	1000	9.9	35
70002734	18 G 0.75	1500	500	11.7	40
70002735	18 G 0.75	3000	1000	11.7	40
70002646	2 X 1.0	1500	500	5.7	20
70002647	2 X 1.0	3000	1000	5.7	20
70002648	2 X 1.0	4500	1500	5.7	20
70002649	2 X 1.0	6000	2000	5.7	20
70002651	3 G 1.0	1500	500	6	21
70002652	3 G 1.0	3000	1000	6	21
70002653	3 G 1.0	4500	1500	6	21
70002654	3 G 1.0	6000	2000	6	21
70002656	4 G 1.0	1500	500	6.5	24
70002657	4 G 1.0	3000	1000	6.5	24
70002658	4 G 1.0	4500	1500	6.5	24
70002659	4 G 1.0	6000	2000	6.5	24
70002661	5 G 1.0	1500	500	7.1	25
70002662	5 G 1.0	3000	1000	7.1	25
70002663	5 G 1.0	4500	1500	7.1	25
70002664	5 G 1.0	6000	2000	7.1	25
70002666	7 G 1.0	1250	500	8	30
70002667	7 G 1.0	2500	1000	8	30
70002668	7 G 1.0	3750	1500	8	30
70002669	7 G 1.0	5000	2000	8	30
70002670	12 G 1.0	1500	500	10.5	37
70002671	12 G 1.0	3000	1000	10.5	37
70002672	18 G 1.0	1500	500	12.7	45
70002673	18 G 1.0	3000	1000	12.7	45
70002681	2 X 1.5	1500	500	6.3	23
70002682	2 X 1.5	3000	1000	6.3	23
70002683	2 X 1.5	4500	1500	6.3	23
70002684	2 X 1.5	6000	2000	6.3	23
70002687	3 G 1.5	1500	500	6.7	24
70002688	3 G 1.5	3000	1000	6.7	24
70002689	3 G 1.5	4500	1500	6.7	24
70002690	3 G 1.5	6000	2000	6.7	24
70002699	5 G 1.5	1250	500	8.1	30
70002700	5 G 1.5	2500	1000	8.1	30
70002701	5 G 1.5	3750	1500	8.1	30
70002702	5 G 1.5	5000	2000	8.1	30
70002705	7 G 1.5	1250	500	8.9	31
70002706	7 G 1.5	2500	1000	8.9	31
70002707	7 G 1.5	3750	1500	8.9	31
70002708	7 G 1.5	5000	2000	8.9	31
70002709	12 G 1.5	1500	500	12	46
70002710	12 G 1.5	3000	1000	12	46
70002711	18 G 1.5	1500	500	13.4	52
70002712	18 G 1.5	3000	1000	13.4	52
70002716	3 G 2.5	1250	500	8.1	28.5
70002717	3 G 2.5	2500	1000	8.1	28.5
70002718	3 G 2.5	3750	1500	8.1	28.5
70002719	3 G 2.5	5000	2000	8.1	28.5
70002721	5 G 2.5	1250	500	10	37
70002722	5 G 2.5	2500	1000	10	37
70002723	5 G 2.5	3750	1500	10	37
70002724	5 G 2.5	5000	2000	10	37

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Similar products

- ÖLFLEX® SPIRAL 540 P refer to page 255

Accessories

- CLICK System

SPIRAL H07BQ-F BLACK

Black, robust PUR spiral cable with high recoiling forces

Info

- Heavy construction type
- Outer sheath: PUR, with high recoiling forces
- Voltage rating 450/750 V

Benefits

- Good cost-benefit ratio
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide application range

Application range

- Construction of engines and appliances with flexible power connections as well as at dockyards
- Construction of machinery and powered doors
- Measurement and control technology
- Any commercial/industrial/agricultural facility: connection of tools, appliances and mobile motors
- For indoor and outdoor use

Product features

- Black, robust outer PUR sheath
- High tensile strength and abrasion-resistance
- High restoring forces
- High resistance to oil, low temperatures, microbes and hydrolysis

Norm references / Approvals

- Based on EN 50525-2-21 H07BQ-F
- The spiralling modifies the properties of the <HAR> certified H07BQ-F cable (sold by the metre) that certain technical requirements stipulated by the H07BQ-F standards are no longer complied with following spiralling. As a result, the <HAR> H07BQ-F design certification of the H07BQ-F cable, also identifiable on the spiral cable, is no longer valid in conjunction with the spiralled piece good design of the „SPIRAL H07BQ-F BLACK“. This is a completely logical consequence of the spiralling processing steps.

Product Make-up

- Tinned stranded copper wire of braided conductor class 5 according to IEC 60228/VDE 0295
- Core insulation: EI6 rubber according to EN 50525-1 & EN 50363-1/ VDE 0207-363-1; coloured according to HD 308/VDE 0293-308; VDE and HAR marking of the unspiralled H07BQ-F (sold by the metre) as the basic material for the spiralling
- Use of talcum
- Black, outer PUR sheath made of TMPU according to EN 50525-2-21; marking „H07BQ-F ...“
- For the 4 standard solid lengths available, please see the article table below
- Radial outflow shape at cable ends - length of ends: 200 mm at the first end/600 mm at the other end
- Versions with other solid lengths, end lengths and end forms available on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

Core identification code
Coloured according to VDE 0293-308 (HD 308)

Conductor stranding
Fine wire according to IEC 60228/ VDE 0295, class 5
tinned strands

Minimum bending radius
Flexible use: 12.5 x outer diameter

Nominal voltage
U0/U: 450/750 V

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor

Temperature range
-25 °C to +50 °C (spiralled)

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
SPIRAL H07BQ-F BLACK					
70002750	3 G 1.5	1500	500	9	31
70002751	3 G 1.5	3000	1000	9	31
70002752	3 G 1.5	4500	1500	9	31
70002753	3 G 1.5	6000	2000	9	31
70002754	4 G 1.5	1500	500	10	38
70002755	4 G 1.5	3000	1000	10	38
70002756	4 G 1.5	4500	1500	10	38
70002757	4 G 1.5	6000	2000	10	38
70002758	5 G 1.5	1500	500	11	40
70002759	5 G 1.5	3000	1000	11	40
70002760	5 G 1.5	4500	1500	11	40
70002761	5 G 1.5	6000	2000	11	40

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Each item is packed separately in a plastic bag
Versions with other solid lengths, end lengths and end forms available on request

Similar products

- ÖLFLEX® SPIRAL 400 P refer to page 252
- ÖLFLEX® SPIRAL 540 P refer to page 255

Accessories

- CLICK System
- SKINTOP® BS-M refer to page 689
- SKINTOP® BS refer to page 773
- SKINTOP® CLICK BS refer to page 691
- SKINTOP® BT refer to page 774

ÖLFLEX® SPIRAL 540 P

Robust, halogen-free PUR spiral cable with high restoring forces

Info

- High restoring forces
- Halogen-free
- Voltage class from 1.5 mm² 450/750 V

Benefits

- Extension lengths of up to 3.5 times the unextended spiral length, high recoiling forces
- The signal colour of the outer sheath increases safety and visual perception
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments

Application range

- Harsh conditions
- Mechanical engineering
- Construction industry
- Medical equipment
- In damp interiors or outdoors

Product features

- Halogen-free
- Good resistance of the outer sheath to cutting and abrasion
- High resistance to oil, low temperatures, microbes and hydrolysis
- Flexible down to -30°C

Product Make-up

- Strands of tinned-copper wires
- Core insulation: TPE
- Outer sheath made of special polyurethane
- Length of straight ends: 1st end = 200 mm, 2nd end = 600 mm
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Nominal voltage
0.75 - 1 mm²: U0/U: 300/500 Vac
As from 1.5 mm²: U0/U = 450/750 Vac

Test voltage
3000 V

Protective conductor
G = with GN-YE protective conductor
X = without protective conductor

Temperature range
Flexible use: -30°C to +50°C

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
U0/U: 300/500 V					
73220107	2 X 0.75	1000	300	6.6	23
73220108	2 X 0.75	2000	600	6.6	23
73220109	2 X 0.75	3500	1000	6.6	23
73220110	2 X 0.75	5000	1500	6.6	23
73220111	3 G 0.75	1000	300	7	24
73220112	3 G 0.75	2000	600	7	24
73220113	3 G 0.75	3500	1000	7	24
73220114	3 G 0.75	5000	1500	7	24
71220115	4 G 0.75	1000	300	7.6	29
71220116	4 G 0.75	2000	600	7.6	29
71220117	4 G 0.75	3500	1000	7.6	29
71220118	4 G 0.75	5000	1500	7.6	29
71220119	5 G 0.75	1000	300	8.5	31
71220120	5 G 0.75	2000	600	8.5	31
71220121	5 G 0.75	3500	1000	8.5	31
71220122	5 G 0.75	5000	1500	8.5	31
73220123	2 X 1.0	1000	300	7	24
73220124	2 X 1.0	2000	600	7	24
73220125	2 X 1.0	3500	1000	7	24
73220126	2 X 1.0	5000	1500	7	24
73220127	3 G 1.0	1000	300	7.4	29
73220128	3 G 1.0	2000	600	7.4	29
73220129	3 G 1.0	3500	1000	7.4	29
73220130	3 G 1.0	5000	1500	7.4	29
71220131	4 G 1.0	1000	300	8.2	30
71220132	4 G 1.0	2000	600	8.2	30
71220133	4 G 1.0	3500	1000	8.2	30
71220134	4 G 1.0	5000	1500	8.2	30
71220135	5 G 1.0	1000	300	9	32
71220136	5 G 1.0	2000	600	9	32
71220137	5 G 1.0	3500	1000	9	32
71220138	5 G 1.0	5000	1500	9	32
73220139	7 G 1.0	1000	350	10.9	40
73220140	7 G 1.0	2000	700	10.9	40
73220141	7 G 1.0	3500	1200	10.9	40
73220142	7 G 1.0	5000	1700	10.9	40

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
U0/U: 450/750 V					
73220143	2 X 1.5	1000	300	8.4	31
73220144	2 X 1.5	2000	600	8.4	31
73220145	2 X 1.5	3500	1000	8.4	31
73220146	2 X 1.5	5000	1500	8.4	31
73220147	3 G 1.5	1000	300	8.9	32
73220148	3 G 1.5	2000	600	8.9	32
73220149	3 G 1.5	3500	1000	8.9	32
73220150	3 G 1.5	5000	1500	8.9	32
71220151	5 G 1.5	1000	350	10.9	40
71220152	5 G 1.5	2000	700	10.9	40
71220153	5 G 1.5	3500	1200	10.9	40
71220154	5 G 1.5	5000	1700	10.9	40
73220155	7 G 1.5	1000	350	13.5	52
73220156	7 G 1.5	2000	700	13.5	52
73220157	7 G 1.5	3500	1200	13.5	52
73220158	7 G 1.5	5000	1700	13.5	52
73220159	3 G 2.5	1000	350	10.6	40
73220160	3 G 2.5	2000	700	10.6	40
73220161	3 G 2.5	3500	1200	10.6	40
73220162	3 G 2.5	5000	1700	10.6	40
71220163	5 G 2.5	1000	350	13.4	51
71220164	5 G 2.5	2000	700	13.4	51
71220165	5 G 2.5	3500	1200	13.4	51
71220166	5 G 2.5	5000	1700	13.4	51

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Similar products

- ÖLFLEX® SPIRAL 400 P refer to page 252
- ÖLFLEX® SPIRAL 540 P with angular, isolated ground plug refer to page 257

Accessories

- CLICK System

ÖLFLEX® SPIRAL 540 P with angular, isolated ground plug

Robust spiral cable with high restoring forces and earthing-type plug

Info

- Robust
- High restoring forces

Benefits

- Extension lengths of up to 3.5 times the unextended spiral length, high recoiling forces
- The signal colour of the outer sheath increases safety and visual perception
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments

Application range

- Harsh conditions
- Mechanical engineering
- Construction industry
- Medical equipment
- In damp interiors or outdoors

Product features

- Good resistance of the outer sheath to cutting and abrasion
- High resistance to oil, low temperatures, microbes and hydrolysis
- Flexible down to -30°C
- 16-A connector with protection rating IP 20

Norm references / Approvals

- Plug: DIN VDE 620-1/standard sheet DIN 49441 R2
- The VDE marking approval (VDE type certification) refers to the connector

Product Make-up

- Cable: ÖLFLEX® SPIRAL 540 P based on ÖLFLEX® 540 P
- Strands of tinned-copper wires
- Core insulation: TPE
- Outer sheath made of special polyurethane
- Length of straight ends: 1st end = 200 mm with moulded angular earthing-type plug, 2nd end = 600 mm with 30 mm stripping
- Other solid lengths, end lengths and end forms available on request
- 2-pin, angular plug with twin earthed contact system, extruded

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

Core identification code
HD 308/VDE 0293-308: 3-core with protective conductor

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Nominal voltage
U0: 250 V AC

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor

Temperature range
Flexible use: -30°C to +50°C

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
ÖLFLEX® SPIRAL 540 P with angular, isolated ground plug					
73220852	3 G 0.75	1000	300	7	24
73220853	3 G 0.75	2000	600	7	24
73220854	3 G 0.75	3500	1000	7	24
73220855	3 G 1.0	1000	300	7.4	29
73220856	3 G 1.0	2000	600	7.4	29
73220863	3 G 1.0	3500	1000	7.4	29
73220860	3 G 1.5	1000	300	8.9	32
73220861	3 G 1.5	2000	600	8.9	32
73220862	3 G 1.5	3500	1000	8.9	32

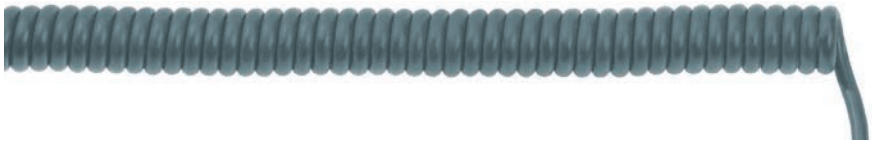
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
1 piece in each polyester bag
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms (not necessarily VDE-registered) available on request
Please observe the safety information as per DIN VDE 0620-1, Plugs and socket-outlets for household and similar purposes - Part 1: General requirements, appendix E: „Installation only by persons with the relevant electrotechnical expertise and experience!“

Similar products

- ÖLFLEX® SPIRAL 540 P refer to page 255

UNITRONIC® SPIRAL LiF2Y11Y

Spiral cable with outer PUR sheath for exact impulse transmission, unshielded



Info

- New: the unscreened spiral cables with small cross section
- High restoring forces
- PUR outer sheath

Benefits

- Extended lengths of up to 4 times the unextended spiral length
- Suitable for transportable machines and appliances
- Transmission of control and measuring signals

Application range

- For requirements of electronic applications
- In measurement and control engineering
- Handling and measurement equipment
- Conveyor and transport systems

Product features

- Abrasion and cut-resistant
- Very high flexibility
- Halogen-free and flame-retardant

Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on Polyolefin
- Outer sheath: PUR compound
- Outer sheath colour: grey
- Length of straight ends: 1st end = 200 mm, 2nd end = 600 mm
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

Core identification code
DIN 47100

Peak operating voltage
250 V (not for power transmission)

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Test voltage
1200 V

Temperature range
Flexing: -5°C to +50°C

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
UNITRONIC® SPIRAL LiF2Y11Y					
73220300	2 x 0.14	400	100	3.4	14
73220301	2 x 0.14	800	200	3.4	14
73220302	2 x 0.14	1200	300	3.4	14
73220303	2 x 0.14	1600	400	3.4	14
73220304	2 x 0.14	2000	500	3.4	14
73220305	3 x 0.14	400	100	3.9	15
73220306	3 x 0.14	800	200	3.9	15
73220307	3 x 0.14	1200	300	3.9	15
73220308	3 x 0.14	1600	400	3.9	15
73220309	3 x 0.14	2000	500	3.9	15
73220310	4 x 0.14	400	100	4.2	17
73220311	4 x 0.14	800	200	4.2	17
73220312	4 x 0.14	1200	300	4.2	17
73220313	4 x 0.14	1600	400	4.2	17
73220314	4 x 0.14	2000	500	4.2	17
73220315	5 x 0.14	400	100	4.5	19
73220316	5 x 0.14	800	200	4.5	19
73220317	5 x 0.14	1200	300	4.5	19
73220318	5 x 0.14	1600	400	4.5	19
73220319	5 x 0.14	2000	500	4.5	19
73220320	6 x 0.14	400	100	4.8	19
73220321	6 x 0.14	800	200	4.8	19
73220322	6 x 0.14	1200	300	4.8	19
73220323	6 x 0.14	1600	400	4.8	19
73220324	6 x 0.14	2000	500	4.8	19
73220325	7 x 0.14	400	100	5.1	20
73220326	7 x 0.14	800	200	5.1	20
73220327	7 x 0.14	1200	300	5.1	20
73220328	7 x 0.14	1600	400	5.1	20
73220329	7 x 0.14	2000	500	5.1	20
73220330	12 x 0.14	400	100	5.9	21
73220331	12 x 0.14	800	200	5.9	21
73220332	12 x 0.14	1200	300	5.9	21
73220333	12 x 0.14	1600	400	5.9	21
73220334	12 x 0.14	2000	500	5.9	21
73220335	18 x 0.14	400	100	6.8	27
73220336	18 x 0.14	800	200	6.8	27
73220337	18 x 0.14	1200	300	6.8	27
73220338	18 x 0.14	1600	400	6.8	27
73220339	18 x 0.14	2000	500	6.8	27
73220340	2 x 0.25	400	100	4.3	18
73220341	2 x 0.25	800	200	4.3	18
73220342	2 x 0.25	1200	300	4.3	18
73220343	2 x 0.25	1600	400	4.3	18

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
73220344	2 x 0.25	2000	500	4.3	18
73220345	3 x 0.25	400	100	4.5	19
73220346	3 x 0.25	800	200	4.5	19
73220347	3 x 0.25	1200	300	4.5	19
73220348	3 x 0.25	1600	400	4.5	19
73220349	3 x 0.25	2000	500	4.5	19
73220350	4 x 0.25	400	100	4.9	20
73220351	4 x 0.25	800	200	4.9	20
73220352	4 x 0.25	1200	300	4.9	20
73220353	4 x 0.25	1600	400	4.9	20
73220354	4 x 0.25	2000	500	4.9	20
73220355	5 x 0.25	400	100	5.3	20
73220356	5 x 0.25	800	200	5.3	20
73220357	5 x 0.25	1200	300	5.3	20
73220358	5 x 0.25	1600	400	5.3	20
73220359	5 x 0.25	2000	500	5.3	20
73220360	6 x 0.25	400	100	5.4	20
73220361	6 x 0.25	800	200	5.4	20
73220362	6 x 0.25	1200	300	5.4	20
73220363	6 x 0.25	1600	400	5.4	20
73220364	6 x 0.25	2000	500	5.4	20
73220365	7 x 0.25	400	100	6.1	21
73220366	7 x 0.25	800	200	6.1	21
73220367	7 x 0.25	1200	300	6.1	21
73220368	7 x 0.25	1600	400	6.1	21
73220369	7 x 0.25	2000	500	6.1	21
73220370	12 x 0.25	400	100	6.7	25
73220371	12 x 0.25	800	200	6.7	25
73220372	12 x 0.25	1200	300	6.7	25
73220373	12 x 0.25	1600	400	6.7	25
73220374	12 x 0.25	2000	500	6.7	25
73220375	18 x 0.25	400	100	8.5	31
73220376	18 x 0.25	800	200	8.5	31
73220377	18 x 0.25	1200	300	8.5	31
73220378	18 x 0.25	1600	400	8.5	31
73220379	18 x 0.25	2000	500	8.5	31
73220381	2 x 0.34	400	100	4.7	18
73220382	2 x 0.34	800	200	4.7	18
73220383	2 x 0.34	1200	300	4.7	18
73220384	2 x 0.34	1600	500	4.7	18
73220385	2 x 0.34	2000	500	4.7	18
73220386	3 x 0.34	400	100	5	19
73220387	3 x 0.34	800	200	5	19
73220388	3 x 0.34	1200	300	5	19
73220389	3 x 0.34	1600	400	5	19
73220390	3 x 0.34	2000	500	5	19
73220391	4 x 0.34	400	100	5.4	20
73220392	4 x 0.34	800	200	5.4	20
73220393	4 x 0.34	1200	300	5.4	20
73220394	4 x 0.34	1600	400	5.4	20
73220395	4 x 0.34	2000	500	5.4	20
73220396	5 x 0.34	400	100	5.9	21
73220397	5 x 0.34	800	200	5.9	21
73220398	5 x 0.34	1200	300	5.9	21
73220399	5 x 0.34	1600	400	5.9	21
73220400	5 x 0.34	2000	500	5.9	21
73220401	7 x 0.34	400	100	6.8	25
73220402	7 x 0.34	800	200	6.8	25
73220403	7 x 0.34	1200	300	6.8	25
73220404	7 x 0.34	1600	400	6.8	25
73220405	7 x 0.34	2000	500	6.8	25
73220406	10 x 0.34	400	100	8.5	30
73220407	10 x 0.34	800	200	8.5	30
73220408	10 x 0.34	1200	300	8.5	30
73220409	10 x 0.34	1600	400	8.5	30
73220410	10 x 0.34	2000	500	8.5	30
73220411	14 x 0.34	400	100	8.6	31
73220412	14 x 0.34	800	200	8.6	31
73220413	14 x 0.34	1200	300	8.6	31
73220414	14 x 0.34	1600	400	8.6	31
73220415	14 x 0.34	2000	500	8.6	31
73220416	18 x 0.34	400	100	9.7	33
73220417	18 x 0.34	800	200	9.7	33
73220418	18 x 0.34	1200	300	9.7	33
73220419	18 x 0.34	1600	400	9.7	33
73220420	18 x 0.34	2000	500	9.7	33

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Accessories

- SKINTOP® CLICK refer to page 687

UNITRONIC® SPIRAL

Spiral cable with outer PUR sheath and overall shielding for exact impulse transmission

Info

- Secure against electrical interferences
- PUR outer sheath
- New: Now available in cross section 0,25mm²

Benefits

- Overall screening prevents high frequency interference and guarantees accurate signal transmission
- Extended lengths of up to 4 times the unextended spiral length

Application range

- In measurement and control engineering
- Wherever screened cables with smallest dimensions are required
- For requirements of electronic applications
- Handling and measurement equipment
- Conveyor and transport systems

Product features

- Abrasion and cut-resistant
- Very high flexibility

Product Make-up

- Conductor made of bare copper wires
- Core insulation: Based on PVC
- Screening: wrapped with braided copper wires
- Outer sheath: PUR compound
- Color of the outer jacket: Black
- Length of straight ends: 1st end = 200 mm, 2nd end = 600 mm
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000247
ETIM 5.0/6.0 Class-Description: Spiralized cable

Core identification code
DIN 47100

Peak operating voltage
250 V (not for power transmission)

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Test voltage
1200 V

Temperature range
Flexing: -5°C to +50°C

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
UNITRONIC® SPIRAL					
73220200	2 x 0.14	400	100	4.1	15
73220201	2 x 0.14	800	200	4.1	15
73220202	2 x 0.14	1200	300	4.1	15
73220203	2 x 0.14	1600	400	4.1	15
73220204	2 x 0.14	2000	500	4.1	15
73220205	3 x 0.14	400	100	4.3	18
73220206	3 x 0.14	800	200	4.3	18
73220207	3 x 0.14	1200	300	4.3	18
73220208	3 x 0.14	1600	400	4.3	18
73220209	3 x 0.14	2000	500	4.3	18
73220210	4 x 0.14	400	100	4.5	19
73220211	4 x 0.14	800	200	4.5	19
73220212	4 x 0.14	1200	300	4.5	19
73220213	4 x 0.14	1600	400	4.5	19
73220214	4 x 0.14	2000	500	4.5	19
73220215	5 x 0.14	400	100	4.8	20
73220216	5 x 0.14	800	200	4.8	20
73220217	5 x 0.14	1200	300	4.8	20
73220218	5 x 0.14	1600	400	4.8	20
73220219	5 x 0.14	2000	500	4.8	20
73220220	6 x 0.14	400	100	5.5	21
73220221	6 x 0.14	800	200	5.5	21
73220222	6 x 0.14	1200	300	5.5	21
73220223	6 x 0.14	1600	400	5.5	21
73220224	6 x 0.14	2000	500	5.5	21
73220225	7 x 0.14	400	100	5.9	23
73220226	7 x 0.14	800	200	5.9	23
73220227	7 x 0.14	1200	300	5.9	23
73220228	7 x 0.14	1600	400	5.9	23
73220229	7 x 0.14	2000	500	5.9	23
73220230	12 x 0.14	400	100	7.2	28
73220231	12 x 0.14	800	200	7.2	28
73220232	12 x 0.14	1200	300	7.2	28
73220233	12 x 0.14	1600	400	7.2	28
73220234	12 x 0.14	2000	500	7.2	28
73220235	18 x 0.14	400	100	8	29
73220236	18 x 0.14	800	200	8	29
73220237	18 x 0.14	1200	300	8	29
73220238	18 x 0.14	1600	400	8	29
73220239	18 x 0.14	2000	500	8	29
73220240	2 x 0.25	400	100	4.7	18
73220241	2 x 0.25	800	200	4.7	18
73220242	2 x 0.25	1200	300	4.7	18
73220243	2 x 0.25	1600	400	4.7	18

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
73220244	2 x 0.25	2000	500	4.7	18
73220245	3 x 0.25	400	100	5.3	19
73220246	3 x 0.25	800	200	5.3	19
73220247	3 x 0.25	1200	300	5.3	19
73220248	3 x 0.25	1600	400	5.3	19
73220249	3 x 0.25	2000	500	5.3	19
73220250	4 x 0.25	400	100	5.6	20
73220251	4 x 0.25	800	200	5.6	20
73220252	4 x 0.25	1200	300	5.6	20
73220253	4 x 0.25	1600	400	5.6	20
73220254	4 x 0.25	2000	500	5.6	20
73220255	5 x 0.25	400	100	6	21
73220256	5 x 0.25	800	200	6	21
73220257	5 x 0.25	1200	300	6	21
73220258	5 x 0.25	1600	400	6	21
73220259	5 x 0.25	2000	500	6	21
73220260	6 x 0.25	400	100	6.8	25
73220261	6 x 0.25	800	200	6.8	25
73220262	6 x 0.25	1200	300	6.8	25
73220263	6 x 0.25	1600	400	6.8	25
73220264	6 x 0.25	2000	500	6.8	25
73220265	7 x 0.25	400	100	7.3	26
73220266	7 x 0.25	800	200	7.3	26
73220267	7 x 0.25	1200	300	7.3	26
73220268	7 x 0.25	1600	400	7.3	26
73220269	7 x 0.25	2000	500	7.3	26
73220270	12 x 0.25	400	100	8.4	30
73220271	12 x 0.25	800	200	8.4	30
73220272	12 x 0.25	1200	300	8.4	30
73220273	12 x 0.25	1600	400	8.4	30
73220274	12 x 0.25	2000	500	8.4	30
73220275	18 x 0.25	400	100	9.5	31
73220276	18 x 0.25	800	200	9.5	31
73220277	18 x 0.25	1200	300	9.5	31
73220278	18 x 0.25	1600	400	9.5	31
73220279	18 x 0.25	2000	500	9.5	31

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Accessories

- SKINTOP® CLICK refer to page 687

ÖLFLEX® PLUG H03VV-F Net Connection Cable*

PVC net connection cable for electrical devices and machines

Info

- Other colours and designs are available upon request

Application range

- Electrical devices
- Appliances and machinery

Product features

- For additional information regarding international plugs, please refer to our cable configurator at www.lappkabel.de
- Apart from the cable related application restrictions to be paid attention to according to the application standard EN 50565-2 for this PVC cable H03VV-F, the fact that brighter outer sheath colours deviating from black significantly reduce the UV resistance of the outer sheath and, thus, the outdoor usability of the entire, finished cable has to be respected, too

Product Make-up

- 1st end: Gated, rectangular earthing-type plug with double earthing contact
- Other end: 30 mm dismantled, with protection sleeves for the ends of the conductor
- Alternatively, on request: 1st end with moulded angular earthing-type plug with twin earthed contact, 2nd end with moulded, straight IEC coupling (see image)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001576
ETIM 5.0/6.0 Class-Description: Power cord

Core identification code
HD 308/VDE 0293-308: 3-core with protective conductor

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Nominal voltage
U0: 250 V AC

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor

Temperature range
Flexible use: -5°C to +70°C

Article number	Number of cores and mm² per conductor	Colour	Outer diameter [mm]	Length (m)	Copper index kg/1.000 pieces
1st end: moulded angular earthing-type plug with double earthed contact 2nd end: 30 mm stripped, with conductor end sleeves					
70261130	3 G 0.75	black	5.4 - 6.8	1.5	32.4
70261131	3 G 0.75	black	5.4 - 6.8	2	43.2
70261132	3 G 0.75	black	5.4 - 6.8	3	64.8
70261136	3 G 0.75	grey	5.4 - 6.8	1.5	32.4
70261137	3 G 0.75	grey	5.4 - 6.8	2	43.2
70261138	3 G 0.75	grey	5.4 - 6.8	3	64.8
70261133	3 G 0.75	white	5.4 - 6.8	1.5	32.4
70261134	3 G 0.75	white	5.4 - 6.8	2	43.2
70261135	3 G 0.75	white	5.4 - 6.8	3	64.8

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Please observe the safety information as per DIN VDE 0620-1, Plugs and socket-outlets for household and similar purposes - Part 1: General requirements, appendix E: „Installation only by persons with the relevant electrotechnical expertise and experience!“

ÖLFLEX® PLUG H05VV-F Net Connection Cable*

PVC net connection cable for electrical devices and machines

Info

- Other colours and designs are available upon request

Application range

- Electrical devices
- Appliances and machinery

Product features

- For additional information regarding international plugs, please refer to our cable configurator at www.lappkabel.de
- Apart from the cable related application restrictions to be paid attention to according to the application standard EN 50565-2 for this PVC cable H05VV-F, the fact that brighter outer sheath colours deviating from black significantly reduce the UV resistance of the outer sheath and, thus, the outdoor usability of the entire, finished cable at direct sun irradiation has to be respected, too

Product Make-up

- 1st end: Gated, rectangular earthing-type plug with double earthing contact
- Other end: 30 mm dismantled, with protection sleeves for the ends of the conductor
- Alternatively
- 1st end: Gated, rectangular earthing-type plug with double earthing contact
- 2nd end: straight, 3-pin IEC coupling, moulded

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001576
ETIM 5.0/6.0 Class-Description: Power cord

Core identification code
According to VDE 0293-308 (table T9)

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Nominal voltage
U0: 250 V AC

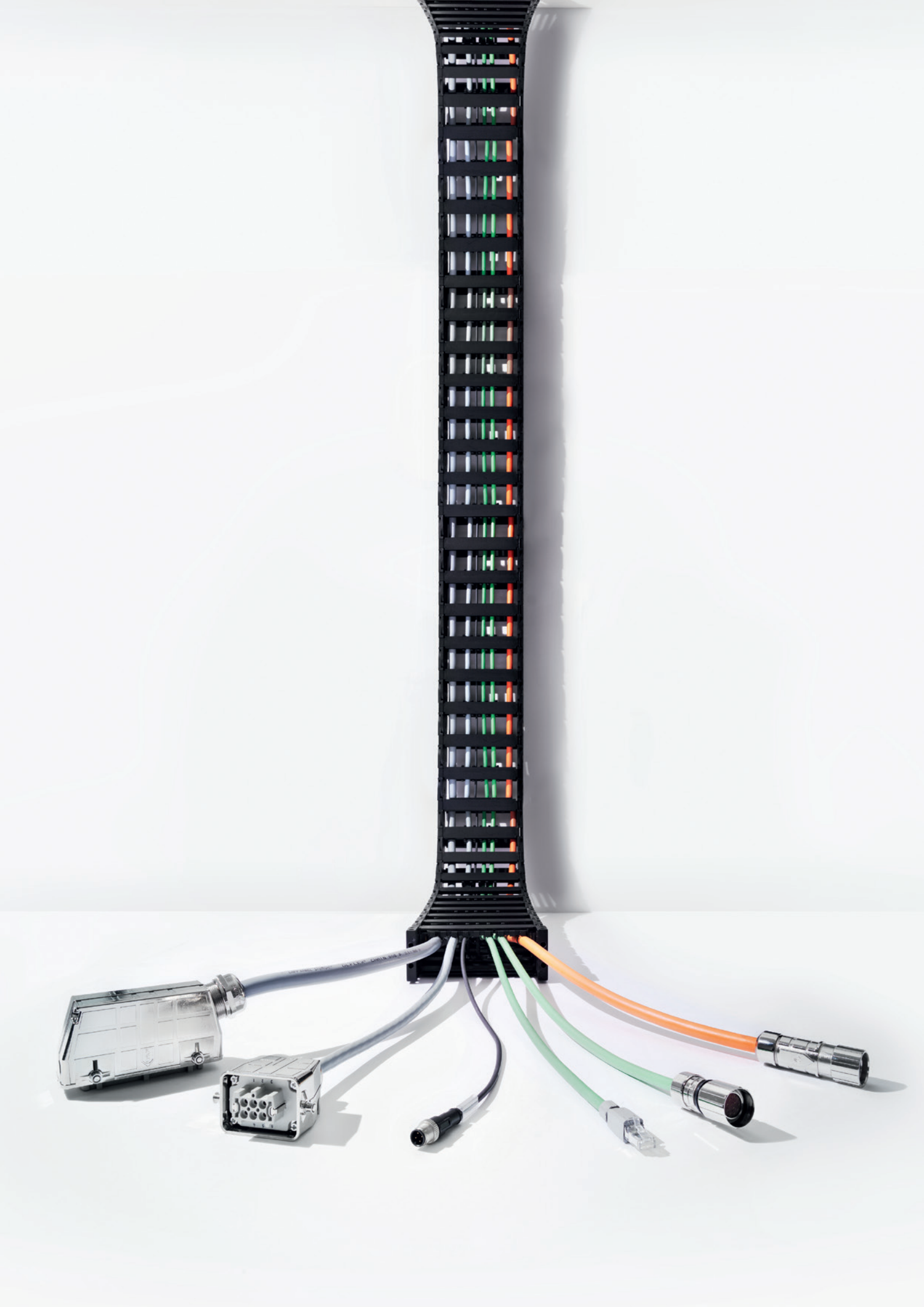
Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor

Temperature range
Flexible use: -5°C to +70°C

Article number	Number of cores and mm² per conductor	Colour	Outer diameter [mm]	Length (m)	Copper index kg/1.000 pieces
1st end: moulded angular earthing-type plug with double earthed contact 2nd end: straight, 3-pin C13 IEC coupling, moulded					
73222334	3 G 1.0	black	6.3 - 8.0	2.5	72
73222336	3 G 1.0	grey	6.3 - 8.0	2.5	72
73222381	3 G 1.5	grey	7.4 - 9.4	5	216
73222335	3 G 1.0	white	6.3 - 8.0	2.5	72
2nd end: rectangular, 3-pin C13 IEC coupling, moulded					
74320106	3 G 1.5	black	7.4 - 9.4	3.5	151.2
74320092	3 G 1.5	black	7.4 - 9.4	7.5	324
1st end: moulded angular earthing-type plug with double earthed contact 2nd end: 30 mm stripped, with conductor end sleeves					
70261139	3 G 1.0	black	6.3 - 8.0	1.5	43.2
70261140	3 G 1.0	black	6.3 - 8.0	2	57.6
70261141	3 G 1.0	black	6.3 - 8.0	3	86.4
70261166	3 G 1.0	black	6.3 - 8.0	5	144
70261145	3 G 1.0	grey	6.3 - 8.0	1.5	43.2
70261146	3 G 1.0	grey	6.3 - 8.0	2	57.6
70261147	3 G 1.0	grey	6.3 - 8.0	3	86.4
70261143	3 G 1.0	white	6.3 - 8.0	2	57.6
70261144	3 G 1.0	white	6.3 - 8.0	3	86.4
70261148	3 G 1.5	black	7.4 - 9.4	1.5	64.5
70261149	3 G 1.5	black	7.4 - 9.4	2	86
70261150	3 G 1.5	black	7.4 - 9.4	3	129
70261160	3 G 1.5	black	7.4 - 9.4	5	215
70261185	3 G 1.5	grey	7.4 - 9.4	1	43.2
70261154	3 G 1.5	grey	7.4 - 9.4	1.5	64.5
70261155	3 G 1.5	grey	7.4 - 9.4	2	86
70261156	3 G 1.5	grey	7.4 - 9.4	3	129
70362272	3 G 1.5	grey	7.4 - 9.4	4	172
70261151	3 G 1.5	white	7.4 - 9.4	1.5	64.5
70261152	3 G 1.5	white	7.4 - 9.4	2	86
70261153	3 G 1.5	white	7.4 - 9.4	3	129
70261163	3 G 2.5	black	9.2 - 11.4	3	216

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Please observe the safety information as per DIN VDE 0620-1, Plugs and socket-outlets for household and similar purposes - Part 1: General requirements, appendix E: „Installation only by persons with the relevant electrotechnical expertise and experience!“



ÖLFLEX® PLUG Extension Cable 540 P safety yellow*

Earthing-type extension cable with straight plug and coupling

Application range

- Mechanical engineering
- Construction industry
- Agricultural equipment
- In damp interiors or outdoors

Product features

- Other lengths, customised versions, cable types and plug versions are available upon request

Product Make-up

- Mounted, straight earthing-type plug (16 amp., 250 V, solid rubber, colour: black) in accordance with DIN 49440/441, protection rating: IP 44
- Mounted, straight earthing-type coupling with rubber cover (16 A, 250 V, solid rubber, colour: black) in accordance with DIN 49440/441, protection rating: IP 44

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001576
ETIM 5.0/6.0 Class-Description: Power cord

Nominal voltage
U0: 250 V AC

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Length (m)	Copper index kg/1.000 pieces
ÖLFLEX® PLUG Extension Cable 540 P safety yellow*				
73222337	3 G 1.5	8.9	5	215
73222322	3 G 1.5	8.9	10	430
73222375	3 G 1.5	8.9	15	645
73222323	3 G 1.5	8.9	25	1075
73222324	3 G 1.5	8.9	50	2150
73222385	3 G 2.5	10.6	5	360
73222325	3 G 2.5	10.6	10	720
73222386	3 G 2.5	10.6	15	1080
73222326	3 G 2.5	10.6	25	1800
73222327	3 G 2.5	10.6	50	3600

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® PLUG CEE Connection/ Extension Cable without phase shifter*

H07RN-F-based connecting and extension cable for three-phase current

Info

- Formerly: ÖLFLEX PLUG CEE (400 V) Connection / Extension Cable

Application range

- For connections to any three-phase A.C. consumers
- Machines and systems on building sites
- According to EN 50565-2: Dry or damp rooms as well as outdoors

Product features

- Also available with phase shifter (engine direction can be changed)
- Other dimensions, lengths, connectors, designs and customised versions are available upon request

Norm references / Approvals

- <HAR> H07RN-F cable type approval according to EN 50525-2-21
- Based on VDE 0285

Product Make-up

- Mounted 5-pin CEE plug, 400 V, red, 6 o'clock in accordance with VDE 0623/ EN 60309-2, splash-proof IP 44
- 80 mm stripped, with conductor end sleeves
- From 10 mm²: 100 mm stripped, with conductor end sleeves
- Mounted 5-pin CEE coupling, 400 V, red, 6 o'clock in accordance with VDE 0623/ EN 60309-2, splash-proof IP 44

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001576
ETIM 5.0/6.0 Class-Description: Power cord

Core identification code
According to VDE 0293-308 (table T9)

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Flexible use: 15 x cable diameter

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V

Temperature range
Flexible use: -25°C to +60°C

Article number	Plug amps	Number of cores and mm² per conductor	Outer diameter [mm]	Length (m)	Copper index kg/1.000 pieces
ÖLFLEX® PLUG CEE connection cable					
71222231	16	5 G 1.5	11.2 - 14.4	2.5	180
71222373	16	5 G 1.5	11.2 - 14.4	3.5	252
71222239	16	5 G 1.5	11.2 - 14.4	5	360
71222232	16	5 G 2.5	13.3 - 17.0	2.5	300
71222240	16	5 G 2.5	13.3 - 17.0	5	600
71222241	32	5 G 2.5	13.3 - 17.0	5	600
71222234	32	5 G 4	15.6 - 19.9	2.5	480
71222242	32	5 G 4	15.6 - 19.9	5	960
71222243	32	5 G 6	17.5 - 22.2	5	1440
ÖLFLEX® PLUG CEE extension cable					
71222292	16	5 G 1.5	11.2 - 14.4	10	720
71222295	16	5 G 2.5	13.3 - 17.0	10	1200
71222296	16	5 G 2.5	13.3 - 17.0	25	3000
71222298	32	5 G 2.5	13.3 - 17.0	10	1200
71222299	32	5 G 2.5	13.3 - 17.0	25	3000
71222301	32	5 G 4	15.6 - 19.9	10	1920
71222302	32	5 G 4	15.6 - 19.9	25	4800
71222304	32	5 G 6	17.5 - 22.2	10	2880
71222305	32	5 G 6	17.5 - 22.2	25	7200

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Please observe the safety information as per DIN VDE 0620-1, Plugs and socket-outlets for household and similar purposes - Part 1: General requirements, appendix E: „Installation only by persons with the relevant electrotechnical expertise and experience!"

ÖLFLEX® PLUG CEE connecting cable with phase shifter*

H07RN-F-based CEE connecting cable with phase shifter for three-phase current

Info

- Formerly: ÖLFLEX PLUG CEE (400 V) Connection / Extension Cable

Application range

- For connections to any three-phase A.C. consumers
- Machines and systems on building sites
- According to EN 50565-2: Dry or damp rooms as well as outdoors

Product features

- Other dimensions, lengths, connectors, designs and customised versions are available upon request

Norm references / Approvals

- <HAR> H07RN-F cable type approval according to EN 50525-2-21
- Based on VDE 0285

Product Make-up

- Mounted 5-pin CEE plug, 400 V, red, 6 o'clock in accordance with VDE 0623/ EN 60309-2, splash-proof IP 44
- 80 mm stripped, with conductor end sleeves
- From 10 mm²: 100 mm stripped, with conductor end sleeves

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001576
ETIM 5.0/6.0 Class-Description: Power cord

Core identification code
According to VDE 0293-308 (table T9)

Conductor stranding
Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5

Minimum bending radius
Flexible use: 15 x cable diameter

Nominal voltage
U0/U: 450/750 V

Test voltage
2500 V

Temperature range
Flexible use: -25°C to +60°C

Article number	Plug amps	Article designation	Number of cores and mm² per conductor	Outer diameter [mm]	Length (m)	Copper index kg/1.000 pieces	Weight
ÖLFLEX® PLUG CEE connecting cable with phase shifter*							
71002843	16	H07RN-F	5 G 1.5	11.2 - 14.4	3.5	252	872
71002844	16	H07RN-F	5 G 1.5	11.2 - 14.4	5	360	1170
71002846	16	H07RN-F	5 G 2.5	13.3 - 17.0	3.5	420	1194
71002847	16	H07RN-F	5 G 2.5	13.3 - 17.0	5	600	1880

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Please observe the safety information as per DIN VDE 0620-1, Plugs and socket-outlets for household and similar purposes - Part 1: General requirements, appendix E: „Installation only by persons with the relevant electrotechnical expertise and experience!"

Pre-wired front plug for PLC SIMATIC® S7-300

Info

- In addition to our standard types, other versions with different colours are also available upon request as UNITRONIC® LiYCY, or in tension spring design
- We would be glad to help you find solutions for your specific requirements

Benefits

- Pre-assembled and pre-wired front plugs for *SIMATIC® S7, the leading supplier of programmable controllers (PLCs) around the world
- Single cores used are extra-thin and allow space-saving installation

Product features

- Original Siemens-connectors are used exclusively
- The diameter is smaller than that of a H05V-K single core (0.5 mm²)

Norm references / Approvals

- For more information on multi-standard single cores, see UL(MTW)-CSA-HAR Style 1015

Product Make-up

- The front plugs are in full contact with the single cores of 0.75 mm² or AWG 22 in dark blue (RAL 5010), cores numbered in white according to the allocation in the plug, spacing approx. 20 mm, opposite end cleanly cut
- Conductor end-sleeves or other contacts are available upon request

Note

- Cutting, marking, stripping, crimping and screwing used to be separate operations but the pre-wired front plug for *SIMATIC® S7 provides you with the following advantages:

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Article number	Colour	mm²	Length (m)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)
Pre-wired front plug for PLC SIMATIC® S7-300 (392-1AJ00-0AA0) 20-pin, screw-on version					
70268724	dark blue (RAL 5010)	0.75	1.0	144	350
70268409	dark blue (RAL 5010)	0.75	2.0	288	500
70267059	dark blue (RAL 5010)	0.75	3.0	432	700
70262618	dark blue (RAL 5010)	0.75	4.0	576	900
70267060	dark blue (RAL 5010)	0.75	5.0	720	1150
Pre-wired front plug for PLC SIMATIC® S7-300 (392-1AM00-0AA0) 40-pin, screw-on version					
70268725	dark blue (RAL 5010)	0.75	1.0	288	800
70268410	dark blue (RAL 5010)	0.75	2.0	576	1000
70268411	dark blue (RAL 5010)	0.75	3.0	864	1400
70260001	dark blue (RAL 5010)	0.75	4.0	1152	1800
70268412	dark blue (RAL 5010)	0.75	5.0	1440	2250
70260018	dark blue (RAL 5010) - with UL(MTW) single cores	0.50 / AWG22	2.0	384	1000
70260021	dark blue (RAL 5010) - with UL(MTW) single cores	0.50 / AWG22	5.0	960	2250

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Siemens part designations (SIMATIC® etc.) are registered trademarks of Siemens AG, and are listed for comparison purposes only.
Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Pre-wired front plug for PLC SIMATIC® S7-400

Info

- Crimp, screw and spring model for SIMATIC® S7-400
- We would be glad to help you find solutions for your specific requirements

Benefits

- Single cores used are extra-thin and allow space-saving installation

Product features

- Original Siemens-connectors are used exclusively
- The diameter is smaller than that of a H05V-K single core (0.5 mm²)

Norm references / Approvals

- For more information on multi-standard single cores, see UL(MTW)-CSA-HAR Style 1015

Product Make-up

- The front plugs are in full contact with the single cores of 0.75 mm² or AWG 22 in dark blue (RAL 5010), cores numbered in white according to the allocation in the plug, spacing approx. 20 mm, opposite end cleanly cut
- Conductor end-sleeves or other contacts are available upon request

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Article number	Colour	mm²	Length (m)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)
Pre-wired front plug for PLC SIMATIC® S7-400 (492-1CL00-0AA0) 48-pin, crimp version					
70268421	dark blue (RAL 5010)	0.75	5.0	1695	2500
Pre-wired front plug for PLC SIMATIC® S7-400 (492-1AL00-0AA0) 48-pin, screw-on version					
70268423	dark blue (RAL 5010)	0.75	3.0	1017	1600
70268424	dark blue (RAL 5010)	0.75	5.0	1695	2500
Pre-wired front plug for PLC SIMATIC® S7-400 (492-1BL00-0AA0) 48-pin, spring version					
70260046	dark blue (RAL 5010)	0.75	4.0	1356	2000
70268427	dark blue (RAL 5010)	0.75	5.0	1695	2500
70260053	dark blue (RAL 5010) - with UL(MTW) single cores	0.50 / AWG22	2.0	442	1100

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
SIMATIC® is a registered trademark of Siemens AG
Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

Pre-wired front plug for PLC SIMATIC® S7-1500

Info

- Screw and spring version for SIMATIC® S7-1500
- Optional to our standard configuration, other versions in lenght are available
- We would be glad to help you find solutions for your specific requirements

Benefits

- Pre-assembled front-end connector for *SIMATIC® S7, the global market leader for programmable controllers (PLCs)
- Single cores used are extra-thin and allow space-saving installation

Product features

- Original Siemens-connectors are used exclusively
- The diameter is smaller than that of a H05V-K single core (0.5 mm²)

Norm references / Approvals

- For more information on multi-standard single cores, see UL(MTW)-CSA-HAR Style 1015

Product Make-up

- The front-end connectors are in full contact with cores 0.5 mm² respectively AWG 22 in dark blue (RAL 5010), cores numbered in white, numbers according to the allocation in the connector, spacing approx. 20 mm, second end cleanly cut
- Conductor end-sleeves or other contacts are available upon request

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Article number	Article designation	Cores- / pin number and diameter [mm²]	Length (m)	Copper index [kg/1.000 pieces]	Weight [kg/1,000 pieces]
screwed contact					
70267076	SIM. S7-1500 1AM00 20-pol 0,5 1m S.	20 x 0.5	1.0	96	230
70267078	SIM. S7-1500 1AM00 20-pol 0,5 3m S.	20 x 0.5	3.0	288	590
70267080	SIM. S7-1500 1AM00 20-pol 0,5 5m S.	20 x 0.5	5.0	480	950
Screw contacts with UL (MTW) single cores					
70267081	SIM.S7-1500 1AM00 20-pol AWG22 1m S. UL	20 x 0.5 / AWG22	1.0	96	280
70267083	SIM.S7-1500 1AM00 20-pol AWG22 3m S. UL	20 x 0.5 / AWG22	3.0	288	720
Screw contacts with halogenfree single cores H07Z-K 90 °					
70267086	SIM.S7-1500 1AM00 20-pol 0,5 1m S. 90°	20 x 0.5	1.0	96	230
70267088	SIM.S7-1500 1AM00 20-pol 0,5 3m S. 90°	20 x 0.5	3.0	288	590
screwed contact					
70267091	SIM.S7-1500 1AM00 40-pol 0,5 1m S.	40 x 0.5	1.0	192	480
70267093	SIM.S7-1500 1AM00 40-pol 0,5 3m S.	40 x 0.5	3.0	576	1170
70267095	SIM.S7-1500 1AM00 40-pol 0,5 5m S.	40 x 0.5	5.0	960	1880
Screw contacts with UL (MTW) single cores					
70267096	SIM.S7-1500 1AM00 40-pol AWG22 1m S. UL	40 x 0.5 / AWG22	1.0	192	540
70267098	SIM.S7-1500 1AM00 40-pol AWG22 3m S. UL	40 x 0.5 / AWG22	3.0	576	1420
Screw contacts with halogenfree single cores H07Z-K 90 °					
70267101	SIM.S7-1500 1AM00 40-pol 0,5 1m S. 90°	40 x 0.5	1.0	192	480
70267103	SIM.S7-1500 1AM00 40-pol 0,5 3m S. 90°	40 x 0.5	3.0	480	1170
Spring contacts					
70267106	SIM.S7-1500 1BM00 20-pol 0,5 1m F.	20 x 0.5	1.0	96	220
70267108	SIM.S7-1500 1BM00 20-pol 0,5 3m F.	20 x 0.5	3.0	288	580
70267110	SIM.S7-1500 1BM00 20-pol 0,5 5m F.	20 x 0.5	5.0	710	940
Spring-loaded contacts with UL (MTW) single wires					
70267111	SIM.S7-1500 1BM00 20-pol AWG22 1m F. UL	20 x 0.5 / AWG22	1.0	96	270
70267113	SIM.S7-1500 1BM00 20-pol AWG22 3m F. UL	20 x 0.5 / AWG22	3.0	288	710
Spring contacts with halogen free single cores H07Z-K 90°					
70267116	SIM.S7-1500 1BM00 20-pol 0,5 1m F. 90°	20 x 0.5	1.0	96	220
70267118	SIM.S7-1500 1BM00 20-pol 0,5 3m F. 90°	20 x 0.5	3.0	288	580
Spring contacts					
70267121	SIM.S7-1500 1BM00 40-pol 0,5 1m F.	40 x 0.5	1.0	192	440
70267123	SIM.S7-1500 1BM00 40-pol 0,5 3m F.	40 x 0.5	3.0	576	1160
70267125	SIM.S7-1500 1BM00 40-pol 0,5 5m F.	40 x 0.5	5.0	960	1880
Spring-loaded contacts with UL (MTW) single wires					
70267126	SIM.S7-1500 1BM00 40-pol AWG22 1m F. UL	40 x 0.5 / AWG22	1.0	192	540
70267128	SIM.S7-1500 1BM00 40-pol AWG22 3m F. UL	40 x 0.5 / AWG22	3.0	576	1420
Spring contacts with halogen free single cores H07Z-K 90°					
70267131	SIM.S7-1500 1BM00 40-pol 0,5 1m F. 90°	40 x 0.5	1.0	192	440
70267133	SIM.S7-1500 1BM00 40-pol 0,5 3m F. 90°	40 x 0.5	3.0	576	1160

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
SIMATIC® is a registered trademark of Siemens AG
Article numbers refer to genuine Lapp products.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

2

UNITRONIC®

Data communication systems

Our high-quality UNITRONIC® data network cables and field bus components provide a forward-looking solution for all applications in industrial machinery and plant engineering. From transmission of simple control signals to field bus signals in complex network structures – we offer a dependable cabling and connection solution for almost every situation.

Application range

- Industrial machinery and plant engineering
- Sensors and actuating elements
- Appliances
- Measurement and control technology
- Automated production processes and industrial robots
- Bus systems
- Computing and communication systems

Low frequency data transmission cables

UNITRONIC® colour codes
UNITRONIC® 100 276
UNITRONIC® 100 CY 276
DIN colour code
UNITRONIC® LiYY 278
UNITRONIC® LiYCY 279
UNITRONIC® LiYY (TP) 281
UNITRONIC® LiYCY (TP) 282
UNITRONIC® EB CY (TP) 283
UNITRONIC® LiYCY-CY 284
UNITRONIC® LiFYCY (TP) 285
UNITRONIC® CY PiDY (TP) 286
UNITRONIC® ST 287
UNITRONIC® LiYD11Y 288
UNITRONIC® PUR CP 289
UNITRONIC® PUR CP (TP) 290
Low capacitance
UNITRONIC® Li2YCY (TP) 291
UNITRONIC® Li2YCY (TP) fine-wire 291
UNITRONIC® Li2YCYv (TP) 291
UNITRONIC® Li2YCY PiMF 293
Halogen-free
UNITRONIC® ROBUST 294
UNITRONIC® ROBUST C 295
UNITRONIC® ROBUST C (TP) 296
UNITRONIC® LiHH 297
UNITRONIC® LiHCH 298
UNITRONIC® LiHCH (TP) 299
UL/CSA-certified
UNITRONIC® LiYY A 300
UNITRONIC® LiYCY A 301
UNITRONIC® LiYCY (TP) A 302
UNITRONIC® 300 / UNITRONIC® 300 S 303
UNITRONIC® 300 STP 304
Highly flexible application
UNITRONIC® FD 305
UNITRONIC® FD CY 306
Highly flexible and UL/CSA-certified
UNITRONIC® FD Li2YCY (TP) A BE 307
UNITRONIC® FD Li2YCY (TP) A BA 308
UNITRONIC® FD P plus 310
UNITRONIC® FD CP plus 311
UNITRONIC® FD CP (TP) plus 312
Computer cables (RE)
UNITRONIC® RE-2Y(ST)Yv 314
UNITRONIC® RE-2Y(ST)Yv PiMF 315
Process control cables (RD)
RD-Y(ST)Y 316
Installation cable for industrial electronics
JE-Y(ST)Y...BD 317
JE-Y(ST)Y...BD EB 317
JE-LiYCY...BD 318
JE-LiYCY...BD EB 318

Telephone cables

Indoor cables
J-Y(ST)Y...LG Indoor Cable 319
J-Y(ST)Y...LG Fire Alarm Cable 320
J-2Y(ST)Y...ST III BD 321
Halogen-free installation and fire alarm cables
J-H(ST)H...BD 322
J-H(ST)H...BD Fire Alarm Cable 322
Outdoor cables
A-2Y(L)2Y...ST III BD Telephone Outdoor Cable 323
A-2YF(L)2Y...ST III BD Outdoor Cable 323

Coaxial cables

Fixed installation and conditional flexible use
Coaxial - RG 324
Multi coaxial cabels RG 59 B/U 325
Coaxial cabels RGB 325

Bus systems with interface RS485/RS422

Fixed Installation
UNITRONIC® BUS LD 326
Continuous flexing application
UNITRONIC® BUS LD FD P 327

Bus system AS-Interface

Fixed Installation
UNITRONIC® BUS ASI 328
Continuous flexing application
UNITRONIC® BUS ASI FD 329
AS-Interface accessories
ASI Distributor 330

Bus system PROFIBUS-DP/FMS/FIP

Fixed Installation
UNITRONIC® BUS PB TRAY 331
UNITRONIC® BUS PB 332
UNITRONIC® BUS PB ROBUST 333
UNITRONIC® BUS PB 105 334
UNITRONIC® BUS PB 105 plus 334
UNITRONIC® BUS PB HEAT 180 335
UNITRONIC® BUS PB FRNC FC 336
UNITRONIC® BUS PB ARM 337
UNITRONIC® BUS PB Yv 338
UNITRONIC® BUS PB YY 339
UNITRONIC® BUS PB BURIAL FC 340
UNITRONIC® BUS PB Y 7-W FC BK 341
Continuous flexing application
UNITRONIC® BUS PB FD P 342
UNITRONIC® BUS PB FD P A 343
UNITRONIC® BUS PB FD P FC 344
UNITRONIC® BUS PB FD FRNC FC 345
UNITRONIC® BUS PB FD P COMBI 346
UNITRONIC® BUS PB FD P HYBRID 346
UNITRONIC® BUS PB FD Y HYBRID 347
UNITRONIC® BUS PB TORSION 348
UNITRONIC® BUS PB FESTOON 349
Sub-D Bus-Connectors
EPIC® DATA PB Sub-D 350
EPIC® DATA PB Sub-D FC 351
EPIC® DATA PB Sub-D M12 352
EPIC® DATA PB Sub-D PRO 353
EPIC® DATA PB Sub-D FO 354
M12 Cordsets
UNITRONIC® BUS PB M12 355
UNITRONIC® BUS PB M12-M12 356
M12 Connectors and accessories
EPIC® DATA PB M12 357
EPIC® DATA PB M12/M12 358
EPIC® DATA PB TR M12 358
EPIC® DATA PB M12T 359

Bus system PROFIBUS-PA

Fixed Installation
UNITRONIC® BUS PA 360

Bus system CAN / DeviceNet

DeviceNet - fixed installation
UNITRONIC® DeviceNet THICK + THIN 361
DeviceNet - continuous flexing application
UNITRONIC® DeviceNet FD THICK+THIN 362
CAN - Fixed installation and high flexibility application
UNITRONIC® BUS CAN 363
UNITRONIC® BUS CAN FD P 363
CAN - fixed installation
UNITRONIC® BUS CAN TRAY 364
UNITRONIC® BUS CAN BURIAL 365

Bus systems for special applications

Bus systems for utility vehicles
UNITRONIC® BUS HEAT 6722 366
Bus systems for TCN
UNITRONIC® TRAIN 367

Bus system CAN / DeviceNet

Sub-D Bus-Connectors
EPIC® DATA CAN Sub-D 368
EPIC® DATA CAN Sub-D PRO 369
M12 Cordsets
UNITRONIC® BUS CAN M12 370
UNITRONIC® BUS CAN M12-M12 371

M12 Connectors and accessories
EPIC® DATA CAN M12 372
EPIC® DATA CAN M12/M12 372
EPIC® DATA CAN TR M12 373
EPIC® DATA CAN M12T 374
EPIC® DATA CAN CCR 374

Bus system ISOBUS
Flexible application
UNITRONIC® BUS IS 375

Bus system Foundation Fieldbus
Fixed Installation
UNITRONIC® BUS FF 376

Bus system CC-Link
Fixed / continuous flexing application
UNITRONIC® BUS CC 377
UNITRONIC® BUS CC FD P FRNC 377

Bus system SAFETY BUS
UNITRONIC® BUS SAFETY 378

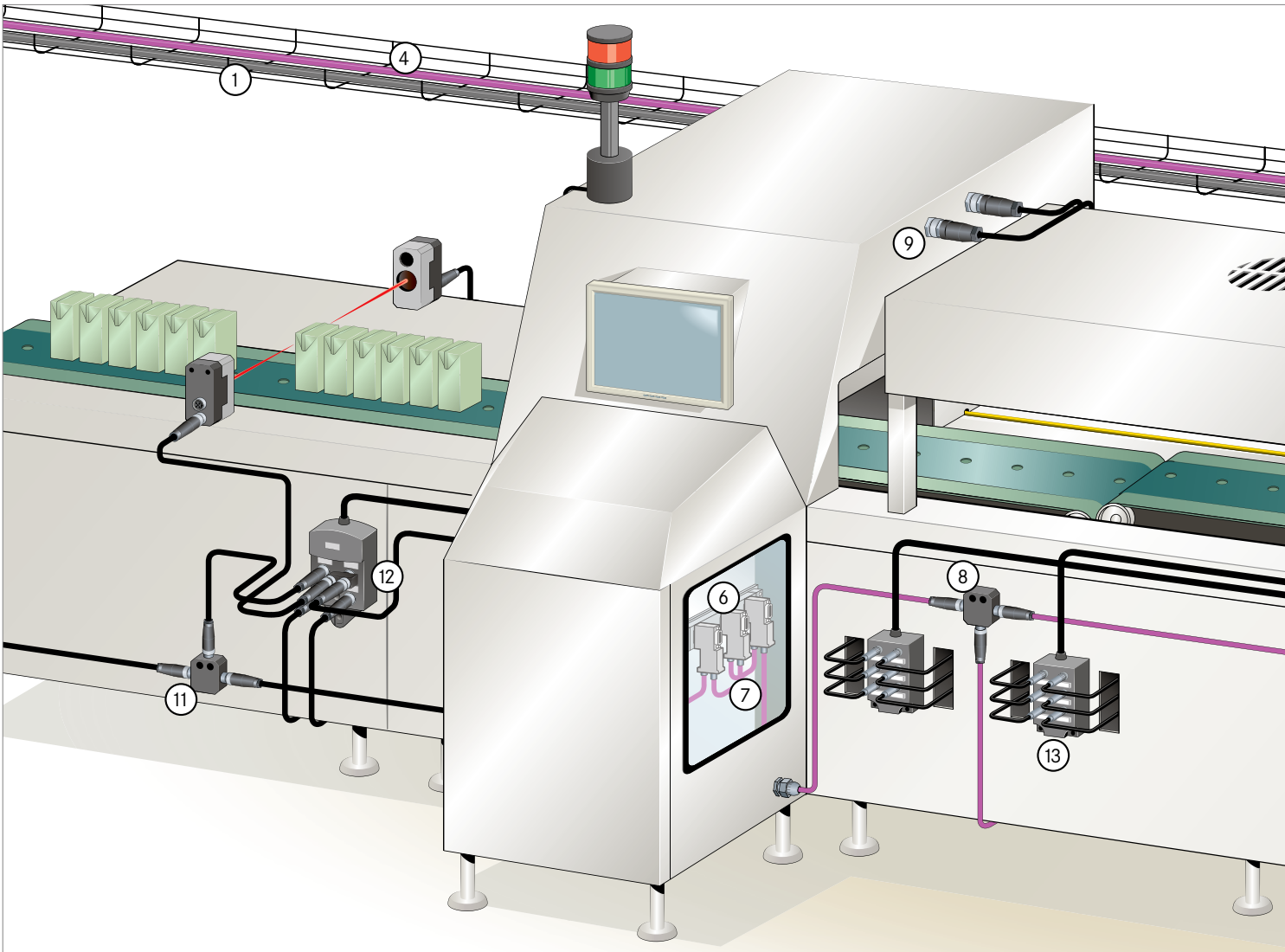
Bus system INTERBUS (IBS)
Fixed Installation
UNITRONIC® BUS IBS 379
UNITRONIC® BUS IBS Yv COMBI 380
Continuous flexing application
UNITRONIC® BUS IBS FD P 381

Bus system EIB
Fixed Installation
UNITRONIC® BUS EIB / KNX 382

Sensor/actuator cabling
Flexible / highly flexible applications
UNITRONIC® SENSOR master cable 383
UNITRONIC® SENSOR 384
UNITRONIC® SENSOR FD 385
UNITRONIC® ROBUST S/A FD 386
M8 cordsets
UNITRONIC® SENSOR M8 387
UNITRONIC® SENSOR M8-M8 388
UNITRONIC® SENSOR M8-M12 389
UNITRONIC® SENSOR PVC M8 390
M8 Field mountable connectors and wall ducts
EPIC® SENSOR M8 391
EPIC® SENSOR Flush-type M8 392
M12 cordsets
UNITRONIC® SENSOR M12 open-ended Cordsets 393
UNITRONIC® SENSOR M12 Cordsets 394
UNITRONIC® SENSOR M12-M8 395
UNITRONIC® SENSOR PVC M12 | M12-M12 396
M12 Cordsets for Food&Beverage
UNITRONIC® SENSOR HD M12 397
M12 Field mountable connectors and wall ducts
EPIC® SENSOR M12 398
EPIC® SENSOR M12 V4A 399
EPIC® SENSOR M12/M12 400
EPIC® SENSOR Flush-type M12 401
EPIC® SENSOR M12 T-distributor 402
EPIC® SENSOR CCR 402
Valve connectors
UNITRONIC® SENSOR Valve 403
UNITRONIC® SENSOR Valve-M12 404
Y connectors
UNITRONIC® SENSOR M12Y 405
UNITRONIC® SENSOR M12Y-M8 406
UNITRONIC® SENSOR M12Y-M12 406
EPIC® SENSOR M8Y | M12Y 407
Distribution boxes
Distribution Box M8 408
Distribution Box M12 409
M12 Power cordsets (A-coded)
UNITRONIC® SENSOR M12 Power 410
UNITRONIC® SENSOR M12-M12 Power 411
M12 Connectors for power transmission (T-coded)
EPIC® POWER M12 60V 412

Data communication systems

Overview



1. Low frequency data cables (fixed installation) from page 276
2. Low frequency data cables (highly flexible) from page 305
3. AS-interface cables from page 328
4. PROFIBUS® cables (fixed installation) from page 331
5. PROFIBUS® cables (highly flexible) from page 342
6. PROFIBUS® Sub-D connector from page 350
7. PROFIBUS® M12 cordsets from page 355
8. PROFIBUS® M12 T distributor, page 359
9. Sensor/actuator M12 connector from page 398
10. Valve connectors from page 403
11. Sensor/actuator T distributor, page 402
12. Sensor/actuator Y distributor from page 405
13. Sensor/actuator M8 distribution boxes, page 408
14. Sensor/actuator M12 distribution boxes, page 409

Low frequency data cables

Page 276 to page 323

Installation/data cables for low frequency transmission – for fixed and flexible installation, continuous flexing application.

Coaxial cables

Page 324 to page 325

RG (MIL-DTL 17 H) and RGB cables for high frequency data transmission, fixed and conditional flexing, in- and outdoor applications, extreme temperatures.

Bus systems

Page 326 to page 382

Support of all major fieldbus systems, among others PROFIBUS® (DP and PA), CAN, DeviceNet™, CC-Link®, AS-Interface, ISOBUS, Foundation Fieldbus™, KNX®. Cables for in- and outdoor, extreme temperatures, fixed/flexible installation and high flexible application. M12- and Sub-D connectors, cordsets and accessories.

Sensor/actuator cabling

Page 383 to page 412

The complete range of M8-, M12- and valve connectors, cables, cordsets, matching distribution boxes and accessories. Available as shielded/unshielded version, optional LEDs, with different cable materials and connection technologies.

UNITRONIC® 100

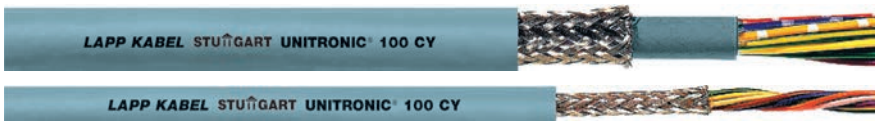
Control and signal cable with small cross-sections

Info

- UNITRONIC® colour code with protective conductor

UNITRONIC® 100 CY

Screened control and signal cable with small cross-sections



Application range

- These control and signal cables are used in the milliampere range for computer systems, electronic control equipment, office machines, balances etc. and wherever the thinnest possible control cables are required.

Product features

UNITRONIC® 100

- Robust, flexible and resistant outer sheath
- Small outer diameter despite high number of cores
- Flame-retardant according IEC 60332-1-2
- 3 cores with earth wire (green-yellow) 2 cores (black/blue)

UNITRONIC® 100 CY

- Robust, flexible and resistant outer sheath
- Small outer diameter despite high number of cores
- Cable similar to UNITRONIC® 100, but with copper braiding
- Flame-retardant according IEC 60332-1-2
- 3 cores with earth wire (green-yellow) 2 cores (black/blue)

Norm references / Approvals

- Based on: VDE 0814 or VDE 0812

Product Make-up

UNITRONIC® 100

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

UNITRONIC® 100 CY

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Inner sheath made of PVC
- For the cross section of 0.14 mm², a polyester tape is used underneath the screen braiding instead of the inner sheath.
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Refer to Appendix T7 for the UNITRONIC® colour codes

Mutual capacitance
Approx. 120 nF/km

Peak operating voltage
(not for power applications)
500 V

Inductivity
approx. 0.7 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
UNITRONIC® 100
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter
UNITRONIC® 100 CY
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Protective conductor
Green-yellow

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® 100				
0028009	2 x 0,14	3	2.8	12
0028010	3 x 0,14	3.2	4.2	17
0028012	5 x 0,14	3.7	7	22
0028014	7 x 0,14	4	9.8	27
0028015	10 x 0,14	5	14	41
0028019	24 x 0,14	7.2	33.6	94
0028025	52 x 0,14	10	72.8	198
0028030	3 x 0,25	3.8	7.5	21
0028031	7 x 0,25	4.9	17.5	48
0028032	10 x 0,25	6.4	25	77
0028033	14 x 0,25	6.9	35	95
0028034	16 x 0,25	7.3	40	112
0028035	21 x 0,25	8.5	52.5	139
0028036	24 x 0,25	9	60	163
0028037	27 x 0,25	9.2	67.5	171
0028038	30 x 0,25	9.9	75	187
0028039	36 x 0,25	10.7	90	235

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0028040	40 x 0,25	11.6	100	266
0028042	52 x 0,25	12.5	130	343
0028044	61 x 0,25	13.3	152.5	398
0028047	3 x 0,34	4.2	10.5	33
0028048	7 x 0,34	5.5	22.8	62
0028051	16 x 0,34	8.3	54.4	131
UNITRONIC® 100 CY				
0034006	2 x 0,14	3.7	12	20
0034007	3 x 0,14	3.9	13	28
0034008	4 x 0,14	4.1	14.3	33
0034009	5 x 0,14	4.4	15.5	38
0034010	7 x 0,14	4.7	20.3	49
0034011	10 x 0,14	5.7	34.3	66
0034012	14 x 0,14	6.3	32	80
0034013	16 x 0,14	6.6	40.9	90
0034016	27 x 0,14	8.1	70.6	148
0031031	3 x 0,25	5.4	20.2	48
0031066	4 x 0,25	5.7	24	61
0031067	5 x 0,25	6.3	29	72
0031032	7 x 0,25	6.7	37.6	82
0031033	10 x 0,25	8.2	48.8	129
0031034	14 x 0,25	8.7	64.6	147
0031068	2 x 0,34	5.6	20	45
0031048	3 x 0,34	5.8	24.1	62
0031069	4 x 0,34	6.4	29	65
0031070	5 x 0,34	6.9	42	95
0031049	7 x 0,34	7.3	50	106
0031050	10 x 0,34	9	67.7	167
0031052	16 x 0,34	10.5	95	219
0031060	52 x 0,34	17.6	336	629

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® LiYY refer to page 278
- UNITRONIC® LiYCY refer to page 279

Accessories

UNITRONIC® 100
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

UNITRONIC® 100 CY
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- Multipurpose shears A and B
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

UNITRONIC® LiYY

Data transmission cable with colour code acc. to DIN 47100

Info

- The classic for multi-functional use
- Further dimensions/colours on request

Benefits

- Space-saving installation due to small cable diameters
- Multifunctional application possibilities
- Depending on the quantity, the outer sheath can also be produced in other colours to match your application needs

Application range

- UNITRONIC® LiYY is also used as a control and signal cable in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- Dry or damp rooms
- Occasional flexing

Product features

- Despite the large number of cores, LiYY data cables have small outer diameters
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYY				
0028202	2 x 0.14	3.2	2.7	13.2
0028203	3 x 0.14	3.4	4.05	16
0028204	4 x 0.14	3.6	5.4	18.9
0028205	5 x 0.14	3.9	6.72	22.2
0028207	7 x 0.14	4.2	9.45	28.4
0028208	8 x 0.14	4.9	10.2	35.2
0028210	10 x 0.14	5.2	13.5	41.2
0028212	12 x 0.14	5.6	16.2	48.4
0028214	14 x 0.14	5.8	18.9	52.9
0028216	16 x 0.14	6.1	21.6	59.1
0028220	20 x 0.14	7	27	70.8
0028225	25 x 0.14	7.8	33.6	87.2
0028236	36 x 0.14	8.6	48.6	126.8
0028237	37 x 0.14	8.9	49.7	118
0028240	40 x 0.14	9.3	54	139.1
0028250	50 x 0.14	10.4	67.5	170.9
0028256	56 x 0.14	10.7	78.4	187
0028302	2 x 0.25	3.8	4.8	18
0028303	3 x 0.25	4	7.2	22
0028304	4 x 0.25	4.3	9.6	26.2
0028305	5 x 0.25	4.7	12	31
0028306	6 x 0.25	5.1	14.4	39
0028307	7 x 0.25	5.1	16.8	42
0028308	8 x 0.25	6.2	19.2	49.2
0028310	10 x 0.25	6.8	24	58
0028312	12 x 0.25	7	28.8	67
0028314	14 x 0.25	7.3	33.6	75.3
0028316	16 x 0.25	7.7	38.4	84.3
0028318	18 x 0.25	8.1	43.2	93
0028320	20 x 0.25	8.6	48	102
0028325	25 x 0.25	9.6	60	134
0028330	30 x 0.25	10.3	72	155
0028332	32 x 0.25	10.7	76.8	164
0028336	36 x 0.25	11.1	86.4	182.2
0028337	37 x 0.25	11.4	88.8	185

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
0028340	40 x 0.25	12	96.1	200
0028350	50 x 0.25	12.9	120	257.1
0028402	2 x 0.34	4.2	6.6	25
0028403	3 x 0.34	4.4	9.9	31
0028404	4 x 0.34	4.8	13.1	43.2
0028405	5 x 0.34	5.5	16.5	53.8
0028406	6 x 0.34	5.9	19.6	55
0028407	7 x 0.34	5.9	22.8	62
0028408	8 x 0.34	7.1	26.1	73.1
0028410	10 x 0.34	7.6	32.6	82
0028412	12 x 0.34	7.8	39.1	102
0028414	14 x 0.34	8.2	45.7	109
0028416	16 x 0.34	8.7	52	127
0028420	20 x 0.34	9.6	65.2	159.3
0028421	21 x 0.34	10.4	68.6	167
0028425	25 x 0.34	11.2	81.6	190
0028430	30 x 0.34	11.6	98	226
0028436	36 x 0.34	12.5	118	284
0028440	40 x 0.34	13.5	131	317
0028450	50 x 0.34	15	163	407
0028502	2 x 0.50	4.7	9.6	30
0028503	3 x 0.50	5	14.4	39
0028504	4 x 0.50	5.6	19.2	49
0028505	5 x 0.50	6.1	24	65
0028507	7 x 0.50	6.9	33.6	82
0028508	8 x 0.50	8	38.4	90
0028510	10 x 0.50	8.6	48	117
0028512	12 x 0.50	8.9	58	133
0028516	16 x 0.50	10.2	77	170
0028520	20 x 0.50	11.4	96	214
0028525	25 x 0.50	12.7	120	265
0028530	30 x 0.50	13.2	144	304
0028540	40 x 0.50	15.8	192	392
0028602	2 x 0.75	5.1	14.4	48
0028603	3 x 0.75	5.6	21.6	57
0028604	4 x 0.75	6.1	28.8	69

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
0028605	5 x 0.75	6.9	36	78
0028607	7 x 0.75	7.5	50	112
0028608	8 x 0.75	8.7	58	126
0028610	10 x 0.75	9.4	72	149
0028612	12 x 0.75	10.1	86	176
0028616	16 x 0.75	11.2	115	218
0028620	20 x 0.75	12.4	144	274
0028625	25 x 0.75	14	180	320

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
0028702	2 x 1.00	5.6	19.2	55
0028703	3 x 1.00	5.9	29	70
0028704	4 x 1.00	6.4	38.4	79
0028705	5 x 1.00	7.3	48	98
0028802	2 x 1.50	6.2	29	74
0028803	3 x 1.50	6.8	43	89
0028804	4 x 1.50	7.4	58	105

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® LiYY (TP) refer to page 281
- UNITRONIC® LiYY A refer to page 300

Accessories

- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU
- STAR STRIP stripping tool refer to page 985
- SENSOR STRIP stripping tool refer to page 987

UNITRONIC® LiYCY

Screened data transmission cable with colour code acc. to DIN 47100

Benefits

- Overall braid minimises electrical interference
- Multifunctional application possibilities

Application range

- Screened cables with small dimensions are suitable for use in computer systems, insturmentation technology, office equipment, balances.
- Dry or damp rooms

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100 without colour repetition,
refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYCY				
0034302	2 x 0.14	3.9	12	20
0034303	3 x 0.14	4.1	13	28
0034304	4 x 0.14	4.3	14.3	33
0034305	5 x 0.14	4.6	15.5	38
0034306	6 x 0.14	4.9	18.2	38
0034307	7 x 0.14	4.9	19	49
0034308	8 x 0.14	5.8	21.2	56
0034310	10 x 0.14	6.1	28.5	66
0034312	12 x 0.14	6.3	30.4	78
0034314	14 x 0.14	6.7	32	80
0034315	15 x 0.14	6.9	37.8	86
0034316	16 x 0.14	7	43	90
0034318	18 x 0.14	7.3	48.8	95
0034320	20 x 0.14	7.7	53.9	100
0034321	21 x 0.14	7.9	55.5	105
0034324	24 x 0.14	8.3	61	112
0034325	25 x 0.14	8.5	63	120
0034328	28 x 0.14	8.5	66.1	141
0034330	30 x 0.14	8.7	69	155
0034336	36 x 0.14	9.3	83	170
0034340	40 x 0.14	10.4	87.5	178
0034344	44 x 0.14	10.7	110.5	185
0034350	50 x 0.14	11.1	122.5	195
0034402	2 x 0.25	4.5	16	32
0034403	3 x 0.25	4.7	21	37
0034404	4 x 0.25	5	24	41.3
0034405	5 x 0.25	5.6	29	51.2
0034406	6 x 0.25	6	30	58

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
0034407	7 x 0.25	6	37	65
0034408	8 x 0.25	7.1	42	73
0034410	10 x 0.25	7.5	46	82
0034412	12 x 0.25	7.7	53	98
0034414	14 x 0.25	8	59	99
0034415	15 x 0.25	8.3	61	111
0034416	16 x 0.25	8.4	64	119
0034418	18 x 0.25	8.8	83	125
0034420	20 x 0.25	9.3	88	136
0034421	21 x 0.25	9.6	93	161
0034425	25 x 0.25	10.7	114	172
0034428	28 x 0.25	10.8	126	181.1
0034432	32 x 0.25	11.4	138	203
0034436	36 x 0.25	11.8	148	220
0034440	40 x 0.25	12.7	157	248
0034450	50 x 0.25	13.8	178	318
0034461	61 x 0.25	15	205	365.2
0034502	2 x 0.34	4.9	21	37
0034503	3 x 0.34	5.1	27	42
0034504	4 x 0.34	5.7	28	52
0034505	5 x 0.34	6.2	30	60
0034506	6 x 0.34	6.8	45	64
0034507	7 x 0.34	6.8	48	83
0034508	8 x 0.34	7.8	52	94
0034510	10 x 0.34	8.3	74	105
0034512	12 x 0.34	8.5	80	123
0034514	14 x 0.34	8.9	86	154
0034515	15 x 0.34	9.2	90	155
0034516	16 x 0.34	9.4	94	160
0034518	18 x 0.34	10.2	103	173
0034520	20 x 0.34	10.7	112	192
0034521	21 x 0.34	11.1	116	199.2
0034525	25 x 0.34	11.9	135	259
0034528	28 x 0.34	12	153	280
0034530	30 x 0.34	12.3	159	291.1
0034532	32 x 0.34	13	165	305
0034536	36 x 0.34	13.4	179	331
0034540	40 x 0.34	14.8	200	365
0034550	50 x 0.34	15.9	235	431
0034602	2 x 0.50	5.6	29	47
0034603	3 x 0.50	5.9	38	55
0034604	4 x 0.50	6.3	43	70
0034605	5 x 0.50	7	51	90
0034606	6 x 0.50	7.6	59	104
0034607	7 x 0.50	7.6	65	112
0034608	8 x 0.50	8.7	70	120
0034610	10 x 0.50	9.3	88	139
0034612	12 x 0.50	9.6	99	177
0034618	18 x 0.50	11.8	134	239
0034620	20 x 0.50	12.1	149	276
0034625	25 x 0.50	13.7	211	352
0034630	30 x 0.50	14.5	230	397
0034702	2 x 0.75	6	38	53
0034703	3 x 0.75	6.3	49	65
0034704	4 x 0.75	7	58	79
0034705	5 x 0.75	7.6	67	109
0034707	7 x 0.75	8.2	100	156
0034710	10 x 0.75	10.5	130	187
0034712	12 x 0.75	10.8	154	218
0034718	18 x 0.75	13	195	327
0034725	25 x 0.75	15.3	280	454
0034730	30 x 0.75	15.8	312	486
0034802	2 x 1.00	6.3	43	72
0034803	3 x 1.00	6.8	56	90
0034804	4 x 1.00	7.3	68	109
0034805	5 x 1.00	8	79	126
0034807	7 x 1.00	8.6	118	171
0034810	10 x 1.00	11.1	140	228
0034812	12 x 1.00	11.4	168	259
0034818	18 x 1.00	13.4	252	389
0034825	25 x 1.00	16.2	335	517
0034902	2 x 1.50	7.1	58	90
0034903	3 x 1.50	7.5	74	115
0034904	4 x 1.50	8.1	108	129
0034905	5 x 1.50	8.8	129	176
0034907	7 x 1.50	9.5	164	220
0034912	12 x 1.50	12.7	254	376
0034918	18 x 1.50	15.3	350	519
0034925	25 x 1.50	17.9	550	901

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® LiYCY (TP) refer to page 282
- UNITRONIC® PUR CP refer to page 289
- UNITRONIC® LiYCY A refer to page 301

Accessories

- SKINTOP® MS-SC refer to page 777
- Multipurpose shears A and B
- UNIVERSAL STRIP stripping tool refer to page 990

UNITRONIC® LiYY (TP)

Data transmission cable with colour code acc. to DIN 47100 and twisted pairs

Info

- TP = twisted pair

Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Electronic devices tend to leave little room for installing cables, meaning short travel distances and small bending radii are required. This cable ideally meets these requirements.
- Dry or damp rooms

Product features

- Twisted in pairs to reduce decoupling. As a result, additional screening is often not required.
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x Outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and conductor cross section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiYY (TP)				
0035101	2 x 2 x 0.14	4.5	5.4	25.5
0035102	3 x 2 x 0.14	5	8	32
0035103	4 x 2 x 0.14	5.6	10.7	38.5
0035104	5 x 2 x 0.14	5.8	13.4	45.5
0035105	6 x 2 x 0.14	6.3	16.1	51
0035108	10 x 2 x 0.14	8.1	26.9	77.5
0035110	12 x 2 x 0.14	8.3	32.3	94.5
0035113	16 x 2 x 0.14	9.2	43	110.5
0035160	2 x 2 x 0.25	5.7	9.6	38
0035161	3 x 2 x 0.25	6.3	14.4	48
0035162	4 x 2 x 0.25	7	19.2	59
0035163	6 x 2 x 0.25	7.9	28.8	80
0035164	8 x 2 x 0.25	9.3	38.4	98
0035170	2 x 2 x 0.5	7.3	19.2	72
0035171	3 x 2 x 0.5	8.1	28.8	83
0035172	4 x 2 x 0.5	8.8	38.4	115
0035174	8 x 2 x 0.5	12.3	76.8	206
0035175	10 x 2 x 0.5	13.3	96	247

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® LiYCY (TP) refer to page 282
- UNITRONIC® LiYCY (TP) A refer to page 302

Accessories

- SKINTOP® CLICK refer to page 687
- KS 15 cable shears

UNITRONIC® LiYCY (TP)

Screened data transmission cable with colour code acc. to DIN 47100 and twisted pairs

Info

- TP = twisted pair
- Further dimensions/colours on request

Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Overall braid minimises electrical interference

Application range

- Can be used multifunctional in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- Dry or damp rooms

Product features

- Good protection against capacitive interference from electric fields (e.g. power cable)
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYCY (TP)				
0035131	2 x 2 x 0.14	5.3	18.5	39
0035141	3 x 2 x 0.14	5.8	23	48
0035132	4 x 2 x 0.14	6.2	26.6	54
0035133	6 x 2 x 0.14	7.1	48.5	85
0035150	8 x 2 x 0.14	8.2	53.7	97
0035134	10 x 2 x 0.14	8.7	59	110
0035135	12 x 2 x 0.14	8.9	66	142
0035136	16 x 2 x 0.14	10.2	79	154
0035142	20 x 2 x 0.14	11.3	97	184
0035137	25 x 2 x 0.14	12.5	113	238
0035800	2 x 2 x 0.25	6.3	28	54
0035801	3 x 2 x 0.25	7.1	39.6	68.5
0035802	4 x 2 x 0.25	7.6	44.9	81
0035803	6 x 2 x 0.25	8.5	69.5	115
0035804	8 x 2 x 0.25	10.3	76.9	130
0035805	10 x 2 x 0.25	11	102	158
0035806	12 x 2 x 0.25	11.3	120	190
0035807	16 x 2 x 0.25	12.5	146.5	238

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
0035808	25 x 2 x 0.25	16.1	205	344
0035810	2 x 2 x 0.50	7.9	48.1	93
0035811	3 x 2 x 0.50	8.7	73.7	116
0035812	4 x 2 x 0.50	9.4	82	127
0035813	6 x 2 x 0.50	11.1	110	198
0035814	8 x 2 x 0.50	13.1	139	259
0035816	12 x 2 x 0.50	14.9	198.3	354
0035817	16 x 2 x 0.50	16.5	240	459
0035820	2 x 2 x 0.75	8.5	58	106
0035821	3 x 2 x 0.75	9.4	84	140
0035822	4 x 2 x 0.75	10.7	108	179
0035827	5 x 2 x 0.75	11.1	126	215
0035823	6 x 2 x 0.75	12.1	146	246
0035824	8 x 2 x 0.75	14.7	180	305
0035825	12 x 2 x 0.75	16.2	261	456
0035830	2 x 2 x 1.00	9	84	142
0035831	3 x 2 x 1.00	10	96	173
0035832	4 x 2 x 1.00	11.3	121	212
0035836	5 x 2 x 1.00	11.8	161	266

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® CY PiDY (TP) refer to page 286
- UNITRONIC® PUR CP (TP) refer to page 290
- UNITRONIC® Li2YCY (TP) fine-wire refer to page 291
- UNITRONIC® LiYCY (TP) A refer to page 302

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- Multipurpose shears A and B
- STAR STRIP stripping tool refer to page 985

UNITRONIC® EB CY (TP)

Screened data transmission cable with twisted pairs and blue outer sheath

Info

- Hazard protection type -i- is required where there is a risk of explosion

Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Reliable data transmission in intrinsically safe circuits
- In EMC-sensitive environments (electromagnetic compatibility)

Product features

- For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: sky blue (RAL 5015)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C approx. 100 nF/km
C/S approx. 140 nF/km

Peak operating voltage
(not for power applications)
900 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Strand, fine-wire in accordance with IEC 60228 Cl. 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
2500 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and conductor cross section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® EB CY (TP)				
0012620	2 x 2 x 0.75	8.7	58	106
0012621	3 x 2 x 0.75	9.6	84	140
0012622	4 x 2 x 0.75	10.9	108	179
0012624	6 x 2 x 0.75	12.3	146	246
0012626	10 x 2 x 0.75	16.1	220	392

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- JE-LiYCY...BD EB refer to page 318

Accessories

- SKINTOP® K-M ATEX plus blue refer to page 695
- Multipurpose shears A and B

UNITRONIC® LiYCY-CY

Screened data transmission cable with individually screened cores

Benefits

- Overall braid minimises electrical interference
- Individually screened cores minimise crosstalk between cables routed in parallel

Application range

- When a lossless transmission of data has to be guaranteed in fields with strong interference, cables with individually-screened cores and an additional overall screening are used
- Dry or damp rooms

Product features

- Wire-screen can be used as outer conductor
- The cable remains flexible despite multiple screening
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding for each core
- Inner sheath made of PVC over each screened core
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
Approx. 230 nF/km

Peak operating voltage
(not for power applications) 250 V

Inductivity
Approx. 0.2 mH/km

Conductor stranding
Stranded conductor, fine-wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYCY-CY				
0032302	2 x 0.25	6.9	41.5	69
0032303	3 x 0.25	7.2	53	106
0032304	4 x 0.25	7.8	65	130
0032305	5 x 0.25	8.5	78	161

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® CY PiDY (TP) refer to page 286

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- Multipurpose shears A and B
- UNIVERSAL STRIP stripping tool refer to page 990
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® LiFYCY (TP)

Screened miniature data transmission cable

Info

- For requirements of microelectronics

Benefits

- Space-saving installation due to small cable diameters
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Overall braid minimises electrical interference

Application range

- For protection against high-frequency interference, screened, fine-wire cables are used in many devices.
- Wherever screened cables with smallest dimensions are required
- Examples: microelectronics, hearing aids etc.

Product features

- Very small dimensions
- Flame-retardant according IEC 60332-1-2

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C approx. 80 nF/km
C/S approx. 120 nF/km

Peak operating voltage
(not for power applications) 150 V

Coupling
At 1 kHz: approx. 300 pF/100 m

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire,
cross-section 0.08 mm²

Minimum bending radius
Occasional flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiFYCY (TP)				
0034231	4 x 2 x 0.08	5.4	19.4	37
0034233	8 x 2 x 0.08	7.1	23.7	76

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- EASY STRIP stripping and cutting tool refer to page 988
- Multipurpose shears A and B
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® CY PiDY (TP)

Screened data transmission cable with copper-wrapped twisted pairs

Info

- PiDY = Pairs with copper wire wrapping and PVC sheath

Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Individually screened pairs and the overall braid minimise electrical interference

Application range

- Cable should be used in areas with high levels of electromagnetic interferences
- Data processing, process control systems, machining centres, security systems and electronics
- Suitable for the transmission with varying in frequency and voltage or sensitive signals
- For fixed installation and flexible use
- Dry or damp rooms

Product features

- The cable remains flexible despite multiple screening
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- Cores twisted into pairs
- Copper wrapping over pairs
- Inner sheath made of PVC over screened pairs
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Peak operating voltage
(not for power applications)
350 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded conductor, fine-wire

Minimum bending radius
Fixed installation: 6 x outer diameter

Loop resistance
< 160 Ω/km

Characteristic impedance
Approx. 65 Ω

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® CY PiDY (TP)				
0034250	2 x 2 x 0.25	9.3	59.6	112
0034251	3 x 2 x 0.25	9.8	72.7	136
0034252	4 x 2 x 0.25	10.7	88.2	168
0034253	5 x 2 x 0.25	11.7	103.8	201
0034254	6 x 2 x 0.25	13.1	125.7	244
0034256	8 x 2 x 0.25	15.7	161	325
0034257	10 x 2 x 0.25	16.9	186.8	342
0034258	12 x 2 x 0.25	17.4	239.5	416
0034259	16 x 2 x 0.25	19.3	316.7	542

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® Li2YCY PiMF refer to page 293

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

UNITRONIC® ST

Static screened data transmission cable similar to UL AWM 2092

Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields

Application range

- Especially designed for the transmission of the smallest measurement and control signals at minimal space requirements
- Internal wiring of electronic equipment
- For fixed and limited flexible installation
- For use in dry, damp and wet rooms

Product features

- Protection against interferences at medium and high frequencies by aluminium-laminated plastic foil, combination of flexibility and good screening (normal requirements)
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on UL AWM Style 2092 / 2093

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- Plastic-laminated aluminium foil with tinned copper drain wire
- Outer sheath made of PVC, Colour of the outer sheath: Similar to Silver-grey/ RAL 7001

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
2 cores: black, transparent
3 cores: black, red, transparent

Mutual capacitance
C/C approx. 90 nF/km
C/S approx. 160 nF/km

Peak operating voltage
(not for power applications)
500 V

Inductivity
approx. 0.65 mH/km

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Characteristic impedance
Approx. 95 Ω

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of conductors and AWG size	Conductor cross-section (mm²)	Core insulation material	Outer sheath material	Outer diameter [mm]	Copper index (kg/km)
UNITRONIC® ST						
0033000	2 x AWG 20/7	0.52	PE	PVC	5.2	17.2
0033001	3 x AWG 20/7	0.52	PE	PVC	5.3	23

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- UNIVERSAL STRIP stripping tool refer to page 990
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® LiYD11Y

Data transmission cable with copper wrapping and PUR outer sheath

Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

Application range

- Intended for use in industrial environments, where cables should have excellent mechanical and chemical resistance.
- Screened cables with small dimensions are suitable for use in computer systems, insturmentation technology, office equipment, balances.
- Can be used in dry or damp rooms
- Outdoor use is possible within the indicated operating temperature range

Product features

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion
- Low-adhesive surface
- Good UV-resistance
- Flame retardant according to IEC 60332-2-2
- Spiral versions with similar properties are also availabe: “UNITRONIC® SPIRAL”

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Wrapped with bare copper wires
- Outer sheath made of PUR
  Outer sheath colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 140 nF/km
C/S approx. 150 nF/km

Peak operating voltage
(not for power applications) 250 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYD11Y				
0033202	2 x 0.14	4.1	9.6	20
0033203	3 x 0.14	4.3	11	25
0033204	4 x 0.14	4.5	12	27
0033205	5 x 0.14	4.8	14.4	33
0033206	6 x 0.14	5.5	17.6	38
0033207	7 x 0.14	5.9	21.5	41
0033212	12 x 0.14	7.2	33.2	62
0033218	18 x 0.14	8	44.2	83
0033302	2 x 0.25	4.7	11.8	25
0033303	3 x 0.25	5.3	15.6	31
0033304	4 x 0.25	5.6	18.2	36
0033305	5 x 0.25	6	21.4	42
0033306	6 x 0.25	6.8	26.1	49
0033307	7 x 0.25	7.3	27.8	53
0033312	12 x 0.25	8.4	48.1	81
0033318	18 x 0.25	9.7	69	117

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® SPIRAL LiF2Y11Y refer to page 258
- UNITRONIC® SPIRAL refer to page 260

Accessories

- Multipurpose shears A and B
- UNIVERSAL STRIP stripping tool refer to page 990
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® PUR CP

Screened data transmission cable with PUR outer sheath for harsh conditions

Benefits

- Data transmission cable with PUR sheath for increased mechanical stress, wear- and tear-resistant
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Overall braid minimises electrical interference

Application range

- Further development of the UNITRONIC® range for harsher ambient conditions where robust and screened cables in small dimensions are required.

Product features

- Low-adhesive surface
- PUR outer sheath is resistant to most oilsand hydraulic fluids
- Special notch and tear-resistance
- Good UV-resistance
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of PUR
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® PUR CP				
0032801	3 x 0.25	4.7	21	40
0032802	4 x 0.25	5	24	44
0032803	5 x 0.25	5.6	29	55
0032804	7 x 0.25	6	37	68
0032805	10 x 0.25	7.5	46	85
0032806	12 x 0.25	7.7	59	91
0032812	4 x 0.34	5.7	28	49
0032813	5 x 0.34	6.2	30	60
0032821	3 x 0.50	5.9	38	70
0032822	4 x 0.50	6.3	43	80
0032824	7 x 0.50	7.6	65	115
0032830	2 x 0.75	6	38	67
0032836	12 x 0.75	10.8	154	225

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® FD Li2YCY (TP) A BE refer to page 307
- UNITRONIC® FD Li2YCY (TP) A BA refer to page 308
- UNITRONIC® PUR CP (TP) refer to page 290
- UNITRONIC® FD CP plus refer to page 311
- UNITRONIC® FD CP (TP) plus refer to page 312

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- SMART STRIP stripping tool

UNITRONIC® PUR CP (TP)

Screened data transmission cable with PUR outer sheath and twisted pairs for harsh conditions

Info

- TP = twisted pair

Benefits

- Data transmission cable with PUR sheath for increased mechanical stress, wear- and tear-resistant
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- For harsh environmental conditions where robust and screened cables with small dimensions are necessary

Product features

- Low-adhesive surface
- PUR outer sheath is resistant to most oilsand hydraulic fluids
- Special notch and tear-resistance
- Good UV-resistance
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PUR
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and conductor cross section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® PUR CP (TP)				
0032850	2 x 2 x 0.25	6.3	28	54
0032851	3 x 2 x 0.25	7.1	40	66
0032852	4 x 2 x 0.25	7.6	45	81
0032854	6 x 2 x 0.25	8.5	70	115
0032860	2 x 2 x 0.5	7.9	48	93
0032861	3 x 2 x 0.5	8.7	74	129
0032862	4 x 2 x 0.5	9.4	82	146
0032864	6 x 2 x 0.5	11.1	110	198

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® FD Li2YCY (TP) A BE refer to page 307
- UNITRONIC® FD Li2YCY (TP) A BA refer to page 308
- UNITRONIC® FD CP (TP) plus refer to page 312

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- SMART STRIP stripping tool

UNITRONIC® Li2YCY (TP)

Screened data transmission cable mit PE core insulation, 7-wire strands and twisted pairs

Info

- Cables for RS485/RS422

UNITRONIC® Li2YCY (TP) fine-wire

Screened data transmission cable mit PE core insulation, fine wire strands and twisted pairs

Info

- Cables for RS485/RS422

UNITRONIC® Li2YCYv (TP)

Screened data transmission cable mit PE core insulation, reinforced outer sheath and twisted pairs

Info

- Cables for RS485/RS422

Benefits

- 7-wire stranded conductor (UNITRONIC® Li2YCY (TP) and UNITRONIC® Li2YCYv (TP) can be used for Maxi TERMI-POINT® wiring
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Particularly suitable for wiring data systems with transmission rates up to 10 Megabits per second, and is qualified for the RS422 and RS485 interfaces.
- For fixed and limited flexible installation
- Can be used in dry or damp rooms
- Signal-, control- and measuring cable,for transmission of low, sensitive signals and high bit rates
- **UNITRONIC® Li2YCYv (TP)** with its reinforced, nominal/ minimum average wall thickness of at least 1.8 mm of the black outer sheath (Yv) is designed for indoor and outdoor use as well as for applications where a reinforced outer sheath may turn out to be advantageous

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

UNITRONIC® Li2YCY (TP)

- 7-wire bare stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

UNITRONIC® Li2YCY (TP) fine-wire

- Conductors: Finely stranded bare copper
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

UNITRONIC® Li2YCYv (TP)

- 7-wire bare stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Wall thickness of the outer sheath is increased ("Yv")
- Outer sheath colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
At 800 Hz: max. 60 nF/km

Peak operating voltage
(not for power applications) 250 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
UNITRONIC® Li2YCY (TP)
Stranded conductor, based on VDE 0881, 7-wire
UNITRONIC® Li2YCY (TP) fine-wire
Stranded conductor, fine-wire
UNITRONIC® Li2YCYv (TP)
Stranded conductor, based on VDE 0881, 7-wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Short-range crosstalk attenuation
Up to 1 MHz min. 50 dB
Up to 10 MHz min. 40 dB

Test voltage
Core/core: 2000 V
Core/screen: 1000 V

Characteristic impedance
100 ± 15 Ω (> 1 MHz)

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® Li2YCY (TP)				
0031320	2 x 2 x 0,22	6.5	24.2	59
0031321	3 x 2 x 0,22	7.1	28.6	66
0031322	4 x 2 x 0,22	7.3	34.2	78
0031323	8 x 2 x 0,22	9.1	70	125
0031324	10 x 2 x 0,22	10.4	76	143
0031335	1 x 2 x 0,34	5.8	20	44
0031325	2 x 2 x 0,34	7.7	34.1	79
0031326	3 x 2 x 0,34	8.4	43	89
0031327	4 x 2 x 0,34	8.7	47	101
0031328	8 x 2 x 0,34	11	85.8	176
0031336	1 x 2 x 0,5	6.3	29	53
0031330	2 x 2 x 0,5	8.5	37	85
0031331	3 x 2 x 0,5	9.3	55	105
0031332	4 x 2 x 0,5	9.6	60	122
0031333	8 x 2 x 0,5	12.7	113.3	213
0031334	10 x 2 x 0,5	14.8	154	261
UNITRONIC® Li2YCY (TP) fine-wire				
0031370	1 x 2 x 0,25	5.7	14	38
0031371	2 x 2 x 0,25	6.9	28	43
0031372	3 x 2 x 0,25	7.5	39.6	64
0031373	5 x 2 x 0,25	8.3	50	93
UNITRONIC® Li2YCYv (TP) black for outdoor installation and direct burial, 7-wire				
0031350	2 x 2 x 0,22	8.1	24.2	79
0031351	3 x 2 x 0,22	8.7	28.6	93
0031352	4 x 2 x 0,22	8.9	34.2	100
0031353	8 x 2 x 0,22	10.7	70	156
0031354	10 x 2 x 0,22	12	76	185
0031365	1 x 2 x 0,34	7.4	20	69
0031355	2 x 2 x 0,34	9.3	34.1	102
0031356	3 x 2 x 0,34	10	43	117
0031357	4 x 2 x 0,34	10.3	52.8	130
0031358	8 x 2 x 0,34	12.6	85.8	206
0031366	1 x 2 x 0,5	7.9	29	79
0031360	2 x 2 x 0,5	10.1	37	120
0031361	3 x 2 x 0,5	10.9	55	142
0031362	4 x 2 x 0,5	11.2	60	160
0031363	8 x 2 x 0,5	13.9	113.3	251
0031364	10 x 2 x 0,5	16	148	303

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® BUS LD refer to page 326

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- Multipurpose shears A and B
- STAR STRIP stripping tool refer to page 985
- STEEL GUN HT-338 cable tie pliers refer to page 1049
- LS steel cable ties refer to page 1047

UNITRONIC® Li2YCY PiMF

Screened data transmission cable with PE core insulation and pairs in metalfoil

Info

- Metal foil screened pairs

Benefits

- Data transmission cable with low capacitance, pair screening and overall copper braiding
- Particularly suitable for wiring data systems and controls in large industrial plants
- 7-wire stranded conductor can be used for Maxi TERMI-POINT® wiring
- Individually screened pairs and the overall braid minimise electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- For enhanced requirements in near-end cross-talk attenuation and high electrical interference in the circuits
- Suitable for the transmission with varying in frequency and voltage or sensitive signals
- Can be used multifunctional in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- For measurement value transmission and serial 2-wire interfaces
- Intended for limited flexible use, and for fixed installation in dry or damp interiors

Product features

- Flame-retardant according IEC 60332-1-2

Product Make-up

- 7-wire or fine-wire (from 1 mm²) strands made of bare copper wires
- Core insulation made of polyethylene (PE)
- Cores twisted into pairs
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire for each pair
- Bare copper screen braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
0.22 mm²-0.5 mm²:
according to DIN 47100, see table T9
1.0 mm²:
a-core: white, b-core: black

Mutual capacitance
At 800 Hz:
0.22 mm²: max. 70 nF/km
0.34 mm²: max. 70 nF/km
0.5 mm²: max. 75 nF/km
1.0 mm²: max. 85 nF/km

Peak operating voltage
(not for power applications) 250 V

Inductivity
Approx. 0.4 mH/km

Conductor stranding
Stranded conductor, based on VDE 0881, 7-wire

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 1000 V

Characteristic impedance
approx. 85 Ω (> 1 MHz)

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® Li2YCY PiMF				
7-wire				
0034040	2 x 2 x 0,22	7.7	33	75.4
0034041	3 x 2 x 0,22	8.1	42	86
0034042	4 x 2 x 0,22	8.7	50	99
0034043	8 x 2 x 0,22	10.9	85	161.4
0034044	10 x 2 x 0,22	12	100	186.4
0034045	2 x 2 x 0,34	9	43	70
0034046	3 x 2 x 0,34	9.4	55	85
0034047	4 x 2 x 0,34	9.8	64	103
0034048	8 x 2 x 0,34	12.9	127	191
0034060	2 x 2 x 0,5	9.9	51	96
0034061	3 x 2 x 0,5	10.4	66	116
0034062	4 x 2 x 0,5	11.3	71	141
0034063	5 x 2 x 0,5	11.8	92	180
0034064	8 x 2 x 0,5	14.5	153	271
0034065	10 x 2 x 0,5	16.6	182	327
Fine wire				
0034070	2 x 2 x 1	11.7	82	126
0034071	3 x 2 x 1	11.8	109	196
0034072	4 x 2 x 1	12.7	133	220
0034073	10 x 2 x 1	19.7	326	492

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum / Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
TERMI-POINT® is a registered trademark of AMP / Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® RE-2Y(ST)Yv PiMF refer to page 315

Accessories

- Cable shears with double edge refer to page 980
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- STAR STRIP stripping tool refer to page 985
- KS 20 cable shears

UNITRONIC® ROBUST

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media

Info

- Excellent weather resistance
- Good chemical resistance

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Outer sheath made of special TPE
- Outer sheath colour: Black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 60 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Specific insulation resistance
> 20 GOhm x cm

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
At 0.14 mm²: 1200 V

Temperature range
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® ROBUST				
1032000	2 x 0.14	3.2	2.8	15
1032001	3 x 0.14	3.4	4.2	17
1032002	4 x 0.14	3.6	5.6	21
1032003	5 x 0.14	3.9	7	25
1032004	7 x 0.14	4.2	9.8	30
1032005	8 x 0.14	4.9	11.2	40
1032006	10 x 0.14	5.2	14	41
1032007	12 x 0.14	5.6	16.8	50
1032009	16 x 0.14	6.1	22.4	63
1032011	25 x 0.14	7.7	35	95
1032012	2 x 0.25	3.8	4.8	21
1032013	3 x 0.25	4	7.2	25
1032014	4 x 0.25	4.3	9.6	31
1032015	5 x 0.25	4.7	12	38
1032016	7 x 0.25	5.1	16.8	47

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1032017	8 x 0.25	6.2	19.2	66
1032018	10 x 0.25	6.8	24	71
1032019	12 x 0.25	7	28.8	81
1032021	16 x 0.25	7.7	38.4	104
1032024	25 x 0.25	9.5	60	151
1032025	2 x 0.34	4.2	6.5	29
1032026	3 x 0.34	4.4	9.8	32
1032027	4 x 0.34	4.8	13.1	41
1032028	5 x 0.34	5.5	16.3	52
1032030	7 x 0.34	5.9	22.9	65
1032031	8 x 0.34	7.1	26.1	90
1032032	10 x 0.34	7.6	32.6	93
1032033	12 x 0.34	7.8	39.2	107
1032035	16 x 0.34	8.7	52.2	138
1032038	25 x 0.34	11.2	81.6	213

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® ST-HF-M refer to page 693
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

ECOLAB

UNITRONIC® ROBUST C

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media

Info

- Excellent weather resistance
- Good chemical resistance

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Tinned-copper braiding
- Outer sheath made of special TPE
- Outer sheath colour: Black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 60 nF/km
C/S approx. 100 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Specific insulation resistance
> 20 GOhm x cm

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
At 0.14 mm²: 1200 V

Temperature range
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® ROBUST C				
1032050	2 x 0.14	3.9	9.3	25
1032051	3 x 0.14	4.1	10.8	28
1032052	4 x 0.14	4.3	13.5	34
1032053	5 x 0.14	4.6	15	38
1032055	7 x 0.14	4.9	19	46
1032056	8 x 0.14	5.8	22	60
1032057	10 x 0.14	6.1	25.8	63
1032058	12 x 0.14	6.3	28.9	70
1032061	25 x 0.14	8.4	56.1	128
1032062	2 x 0.25	4.5	12.7	33
1032063	3 x 0.25	4.7	16.3	40
1032064	4 x 0.25	5	18.8	46
1032065	5 x 0.25	5.6	22.5	57
1032067	7 x 0.25	6	28.6	69

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1032068	8 x 0.25	7.1	33.6	92
1032069	10 x 0.25	7.5	42.8	101
1032070	12 x 0.25	7.7	47.7	111
1032073	25 x 0.25	10.6	86.5	202
1032074	2 x 0.34	4.9	15.7	44
1032075	3 x 0.34	5.1	20.4	54
1032076	4 x 0.34	5.7	23.6	66
1032077	5 x 0.34	6.2	28.2	78
1032079	7 x 0.34	6.8	36	95
1032080	8 x 0.34	7.8	45.3	127
1032081	10 x 0.34	8.3	53.9	137
1032082	12 x 0.34	8.5	60.7	152
1032084	16 x 0.34	9.4	77.9	191
1032086	25 x 0.34	11.9	115.7	288

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® ST-HF-M refer to page 693
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® ROBUST C (TP)

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media

Info

- Excellent weather resistance
- Good chemical resistance

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- TP structure
- Tinned-copper braiding
- Outer sheath made of special TPE
  Outer sheath colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 60 nF/km
C/S approx. 100 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Specific insulation resistance
> 20 GOhm x cm

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
At 0.14 mm²: 1200 V

Temperature range
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® ROBUST C (TP)				
1032100	2 x 2 x 0.14	5.3	16.1	31
1032101	3 x 2 x 0.14	5.8	19	38
1032102	4 x 2 x 0.14	6.2	23.1	46
1032103	5 x 2 x 0.14	6.4	27.2	54
1032104	6 x 2 x 0.14	7.1	31.3	63
1032105	8 x 2 x 0.14	8.2	43.4	90
1032106	10 x 2 x 0.14	8.7	50.9	93
1032107	12 x 2 x 0.14	8.9	56.6	102
1032108	2 x 2 x 0.25	6.3	22.7	43
1032109	3 x 2 x 0.25	7.1	28.9	56
1032110	4 x 2 x 0.25	7.6	38.3	72
1032111	5 x 2 x 0.25	7.9	45.1	85
1032112	6 x 2 x 0.25	8.5	48.7	96
1032113	8 x 2 x 0.25	10.3	64.3	135
1032114	2 x 2 x 0.34	7.1	27.6	56
1032115	3 x 2 x 0.34	7.8	38.8	74
1032116	4 x 2 x 0.34	8.4	47.5	90

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1032117	5 x 2 x 0.34	8.8	58.2	110
1032118	1 x 2 x 0.5	5.6	20.1	37
1032119	2 x 2 x 0.5	7.9	40.3	72
1032120	3 x 2 x 0.5	8.7	51.7	91
1032121	4 x 2 x 0.5	9.4	64.1	112
1032122	5 x 2 x 0.5	10.3	76.6	141
1032123	6 x 2 x 0.5	11.1	91.7	170
1032124	8 x 2 x 0.5	13.1	123.2	238
1032125	10 x 2 x 0.5	14.5	146.4	247
1032126	2 x 2 x 0.75	8.5	48.4	84
1032127	3 x 2 x 0.75	9.4	68.9	114
1032128	4 x 2 x 0.75	10.7	86.2	149
1032129	6 x 2 x 0.75	12.1	131.9	225
1032130	8 x 2 x 0.75	14.7	168.2	315
1032131	2 x 2 x 1.0	9	64.1	98
1032132	3 x 2 x 1.0	10.4	83.5	135
1032133	4 x 2 x 1.0	11.3	105.7	168

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® ST-HF-M refer to page 693
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® LiHH

Halogen-free data transmission cable with colour code acc. to DIN 47100

Info

- For use within public buildings and industrial plants
- Further dimensions/colours on request

Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Small outer diameters despite a high number of cores

Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- 7-wire stranded conductor can be used for Maxi TERMI-POINT® wiring (for this product the 0,34mm² version only)
- Dry or damp rooms

Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Outer sheath made of special halogen-free compound
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
Approx. 80 nF/km

Peak operating voltage
(not for power applications) 250 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
1200 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiHH				
0037104	6 x 0.14	4.4	8.1	25
0037120	2 x 0.25	4	4.8	22
0037121	3 x 0.25	4.2	7.2	25
0037122	4 x 0.25	4.5	9.6	28
0037124	6 x 0.25	5.3	14.4	39
0037125	7 x 0.25	5.3	16.8	42
0037126	8 x 0.25	6.4	19.2	50
0037128	12 x 0.25	7.2	28.8	67
0037140	2 x 0.34	4.4	6.5	28
0037141	3 x 0.34	4.6	9.8	30
0037142	4 x 0.34	5	13.1	40

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0037143	5 x 0.34	5.7	16.3	44
0037147	12 x 0.34	8	39.2	97
0037150	2 x 0.5	4.9	9.6	31
0037151	3 x 0.5	5.2	14.4	37
0037152	4 x 0.5	5.8	19.2	45
0037153	5 x 0.5	6.3	24	58
0037154	7 x 0.5	7.1	33.6	72
0037160	2 x 0.75	5.3	14.4	41
0037162	4 x 0.75	6.3	28.8	60
0037165	12 x 0.75	10.4	86.4	165
0037171	3 x 1.0	6.1	28.8	57
0037172	4 x 1.0	6.6	38.4	67

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® LiHCH refer to page 298

Accessories

- SKINTOP® ST-HF-M refer to page 693
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® LiHCH

Screened halogen-free data transmission cable with colour code acc. to DIN 47100

Info

- For use within public buildings and industrial plants
- Further dimensions/colours on request

Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Overall braid minimises electrical interference

Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For use in computer systems, instrumentation systems, office equipment, balances - wherever screened, halogen-free, small-diameter cables are needed.
- 7-wire stranded conductor can be used for Maxi TERMI-POINT® wiring (for this product the 0,34mm² version only)

Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 80 nF/km
C/S approx. 120 nF/km

Peak operating voltage
(not for power applications) 250 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
1200 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiHCH				
0037302	2 x 0.14	4.1	12	22
0037304	4 x 0.14	4.5	15.9	29
0037308	8 x 0.14	6	26	41
0037312	12 x 0.14	6.5	30.4	78
0037325	25 x 0.14	8.7	63	149
0037402	2 x 0.25	4.7	15	25
0037403	3 x 0.25	4.9	18	30
0037404	4 x 0.25	5.2	22	35
0037406	6 x 0.25	6.2	30	49
0037407	7 x 0.25	6.2	32	52
0037408	8 x 0.25	7.3	35	58
0037410	10 x 0.25	7.7	42	81
0037425	25 x 0.25	10.9	114	172
0037502	2 x 0.34	5.1	17	30
0037503	3 x 0.34	5.3	21	35
0037504	4 x 0.34	5.9	25	42
0037507	7 x 0.34	7	42	73
0037508	8 x 0.34	8	45	84
0037510	10 x 0.34	8.5	63	101
0037516	16 x 0.34	9.6	94	160

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0037525	25 x 0.34	12.1	144	259
0037602	2 x 0.5	5.8	29	38
0037603	3 x 0.5	6.1	35	47
0037604	4 x 0.5	6.5	45	67
0037605	5 x 0.5	7.2	50	76
0037606	6 x 0.5	7.8	59	84
0037607	7 x 0.5	7.8	68	91
0037608	8 x 0.5	8.9	75	135
0037610	10 x 0.5	9.5	93	160
0037612	12 x 0.5	9.8	99	177
0037618	18 x 0.5	11.7	134	239
0037702	2 x 0.75	6.2	35	45
0037703	3 x 0.75	6.5	46	69
0037704	4 x 0.75	7.2	56	80
0037802	2 x 1.0	6.5	43	72
0037803	3 x 1.0	7	56	90
0037804	4 x 1.0	7.5	68	109
0037807	7 x 1.0	8.8	118	171
0037902	2 x 1.5	7.3	58	90
0037903	3 x 1.5	7.7	74	115

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® LiHCH (TP) refer to page 299

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- Multipurpose shears A and B

UNITRONIC® LiHCH (TP)

Screened halogen-free data transmission cable with colour code acc. to DIN 47100 and twisted pairs

Info

- TP = twisted pair

Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For use in computer systems, instrumentation systems, office equipment, balances - wherever screened, halogen-free, small-diameter cables are needed.

Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of special halogen-free compound
- TP structure
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 80 nF/km
C/S approx. 120 nF/km

Peak operating voltage
(not for power applications) 250 V

Coupling
At 1 kHz: approx. 300 pF/100 m

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
1200 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiHCH (TP)				
0038302	2 x 2 x 0.14	5.5	18.5	39
0038303	3 x 2 x 0.14	6	23	48
0038304	4 x 2 x 0.14	6.4	26.6	54
0038308	8 x 2 x 0.14	8.4	53.7	97
0038312	12 x 2 x 0.14	9.1	66	142
0038316	16 x 2 x 0.14	10.4	79	154
0038325	25 x 2 x 0.14	12.7	113	238
0038402	2 x 2 x 0.25	6.5	28	54
0038403	3 x 2 x 0.25	7.3	39.6	66
0038404	4 x 2 x 0.25	7.8	44.9	81
0038406	6 x 2 x 0.25	8.7	69.5	115
0038408	8 x 2 x 0.25	10.5	76.9	130
0038412	12 x 2 x 0.25	11.5	120	190

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0038416	16 x 2 x 0.25	12.7	146.5	238
0038602	2 x 2 x 0.5	8.1	48.1	93
0038603	3 x 2 x 0.5	8.9	73.7	129
0038604	4 x 2 x 0.5	9.6	82	146
0038606	6 x 2 x 0.5	11.3	110	198
0038608	8 x 2 x 0.5	13.3	139	259
0038612	12 x 2 x 0.5	15.1	198.3	354
0038616	16 x 2 x 0.5	16.7	240	459
0038702	2 x 2 x 0.75	8.7	58	106
0038704	4 x 2 x 0.75	10.9	108	179
0038708	8 x 2 x 0.75	14.9	180	305
0038802	2 x 2 x 1.0	9.2	84	142
0038803	3 x 2 x 1.0	10.6	96	173
0038804	4 x 2 x 1.0	11.5	121	212

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- Multipurpose shears A and B

UNITRONIC® LiYY A

Data transmission cable with colour code acc. to DIN 47100 - UL/CSA recognized

Info

- A for Advanced
  here: UL and CSA certifications
- Further dimensions/colours on request

Benefits

- For various applications

Application range

- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.
- For the North American market

Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- Outer sheath made of special PVC compound
  Outer sheath colour: Dark grey

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Peak operating voltage
(not for power applications)
300 V

Conductor stranding
AWG conductor sizes, 7 or 19 wires

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x Outer diameter

Nominal voltage
UL/CSA: 300 V

Test voltage
1500 V

Temperature range
Occasional flexing: -5°C up to +70°C (UL: +80 °C)
Fixed installation (IEC):
-40°C uo to +80°C
UL: max. +80°C

Article number	Number of cores and AWG per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYY A				
0022403	3 x AWG26/7	3.8	4.2	18
0022404	4 x AWG26/7	4	5.6	23
0022405	5 x AWG26/7	4.3	7	25
0022408	8 x AWG26/7	5.1	11.2	34
0022412	12 x AWG26/7	5.8	16.8	47
0022416	16 x AWG26/7	6.3	22.4	58
0022421	21 x AWG26/7	7	29.4	63
0022502	2 x AWG24/7	4	4.6	20
0022505	5 x AWG24/7	4.8	11.5	32
0022508	8 x AWG24/7	5.7	18.4	46
0022512	12 x AWG24/7	6.6	27.6	64
0022602	2 x AWG22/7	4.8	6.8	32.8
0022603	3 x AWG22/7	5	10.2	35
0022604	4 x AWG22/7	5.4	13.6	45.9
0022605	5 x AWG22/7	5.9	17	55.8
0022607	7 x AWG22/7	6.4	23.3	68.9
0022608	8 x AWG22/7	6.9	27.2	75.5
0022612	12 x AWG22/7	8.2	40.8	103
0022616	16 x AWG22/7	9.1	54.4	131.2
0022624	24 x AWG22/7	11.6	81.6	190
0022632	2 x AWG20/7	5.3	11.2	40
0022642	2 x AWG19/19	5.6	15	48

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® LiYCY A refer to page 301
- UNITRONIC® 300 / UNITRONIC® 300 S refer to page 303

Accessories

- SKINTOP® CLICK refer to page 687
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® LiYCY A

Screened data transmission cable with colour code acc. to DIN 47100 UL/CSA recognized

Info

- A for Advanced
  here: UL and CSA certifications
- Further dimensions/colours on request

Benefits

- Overall braid minimises electrical interference

Application range

- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.
- For the North American market

Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of special PVC compound
  Outer sheath colour: Dark grey

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Peak operating voltage
(not for power applications)
300 V

Conductor stranding
AWG conductor sizes, 7 or 19 wires

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
UL/CSA: 300 V

Test voltage
1500 V

Temperature range
Occasional flexing: -5°C up to +70°C
(UL: +80 °C)
Fixed installation (IEC):
-40°C uo to +80°C
UL: max. +80°C

Article number	Number of cores and AWG per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYCY A				
0044602	2 x AWG26/7	4.3	15.6	25
0044604	4 x AWG26/7	4.7	18	30
0044652	2 x AWG24/7	4.7	17.6	29
0044655	5 x AWG24/7	5.5	28.5	44
0044658	8 x AWG24/7	6.4	31.1	61
0044662	12 x AWG24/7	7.3	51.8	96
0044702	2 x AWG22/7	5.5	17.6	44
0044703	3 x AWG22/7	5.7	21.2	49
0044704	4 x AWG22/7	6.1	27.3	59
0044705	5 x AWG22/7	6.6	30.8	63
0044707	7 x AWG22/7	7.1	46.4	87
0044712	12 x AWG22/7	8.9	66.8	120
0044716	16 x AWG22/7	9.8	83.9	145
0044721	21 x AWG22/7	11.3	109.4	204
0044732	2 x AWG20/7	6	24.4	41
0044733	3 x AWG20/7	6.3	29.9	47
0044735	5 x AWG20/7	7.3	49.2	91
0044738	8 x AWG20/7	8.5	70.8	102
0044746	2 x AWG19/19	6.3	27.9	66
0044850	7 x AWG18/19	8.9	93.2	160.8
0044851	10 x AWG18/19	11.5	130.9	200

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® LiYCY (TP) A refer to page 302

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- KS 15 cable shears
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® LiYCY (TP) A

Screened data transmission cable with colour code acc. to DIN 47100 and twisted pairs - UL/CSA recognized

Info

- A for Advanced
  here: UL and CSA certifications
- Further dimensions/colours on request

Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- For the North American market
- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.

Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of special PVC compound
  Outer sheath colour: Dark grey

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Peak operating voltage
(not for power applications)
300 V

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
UL/CSA: 300 V

Test voltage
1500 V

Temperature range
Occasional flexing: -5°C up to +70°C
(UL: +80 °C)
Fixed installation (IEC):
-40°C uo to +80°C
UL: max. +80°C

Article number	Number of cores and AWG per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYCY (TP) A				
0066202	2 x 2 x AWG26/7	5.5	18	38
0066204	4 x 2 x AWG26/7	6.4	24	58
0066205	5 x 2 x AWG26/7	6.6	30	58
0066208	8 x 2 x AWG26/7	7.9	53	85
0066210	10 x 2 x AWG26/7	8.7	55	106
0066212	12 x 2 x AWG26/7	8.9	64	113
0066216	16 x 2 x AWG26/7	10.2	87	149
0066232	2 x 2 x AWG24/7	6.1	24.5	50
0066233	3 x 2 x AWG24/7	6.7	28.9	62
0066234	4 x 2 x AWG24/7	7.2	33.5	70
0066235	5 x 2 x AWG24/7	7.5	46.3	91
0066238	2 x 2 x AWG22/7	7.4	38	71
0066239	3 x 2 x AWG22/7	8.1	45.1	95
0066240	4 x 2 x AWG22/7	8.8	54.6	102
0066242	2 x 2 x AWG20/7	8.2	49.7	93
0066243	3 x 2 x AWG20/7	9.1	60.1	102
0066244	4 x 2 x AWG20/7	10.2	78.7	120
0066219	5 x 2 x AWG20/7	10.7	88.9	156
0066220	6 x 2 x AWG20/7	11.6	100.6	184
0066262	2 x 2 x AWG19/19	8.7	65.2	140
0066221	3 x 2 x AWG19/19	10	69.2	145

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® FD Li2YCY (TP) A BE refer to page 307
- UNITRONIC® FD Li2YCY (TP) A BA refer to page 308
- UNITRONIC® FD CP (TP) plus refer to page 312

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® 300 / UNITRONIC® 300 S

Control and signal cables with small cross sections - UL/CSA listed

Info

- Designation of shielded version: Formerly "UNITRONIC® 300 CY", now "UNITRONIC® 300 S"
- Other sizes on request
- Especially for 20 AWG and 18 AWG: With standard core color code, up to 60 conductors producible/ With non-standard color code, e.g., green-yellow grounding conductor, up to 100 cores

Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

Application range

- Control and signal cables for internal and external wiring
- For the North American market
- On the basis of CMG, PLTC or ITC direct laying on cable tray in the USA, in conjunction with -ER (Exposed Run) for unprotected transition sections with a length of not more than 6 ft. each
- Thanks to the DIRECT BURIAL approval, direct burial of versions with the nominal conductor cross sections 18 AWG and 16 AWG is normatively permitted in the USA
- Torsion resistant up to ±150 °/m for the drip loop of wind turbine generators

Product features

- Oil-resistant according to UL OIL RES I
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Norm references / Approvals

- USA: (UL) CMG [E130334], (UL) PLTC-ER (18 AWG + 16 AWG) [E216027], (UL) PLTC (>24 AWG) [E216027], (UL) ITC-ER (18 AWG + 16 AWG) [E196134], UL AWM Style 2464 [E100338], DIR BUR (18 AWG + 16 AWG)
- CAN: c(UL) CMG FT4 [E130334], CSA AWM I/II A/B FT1

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation made of PVC compound
- UNITRONIC® 300 S: with overall foil tape wrapping, drain wire, tin-plated copper braiding (75 % coverage)
- Outer jacket: Specially Formulated PVC
- Color of the outer jacket: Dark gray (similar to RAL 7005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Core identification code
refer to Appendix T9

Conductor stranding
Fine wire

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
During installation: 4 x cable diameter
Screened: 6 x outer diameter

Nominal voltage
according to UL: 300 V
IEC: not for power transmission

Test voltage
1500 V

Temperature range
Occasional flexing/ North America: -25°C to +105°C (AWM for USA: +80°C)
Fixed installation/ North America: -40°C to +105°C (AWM for USA: +80°C)

Article number	Article designation	Number of cores and AWG size	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® 300					
301602	UNITRONIC® 300	2 x AWG16	6.7	25	83
301802	UNITRONIC® 300	2 x AWG18	6.1	18.3	61
302006	UNITRONIC® 300	6 x AWG20	7.5	29.5	97
302015	UNITRONIC® 300	15 x AWG20	11.5	73.7	178
302020	UNITRONIC® 300	20 x AWG20	12.6	98.1	259
302025	UNITRONIC® 300	25 x AWG20	14.1	122.6	354
302204	UNITRONIC® 300	4 x AWG22	5	13.7	33
302210	UNITRONIC® 300	10 x AWG22	7	34.9	67
302215	UNITRONIC® 300	15 x AWG22	7.9	51.3	91
302220	UNITRONIC® 300	20 x AWG22	9	68.5	116
302225	UNITRONIC® 300	25 x AWG22	10.5	85.6	180
302410	UNITRONIC® 300	10 x AWG24	6.4	21.4	51
UNITRONIC® 300 S					
301602S	UNITRONIC® 300 S	2 x AWG16	7.6	50.6	101
301606S	UNITRONIC® 300 S	6 x AWG16	9.9	105.7	210
301802S	UNITRONIC® 300 S	2 x AWG18	6.8	37.2	75
301803S	UNITRONIC® 300 S	3 x AWG18	7.3	49.1	85
301804S	UNITRONIC® 300 S	4 x AWG18	7.9	59.6	104
301825S	UNITRONIC® 300 S	25 x AWG18	16.8	278.4	448
302002S	UNITRONIC® 300 S	2 x AWG20	6.3	28.3	60
302004S	UNITRONIC® 300 S	4 x AWG20	7.3	40.2	88
302006S	UNITRONIC® 300 S	6 x AWG20	8.4	55.1	119
302206S	UNITRONIC® 300 S	6 x AWG22	6.4	35.7	68

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® TRAY II refer to page 57
- ÖLFLEX® TRAY II CY refer to page 58
- UNITRONIC® 300 STP refer to page 304

Accessories

- SKINTOP® ST-M refer to page 684
- SKINTOP® ST-M Small PU
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

UNITRONIC® 300 STP

Screened control and signal cables with small cross sections and twisted pairs - UL/CSA listed

Info

- Other sizes on request
- Especially for 20 AWG and 18 AWG: With standard core color code, up to 37 pairs producible/ With non-standard color code, e.g., with green-yellow grounding conductor, up to 50 pairs

Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Control and signal cables for internal and external wiring
- For the North American market
- On the basis of CMG, PLTC or ITC direct laying on cable tray in the USA, in conjunction with -ER (Exposed Run) for unprotected transition sections with a length of not more than 6 ft. each
- Thanks to the DIRECT BURIAL approval, direct burial of versions with the nominal conductor cross-section 18 AWG in the USA
- Torsion resistant up to ±150 °/m for the drip loop of wind turbine generators

Product features

- Oil-resistant according to UL OIL RES I

Norm references / Approvals

- USA: (UL) CMG [E130334], (UL) PLTC-ER (18 AWG) [E216027], (UL) PLTC (>24 AWG) [E216027], (UL) ITC-ER (18 AWG) [E196134], UL AWM Style 2464 [E100338], DIR BUR (18 AWG)
- CAN: c(UL) CMG FT4 [E130334], CSA AWM I/II A/B FT1

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation made of PVC
- TP structure
- Overall foil tape wrapping, drain wire, tin-plated copper braiding (75 % coverage)
- Outer jacket: Specially Formulated PVC, dark gray (similar to RAL 7005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Core identification code
Pair 1: black, red
Pair 2: black, white
Pair 3: black, green
Pair 4: black, blue
Pair 5: black, yellow
Pair 6: black, brown
Exception single-paired, 24-22 AWG:
black, white

Peak operating voltage
(not for power applications)
300 V
UL/CSA: 300 V

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
according to UL: 300 V
IEC: not for power transmission

Test voltage
1500 V

Temperature range
Occasional flexing/ North America:
-25°C to +105°C (AWM for USA: +80°C)
Fixed installation/ North America:
-40°C to +105°C (AWM for USA: +80°C)

Article number	Number of pairs and AWG size	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® 300 STP				
302402STP	2 x 2 x 24 AWG	6.5	25.5	59
302403STP	3 x 2 x 24 AWG	6.8	31.1	65
302406STP	6 x 2 x 24 AWG	8.7	49.7	106
302201STP	1 x 2 x 22 AWG	5.1	19.1	39
302203STP	3 x 2 x 22 AWG	7.7	38.2	71
302206STP	6 x 2 x 22 AWG	9.6	70	125
302002STP	2 x 2 x 20 AWG	9.4	47.7	128
302003STP	3 x 2 x 20 AWG	10.5	68.2	161
302006STP	6 x 2 x 20 AWG	13.3	106.5	321
301801STP	1 x 2 x 18 AWG	6.8	37.8	106
301802STP	2 x 2 x 18 AWG	10.7	66.2	122
301806STP	6 x 2 x 18 AWG	14.6	153.1	324

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® FD Li2YCY (TP) A BE refer to page 307
- UNITRONIC® FD Li2YCY (TP) A BA refer to page 308
- UNITRONIC® FD CP (TP) plus refer to page 312

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® FD

Highly flexible data transmission cable with PVC outer sheath for power chain use

Benefits

- Well-proven and reliable
- Optimized cable construction for power chain use
- Cost-effective solution

Application range

- Automated production processes require data transmission cables that offer high flexibility and durability
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines

Product features

- Low-adhesive surface
- Flame-retardant according IEC 60332-1-2
- Designed for 2 up to 8 million bending/ unbending cycles in power chain applications

Norm references / Approvals

- Based on VDE 0812
- For travel distances up to 10 m.
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Non-woven wrapping
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 100 nF/km

Peak operating voltage
(not for power applications)
350 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire

Minimum bending radius
Flexing: 5 x outer diameter
Fixed installation: 3 x outer diameter

Test voltage
1500 V

Temperature range
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD				
0027841	3 x 0.14	3.9	4.2	26
0027842	4 x 0.14	4.2	5.6	31
0027843	5 x 0.14	4.5	7	35
0027844	7 x 0.14	5.1	9.8	50
0027845	10 x 0.14	6.1	14	63
0027846	14 x 0.14	6.2	19.6	77
0027847	18 x 0.14	6.8	25.2	91
0027848	25 x 0.14	8.3	35	125
0027855	2 x 0.25	4.3	5	27
0027856	3 x 0.25	4.5	7.5	33
0027857	4 x 0.25	4.9	10	40
0027858	5 x 0.25	5.3	12.5	45
0027859	7 x 0.25	6.1	17.5	59
0027860	10 x 0.25	7.4	25	75
0027861	14 x 0.25	7.5	35	108
0027863	18 x 0.25	8.5	45	130
0027865	25 x 0.25	10.4	62.5	178
0027870	2 x 0.34	4.7	6.8	30
0027871	3 x 0.34	5	10.2	43
0027872	4 x 0.34	5.4	13.6	57
0027873	5 x 0.34	5.9	17	65
0027874	7 x 0.34	6.8	23.8	85
0027875	10 x 0.34	8.5	34	117
0027876	14 x 0.34	8.6	47.6	151
0027877	18 x 0.34	9.7	61.2	182
0027878	25 x 0.34	11.9	85	250

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® FD CY refer to page 306
- UNITRONIC® FD P plus refer to page 310

Accessories

- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® FD CY

Screened highly flexible data transmission cable with PVC outer sheath for power chain use

Benefits

- Well-proven and reliable
- Optimized cable construction for power chain use
- Cost-effective solution
- Overall braid minimises electrical interference

Application range

- Automated production processes require data transmission cables that offer high flexibility and durability, as well as excellent screening
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines

Product features

- Low-adhesive surface
- Flame-retardant according IEC 60332-1-2
- Designed for 2 up to 8 million bending/ unbending cycles in power chain applications

Norm references / Approvals

- Based on VDE 0812
- For travel distances up to 10 m.
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C approx. 110 nF/km
C/S: approx. 110 nF/km

Peak operating voltage
(not for power applications)
350 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x Outer diameter

Test voltage
1500 V

Temperature range
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD CY				
0027411	3 x 0.14	4.5	14.1	37
0027412	4 x 0.14	4.8	15.5	42
0027413	5 x 0.14	5.1	18.3	47
0027414	7 x 0.14	5.7	27.6	55
0027416	10 x 0.14	6.7	39.3	63
0027418	14 x 0.14	6.8	45.3	96
0027420	18 x 0.14	7.4	54.1	105
0027422	25 x 0.14	8.9	68.4	163
0027425	2 x 0.25	4.9	14.9	39
0027426	3 x 0.25	5.1	18.8	46
0027427	4 x 0.25	5.5	21.3	53
0027428	5 x 0.25	5.9	31	71
0027429	7 x 0.25	6.7	39.6	75
0027431	10 x 0.25	8.2	53.9	100
0027434	14 x 0.25	8.3	64.2	120
0027436	18 x 0.25	9.1	78.4	167
0027438	25 x 0.25	11	101	221
0027440	2 x 0.34	5.3	16.1	47
0027441	3 x 0.34	5.6	28.7	55
0027442	4 x 0.34	6	35.7	76
0027443	5 x 0.34	6.5	39.1	80
0027444	7 x 0.34	7.4	52.7	104
0027446	10 x 0.34	9.1	67.4	115
0027448	14 x 0.34	9.2	85.3	132
0027450	18 x 0.34	10.3	99.7	225
0027452	25 x 0.34	12.5	155	327

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC FD 810 CY refer to page 119
- UNITRONIC® FD CP plus refer to page 311

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- STAR STRIP stripping tool refer to page 985

NEW

UNITRONIC® FD Li2YCY (TP) A BE

Shielded, low-capacitance/twisted-pair PE/PVC data cable for chain/power track/cable carrier, UL AWM for USA+CAN

Info

- Better priced than UNITRONIC® FD CP (TP) plus
- Low capacitance, AWM by UL for USA+CAN
- UNITRONIC® FD Li2YCY (TP) A BE: DIN 47100, refer to Appendix T9

Benefits

- Improved transmission characteristics thanks to low-capacitance core insulation and twisted pairs
- Cable specification optimized for use in drag chain/cable carrier/power track in the USA, on the basis of NFPA 79, Section 12.9.2

Application range

- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- Use in drag chain/cable carrier/power track - in case of horizontal installation travel distances up to 50 m
- For use in drag chains: Please respect the assembly guidelines listed in Appendix T3

Product features

- Low capacitance
- EMC optimized thanks to overall copper braid shielding
- Flexibility for use inside drag chain/cable carrier/power track
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Flame-retardant acc. to IEC 60332-1-2, UL VW-1, Cable Flame Test, CSA FT 1

Norm references / Approvals

- Based on VDE 0812
- UL AWM Style 2570 80°C 1000V (external interconnection) for USA (UL File No.: E63634) and in line with NFPA 79, Section 12.9.2
- AWM I/II A/B 80°C 1000V acc. to CSA C22.2 No. 210-15 and certified by UL (cRU) for Canada
- EU conformity and mark with regard to the European RoHS Directive

Product Make-up

- Flexible conductor made of bare copper strands
- Low-capacitance HDPE core insulation
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: black (similar to RAL 9005)

Technical data

Core identification code
UNITRONIC® FD Li2YCY (TP) A BE:
DIN 47100, refer to Appendix T9

Mutual capacitance
Up to 0.5 mm²: 60 nF/km
Up to 1.0 mm²: 70 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine wire
From 0.5 mm²: Finest wire/Conductor class 6 acc. to IEC 60228

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Loop resistance
Ohmic (DC) and loop/bidirectional @ 20 °C
0.14 mm² (26 AWG): 276.0 Ω/km;
0.25 mm² (24 AWG): 158.0 Ω/km;
0.34 mm² (22 AWG): 110.8 Ω/km;
0.5 mm² (21 AWG): 78.0 Ω/km;
0.75 mm² (19 AWG): 52.0 Ω/km;
1 mm² (18 AWG): 39.0 Ω/km

Temperature range
Flexing:
VDE: -5 °C to 70 °C
UL AWM: -5 °C to 80 °C
Stationary use:
VDE: -40 °C to 70 °C
UL AWM: -5 °C to 80 °C

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Weight [kg/km]
UNITRONIC® FD Li2YCY (TP) A BE			
0031377	1 x 2 x 0.14	4.3	23
0031378	2 x 2 x 0.14	5.9	42
0031379	3 x 2 x 0.14	6.2	47
0031380	4 x 2 x 0.14	6.7	57
0031381	5 x 2 x 0.14	7.3	68
0031382	6 x 2 x 0.14	7.5	86
0031383	8 x 2 x 0.14	8.8	109
0031384	10 x 2 x 0.14	10.1	120
0031385	12 x 2 x 0.14	9.8	150
0031386	1 x 2 x 0.25	4.7	27
0031387	2 x 2 x 0.25	6.6	57
0031388	3 x 2 x 0.25	7	72
0031389	4 x 2 x 0.25	7.6	85
0031390	5 x 2 x 0.25	8.5	92
0031391	6 x 2 x 0.25	8.8	114
0031392	8 x 2 x 0.25	10.3	145
0031393	10 x 2 x 0.25	11.8	182
0031394	14 x 2 x 0.25	12	213
0031395	25 x 2 x 0.25	16.3	310
0031396	1 x 2 x 0.34	5.1	36
0031397	2 x 2 x 0.34	7.3	69
0031398	3 x 2 x 0.34	8	93
0031399	4 x 2 x 0.34	8.7	106
0031400	5 x 2 x 0.34	9.7	136
0031401	6 x 2 x 0.34	10	165
0031402	8 x 2 x 0.34	11.8	221
0031403	10 x 2 x 0.34	13.7	274
0031404	1 x 2 x 0.50	5.5	47
0031405	2 x 2 x 0.50	8.3	99
0031406	3 x 2 x 0.50	8.8	120
0031407	4 x 2 x 0.50	9.8	130
0031408	5 x 2 x 0.50	10.7	164

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Weight [kg/km]
0031409	6 x 2 x 0.50	11.3	182
0031410	8 x 2 x 0.50	13.2	278
0031411	10 x 2 x 0.50	15.2	325
0031412	14 x 2 x 0.50	15.5	401
0031413	1 x 2 x 0.75	5.9	61
0031414	2 x 2 x 0.75	9	104
0031415	3 x 2 x 0.75	9.8	148
0031416	4 x 2 x 0.75	10.7	167
0031417	5 x 2 x 0.75	11.9	202
0031418	6 x 2 x 0.75	12.3	233
0031419	8 x 2 x 0.75	14.7	330
0031420	10 x 2 x 0.75	16.7	390
0031421	14 x 2 x 0.75	17	515
0031422	1 x 2 x 1.00	6.3	71
0031423	2 x 2 x 1.00	9.9	126
0031424	3 x 2 x 1.00	10.5	167
0031425	4 x 2 x 1.00	11.8	213
0031426	5 x 2 x 1.00	13.1	247

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- STAR STRIP stripping tool refer to page 985

NEW

UNITRONIC® FD Li2YCY (TP) A BA

Shielded, low-capacitance/twisted-pair PE/PVC data cable for chain/power track/cable carrier, UL AWM for USA+CAN

Info

- Better priced than UNITRONIC® FD CP (TP) plus
- Low capacitance, AWM by UL for USA+CAN
- UNITRONIC® FD Li2YCY (TP) A B**A**: North-American Core Identification Colors

Benefits

- Improved transmission characteristics thanks to low-capacitance core insulation and twisted pairs
- Cable specification optimized for use in drag chain/cable carrier/power track in the USA, on the basis of NFPA 79, Section 12.9.2

Application range

- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- Use in drag chain/cable carrier/power track - in case of horizontal installation travel distances up to 50 m
- For use in drag chains: Please respect the assembly guidelines listed in Appendix T3

Product features

- Low capacitance
- EMC optimized thanks to overall copper braid shielding
- Flexibility for use inside drag chain/cable carrier/power track
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Flame-retardant acc. to IEC 60332-1-2, UL VW-1, Cable Flame Test, CSA FT 1

Norm references / Approvals

- Based on VDE 0812
- UL AWM Style 2570 80°C 1000V (external interconnection) for USA (UL File No.: E63634) and in line with NFPA 79, Section 12.9.2
- AWM I/II A/B 80°C 1000V acc. to CSA C22.2 No. 210-15 and certified by UL (cRU) for Canada
- EU conformity and mark with regard to the European RoHS Directive

Product Make-up

- Flexible conductor made of bare copper strands
- Low-capacitance HDPE core insulation
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: black
  (similar to RAL 9005)

Technical data

Core identification code
UNITRONIC® FD Li2YCY (TP) A BA:
- Pair 01: Black, Red;
- Pair 02: Black, White;
- Pair 03: Black, Green;
- Pair 04: Black, Blue;
- Pair 05: Black, Yellow;
- Pair 06: Black, Brown;
- Pair 07: Black, Orange;
- Pair 08: Red, White;
- Pair 09: Red, Green;
- Pair 10: Red, Blue;
- Pair 11: Red, Yellow;
- Pair 12: Red, Brown;
- Pair 13: Red, Orange;
- Pair 14: Green, White;
- Pair 15: Green, Blue;
- Pair 16: Green, Yellow;
- Pair 17: Green, Brown;
- Pair 18: Green, Orange;
- Pair 19: White, Blue;
- Pair 20: White, Yellow;
- Pair 21: White, Brown;
- Pair 22: White, Orange;
- Pair 23: Blue, Yellow;
- Pair 24: Blue, Brown;
- Pair 25: Blue, Orange;
- Exception Single-paired/24 - 22 AWG: Black, White

Mutual capacitance
Up to 0.5 mm²: 60 nF/km
Up to 1.0 mm²: 70 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine wire
From 0.5 mm²: Finest wire/Conductor class 6 acc. to IEC 60228

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Loop resistance
Ohmic (DC) and loop/bidirectional @ 20 °C
0.14 mm² (26 AWG): 276.0 Ω/km;
0.25 mm² (24 AWG): 158.0 Ω/km;
0.34 mm² (22 AWG): 110.8 Ω/km;
0.5 mm² (21 AWG): 78.0 Ω/km;
0.75 mm² (19 AWG): 52.0 Ω/km;
1 mm² (18 AWG): 39.0 Ω/km

Temperature range
Flexing:
VDE: -5 °C to 70 °C
UL AWM: -5 °C to 80 °C
Stationary use:
VDE: -40 °C to 70 °C
UL AWM: -5 °C to 80 °C

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Weight [kg/km]
UNITRONIC® FD Li2YCY (TP) A BA			
0031427	1 x 2 x 0.14	4.3	23
0031428	2 x 2 x 0.14	5.9	42
0031429	3 x 2 x 0.14	6.2	47
0031430	4 x 2 x 0.14	6.7	57
0031431	5 x 2 x 0.14	7.3	68
0031432	6 x 2 x 0.14	7.5	86
0031433	8 x 2 x 0.14	8.8	109
0031434	10 x 2 x 0.14	10.1	120
0031435	12 x 2 x 0.14	9.8	150
0031436	1 x 2 x 0.25	4.7	27
0031437	2 x 2 x 0.25	6.6	57
0031438	3 x 2 x 0.25	7	72
0031439	4 x 2 x 0.25	7.6	85
0031440	5 x 2 x 0.25	8.5	92
0031441	6 x 2 x 0.25	8.8	114
0031442	8 x 2 x 0.25	10.3	145
0031443	10 x 2 x 0.25	11.8	182
0031444	14 x 2 x 0.25	12	213
0031445	25 x 2 x 0.25	16.3	310
0031446	1 x 2 x 0.34	5.1	36
0031447	2 x 2 x 0.34	7.3	69
0031448	3 x 2 x 0.34	8	93
0031449	4 x 2 x 0.34	8.7	106
0031450	5 x 2 x 0.34	9.7	136
0031451	6 x 2 x 0.34	10	165
0031452	8 x 2 x 0.34	11.8	221
0031453	10 x 2 x 0.34	13.7	274
0031454	1 x 2 x 0.50	5.5	47
0031455	2 x 2 x 0.50	8.3	99
0031456	3 x 2 x 0.50	8.8	120
0031457	4 x 2 x 0.50	9.8	130
0031458	5 x 2 x 0.50	10.7	164
0031459	6 x 2 x 0.50	11.3	182
0031460	8 x 2 x 0.50	13.2	278
0031461	10 x 2 x 0.50	15.2	325
0031462	14 x 2 x 0.50	15.5	401
0031463	1 x 2 x 0.75	5.9	61
0031464	2 x 2 x 0.75	9	104
0031465	3 x 2 x 0.75	9.8	148
0031466	4 x 2 x 0.75	10.7	167
0031467	5 x 2 x 0.75	11.9	202
0031468	6 x 2 x 0.75	12.3	233
0031469	8 x 2 x 0.75	14.7	330
0031470	10 x 2 x 0.75	16.7	390
0031471	14 x 2 x 0.75	17	515
0031472	1 x 2 x 1.00	6.3	71
0031473	2 x 2 x 1.00	9.9	126
0031474	3 x 2 x 1.00	10.5	167
0031475	4 x 2 x 1.00	11.8	213
0031476	5 x 2 x 1.00	13.1	247

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- STAR STRIP stripping tool refer to page 985

UNITRONIC® FD P plus

Highly flexible data cable with PUR jacket and AWM certification for US & Canadian use

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C approx. 60 nF/km

Peak operating voltage
Peak: 250 V (not for power current use or continuous operating voltage to ground above 49VAC or 74VDC)

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire

Minimum bending radius
Flexing: 5 x outer diameter
Fixed installation: 3 x outer diameter

Test voltage
1500 V

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -40°C to +80°C
cRUus AWM: max. +80°C

Benefits

- Well-proven and reliable
- Wide temperature range for applications in harsh climatic environments
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, 2015 Ed., 12.9.2 (condition 3 under 12.9.2: Through 1 mm² and <16 AWG)

Application range

- Highly flexible data cable with PUR outer sheath, meets the highest service life requirements, even under harsh climatic conditions
- Suitable for use in measuring, control and regulating circuits
- Drag chain use - in case of horizontal installation travel distances up to 100 m
- For use in drag chains: Please respect the assembly guidelines listed in Appendix T3

Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

Product features

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- Flame retardance ratings: IEC 60332-1-2, FT2 (Horizontal flame test)
- Halogen-free, has low capacitance and is flexible down to -40°C
- Oil-resistant
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant

Norm references / Approvals

- Based on VDE 0812
- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin
- Non-woven wrapping
- Outer sheath made of special PUR compound
  Outer sheath colour: grey (RAL 7001)

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD P plus				
0028647	2 x 0.14	3.7	2.8	20
0028650	3 x 0.14	3.9	4.1	25
0028651	4 x 0.14	4.2	5.6	30
0028652	5 x 0.14	4.5	7	34
0028677	6 x 0.14	4.8	8.4	42
0028653	7 x 0.14	5.1	9.8	48
0028654	10 x 0.14	6.1	14	60
0028678	12 x 0.14	5.9	16.8	67
0028656	18 x 0.14	6.8	25.2	87
0028657	25 x 0.14	8.3	35	120
0028658	2 x 0.25	4.1	5	27
0028659	3 x 0.25	4.3	7.5	32
0028660	4 x 0.25	4.7	10	35
0028661	5 x 0.25	5	12.5	49
0028679	6 x 0.25	5.4	15	55
0028662	7 x 0.25	5.8	17.5	43
0028663	10 x 0.25	7	25	72
0028680	12 x 0.25	6.7	30	87
0028664	14 x 0.25	7.1	35	73
0028665	18 x 0.25	8	45	104
0028666	25 x 0.25	9.8	62.5	133
0028667	2 x 0.34	4.5	6.8	33
0028668	3 x 0.34	4.8	10.2	39
0028669	4 x 0.34	5.2	13.6	41
0028670	5 x 0.34	5.6	17	44
0028671	7 x 0.34	6.5	23.8	55
0028672	10 x 0.34	8	34	85
0028673	14 x 0.34	8.2	47.6	94
0028674	18 x 0.34	9	61.2	131
0028675	25 x 0.34	11	85	200

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC FD 810 P refer to page 131
- UNITRONIC® FD CP plus refer to page 311

Accessories

- SMART STRIP stripping tool

UNITRONIC® FD CP plus

Screened highly flexible data transmission cable with PUR outer sheath - UL/CSA-listed

Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

Benefits

- Wide temperature range for applications in harsh climatic environments
- Overall braid minimises electrical interference
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, 2015 Ed., 12.9.2 (condition 3 under 12.9.2: Through 1 mm² and <16 AWG)

Application range

- Suitable for use in measuring, control and regulating circuits
- Drag chain use - in case of horizontal installation travel distances up to 100 m
- For use in drag chains: Please respect the assembly guidelines listed in Appendix T3
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Halogen-free, has low capacitance and is flexible down to -40°C
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant
- Flame retardance: IEC 60332-1-2, VW-1, FT2
- Designed for 5 up to 10 million bending/unbending cycles (constant flex) in drag chains

Norm references / Approvals

- CULus CMX certified by UL (UL: E236660)
- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of special PUR compound
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C approx. 60 nF/km

Peak operating voltage
Peak: 250 V (not for power current use or continuous operating voltage to ground above 49VAC or 74VDC)

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
Core/core: 1500 V rms
Core/screen: 500 V

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -40°C to +80°C
cULus CMX: max. +75°C
cRUus AWM: max. +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD CP plus				
0028880	2 x 0.14	4.3	11.2	33
0028881	3 x 0.14	4.5	14.1	36
0028882	4 x 0.14	4.8	15.5	40
0028883	5 x 0.14	5.1	18.3	45
0028884	7 x 0.14	5.7	27.8	51
0028885	10 x 0.14	6.7	39.3	59
0028886	14 x 0.14	6.8	45.3	62
0028887	18 x 0.14	7.4	54.1	118
0028888	25 x 0.14	8.9	68.4	157
0028889	2 x 0.25	4.7	14.9	38
0028890	3 x 0.25	4.9	18.8	45
0028891	4 x 0.25	5.3	21.3	52
0028892	5 x 0.25	5.6	31	69
0028893	7 x 0.25	6.4	39.6	76
0028894	10 x 0.25	7.6	53.9	98
0028895	14 x 0.25	7.9	64.2	120
0028896	18 x 0.25	8.6	78.4	142
0028897	25 x 0.25	10.4	101	213
0028898	2 x 0.34	5.1	18.1	40
0028899	3 x 0.34	5.4	28.7	50
0028900	4 x 0.34	5.8	35.7	60
0028901	5 x 0.34	6.2	39.1	70
0028902	7 x 0.34	7.1	52.7	109
0028903	10 x 0.34	8.6	67.4	147
0028904	14 x 0.34	8.8	85.8	166
0028905	18 x 0.34	9.8	99.7	190
0028906	25 x 0.34	11.8	155	260

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® FD Li2YCY (TP) A BE refer to page 307
- UNITRONIC® FD Li2YCY (TP) A BA refer to page 308
- UNITRONIC® FD CP (TP) plus refer to page 312

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- STAR STRIP stripping tool refer to page 985

UNITRONIC® FD CP (TP) plus

Screened highly flexible data transmission cable with PUR outer sheath and twisted pairs - UL/CSA-listed

Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

Benefits

- Wide temperature range for applications in harsh climatic environments
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, 2015 Ed., 12.9.2 (condition 3 under 12.9.2: Through 1 mm² and <16 AWG)

Application range

- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- Drag chain use - in case of horizontal installation travel distances up to 100 m
- For use in drag chains: Please respect the assembly guidelines listed in Appendix T3
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Halogen-free, has low capacitance and is flexible down to -40°C
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant
- Flame retardance: IEC 60332-1-2, VW-1, FT2
- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter

Norm references / Approvals

- CULus CMX certified by UL (UL: E236660)
- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin TP structure
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of special PUR compound
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
Up to 0.5 mm²: 60 nF/km
Up to 1.0 mm²: 70 nF/km

Peak operating voltage
Peak: 250 V (not for power current use or continuous operating voltage to ground above 49VAC or 74VDC)

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire
From 0.5 mm²: extra-fine wire according to IEC 60228 class 6

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
Core/core: 1500 V rms
Core/screen: 500 V

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -40°C to +80°C
cULus CMX: max. +75°C
cRUus AWM: max. +80°C

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD CP (TP) plus				
0030910	2 x 2 x 0.14	5.9	19.4	42
0030911	3 x 2 x 0.14	6.2	23.4	47
0030912	4 x 2 x 0.14	6.7	27.1	59
0030913	5 x 2 x 0.14	7.3	37.4	68
0030914	6 x 2 x 0.14	7.5	49.4	91
0030915	8 x 2 x 0.14	8.8	54.8	109
0030916	10 x 2 x 0.14	10.1	60.1	120
0030962	1 x 2 x 0.25	4.7	14	27
0030919	2 x 2 x 0.25	6.6	32	60
0030920	3 x 2 x 0.25	7	38.4	72
0030921	4 x 2 x 0.25	7.6	43.2	85
0030922	5 x 2 x 0.25	8.5	51.5	92
0030923	6 x 2 x 0.25	8.8	71.8	114
0030924	8 x 2 x 0.25	10.3	74.4	155
0030925	10 x 2 x 0.25	11.8	90	186
0030926	14 x 2 x 0.25	12	111.2	219
0030963	1 x 2 x 0.34	5.1	20	36
0030928	2 x 2 x 0.34	7.3	41	69
0030929	3 x 2 x 0.34	8	52	101
0030930	4 x 2 x 0.34	8.7	59	106
0030932	6 x 2 x 0.34	10	86.2	165
0030934	10 x 2 x 0.34	13.7	131.1	274
0030964	1 x 2 x 0.5	5.5	22	47

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0030937	2 x 2 x 0.5	8.3	50	99
0030938	3 x 2 x 0.5	8.8	71.8	130
0030939	4 x 2 x 0.5	9.8	74.4	148
0030940	5 x 2 x 0.5	10.7	84.5	168
0030941	6 x 2 x 0.5	11.3	99.6	194
0030942	8 x 2 x 0.5	13.2	144.3	284
0030943	10 x 2 x 0.5	15.2	176	343
0030944	14 x 2 x 0.5	15.5	215.4	401
0030965	1 x 2 x 0.75	5.9	34	61
0030946	2 x 2 x 0.75	9	60	112
0030947	3 x 2 x 0.75	9.8	85.7	157
0030948	4 x 2 x 0.75	10.7	93.6	172
0030950	6 x 2 x 0.75	12.3	130.4	231
0030951	8 x 2 x 0.75	14.7	192.2	342
0030952	10 x 2 x 0.75	16.7	258	390
0030953	14 x 2 x 0.75	17	316.6	545
0030955	1 x 2 x 1.0	6.3	42	71
0030956	2 x 2 x 1.0	9.9	73	129
0030957	3 x 2 x 1.0	10.5	93.6	169
0030958	4 x 2 x 1.0	11.8	117.8	204
0030959	5 x 2 x 1.0	13.1	139	237

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- STAR STRIP stripping tool refer to page 985

UNITRONIC® RE-2Y(ST)Yv

Instrumentation cable with reinforced outer sheath

Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Low capacitance due to polyolefin-based insulation

Application range

- In measurement and control engineering
- Electrically intended for use when modern process computers have to process large volumes of data, e.g. high-capacity computer systems in waste incineration plants or sewage treatment plants
- These cables are suitable for fixed installation in dry or damp rooms and, in case of versions with a black outer sheath, also for outdoor use
- Thanks to reinforced, nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm, for applications, where a reinforced outer sheath may turn out to be advantageous.

Product features

- Outer sheath colour: black for outdoor applications or blue for intrinsically safe systems
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- In the style of EN 50288-7

Product Make-up

- 7-wire bare stranded copper conductor, core insulation made of polyethylene (PE), cores twisted into pairs, pairs stranded in layers
- Complete stranding contains 1 core for communication (core colour orange); the communication core is omitted on single-pair versions
- Foil wrapping, static screening made of aluminium-laminated plastic film with tinned drain wire
- Reinforced outer sheath made of PVC
- Outer sheath colour: black (RAL 9005) or blue (RAL 5015)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
a-core: black; b-core: white with consecutive numbers: 1-1, 2-2, 3-3, 4-4 etc.
Three-way version: black, white, red

Mutual capacitance
(guideline values at 800 Hz): C/C: 0.5 mm²: max. 75 nF/km
(guideline values at 800 Hz): C/C: 1.3 mm²: max. 100 nF/km

Peak operating voltage
(not for power applications) 300 V

Conductor resistance
0.5 mm²: max. 39.2 Ω/km
1.3 mm²: max. 14.3 Ω/km

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

Short-range crosstalk attenuation
At 60 kHz: min. 0.88 dB/km

Test voltage
Core/core: 2000 V
Core/screen: 1000 V

Characteristic impedance
approx. 100 ohms

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
RE-2Y(ST)Yv 0.5 mm² blue				
0032400	1 x 2 x 0,50	7.2	15	74
0032401	2 x 2 x 0,50	9.5	30	117
0.5 mm² black				
0032411	1 x 2 x 0,50	7.2	15	74
0032412	2 x 2 x 0,50	9.5	30	117
0032413	4 x 2 x 0,50	11.1	50	140
0032415	10 x 2 x 0,50	14.5	110	240
0032418	20 x 2 x 0,50	17.9	210	385
0032420	36 x 2 x 0,50	22.6	370	656
0032421	48 x 2 x 0,50	27.1	490	854
1.3 mm² blue				
0032422	1 x 2 x 1,30	8.6	31	102
0032423	2 x 2 x 1,30	11.5	62	161
0032424	4 x 2 x 1,30	13.8	114	230
0032428	24 x 2 x 1,30	27.5	684	952
1.3 mm² black				
0032430	1 x 2 x 1,30	8.6	31	102
0032431	2 x 2 x 1,30	11.5	62	161
0032432	4 x 2 x 1,30	13.8	114	230
0032433	8 x 2 x 1,30	16.9	218	377
0032434	12 x 2 x 1,30	19.3	322	520
0032436	24 x 2 x 1,30	27.5	684	952

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® RE-2Y(ST)Yv PiMF refer to page 315

Accessories

- Cable shears with double edge refer to page 980
- Ratchet cutter refer to page 980
- KS 20 cable shears
- KT cable shears

UNITRONIC® RE-2Y(ST)Yv PiMF

Instrumentation cable with reinforced outer sheath and pairs in metalfoil

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
a-core: black; b-core: white
with consecutive numbers:
1-1, 2-2, 3-3, 4-4 etc.

Mutual capacitance
(at 800 Hz max):
C/C: 0.5 mm²: 75 nF/km
(at 800 Hz max):
C/C: 1.3 mm²: 100 nF/km

Peak operating voltage
(not for power applications)
300 V

Inductivity
max. 0.75 mH/km

Conductor resistance
0.5 mm²: max. 39.2 Ω/km
1.3 mm²: max. 14.2 Ω/km

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

Short-range crosstalk attenuation
At 60 kHz: min. 1.02 dB/km

Test voltage
Core/core: 2000 V
Core/screen: 600 V

Characteristic impedance
approx. 100 ohms

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Low capacitance due to polyolefin-based insulation

Application range

- In measurement and control engineering
- Electrically intended for use when modern process computers have to process large volumes of data, e.g. high-capacity computer systems in waste incineration plants or sewage treatment plants
- These cables are suitable for fixed installation in dry or damp rooms and, in case of versions with a black outer sheath, also for outdoor use
- Thanks to reinforced, nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm, for applications, where a reinforced outer sheath may turn out to be advantageous.

Product features

- Computer cable with screened pairs and reinforced outer sheath
- Outer sheath colour:
  black for outdoor applications or
  blue for intrinsically safe systems
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- In the style of EN 50288-7

Product Make-up

- 7-wire bare stranded copper conductor, core insulation made of polyethylene (PE), cores twisted into pairs,
  pair screening made of aluminium-laminated plastic foil with bare copper drain wire,
  PiMF marking using numbered foil, pairs stranded in layers
- Complete stranding contains 1 core for communication (core colour orange); the communication core is omitted on single-pair versions
- Aluminium-laminated plastic foil static screen with tinned drain wire
- Reinforced outer sheath made of PVC
- Outer sheath colour: black (RAL 9005) or blue (RAL 5015)

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
RE-2Y(ST)Yv PiMF 0.5 mm² blue				
0032438	2 x 2 x 0,50	10	35	128
0032442	12 x 2 x 0,50	16.7	161	325
0.5 mm² black				
0032448	2 x 2 x 0,50	10	35	128
0032449	4 x 2 x 0,50	11.6	60	170
0032450	8 x 2 x 0,50	14.4	121	261
0032451	10 x 2 x 0,50	15.9	136	285
0032453	16 x 2 x 0,50	19.1	212	430
1.3 mm² blue				
0032458	2 x 2 x 1,30	12.4	68	184
1.3 mm² black				
0032464	2 x 2 x 1,30	12.4	68	184
0032465	4 x 2 x 1,30	14.2	124	269
0032466	8 x 2 x 1,30	18.5	239	442
0032467	12 x 2 x 1,30	22.2	353	593

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Ratchet cutter refer to page 980
- KT cable shears

RD-Y(ST)Y

Static screened data transmission cable for control technology

Benefits

- In order to reduce costs, the multi-wire stranded copper cable has been provided for Maxi TERMI-POINT® connecting technology.
  This wiring method (semi-automatic) considerably reduces the time and the costs required for installation.
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- RD-Y(ST)Y is used as a data transmission cable for applications such as monitoring systems and control units
- Measurement, control and regulation technology and also in control rooms of power plants and industrial facilities.
- Suitable for transmission of analog and digital signals up to a frequency of about 10 kHz
- Designed for fixed installations in enclosed rooms.

Product features

- Outer sheath colour: grey or blue for intrinsically safe systems
- Variant with 2 double cores twisted as star quad
- Flame retardant acc. to IEC 60332-1-2

Norm references / Approvals

- Based on DIN VDE 0815

Product Make-up

- 7-wire bare stranded copper conductor, core insulation made of PVC
- Cores twisted into pairs,
  4 pairs twisted into a bundle,
  bundles in layers,
  bundles labelled using numbered foil
- Aluminium-laminated plastic foil static screen with tinned drain wire
- Outer sheath made of PVC
- Outer sheath colour: grey

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description:
Control cable

Core identification code
Pair no. 1: a-conductor: blue
b-conductor: red
Pair no. 2: a-conductor: grey
b-conductor: yellow
Pair no. 3: a-core: green
b-core brown
Pair no. 4: a-core: white
b-core black

Mutual capacitance
At 800 Hz: ≤ 100 nF/km
The values may be exceeded by 20 % on cables with up to 4 double cores.

Peak operating voltage
(not for power applications) 225 V

Conductor resistance
(loop): ≤ 73.6 Ω/km

Cable attenuation/attenuation
At 1 kHz: approx. 1.2 dB/km
At 10 kHz: approx. 2.8 dB/km

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

Short-range crosstalk attenuation
At 10 kHz and 500 m cable length:
min. 60 dB

Test voltage
C/C: 2000 V
C/S: 2000 V

Characteristic impedance
At 1 kHz: approx. 370 Ω
At 10 kHz: approx. 130 Ω

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Dimension and cross section in mm²	Number of bundles	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
RD-Y(ST)Y grey					
0032470	2 x 2 x 0.50		6.5	25	65
0032471	4 x 2 x 0.50	1	9	45	110
0032472	8 x 2 x 0.50	2	11.5	85	180
0032474	16 x 2 x 0.50	4	15.5	165	310
0032475	24 x 2 x 0.50	6	19	245	450
0032477	48 x 2 x 0.50	12	25.5	485	810

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
MAXI-TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Cable shears with double edge refer to page 980
- Ratchet cutter refer to page 980
- STAR STRIP stripping tool refer to page 985
- KS 20 cable shears
- KT cable shears

JE-Y(ST)Y...BD

Static screened installation cable for industrial electronics

Info

- In accordance with DIN VDE 0815

JE-Y(ST)Y...BD EB

Static screened installation cable for industrial electronics

Info

- Blue version:
  Hazard protection type -i- is required where there is a risk of explosion

Benefits

- Perfect for cost-effective installation, e.g. connections with insulation displacement technology (IDC).
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Connection cable for fixed installation in industrial control systems, as required in measurement, control, signalling and data applications
- Industrial electronics
- For fixed installation on and under plaster, in dry and damp rooms
- For outdoor use this cable should be installed under plaster only

Product features

- The 2-pair version (2x2x0.8) is twisted into a star quad
- Flame-retardant according IEC 60332-1-2
- JE-Y(ST)Y...BD EB:
  For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2

Norm references / Approvals

- In accordance with DIN VDE 0815 type JE-Y(ST)Y...BD

Product Make-up

JE-Y(ST)Y...BD

- Solid bare copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.8 as star quad cable)
- Foil wrapping,
  static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

JE-Y(ST)Y...BD EB

- Solid bare copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.8 as star quad cable)
- Foil wrapping,
  static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC
  Outer sheath colour: sky blue (RAL 5015)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description:
Signal-/telecommunications cable

Core identification code
according to VDE 0815,
refer to Appendix T10

Mutual capacitance
max. 100 nF/km

Peak operating voltage
(not for power applications) 225 V

Coupling
approx. 200 pF/100 m

Inductivity
approx. 0.65 mH/km

Conductor stranding
Single-wire (solid conductor)
0.8 mm: 0.50 mm²

Minimum bending radius
Fixed installation: 6 x outer diameter

Test voltage
JE-Y(ST)Y...BD
Core/core: 500 V
Core/screen: 2000 V
JE-Y(ST)Y...BD EB
Core/Core: 1000 V
Core/screen: 2000 V

Loop resistance
max. 73.2 Ω/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of cores and cable diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
JE-Y(ST)Y...BD				
0034190	2 x 2 x 0.8	6	25	60
0034191	4 x 2 x 0.8	8.5	45	96
0034192	8 x 2 x 0.8	11	85	158
0034193	12 x 2 x 0.8	13	126	225
0034194	16 x 2 x 0.8	14.5	166	290
0034195	20 x 2 x 0.8	16	206	350
0034197	40 x 2 x 0.8	22	407	660
JE-Y(ST)Y...BD EB, blue outer sheath				
0034120	2 x 2 x 0.8	6	25	60
0034121	4 x 2 x 0.8	8.5	45	100
0034122	8 x 2 x 0.8	11	85	165
0034123	12 x 2 x 0.8	13	126	240
0034125	20 x 2 x 0.8	16	206	360
0034126	32 x 2 x 0.8	20	327	555

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- STAR STRIP stripping tool refer to page 985

JE-LiYCY...BD

Screened data transmission cable for industrial electronics

Info

- In accordance with DIN VDE 0815

JE-LiYCY...BD EB

Screened data transmission cable for industrial electronics

Info

- Blue version:
  Hazard protection type -i- is required where there is a risk of explosion

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description:
Signal-/telecommunications cable

Core identification code
according to VDE 0815,
refer to Appendix T10

Mutual capacitance
max. 100 nF/km

Peak operating voltage
(not for power applications) 225 V

Coupling
approx. 200 pF/100 m

Inductivity
approx. 0.65 mH/km

Conductor stranding
Multi-wire, 7 x 0.3mm

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 5 x outer diameter

Test voltage
JE-LiYCY...BD
Core/core: 500 V
Core/screen: 2000 V
JE-LiYCY...BD EB
Core/Core: 1000 V
Core/screen: 2000 V

Loop resistance
max. 78.4 Ω/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Benefits

- Can be used for Maxi TERMI-POINT® wiring
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Connection cable for use in electronics and in measurement, control and signal applications
- This cable is also used as a pulse and data transmission cable
- JE-LiYCY...BD has also proved to be an efficient connection cable for telephone systems, e.g. paging and intercom systems.
- For fixed installation on and under plaster, in dry and damp rooms
- For outdoor use this cable should be installed under plaster only

Product features

- The 2-pair version (2 x 2 x 0.5) is twisted into a star quad
- Flame-retardant according IEC 60332-1-2
- JE-LiYCY...BD EB:
  For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2

Norm references / Approvals

- In accordance with DIN VDE 0815 type JE-LiYCY...BD

Product Make-up

JE-LiYCY...BD

- 7-wire bare stranded copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.5 as star quad cable)
- Bundles twisted in layers,
  foil wrapping,
  screening braid made of tinned copper wires
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

JE-LiYCY...BD EB

- 7-wire bare stranded copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.5 as star quad cable)
- Bundles twisted in layers,
  foil wrapping,
  screening braid made of tinned copper wires
- Outer sheath made of PVC
  Outer sheath colour: sky blue (RAL 5015)

Article number	Number of pairs and conductor cross section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
JE-LiYCY...BD				
0034200	2 x 2 x 0.5	7.5	51	70
0034201	4 x 2 x 0.5	10	87	155
0034202	8 x 2 x 0.5	13	144	260
0034208	12 x 2 x 0.5	15.5	195	340
0034203	16 x 2 x 0.5	17	249	430
0034210	20 x 2 x 0.5	18.5	298	495
0034204	24 x 2 x 0.5	20.5	348	605
0034212	32 x 2 x 0.5	22.5	441	738
JE-LiYCY...BD EB, blue outer sheath				
0034220	2 x 2 x 0.5	7.5	51	95
0034221	4 x 2 x 0.5	10	87	155
0034222	8 x 2 x 0.5	13	144	260
0034223	12 x 2 x 0.5	15.5	193	340
0034224	16 x 2 x 0.5	17	249	430
0034225	20 x 2 x 0.5	18.5	298	495
0034226	24 x 2 x 0.5	20.5	348	605
0034227	32 x 2 x 0.5	22.5	441	738
0034228	40 x 2 x 0.5	24	531	845

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
MAXI-TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

J-Y(ST)Y...LG Indoor Cable

Installation cable in accordance with DIN VDE 0815

Benefits

- Indoor telephone cables transmit analogue or digital signals
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Connection cable for use in electronics and in measurement, control and signal applications
- In news and communication applications, the following connections can be installed: telephone, telefax, telex, standard modems for postal services; burglar and fire alarm systems (cf. fire alarm cables); communication and paging systems; access control, time and data control systems
- Can be used in dry and wet interiors for fixed installation on and under plaster

Product features

- The 2-paired versions = star quad cable design
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- In accordance with DIN VDE 0815 type J-Y(ST)Y...LG

Product Make-up

- Solid bare copper conductor
- Core insulation made of PVC
- Cores twisted in pairs, pairs twisted together, foil wrapping over cable core, static screen made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description:
Signal-/telecommunications cable

Core identification code
according to VDE 0815,
refer to Appendix T10

Peak operating voltage
(not for power applications)
300 V

Coupling
(800 Hz): K1: 80% ≤ 300 pF/100m

Conductor cross-section in
0.6 mm: 0.28 mm²
0.8 mm: 0.50 mm²

Cable attenuation/attenuation
0.6 mm: 1.7 dB/km
0.8 mm: 1.1 dB/km

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 800 V
Core/screen: 800 V

Loop resistance
0.6 mm: max. 130 Ω/km
0.8 mm: max. 73.2 Ω/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of double cores	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
J-Y(ST)Y...LG copper conductor 0.6 mm				
1591301	2	5.5	13	40
1591302	3	6.3	18	50
1591303	4	6.7	24	60
1591304	5	7.2	30	70
1591305	6	7.5	35	80
1591306	8	8	46	90
1591307	10	9	58	110
1591308	12	9.5	71	130
1591310	16	10.5	93	160
1591311	20	11	116	190
1591312	24	11.5	139	220
1591313	30	13	172	280
1591315	50	17	286	430
1591318	100	23	568	850

Article number	Number of double cores	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
J-Y(ST)Y...LG copper conductor 0.8 mm				
1591500	1	6	11	40
1591501	2	7	21	60
1591502	3	8.5	31	80
1591503	4	9	41	100
1591505	6	10.5	62	140
1591506	8	11.5	82	170
1591507	10	13	102	220
1591508	12	14	123	250
1591511	20	16.5	204	380

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- J-2Y(ST)Y...ST III BD refer to page 321

Accessories

- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

J-Y(ST)Y...LG Fire Alarm Cable

Installation cable in accordance with DIN VDE 0815 with red outer sheath

Benefits

- The cable is marked with the phrase “Fire alarm cable” at regular intervals on the sheath. It is therefore used especially for installation in fire alarm systems.
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- This installation cable is used to transmit signals.
- For fixed installation on and under plaster, in dry and damp rooms
- For outdoor use this cable should be installed under plaster only

Product features

- The 2-pair version (2x2x0.8) is twisted into a star quad
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on DIN VDE 0815 type J-Y(ST)Y...LG

Product Make-up

- Solid bare copper conductor
- Core insulation made of PVC
- Cores twisted in pairs, pairs twisted together, foil wrapping over cable core, static screen made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC Outer sheath colour: flame red (RAL 3000)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

Core identification code
according to VDE 0815, refer to Appendix T10

Peak operating voltage
(not for power applications) 300 V

Coupling
(800 Hz): K1: 80% ≤ 300 pF/100m

Conductor cross-section in
0.8 mm: 0.50 mm²

Cable attenuation/attenuation
0.8 mm: 1.1 dB/km

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 800 V
Core/screen: 800 V

Loop resistance
max. 73.2 Ω/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
J-Y(ST)Y...LG Fire Alarm Cable				
1708001	1 x 2 x 0.8	6	11	40
1708002	2 x 2 x 0.8	7	21	60
1708004	4 x 2 x 0.8	9	41	100
1708010	10 x 2 x 0.8	13.5	102	220

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Cable shears with double edge refer to page 980
- STAR STRIP stripping tool refer to page 985
- KS 20 cable shears

J-2Y(ST)Y...ST III BD

Installation cable in accordance with DIN VDE 0815 with PE core insulation

Benefits

- Suitable for data transmission rates of up to 16 Mbits/s
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields

Application range

- Connection cable for use in electronics and in measurement, control and signal applications
- Examples of use: for connecting EDP system units or for circuits for airfield lighting, ISDN private branch exchanges, operating data acquisition, operating data entry, access control and time recording systems, industrial electronics, all designed for maximum security and speed
- Can be used in dry and wet interiors for fixed installation on and under plaster

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on DIN VDE 0815

Product Make-up

- Solid bare copper conductor
- Core insulation made of polyethylene (PE)
- Cores twisted into star quads, 5 star quads are twisted into a bundle, bundles stranded in layers
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC Outer sheath colour: pebble grey (RAL 7032)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

Core identification code
according to VDE 0815, refer to Appendix T10

Mutual capacitance
(800 Hz) max. 52 nF/km

Peak operating voltage
(not for power applications) 300 V

Coupling
K1: 98 % <400 pF/300 m
K9-12: 98 % < 100 pF/300 m

Conductor cross-section in
0.6 mm: 0.28 mm²

Cable attenuation/attenuation
At 16 MHz: < 8 dB/100 m

Minimum bending radius
Fixed installation: 10 x outer diameter

Short-range crosstalk attenuation
4-16 MHz: 2-pair ≥ 45 dB
4-16 MHz: >2-pair ≥ 20 dB

Test voltage
Core/core: 500 V
Core/screen: 2000 V

Loop resistance
max. 130 Ω/km

Characteristic impedance
100 Ω ± 15%

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
J-2Y(ST)Y...ST III BD				
0034171	2 x 2 x 0.6	5.5	13	40
0034173	4 x 2 x 0.6	7.5	24	60
0034176	10 x 2 x 0.6	9.5	58	148
0034178	20 x 2 x 0.6	13.5	116	190

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® Li2YCY (TP) refer to page 291

Accessories

- STAR STRIP stripping tool refer to page 985

J-H(ST)H...BD

Halogen-free installation cable in accordance with DIN VDE 0815

Info

- In accordance with DIN VDE 0815

J-H(ST)H...BD Fire Alarm Cable

Halogen-free installation cable in accordance with DIN VDE 0815 with red outer sheath

Benefits

- Used to meet enhanced fire protection requirements concerning protection of people and high-value property
- Does not emit any toxic or corrosive gases in the event of fire and resists the spread of fire
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- J-H(ST)H...BD Fire Alarm Cable is marked with the phrase “Fire alarm cable” at regular intervals on the sheath. It is therefore used especially for installation in fire alarm systems.

Application range

- This halogen-free, flame-retardant installation cable with static screen is used for telephone, data and signal transmission in subscriber stations and private branch exchange construction for telephone systems
- For fixed installation on and under plaster, in dry and damp rooms

Product features

- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)
- Halogen-free according to EN 50267-2-1/-2

Norm references / Approvals

J-H(ST)H...BD

- In accordance with DIN VDE 0815 type J-H(ST)H...BD

J-H(ST)H...BD Fire Alarm Cable

- Based on DIN VDE 0815

Product Make-up

J-H(ST)H...BD

- Solid bare copper conductor
- Core insulation made of special halogen-free compound
- Cores twisted into star quads, 5 star quads are twisted into a bundle, bundles stranded in layers
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of special halogen-free compound
  Outer sheath colour: grey (RAL 7001)

J-H(ST)H...BD Fire Alarm Cable

- Solid bare copper conductor
- Core insulation made of special halogen-free compound
- Cores twisted into star quads, 5 star quads are twisted into a bundle, bundles stranded in layers
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of special halogen-free compound
  Outer sheath colour: flame red (RAL 3000)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description:
Signal-/telecommunications cable

Core identification code
according to VDE 0815,
refer to Appendix T10

Mutual capacitance
max. 120 nF/km

Peak operating voltage
(not for power applications)
300 V

Coupling
K1: approx. 300 pF/100 m
K9-12: approx. 100 pF/100 m

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 800 V
Core/screen: 800 V

Loop resistance
0.6 mm: max. 130 Ω/km
0.8 mm: max. 73.2 Ω/km

Conductor cross-section
0.6 mm: 0.28 mm²
0.8 mm: 0.50 mm²

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
J-H(ST)H...BD				
30017787	2 x 2 x 0,8	7	25	77
30017788	4 x 2 x 0,8	9.2	45	135
J-H(ST)H...BD Fire Alarm Cable				
30017798	2 x 2 x 0,8	7	25	77
30017801	10 x 2 x 0,8	11.3	106	250

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

A-2Y(L)2Y...ST III BD Telephone Outdoor Cable

A-2YF(L)2Y...ST III BD Outdoor Cable

Application range

- External cables for telecommunication and data processing systems
- Do not install cables that are meant to be placed in ducts or for direct burial in areas exposed to fire hazards

Product features

- Outer sheath colour: black (RAL 9005)
- UV-resistant and laterally watertight
- Filled version (A-2YF(L)2Y...ST III BD) is addionally longitudinal watertight

Norm references / Approvals

- In accordance with DIN VDE 0816

Product Make-up

A-2Y(L)2Y...ST III BD Telephone Outdoor Cable

- Solid bare copper conductor
- Core insulation made of polyethylene (PE)
- 5 star-quads are twisted into each basic unit, which is then twisted together with the main unit to form the cable core
- Paper tape wrapping
- Laminated sheath with aluminium-coated plastic tape, PE outer sheath

A-2YF(L)2Y...ST III BD Outdoor Cable

- Similar to A-2Y(L)2Y, but with petroleum-jelly filling, laminated sheath made of aluminium-coated plastic tape, and black PE outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description:
Signal-/telecommunications cable

Core identification code
According to VDE 0816,
refer to Appendix T10

Mutual capacitance
At 800 Hz: max. 52 nF/km

Peak operating voltage
(not for power applications) 225 V

Coupling
K1: 98 % <400 pF/300 m
K9-12: 98 % < 100 pF/300 m

Conductor cross-section in
0.6 mm: 0.28 mm²
0.8 mm: 0.50 mm²

Cable attenuation/attenuation
A-2Y(L)2Y...ST III BD Telephone Outdoor Cable
At 800 Hz 0.6 mm: approx. 1.04 dB/km
At 800 Hz 0.8 mm: approx. 0.78 dB/km
A-2YF(L)2Y...ST III BD Outdoor Cable
At 800 Hz 0.6 mm: approx. 1.0 dB/km
At 800 Hz 0.8 mm: approx. 0.8 dB/km

Minimum bending radius
10 x outer diameter

Test voltage
Core/core: 500 V
Core/screen: 2000 V

Loop resistance
0.6 mm: 130 Ω/km
0.8 mm: 73.2 Ω/km

Temperature range
During installation: -20 °C to +50 °C
After installation: ≤ +70 °C

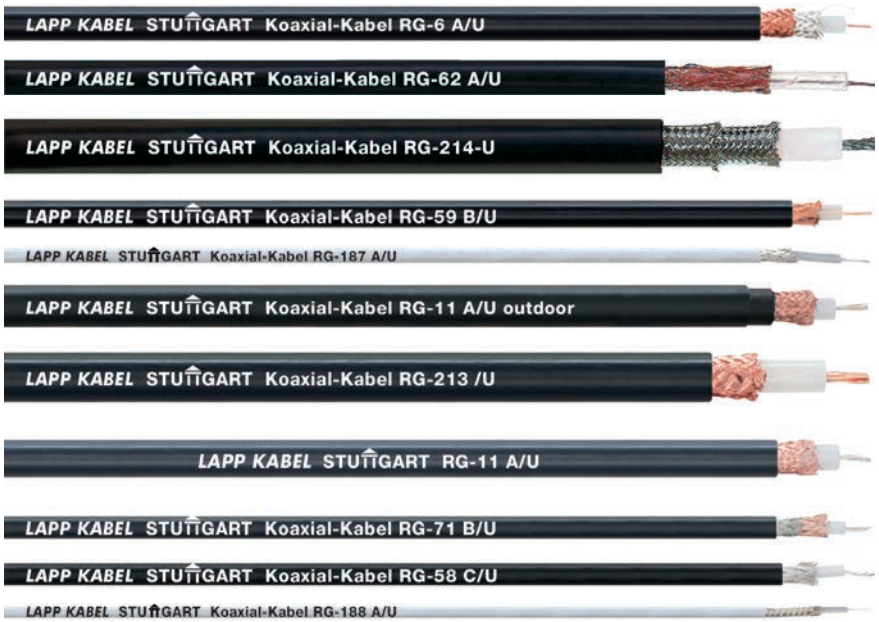
Article number	Number of double cores	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
A-2Y(L)2Y...STIII BD copper conductor 0.6 mm				
1591050	2	8.1	11	80
1591052	6	10.3	34	130
1591053	10	11.5	57	165
A-2Y(L)2Y...ST III BD copper conductor 0.8 mm				
1591150	2	8.6	20	100
1591151	4	10.9	40	160
1591152	6	11.5	60	175
1591153	10	13.5	101	235
1591154	20	17.3	201	390
A-2YF(L)2Y...ST III BD copper conductor 0.6 mm				
1591028	2	8.3	11	67
1591029	4	10.4	23	104
1591030	6	11	34	130
1591031	10	12.5	57	180
1591032	20	16	113	300
1591033	30	19	170	420
1591035	50	22.3	283	620
1591037	100	30.5	565	1225
A-2YF(L)2Y...ST III BD copper conductor 0.8 mm				
1591217	2	8.8	20	83
1591218	4	11.2	40	134
1591221	6	12	60	180
1591222	10	14	101	250
1591223	20	19.1	201	460
1591224	30	22	302	630
1591225	40	24	402	800
1591226	50	26	503	975
1591228	100	36	1005	1900

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- Multipurpose shears A and B
- STAR STRIP stripping tool refer to page 985

Coaxial - RG



Benefits

- Coaxial cables allow distortion-free and low-attenuation transmission of signals with a high bandwidth.
- High frequencies

Application range

- For applications with limited movements and for fixed installation in dry or damp interiors and outdoors
- For radio and computer systems, as well as all applications related to commercial radio-frequency technology and electronics

Product features

- Flame-retardant

Product Make-up

- Coaxial cables are significantly less sensitive to external interference due to their structure.

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000019
ETIM 5.0/6.0 Class-Description:
Coaxial cable

Dielectric constant
- Polyethylene (PE) 2.3-
Polyethylene, hollow (PE-ho) 1.5-
Polytetrafluoroethylene (PTFE) 2.1

Minimum bending radius
Fixed installation: 6 x outer diameter

Specifications and approvals
Similar to MIL-DTL17 H

Temperature range
Fixed installation: PE outer sheath:
-40°C to +80°C
Fixed installation: PVC outer sheath:
-40°C to +80°C
Fixed installation: fluoroplastic
-55°C to +250°C

Article number	Article designation	Characteristic impedance in Ω	Capacity pF/m	Attenuation approx. dB/100 m at 200 MHz/400 MHz	Propagation rate (%)	Operating voltage 50 Hz eff. kV	Test voltage (kV)	Inner conductor material	Internal Ø	Dielectric material	Dielectric Ø	Outer conductor material	Outer cable sheath	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Characteristic impedance: 50 Ω																
2170000	RG-58 C/U	50 +/- 2 Ω	101	24 / 33	66	2	5	CuLivz	0.9	PE	2.95	Cvz	PVC	4.95	19.1	38
2170001	RG-174 A/U	50 +/- 2 Ω	101	40 / 59	66	1.5	2	StCuLibl	0.48	PE	1.52	Cvz	PVC	2.80	5.4	12
2170002	RG-178 B/U	50 +/- 2 Ω	95	63 / 93	70	0.7	2	StCuLivs	0.3	PTFE	0.86	Cvs	FEP	1.91	4.4	9
2170003	RG-188 A/U	50 +/- 2 Ω	95	47 / 56	70	1.5	2	StCuLivs	0.51	PTFE	1.52	Cvs	PTFE	2.76	8.3	17.5
2170005	RG-213 /U	50 +/- 2 Ω	101	10 / 15	66	5	10	CuLibl	2.25	PE	7.25	Cbl	PVC	10.30	75.8	157
2170006	RG-214 /U	50 +/- 2 Ω	101	9 / 14	66	5	10	CuLivs	2.25	PE	7.25	CvsCvs	PVC	10.80	117.8	207
2170007	RG-223 /U	50 +/- 2 Ω	101	23 / 34	66	2	3	CuMvs	0.89	PE	2.95	CvsCvs	PVC	5.50	38.5	60
Characteristic impedance: 75 Ω																
2170016	RG-6 A/U	75 +/- 3 Ω	67	14 / 20	66	2	5	StCuMbl	0.72	PE	4.7	Cbl	PVC	8.40	72	120
2170009	RG-11 A/U	75 +/- 3 Ω	67	11 / 16	66	5	10	CuLivz	1.2	PE	7.3	Cbl	PVC	10.30	55.5	140
2170011	RG-11 A/U outdoor	75 +/- 3 Ω	67	11 / 16	66	5	10	CuLivz	1.2	PE	7.3	Cbl	PVC	12.10	55.5	170
2170012	RG-59 B/U	75 +/- 3 Ω	67	16.5/23	66	1.7	7	StCuMbl	0.6	PE	3.7	Cbl	PVC	6.15	25	57
2170010	RG-187 A/U	75 +/- 3 Ω	65	47 / 56	70	1.5	2	StCuLivs	0.31	PTFE	1.52	Cvs	PTFE	2.80	7.3	17
Characteristic impedance: 100 Ω																
2170008	RG-62 A/U	93 +/- 5 Ω	43	15 / 19	75	0.8	2	StCuMbl	0.65	PE hollow	3.7	Cbl	PVC	6.15	26	52

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Multi coaxial cabels RG 59 B/U

Benefits
- In extended systems, the use of the RG 59 B/U multi-coaxial cable as a screened supply cable prevents an accumulation of individual cables running in parallel over long distances.
- This saves installation costs and provides greater mechanical protection for the each sensitive cable.

Product features
- Multi-coaxial cables provide an easier installation than individual installation

Product Make-up
- 2 x single coaxial cables type RG 59 B/U
- Twin cable
- PVC sheath
- Colour: black

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000019
ETIM 5.0/6.0 Class-Description:
Coaxial cable

Based on
Similar to MIL specification MIL-DTL17 H

Minimum bending radius
Fixed installation: 15 x outer diameter

Temperature range
Fixed installation: -40°C to +80°C

Article number	Number of single cables x RG type	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Characteristic impedance: 75 Ω				
2170056	2 x RG 59 B/U	6.5 x 13.0	50	116

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Coaxial cabels RGB

Info
- Connecting Cable for Colour Monitors

Benefits
- Low attenuation ensures a longer transmission distance
- Transmission of the red (R), green (G) and blue (B) colour signals

Application range
- Colour monitor cable for PCs and CAD workstations, process visualisation
- For fixed installation in rooms (RGB CY..x Kx 0.4/1.8)
- For highly flexible applications in power chains (energy supply chains) and continuously moving machine components (RGB-FD..x Kx 0.6L/2.4)

Product Make-up
- Conductor: tinned-copper wire
- Dielectric: cellular polyolefin
- Outer conductor: copper braiding or tinned-copper wire wrapping
- Red (R), green (G), blue (B) elements - for RGB 5 x Kx 0.4/1.8 red, green, blue, white, black
- PVC outer sheath
  FD Version with PUR outer sheath

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000019
ETIM 5.0/6.0 Class-Description:
Coaxial cable

Mutual capacitance
60 nF/km

Minimum bending radius
15 x outer diameter

Characteristic impedance
75 Ω

Temperature range
-10 °C to +80 °C
Occasional flexing: -5°C to +70°C

Article number	Article designation	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Fixed Installation				
0034245	RGB CY 3 x Kx 0,4/1,8 + 3 x 0,25	8.0	51	97
0034246	RGB DY 5 x Kx 0,4/1,8	9.7	60	132
Flexible and highly flexible applications				
0034247	RGB-FD 3 x Kx 0,6L/2,4	10.8	29	100

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- STAR STRIP stripping tool refer to page 985
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

UNITRONIC® BUS LD

Flexible buscable with PVC outer sheath, for use in different bussystems

Info

- LD is a LAPP abbreviation for long distance

Benefits

- Suitable for multiple Bus systems based on RS485 / RS422

Application range

- For fixed installation
  Maximum electromagnetic screening
- Bus cables for bus systems such as e.g. Modbus, SUCOnet P, Modulink P, VariNet-P)
- Dry or damp rooms

Product features

- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 9.6-93.75 kbit/s = 1200m
- 187.5 kbit/s = max. 1,000 m
- 500 kbit/s = max. 400 m

Norm references / Approvals

- UNITRONIC® BUS LD A:
  UL versions with certification:
  UL/CSA type CMX acc. to UL 444 and CSA C22.2 no. 214-02
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation: PE
- Colour code DIN 47100
- Overall screening of braided tinned-copper strands
- Outer sheath: PVC, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
Flexible use: 10 x outer diameter

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 186 Ω/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 - 120 Ω

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -5°C to +70°C

Article number	Article designation	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
for fixed installation					
2170203	UNITRONIC® BUS LD	1 x 2 x 0,22	5.7	18	37
2170204	UNITRONIC® BUS LD	2 x 2 x 0,22	7.1	28	45
2170205	UNITRONIC® BUS LD	3 x 2 x 0,22	7.2	37	72
For fixed installation - UL/CSA CMX certification					
2170803	UNITRONIC® BUS LD A	1 x 2 x 0,22	5.7	18	39

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Modubus is owned by the Modbus-IDA Organisation. SUCOnet P is a registered trademark of the Moeller Group. Modulink P is a registered trademark of Weidmüller GmbH & Co. VariNet is a registered trademark of Pepperl+Fuchs GmbH.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS LD FD P

Highly flexible buscable with PUR outer sheath, for use in different bussystems

Info

- LD is a LAPP abbreviation for long distance

Benefits

- Suitable for multiple Bus systems based on RS485 / RS422
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- Under consideration of the temperature range also suitable for outdoor use

Application range

- For highly flexible applications (power chains, moving machine parts)
- Bus cables for bus systems such as e.g. Modbus, SUCOnet P, Modulink P, VariNet-P)

Product features

- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 9.6-93.75 kbit/s = 1200m
- 187.5 kbit/s = max. 1,000 m
- 500 kbit/s = max. 400 m
- UV-resistant (but colour may change after some time)

Norm references / Approvals

- UNITRONIC® BUS LD FD P A:
  UL versions with certification:
  UL/CSA type CMX acc. to UL 444
  and CSA C22.2 no. 214-02
- Flame-retardant according IEC 60332-1-2

Product Make-up

- Extra-fine wire strand made of bare copper
- Colour code DIN 47100
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz) max. 60 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 159.8 Ω/km

Minimum bending radius
Fixed installation: 6 x core diameter
One bend at end of core:
3 x cable diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 - 120 Ω

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

Article number	Article designation	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications					
2170213	UNITRONIC® BUS LD FD P	1 x 2 x 0,25	6	18	39
2170214	UNITRONIC® BUS LD FD P	2 x 2 x 0,25	7.9	33	65
2170215	UNITRONIC® BUS LD FD P	3 x 2 x 0,25	8	39	77
For highly flexible applications - with UL/CSA CMX certification					
2170813	UNITRONIC® BUS LD FD P A	1 x 2 x 0,25	6.2	18	39
2170814	UNITRONIC® BUS LD FD P A	2 x 2 x 0,25	8.3	33	65
2170815	UNITRONIC® BUS LD FD P A	3 x 2 x 0,25	8.4	39	77

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Modubus is owned by the Modbus-IDA Organisation. SUCOnet P is a registered trademark of the Moeller Group. Modulink P is a registered trademark of Weidmüller GmbH & Co. VariNet is a registered trademark of Pepperl+Fuchs GmbH.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SMART STRIP stripping tool

UNITRONIC® BUS ASI

AS-INTERFACE cables for networking systems in the field

Info

- "LD" = Long Distance

Benefits

- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected.
  AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- The rubber versions are halogen-free

Application range

- Communication at sensor/actuator level
- Sensor-/actuator wiring
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- The TPE version has an oil-resistant outer sheath. It is suitable for wet areas, in particular in conjunction with water-soluble cooling lubricants.

Product features

- Data and power are transmitted via an unscreened, geometrically coded two-core flat cable (protection against polarity reversal).
- The conductor is contacted by "piercing technology" within the ASI modules.
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables).

Norm references / Approvals

- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- PVC A version with UL/CSA (CMX) certification
- UL/CSA version: CMG c(UL)us or (UL)CL2 or AWM 300V FT4 certified

Product Make-up

- Conductor: fine-wire tinned-copper strands
- Core insulation: blue and brown
- Outer sheath:
  rubber (G), halogenfree
  thermoplastic elastomers (TPE)
  PVC
- Outer sheath: yellow (RAL 1023), black (RAL 9005), red (RAL 3000)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Peak operating voltage
Yellow: 300 V (not for power applications)
Black: 300 V (not for power applications)
Red: 300 V

Conductor resistance
1.5 mm²: max. 13.7 Ω/km
2.5 mm²: max. 8.21 Ω/km

Minimum bending radius
Fixed installation: 12 mm
Flexible use 24 mm

Test voltage
Core/core: 2000 V

Temperature range
Dependent on outer sheath material:
PVC: -30°C to +90°C
Other materials: -40°C to +85°C
During installation:
PVC -20 °C to +90 °C
Other materials:
-30 °C to +85 °C

Article number	Article designation	Outer sheath colour	Application	Number of cores and mm² per conductor	Copper index (kg/km)	Weight (kg/km)
Gummi/EPDM						
2170228	UNITRONIC® BUS ASI (G)	yellow	Data and power transmission	2 x 1,5	29	85
2170229	UNITRONIC® BUS ASI (G)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	85
2170371	UNITRONIC® BUS ASI LD (G)	yellow	Data and power transmission	2 x 2,5	48	85
2170372	UNITRONIC® BUS ASI LD (G)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48	85
TPE						
2170230	UNITRONIC® BUS ASI (TPE)	yellow	Data and power transmission	2 x 1,5	29	64
2170231	UNITRONIC® BUS ASI (TPE)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	64
2170232	UNITRONIC® BUS ASI (TPE)	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29	64
PVC						
2170842	UNITRONIC® BUS ASI (PVC) A	yellow	Data and power transmission	2 x 1,5	29	70
2170843	UNITRONIC® BUS ASI (PVC) A	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	70
2170844	UNITRONIC® BUS ASI (PVC) A	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29	70

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Lapp Kabel is a member of the AS-International Association
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® DIX-M AUTOMATION refer to page 719
- AS-I clip clamp / AS-I end sealing
- UNIVERSAL STRIP stripping tool refer to page 990
- AS-I STRIP special stripping tool refer to page 987
- AS-I STRIP special
- SKINTOP® DIX ASI

UNITRONIC® BUS ASI FD

High flexible AS-INTERFACE cables for networking systems in the field

Info

- "FD" = suitable for power chains
- "LD" = Long Distance

Benefits

- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected. AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- For highly flexible applications (power chains, moving machine parts)
- High oil-resistance

Application range

- Communication at sensor/actuator level
- Sensor-/actuator wiring

Product features

- PUR versions are halogen-free according to IEC 60754-1
- Flame-retardant according to IEC 60332-1-2, UL FT-2 flame test
- Data and power are transmitted via an unscreened, geometrically coded two-core flat cable (protection against polarity reversal).
- The conductor is contacted by "piercing technology" within the ASI modules.
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables).

Norm references / Approvals

- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- TPE variant: UL AWM Style 2103 CSA AWM II A/B
- PUR versions: UL AWM Style 20549

Product Make-up

- Extra-fine wire, tinned copper strands
- Core insulation: halogen-free compound
- Outer sheath:
  TPE
  PUR
- Outer sheath: yellow (RAL 1023), black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Peak operating voltage
300 V (not for power applications)

Conductor resistance
1.5 mm²: max. 13.7 Ω/km
2.5 mm²: max. 8.21 Ω/km

Minimum bending radius
Fixed installation: 12 mm
Flexing without fixing: 24 mm
Flexing with fixing: 60 mm (15 x D)

Test voltage
Core/core: 2000 V

Temperature range
Fixed installation:
-40°C to +80°C (TPE +105°C)
Flexing without fixing:
-30 °C to +70 °C (TPE +105 °C)

Article number	Article designation	Outer sheath colour	Application	Number of cores and mm² per conductor	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications (power chains, moving machine parts)						
2170357	UNITRONIC® BUS ASI FD P FRNC	yellow	Data and power transmission	2 x 1,5	29	64
2170358	UNITRONIC® BUS ASI FD P FRNC	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	64
2170317	UNITRONIC® BUS ASI LD FD P	yellow	Data and power transmission	2 x 2,5	48	74
2170318	UNITRONIC® BUS ASI LD FD P	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48	74
For high flexible application - TPE UL/CSA (AWM)						
2170830	UNITRONIC® BUS ASI FD (TPE) A	yellow	Data and power transmission	2 x 1,5	29	64
2170831	UNITRONIC® BUS ASI FD (TPE) A	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	64

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Lapp Kabel is a member of the AS-International Association
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® DIX-M AUTOMATION refer to page 719
- AS-I clip clamp / AS-I end sealing
- UNIVERSAL STRIP stripping tool refer to page 990
- AS-I STRIP special stripping tool refer to page 987
- AS-I STRIP special
- SKINTOP® DIX ASI

ASI Distributor

AS-Interface Distributor

Benefits

- Cost-efficient and rational wiring for AS-Interface installations
- Space-saving due to compact dimensions
- Easy to install

Product features

- Field mountable distributor with flat cable clamp
- On 2 flat cables or straight M12 socket (A-coded)
- Suitable for drag chains
- Panel mounting
- Rated current ≤ 4 A (H-distributor: I ≤ 8 A)

Product Make-up

- Wire cross-section: 0,34 mm²
- Colour-code: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR halogen-free, black

Suitable cables

- UNITRONIC® BUS ASI Page 328
- UNITRONIC® BUS ASI FD Page 329

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description:
Passive sensor-actuator interface

Connection type
Penetration technique for flat cable

Protection rating
IP 67
(H-distributor: IP69)

Ambient temperature (operation)
-25°C to +75°C

Article number	Article designation	Length (m)	PU
Distribution of 1 flat cable			
on 2 flat cables (H distributor)			
22260802	AB-ASI-J-Y-Y-N		1
on M12 socket (2-pos.)			
22260800	AB-ASI-J-Y-N-M12FS		1
22260803	AB-ASI-J-Y-N-PUR-1,0-M12FS	1	1
22260804	AB-ASI-J-Y-N-PUR-2,0-M12FS	2	1
Distribution of 2 flat cables			
on M12 socket (4-pos.)			
22260801	AB-ASI-J-Y-B-M12FS		1
22260805	AB-ASI-J-Y-B-PUR-1,0-M12FS	1	1
22260806	AB-ASI-J-Y-B-PUR-2,0-M12FS	2	1

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set refer to page 1060

UNITRONIC® BUS PB TRAY

PROFIBUS cable with PLTC-ER approval for unprotected use on cable trays

Info

- PLTC-ER (power limited tray cable - epxosed run)

Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- PLTC-ER approval for open wiring between cable tray and industrial machines/plants acc. to NEC 725.154 (D)
- No additional protection of the cable needed

Application range

- For fixed installation or applications with occasional movements
- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m
- UV-resistant UL SUN RES
- Flame retardant acc. UL 1685 - FT4 (vertical tray)

Norm references / Approvals

- c(UL)us Typ CMG (75°C) acc.to UL 444 / CSA 22.2
- UL Type PLTC-ER acc. to UL 13

Product Make-up

- Bare copper wire, 0,64 mm diameter
- Core colours: red, green
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC inner sheath and outer sheath
- Colour: violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(1 kHz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Impedance
150 +/- 15 Ω

Conductor resistance
(loop): max. 110 Ω/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
150 ± 15 Ω

Temperature range
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB TRAY					
2170856	UNITRONIC® BUS PB TRAY	1x2x0,64	8.4	26	82

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors

UNITRONIC® BUS PB

PROFIBUS cables for fixed applications

Info

- Lapp Kabel is a member of the PROFIBUS User Organisation (PNO)
- A for Advanced
  here: UL and CSA certifications

Application range

- For fixed installation
  Maximum electromagnetic screening
- Dry or damp rooms
- Item nos. 2170233, 2170333, 2170820, 2170824, 2170826 are all UV-resistant

Product features

- These bus cables can be used for PROFIBUS-DP as well as for PROFIBUS-FMS and FIP
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)
- See below for UL certification type

Product Make-up

- FC: Fast Connect cable design
- P: Polyurethane
  H: Halogen-free
- PE: polyethylene outer sheath, black
- 7-W: 7-wire, e.g. for applications where vibrations occur
- COMBI: Data transmission and power supply in one cable

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 186 Ω/km.
see also datasheet

Minimum bending radius
Fixed installation: see data sheet

Test voltage
Core/core: 1500 V rms

Characteristic impedance
150 ± 15 Ω

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Conventional cable makeup					
2170220	UNITRONIC® BUS PB	1 x 2 x 0.64	8	30.1	74
2170233	UNITRONIC® PB PE	1 x 2 x 0.64	8	30.1	57
2170226	UNITRONIC® BUS PB H 7-W	1 x 2 x 0.64	8	30.1	55
2170225	UNITRONIC® BUS PB COMBI 7-W	1 x 2 x 0,64 Ø + 3 x 1,0 mm²	9.8	59	92
Conventional cable makeup - UL/CSA CMX certification					
2170219	UNITRONIC® BUS PB A	1 x 2 x 0.64	8		57
Conventional cable makeup - UL/CSA CMG certification					
2170824	UNITRONIC® BUS PB 7-W A	1 x 2 x 0.64	8	30.1	55
Fast Connect					
2170333	UNITRONIC® BUS PB PE FC	1 x 2 x 0.64	8	26	67
Fast Connect - UL/CSA CMX certification					
2170330	UNITRONIC® BUS PB P FC	1 x 2 x 0.64	8	26	71
Fast Connect cable makeup - UL/CSA CMG certification					
2170820	UNITRONIC® BUS PB FC	1 x 2 x 0.64	8	26	84
2170826	UNITRONIC® BUS PB 7-W FC	1 x 2 x 0.64	8	26	67
2170326	UNITRONIC® BUS PB-H FC	1 x 2 x 0.64	8	26	72

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC NET® is a registered trademark of Siemens AG
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® BUS PB ROBUST refer to page 333
- UNITRONIC® BUS PB 105 refer to page 334

Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 986
- SENSOR STRIP stripping tool refer to page 987

UNITRONIC® BUS PB ROBUST

Halogen-free PROFIBUS cable - resistant to a wide range of chemical media

Info

- Excellent weather resistance
- Good chemical resistance

Benefits

- Robust PROFIBUS cable for use under harsh environmental conditions

Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- Fixed Installation

Product features

- Significantly extended use and application areas, water and chemical resistance for use in industrial conditions.
- High resistance to tensides, soaps etc.
- UV-resistant
- Flame-retardant according IEC 60332-1-2
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Product Make-up

- Solid and bare copper conductor
- Core insulation: cellular PE, O2Y(S)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: Specially formulated TPE, violet (RAL 4001)
- With conventional cable design

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(1 kHz): approx. 28.5 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 75 mm

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ω

Temperature range
-40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
for fixed installation					
2170620	UNITRONIC® BUS PB ROBUST	1 x 2 x 0.64	8	26	55

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors

UNITRONIC® BUS PB 105

PROFIBUS cable with an extended temperature range up to +105°C

Application range

- Cable has been designed for use in factory halls where temperatures up to max. 105°C may occur.

Product features

- High temperature resistance
- Flame-retardant according IEC 60332-1-2
- Oil-resistant

Product Make-up

- Stranded conductor, 7-wire, bare
- Conductor diameter: 0,64 mm (AWG24)
- Core insulation: PP
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
Approx. 28.5 nF/km

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 45 mm once
Flexing: 65 mm

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ω

Temperature range
-30°C to +105°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB 105					
2170630	UNITRONIC® BUS PB 105	1 x 2 x 0.64	8	30.1	72

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Multipurpose shears A and B

UNITRONIC® BUS PB 105 plus

PROFIBUS cable with an extended temperature range up to +105°C; short term +120°C

Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance

Application range

- For installation in hollow shaft between gear units and pitch system
- Suitable for fixed installation and occasionally flexible use in high temperature areas

Product features

- Permanent load up to +105°C, temporary load +120°C

Norm references / Approvals

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)

Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: polypropylene (PP)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: TPE, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 45 mm once
Flexing: 65 mm

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V eff.

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ω

Temperature range
Fixed installation: -40°C to +105°C
Short-term: up to +120 °C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)
UNITRONIC® BUS PB 105 plus				
2170635	UNITRONIC® BUS PB 105 plus	1x2x0,64	8	30.1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB HEAT 180

PROFIBUS cable with an extended temperature range up to +180°C

Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance

Application range

- Fixed Installation
- For use in high temperature areas with up to 180 °C

Product features

- High oil-resistance

Product Make-up

- Solid and bare copper conductor
- Wire insulation Fluorethylen
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: FEP, violet (RAL 4001)

Suitable connectors

- Sub-D Bus-Connectors

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
approx. 28 nF / km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Repeated: 7 x Outer Diameter
Single: 5 x Outer Diameter

Test voltage
3600 V DC (3 sec.)

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ω

Temperature range
-50 to +180°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB HEAT 180				
3031981	UNITRONIC® BUS PB HEAT 180	1 x 2 x 0,64	21.7	0.064

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB FRNC FC

FRNC PROFIBUS cable UL/CSA certified

Info

- FRNC = Flame Retardant Non Corrosive
  - Reduction of flame-propagation and density and toxicity of smoke gases in the event of fire
  - Minimisation of damage to buildings and production facilities
  - Safety for staff and in areas with high density of people

Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Fast Connect (FC) cable design

Application range

- This cable provides special advantages for use in sensitive areas where fire propagation must be avoided and the presence of toxic fumes would cause personal injury and damage to equipment.

Product features

- Halogen-free
- High flame retardancy in accordance with IEC 60332-3 and FT4
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- UL/CSA-certified

Product Make-up

- Solid and bare copper conductor
- Core insulation: PE
- Inner sheath, screening foil and braiding
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Certifications
UL/CSA (CMG)

Mutual capacitance
Approx. 28.5 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
80 mm

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ω

Temperature range
-30°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Fixed Installation					
2170853	UNITRONIC® BUS PB FRNC FC	1 x 2 x 0.64	8	30.1	75

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 986

UNITRONIC® BUS PB ARM

Armored PROFIBUS cable for use in harsh industrial environments

Benefits

- EMC-optimised design

Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Flame-retardant according IEC 60332-1-2
- UV-resistant

Product Make-up

- Solid and bare copper conductor
- Core insulation: cellular PE, O2Y(S)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Overlapping plastic tape
- Copper tape, welded longitudinally
  Outer sheath: PVC, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 100 V

Minimum bending radius
Fixed installation: 7.5 x outer diameter
Fixed installation: 3.5 x cable diameter once

Test voltage
3600 V DC (3 sec.)

Characteristic impedance
150 ± 15 Ω

Temperature range
-40°C to +70°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB ARM					
2170247	UNITRONIC® BUS PB ARM	1 x 2 x 0.65	11.1	86.9	131

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB Yv

PROFIBUS cable with reinforced PVC outer sheath for outdoor/direct burial use

Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Reinforced outer sheath made of PVC

Product Make-up

- Solid and bare copper conductor
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: reinforced PVC, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 75 mm once
Fixed installation: 150 mm

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
150 ± 15 Ω

Temperature range
Flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Suitable for outdoor use and direct burial					
2170223	UNITRONIC® BUS PB Yv	1 x 2 x 0.64	9.4	30.1	106

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB YY

PROFIBUS cable with double PVC outer sheath for outdoor/direct burial use - Fast Connect cable make up

Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Double PVC outer sheath

Product Make-up

- Solid and bare copper conductor
- Core insulation: PE
- Overall screening with copper braid and plastic-laminated aluminium foil
- Inner sheath: PVC, violet RAL (4001), outer diameter: 7.4 mm
- Outer sheath, PVC, black RAL (9005), outer diameter: 9.5 mm

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 75 mm once
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
150 ± 15 Ω

Temperature range
Flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Suitable for outdoor use and direct burial					
2170236	UNITRONIC® BUS PB YY	1 x 2 x 0.64	9.5	30.1	87

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors
- Multipurpose shears A and B

UNITRONIC® BUS PB BURIAL FC

PROFIBUS cable with double outer sheath for outdoor/direct burial use

Benefits

- Fast Connect (FC) cable design
- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Second PE outer sheath

Product Make-up

- Solid and bare copper conductor
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Inner sheath: PVC, violet RAL (4001), outer diameter: 8.0 mm
- Outer sheath, PE, black RAL (9005), outer diameter: 10.8 mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 100 V

Minimum bending radius
Fixed installation: 3.5 x cable diameter once
Fixed installation: 7.5 x outer diameter

Test voltage
3600 V DC (3 sec.)

Characteristic impedance
150 ± 15 Ω

Temperature range
-40 °C to +60 °C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Suitable for outdoor use and direct burial					
2170323	UNITRONIC® BUS PB BURIAL FC	1 x 2 x 0.64	10.8	26	115

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 986

UNITRONIC® BUS PB Y 7-W FC BK

UV-resistant PROFIBUS cable for outdoor applications

Benefits

- Fast Connect (FC) cable design
- 7-W: 7-wire, e.g. for applications where vibrations occur
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- UV-resistant and weather-resistant
- Resistant to acids, alkalis and certain oils at room temperature

Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC, black RAL (9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
150 ± 15 Ω

Temperature range
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB Y 7-W FC BK					
2170310	UNITRONIC® BUS PB Y 7-W FC BK	1 x 2 x 0.64	7.8	30.1	80

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 986

UNITRONIC® BUS PB FD P

Halogenfree, highly flexible PROFIBUS cable

Benefits

- Due double screening it is suitable for installation in electromagnetically demanding areas
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (power chains, moving machine parts)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Torsion movement in WTG (wind turbine generator)
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
65 mm

Test voltage
Core/core: 1500 V rms

Characteristic impedance
150 ± 15 Ω

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications (e.g. power chains) - conventional cable assembly					
2170222	UNITRONIC® BUS PB FD P	1 x 2 x 0.64	8	30.1	64

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors

UNITRONIC® BUS PB FD P A

Halogenfree, highly flexible PROFIBUS cable - UL/CSA certified

Info

- A for Advanced
  here: UL and CSA certifications

Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (power chains, moving machine parts)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214

Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Torsion movement in WTG (wind turbine generator)
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
65 mm

Test voltage
Core/core: 1500 V rms

Characteristic impedance
150 ± 15 Ω

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Highly flexible application					
2170822	UNITRONIC® BUS PB FD P A	1 x 2 x 0.64	8	30.1	58

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors

UNITRONIC® BUS PB FD P FC

Halogenfree, highly flexible PROFIBUS cable - with fast connect cable make up, UL/CSA certified

Benefits

- Fast Connect (FC) cable design
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (power chains, moving machine parts)

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214

Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Fast connect inner sheath: PVC, nature
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Flexing: 15 x outer diameter

Test voltage
3600 V DC (3 sec.)

Characteristic impedance
150 ± 15 Ω

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Highly flexible application					
2170322	UNITRONIC® BUS PB FD P FC	1 x 2 x 0.64	8	26	79

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 986

UNITRONIC® BUS PB FD FRNC FC

Flame retardant, highly flexible PROFIBUS cable - with fast connect cable make up, UL/CSA certified

Benefits

- Fast Connect (FC) system
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- For highly flexible use in energy supply chains or permanently moving machines and linear robots
- This cable provides special advantages for use in sensitive areas where fire propagation must be avoided and the presence of toxic fumes would cause personal injury and damage to equipment.

Product features

- Halogen-free
- Oil-resistant
- High flame retardancy in accordance with IEC 60332-3 and FT4
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Fast connect inner sheath: PVC, nature
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
nom. 28 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ω

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB FD FRNC FC					
2170854	UNITRONIC® BUS PB FD FRNC FC	1x2x0,64	8	26	75

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 986

UNITRONIC® BUS PB FD P COMBI

Highly flexible, halogenfree PROFIBUS HYBRID cables

UNITRONIC® BUS PB FD P HYBRID

Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- For highly flexible applications (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- HYBRID: cable for data transmission + power supply
- Flame-retardant according IEC 60332-1-2

Product Make-up

UNITRONIC® BUS PB FD P COMBI

- Fine-wire, bare copper strand
- 1x2x0.64: red, green
  3x1.0 (AWG18): grenn/yellow, black, blue
- Core insulation: PE
- Tin-plated copper wire braiding
- Outer sheath: PUR, violet (RAL 4001)

UNITRONIC® BUS PB FD P HYBRID

- Fine-wire, bare copper strand
- 1x2x0.64 : red, green
  4 x 1.5 (AWG16): black with white numbers
- Core insulation: PE
- Tin-plated copper wire braiding
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 100 V

UNITRONIC® BUS PB FD P HYBRID
Flexing: 15 x outer diameter

Test voltage
UNITRONIC® BUS PB FD P COMBI
Core/core: 600 V
UNITRONIC® BUS PB FD P HYBRID
Core/core: 600 V
Core/screen: 600 V

Characteristic impedance
150 ± 15 Ω

Temperature range
UNITRONIC® BUS PB FD P COMBI
Flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C
UNITRONIC® BUS PB FD P HYBRID
Flexing: -30°C to +60°C
Fixed installation: -40°C to +70°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB FD P COMBI					
2170227	UNITRONIC® BUS PB FD P COMBI	1 x 2 x 0.64 Ø + 3 x 1.0 mm²	10.1	59	125
UNITRONIC® BUS PB FD P HYBRID					
2170495	UNITRONIC® BUS PB FD P HYBRID	1 x 2 x 0.64 Ø + 4 x 1.5 mm²	11.3	89	148

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB FD Y HYBRID

Highly flexible PROFIBUS HYBRID cable, UL-verified

Benefits

- For highly flexible applications (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- CL3 for installation on trays

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- HYBRID: cable for data transmission + power supply

Norm references / Approvals

- With UL/CSA certification (CMG, CL3, SUN RES, Oil Res I)
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I

Product Make-up

- Fine-wire, bare copper strand
- 1x2x0.64: red, green
  Core insulation: Foam Skin PE
  4x1.5: black with white numbers 1-4
  Core insulation: PVC
- Tin-plated copper wire braiding
- Outer sheath: PVC, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Peak operating voltage
600 V (not for power applications)

Minimum bending radius
Fixed installation:
5 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Characteristic impedance
150 ± 15 Ω

Temperature range
-5°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Highly flexible application					
2170875	UNITRONIC® BUS PB FD Y HYBRID	1 x 2 x 0.64 Ø + 4 x 1.5 mm²	11.3	89	155

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB TORSION

Flame retardant, highly flexible PROFIBUS cable for torsion load

Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- TORSION: for torsional stress, e.g. robot application; ± 180° per 1 m
- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- Certification: UL type CMX in accordance with UL 444

Product Make-up

- Stranded bare copper wire
- Core insulation: PE
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications)
300 V

Torsion movement in WTG (wind turbine generator)
Max. torsion load
± 180°/m

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 7.5 x outer diameter

Test voltage
3600 V DC (3 sec.)

Characteristic impedance
150 ± 15 Ω

Temperature range
Operating temperature: -25°C to 75°C
Storage temp.: -40°C to 80°C

Article number	Article designation	Number of cores and mm² per conductor	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
Highly flexible application						
2170332	UNITRONIC® BUS PB TORSION	1 x 2 x 0.38	1 x 2 x 0.38	8	31	66

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors

UNITRONIC® BUS PB FESTOON

PROFIBUS cable for cable trolley applications

Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- CL3 for installation on trays

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- FESTOON: for cable trolley (festoon)
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- With UL/CSA certification (CMG, CL3, SUN RES, Oil Res I)
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I

Product Make-up

- Outer sheath: special PVC compound

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
600 V (not for power applications)

Minimum bending radius
Flexing: 70 mm
Fixed installation: 30 mm once

Test voltage
Core/core: 2000 V

Characteristic impedance
150 ± 15 Ω

Temperature range
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of cores and mm² per conductor	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
Highly flexible application						
2170331	UNITRONIC® BUS PB Festoon	1 x 2 x 0.64	1 x 2 x 0.64	8	26	64

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors

EPIC® DATA PB Sub-D

PROFIBUS connectors with screw terminals | REPEATER function | ATEX

Info

- Optional with LED diagnostic
- M12, REPEATER and ATEX version
- Versions with 2nd Sub-D interface

Benefits

- Easy connection with tried-and-tested M12 / screw terminal technology
- Sensor/ ac
- Terminating resistor (integrated) can be switched
- REPEATER version: Regeneration of data signal (slope, power and mark-to-space ratio)
- ATEX version: For use within intrinsically-safe circuits in zone 2 areas with an explosion hazard (explosive gas atmosphere occurs only rarely and briefly)

Product features

- Max. transmission rate 12 Mbit/s possible
- Current consumption max. 12,5 mA (with LED 35 mA / REPEATER 100 mA)
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)
- Terminating resistor “ON” - the outbound bus cable is disconnected
- REPEATER version: Easy extension of the PROFIBUS network:
  - up to 3 repeaters
  - 1 additional PROFIBUS segment
  - galvanic isolation

Norm references / Approvals

- IEC 61158, IEC 61784
- UL File No. E331560
- ATEX version: DIN EN 60079-0:2006, DIN 60079-15:2005 (category 3G zone 2)

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Versions with additional Sub-D interface for programming/diagnostic (‘PG’)
- For cable outer diameter: 5 8 mm / M12 B-coded cordsets
- LED Version indicate:
  bus operation - (green)
  station transmission - (blue)
  terminating resistor “on” - (orange)

Suitable cables

- UNITRONIC® BUS PB Page 332
- UNITRONIC® BUS PB M12 Page 355
- UNITRONIC® BUS PB M12-M12 Page 356

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description:
D-Sub connector

Dimensions
54 mm x 40 mm x 17 mm - 35°
64 mm x 40 mm x 17 mm - 90°
68 mm x 40 mm x 17 mm - 180°
70 mm x 40 mm x 17 mm - M12
(LxWxH)

Connection type
Screwing
M12

Protection rating
IP 20

Terminating resistor
150 Ω

Interfaces
Sub-D socket, 9-pin
Terminal blocks up to 1.0 mm² /M12
B-coded

Permissble ambient conditions
Operating temperature: -25°C to +85°C
*The max. temperature for UL is 60 °C.

Article number	Article designation	Version	PG-Interface	Diagnostic LEDs	PU
35° cable outlet					
21700507	ED-PB-35		no	no	1
21700506	ED-PB-35-PG		yes	no	1
90° cable outlet					
21700504	ED-PB-90		no	no	1
21700503	ED-PB-90-PG		yes	no	1
21700530	ED-PB-90-LED		no	yes	1
21700529	ED-PB-90-PG-LED		yes	yes	1
21700520	ED-PB-PG-90-M12	M12	yes	no	1
21700541	ED-PB-90-RP-PG	REPEATER	yes	yes	1
21700543	ED-PB-90-ATEX	ATEX	no	no	1
21700542	ED-PB-90-PG-ATEX	ATEX	yes	no	1
180° (AX) cable outlet					
21700505	ED-PB-AX		no	no	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB Sub-D FC

PROFIBUS Connectors Fast Connect

Info

- New innovative insulation displacement terminals suitable for solid and flexible conductors (90° and 180° versions)
- Versions with 2nd Sub-D interface
- Optional with LED diagnostic

Benefits

- Quick installation with Fast Connect ('FC') technology
- Sensor/ ac
- No loose parts
- Visual bus connection control
- Terminating resistor (integrated) can be switched

Product features

- Fully compatible with market standard
- Max. transmission rate 12 Mbit/s possible
- Current consumption max. 12,5 mA (with LED 35 mA)
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)
- Terminating resistor "ON" - the outbound bus cable is disconnected

Norm references / Approvals

- IEC 61158, IEC 61784
- UL File No. E331560

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Max. cable outer diameter: 8 mm
- Versions with additional Sub-D interface for programming/diagnostic ('PG')
- LED Version indicate:
  bus operation - (green)
  station transmission - (blue)
  terminating resistor "on" - (orange)

Suitable cables

- Bus system PROFIBUS-DP/FMS/FIP

Suitable tools

- FC STRIP stripping tool refer to page 986
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description:
D-Sub connector

Dimensions
95 mm x 70 mm x 17 mm - 35°
72 mm x 40 mm x 17 mm - 90°
70 mm x 35 mm x 17 mm - 180°
(LxWxH)

Connection type
Fast Connect

Protection rating
IP 20

Terminating resistor
150 Ω

Interfaces
Sub-D socket, 9-pin
PROFIBUS FC standard cable,
Ø 0.64 mm

Permissble ambient conditions
Operating temperature:
-25°C to +85°C
*The max. temperature for UL is 60 °C.

Article number	Article designation	PG-Interface	Diagnostic LEDs	PU
35° cable outlet for solid conductor				
21700511	ED-PB-35-FC	no	no	1
21700513	ED-PB-35-PG-FC	yes	no	1
35° cable outlet for 7-/19-wire stranded conductor				
21700514	ED-PB-35-FC-FLEX	no	no	1
21700515	ED-PB-35-PG-FC-FLEX	yes	no	1
90° cable outlet for solid/ 7-/ 19-wire stranded conductor				
21700502	ED-PB-90-FC	no	no	1
21700501	ED-PB-90-PG-FC	yes	no	1
21700547	ED-PB-90-LED-FC	no	yes	1
21700546	ED-PB-90-PG-LED-FC	yes	yes	1
180° (AX) cable outlet for solid/ 7-/ 19-wire stranded conductor				
21700544	ED-PB-AX-FC	no	no	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB Sub-D M12

PROFIBUS Connectors M12

Info

- Plug & Play together with ready-to-use PROFIBUS M12 cordsets

Benefits

- Cost-efficient due to quick installation (Plug & Play)
- Sensor/ ac
- No loose parts
- Terminating resistor (integrated) can be switched
- Suitable for assembled M12 PB cables

Product features

- Max. transmission rate 12 Mbit/s possible
- Current consumption max. 12,5 mA
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)
- Switch can also be operated when the connector is plugged and setting is clearly visible
- Terminating resistor “ON” - the outbound bus cable is disconnected

Norm references / Approvals

- IEC 61158, IEC 61784
- UL File No. E331560

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Connector M12, B-coded
- Improved electromagnetic compatibility (EMC) by metallized housing
- Version with additional Sub-D port for programming/diagnostic (‘PG’)

Suitable cables

- UNITRONIC® BUS PB M12 Page 355
- UNITRONIC® BUS PB M12-M12 Page 356

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description:
D-Sub connector

Dimensions
70 mm x 40 mm x 17 mm (L x W x H)

Connection type
M12

Protection rating
IP 20

Terminating resistor
150 Ω

Interfaces
PROFIBUS station:
D-Sub socket, 9-pin
PROFIBUS cable:
M12 PB system cabling

Permissble ambient conditions
Operating temperature: -25 °C to +85 °C
*The max. temperature for UL is 60 °C.

Article number	Article designation	Version	PG-Interface	Diagnostic LEDs	PU
EPIC® DATA PB Sub-D M12					
21700520	ED-PB-PG-90-M12	M12	yes	no	1

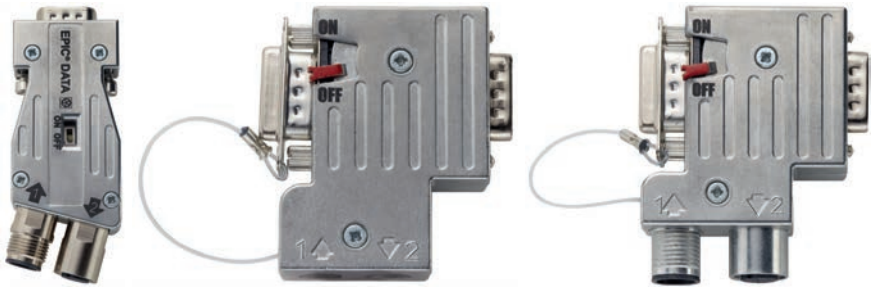
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB Sub-D PRO

PROFIBUS Connectors full-metall M12 connection /spring type connection

Info

- For high mechanical stress
- High EMC protection



Benefits

- Optimum EMC protection
- Robust housing material for harsh environments
- No loose parts
- Cost-efficient due to quick installation (Plug & Play)
- Terminating resistor (integrated) can be switched

Product features

- Extended temperature range
- High mechnical strength (200 contact durability)
- Less transmission loss
- Max. transmission rate 12 Mbit/s possible
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)

Norm references / Approvals

- IEC 61158, IEC 61784

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- 360° shielding due full-metall housing (ZnAl)
- With additional Sub-D port for programming/diagnostic 'PG' (35° and 90° version)
- With EMC connector protection (PG port)
- M12 version: 5-pin connector, M12 B-coded

Suitable cables

- UNITRONIC® BUS PB M12 Page 355
- UNITRONIC® BUS PB M12-M12 Page 356

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description:
D-Sub connector

Dimensions
see technical data sheet

Connection type
M12 or
Internal spring type terminal

Protection rating
IP 30

Terminating resistor
150 Ω

Interfaces
Sub-D socket, 9-pin
Spring terminal for solid conductors / M12 B-coded
0,08 - 0,5 mm² (AWG28 - AWG14)
Cable diameter: 8 - 9 mm

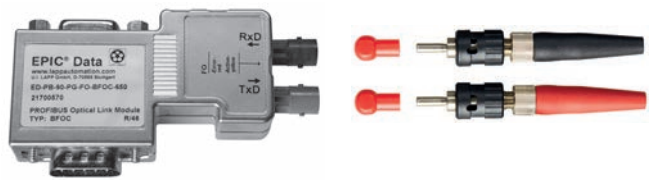
Permissble ambient conditions
Operating temperature:
-20°C to +70°C

Article number	Article designation	Connection type	PG-Interface	PU
EPIC® DATA PB Sub-D PRO				
21700563	ED-PB-AX-M12-PRO	M12	no	1
21700561	ED-PB-35-PG-M12-PRO	M12	yes	1
21700562	ED-PB-90-PG-M12-PRO	M12	yes	1
180° (AX) cable outlet				
21700566	ED-PB-AX-M12-PRO	Internal spring type	no	1
35° cable outlet				
21700564	ED-PB-35-PG-ST-PRO	Internal spring type	yes	1
90° cable outlet				
21700565	ED-PB-90-PG-ST-PRO	Internal spring type	yes	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB Sub-D FO

PROFIBUS Connectors Optical Link Modul



Info

- PROFIBUS repeater with integrated optical interface

Benefits

- Easy covering of large distances (PCF 250 m / POF 65 m)
- Cost-efficient due to quick installation (Plug & Play)
- Galvanic isolation in case of potential differences within PROFIBUS network
- For EMC critical environments
- Integrated repeater functionality: Regeneration of data signal (slope, power and mark-to-space ratio)

Product features

- Max. distance:
  POF fiber: 65 m
  PCF fiber: 250 m
- Diagnostic LEDs (blue, green, red, yellow)
- Bus termination is integrated
- Current consumption typ. 100 mA
- Supply voltage 5.0 V DC (supplied from the terminal)

Norm references / Approvals

- IEC 61158, IEC 61784

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Versions with additional Sub-D interface for programming/diagnostic ('PG')
- An external 24 V supply is not necessary
- Connection for optical cable (POF or PCF)

Suitable cables

- HITRONIC® POF DUPLEX BUFFERED FIBRES Page 482
- HITRONIC® POF DUPLEX CABLE Page 483
- HITRONIC® POF cables for PROFINET Applications Page 484

Suitable connectors

- HBFR, SMA and BFOC(ST)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description:
D-Sub connector

Dimensions
64 mm x 40 mm x 17 mm (LxWxH)

Protection rating
IP 20

Interfaces
Sub-D socket, 9-pin
Fibre optic cable: POF / PCF, 650 nm

Permissble ambient conditions
Operating temperature: 0°C to +60°C

Article number	Article designation	PG-Interface	Diagnostic LEDs	PU
90° cable outlet				
For HFBR connector				
21700568	ED-PB-90-PG-FO-HFBR-650	yes	yes	1
For SMA connector				
21700569	ED-PB-90-PG-FO-SMA-650	yes	yes	1
For BFOC(ST) connector				
21700570	ED-PB-90-PG-FO-BFOC-650	yes	yes	1

Applicable optical connectors (POF) included
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Note: For one optical link 2 modules are required

Accessories

- PCF Assembly Sets refer to page 496
- PCF Connector HFBR refer to page 495
- PCF Connector F-SMA and ST(BFOC) refer to page 495
- POF Assembly Sets refer to page 488
- POF Connector F-SMA and ST(BFOC) refer to page 486
- POF Connector SC-RJ refer to page 487

UNITRONIC® BUS PB M12

PROFIBUS cable: M12 plug/socket on free conductor end

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost efficient and rational wiring for PROFIBUS installations
- Space-saving due to compact dimensions
- Fast and easy error tracking

Application range

- Mechanical and plant engineering

Product features

- 2-core PROFIBUS cable, shielded
- Connector M12, B-coded with quick locking system
- Suitable for drag chains
- Including tag carrier

Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

Product Make-up

- Core cross section: 0.25 mm²
- Core colours: red, green
- Outer sheath: PUR halogen-free, violett
- Outer diameter: 7.8 mm
- Shielded version
- Shielding is conducted over the knurl

Suitable connectors

- Sub-D Bus-Connectors
- EPIC® DATA PB M12 357
- EPIC® DATA PB M12/M12 358
- EPIC® DATA PB M12T 359

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -30°C to +80°C
Drag chain application ≤ 70 °C

Coding
B - inverse

Rated current (A)
4 A

Article number	Article designation	Length (m)	Number of pins	Design	Rated voltage (V)	PU
Plug						
22260767	AB-PB-M12MS-2,0PUR	2	2	straight	250	1
22260768	AB-PB-M12MS-5,0PUR	5	2	straight	250	1
22260769	AB-PB-M12MS-10,0PUR	10	2	straight	250	1
22260956	AB-PB-M12MA-2,0PUR	2	2	angled	250	1
Socket						
22260770	AB-PB-2,0PUR-M12FS	2	2	straight	250	1
22260771	AB-PB-5,0PUR-M12FS	5	2	straight	250	1
22260772	AB-PB-10,0PUR-M12FS	10	2	straight	250	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Label LMB refer to page 942

UNITRONIC® BUS PB M12-M12

PROFIBUS Cable: M12 connector on M12 socket

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost efficient and rational wiring for PROFIBUS installations
- Space-saving due to compact dimensions
- Fast and easy error tracking

Application range

- Mechanical and plant engineering

Product features

- 2-core PROFIBUS cable, shielded
- Connector M12, B-coded with quick locking system
- Suitable for drag chains
- Including tag carrier

Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

Product Make-up

- Core cross section: 0.25 mm²
- Core colours: red, green
- Outer sheath: PUR halogen-free, violett
- Outer diameter: 7.8 mm
- Shielded version
- Shielding is conducted over the knurl

Suitable connectors

- EPIC® DATA PB M12 357
- EPIC® DATA PB M12/M12 358
- EPIC® DATA PB M12T 359
- EPIC® DATA PB Sub-D M12 352

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -30°C to +80°C
Drag chain application ≤ 70 °C

Coding
B - inverse

Rated current (A)
4 A

Article number	Article designation	Length (m)	Number of pins	Design	Rated voltage (V)	PU
Plug on socket						
22260955	AB-PB-M12MS-0,2PUR-M12FS	0.2	2	straight-straight	250	1
22260773	AB-PB-M12MS-0,3PUR-M12FS	0.3	2	straight-straight	250	1
22260774	AB-PB-M12MS-1,0PUR-M12FS	1	2	straight-straight	250	1
22260775	AB-PB-M12MS-2,0PUR-M12FS	2	2	straight-straight	250	1
22260869	AB-PB-M12MS-3,0PUR-M12FS	3	2	straight-straight	250	1
22260776	AB-PB-M12MS-5,0PUR-M12FS	5	2	straight-straight	250	1
22260777	AB-PB-M12MS-10,0PUR-M12FS	10	2	straight-straight	250	1
22260907	AB-PB-M12MS-15,0PUR-M12FS	15	2	straight-straight	250	1
22260908	AB-PB-M12MS-20,0PUR-M12FS	20	2	straight-straight	250	1
22260079	AB-PB-M12MA-5,0PUR-M12FA	5	2	angled-angled	250	1
22260904	AB-PB-M12MA-10,0PUR-M12FA	10	2	angled-angled	250	1
22260905	AB-PB-M12MA-15,0PUR-M12FA	15	2	angled-angled	250	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Label LMB refer to page 942

EPIC® DATA PB M12

Field mountable M12 BUS-connectors, shielded for PROFIBUS

Benefits

- Quick and easy on-site assembly
- For creating of individual cable lengths
- Cost efficient and rational wiring for BUS installations
- Space-saving due to compact dimensions

Product features

- Screened version
- Connector M12, B-coded
- PG9- / PG11-thread
- Screw connection

Suitable cables

- Bus system PROFIBUS-DP/FMS/FIP
- UNITRONIC® BUS PB M12 Page 355

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector

Material
Contact: CuSn
Contact surface: Au
Contact carrier: PA66
Sealing: NBR
Knurl: Nickel-plated brass
Gripping body: Zinc die-cast, nickel-plated

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Coding
B - inverse (PROFIBUS)

Rated current (A)
4 A

Article number	Article designation	Number of pins	Conductor cross-section (mm²)	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight						
22260653	AB-C5-M12MSB-PG9-SH-AU	5	0.25 - 0.75	6.0 - 8.5	60	1
22262078	AB-C5-M12MSB-PG11-SH-AU	5	0.25 - 0.75	8.0 - 10.0	60	1
Socket, straight						
22260646	AB-C5-M12FSB-PG9-SH-AU	5	0.25 - 0.75	6.0 - 8.5	60	1
22260889	AB-C5-M12FSB-PG11-SH-AU	5	0.25 - 0.75	8.0 - 10.0	60	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB M12/M12

PROFIBUS M12 control cabinet feed-through, shielded

Benefits

- M12 connector on both sides
- Plug & Play for flexible connection solutions

Application range

- Mechanical and plant engineering

Product features

- For PROFIBUS applications
- Bipolar/screw mounting

Product Make-up

- 5-pin control cabinet feed-through, M12 B-coded
- M12 plug on M12 socket
- Screened version

Suitable cables

- UNITRONIC® BUS PB M12 Page 355
- UNITRONIC® BUS PB M12-M12 Page 356

Suitable connectors

- EPIC® DATA PB M12 357

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

Material
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25°C to +85°C

Coding
B - inverse (PROFIBUS)

Rated current (A)
4 A

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Control cabinet feed through				
22262021	AB-C5-DSI-M12MSB-M12FSB-M16-SH	5	60	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB TR M12

M12 Terminating resistor for PROFIBUS

Info

- Fully suitable for industrial use

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000448
ETIM 5.0/6.0 Class-Description:
Terminal resistor

Protection rating
IP65/IP67 (plug)
IP 67 (socket)

Ambient temperature (operation)
-25°C to +90°C (plug)
-40°C to +85°C (socket)

Contact material
CuSn

Coding
B - inverse (PROFIBUS)

Rated current (A)
4 A

Benefits

- Cost efficient termination of a bus systems
- Space-saving due to compact dimensions
- Robust design

Application range

- Mechanical and plant engineering

Product features

- 150 Ω terminating resistor for PROFIBUS

Product Make-up

- Straight connector M12 with integrated termination resistor
- Straight connector M12, with integrated termination resistor, shielded

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Plug, unshielded (terminating resistor)				
22260722	AB-C4-M12MS-PB-TR	4	60	5
Socket, shielded (terminating resistor)				
22261001	AB-C5-M12FS-PB-TR-SH	4	32	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

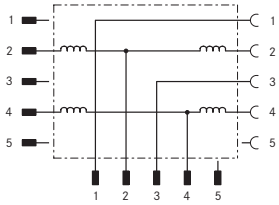
- EPIC® DATA PB M12T refer to page 359

EPIC® DATA PB M12T

M12 T distributor, shielded for PROFIBUS

Info

- Fully suitable for industrial use



Benefits

- Cost efficient and rational wiring for PROFIBUS installations
- Space-saving due to compact dimensions
- Robust design

Application range

- Mechanical and plant engineering

Product features

- For PROFIBUS stubs
- Screened version

Product Make-up

- 4-pin PROFIBUS T-connector
- M12 plug to M12 plug and M12 socket

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description:
Passive sensor-actuator interface

Material
Contact: CuSn
Contact surface: Ni/Au
Contact carrier: PUR
Knurl: Nickel-plated brass
Gripping body: PUR
Sealing: FKM

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25°C to +80°C

Coding
B - inverse

Rated current (A)
4 A

Article number	Article designation	Number of pins	Rated voltage (V)	PU
T distributor				
22260761	AB-C2-M12T-2XM12FS PB	4	60	1

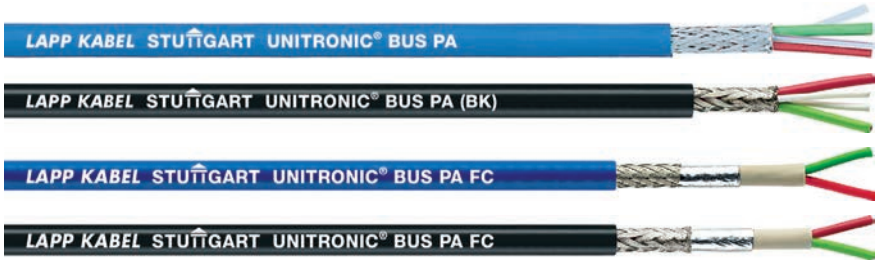
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PB TR M12 refer to page 358

UNITRONIC® BUS PA

PROFIBUS cables for applications in manufacturing and process automation



Info

- PA = Process Automation
- Variant with UL/CSA CMG

Benefits

- FC (Fast Connect) version is oil and UV-resistant

Application range

- Process-automation application for connecting sensors and actuators - including areas with risks of explosion.
- Fixed Installation

Product features

- Bit rate = 31.25 kbit/s. Transmission technology RS485 also possible but bit rate is limited to 1.5 Mbit/s
- Maximum cable length is dependent on several factors (e.g. supply voltage, current demand).
- Technical Data: refer to the overview on "UNITRONIC® Bus Cables"
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- PROFIBUS® PA is standardised in EN 50170 as PROFIBUS® DP and PROFIBUS® FMS
- Transmission technology for PROFIBUS-PA in accordance with international standard IEC 61158-2
- FC variant with UL/CSA certification (CMG / PLTC)

Product Make-up

- UNITRONIC® BUS PA
  Stranded conductor
  Copper braiding
  Outer sheath: PVC, blue, (RAL 5015)
  intrinsically safe area, black (RAL 9005)
- UNITRONIC® BUS PA FC
  Bare copper wire
  Fast Connect inner sheath
  Cu-Geflecht
  Puter sheath: PVC, blue (RAL 5015), black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 44 Ω/km

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 ± 20 Ω

Temperature range
Fixed installation: -30°C to +80°C
During installation: -5°C to +50°C

Article number	Article designation	Number of pairs and cable diameter per conductor in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Conventional cable makeup					
2170234	UNITRONIC® BUS PA (BU)	1 x 2 x 1,3	8	45	84
2170235	UNITRONIC® BUS PA (BK)	1 x 2 x 1,3	8	45	84
Fast Connect cable makeup - UL/CSA CMG certification					
2170334	UNITRONIC® BUS PA FC (BU)	1 x 2 x 1.00	8	45.5	103
2170335	UNITRONIC® BUS PA FC (BK)	1 x 2 x 1.00	8	45.5	103

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of Siemens AG
Armoured
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Multipurpose shears A and B
- STAR STRIP stripping tool refer to page 985
- FC STRIP stripping tool refer to page 986

UNITRONIC® DeviceNet THICK + THIN

DeviceNet Buscable based on the CAN technology

Application range

- Fixed Installation
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

Product features

- Resistant to oils
- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- FRNC Version: Halogene free and flame retardant
- Refer to data sheet for more details

Norm references / Approvals

- CMG UL/CSA certification 75°C or PLTC, Sun Res
- FRNC variant additionally with Germanischer Lloyd certification

Product Make-up

- Tinned copper wire
- Core insulation: foam skin
- Tinned-copper braiding with drain wire
- Outer sheath: FRNC or PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Core identification code
Data pair: light blue + white
Power supply: red + black

Mutual capacitance
(800 Hz): max. 39.8 nF/km

Peak operating voltage
300 V (not for power applications)

Conductor resistance
Thick (loop): max. 45 Ω/km
Thin (loop): max. 180 Ω/km

Minimum bending radius
Fixed installation: 15 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
120 Ω

Temperature range
Fixed installation: -25°C to +80°C

Article number	Article designation	Number of pairs and AWG size	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
Halogen-free					
2170340	UNITRONIC® BUS DN THICK FRNC	1x2xAWG18 + 1x2xAWG15	12.2	82.8	195
2170341	UNITRONIC® BUS DN THIN FRNC	1x2xAWG24 + 1x2xAWG22	6.9	33.4	69.5
PVC					
2170342	UNITRONIC® BUS DN THICK Y	1x2xAWG18 + 1x2xAWG15	12.2	88.4	192
2170343	UNITRONIC® BUS DN THIN Y	1x2xAWG24 + 1x2xAWG22	6.9	33.4	66.9

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
FRNC means Flame-Retardant, Non-Corrosive; and DeviceNet is a registered trademark of ODVA.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
ECO is the cost-efficient version of article no. 2170342 and 2170343, with a slight modification to the outer sheath and UL/CSA-approved (CMG).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® DeviceNet FD THICK+THIN

High flexible DeviceNet Buscable based on the CAN technology

Application range

- For highly flexible applications
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

Product features

- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- Refer to data sheet for more details
- PUR (P) Version: Halogene free
  PVC (Y) Version: Flame retardant (UL FT4)
- UV-resistant (but colour may change after some time)

Norm references / Approvals

- PUR: UL/CSA-certified (CMX)
- PVC: UL/CSA CMG 75°C FT4 Sun Res Oil Res, at 2170346 also PLTC

Product Make-up

- Core insulation: PE
- Outer sheath of Polyurethan (PUR) or Polyvinylchlorid (PVC)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Core identification code
Data pair: light blue + white
Power supply: red + black

Mutual capacitance
(800 Hz): max. 39.8 nF/km

Peak operating voltage
300 V (not for power applications)

Conductor resistance
Thick (loop): max. 45 Ω/km
Thin (loop): max. 180 Ω/km

Minimum bending radius
Fixed installation: 7.5 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
120 Ω

Temperature range
PUR: -40°C to +80°C
PVC: -10°C to +80°C

Article number	Article designation	Number of pairs and AWG size	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
PUR					
2170344	UNITRONIC® BUS DN THICK FD P	1x2xAWG18 + 1x2xAWG15	12.2	94	184
2170345	UNITRONIC® BUS DN THIN FD P	1x2xAWG24 + 1x2xAWG22	6.9	33.4	67.7
PVC					
2170346	UNITRONIC® BUS DN THICK FD Y	1x2xAWG18 + 1x2xAWG15	12.2	94	195
2170347	UNITRONIC® BUS DN THIN FD Y	1x2xAWG24 + 1x 2xAWG22	6.9	33.4	69.8

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SMART STRIP stripping tool

UNITRONIC® BUS CAN

CAN Buscables for fixed installation - UL/SCA certified

Info

- CAN = Controller Area Network

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
UNITRONIC® BUS CAN
(800 Hz) max. 40 nF/km
UNITRONIC® BUS CAN FD P
Flexible use: 10 x outer diameter

Peak operating voltage
UNITRONIC® BUS CAN
(not for power applications) 250 V
UNITRONIC® BUS CAN FD P
250 V (not for power transmission)

Conductor resistance
UNITRONIC® BUS CAN
(loop): max. 186 Ω/km
UNITRONIC® BUS CAN FD P
(loop): max. 159.8 Ω/km

Minimum bending radius
UNITRONIC® BUS CAN
Fixed installation: 8 x outer diameter
UNITRONIC® BUS CAN FD P
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
120 Ω

Temperature range
UNITRONIC® BUS CAN
Fixed installation: -30°C to +80°C
Flexing: -5°C to +70°C
UNITRONIC® BUS CAN FD P
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

UNITRONIC® BUS CAN FD P

CAN Buscables for high flexible application - UL/SCA certified

Application range

UNITRONIC® BUS CAN
- Fixed Installation

UNITRONIC® BUS CAN FD P
- For highly flexible applications

Product features

UNITRONIC® BUS CAN
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

UNITRONIC® BUS CAN FD P
- Halogen-free
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Standardised internationally in ISO 11898
- UL/CSA type CMX (UL 444)

Product Make-up

UNITRONIC® BUS CAN
- 0.22 + 0.34 + 0.5: bare stranded conductor, 7-wire
  0.75: bare stranded conductor, fine-wire
- Core insulation: foam skin
- Colour-coded in accordance with DIN 47100
- Copper braid
- Outer sheath: PVC, violet (RAL 4001)

UNITRONIC® BUS CAN FD P
- Stranded bare conductor
- Core insulation: foam skin
- Screening: wrapped with braided copper wires
- Outer sheath: PUR, violet (RAL 4001)
- UV-resistant (but colour may change after some time)

Article number	Article designation	Number of pairs/ conductor cross section (mm²)	Outer diameter [mm]	Conductor resistance	Copper index (kg/km)	Weight (kg/km)
for fixed installation						
2170260	UNITRONIC® BUS CAN	1 x 2 x 0,22	5.7	186	16.7	42
2170261	UNITRONIC® BUS CAN	2 x 2 x 0,22	7.6	186	34.8	68
2170263	UNITRONIC® BUS CAN	1 x 2 x 0,34	6.8	115	25	55
2170264	UNITRONIC® BUS CAN	2 x 2 x 0,34	8.5	115	46.4	88
2170266	UNITRONIC® BUS CAN	1 x 2 x 0,5	7.5	78	41.6	90
2170267	UNITRONIC® BUS CAN	2 x 2 x 0,5	9.6	78	59.4	106
2170269	UNITRONIC® BUS CAN	1 x 2 x 0,75	8.7	52	52.7	108
2170270	UNITRONIC® BUS CAN	2 x 2 x 0,75	11.5	52	80.6	142
For highly flexible applications (power chains, moving machine parts)						
2170272	UNITRONIC® BUS CAN FD P	1 x 2 x 0,25	6.4	159.8	24	40
2170273	UNITRONIC® BUS CAN FD P	2 x 2 x 0,25	8.4	159.8	33	65
2170275	UNITRONIC® BUS CAN FD P	1 x 2 x 0,34	6.8	122	32.8	60
2170276	UNITRONIC® BUS CAN FD P	2 x 2 x 0,34	9.6	122	52.4	88
2170278	UNITRONIC® BUS CAN FD P	1 x 2 x 0,5	8	72.8	41.9	74
2170279	UNITRONIC® BUS CAN FD P	2 x 2 x 0,5	10.8	72.8	59.4	100

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Multipurpose shears A and B
- SMART STRIP stripping tool
- SENSOR STRIP stripping tool refer to page 987

UNITRONIC® BUS CAN TRAY

CAN Bus cable with PLTC-ER approval - for open wiring between cable trays and industrial machines

Info

- CAN = Controller Area Network

Benefits

- PLTC-ER approval for open wiring between cable tray and industrial machines/plants acc. to NEC 725.154 (D)
- No additional protection of the cable needed

Application range

- Fixed Installation

Product features

- Maximum bit rate: 1 Mbit/s for 40 m segment length
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- UV-resistant UL SUN RES
- Oil-resistant according to UL OIL RES I
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test

Norm references / Approvals

- Standardised internationally in ISO 11898
- c(UL)us Typ CMG (75°C) acc.to UL 444 / CSA 22.2
- UL Type PLTC-ER acc. to UL 13

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: foam skin
- Inner sheath: PVC
- Copper braid
- Outer sheath: PVC, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz) max. 40 nF/km

Peak operating voltage
(not for power applications) 250 V
Rated voltage: 600 V (UL)

Conductor resistance
(loop): max. 110,8 Ω/km

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
120 Ω

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C

Article number	Article designation	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® BUS CAN TRAY					
2170857	UNITRONIC® BUS CAN TRAY	2 x 2 x 0,34	7.5	35	81

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Multipurpose shears A and B
- SMART STRIP stripping tool

UNITRONIC® BUS CAN BURIAL

CAN bus cable with double outer sheath for outdoor/direct burial use

Info

- Suitable for direct burial

Benefits

- Suitable for CAN communication according to ISO 11898
- Double-sheathed version, extremely tough, for installation without corrugated tubing
- Rugged, UV-resistant and weatherproof
- Diameter of inner sheath suitable for common connectors

Application range

- Useable for CAN based communication systems like CANopen
- Suitable for direct burial
- For outdoor applications
- For fixed installation or applications with occasional movements

Product Make-up

- Copper stranded 7x0,32
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Inner sheath: PVC, violet RAL (4001), outer diameter: 7.1 mm
- Outer sheath: PE, black RAL (9005), outer diameter: 9.0 mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(1 kHz): max. 40 nF/km

Peak operating voltage
300 V (not for power applications)

Conductor resistance
(Loop): max. 74 Ω /km

Minimum bending radius
Flexible use: 8 x Outer Diameter
Fixed Installation: 4 x Outer Diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
120 Ω

Temperature range
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® BUS CAN BURIAL				
2170500	4 x 1 x 0,5	9	41.8	91

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors

NEW

UNITRONIC® BUS HEAT 6722

CAN bus cable for utility vehicles

Info

- Designed according to ISO 6722
- Tested acc.to ECE-R 118.01

Benefits

- Extended temperature range
- Good resistance to oil, petrol, acids and alkalis

Application range

- Suitable for connecting to of e.g. camera systems, enter-/ infotainment for passengers, ticketing systems
- For fixed, occassionally flexible and protected use inside of utility vehicles

Product features

- Halogen-free outer sheath
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Temperature class B on the basis of ISO 6722-1
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Standardised internationally in ISO 11898
- UL/CSA type CMX (UL 444)

Product Make-up

- Stranded bare conductor
- PUR outer sheath
- Colour: black
- UV-resistant (but colour may change after some time)
- Screening: wrapped with braided copper wires

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
40 nF/km (800 Hz)

Peak operating voltage
250 V (not for power transmission)

Conductor resistance
(loop): max. 159.8 Ω/km

Minimum bending radius
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
120 Ω

Temperature range
Fixed installation: -40°C to +105°C
occasionally flexing: -30°C to +105°C

Article number	Article designation	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® BUS HEAT 6722					
2170385	UNITRONIC® BUS HEAT 6722	1 x 4 x 0,25	6.45	26	46
2170386	UNITRONIC® BUS HEAT 6722	1 x 4 x 0,34	7.54	33	61
2170387	UNITRONIC® BUS HEAT 6722	1 x 4 x 0,5	8.36	41	70
2170388	UNITRONIC® BUS HEAT 6722	1 x 4 x 0,75	9.79	59	95

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Multipurpose shears A and B
- SMART STRIP stripping tool
- SENSOR STRIP stripping tool refer to page 987

NEW

UNITRONIC® TRAIN

Bus cables - MVB and WTB - Electron beam cross-linked for high requirements in railway applications

Info

- Small outer diameters for maximum saving of space and weight
- Extremely low attenuation ≤ 5 MHz

Benefits

- Good chemical resistance
- Resistant to mechanical influences in harsh environmental conditions
- Extended temperature range
- Reduced flame spreading increase the protection against damage to persons and property in the event of a fire
- EMC-optimised design

Application range

- The communication systems WTB (wire train bus) and MVB (multifunction vehicle bus) make up the so-called TCN (train communication network)
- UNITRONIC® TRAIN bus cables are designed for use in TCN acc. IEC 61375
  MVB according IEC 61375-3-1
  WTB according IEC 61375-2-1
- For use in railway vehicles and buses, for fixed installations and applications where limited movement may occur
- Also applicable within oily environments and areas with increased ambient temperature

Product features

- Fire behaviour according to EN/IEC:
  - Halogen-free acc. to EN 60754-1
  - No corrosive gases acc. to EN 60754-2
  - No fluorine acc. to EN 60684-2
  - No toxic gases acc. to EN 50305
  - Low smoke density acc. to EN 61034-2
  - Flame-retardant acc. to EN 60332-1-2
  - No fl ame propagation acc. to EN 60332-3-25
- Fire behaviour according to NF:
  - Toxicity of gases acc. to NF X 70-100
  - Low smoke density acc. to NF X 10-702
  - No flame propagation acc. to NF C 32-070, Cat. C1 and C2
- Chemical properties:
  - Oil resistant acc. to EN 50264-1
  - Fuel resistant acc. to EN 50264-1
  - Acid resistant acc. to EN 50264-1
  - Alkali resistant acc. to EN 50264-1
  - Ozone resistant acc. to EN 50264-3-2

Norm references / Approvals

- EN 45545-2 HL1, HL2, HL3
- EN 50264-1

Product Make-up

- Stranded tinned 19-wire conductor
- Core insulation: Based on Polyolefin
- Outer sheath: electron beam cross-linked polymer-compound EM 104
- Outer sheath colour: Black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 1000 V

Characteristic impedance
120 Ω (±10%)

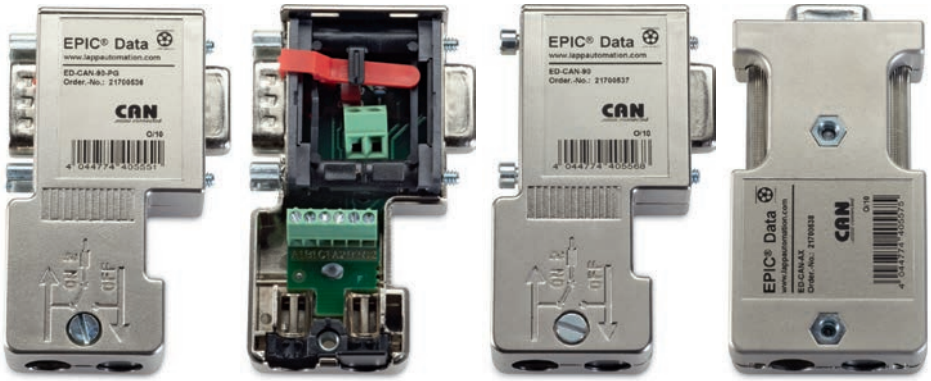
Temperature range
Fixed installation:
-45°C to +90°C
Occasional flexing: -35°C up to +90°C

Article number	Article designation	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)
Cables for MVB				
2173000	UNITRONIC® TRAIN MVB 1x2x0,5	1x2x0,5	7.4	
2173001	UNITRONIC® TRAIN MVB 1x2x0,5+1x0,5	1x2x0,5+1x0,5	7.4	34
2173002	UNITRONIC® TRAIN MVB 2x2x0,5	2x2x0,5	8.1	
2173003	UNITRONIC® TRAIN MVB 2x2x0,5+4x0,25	2x2x0,5+4x0,25	8.1	
Cables for WTB				
2173004	UNITRONIC® TRAIN WTB 1x2x0,75	1x2x0,75	8.4	

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA CAN Sub-D

CAN Bus-Connectors with screw connection



Benefits

- Terminating resistor (integrated) can be switched
- Sensor/ ac
- No loose parts
- With additional 24 V DC output to supply external devices (90° version only)

Product features

- Max. transmission rate 1 Mbit/s possible
- Terminating resistor "ON" - the outbound bus cable is disconnected
- The integrated, connectable terminating resistor
  enable the CAN-Bus to be terminated or connected through
- Sub-D pin assignment:
  CAN Low = Pin 2
  CAN High = Pin 7
  CAN Gnd = Pin 3
  GND = Pin 6 (90° version only)
  CAN V+ = Pin 9 (90° version only)
  (shield = housing)

Norm references / Approvals

- UL File No. E331560

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Screw connection
- Improved electromagnetic compatibility (EMC) by metallized housing
- For cable outer diameter: 5 - 8 mm

Suitable cables

- Bus system CAN / DeviceNet

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description:
D-Sub connector

Dimensions
60 mm x 40 mm x 17 mm - 90°
67,5 mm x 35 mm x 17 mm - 180°
(LxWxH)

Connection type
Screwing

Protection rating
IP 20

Terminating resistor
120 Ω

Interfaces
CAN bus station:
D-Sub socket, 9-pin
CAN bus cable:
6 terminal blocks for wires up to 0.8 mm²

Permissble ambient conditions
Operating temperature: -25°C to +85°C
*The max. temperature for UL is 60 °C.

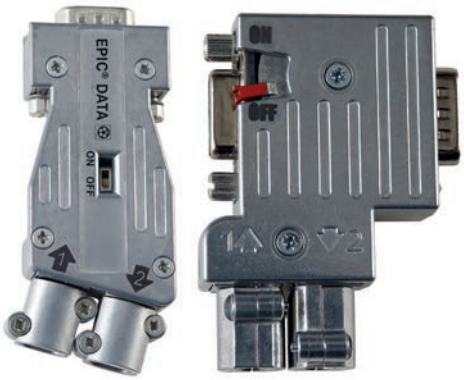
Article number	Article designation	Cable outlet	PG-Interface	PU
Sub-D connector				
21700537	ED-CAN-90	90°	no	1
21700536	ED-CAN-90-PG	90°	yes	1
21700538	ED-CAN-AX	180° axial	no	1

DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DeviceNet CANopen

EPIC® DATA CAN Sub-D PRO

CAN Bus-Connectors full-metall



Info

- High EMC protection
- For cable diameters up to 10 mm

Benefits

- High flexibility by extended cable clamping range
- Cost-saving due to quick and easy installation
- Robust housing material for harsh environments
- For EMC critical environments

Product features

- Extended temperature range
- High mechnical strength (200 contact durability)
- Less transmission loss
- Bus termination is integrated
- Sub-D pin assignment:
  CAN Low = Pin 2
  CAN High = Pin 7
  CAN Gnd = Pin 3
  GND = Pin 6 (90° version only)
  CAN V+ = Pin 9 (90° version only)
  (shield = housing)

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- 360° shielding due full-metall housing (ZnAl)
- External cable clamp connection (7 - 10 mm)
- 90° version: With additional Sub-D port for programming/diagnostic ('PG')
- 90° version: PG port with undetachable EMC Sub-D protection

Suitable cables

- UNITRONIC® DeviceNet THICK + THIN Page 361
- UNITRONIC® BUS CAN Page 363
- UNITRONIC® DeviceNet FD THICK+THIN Page 362
- UNITRONIC® BUS CAN FD P Page 363
- UNITRONIC® BUS CAN TRAY Page 364
- UNITRONIC® BUS HEAT 6722 Page 366
- UNITRONIC® BUS CAN BURIAL Page 365

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description:
D-Sub connector

Dimensions
63 x 45 x 18 - 90°
81 x 36 x 15 - 180°
(LxWxH)

Connection type
Screwing

Protection rating
IP 30

Terminating resistor
120 Ω

Interfaces
CAN-Bus station:
D-SUB socket, 9-pin
CAN-Bus cable:
- srew terminals for wires 0.14 - 0.5 mm²

Permissble ambient conditions
Operating temperature: -20°C to +70°C

Article number	Article designation	Cable outlet	PG-Interface	PU
Sub-D connector				
21700590	ED-CAN-90-PG-PRO	90°	yes	1
21700591	ED-CAN-AX-PRO	180° axial	no	1

DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CAN M12

DeviceNet/CANopen Cable: M12 plug/socket on free conductor end

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Robust design

Application range

- Mechanical and plant engineering

Product features

- 5-core DeviceNet/CANopen cable, shielded
- M12 connector, A-coded with quick-locking system
- Suitable for drag chains
- Including tag carrier

Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

Product Make-up

- Signal line: 2 x 0.25 mm²
  Power supply: 2 x 0.34 mm²
  Drain wire: 1 x 0.34 mm²
- Core colours: red/black, blue/white
- Outer sheath: PUR halogen-free, violett
- Outer diameter: 6.7 mm
- Shielded version

Suitable connectors

- Sub-D Bus-Connectors
- EPIC® DATA CAN M12 372
- EPIC® DATA CAN M12/M12 372
- EPIC® DATA CAN TR M12 373
- EPIC® DATA CAN M12T 374
- EPIC® DATA CAN CCR 374

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -20°C to +80°C
Drag chain application ≤ 70 °C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Length (m)	Number of pins	Design	Rated voltage (V)	PU
Plug						
22260789	AB-DN-M12MS-2,0PUR	2	5	straight	60	1
22260790	AB-DN-M12MS-5,0PUR	5	5	straight	60	1
22260791	AB-DN-M12MS-10,0PUR	10	5	straight	60	1
22262004	AB-DN-M12MA-2,0PUR	2	5	angled	60	1
Socket						
22260792	AB-DN-2,0PUR-M12FS	2	5	straight	60	1
22260793	AB-DN-5,0PUR-M12FS	5	5	straight	60	1
22260794	AB-DN-10,0PUR-M12FS	10	5	straight	60	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Label LMB refer to page 942

DeviceNet

UNITRONIC® BUS CAN M12-M12

DeviceNet/CANopen Cable: M12 connector on M12 socket

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Robust design

Application range

- Mechanical and plant engineering

Product features

- 5-core DeviceNet/CANopen cable, shielded
- M12 connector, A-coded with quick-locking system
- Suitable for drag chains
- Including tag carrier

Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

Product Make-up

- Signal line: 2 x 0.25 mm²
  Power supply: 2 x 0.34 mm²
  Drain wire: 1 x 0.34 mm²
- Core colours: red/black, blue/white
- Outer sheath: PUR halogen-free, violett
- Outer diameter: 6.7 mm
- Shielded version

Suitable connectors

- EPIC® DATA CAN M12 372
- EPIC® DATA CAN M12/M12 372
- EPIC® DATA CAN TR M12 373
- EPIC® DATA CAN M12T 374

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Flexing: 70 mm

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -20°C to +80°C
Drag chain application ≤ 70 °C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Length (m)	Number of pins	Design	Rated voltage (V)	PU
Plug on socket						
22260795	AB-DN-M12MS-0,3PUR-M12FS	0.3	5	straight-straight	60	1
22260796	AB-DN-M12MS-1,0PUR-M12FS	1	5	straight-straight	60	1
22260797	AB-DN-M12MS-2,0PUR-M12FS	2	5	straight-straight	60	1
22260798	AB-DN-M12MS-5,0PUR-M12FS	5	5	straight-straight	60	1
22260799	AB-DN-M12MS-10,0PUR-M12FS	10	5	straight-straight	60	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
No copper surcharge.
DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA CAN M12

Field mountable M12 BUS-connectors shielded for DeviceNet/CANopen

Benefits

- Quick and easy on-site assembly
- For creating of individual cable lengths
- Cost efficient and rational wiring for BUS installations
- Space-saving due to compact dimensions

Product Make-up

- M12 plug, 5-pins, A-coded
- Screw connection
- PG9 thread
- Screened version

Technical data

Connection type
Screwing

Material
Contact: CuSn
Contact surface: Au
Contact carrier: PA66
Sealing: NBR
Knurl: Nickel-plated brass
Gripping body: Zinc die-cast, nickel-plated

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

Rated current (A)
4 A

Article number	Article designation	Design	Number of pins	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight							
22260135	AB-C5-M12MS-PG9-SH	screw	5	0.25 - 0.75	6.0 - 8.0	60	1
Socket, straight							
22260136	AB-C5-M12FS-PG9-SH	screw	5	0.25 - 0.75	6.0 - 8.0	60	1

DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA CAN M12/M12

M12 control cabinet feed-through, shielded for CAN/DeviceNet/ S/A cabling

Benefits

- M12 connector on both sides
- Plug & Play for flexible connection solutions

Product features

- For CANopen/DeviceNet applications
- For sensor/actuator cabling
- Bipolar/screw mounting

Product Make-up

- 5-pin control cabinet feed-through, M12 A-coded
- M12 plug on M12 socket
- Screened version

Technical data

Material
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25°C to +85°C

Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

Rated current (A)
4 A

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Control cabinet feed through				
22262020	AB-C5-DSI-M12MS-M12FS-M16-SH	5	24	1

DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA CAN TR M12

M12 Terminating resistor for DeviceNet/CANopen

Info

- Fully suitable for industrial use

Benefits

- Cost efficient termination of a bus systems
- Space-saving due to compact dimensions
- Robust design

Application range

- Mechanical and plant engineering

Product features

- 120 Ω terminating resistor for DeviceNet/CANopen

Product Make-up

- Straight connector M12 with integrated termination resistor

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000448
ETIM 5.0/6.0 Class-Description:
Terminal resistor

Protection rating
IP65/IP67

Ambient temperature (operation)
-25°C to +90°C

Contact material
CuSn

Coding
A - Standard (CANopen/DeviceNet)

Rated current (A)
4 A

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Plug, unshielded (terminating resistor)				
22260766	AB-C5-M12MS-DN-TR	5	60	5

DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

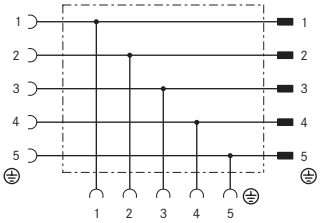
Accessories

- EPIC® DATA CAN M12T refer to page 374

DeviceNet CANopen

EPIC® DATA CAN M12T

M12 T parallel distributor for CAN/ DeviceNet/ S/A cabling



Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Robust design

Product features

- For CANopen/DeviceNet applications
- PWIS-free

Product Make-up

- 5-pin parallel distributor
- M12 socket on M12 plug and M12 socket

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description:
Passive sensor-actuator interface

Material
Contact: CuZn
Contact surface: Ni/Au
Contact carrier: TPU GF
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing
Sealing: NBR

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C

Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

Rated current (A)
4 A

Article number	Article designation	Number of pins	Rated voltage (V)	PU
T distributor				
22260765	AB-C5-M12T-2XM12FS DN	5	60	5

DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DeviceNet CANopen

EPIC® DATA CAN CCR

Cable coupler round, shielded for e.g. sensor-actuator / PROFIBUS / CAN cables

Benefits

- Time-saving assembly with IDC connection technology
- Optimum EMC protection with 360 ° shielding

Application range

- To extend existing cable systems
- Repairkit for damaged cables

Product features

- 5-pin cable coupler round
- Screened version

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002925
ETIM 5.0/6.0 Class-Description:
Sensor-actuator adapting connector

Material
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: Zinc die-cast, nickel-plated

Protection rating
IP65/IP67

Ambient temperature (operation)
-40°C to +85°C

Rated current (A)
4 A

Article number	Article designation	Number of pins	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Cable coupler round						
21700641	AB-C5-CCR-SH	5	0.14 - 0.50	5.0 - 9.7	60	1

DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS IS

ISOBUS cables for use in agricultural vehicles

Info

- Lapp cable is member of the AEF - Agricultural Industry Electronics Foundation

Benefits

- Cable according ISOBUS standard (ISO 11783-2) for use in agricultural vehicles.
- HYBRID: cable for data transmission + power supply

Application range

- For outdoor applications
- Connection cable between tractor and pulled machinery

Product features

- Flame-retardant according to IEC standard 60332-1
- UV-resistant
- Resistant against oil, benzine and diesel
- PUR (Polyurethane) Version with increased robustness

Norm references / Approvals

- ISO 11783-2:2012

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- 4x 0,5 mm² (red, yellow, black, green)
  2x 2,5 mm² (red, black)
  2x 6 mm² (red, black)
- Outer sheath: PUR and PVC, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
60 V

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Test voltage
0,5 mm - 2,5 mm² core / core = 1,5 kV;
6 - 10 mm² core / core = 2,5 kV

Characteristic impedance
Characteristic impedance: 75 Ω

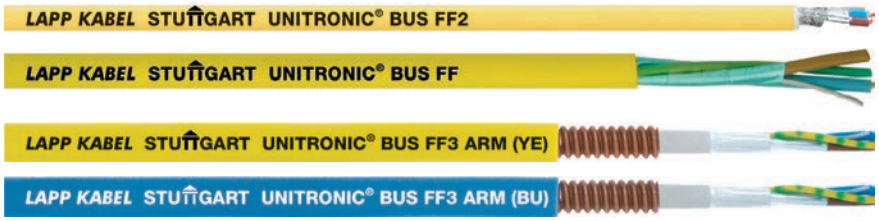
Temperature range
PUR: -40°C to +85°C
PVC: -30°C to +85°C

Article number	Article designation	Number of cores/pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)
PUR				
2170561	UNITRONIC® BUS IS PUR 2x6+2x2,5+1x4x0,5	2x6+2x2,5+1x4x0,5	15.6	182.4
PVC				
2170560	UNITRONIC® BUS IS PVC	2x6+2x2,5+1x4x0,5	15.6	182.4

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS FF

FOUNDATION Fieldbus cable for use in Process Automation - UL-verified



Benefits

- Cables meet the requirements of ISA/SP50 and the FOUNDATION™ field bus for the cable type A.

Application range

- FOUNDATION™ Fieldbus is used in intrinsically safe areas, especially in the field of Process Automation
- Fixed Installation

Product features

- UV-resistant
- Extended temperature range

Norm references / Approvals

- With UL/CSA certification (CMG/PLTC)

Product Make-up

- 2-core, not armoured, with device ground
- 3-core, unarmoured, with device ground
- 3-core, armoured (longitudinally welded, spiral corrugated copper sheath) with device ground
- Outer sheath: PVC, yellow
  Armoured Version: PVC, yellow and blue

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
300 V

Conductor resistance
≤ 24 Ω/km

Minimum bending radius
15 x outer diameter

Test voltage
1500 V

Characteristic impedance
100 ± 20 Ω at 31.25 kHz

Temperature range
-40 °C or -25 °C to +105 °C, see data sheet

Article number	Article designation	Number of pairs and cable diameter	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS FF					
2170350	UNITRONIC® BUS FF 3	1x2x1.1 + 1x1.1 Ø	7.9	48.3	93
PVC - Armoured					
2170351	UNITRONIC® BUS FF 3 ARM (YE)	1x2x1.1 + 1x1.1 Ø	12.3	125	182
2170353	UNITRONIC® BUS FF 3 ARM (BU)	1x2x1.1 + 1x1.1 Ø	12.3	125	182
PVC					
2170352	UNITRONIC® BUS FF 2	1 x 2 x 1.1	7.9	39.7	82

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Foundation™ is a trademark of the Fieldbus Foundation
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CC

CC-Link bus cable for fixed installation - UL-verified

Info

- Lapp Kabel is a regular member of the user organisation CC-Link Partner Association (CLPA), Japan.

Benefits

- The CC-Link® system was developed by Mitsubishi Electric Automation, Japan.
- This CC-Link® bus cable has successfully passed the CC-Link® Conformance Test in Japan.

Application range

- CC-Link® (Control & Communication Link) = field bus network, for both control as well as information data to provide efficient, integrated factory and process automation.
- Fixed installation of the CC-Link® network

Product features

- Transmission rate in relation to the distance
- 156 kbit/s 1.200 m
  625 kbit/s 600 m
  2,5 Mbit/s 200 m
  5,0 Mbit/s 110-150 m
  10 Mbit/s 50-100 m
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- SUN RES acc. to UL 1581

Norm references / Approvals

- CM UL/CSA certification 75°C or PLTC Sun Res

Product Make-up

- Bare stranded copper wires
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Outer sheath: PVC, red (RAL 3000)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
300 V

Conductor resistance
11 Ω/1,000 ft. (305 m) at 20°C

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 8 x outer diameter

Test voltage
2000 V

Characteristic impedance
110 Ω at 1 MHz

Temperature range
-40°C to +70°C

Article number	Article designation	Number of cores and AWG size	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS CC					
2170360	UNITRONIC® BUS CC	3 x 1 x AWG20	7.7	38.8	76.6

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / CC-Link® is a registered trademark of CC-Link Partner Association, Japan (CLPA)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CC FD P FRNC

CC-Link bus cable for high fleible applications - UL-verified

Info

- Lapp Kabel is a regular member of the user organisation CC-Link Partner Association (CLPA), Japan.

Benefits

- The CC-Link® system was developed by Mitsubishi Electric Automation, Japan.

Application range

- CC-Link® (Control & Communication Link) = field bus network, for both control as well as information data to provide efficient, integrated factory and process automation.
- For highly flexible applications (power chains, moving machine parts)

Product features

- Transmission rate in relation to the distance
- 156 kbit/s 1.200 m
  625 kbit/s 600 m
  2,5 Mbit/s 200 m
  5,0 Mbit/s 110-150 m
  10 Mbit/s 50-100 m
- Halogen-free
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- AWM 20233 80 °C 300V

Product Make-up

- Bare stranded copper wires
- Core insulation: PE
- Inner sheath: FRNC
- Overall screening of braided tinned-copper strands
- Outer sheath: PUR, red (RAL 3000)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Certifications
UL AWM Style 20233

Peak operating voltage
300 V

Conductor resistance
11 Ω/1,000 ft. (305 m) at 20°C

Minimum bending radius
Fixed installation: 4 x outer diameter
Moved: 10 x outer diameter

Test voltage
2000 V

Characteristic impedance
110 Ω at 1 MHz

Temperature range
-40°C to +80°C

Article number	Article designation	Number of cores and AWG size	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS CC FD P FRNC					
2170370	UNITRONIC® BUS CC FD P FRNC	3 x 1 x AWG20	8.5	39.9	84

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths / CC-Link® is a registered trademark of CC-Link Partner Association, Japan (CLPA)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS SAFETY

SafetyBUS cables for transmission of safety-oriented datas

Benefits

- For serial transmission of safety-oriented data

Application range

- UNITRONIC® BUS SAEFTY - fixed Installation
  UNITRONIC® BUS SAEFTY FD P - highly flexible applications
- For systems such as SafetyBUS p®, based on the well-known CAN bus system

Product features

- The stated bit rates result in the following cable lengths (maximum) for a bus segment:
- 500 kbit/s = max.100 m
- 250 kbit/s = max. 250 m
- 125 kbit/s = max. 500 m
- 50 kbit/s = max. 1,000 m

Norm references / Approvals

- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Bare stranded copper wires
- Core insulation: foam skin
- Tin-plated copper wire braiding
- Outer sheath: halogen-free, flame-retardant compound
- Outer sheath: yellow

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Certifications
Version UNITRONIC® BUS SAFETY FC:
AWM Style 2464 (80°C 300 V)

Mutual capacitance
(800 Hz): max. 45 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 52 Ω/km

Minimum bending radius
Fixed installation:
5 x outer diameter

Test voltage
Core/core: 3000 V
Core/core: 1500 V (FD- version)

Characteristic impedance
120 Ω

Temperature range
UNITRONIC BUS SAFETY:
Fixed installation: -30°C to +80°C
UNITRONIC BUS SAFETY FD P:
Fixed installation -40°C to +80°C
Moved: -30 to +80°C

Article number	Article designation	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Fixed Installation					
2170295	UNITRONIC® BUS SAFETY	3 x 0.75	7.6	49	68
Highly flexible applications					
2170885	UNITRONIC® BUS SAFETY FD P	3 x 0.75	7.8	49	68

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SafetyBUS p® is a registered trademark of Pilz GmbH & Co.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- FC STRIP stripping tool refer to page 986

UNITRONIC® BUS IBS

INTERBUS cables for fixed installation

Info

- IBS - INTERBUS

Benefits

- Certified by INTERBUS CLUB

Application range

- Fixed Installation

Product features

- IBS cable - for fixed installation
- Remote bus cable + installation remote bus cable
- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
  500 kbit/s = max. 400 m
- Halogen-free
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- According to DIN EN 61158

Product Make-up

- **UNITRONIC® BUS IBS**
  Bare copper wire
  Core insulation: PE
  Overall copper braid screen
  Outer sheath: PVC, violet (RAL 4001)
- **UNITRONIC® BUS IBS P COMBI**
  Bare copper wire
  Core insulation: PE
  Overall copper braid screen
  Outer sheath: PUR, violet (RAL 4001)
- **UNITRONIC® BUS IBS A**
  similar to UNITRONIC BUS IBS,
  but with UL/CSA certification

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
Flexible use: 10 x outer diameter

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 186 Ω/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 Ω

Temperature range
Fixed installation: -30°C to +80°C
Flexing: -5°C to +70°C

Article number	Cable type	Article designation	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Fixed Installation						
2170206	Remote bus cable (RBC)	**UNITRONIC® BUS IBS** Bare copper wire Core insulation: PE Overall copper braid screen Outer sheath: PVC, violet (RAL 4001)	3 x 2 x 0.22	7.2	37	72
2170208	Installation remote bus cable (INBC)	**UNITRONIC® BUS IBS P COMBI** Bare copper wire Core insulation: PE Overall copper braid screen Outer sheath: PUR, violet (RAL 4001)	3 x 2 x 0,22 + 3 x 1,0	7.9	60	85
For fixed installation - UL/CSA CMX certification						
2170209	Remote bus cable (RBC)	UNITRONIC® BUS IBS A	3 x 2 x 0.22	7.2	37	72

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
INTERBUS is a registered trademark of Phoenix Contact GmbH & Co.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SENSOR STRIP stripping tool refer to page 987

UNITRONIC® BUS IBS Yv COMBI

INTERBUS cables for fixed installation - outdoor/direct burial

Benefits

- Certified by INTERBUS CLUB

Application range

- Suitable for outdoor use and direct burial

Product features

- IBS cable - for outdoor use or direct burial, UV-resistant (remote bus cable + installation remote bus cable)
- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 500 kbit/s = max. 400 m
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- According to DIN EN 61158

Product Make-up

- **UNITRONIC® BUS IBS Yv**
  stranded bare conductor
  Core insulation: PE
  Tinned copper screen braiding
  Outer sheath: PVC, black (RAL 9005)
- **UNITRONIC® BUS IBS Yv COMBI**
  Stranded bare conductor
  Core insulation: PE
  3x2x0,22:
  white/brown, green/yellow, grey/pink
  3x1,0:
  red, blue, green/yellow
  Tinned copper screen braiding
  Inner sheath: PVC, violet RAL (4001),
  Outer diameter: 7,9 mm
  Outer sheath: PVC, black (RAL 9005)
  Outer diameter: 9,4 mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 186 Ω/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 Ω

Temperature range
Fixed installation: -40°C to +70°C

Article number	Cable type	Article designation	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS IBS Yv COMBI						
2170207	Remote bus cable (RBC)	UNITRONIC® BUS IBS Yv COMBI	3 x 2 x 0.22	9.3	37	94
UNITRONIC® BUS IBS Yv COMBI						
2170217	Installation remote bus cable (INBC)	UNITRONIC® BUS IBS Yv COMBI	3 x 2 x 0,22 + 3 x 1,0	9.4	60	128

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
INTERBUS is a registered trademark of Phoenix Contact GmbH & Co.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS IBS FD P

INTERBUS cables for use in high flexible applications

Info

- IBS - INTERBUS

Benefits

- Certified by INTERBUS CLUB

Application range

- For highly flexible use in energy supply chains or permanently moving machines and linear robots
- Dry or damp rooms
- Harsh industrial environment

Product features

- Halogen-free
- Remote bus cable + installation remote bus cable
- 500 kbit/s = max. 400 m (remote bus cable)
- Max. 50 m (installation remote bus cable)
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains

Norm references / Approvals

- According to DIN EN 61158
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- **UNITRONIC® BUS IBS FD P**
  Bare copper wire, extra fine
  core identification: acc. to DIN 47100
  Overall copper braid screen
  Outer sheath: PUR, violet (RAL 4001)
- **UNITRONIC® BUS IBS FD P COMBI**
  Stranded bare conductor
  Core insulation: PE
  3x2x0,25:
  white/brown, green/yellow, grey/pink
  3x1,0:
  red, blue, green/yellow
  Tinned copper screen braiding
  Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz): max. 60 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 159.8 Ω/km

Minimum bending radius
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 Ω

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

Article number	Cable type	Article designation	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Highly flexible applications						
2170216	Remote bus cable (RBC)	UNITRONIC® BUS IBS FD P	3 x 2 x 0.25	7.9	39	64
2170218	Installation remote bus cable (INBC)	UNITRONIC® BUS IBS FD P COMBI	3 x 2 x 0,25 + 3 x 1,0	7.9	62	92
Highly flexible applications - with UL/CSA (CMX) certification						
2170818	Installation remote bus cable (INBC)	UNITRONIC® BUS IBS FD P COMBI A	3 x 2 x 0,25 + 3 x 1,0	7.9	62	92

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
INTERBUS is a registered trademark of Phoenix Contact GmbH & Co.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Multipurpose shears A and B
- SMART STRIP stripping tool

UNITRONIC® BUS EIB / KNX

Info

- EIB / European Installation Bus
- KNX/communication in building management

Application range

- The product is designed for use in building management, e.g. for decentralised control of lighting, heating, air-conditioning, ventilation, energy management, blinds, time management, locking systems etc.
- The cable can be laid on or under plaster; in pipes, cable ducts; in dry, damp or wet environments.
- EIB installation mainly consists of sensors/command-transmitters (e.g. light barriers, switches, thermostats, infrared, wind meters, timers), and actuators (e.g. engines, heaters, ventilators, lights, blinds).
- KNX technology was formed from the merging of three established European bus standards: EIP, EHS (household appliances and consumer electronics) and Batibus (heating/ventilation/air conditioning)

Product features

- Serial data transmission
- EIB cable has been tested at 4 kV (1 min.) in a water bath

Product Make-up

- Screened installation cable based on type J-Y(ST)Y according to DIN VDE 0815
- **UNITRONIC® BUS EIB**
  Bare solid copper wire
  2x2x0,8: red and black, white and yellow
  Core insulation: PVC
  Overall aluminum foil
  Outer sheath: PVC, green (RAL 6017)
- **UNITRONIC® BUS EIBCOMBI**
  Bare solid copper wire
  Core insulation: PVC
  2x2x0,8: red and black, white and yellow
  3x1,5: brown, blue, green/yellow
  Overall aluminum foil
  Outer sheath: PVC, green (RAL 6017)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description:
Data cable

Mutual capacitance
(800 Hz) max. 100 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 73.2 Ω/km

Minimum bending radius
Fixed installation:
5 x outer diameter

Test voltage
Core/core: 4000 V

Temperature range
Fixed installation: -30°C to +70°C

Article number	Article designation	Number of pairs and mm or mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/m)
PVC					
2170240	UNITRONIC® BUS EIB	2 x 2 x 0.8	6.6	21	54
2170242	UNITRONIC® BUS EIB COMBI	2 x 2 x 0,8 mm + 3 x 1,5 mm²	12.7	64	128
Halogen-free					
2170241	UNITRONIC® BUS EIB H	2 x 2 x 0.8	6.6	21	54

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

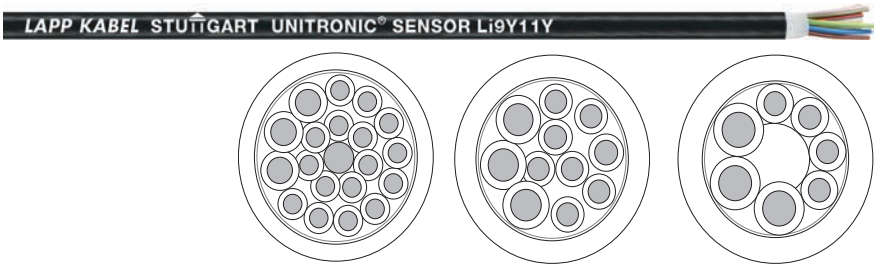
Accessories

- SENSOR STRIP stripping tool refer to page 987

UNITRONIC® SENSOR master cable

Info

- Customised construction can be supported



Benefits

- Cost efficient and rational wiring for S/A boxes with detachable master cable connection
- Can be used universally for S/A installations

Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

Product features

- Cores for Power Supply: 3 x 0.75 mm² and 3 x 1.0 mm²
- Cores for Signalling cable: 4 x 0.34 mm², 8 x 0.5 mm², 16 x 0.5 mm²
- Suitable for drag chains
- Halogen-free according to VDE 0472-815
- Flame-retardant according to UL 1581 FT-2

Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

Product Make-up

- Fine-wire, bare copper strand
- Single wire diameter:
  0.34 mm² = (43 x 0.10 mm)
  0.5mm² = (19 x 0.18 mm)
  0.75 mm² = (21 x 0.205 mm)
  1.0 mm² = (55 x 0.15 mm)
- Core insulation: PP
- Outer sheath: PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Conductor stranding
Stranded conductor, fine-wire

Minimum bending radius
Flexing: 10 x outer diameter

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -5°C to +80°C

Article number	Article designation	Dimensions (mm²)	Outer diameter [mm]	Core/outer sheath material	Copper index [kg/km]
UNITRONIC® SENSOR COMBI					
7038880	Li9Y11Y	3 x 0.75 + 4 x 0.34	6.6	PP/PUR	34.5
7038881	Li9Y11Y	3 x 1.0 + 8 x 0.5	8.4	PP/PUR	67.2
7038882	Li9Y11Y	3 x 1.0 + 16 x 0.5	9.8	PP/PUR	105.6

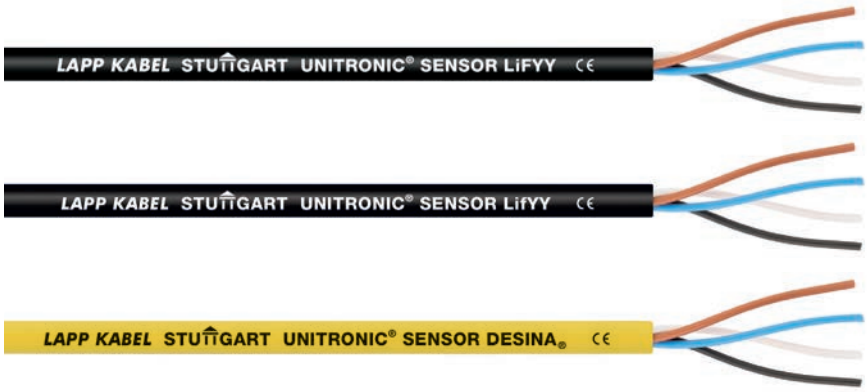
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil 100m
Cables are printed
Other variations are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet

Accessories

- Distribution Box M12 refer to page 409

UNITRONIC® SENSOR

Flexible cable for sensor/actuator cabling



Info

- Easy cable preperation
- UL recognized (LifYY A)

Benefits

- Easy installation (through cable trays, tubes, cabinets)
- Easy stripping and processing
- Space-saving due to compact dimensions

Application range

- Automation technology
- Sensor/ actuator cabling

Product features

- Core colour code in accordance with DIN EN 50044
- Black version: UV-resistant
- For higher mechanical stress (LifY11Y/ Desina®)

Norm references / Approvals

- UL recognized (LifYY A)

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: PVC
- Colour-code:
  3-pin: bn, bu, bk
  4-pin: bn, wh, bu, bk
  5-pin: bn, wh, bu, bk, gy
- DESINA® 4x0,34: bn, wh, bu, bk
- Outer sheath: PVC or PUR
- Sheath colour: black (RAL 9005)
- DESINA® yellow (RAL 1021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description:
Flexible cable

Peak operating voltage
300 V (not for power applications)

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter

Temperature range
PVC/PVC:
Fixed installation: -40°C to +80°C
Flexing: -5°C to +80°C
PVC/PUR:
Fixed installation: -30°C to +80°C
Flexing: -10°C to +80°C

Article number	Article designation	Dimensions (mm²)	Outer diameter [mm]	Core/outer sheath material	Colour	UL	Copper index [kg/km]
UNITRONIC® SENSOR PVC							
7038898	LifYY	3x0.25	3.8	PVC/PVC	black		7.5
7038899	LifYY	4x0.25	4.2	PVC/PVC	black		10.2
7038900	LifYY	3 x 0.34	4.1	PVC/PVC	black		9.8
7038901	LifYY	4 x 0.34	4.4	PVC/PVC	black		13
7038902	LifYY	5 x 0.34	4.8	PVC/PVC	black		16
UNITRONIC® SENSOR PVC UL							
7038903	LifYY A	3x0.25	4.3	PVC/PVC	black	yes	7.5
7038904	LifYY A	4x0.25	4.6	PVC/PVC	black	yes	10.2
7038905	LifYY A	3 x 0.34	4.4	PVC/PVC	black	yes	9.8
7038906	LifYY A	4 x 0.34	4.8	PVC/PVC	black	yes	13
7038907	LifYY A	5 x 0.34	5.2	PVC/PVC	black	yes	16
UNITRONIC® SENSOR PVC/PUR							
7038861	LifY11Y	4 x 0.34	4.8	PVC/PUR	black		13.1
7038862	LifY11Y	5 x 0.25	4.9	PVC/PUR	black		12
0040434	DESINA	4 x 0.34	5.2	PVC/PUR	yellow		13.5

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SENSOR M12 refer to page 398
- EPIC® SENSOR M12 V4A refer to page 399
- EPIC® SENSOR M8 refer to page 391
- SENSOR STRIP stripping tool refer to page 987

UNITRONIC® SENSOR FD

High flexible cable for sensor/actuator cabling for use in drag chains, halogen-free

Info

- For increased mechanical stress and harsh operating conditions

Benefits

- Designs for highly flexible use
- Abrasion-resistant
- Wear-resistant
- Space-saving due to compact dimensions

Application range

- Automation technology
- Sensor/ actuator cabling
- Mechanical and plant engineering
- Assembly and production lines

Product features

- UV-resistant
- Halogen-free according to VDE 0472-815
- Flame-retardant according to IEC UL 1581 FT-2
- Suitable for drag chains
- Designed for 4 million alternating bending cycles and travel distances up to 10 m

Norm references / Approvals

- UL AWM Style 20549

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: PP
- Colour-code:
  3-pin: bn, bu, bk
  4-pin: bn, wh, bu, bk
  5-pin: bn, wh, bu, bk, gy
  8-pin: bn, wh, gn, ye, gy, pk, bu, rd
- Outer sheath: PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description:
Flexible cable

Peak operating voltage
300 V (not for power applications)

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Temperature range
Occasional flexing: -25°C to +80°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Dimensions (mm²)	Outer diameter [mm]	Core/outer sheath material	Colour	Copper index [kg/km]
UNITRONIC® SENSOR FD						
7038883	Lif9Y11Y	3x0.25	4.4	PP/PUR	black	7.5
7038884	Lif9Y11Y	4x0.25	4.7	PP/PUR	black	10.2
7038867	Lif9Y11Y	5 x 0.25	4.7	PP/PUR	black	12
7038868	Lif9Y11Y	8 x 0.25	5.9	PP/PUR	black	19
7038864	Lif9Y11Y	3 x 0.34	4.6	PP/PUR	black	9.8
7038865	Lif9Y11Y	4 x 0.34	4.7	PP/PUR	black	13
7038866	Lif9Y11Y	5 x 0.34	5.1	PP/PUR	black	16
UNITRONIC® SENSOR FD - optimized						
7038889	Lif9Y11Y	3x0.25	3.6	PP/PUR	black	7.5
7038890	Lif9Y11Y	4x0.25	3.8	PP/PUR	black	10.2
7038893	Lif9Y11Y	5 x 0.34	4.5	PP/PUR	black	
UNITRONIC® SENSOR FD screened						
7038885	Lif9YC11Y	3 x 0.34	4.3	PP/PUR	black	19.1
7038886	Lif9YC11Y	4 x 0.34	4.6	PP/PUR	black	23.5
7038887	Lif9YC11Y	5 x 0.34	5	PP/PUR	black	27.5

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Other types of composition are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SENSOR M12 refer to page 398
- EPIC® SENSOR M12 V4A refer to page 399
- EPIC® SENSOR M8 refer to page 391
- STAR STRIP stripping tool refer to page 985
- SMART STRIP stripping tool

UNITRONIC® ROBUST S/A FD

High flexible, halogen-free sensor/actuator cable - resistant to a wide range of chemical media

Info

- Good chemical resistance
- Excellent weather resistance
- Flexible at low temperatures

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant against organic oils, emulsions, greases and waxes based on organic, animal or synthetic
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning
- Good resistance to ammonia compounds and bio-gases

Application range

- Automation technology
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Suitable for drag chains
- Torsion-resistant
- Halogen-free

Norm references / Approvals

- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry

Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: PE
- Colour-code:
  3-pin: bn, bu, bk
  4-pin: bn, wh, bu, bk
  5-pin: bn, wh, bu, bk, gy
- Outer sheath made of special TPE
- Color of the outer jacket: Black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description:
Flexible cable

Core identification code
acc. to EN 60947-5-2

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: 5 x outer diameter
Fixed installation: 3 x outer diameter

Temperature range
Flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Dimensions (mm²)	Outer diameter [mm]	Colour	Copper index [kg/km]
UNITRONIC® ROBUST S/A FD				
7038897	4x0.25	4.9	black	
7038895	3 x 0.34	5	black	
7038894	4 x 0.34	5.4	black	13.1
7038896	5 x 0.34	5.9	black	

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Other types of composition are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SENSOR M12 refer to page 398
- EPIC® SENSOR M12 V4A refer to page 399
- EPIC® SENSOR M8 refer to page 391
- STAR STRIP stripping tool refer to page 985

UNITRONIC® SENSOR M8

M8 plug/socket on free conductor end

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

Suitable tools

- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	LED	Rated voltage (V)	PU
3-pin							
Plug							
22260204	AB-C3-M8MS-2,0PUR	3	2	straight	no	60	1
22260205	AB-C3-M8MS-5,0PUR	3	5	straight	no	60	1
22260218	AB-C3-M8MS-10,0PUR	3	10	straight	no	60	1
22260053	AB-C3-M8MA-2,0PUR	3	2	angled	no	60	1
22260987	AB-C3-M8MA-5,0PUR	3	5	angled	no	60	1
22260055	AB-C3-M8MA-10,0PUR	3	10	angled	no	60	1
Socket							
22260202	AB-C3-2,0PUR-M8FS	3	2	straight	no	60	1
22260200	AB-C3-5,0PUR-M8FS	3	5	straight	no	60	1
22260219	AB-C3-10,0PUR-M8FS	3	10	straight	no	60	1
22260203	AB-C3-2,0PUR-M8FA	3	2	angled	no	60	1
22260201	AB-C3-5,0PUR-M8FA	3	5	angled	no	60	1
22260220	AB-C3-10,0PUR-M8FA	3	10	angled	no	60	1
22260275	AB-C3-2,0PUR-M8FA-2L	3	2	angled	2 LEDs	24	1
22260276	AB-C3-5,0PUR-M8FA-2L	3	5	angled	2 LEDs	24	1
22260277	AB-C3-10,0PUR-M8FA-2L	3	10	angled	2 LEDs	24	1
4-pin							
Plug							
22260300	AB-C4-M8MS-2,0PUR	4	2	straight	no	30	1
22260308	AB-C4-M8MS-5,0PUR	4	5	straight	no	30	1
22260318	AB-C4-M8MS-10,0PUR	4	10	straight	no	30	1
22260056	AB-C4-M8MA-2,0PUR	4	2	angled	no	30	1
22260057	AB-C4-M8MA-5,0PUR	4	5	angled	no	30	1
22260058	AB-C4-M8MA-10,0PUR	4	10	angled	no	30	1
Socket							
22260309	AB-C4- 2,0PUR-M8FS	4	2	straight	no	30	1
22260310	AB-C4- 5,0PUR-M8FS	4	5	straight	no	30	1
22260317	AB-C4-10,0PUR-M8FS	4	10	straight	no	30	1
22260311	AB-C4- 2,0PUR-M8FA	4	2	angled	no	30	1
22260312	AB-C4- 5,0PUR-M8FA	4	5	angled	no	30	1
22260319	AB-C4-10,0PUR-M8FA	4	10	angled	no	30	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
No copper surcharge.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

Accessories

- EPIC® SENSOR M8 refer to page 391

UNITRONIC® SENSOR M8-M8

M8 plug on M8 socket

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	LED	Rated voltage (V)	PU
Plug on socket							
3-pin							
22260206	AB-C3-M8MS-0,3PUR-M8FS	3	0.3	straight-straight	no	60	1
22260207	AB-C3-M8MS-0,6PUR-M8FS	3	0.6	straight-straight	no	60	1
22260208	AB-C3-M8MS-1,0PUR-M8FS	3	1	straight-straight	no	60	1
22260209	AB-C3-M8MS-2,0PUR-M8FS	3	2	straight-straight	no	60	1
22260210	AB-C3-M8MS-0,3PUR-M8FA	3	0.3	straight-angled	no	60	1
22260211	AB-C3-M8MS-0,6PUR-M8FA	3	0.6	straight-angled	no	60	1
22260212	AB-C3-M8MS-1,0PUR-M8FA	3	1	straight-angled	no	60	1
22260213	AB-C3-M8MS-2,0PUR-M8FA	3	2	straight-angled	no	60	1
22260214	AB-C3-M8MS-0,3PUR-M8FA-2L	3	0.3	straight-angled	2 LEDs	24	1
22260215	AB-C3-M8MS-0,6PUR-M8FA-2L	3	0.6	straight-angled	2 LEDs	24	1
22260216	AB-C3-M8MS-1,0PUR-M8FA-2L	3	1	straight-angled	2 LEDs	24	1
22260217	AB-C3-M8MS-2,0PUR-M8FA-2L	3	2	straight-angled	2 LEDs	24	1
4-pin							
22260313	AB-C4-M8MS-0,3PUR-M8FS	4	0.3	straight-straight	no	30	1
22260314	AB-C4-M8MS-0,6PUR-M8FS	4	0.6	straight-straight	no	30	1
22260315	AB-C4-M8MS-1,0PUR-M8FS	4	1	straight-straight	no	30	1
22260316	AB-C4-M8MS-2,0PUR-M8FS	4	2	straight-straight	no	30	1
22260059	AB-C4-M8MS-0,3PUR-M8FA	4	0.3	straight-angled	no	30	1
22260060	AB-C4-M8MS-0,6PUR-M8FA	4	0.6	straight-angled	no	30	1
22260061	AB-C4-M8MS-1,0PUR-M8FA	4	1	straight-angled	no	30	1
22260062	AB-C4-M8MS-2,0PUR-M8FA	4	2	straight-angled	no	30	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
No copper surcharge.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

UNITRONIC® SENSOR M8-M12

M8 plug on M12 socket

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
- Outer sheath: PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	LED	Rated voltage (V)	PU
3-pin							
22260241	AB-C3-M8MS-0,3PUR-M12FS	3	0.3	straight-straight	no	60	1
22260242	AB-C3-M8MS-0,6PUR-M12FS	3	0.6	straight-straight	no	60	1
22260243	AB-C3-M8MS-1,0PUR-M12FS	3	1	straight-straight	no	60	1
22260244	AB-C3-M8MS-2,0PUR-M12FS	3	2	straight-straight	no	60	1
22260245	AB-C3-M8MS-0,3PUR-M12FA	3	0.3	straight-angled	no	60	1
22260246	AB-C3-M8MS-0,6PUR-M12FA	3	0.6	straight-angled	no	60	1
22260247	AB-C3-M8MS-1,0PUR-M12FA	3	1	straight-angled	no	60	1
22260248	AB-C3-M8MS-2,0PUR-M12FA	3	2	straight-angled	no	60	1
22260271	AB-C3-M8MS-0,3PUR-M12FA-2L	3	0.3	straight-angled	2 LEDs	24	1
22260272	AB-C3-M8MS-0,6PUR-M12FA-2L	3	0.6	straight-angled	2 LEDs	24	1
22260273	AB-C3-M8MS-1,0PUR-M12FA-2L	3	1	straight-angled	2 LEDs	24	1
22260274	AB-C3-M8MS-2,0PUR-M12FA-2L	3	2	straight-angled	2 LEDs	24	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
No copper surcharge.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

UNITRONIC® SENSOR PVC M8

M8 plug/socket on free conductor end

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

Application range

- For medium mechanical stress in dry conditions

Product features

- Partly oil and chemical resistant
- PWIS-free
- Including tag carrier

Norm references / Approvals

- Flame-retardant according to style 2464
- UL File Number: E249137

Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PVC, black

Suitable tools

- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

Technical data

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -25°C to +80°C
Flexing -5°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	Rated voltage (V)	PU
3-pin						
Plug						
22260847	AB-C3-M8MS-2,0PVC	3	2	straight	60	1
22260665	AB-C3-M8MS-5,0PVC	3	5	straight	60	1
22260848	AB-C3-M8MS-10,0PVC	3	10	straight	60	1
Socket						
22262093	AB-C3-2,0PVC-M8FA	3	2	angled	60	1
22262081	AB-C3-5,0PVC-M8FA	3	5	angled	60	1
22260370	AB-C3-10,0PVC-M8FA	3	10	angled	60	1
4-pin						
Plug						
22262105	AB-C4-M8MS-2,0PVC	4	2	straight	30	1
22262106	AB-C4-M8MS-5,0PVC	4	5	straight	30	1
22262107	AB-C4-M8MS-10,0PVC	4	10	straight	30	1
Socket						
22260846	AB-C4-2,0PVC-M8FA	4	2	angled	30	1
22260845	AB-C4-5,0PVC-M8FA	4	5	angled	30	1
22260844	AB-C4-10,0PVC-M8FA	4	10	angled	30	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
No copper surcharge.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

Accessories

- EPIC® SENSOR M8 refer to page 391

EPIC® SENSOR M8

Field mountable connectors M8

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)

Protection rating
IP 65/IP 67 (IDC)
IP 68 (piercing)
IP 67 (screw)

Ambient temperature (operation)
Plug/socket
-25°C to +80°C (IDC)
-25°C to +85°C (piercing)
-40°C to +85°C (screw)

Coding
A-standard

Rated current (A)
4 A

Benefits

- Easy connection with proven srew clamp connection
- For creating of individual cable lengths
- Quick and easy on-site assembly
- No special tools required for connecting the cables
- Time-saving assembly with IDC connection technology

Product features

- 3 and 4-pin version
- Version with piercing, insulation displacement contacts (IDC) or screw connection
- PWIS-free

Suitable cables

- UNITRONIC® SENSOR Page 384
- UNITRONIC® SENSOR FD Page 385
- UNITRONIC® ROBUST S/A FD Page 386

Article number	Article designation	Number of pins	Connection type	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight							
22260993	AB-C3-M8MS-F0,25	3	IDC	0.08 - 0.25	2.5 - 5	60	1
22260985	AB-C3-M8MS-F0,5	3	IDC	0.25 - 0.5	2.5 - 5	60	1
22260043	AB-C4-M8MS-F0,25	4	IDC	0.08 - 0.25	2.5 - 5	30	1
22260044	AB-C4-M8MS-F0,5	4	IDC	0.25 - 0.5	2.5 - 5	30	1
22260122	AB-C3-M8MS-P	3	Piercing	0.14 - 0.38	3 - 5	60	1
22260123	AB-C4-M8MS-P	4	Piercing	0.14 - 0.38	3 - 5	30	1
22260120	AB-C3-M8MS	3	screw	0.14 - 0.5	3.5 - 5	60	1
22260121	AB-C4-M8MS	4	screw	0.14 - 0.5	3.5 - 5	30	1
Plug, straight shielded							
22262025	AB-C3-M8MS-M-0,34-SH	3	screw	0.14 - 0.5	3.5 - 5.5	60	1
22262027	AB-C4-M8MS-M-0,34-SH	4	screw	0.14 - 0.5	3.5 - 5	30	1
Plug, angled							
22262110	AB-C3-M8MA	3	screw	0.14 - 0.5	3.5 - 5	60	1
22262111	AB-C4-M8MA	4	screw	0.14 - 0.5	3.5 - 5	30	1
Socket, straight							
22260994	AB-C3-M8FS-F0,25	3	IDC	0.08 - 0.25	2.5 - 5	60	1
22260986	AB-C3-M8FS-F0,5	3	IDC	0.25 - 0.5	2.5 - 5	60	1
22260045	AB-C4-M8FS-F0,25	4	IDC	0.08 - 0.25	2.5 - 5	30	1
22260046	AB-C4-M8FS-F0,5	4	IDC	0.25 - 0.5	2.5 - 5	30	1
22260124	AB-C3-M8FS-P	3	Piercing	0.14 - 0.38	3 - 5	60	1
22260119	AB-C4-M8FS-P	4	Piercing	0.14 - 0.38	3 - 5	30	1
22260125	AB-C3-M8FS	3	screw	0.14 - 0.5	3.5 - 5	60	1
22260126	AB-C4-M8FS	4	screw	0.14 - 0.5	3.5 - 5	30	1
Socket, straight shielded							
22262026	AB-C3-M8FS-M-0,34-SH	3	screw	0.14 - 0.5	3.5 - 5.5	60	1
22262028	AB-C4-M8FS-M-0,34-SH	4	screw	0.14 - 0.5	3.5 - 5.5	30	1
Socket, angled							
22262112	AB-C3-M8FA	3	screw	0.14 - 0.5	3.5 - 5	60	1
22262113	AB-C4-M8FA	4	screw	0.14 - 0.5	3.5 - 5	30	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SENSOR Flush-type M8

Benefits
- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)

Application range
- Connection of enclosures and cabinets

Product features
- M8 fastening thread
- Designs for front mounting
- PWIS-free

Product Make-up
- TPE single strands, l = 0.5 m
- Core cross section: 0.25 mm²

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

Material
Contact: CuSn
Contact surface: Ag

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25°C to +85°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Panel-mount connector male				
22260100	AB-C3-M8MS-0,5	3	60	1
22260101	AB-C4-M8MS-0,5	4	30	1
Panel-mount connector female				
22260102	AB-C3-M8FS-0,5	3	60	1
22260103	AB-C4-M8FS-0,5	4	30	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Matching fitting nut: 22260104

UNITRONIC® SENSOR M12 open-ended Cordsets

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits
- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

Application range
- For increased mechanical stress and harsh operating conditions

Product features
- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

Norm references / Approvals
- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up
- Wire cross-section: 0.34mm² (8-pin: 0.25mm²)
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
  5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)
  8-pin: wh (1), bn (2), gn (3), ye 4), gy (5), pk (6), bu (7), rd (8)
- Outer sheath: PUR, black

Suitable tools
- DATA STRIP stripping tool refer to page 986

Technical data

Classification
ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP 65/IP 67

Ambient temperature (operation)
Plug/socket: -25°C to +90°C
Fixed installation: -40°C to +80°C
Flexing: -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A
2 A (8-pin)

		3-pins		4-pins		5-pins		8-pins	
		straight	angled	straight	angled	straight	angled	straight	angled
Product	**Length**	**Article number**							
Plug, unshielded	2.0m	22260221	22260223	22260320	22260301	22260400	22260402	22260091	22260094
	5.0m	22260222	22260224	22260321	22260302	22260401	22260403	22260092	22260095
	10.0m	22260249	22260256	22260342	22260303	22260414	22260417	22260093	22260096
Socket, unshielded	2.0m	22260257	22260258	22260322	22260324	22260404	22260406	22260726	22260141
	5.0m	22260250	22260259	22260323	22260325	22260405	22260407	22260728	22260615
	10.0m	22260251	22260260	22260343	22260341	22260415	22260418	22260729	22260616
Socket with LEDs, unshielded	2.0m	22260252	22260253	22260344	22260326	On request	22260408	On request	On request
	5.0m	22260265	22260254	22260345	22260327		22260409		
	10.0m	22260266	22260255	22260346	22260340		22260416		
Plug, shielded	2.0m	22260453	On request	22260459	On request	22260465	22261004	On request	On request
	5.0m	22260454		22260460		22260466	22261005		
	10.0m	22260455		22260461		22260467	On request		
Socket, shielded	2.0m	22260450	22260074	22260456	22260074	22260462	22260946	On request	On request
	5.0m	22260451	22260675	22260457	22260675	22260463	22260714	22260863	22260859
	10.0m	22260452	22260680	22260458	22260680	22260464	22260991	22262001	On request

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

UNITRONIC® SENSOR M12 Cordsets

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Wire cross-section: 0.34mm² (8-pin: 0.25mm²)
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
  5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)
  8-pin: wh (1), bn (2), gn (3), ye 4), gy (5), pk (6), bu (7), rd (8)
- Outer sheath: PUR, black

Technical data

Classification
ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP 65/IP 67

Ambient temperature (operation)
Plug/socket: -25°C to +90°C
Fixed installation: -40°C to +80°C
Flexing: -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A
2 A (8-pin)

		Plug							
		3-pins		4-pins		5-pins		8-pins	
		straight	angled	straight	angled	straight	angled	straight	angled
Socket	**Length**	**Article number**							
straight	0.3m	22260233	On request	22260328	22260304	22260410	On request	22260097	On request
	0.6m	22260234		22260329	22260305	22260411		22260098	
	1.0m	22260235		22260330	22260306	22260412		22260099	
	2.0m	22260236		22260331	22260307	22260413		22260042	
angled	0.3m	22260237	On request	22260332	On request	22260063	On request	22260137	On request
	0.6m	22260238		22260333		22260064		22260138	
	1.0m	22260239		22260334	22260965	22260065		22260139	
	2.0m	22260240		22260335	22260693	22260066		22260140	
angled, LEDs	0.3m	22260261	On request	22260336	On request	22260067	On request	On request	On request
	0.6m	22260262		22260337		22260068			
	1.0m	22260263		22260338		22260069			
	2.0m	22260264		22260339		22260070			

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

UNITRONIC® SENSOR M12-M8

M12 plug on M8 socket

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Length (m)	Design	LED	Rated voltage (V)	PU
Plug on socket						
3-pin						
22260225	AB-C3-M12MS-0,3PUR-M8FS	0.3	straight-straight	no	60	1
22260226	AB-C3-M12MS-0,6PUR-M8FS	0.6	straight-straight	no	60	1
22260227	AB-C3-M12MS-1,0PUR-M8FS	1	straight-straight	no	60	1
22260228	AB-C3-M12MS-2,0PUR-M8FS	2	straight-straight	no	60	1
22260229	AB-C3-M12MS-0,3PUR-M8FA	0.3	straight-angled	no	60	1
22260230	AB-C3-M12MS-0,6PUR-M8FA	0.6	straight-angled	no	60	1
22260231	AB-C3-M12MS-1,0PUR-M8FA	1	straight-angled	no	60	1
22260232	AB-C3-M12MS-2,0PUR-M8FA	2	straight-angled	no	60	1
22260267	AB-C3-M12MS-0,3PUR-M8FA-2L	0.3	straight-angled	2 LEDs	24	1
22260268	AB-C3-M12MS-0,6PUR-M8FA-2L	0.6	straight-angled	2 LEDs	24	1
22260269	AB-C3-M12MS-1,0PUR-M8FA-2L	1	straight-angled	2 LEDs	24	1
22260270	AB-C3-M12MS-2,0PUR-M8FA-2L	2	straight-angled	2 LEDs	24	1
4-pin						
22260347	AB-C4-M12MS-0,3PUR-M8FS	0.3	straight-straight	no	30	1
22260349	AB-C4-M12MS-0,6PUR-M8FS	0.6	straight-straight	no	30	1
22260350	AB-C4-M12MS-1,0PUR-M8FS	1	straight-straight	no	30	1
22260348	AB-C4-M12MS-2,0PUR-M8FS	2	straight-straight	no	30	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

Accessories

- FLEXIMARK® Label LMB refer to page 942

UNITRONIC® SENSOR PVC M12 | M12-M12

M12 plug/socket on M12 plug/socket/free conductor end

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance
- Integrated vibration protection (mechanical lock-in)

Application range

- For medium mechanical stress in dry conditions

Product features

- Partly oil and chemical resistant
- Including tag carrier
- PWIS-free

Norm references / Approvals

- Flame-retardant according to style 2464
- UL File Number: E249137

Product Make-up

- Wire cross-section: 0,34 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
  5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)
- Outer sheath: PVC, black

Suitable tools

- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	Rated voltage (V)	PU
3-pin						
Socket						
22260080	AB-C3-2,0PVC-M12FS	3	2	straight	250	1
22260663	AB-C3-5,0PVC-M12FS	3	5	straight	250	1
22260081	AB-C3-10,0PVC-M12FS	3	10	straight	250	1
22262095	AB-C3-2,0PVC-M12FA	3	2	angled	250	1
22260661	AB-C3-5,0PVC-M12FA	3	5	angled	250	1
22262083	AB-C3-10,0PVC-M12FA	3	10	angled	250	1
Plug on socket						
22262096	AB-C3-M12MS-2,0PVC-M12FA	3	2	straight-angled	250	1
22262097	AB-C3-M12MS-5,0PVC-M12FA	3	5	straight-angled	250	1
22262098	AB-C3-M12MS-10,0PVC-M12FA	3	10	straight-angled	250	1
4-pin						
Socket						
22260688	AB-C4- 2,0PVC-M12FS	4	2	straight	250	1
22260689	AB-C4-5,0PVC-M12FS	4	5	straight	250	1
22260685	AB-C4-10,0PVC-M12FS	4	10	straight	250	1
22260841	AB-C4- 2,0PVC-M12FA	4	2	angled	250	1
22260678	AB-C4-5,0PVC-M12FA	4	5	angled	250	1
22260683	AB-C4-10,0PVC-M12FA	4	10	angled	250	1
Plug on socket						
22260832	AB-C4-M12MS-2,0PVC-M12FA	4	2	straight-angled	250	1
22260705	AB-C4-M12MS-5,0PVC-M12FA	4	5	straight-angled	250	1
22260833	AB-C4-M12MS-10,0PVC-M12FA	4	10	straight-angled	250	1
5-pin						
Socket						
22262099	AB-C5-2,0PVC-M12FS	5	2	straight	60	1
22262100	AB-C5-5,0PVC-M12FS	5	5	straight	60	1
22262101	AB-C5-10,0PVC-M12FS	5	10	straight	60	1
Plug on socket						
22262102	AB-C5-M12MS-2,0PVC-M12FA	5	2	straight-angled	60	1
22262103	AB-C5-M12MS-5,0PVC-M12FA	5	5	straight-angled	60	1
22262104	AB-C5-M12MS-10,0PVC-M12FA	5	10	straight-angled	60	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

Accessories

- EPIC® SENSOR M12 refer to page 398
- EPIC® SENSOR M12 V4A refer to page 399
- FLEXIMARK® Label LMB refer to page 942

UNITRONIC® SENSOR HD M12

S/A cable: Hygienic Design for Food&Beverage

Info

- IP69 for high-pressure cleaning
- - 40 °C to + 105 °C

Benefits

- Hygienic Design for ideal cleaning results
- Guaranteed density by meeting the highest protection class
- Stainless steel knurl to ensure protection against corrosion
- Bright colors to detect contamination quickly

Application range

- Food production and packaging machinery
- Freezing plants, cold storage
- Washdown area with frequent contact with cleaning agents

Product features

- Suitable for drag chains
- 4-pin plug/socket M12 on free conductor end

Norm references / Approvals

- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600
  Special sealing element for food and beverage industry in North America

Product Make-up

- Wire cross-section: 0,34 mm²
- Colour-code:
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: TPE halogen-free, grey (similar to RAL 7035)

Suitable tools

- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Stainless steel (V4A)
Gripping body: PP

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67/IP68/IP69

Ambient temperature (operation)
Fixed installation -40°C to +105°C
Flexing -25°C to +105°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	LED	Rated voltage (V)	PU
4-pin							
Plug							
22262040	AB-C4-M12MS-2,0TPE-HD	4	2	straight	no	250	1
22262041	AB-C4-M12MS-5,0TPE-HD	4	5	straight	no	250	1
22262060	AB-C4-M12MS-7,5TPE-HD	4	7.5	straight	no	250	1
22262042	AB-C4-M12MS-10,0TPE-HD	4	10	straight	no	250	1
22262061	AB-C4-M12MS-15,0TPE-HD	4	15	straight	no	250	1
Socket							
22262043	AB-C4-2,0TPE-M12FS-HD	4	2	straight	no	250	1
22262044	AB-C4-5,0TPE-M12FS-HD	4	5	straight	no	250	1
22262062	AB-C4-7,5TPE-M12FS-HD	4	7.5	straight	no	250	1
22262045	AB-C4-10,0TPE-M12FS-HD	4	10	straight	no	250	1
22262063	AB-C4-15,0TPE-M12FS-HD	4	15	straight	no	250	1
22262046	AB-C4-2,0TPE-M12FA-HD	4	2	angled	no	250	1
22262047	AB-C4-5,0TPE-M12FA-HD	4	5	angled	no	250	1
22262064	AB-C4-7,5TPE-M12FA-HD	4	7.5	angled	no	250	1
22262048	AB-C4-10,0TPE-M12FA-HD	4	10	angled	no	250	1
22262065	AB-C4-15,0TPE-M12FA-HD	4	15	angled	no	250	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
No copper surcharge.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SENSOR M12 refer to page 398
- EPIC® SENSOR M12 V4A refer to page 399
- EPIC® SENSOR M12/M12 refer to page 400

EPIC® SENSOR M12

Field mountable connectors M12

Benefits

- For creating of individual cable lengths
- No special tools required for connecting the cables
- Time-saving assembly with IDC connection technology
- Easy connection with proven srew clamp connection

Product features

- 4, 5 and 8-pin version
- Screened and non-screened version
- Screw connection or insulation displacement contacts (IDC)
- PWIS-free

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector

Material
Contact: CuZn
Contact surface: CuSnZn

Protection rating
IP 65/IP 67 (IDC)
IP 67 (screw)

Ambient temperature (operation)
Plug/socket
-25°C to +80°C (IDC)
-40°C to +85°C (screw)

Coding
A-standard

Rated current (A)
4 A
2 A (8-pin)

Article number	Article designation	Number of pins	Connection type	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight							
22260132	AB-C4-M12MS-F0,34	4	IDC	0.14 - 0.34	3.5 - 6	125	1
22260134	AB-C4-M12MS-F0,75	4	IDC	0.34 - 0.75	4 - 8	250	1
22260649	AB-C4-M12MS-PG7	4	screw	0.25 - 0.75	4 - 6	250	1
22260995	AB-C4-M12MS-PG9	4	screw	0.25 - 0.75	6 - 8	250	1
22260129	AB-C5-M12MS-PG7	5	screw	0.25 - 0.75	4 - 6	60	1
22260651	AB-C5-M12MS-PG9	5	screw	0.25 - 0.75	6 - 8	60	1
22260996	AB-C5-M12MS-PG9-SKINTOP®	5	screw	0.25 - 0.75	6 - 8	60	1
Plug, straight shielded							
22260135	AB-C5-M12MS-PG9-SH	5	screw	0.25 - 0.75	6 - 8	60	1
22260825	AB-C8-M12MS-PG9-SH	8	screw	0.25 - 0.75	6 - 8	30	1
Plug, angled							
22260647	AB-C4-M12MA-PG7	4	screw	0.25 - 0.75	4 - 6	250	1
22260130	AB-C5-M12MA-PG7	5	screw	0.25 - 0.75	4 - 6	60	1
22260648	AB-C5-M12MA-PG9	5	screw	0.25 - 0.75	6 - 8	60	1
22262023	AB-C5-M12MA-PG9-SKINTOP®	5	screw	0.25 - 0.75	6 - 8	60	1
Plug angled, shielded							
22262108	AB-C5-M12MA-PG7-SH	5	screw	0.25 - 0.75	4 - 6	60	1
Socket, straight							
22260131	AB-C4-M12FS-F0,34	4	IDC	0.14 - 0.34	3.5 - 6	125	1
22260133	AB-C4-M12FS-F0,75	4	IDC	0.34 - 0.75	4 - 8	250	1
22260640	AB-C4-M12FS-PG7	4	screw	0.25 - 0.75	4 - 6	250	1
22260641	AB-C4-M12FS-PG9	4	screw	0.25 - 0.75	6 - 8	250	1
22260127	AB-C5-M12FS-PG7	5	screw	0.25 - 0.75	4 - 6	60	1
22260644	AB-C5-M12FS-PG9	5	screw	0.25 - 0.75	6 - 8	60	1
22260997	AB-C5-M12FS-PG9-SKINTOP®	5	screw	0.25 - 0.75	6 - 8	60	1
Socket, straight shielded							
22260136	AB-C5-M12FS-PG9-SH	5	screw	0.25 - 0.75	6 - 8	60	1
22260826	AB-C8-M12FS-PG9-SH	8	screw	0.25 - 0.75	6 - 8	30	1
Socket, angled							
22260636	AB-C4-M12FA-PG7	4	screw	0.25 - 0.75	4 - 6	250	1
22260128	AB-C5-M12FA-PG7	5	screw	0.25 - 0.75	4 - 6	60	1
22260638	AB-C5-M12FA-PG9	5	screw	0.25 - 0.75	6 - 8	60	1
22262024	AB-C5-M12FA-PG9-SKINTOP®	5	screw	0.25 - 0.75	6 - 8	60	1
Socket angled, shielded							
22262109	AB-C5-M12FA-PG7-SH	5	screw	0.25 - 0.75	4 - 6	60	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SENSOR M12 V4A

Field mountable connectors M12 for Food & Beverage/ Outdoor

Benefits

- Stainless steel knurl to ensure protection against corrosion
- Quick and easy on-site assembly
- For creating of individual cable lengths
- Space-saving due to compact dimensions
- Easy connection with proven srew clamp connection

Application range

- Automation systems
- Conveyor and transport systems
- Food production and packaging machinery
- Version SKINTOP® for Outdoor applications

Product features

- 4-pin connector
- Screw connection
- PWIS-free

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)
Knurl: Stainless steel (V4A)

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight						
22262049	AB-C4-M12MS-PG7-VA	4	0.25 - 0.75	4 - 6	250	1
22262123	AB-C4-M12MS-PG7-VA-SKINTOP	4	0.25 - 0.75	4.0 - 6.5	250	1
Socket, straight						
22262050	AB-C4-M12FS-PG7-VA	4	0.25 - 0.75	4 - 6	250	1
22262124	AB-C4-M12FS-PG7-VA-SKINTOP	4	0.25 - 0.75	4.0 - 6.5	250	1
Socket angled						
22262051	AB-C4-M12FA-PG7-VA	4	0.25 - 0.75	4 - 6	250	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SENSOR M12/M12

M12 control cabinet feed-through, shielded for CAN/DeviceNet/ S/A cabling

Benefits

- Plug & Play for flexible connection solutions
- M12 connector on both sides

Product features

- For CANopen/DeviceNet applications
- For sensor/actuator cabling
- Bipolar/screw mounting

Product Make-up

- 5-pin control cabinet feed-through, M12 A-coded
- M12 plug on M12 socket
- Screened version

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

Material
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25°C to +85°C

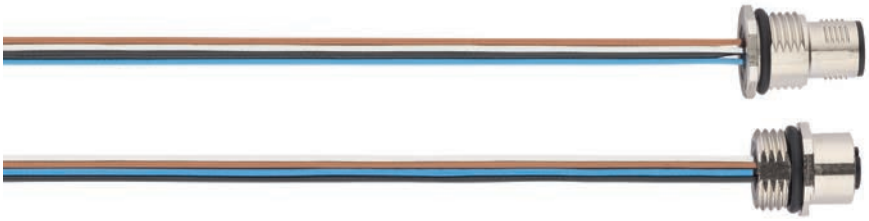
Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

Rated current (A)
4 A

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Control cabinet feed through				
22262020	AB-C5-DSI-M12MS-M12FS-M16-SH	5	24	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SENSOR Flush-type M12



Benefits
- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Outside plugable with M12 connection, inside housing connected with fixed wires

Application range
- Connection of enclosures and cabinets

Product features
- With M12, M16 or PG9 fastening thread
- Designs for front and rear wall-mounting
- M12 connector, A-coded with quick-locking system
- PWIS-free
- Rear wall-mounting versions inclusive fitting nut

Norm references / Approvals
- UL File Number: E249137

Product Make-up
- TPE single strands, l = 0.5 m
- Wire cross-section: 0,34 mm²

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

Material
Contact: CuZn
Contact surface: Au (gold)

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25°C to +85°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Fastening thread	Rated voltage (V)	PU
Plug for front-mounting					
22260108	AB-C4-M12MS-M16-0,5	4	M16	250	1
22260106	AB-C5-M12MS-M16-0,5	5	M16	60	1
22260083	AB-C4-M12MS-M16-PO-0,5	4	M16 positionable	250	1
22260084	AB-C5-M12MS-M16-PO-0,5	5	M16 positionable	60	1
22260113	AB-C4-M12MS-PG9-0,5	4	PG9	250	1
22260112	AB-C5-M12MS-PG9-0,5	5	PG9	60	1
22260087	AB-C4-M12MS-PG9-PO-0,5	4	PG9 positionable	250	1
22260088	AB-C5-M12MS-PG9-PO-0,5	5	PG9 positionable	60	1
Plug for rear-mounting					
22260999	AB-C4-DSI-M12MS-M12-0,5	4	M12	250	1
22260117	AB-C4-DSI-M12MS-PG9-0,5	4	PG9	250	1
22260115	AB-C5-DSI-M12MS-PG9-0,5	5	PG9	60	1
Socket for front-mounting					
22260107	AB-C4-M12FS-M16-0,5	4	M16	250	1
22260105	AB-C5-M12FS-M16-0,5	5	M16	60	1
22260085	AB-C4-M12FS-M16-PO-0,5	4	M16 positionable	250	1
22260086	AB-C5-M12FS-M16-PO-0,5	5	M16 positionable	60	1
22260114	AB-C4-M12FS-PG9-0,5	4	PG9	250	1
22260111	AB-C5-M12FS-PG9-0,5	5	PG9	60	1
22260089	AB-C4-M12FS-PG9-PO-0,5	4	PG9 positionable	250	1
22260090	AB-C5-M12FS-PG9-PO-0,5	5	PG9 positionable	60	1
Socket for rear-mounting					
22260118	AB-C4-DSI-M12FS-PG9-0,5	4	PG9	250	1
22260116	AB-C5-DSI-M12FS-PG9-0,5	5	PG9	60	1

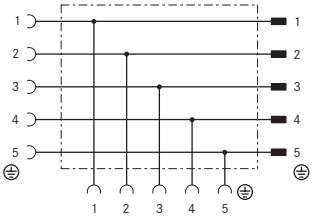
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Matching fitting nut: 22261062 (M12), 52003500 (PG9), 22260110 (M16)

DeviceNet CANopen

EPIC® SENSOR M12 T-distributor

M12 T parallel distributor for CAN/ DeviceNet/ S/A cabling



Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Robust design

Product features

- PWIS-free

Product Make-up

- 5-pin parallel distributor
- M12 socket on M12 plug and M12 socket

Technical data

Material
Contact: CuZn
Contact surface: Ni/Au
Contact carrier: TPU GF
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing
Sealing: NBR

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C

Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

Rated current (A)
4 A

Article number	Article designation	PU
T distributor		
22260765	AB-C5-M12T-2XM12FS DN	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DeviceNet CANopen

EPIC® SENSOR CCR

Cable coupler round, shielded for e.g. sensor-actuator / PROFIBUS / CAN cables

Benefits

- Optimum EMC protection with 360 ° shielding
- Time-saving assembly with IDC connection technology

Application range

- To extend existing cable systems
- Repairkit for damaged cables

Product features

- 5-pin cable coupler round
- Screened version

Technical data

Material
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: Zinc die-cast, nickel-plated

Protection rating
IP65/IP67

Ambient temperature (operation)
-40°C to +85°C

Rated current (A)
4 A

Article number	Article designation	Number of pins	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)
Cable coupler round					
21700641	AB-C5-CCR-SH	5	18 - 26	5.0 - 9.7	60

DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® SENSOR Valve

valve connector on free conductor end

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

Product features

- Suitable for drag chains
- With protective circuit (Z diode), PE-bridged (except type AD)
- With LED status indicator (yellow) With display switch state (2 LEDs, red/green)
- Including tag carrier
- PWIS-free

Product Make-up

- 3 or 5 x 0.5 mm²
- Core identification code: Black cores with white numbers +green/yellow
- Outer sheath: PUR halogen-free, black
- Outer diameter: 4.5 mm (3 pins) 5.3 mm (5 pins)

Suitable tools

- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ag

Protection rating
IP65/IP67

Ambient temperature (operation)
Valve connector -20°C to +85°C
Fixed installation -40°C to +80°C
Flexing -20°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	LED	Rated voltage (V)	PU
Valve connector type A (18 mm)						
22260584	AB-C3- 2,0PUR-A-1L-S	3	2	1 LED	24	1
22260576	AB-C3- 5,0PUR-A-1L-S	3	5	1 LED	24	1
22260577	AB-C3-10,0PUR-A-1L-S	3	10	1 LED	24	1
Valve connector type A (18mm) for pressure switch						
22260589	AB-C5-2,0PUR-AD-2L	5	2	2 LEDs	24	1
22260590	AB-C5-5,0PUR-AD-2L	5	5	2 LEDs	24	1
22260591	AB-C5-10,0PUR-AD-2L	5	10	2 LEDs	24	1
Valve connector type B (10 mm)						
22260585	AB-C3- 2,0PUR-B-1L-S	3	2	1 LED	24	1
22260578	AB-C3- 5,0PUR-B-1L-S	3	5	1 LED	24	1
22260579	AB-C3-10,0PUR-B-1L-S	3	10	1 LED	24	1
Valve connector type BI (11 mm)						
22260586	AB-C3- 2,0PUR-BI-1L-S	3	2	1 LED	24	1
22260580	AB-C3- 5,0PUR-BI-1L-S	3	5	1 LED	24	1
22260581	AB-C3-10,0PUR-BI-1L-S	3	10	1 LED	24	1
Valve connector type C (8 mm)						
22260587	AB-C3- 2,0PUR-C-1L-S	3	2	1 LED	24	1
22260582	AB-C3- 5,0PUR-C-1L-S	3	5	1 LED	24	1
22260583	AB-C3-10,0PUR-C-1L-S	3	10	1 LED	24	1
Valve connector type CI (9.4 mm)						
22260588	AB-C3- 2,0PUR-CI-1L-S	3	2	1 LED	24	1
22260574	AB-C3- 5,0PUR-CI-1L-S	3	5	1 LED	24	1
22260575	AB-C3-10,0PUR-CI-1L-S	3	10	1 LED	24	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Label LMB refer to page 942
- SENSOR STRIP stripping tool refer to page 987

UNITRONIC® SENSOR Valve-M12

valve connector on straight M12 plug

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

Product features

- Suitable for drag chains
- With protective circuit (Z diode), PE-bridged (except type AD)
- With LED status indicator (yellow)
  With display switch state (2 LEDs, red/green)
- Including tag carrier
- PWIS-free

Product Make-up

- 3 or 5 x 0.5 mm²
- Core identification code:
  Black cores with white numbers +green/yellow
- Outer sheath: PUR halogen-free, black
- Outer diameter:
  4.5 mm (3 pins)
  5.3 mm (5 pins)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Valve connector -20°C to +85°C
Connector/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -20°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	LED	Rated voltage (V)	PU
Straight connector to valve connector type A (18 mm)						
22260550	AB-C3-M12MS-0,3PUR-A-1L-S	3	0.3	1 LED	24	1
22260551	AB-C3-M12MS-0,6PUR-A-1L-S	3	0.6	1 LED	24	1
22260552	AB-C3-M12MS-1,0PUR-A-1L-S	3	1	1 LED	24	1
22260553	AB-C3-M12MS-2,0PUR-A-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type A (18mm) for pressure switch						
22260573	AB-C5-M12MS-0,3PUR-AD-2L	5	0.3	2 LEDs	24	1
22260572	AB-C5-M12MS-0,6PUR-AD-2L	5	0.6	2 LEDs	24	1
22260571	AB-C5-M12MS-1,0PUR-AD-2L	5	1	2 LEDs	24	1
22260570	AB-C5-M12MS-2,0PUR-AD-2L	5	2	2 LEDs	24	1
Straight connector to valve connector type B (10 mm)						
22260558	AB-C3-M12MS-0,3PUR-B-1L-S	3	0.3	1 LED	24	1
22260559	AB-C3-M12MS-0,6PUR-B-1L-S	3	0.6	1 LED	24	1
22260560	AB-C3-M12MS-1,0PUR-B-1L-S	3	1	1 LED	24	1
22260561	AB-C3-M12MS-2,0PUR-B-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type BI (11 mm)						
22260554	AB-C3-M12MS-0,3PUR-BI-1L-S	3	0.3	1 LED	24	1
22260555	AB-C3-M12MS-0,6PUR-BI-1L-S	3	0.6	1 LED	24	1
22260556	AB-C3-M12MS-1,0PUR-BI-1L-S	3	1	1 LED	24	1
22260557	AB-C3-M12MS-2,0PUR-BI-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type C (8 mm)						
22260566	AB-C3-M12MS-0,3PUR-C-1L-S	3	0.3	1 LED	24	1
22260567	AB-C3-M12MS-0,6PUR-C-1L-S	3	0.6	1 LED	24	1
22260568	AB-C3-M12MS-1,0PUR-C-1L-S	3	1	1 LED	24	1
22260569	AB-C3-M12MS-2,0PUR-C-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type CI (9.4 mm)						
22260562	AB-C3-M12MS-0,3PUR-CI-1L-S	3	0.3	1 LED	24	1
22260563	AB-C3-M12MS-0,6PUR-CI-1L-S	3	0.6	1 LED	24	1
22260564	AB-C3-M12MS-1,0PUR-CI-1L-S	3	1	1 LED	24	1
22260565	AB-C3-M12MS-2,0PUR-CI-1L-S	3	2	1 LED	24	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Label LMB refer to page 942

UNITRONIC® SENSOR M12Y

M12 Y plug straight on 2x free conductor end

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions

Product features

- 4-pin M12Y plug on free conductor end
- Including tag carrier
- PWIS-free
- Suitable for drag chains

Product Make-up

- 3 x 0.34 mm²
- Core colours: bn, bu, bk
- Outer sheath: PUR halogen-free, black

Suitable tools

- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Length (m)	LED	Rated voltage (V)	PU
Y plug to 2 x free conductor end					
22260500	AB-C3-M12Y-2,0PUR	2	no	250	1
22260513	AB-C3-M12Y-5,0PUR	5	no	250	1
22260526	AB-C3-M12Y-10,0PUR	10	no	250	1

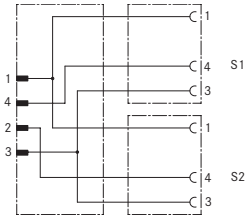
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

Accessories

- FLEXIMARK® Label LMB refer to page 942

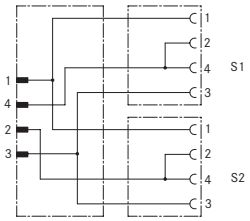
UNITRONIC® SENSOR M12Y-M8

M12 Y plug straight on 2x M8 socket



UNITRONIC® SENSOR M12Y-M12

M12 Y plug straight on 2x M12 socket



Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

Product features

- 4-pin M12Y connector on 2 x M12 socket (4-pin), Pin 2+4 bridged
- 4-pin M12Y plug on 2 x M8 socket (3-pin)
- Including tag carrier
- PWIS-free
- Suitable for drag chains

Product Make-up

- M12Y-M8: 3 x 0.25 mm²
  M12Y-M12: 3 x 0.34 mm²
- Core colours: bn, bu, bk
- Outer sheath: PUR halogen-free, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	LED	Rated voltage (V)	PU
M12Y on 2x M8						
Straight socket						
22260514	AB-C3-M12Y-0,3PUR-M8FS	3	0.3	no	60	1
22260515	AB-C3-M12Y-0,6PUR-M8FS	3	0.6	no	60	1
22260516	AB-C3-M12Y-1,0PUR-M8FS	3	1	no	60	1
22260517	AB-C3-M12Y-2,0PUR-M8FS	3	2	no	60	1
Angled socket						
22260518	AB-C3-M12Y-0,3PUR-M8FA	3	0.3	no	60	1
22260519	AB-C3-M12Y-0,6PUR-M8FA	3	0.6	no	60	1
22260520	AB-C3-M12Y-1,0PUR-M8FA	3	1	no	60	1
22260521	AB-C3-M12Y-2,0PUR-M8FA	3	2	no	60	1
Angled socket with LEDs						
22260522	AB-C3-M12Y-0,3PUR-M8FA-2L	3	0.3	2 LEDs	24	1
22260523	AB-C3-M12Y-0,6PUR-M8FA-2L	3	0.6	2 LEDs	24	1
22260524	AB-C3-M12Y-1,0PUR-M8FA-2L	3	1	2 LEDs	24	1
22260525	AB-C3-M12Y-2,0PUR-M8FA-2L	3	2	2 LEDs	24	1
M12Y on 2x M12						
Straight socket						
22260501	AB-C3-M12Y-0,3PUR-M12FS-B	3	0.3	no	250	1
22260502	AB-C3-M12Y-0,6PUR-M12FS-B	3	0.6	no	250	1
22260503	AB-C3-M12Y-1,0PUR-M12FS-B	3	1	no	250	1
22260504	AB-C3-M12Y-2,0PUR-M12FS-B	3	2	no	250	1
Angled socket						
22260505	AB-C3-M12Y-0,3PUR-M12FA-B	3	0.3	no	250	1
22260506	AB-C3-M12Y-0,6PUR-M12FA-B	3	0.6	no	250	1
22260507	AB-C3-M12Y-1,0PUR-M12FA-B	3	1	no	250	1
22260508	AB-C3-M12Y-2,0PUR-M12FA-B	3	2	no	250	1
Angled socket with LEDs						
22260509	AB-C3-M12Y-0,3PUR-M12FA-2L-B	3	0.3	2 LEDs	24	1
22260510	AB-C3-M12Y-0,6PUR-M12FA-2L-B	3	0.6	2 LEDs	24	1
22260511	AB-C3-M12Y-1,0PUR-M12FA-2L-B	3	1	2 LEDs	24	1
22260512	AB-C3-M12Y-2,0PUR-M12FA-2L-B	3	2	2 LEDs	24	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

Accessories

- FLEXIMARK® Label LMB refer to page 942

EPIC® SENSOR M8Y | M12Y

Y distributor M8 | M12

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

Product features

- Design: Plug on 2x socket
- M12 design with screw hole
- PWIS-free

Product Make-up

- 22260600:
  M12, 3-pin+ PE, straight M12 plug on 2x straight M12 socket, pin 2+4 bridged
- 22260601:
  M12, 3-pin+ PE, straight M12 plug on 2x straight M12 socket
- 22260602:
  M12, 5-pin straight M12 plug on 2x 3-pin straight M8 socket, parallel distributor
- 22260603:
  M8, 4-pin M8 plug on 2x 3pin M8 socket
- 22260604:
  M8 plug on M8 socket, 3-pin parallel distributor

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C

Coding
A-standard

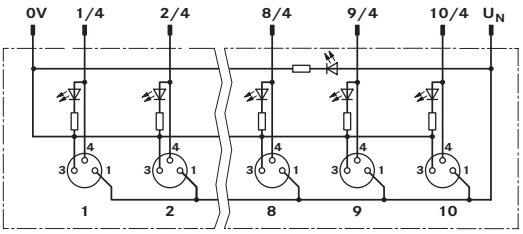
Rated current (A)
4 A

Article number	Article designation	Rated voltage (V)	PU
M12 Y distributor			
22260600	AB-C3-M12Y-2XM12FS B E	60	5
22260601	AB-C3-M12Y-2XM12FS E	60	5
22260602	AB-C5-M12Y-2XM12FS V	60	5
M8 Y distributor			
22260603	AB-C3-M8Y-2XM8FS	30	5
22260604	AB-C3-M8Y-2XM8FS V	60	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Distribution Box M8

Distribution box with M8 slots and master cable/connection M12/M16



Benefits

- Cost efficient and rational wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- Hybrid cable for signal and power transmission
- There are no assembly costs as the master cable is already pre-assembled
- Suitable for drag chains

Product features

- Single-occupied boxes
- With fixed master cable or M12/M16 socket
- LEDs indicate the operating mode of the distributor and the status of the sensors
- PWIS-free

Norm references / Approvals

- E-File number: E75770

Product Make-up

- Core insulation: PVC
- Outer sheath: PUR, black

Suitable cables

- M12 master cable
  8-pos. 5/10 m: 22260615/22260616
- M16 master cable
  8-pos 5/10m: 22260607/22260608
  10-pos 5/10m: 22260609/22260610
  12-pos 5/10m: 22260611/22260612
  14-pos 5/10m: 22260613/22260614

Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description:
Passive sensor-actuator interface

Protection rating
IP65/IP67

Ambient temperature (operation)
-30°C to +80°C
Fixed installation -40°C to +90°C
Flexing -5°C to 80°C

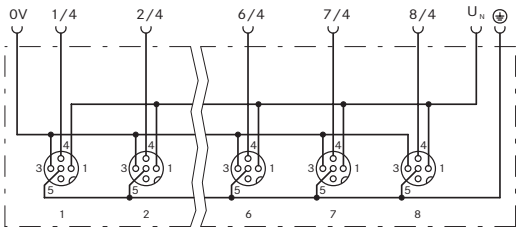
Current rating per slot
2 A

Article number	Article designation	Connection cable (No. of poles)	Length (m)	Number of slots	Status display
Fixed master cable					
22260026	AB-B4-M8L-4-5,0PUR		5	4	With LEDs
22260027	AB-B4-M8L-4-10,0PUR		10	4	With LEDs
22260028	AB-B6-M8L-6-5,0PUR		5	6	With LEDs
22260029	AB-B6-M8L-6-10,0PUR		10	6	With LEDs
22260030	AB-B8-M8L-8-5,0PUR		5	8	With LEDs
22260031	AB-B8-M8L-8-10,0PUR		10	8	With LEDs
22260032	AB-B10-M8L-10-5,0PUR		5	10	With LEDs
22260033	AB-B10-M8L-10-10,0PUR		10	10	With LEDs
M12 connection					
22260038	AB-B4-M8L-4-M12	8		4	With LEDs
22260039	AB-B6-M8L-6-M12	8		6	With LEDs
M16 connection					
22260034	AB-B4-M8L-4-M16	8		4	With LEDs
22260035	AB-B6-M8L-6-M16	10		6	With LEDs
22260036	AB-B8-M8L-8-M16	12		8	With LEDs
22260037	AB-B10-M8L-10-M16	14		10	With LEDs

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unoccupied slots must be covered with protective caps - ArtNo. 22260606 (M8); 22260605 (M12).

Distribution Box M12

Distribution box with M12 slots and master cable/mountable/M23 connection



Benefits

- Cost efficient and rational wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- Hybrid cable for signal and power transmission

Product features

- With fixed master cable, mountable or M23 socket
- Single or double-occupied sensor/actuator box
- M12 quick-locking system, optional LED diagnostic
- Suitable for drag chains
- PWIS-free

Norm references / Approvals

- E-File number: E75770

Product Make-up

- Core insulation: PVC
- Outer sheath: PUR, black

Suitable cables

- UNITRONIC® SENSOR master cable Page 383
- M23 connection cable: 10 m: 22260852; 15 m: 22260853; 30 m: 22260959

Suitable tools

- Suitable tools are available upon request (e.g. M12 torque screwdriver)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description: Passive sensor-actuator interface

Protection rating
IP65/IP67 (M23 connection)
IP65/IP67/IP69

Ambient temperature (operation)
-25°C to +75°C (M23 connection)
-30°C to +90°C
Fixed installation -40°C to +90°C
Flexing -5 °C uo to +80 °C

Max. current rating per path
2 A

Current rating per slot
4 A

Article number	Article designation	Length (m)	Number of slots	Status display
Single-occupied boxes				
Fixed master cable				
22260010	AB-B4-M12-4-5,0PUR	5	4	no
22260011	AB-B4-M12-4-10,0PUR	10	4	no
22260014	AB-B8-M12-8-5,0PUR	5	8	no
22260015	AB-B8-M12-8-10,0PUR	10	8	no
22260018	AB-B4-M12L-4-5,0PUR	5	4	With LEDs
22260019	AB-B4-M12L-4-10,0PUR	10	4	With LEDs
22260970	AB-B6-M12L-6-5,0PUR	5	6	With LEDs
22260022	AB-B8-M12L-8-5,0PUR	5	8	With LEDs
22260023	AB-B8-M12L-8-10,0PUR	10	8	With LEDs
Field mountable				
22260005	AB-B4-M12-4-C		4	no
22260007	AB-B8-M12-8-C		8	no
22260001	AB-B4-M12L-4-C		4	With LEDs
22260003	AB-B8-M12L-8-C		8	With LEDs
M23 connection				
22260618	AB-B6-6-L-M23		6	With LEDs
22260619	AB-B8-8-L-M23		8	With LEDs
Double-occupied boxes				
Fixed master cable				
22260012	AB-B4-M12-8-5,0PUR	5	4	no
22260013	AB-B4-M12-8-10,0PUR	10	4	no
22260016	AB-B8-M12-16-5,0PUR	5	8	no
22260017	AB-B8-M12-16-10,0PUR	10	8	no
22260020	AB-B4-M12L-8-5,0PUR	5	4	With LEDs
22260021	AB-B4-M12L-8-10,0PUR	10	4	With LEDs
22260024	AB-B8-M12L-16-5,0PUR	5	8	With LEDs
22260025	AB-B8-M12L-16-10,0PUR	10	8	With LEDs
Field mountable				
22260006	AB-B4-M12-8-C		4	no
22260008	AB-B8-M12-16-C		8	no
22260002	AB-B4-M12L-8-C		4	With LEDs
22260004	AB-B8-M12L-16-C		8	With LEDs
M23 connection				
22260621	AB-B8-16-M23		8	no
22260620	AB-B8-16-L-M23		8	With LEDs

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unoccupied slots must be covered with protective caps - ArtNo. 22260606 (M8); 22260605 (M12).
UL certifications can be found in the data sheet.

UNITRONIC® SENSOR M12 Power

Power cable: M12 plug/socket on free conductor

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Customise assembly of the free conductor end

Product features

- 4-core power cable
- M12 connector, A-coded with quick-locking system
- Including tag carrier
- Suitable for drag chains
- PWIS-free

Product Make-up

- 4 x 0.75 mm²
- 4-pin: bn (1), wh (2), bu (3), bk (4)
- Core insulation: PVC
- Outer sheath: PUR, black
- Outer diameter: 5.9 mm

Suitable tools

- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

Suitable connectors

- EPIC® SENSOR M12 398

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Flexing: 10 x outer diameter

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -25°C to +80°C
Flexing -5°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	Rated voltage (V)	PU
Straight connector						
22260778	AB-PC4-M12MS-2,0PUR	4	2	straight	250	1
22260779	AB-PC4-M12MS-5,0PUR	4	5	straight	250	1
22260780	AB-PC4-M12MS-10,0PUR	4	10	straight	250	1
Straight socket						
22260781	AB-PC4-2,0PUR-M12FS	4	2	straight	250	1
22260782	AB-PC4-5,0PUR-M12FS	4	5	straight	250	1
22260783	AB-PC4-10,0PUR-M12FS	4	10	straight	250	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Label LMB refer to page 942

UNITRONIC® SENSOR M12-M12 Power

Power cable: M12 straight plug on M12 straight socket

Info

- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Fast and easy assembly

Product features

- 4-core power cable
- M12 connector, A-coded with quick-locking system
- Straight plug to straight socket
- PWIS-free
- Suitable for drag chains

Product Make-up

- 4 x 0.75 mm²
- 4-pin: bn (1), wh (2), bu (3), bk (4)
- Core insulation: PVC
- Outer sheath: PUR, black
- Outer diameter: 5.9 mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Flexing: 10 x outer diameter

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -25°C to +80°C
Flexing -5°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	Rated voltage (V)	PU
Plug on socket						
22260784	AB-PC4-M12MS-0,3PUR-M12FS	4	0.3	straight-straight	250	1
22260785	AB-PC4-M12MS-1,0PUR-M12FS	4	1	straight-straight	250	1
22260786	AB-PC4-M12MS-2,0PUR-M12FS	4	2	straight-straight	250	1
22260787	AB-PC4-M12MS-5,0PUR-M12FS	4	5	straight-straight	250	1
22260788	AB-PC4-M12MS-10,0PUR-M12FS	4	10	straight-straight	250	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Label LMB refer to page 942

EPIC® POWER M12 60V

Field mountable M12 POWER connectors

Info

- DC high-power connector
  - 60 VDC / 12 A

Benefits

- Compact and standardized M12 design saves space and costs
- Fault proof connection through M12 T coding of the connector face
- Low voltage drop
- Safety use in field environment by high protection class

Application range

- Power Supply for small devices
- Tool shop
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for use in measuring, control and regulating circuits

Product features

- Robust M12 circular connector with screw connection and knurled srew
- Screw-on terminals for different conductors

Norm references / Approvals

- UL File Number: E249137

Product Make-up

- PVC single stranded wires, l = 0.2 m (4x AWG16)
- 4-pin: bn (1), wh (2), bu (3), bk (4)
- High quality gold-plated contacts
- For screw contacts: 0,75 mm² - 1,5 mm² (AWG 18 - AWG 16)

Suitable cables

- ÖLFLEX® FD 855 P Page 140
- (ÖLFLEX® FD 855 P: Example for harsh conditions)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)
Knurl: Zinc die-cast, nickel-plated
Gripping body: PA

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Coding
T - Power

Rated current (A)
12 A

Article number	Article designation	Design	Number of pins	Cable diameter in mm	Rated voltage (V)	PU
EPIC® POWER M12 60V						
Plug						
22262010	AB-C4-M12MST-PG11	straight	4	8.0 - 10.0	60	1
22262012	AB-C4-M12MAT-PG11	angled	4	8.0 - 10.0	60	1
Socket						
22262011	AB-C4-M12FST-PG11	straight	4	8.0 - 10.0	60	1
22262013	AB-C4-M12FAT-PG11	angled	4	8.0 - 10.0	60	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

3

ETHERLINE®

Data communication systems for ETHERNET technology

Our ETHERLINE® branded products open up a secure, fast and reliable path to the future of Ethernet applications, e.g. PROFINET®. The systems are made up of durable and robust cables and connection components for passive and active network technology, and deliver an effective solution for almost any application, particularly in an industrial environment.

Application range

- Industry and building networks
- Industrial machinery and plant engineering
- Automation technology
- Control engineering

Industrial Ethernet, Cat.5 / 5e

Cables for fixed installation
ETHERLINE® Cat.5e 417
Cables for flexible applications
ETHERLINE® Cat.5e FLEX 418
ETHERLINE® EC FLEX Cat.5e 419
Cables for continuous flexing applications
ETHERLINE® Cat.5e FD 420
ETHERLINE® Cat.5 FD BK 421
ETHERLINE® EC FD Cat.5e 422
ETHERLINE® H Flex Cat.5e Patch cables 423
ETHERLINE® EC FD Cat.5e Patch cables 424

Industrial Ethernet, Cat.6

ETHERLINE® CAT.6 FD 425
ETHERLINE® FD CAT.6 Patch cables 426
ETHERLINE® CAT.6_A Flex Patch cables 427

Industrial Ethernet, Cat.7

Type B - Cables for flexible applications
ETHERLINE® Cat.7 FLEX 428

PROFINET, Cat.5

Type A - Cables for fixed installation
ETHERLINE® PN Cat.5 429
Type B - Cables for flexible applications
ETHERLINE® PN FLEX 430
ETHERLINE® Y Cat.5e BK 2x2AWG22/7 431
ETHERLINE® Cat.5e 105 plus 432
ETHERLINE® MARINE FRNC FC CAT.5 433
ETHERLINE® Cat.5 FRNC HYBRID 434
Type C - Cables for continuous flexing applications
ETHERLINE® PN Cat.5 FD 435
ETHERLINE® TORSION Cat. 5 436
ETHERLINE® FESTOON PN Cat.5e 437
Type C - Cables for special applications
ETHERLINE® Cat.5 ARM 438
ETHERLINE® PN Cat.5 Patch cables 439
ETHERLINE® PN Flex Cat.5 Patch cables 440
ETHERLINE® PN FD Cat.5 Patch cables 441

PROFINET, Cat.6_A

Type A - Cables for fixed installation
ETHERLINE® PN Cat.6_A FC 442
Type B - Cables for flexible applications
ETHERLINE® PN Cat.6_A FLEX FC 443
Type C - Cables for continuous flexing applications
ETHERLINE® FD CAT.6_A 444
ETHERLINE® TORSION Cat.6_A 445
ETHERLINE® TORSION Cat.6_A Patch cables 446

PROFINET, Cat.7

Type A - Cables for fixed installation
ETHERLINE® PN Cat.7 447
Type B - Cables for flexible applications
ETHERLINE® PN Cat.7 FLEX 448
Type C - Cables for continuous flexing applications
ETHERLINE® TORSION Cat.7 449

Industrial Ethernet

Industrial Ethernet for special applications
ETHERLINE® TRAIN 450
ETHERLINE® HEAT 6722 451
ETHERLINE® FIRE Cat.5e PH120 452
ETHERLINE® TRAY 453
ETHERLINE® ROBUST 454
ETHERLINE® ROBUST FR 455
Active network components
ETHERLINE® ACCESS M05T/M08T 456
ETHERLINE® ACCESS U05T/U08T 457

PROFINET, Cat.5

RJ45 Connectors
EPIC® DATA PN AX RJ45 458
EPIC® DATA PN 90 RJ45 458

Industrial Ethernet, Cat.6_A

EPIC® DATA AX RJ45 Cat.6_A 459
EPIC® DATA 90 RJ45 Cat.6_A 459
EPIC® DATA AX RJ45 Cat.6_A IP68 460
EPIC® DATA RJ45F Cat.6_A 460
EPIC® DATA HS RJ45F Cat.6_A 461

Industrial Ethernet, Cat.5 / 5e

M12 Field mountable connectors and wall ducts
EPIC® DATA M12D 462
EPIC® DATA M12X 462

Industrial Ethernet, Accessories

EPIC® DATA FT IE 463
EPIC® DATA CCR FA 463

Structured building cabling, Cat.5e

Cables for fixed installation
ETHERLINE® LAN 200 Cat.5e 464

Structured building cabling, Cat.6

ETHERLINE® LAN 350 Cat.6 465

Structured building cabling, Cat.6_A

ETHERLINE® LAN 500 Cat.6_A 466

Structured building cabling, Cat.7_A

ETHERLINE® LAN 1000 Cat. 7_A 467
ETHERLINE® LAN 1200 Cat.7_A 467
ETHERLINE® LAN 1600 Cat.7_A 468

Structured building cabling, Cat.7

UNITRONIC® LAN OUTDOOR 469

Structured building cabling, Special applications

Cables for flexible applications
ETHERLINE® LAN FLEX 470

Structured building cabling, Cat.6_A

Patch cable RJ45
ETHERLINE® LAN RJ45 Cat.6_A 471

Structured building cabling, Cat.5e

RJ45 Connectors
Connector RJ45 CAT.5e Hirose TM11 472
Connector RJ45 CAT.5 Stewart SS37 472
Field-Terminable Connector RJ45 CAT.5e FM45 472
Connector RJ45 CAT.6 Hirose TM21 473
Connector RJ45 Cat.6A Hirose TM31 473
Crimping tool RJ45 Hirose 473

Structured building cabling, Accessories

Tools
Crimping tool RJ45 Stewart 474
Frontplate 19“ 1HE Cat.6_A 474
Punch down tool LSA+ 474

Ethernet is the leading standard for computer networks in office buildings. However, due to its widespread availability, reliability, and performance, it is increasingly prevalent in industrial environments as well.
Our ETHERLINE® portfolio offers comprehensive solutions for your Ethernet network.
You can always rely on our high-quality products to avoid downtimes and expensive breakdowns.

LAPP places great importance on fitting products and strives to offer the best solution possible for your application.
Our large ETHERLINE® portfolio offers solutions for varied applications in industrial environments as well as for structured building cabling.
We offer matching field-mountable connectors and pre-assembled patch cables for your applications.
The portfolio is completed by our ETHERLINE® ACCESS-products.

These robust, managed and unmanaged switches are the perfect network devices for a demanding and industrial environment.
This allows us to provide you with end-to-end solutions from just one source.
Our products are thoroughly tested in our in-house laboratory to ensure that we can provide the quality that you have come to expect from us.

ETHERLINE® – Industrial Ethernet

- Resilient cabling solutions for demanding industrial Ethernet applications
- Compliance with international standards (e.g. PROFINET®)
- Field-mountable connectors – quick assembly and reliable without special tools
- Pre-assembled patch cables with overmolded connectors

ETHERLINE® LAN – Structured building cabling

- Cables ranging from Cat.5e up to Cat.7_A
- Transmission frequencies up to 1600MHz
- Office patch cables complying with Cat.6_A
- Field-mountable connectors as well as accessories

ETHERLINE® ACCESS – Industrial data communication

- Reliable and robust industrial Ethernet switches
- Easy construction of redundant networks with quick reconfiguration time of less than 20ms
- High quality and availability of industrial networks

Type specification according to the PROFINET® Guideline

PROFINET® is an international standard for communication systems that defines the cabling within and between production islands. The PROFINET® system specifies copper-based as well as fibre optic transmission media.

Its foundation, the 'PROFINET® Cabling and Interconnection Technology Guideline', defines three cable types for copper-based cables. These types specify the exact structure and the mechanical and electrical properties. PROFINET® compliant cables can be distinguished by their cable marking that states the PROFINET® compliance as well as their respective cable type according to the aforementioned guideline.

Number of pairs / Type of cable	Type A	Type B	Type C
Application	**For fixed installation**	**For flexible Installation**	**For special application**
2-pair (2x2)	AWG22/1	AWG22/7	AWG22/1...19
4-pair (4x2)	min. AWG23/1	min. AWG23/7	min. AWG24/1...19

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

PROFINET® finder

PROFINET® 2-pair up to 100 Mbit/s

Cables				Suitable connectors		
Application		Article number	Description	Application	Article number	Description
4-pin type A for fixed installation		2170891	ETHERLINE® PN Cat.5e Y 2X2XAWG22	M12 plug, D-coded	22260820	AB-C4-M12MSD-SH
		2170893	ETHERLINE® Y FC Cat.5	M12 socket, D-coded	22261016	AB-C4-M12FSD-SH
		2170494	ETHERLINE® PN Cat.5e YY	RJ45 connector, straight	21700605	ED-IE-AX-5-PN-20-FC
4-pin type B for flexible application		2170886	ETHERLINE® PN Cat.5 Y FLEX FC	RJ45 connector, angled	21700638	ED-IE-90-6A-PN-20-FC
		2170890	ETHERLINE® PN Cat.5e FRNC FLEX FC			
		2170889	ETHERLINE® MARINE FRNC FC Cat.5			
4-pin type C for special application	Drag chain	2170894	ETHERLINE® FD P FC Cat.5			
	Torsion	2170888	ETHERLINE® TORSION P Cat.5 AWM			
	Routing underground	2170496	ETHERLINE® Cat.5 ARM			
	Outdoor installation	2170901	ETHERLINE® Y Cat.5e BK			
	Increased temperature range	2170636	ETHERLINE® Cat.5e 105 plus			
	Food & Beverage	2170451 2170454	ETHERLINE® ROBUST PN Cat.5 ETHERLINE® ROBUST PN FR Cat.5			

PROFINET® 4-pair up to 10 Gbit/s

Cables				Suitable connectors		
Application		Article number	Description	Application	Article number	Description
8-pin type A for fixed installation	Cat.6$_A$	2170466	ETHERLINE® Cat.6$_A$ H	M12 plug, X-coded	21700602	ED-IE-AX-M12X-6A-67-FC
		2170465	ETHERLINE® Cat.6$_A$ P	M12 socket, X-coded	21700621	ED-IE-AX-M12XF-6A-67-FC
		2170464	ETHERLINE® Cat.6$_A$ Y	M12 socket, X coded, with flange	21700622	ED-IE-AX-M12XF-RM-6A-67-FC
	Cat.7	2170476	ETHERLINE® H Cat.7 H	RJ45 connector, straight, TIA568-A	21700600	ED-IE-AX-6A-A-20-FC
		2170475	ETHERLINE® Cat.7 P	RJ45 connector, straight, TIA568-B	21700601	ED-IE-AX-6A-B-20-FC
		2170474	ETHERLINE® Cat.7 Y	RJ45 connector, angled, TIA568-A	21700636	ED-IE-90-6A-A-20-FC
8-pin type B for flexible application	Cat.6$_A$	2170930	ETHERLINE® PN Cat.6$_A$ Y FLEX 4x2x23/7	RJ45 connector, angled, TIA568-B	21700637	ED-IE-90-6A-B-20-FC
		2170931	ETHERLINE® PN Cat.6$_A$ FRNC FLEX 4x2x23/7			
8-pin type C for special application	Drag chain, Cat.6$_A$	2170485	ETHERLINE® FD Cat.6$_A$ 4X2X24/7AWG			
		2170484	ETHERLINE® FD P Cat.6$_A$ 4X2X24/7AWG			
	Torsion, Cat.6$_A$	2170483	ETHERLINE® TORSION P Cat.6$_A$ 4X2XAWG24/7			
		2170482	ETHERLINE® TORSION Y Cat.6$_A$ 4X2XAWG24/7			

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

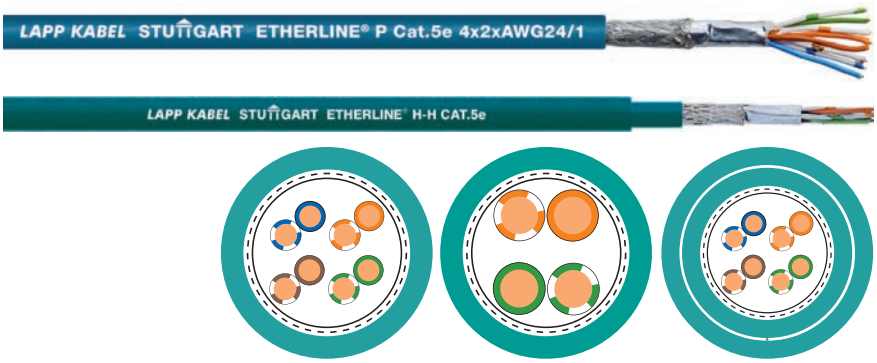
EtherNet/IP

ETHERLINE® Cat.5e

Ethernet cable Category 5e, Class D for fixed installation - verified up to 100 MHz

Info

- Industrial Ethernet cable
- Cat.5e



Benefits

- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Can be used for Industrial Ethernet in harsh industrial environments
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

Application range

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- Suitable for EtherCAT and EtherNet/IP applications
- Industrial use
- Fixed Installation

Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Halogen-free outer sheath

Norm references / Approvals

- PUR versions: UL AWM Style 21576
- Flame retardant acc. to IEC 60332-1-2
- Halogen-free according to VDE 0472-815

Product Make-up

- Solid conductor
- Core insulation made of foam skin
- 2 or 4-pair version
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath as either PUR or LSZH
- Colour: water blue (RAL 5021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 7.5 x outer diameter (2 pair cable)
Fixed installation: 8 x outer diameter (4 pair cable)

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
100 Ω ± 15%

Temperature range
cable with PUR jacket
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
flexing: VDE -5°C to +50°C; UL/CSA -5°C to +80°C
Cable halogenfree compound
Fixed installation: -30°C to +80°C
Moved: -5°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
2-pair version						
Halogen-free jacket						
2170280	ETHERLINE® H CAT.5e	2 x 2 x AWG24/1	0.95	5.6	22	45
PUR outer sheath, halogen-free						
2170281	ETHERLINE® P CAT.5e	2 x 2 x AWG24/1	0.95	5.8	22	53
4-pair version						
Halogen-free jacket						
2170296	ETHERLINE® H CAT.5e	4 x 2 x AWG24/1	0.95	6.1	32	54
2170298	ETHERLINE® H-H CAT.5e	4 x 2 x AWG24/1	0.95	6.1 / 8.1	32	80
PUR outer sheath, halogen-free						
2170297	ETHERLINE® P CAT.5e	4 x 2 x AWG24/1	0.95	6.1	32	62

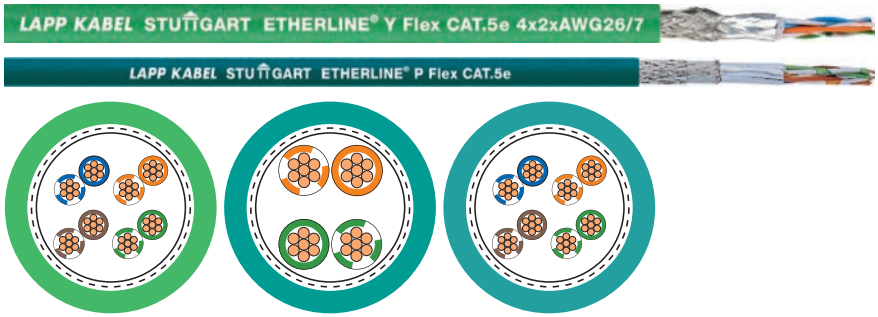
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 472
- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA HS RJ45F Cat.6$_A$ refer to page 461
- EPIC® DATA M12D refer to page 462
- EPIC® DATA M12X refer to page 462
- KNIPEX Elektronik Super Knips® refer to page 983
- EPIC® DATA CCR FA refer to page 463
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

ETHERLINE® Cat.5e FLEX

Ethernet cable Category 5e, Class D for flexible use - verified up to 100 MHz



Info

- Industrial Ethernet cable
- Cat.5e
- Only for patch cable applications (max. 60 m)

Benefits

- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Can be used for Industrial Ethernet in harsh industrial environments
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

Application range

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)
- Only for patch cable applications (max. 60 m)

Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Halogen-free outer sheath
- PUR outer sheath is highly resistant to mineral oils and abrasion

Norm references / Approvals

- PVC version with UL/CSA (CMX) certification
- PUR versions: UL AWM Style 21576
- Flame-retardant according IEC 60332-1-2
- Cable with PUR or halogenfree compound: Halogen-free according to VDE 0472-815

Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation made of foam skin
- 2 or 4-pair version
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath as either PUR or LSZH
- Colour: water blue (RAL 5021)
- PVC jacket colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
100 Ω ± 15%

Temperature range
cable with PUR jacket
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
flexing: VDE -5°C to +50°C; UL/CSA -5°C to +80°C
cable halogenfree compound
Fixed installation: -30°C to +80°C
flexing: -5°C to +60°C
cable with PVC jacket
Fixed installation: -40°C to +80°C
flexing: -10°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
2-pair version						
Halogen-free jacket						
2170283	ETHERLINE® H Flex CAT.5e	2 x 2 x AWG26/7	0.95	5.6	19	43
PUR outer sheath, halogen-free						
2170284	ETHERLINE® P Flex CAT.5e	2 x 2 x AWG26/7	0.95	5.6	19	45
4-pair version						
Halogen-free jacket						
2170299	ETHERLINE® H Flex CAT.5e	4 x 2 x AWG26/7	0.95	6.1	25	48
PUR outer sheath, halogen-free						
2170300	ETHERLINE® P Flex CAT.5e	4 x 2 x AWG26/7	0.95	6.1	25	54
PVC outer sheath						
2170486	ETHERLINE® Y Flex CAT.5e	4 x2 x AWG26/7	0.9	6.4	30	54

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 472
- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA HS RJ45F Cat.6$_A$ refer to page 461
- EPIC® DATA M12D refer to page 462
- EPIC® DATA M12X refer to page 462
- KNIPEX Elektronik Super Knips® refer to page 983
- EPIC® DATA CCR FA refer to page 463
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

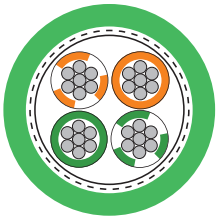
EtherNet/IP

ETHERLINE® EC FLEX Cat.5e

Flexible use

Info

- For EtherCAT applications
- Cat.5e-Performance
- Only for patch cable applications (max. 60 m)



Benefits

- Can be used for Industrial Ethernet in harsh industrial environments
- Can be used in dry or damp rooms
- Lower space requirement

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)
- Many applications with Industrial Ethernet, i.e. fixed installation and flexible use.
- For internal wiring of electric and electronic equipment in switch cabinets
- Only for patch cable applications (max. 60 m)

Product features

- PUR (Polyurethane) Version with increased robustness, UV- resistance and halogen free
- Meets the requirements according to Cat. 5e and class D
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214
- Flame-retardant according to UL VW1/ CSA FT1

Product Make-up

- Stranded tinned 7-wire conductor
- Core insulation: PE
- Insulation colour-codes: orange/white-orange; green/white-green
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- PVC or PUR jacket material
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 4 x outer diameter
Moved: 10 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Cable with PVC jacket
Fixed installation: -30°C to +80°C
Flexing: -5°C bis +50°C
Cable with PUR jacket
Fixed installation: -40°C to +80°C
Flexing:-30°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
PVC outer sheath						
2170430	ETHERLINE® Y EC FLEX Cat.5e	1 x 4 x AWG26/7	1.03	4.8	20	37
PUR outer sheath, halogen-free						
2170431	ETHERLINE® P EC FLEX Cat.5e	1 x 4 x AWG26/7	1.03	4.8	20	35

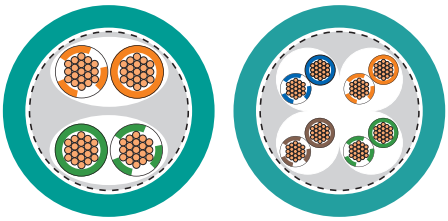
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SENSOR M8 refer to page 391
- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 472
- KNIPEX Elektronik Super Knips® refer to page 983
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

ETHERLINE® Cat.5e FD

Ethernet cable Category 5e, Class D for use in drag chain applications - verified up to 100 MHz



Info

- Industrial Ethernet cable
- For highly flexible applications
- Only for patch cable applications (max. 60 m)

Benefits

- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Industrial use
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

Application range

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- Only for patch cable applications (max. 60 m)
- Suitable for EtherCAT and EtherNet/IP applications
- Power chain applications

Product features

- Premium screening against electromagnetic interference
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Halogen-free outer sheath
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

Norm references / Approvals

- PUR versions: UL AWM Style 21576
- Flame-retardant according IEC 60332-1-2
- Halogen-free according to VDE 0472-815

Product Make-up

- Bare stranded copper wire, 26AWG (19 x 0.10), (0.14 mm²)
- Inner sheath: thermoplastic elastomer, halogen-free
- 2 or 4-pair version
- Screening: wrapped with braided tinned-copper wires
- PUR outer sheath
- Colour: water blue (RAL 5021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
100 Ω ± 15%

Temperature range
cable with PUR jacket
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
flexing: VDE -5°C to +70°C; UL/CSA -5°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
2-pair version						
2170289	ETHERLINE® FD P CAT.5e	2 x 2 x AWG26/19	1	5.9	20	48
4-pair version						
2170489	ETHERLINE® FD P CAT.5e	4 x 2 x AWG26/19	1	6.3	27	54

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Connector RJ45 CAT.6 Hirose TM21 refer to page 473
- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- KNIPEX Elektronik Super Knips® refer to page 983
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

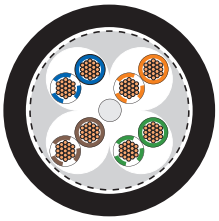
EtherNet/IP

ETHERLINE® Cat.5 FD BK

Ethernet cable Category 5e, Class D for installation in events - verified up to 100 MHz

Info

- For highly flexible industrial applications
- Cat.5e-Performance
- Only for patch cable applications (max. 60 m)



Benefits

- Additional application options thanks to suitability for outdoor use, UV-resistant
- Good flexibility - easy installation with tight space requirements
- Screened against interference
- Easy to coil for mobile use
- Usable on the roads

Application range

- IEEE 802.3: 10/100/1000Base-T
  IEEE 802.5: ISDN; FDDI; ATM
- Suitable for the transfer of audio signals (ETHERSOUND), light control signals (DMX over Ethernet), or for computer networking
- Only for patch cable applications (max. 60 m)
- Suitable for EtherCAT and EtherNet/IP applications
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

Product features

- CAT.5-Performance
- Specifically developed for road environments
- Suitable for outdoor use, UV-resistant
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Premium screening against electromagnetic interference

Norm references / Approvals

- UL AWM Style 21576
- Flame retardant acc. to IEC 60332-1-2
- Halogen-free according to VDE 0472-815

Product Make-up

- Bare stranded copper wire, 26AWG (19 x 0.10), (0.14 mm²)
- Insulation: foam skin, max. core diameter 1.0 mm
- Twisting: 2 twisted-pair cores, stranding from 4 pairs
- Inner sheath: thermoplastic elastomer, halogen-free
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: halogen-free PUR, black

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
100 Ω ± 15%

Temperature range
cable with PUR jacket
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
flexing: VDE -5°C to +70°C; UL/CSA -5°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® Cat.5 FD BK						
CE217489	ETHERLINE® FD P BK Cat.5	4x2xAWG26/19	1	6.3	27	54

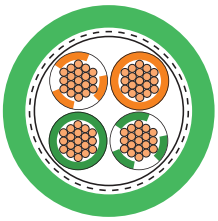
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Standard lengths: (100; 500; 1000) m
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Connector RJ45 CAT.6 Hirose TM21 refer to page 473
- KNIPEX Elektronik Super Knips® refer to page 983
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

ETHERLINE® EC FD Cat.5e

Highly flexible application



Info

- For EtherCAT applications
- For highly flexible industrial applications
- Cat.5e-Performance

Benefits

- Can be used for Industrial Ethernet in harsh industrial environments
- Can be used in dry or damp rooms
- Lower space requirement

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- For highly flexible applications (power chains, moving machine parts)
- Many applications with Industrial Ethernet, e.g. EtherCat, i.e. fixed installation, flexible and highly flexible use
- For internal wiring of electric and electronic equipment in switch cabinets
- Only for patch cable applications (max. 60 m)

Product features

- PUR outer sheath, halogen-free
- Meets the requirements according to Cat. 5e and class D
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02
- Flame-retardant according to UL VW1/ CSA FT1
- Halogen-free according to VDE 0472-815

Product Make-up

- Tinned stranded copper wire, 26AWG (19 x 0.10), (0.14 mm²)
- Core insulation: PE
- Insulation colour-codes: orange/white-orange; green/white-green
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath: PUR compound, halogen-free
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 4 x Outer diameter
Flexing: 16 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® EC FD Cat.5e						
2170433	ETHERLINE® P EC FD Cat.5e	1 x 4 x AWG26/19	1.03	4.8	20	35

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SENSOR M8 refer to page 391
- KNIPEX Elektronik Super Knips® refer to page 983
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

EtherNet/IP

ETHERLINE® H Flex Cat.5e Patch cables

Info

- Halogen-free and flame-retardant
- Additional variants are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications

Product features

- Meets the requirements according to Cat.5e and class D
- 2 pairs: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- Braided conductor, 2x2x AWG26/7
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flameretardant compound, 5.6mm in diameter
- Colour: water blue (based on RAL 5021)

Technical data

Classification
ETIM 5.0/6.0: EC002599
Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Protection rating
M12: IP 67
RJ45: IP 20

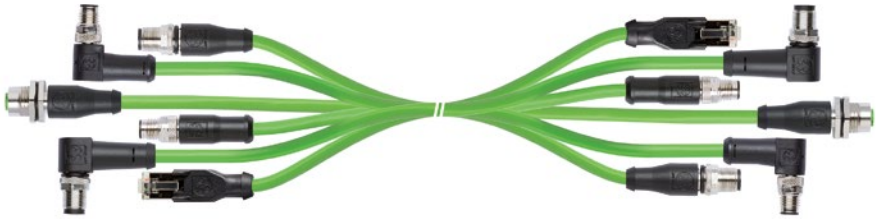
Temperature range
During installation: -5°C to +60°C
Fixed installation: -30°C to +80°C

Coding
M12: D-Standard

		RJ45	M12, plug, straight	M12, plug, angled	Open end
	Length	Article number			
RJ45	1.0m	2171091	2171085	2171878	On request
	2.0m	2171092	2171086	2171879	
	3.0m	2171093	2171087	2171880	
	5.0m	2171094	2171088	2171881	
M12, plug, straight	1.0m	2171085	2171073	On request	2171079
	2.0m	2171086	2171074		2171080
	3.0m	2171087	2171075		2171081
	5.0m	2171088	2171076		2171082
M12, plug, angled	1.0m	2171878	On request	On request	On request
	2.0m	2171879			
	3.0m	2171880			
	5.0m	2171881			

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

ETHERLINE® EC FD Cat.5e Patch cables



Info

- Suitable for drag chains
- Additional variants are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For highly flexible applications

Product features

- Meets the requirements according to Cat.5e and class D
- 2 pairs: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- Braided conductor, 2x2x AWG26/19
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR, 4.8mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0/6.0: EC002599
Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 8 x outer diameter
Fixed installation: 4 x outer diameter

Protection rating
M8: IP 67
M12: IP 67
RJ45: IP 20

Temperature range
During installation: -30°C to +50°C
Fixed installation: -40°C to +80°C

Coding
M8: A-Standard
M12: D-Standard

		RJ45	M12, plug, straight	M12, plug, angled	M12, socket, straight	M8, plug, straight	M8, plug, angled	Open end
	Length	Article number						
RJ45	1.0m	2171765	2171751	2171924	On request	2171758	On request	2171772
	2.0m	2171766	2171752	2171925		2171759		2171773
	5.0m	2171768	2171754	2171927		2171761		2171775
	10.0m	2171769	2171755	2171928		2171762		2171776
M12, plug, straight	1.0m	2171751	2171779	2171786	2171737	2171945	On request	2171793
	2.0m	2171752	2171780	2171787	2171738	2171946		2171794
	5.0m	2171754	2171782	2171789	2171740	2171948		2171796
	10.0m	2171755	2171783	2171790	2171741	2171949		2171797
M12, plug, angled	1.0m	2171924	2171786	2171907	2171744	On request	On request	2171871
	2.0m	2171925	2171787	2171908	2171745			2171872
	5.0m	2171927	2171789	2171910	2171748			2171874
	10.0m	2171928	2171790	2171911	2171749			2171875
M12, socket, straight	1.0m	On request	2171737	2171744	2171916	On request	On request	On request
	2.0m		2171738	2171745	2171917			
	5.0m		2171740	2171748	2171919			
	10.0m		2171741	2171749	2171920			
M8, plug, straight	1.0m	2171758	2171945	On request	On request	2171701	2171719	2171710
	2.0m	2171759	2171946			2171702	2171720	2171711
	5.0m	2171761	2171948			2171704	2171722	2171713
	10.0m	2171762	2171949			2171706	2171724	2171715
M8, plug, angled	1.0m	On request	On request	On request	On request	2171719	2171960	2171728
	2.0m					2171720	2171961	2171729
	5.0m					2171722	2171963	2171731
	10.0m					2171724	2171965	2171733

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

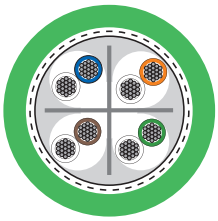
EtherNet/IP

ETHERLINE® CAT.6 FD

Ethernet cable Category 6, Class E for use in drag chain applications - verified up to 250 MHz

Info

- CAT.6 for drag chain!



Benefits

- Highly flexible data cable with PUR outer sheath, meets the highest service life requirements, even under harsh climatic conditions
- Premium screening against electromagnetic interference

Application range

- For use in drag chains and moving machinery parts in dry or damp rooms
- Only for patch cable applications (max. 60 m)
- Suitable for EtherCAT and EtherNet/IP applications
- Plant engineering, machinery manufacturing
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

Product features

- Flame-retardant according IEC 60332-1-2
- PUR outer sheath is resistant to most oils and hydraulic fluids
- CAT.6 for drag chain!
- Min. 1 million bending cycles in the drag chain

Norm references / Approvals

- UL/CSA type CMX (UL 444)

Product Make-up

- Stranded conductor, tinned
- AWG 26 (19-wire)
- PP core insulation
- Inner sheath: thermoplastic copolymer (FRNC)
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- PUR outer sheath, halogen-free
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 7.5 x outer diameter

Test voltage
700 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® CAT.6 FD						
2170488	ETHERLINER CAT.6 FD	4 x 2 x AWG26/19	0.98	7.8	31.7	63

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- KNIPEX Elektronik Super Knips® refer to page 983
- FC STRIP stripping tool refer to page 986

NEW

ETHERLINE® FD Cat.6 Patch cables

Info

- Cat.6 for drag chain, qualified for 10Gbit/s
- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Continuous flexing applications
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features

- Meets the requirements according to Cat.6 and class E
- Suitable for drag chain applications

Product Make-up

- Braided conductor, 4x2x AWG26/19
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR, 7.8mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Protection rating
IP 67

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -30°C to +80°C

Coding
M12: X-Standard

		M12, plug, straight	M12, socket, straight	Open end
	Length	Article number		
M12, plug, straight	1.0m	2172238	2172208	2172247
	2.0m	2172239	2172209	2172248
	3.0m	2172240	2172210	2172249
	5.0m	2172241	2172211	2172250
	10.0m	2172243	2172213	2172252
M12, socket, straight	1.0m	2172208	2172304	2172255
	2.0m	2172209	2172300	2172256
	3.0m	2172210	2172301	2172257
	5.0m	2172211	2172302	2172258
	10.0m	2172213	2172304	2172260

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

EtherNet/IP

NEW

ETHERLINE® Cat.6$_A$ Flex Patch cables

Info

- Additional variants are available at www.lappgroup.com/assemblyfinder or on request

Benefits
- Only for patch cable applications (max. 60m)
- Plug & Play for flexible connection solutions

Application range
- Cat.6$_A$ qualified for 10Gbit/s
- M12 X-coded connectors, comp. with IEC 61076-2-109
- RJ45 connectors, comp. with IEC 60603-7-51

Product features
- Meets the requirements according to Cat.6$_A$ and Class E$_A$

Product Make-up
- Braided conductor, 4x2x AWG26/7
- Twisted pair construction permits largely interference-free operation (decoupling).
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Outer sheath: PUR compound, halogenfree, 6.4mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: up from 10 x outer diameter

Protection rating
M12: IP 67
RJ45: IP 20

Temperature range
Flexing: -30°C to +80°C (M12)
Flexing: -40°C to +70°C (RJ45)

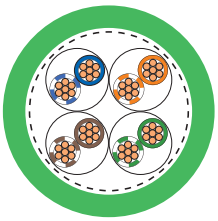
Coding
M12: X-Standard

		RJ45	M12, plug, straight	M12, socket, straight	Open end
	Length	Article number			
RJ45	0.5m	2172362	2172380	2172389	2172371
	1.0m	2172363	2172381	2172390	2172372
	2.0m	2172364	2172382	2172391	2172373
	3.0m	2172365	2172383	2172392	2172374
	5.0m	2172366	2172384	2172393	2172375
	10.0m	2172368	2172386	2172395	2172377
	20.0m	2172370	2172388	2172397	2172379
M12, plug, straight	0.5m	2172380	2172326	2172335	2172317
	1.0m	2172381	2172327	2172336	2172318
	2.0m	2172382	2172328	2172337	2172319
	3.0m	2172383	2172329	2172338	2172320
	5.0m	2172384	2172330	2172339	2172321
	10.0m	2172386	2172332	2172341	2172323
	20.0m	2172388	2172334	2172343	2172325
M12, socket, straight	0.5m	2172389	2172335	2172344	2172353
	1.0m	2172390	2172336	2172345	2172354
	2.0m	2172391	2172337	2172346	2172355
	3.0m	2172392	2172338	2172347	2172356
	5.0m	2172393	2172339	2172348	2172357
	10.0m	2172395	2172341	2172350	2172359
	20.0m	2172397	2172343	2172352	2172361

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

ETHERLINE® Cat.7 FLEX

Flexible use



Info

- Space-saving installation due to small cable diameters
- Cat.7 qualified for 10Gbit/s

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s is 60 m max. cable lenght for 10 Gbit/s is 60 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Robust, halogen-free outer sheath
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- AWM certification for USA and Canada
- UL AWM Style 21576
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 10 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -50°C to +80°C
Flexing: -40°C to +80°C

Article number	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)
ETHERLINE® Cat.7 FLEX				
2170934	4x2xAWG26/7	1	6.4	28

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

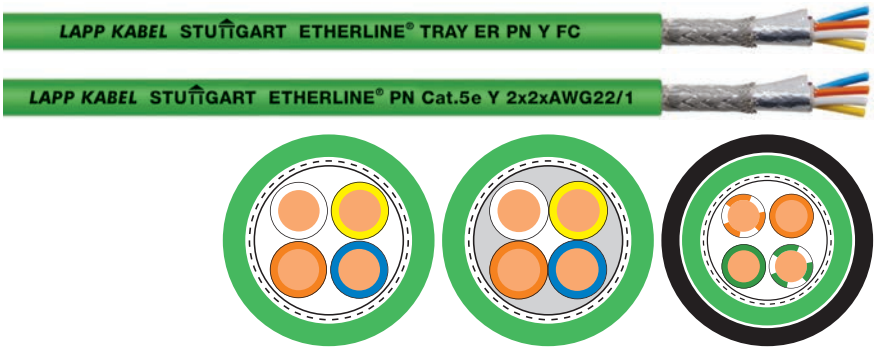
- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA M12X refer to page 462
- EPIC® DATA CCR FA refer to page 463

ETHERLINE® PN Cat.5

Fixed Installation

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For PROFINET applications type A



Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s is 100 m
- Suitable for EtherCAT and EtherNet/IP applications
- ETHERLINE® TRAY ER PN Y FC: installation in open cable trays without any conduit

Product features

- Fixed Installation
- CAT.5-Performance
- FC: “Fast Connect” cable design
- Flame-retardant according IEC 60332-1-2
- ETHERLINE® Y FC, ETHERLINE® YY, ETHERLINE® TRAY ER PN Y FC : flame-retardant according to CSA FT-4

Norm references / Approvals

- ETHERLINE® Y FC with PLTC approbation and AWM Style 21694
- ETHERLINE® PN Cat.5e YY with UL CMG
- ETHERLINE® PN Cat.5e Y with UL CMX
- ETHERLINE® TRAY ER PN Y FC with PLTC ER approval

Product Make-up

- Version for outdoor use and direct burial: Colour black (similar to RAL 9005)
- Solid bare copper wire AWG22
- Core insulation: PE
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
See data sheet

Test voltage
See data sheet

Characteristic impedance
100 Ω ± 15%

Temperature range
See data sheet

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
conventional cable assembly						
2170891	ETHERLINE® PN Cat.5e Y	2 x 2 x AWG22/1	1.5	6.3	30.4	56
FC: “Fast Connect” cable design						
2170893	ETHERLINE® Y FC Cat.5	2 x 2 x AWG22/1	1.5	6.5	30.4	70
2170879	ETHERLINE® TRAY ER PN Y FC	2 x 2 x AWG22/1	1.5	6.5	30.4	70
Suitable for outdoor use and direct burial						
2170494	ETHERLINE® Cat.5e YY	2 x 2 x AWG22/1	1.5	7.7	30.4	62

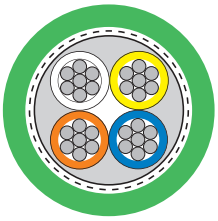
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 460
- EPIC® DATA RJ45F Cat.6_A refer to page 460
- EPIC® DATA M12D refer to page 462
- KNIPEX Elektronik Super Knips® refer to page 983
- DATA STRIP stripping tool refer to page 986
- FC STRIP stripping tool refer to page 986
- Fibre Strip DC

ETHERLINE® PN FLEX

Flexible use



Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For Profinet applications
- Flexible use

Benefits

- For PROFINET applications type B
- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s is 85 m
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)

Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- CAT.5-Performance
- FRNC Version: Halogene free and flame retardant
- Fast Connect (FC) cable design

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)
- ETHERLINE® PN Cat.5 Y FLEX FC: ECOLAB®
  Industry standard for innovation and efficiency in the field of professionllen cleaning and disinfection

Product Make-up

- Stranded 7-wire bare conductor
- Core insulation: PE or PP
- Star quad
- Inner sheath made of PVC or FRNC
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
FRNC cable:
during installation: 8 x outer diameter
fixed: 4 x outer diameter
PVC cable:
Flexing: 7 x outer diameter
Fixed installation: 3 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Characteristic impedance
100 Ω ± 15%

Temperature range
cable halogenfree compound
Fixed installation: -25°C to +80°C
Moved: -25°C to +80°C
cable with PVC jacket
Fixed installation: -40°C to +80°C
Moved: -20°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
PVC jacket						
2170886	ETHERLINE® PN Cat.5 Y FLEX FC	2 x 2 x AWG22/7	1.5	6.5	31.3	67
FRNC outer sheath						
2170890	ETHERLINE® PN Cat.5e FRNC FLEX FC	2 x 2 x AWG22/7	1.5	6.5	31.2	65

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

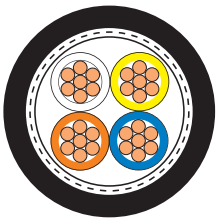
- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA RJ45F Cat.6$_A$ refer to page 460
- EPIC® DATA M12D refer to page 462
- KNIPEX Elektronik Super Knips® refer to page 983
- FC STRIP stripping tool refer to page 986

ETHERLINE® Y Cat.5e BK 2x2AWG22/7

Flexible application

Info

- For PROFINET applications
- CAT.5-Performance



Benefits

- UV and weather-resistant in black
- Can be used in dry or damp rooms
- Screened against interference
- Suitable for outdoor use, UV-resistant
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- Many applications with Industrial Ethernet, e.g. PROFINET type B, i.e. fixed installation and flexible use.
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s is 85 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PVC compound TM2 acc. to EN 50363-4-1
- Resistant to acids, alkalis and certain oils at room temperature
- Flame retardant acc. to IEC 60332-1-2
- CAT.5-Performance

Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: Based on Polyolefin
- Colour-coded in accordance with PROFINET for Cat.5 apllications
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC outer sheath, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
100 ± 15 Ω (> 1 MHz)

Temperature range
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® Y Cat.5e BK 2x2AWG22/7						
2170901	ETHERLINE® Y CAT.5e BK 2x2xAWG22/7	2 x 2 x AWG22/7	1.5	6.2	30.4	59

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

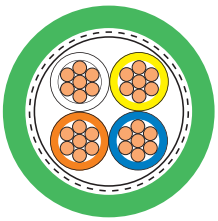
- ETHERLINE® PN FLEX refer to page 430

Accessories

- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA HS RJ45F Cat.6$_A$ refer to page 461
- EPIC® DATA M12D refer to page 462
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

ETHERLINE® Cat.5e 105 plus

Flexible application



Info

- For PROFINET applications
- Extended temperature range

Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance
- Industrial use
- Premium screening against electromagnetic interference
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- For installation in hollow shaft between gear units and pitch system
- Suitable for fixed installation and occasionally flexible use in high temperature areas
- Max. cable lenght for 100 Mbit/s is 85 m
- Suitable for EtherCAT and EtherNet/IP applications
- Wiring of machines, tools, devices, appliances and control cabinets

Product features

- Optimum EMC protection
- Permanent load up to +105°C, temporary load +120°C

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-5

Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: PE
- Colour-coded in accordance with PROFINET for Cat.5 apllications
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: TPE-based
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Fixed installation: -40°C to +105°C
occasionally flexing: -30°C to +105°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)
ETHERLINE® Cat.5e 105 plus					
2170636	ETHERLINE Cat.5e 105 plus	2x2xAWG22/7	1.5	6.2	30.4

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

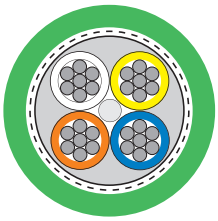
- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA RJ45F Cat.6$_A$ refer to page 460
- EPIC® DATA M12D refer to page 462
- KNIPEX Elektronik Super Knips® refer to page 983
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

ETHERLINE® MARINE FRNC FC CAT.5

Flexible application

Info

- Certified for maritime applications
- Flexible use in conjunction with light mechanical stress



Benefits

- Can be used for Industrial Ethernet in harsh industrial environments
- For use in dry, damp and wet rooms
- Premium screening against electromagnetic interference
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- Shipbuilding
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications
- Onshore and offshore applications
- Max. cable lenght for 100 Mbit/s is 85 m

Product features

- High flame retardancy in accordance with IEC 60332-3 and FT4
- CAT.5-Performance
- Fast Connect (FC) cable design

Norm references / Approvals

- CMG UL/CSA certification 75°C or PLTC, Sun Res
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Colour-coded in accordance with PROFINET for Cat.5 apllications
- Star quad
- Inner sheath: thermoplastic copolymer (FRNC)
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Halogen-free and flame-retardant FRNC outer sheath
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 3 x outer diameter
Flexing: 7.5 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Operating temperature: -25°C to +70°C
During installation: 0 °C to +50 °C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® MARINE FRNC FC CAT.5						
2170889	ETHERLINE® MARINE FRNC FC CAT.5	2 x 2 x AWG22/7	1.5	6.5	32	68

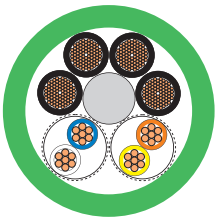
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA M12D refer to page 462
- KNIPEX Elektronik Super Knips® refer to page 983
- FC STRIP stripping tool refer to page 986

ETHERLINE® Cat.5 FRNC HYBRID

Hybrid cable for ethernet and power transmission



Info

- HYBRID: cable for data transmission + power supply

Benefits

- Industrial use
- Screened against interference

Application range

- Industrial Ethernet cable
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Max. cable lenght for 100 Mbit/s is 85 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- Flame-retardant according IEC 60332-1-2
- HYBRID: cable for data transmission + power supply
- Robust, halogen-free outer sheath
- CAT.5-Performance

Norm references / Approvals

- UL AWM Style 21282

Product Make-up

- Cores for Power Supply 4 x 1.5 mm² (AWG16)
- Data transfer: braided conductor, 7-wire, bare
- Pair screening: wrapped with foil and braided copper wires
- Twisting: data pairs and power supply pairs twisted together
- Overlapping plastic tape
- FRNC outer sheath
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 5 x outer diameter

Test voltage
See data sheet

Characteristic impedance
100 Ω ± 15%

Temperature range
Operation: -20 °C to +70 °C

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Flexible use					
2170887	ETHERLINE® Cat.5 FRNC HYBRID	2x2xAWG22/7 + 4x1.5	10.3	94.2	153

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

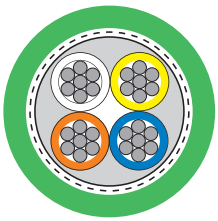
- KNIPEX Elektronik Super Knips® refer to page 983
- STAR STRIP stripping tool refer to page 985

ETHERLINE® PN Cat.5 FD

Highly flexible application

Info

- Highly flexible application
- For PROFINET applications



Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- Power chain applications
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s is 85 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- CAT.5-Performance
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Flame-retardant according IEC 60332-1-2
- Optimized cable construction for power chain use
- Broad usages due to halogen-free materials

Norm references / Approvals

- UL/CSA type CMX (UL 444)

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Star quad
- Colour-coded in accordance with PROFINET for Cat.5 apllications
- Inner sheath: thermoplastic copolymer (FRNC)
- Overall screening with copper braid and plastic-laminated aluminium foil
- PUR outer sheath, halogen-free
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Moved: 10 x outer diameter
Fixed installation: 5 x outer diameter

Test voltage
Core/core: 700 V
Core/screen: 700 V

Characteristic impedance
100 Ω ± 15%

Temperature range
Fixed installation: -30°C to +70°C
Flexing: -20°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® PN Cat.5 FD						
2170894	ETHERLINE® FD P FC CAT.5	2 x 2 x AWG22/7	1.5	6.5	31.3	63

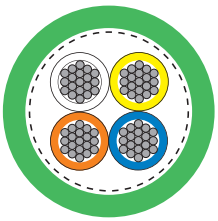
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA M12D refer to page 462
- KNIPEX Elektronik Super Knips® refer to page 983
- FC STRIP stripping tool refer to page 986

ETHERLINE® TORSION Cat. 5

Highly flexible application



Info

- Industrial Ethernet Cable, 2-pair, suitable for torsion stress
- For PROFINET applications

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- Industrial Ethernet Cable, 2-pair, suitable for torsion stress
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s is 55 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- Cable suitable for high torsion stress. Tested with more than 1 million bending cycles and a right/left movement of 180° per metre.
- Outer sheath with high abrasion-resistance
- Broad usages due to halogen-free materials
- PUR outer sheath is highly resistant to mineral oils and abrasion

Norm references / Approvals

- UL AWM (Style 21161)
- Halogen-free according to VDE 0472-815
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Stranded conductor, tinned
- AWG 22 (19-wire)
- PE core insulation
- Star quad
- Screening: wrapped with braided tinned-copper wires
- Non-woven wrapping
- PUR outer sheath, green (RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Flexing: up from 5 x outer diameter

Test voltage
700 V

Characteristic impedance
100 ± 15 Ω (> 1 MHz)

Temperature range
-40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® TORSION Cat. 5						
2170888	ETHERLINE® TORSION CAT.5	2 x 2 x AWG22/19	1.5	6.5	31.3	52

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA HS RJ45F Cat.6$_A$ refer to page 461
- KNIPEX Elektronik Super Knips® refer to page 983
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

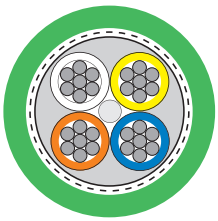
NEW

ETHERLINE® FESTOON PN Cat.5e

Ethernet cable for Category 5e, Class D for Festoon applications - verified up to 100 MHz

Info

- Fast and easy cable preparation by FC inner sheath
- For PROFINET applications



Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- For conveying systems and cable trolleys
- Power chain applications
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s is 85 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- Cat.5e-Performance
- Optimized cable construction for use in Festoon applications
- Fast Connect (FC) cable design
- The oil-resistant PVC sheath enables usage in industrial environments
- High flame retardance acc. to IEC 60332-3-24 and FT4

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)
- UL AWM Style 21694

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Star quad
- Colour-coded in accordance with PROFINET for Cat.5e apllications
- Inner sheath: PVC
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC outer sheath
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Moved: 10 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]
ETHERLINE® FESTOON PN Cat.5e				
2170936	ETHERLINE® FESTOON PN Cat.5e	2x2xAWG22/7	1.55	6.5

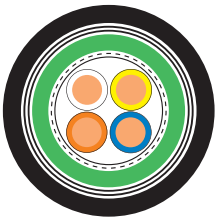
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA M12D refer to page 462
- KNIPEX Elektronik Super Knips® refer to page 983
- FC STRIP stripping tool refer to page 986

ETHERLINE® Cat.5 ARM

Fixed Installation



Info

- Industrial Ethernet cable
- CAT.5-Performance
- Suitable for outdoor use and direct burial

Benefits

- Can be used for Industrial Ethernet in harsh industrial environments
- EMC-optimised design
- With armouring for improved rodent protection
- Screened against interference
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- Suitable for outdoor use, UV-resistant
- Suitable for direct burial
- Max. cable lenght for 100 Mbit/s is 100 m
- PROFINET application Type C but for fixed installation
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- Fast Connect (FC) cable design

Product Make-up

- Solid and bare copper conductor
- Core insulation: PE
- Colour-coded in accordance with PROFINET for Cat.5 apllications
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Inner sheath made of PVC (green RAL6018) 2 layer galvanzid steel tape
- Outer sheath made of black polyethylene (PE)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Characteristic impedance
100 Ω ± 15%

Temperature range
Fixed installation: -40°C to +70°C
Flexing: -20°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Fixed Installation						
2170496	ETHERLINE® Cat.5 ARM	2 x 2 x AWG22/1	1.5	6.5 / 9.3	30.4	124

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

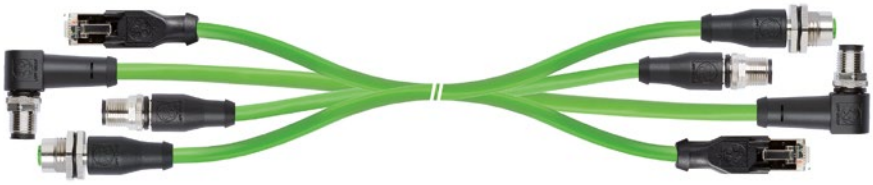
Accessories

- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA M12D refer to page 462
- KNIPEX Elektronik Super Knips® refer to page 983
- DATA STRIP stripping tool refer to page 986
- FC STRIP stripping tool refer to page 986
- Fibre Strip DC

ETHERLINE® PN Cat.5 Patch cables

Info

- For PROFINET® applications (D-coded)
- Additional variants are available at www.lappgroup.com/assemblyfinder or on request



Benefits
- Non-permanent connections allow for easy change of equipment

Application range
- For PROFINET® applications type A
- Fixed installation
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features
- Meets the requirements according to Cat.5e and class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals
- The cable is UL/CSA-certified (CMG)

Product Make-up
- Solid conductor, 2x2x AWG22/1
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC, 6.5mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
During installation: 15 x outer diameter
Fixed installation: 10 x outer diameter

Protection rating
M12: IP 67
RJ45: IP 20

Temperature range
During installation: -20°C to +60°C
Fixed installation: -40°C to +80°C

Coding
M12: D-Standard

		RJ45	M12, plug, straight	M12, plug, angled	M12, socket, straight	Open end
	Length	Article number				
RJ45	1.0m	2171179	2171165	2171172	On request	2171186
	2.0m	2171180	2171166	2171173		2171187
	3.0m	2171181	2171167	2171174		2171188
	5.0m	2171182	2171168	2171175		2171189
	10.0m	2171183	2171169	2171176		2171190
	20.0m	2171184	2171170	2171177		2171191
M12, plug, straight	1.0m	2171165	2171001	2171013	2171151	2171007
	2.0m	2171166	2171002	2171014	2171152	2171008
	3.0m	2171167	2171003	2171015	2171153	2171009
	5.0m	2171168	2171004	2171016	2171154	2171010
	10.0m	2171169	2171005	2171017	2171155	2171011
	20.0m	2171170	2171006	2171018	2171156	2171012
M12, plug, angled	1.0m	2171172	2171013	On request	On request	2171019
	2.0m	2171173	2171014			2171020
	3.0m	2171174	2171015			2171021
	5.0m	2171175	2171016			2171022
	10.0m	2171176	2171017			2171023
	20.0m	2171177	2171018			2171024
M12, socket, straight	1.0m	On request	2171151	On request	On request	On request
	2.0m		2171152			
	3.0m		2171153			
	5.0m		2171154			
	10.0m		2171155			
	20.0m		2171156			

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

ETHERLINE® PN Flex Cat.5 Patch cables

Info

- For PROFINET® applications
- Additional variants are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- For PROFINET® applications type B
- Flexible applications
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features

- Meets the requirements according to Cat.5e and class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

Product Make-up

- Braided conductor, 2x2x AWG22/7
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC, 6.5mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 10 x outer diameter

Protection rating
M12: IP 67
RJ45: IP 20

Temperature range
Flexing: -20°C to +60°C
Fixed installation: -40°C to +80°C

Coding
M12: D-Standard

		RJ45	M12, plug, straight	M12, plug, angled	M12, socket, straight	Open end
	Length	Article number				
RJ45	0.5m	2171228	2171214	2171221	2171293	2171235
	1.0m	2171229	2171215	2171222	2171294	2171236
	2.0m	2171230	2171216	2171223	2171295	2171237
	5.0m	2171232	2171218	2171225	2171297	2171239
	10.0m	2171233	2171219	2171226	On request	2171240
M12, plug, straight	0.5m	2171214	2172192	2172196	2171200	2172194
	1.0m	2171215	2171025	2171037	2171201	2171031
	2.0m	2171216	2171026	2171038	2171202	2171032
	5.0m	2171218	2171028	2171040	2171204	2171034
	10.0m	2171219	2171029	2171041	2171205	2171035
M12, plug, angled	0.5m	2171221	2172196	On request	On request	2172198
	1.0m	2171222	2171037			2171043
	2.0m	2171223	2171038			2171044
	5.0m	2171225	2171040			2171046
	10.0m	2171226	2171041			2171047
M12, socket, straight	0.5m	2171293	2171200	On request	On request	On request
	1.0m	2171294	2171201			
	2.0m	2171295	2171202			
	5.0m	2171297	2171204			
	10.0m	On request	2171205			

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

ETHERLINE® PN FD Cat.5 Patch cables

Info

- For PROFINET® applications
- Additional variants are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- For directly connecting two electric components
- Non-permanent connections allow for easy change of equipment

Application range

- For PROFINET® applications type C
- Continuous flexing applications
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features

- Meets the requirements according to Cat.5e and class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMX)

Product Make-up

- Braided conductor, 2x2x AWG22/7
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR , 6.5mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 8 x outer diameter
Fixed installation: 5 x outer diameter

Protection rating
M12: IP 67
RJ45: IP 20

Temperature range
Flexing: -20°C to +60°C
Fixed installation: -30°C to +70°C

Coding
M12: D-Standard

		RJ45	M12, plug, straight	M12, plug, angled	M12, socket, straight	Open end
	Length	Article number				
RJ45	0.5m	2171278	2171264	2171271	On request	2171285
	1.0m	2171279	2171265	2171272		2171286
	2.0m	2171280	2171266	2171273		2171287
	3.0m	2171281	2171267	2171274		2171288
	5.0m	2171282	2171268	2171275		2171289
	10.0m	2171283	2171269	2171276		2171290
M12, plug, straight	0.5m	2171264	2171121	2171122	2171250	2172201
	1.0m	2171265	2171049	2171061	2171251	2171055
	2.0m	2171266	2171050	2171062	2171252	2171056
	3.0m	2171267	2171051	2171063	2171253	2171057
	5.0m	2171268	2171052	2171064	2171254	2171058
	10.0m	2171269	2171053	2171065	2171255	2171059
M12, plug, angled	0.5m	2171271	2171122	On request	2171257	2172204
	1.0m	2171272	2171061		2171258	2171067
	2.0m	2171273	2171062		2171259	2171068
	3.0m	2171274	2171063		2171260	2171069
	5.0m	2171275	2171064		2171261	2171070
	10.0m	2171276	2171065		2171262	2171071
M12, socket, straight	0.5m	On request	2171250	2171257	On request	On request
	1.0m		2171251	2171258		
	2.0m		2171252	2171259		
	3.0m		2171253	2171260		
	5.0m		2171254	2171261		
	10.0m		2171255	2171262		

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

ETHERLINE® PN Cat.6$_A$ FC

Ethernet cable Category 6$_A$, Class E$_A$ for fixed installation with FC inner sheath - verified up to 500 MHz

Info

- Fast and easy cable preparation by FC inner sheath
- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s up to 10 Gbit/s is 100 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- The oil-resistant PVC sheath enables usage in industrial environments
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Product Make-up

- Solid bare copper wire AWG23
- Core insulation made of polyethylene (PE)
- Inner sheath: halogen-free compound
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
cable with PUR jacket
Fixed installation: VDE -30°C to +80°C;
UL/CSA -30°C to +80°C
flexing: VDE -5°C to +50°C;
UL/CSA -5°C to +80°C
cable halogenfree compound
Fixed installation: -25°C to +80°C
cable with PVC jacket
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter [mm]	Copper index (kg/km)
PVC jacket				
2170583	ETHERLINE® PN CAT.6$_A$ Y FC	4x2xAWG23/1	8.7	53
Halogen-free jacket				
2170584	ETHERLINE® PN CAT.6$_A$ FRNC FC	4x2xAWG23/1	8.7	53
PUR outer sheath, halogen-free				
2170585	ETHERLINE® PN CAT.6$_A$ P FC	4x2xAWG23/1	8.7	53

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA RJ45F Cat.6$_A$ refer to page 460
- EPIC® DATA M12X refer to page 462
- EPIC® DATA CCR FA refer to page 463
- FC STRIP stripping tool refer to page 986

NEW

ETHERLINE® PN Cat.6$_A$ FLEX FC

Ethernet cable Category 6$_A$, Class E$_A$ for flexible use with FC inner sheath - verified up to 500 MHz

Info

- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s
- Fast and easy cable preparation by FC inner sheath

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- At 100 Mbit/s: max 90 m cable length
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)

Product features

- CAT.6$_A$ for flexible application, qualified for 10Gbit/s
- Meets the requirements according to CAT.6$_A$, ISO/IEC 11801 and EN 50173
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- The oil-resistant PVC sheath enables usage in industrial environments

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation: PE
- Inner sheath: halogen-free compound
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
cable halogenfree compound
Fixed installation: -25°C to +80°C
cable with PVC jacket
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter [mm]	Copper index (kg/km)
PVC jacket				
2170586	ETHERLINE® PN CAT.6$_A$ Y FLEX FC	4x2xAWG23/7	8.9	57
Halogen-free jacket				
2170587	ETHERLINE® PN CAT.6$_A$ FRNC FLEX FC	4x2xAWG23/7	8.9	57

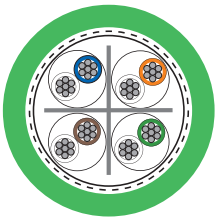
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA RJ45F Cat.6$_A$ refer to page 460
- EPIC® DATA M12X refer to page 462
- EPIC® DATA CCR FA refer to page 463
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

ETHERLINE® FD CAT.6$_A$

For highly flexible applications



Info

- CAT.6$_A$ for drag chain, qualified for 10Gbit/s
- For PROFINET applications with 4 pairs

Benefits

- For use in power chains and moving machinery parts in dry or damp rooms
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Premium screening against electromagnetic interference
- Can be used for Industrial Ethernet in harsh industrial environments

Application range

- For highly flexible applications (e.g. power chains)
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s is 85 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR version is halogen-free according to IEC 60754
- Oil-resistant acc. IEC 60811-2-1
- CAT.6$_A$ for drag chain, qualified for 10Gbit/s
- Meets the requirements according to CAT.6$_A$, ISO/IEC 11801 and EN 50173
- Min. 2.5 million bending cycles in the power chain

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- PUR cable is UL/CSA-certified (CMX)
- PUR versions: UL AWM Style 21576
- PVC cable is UL/CSA-certified (CM)
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation: Based on Polyolefin
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR, halogen-free/PVC
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x cable diameter

Characteristic impedance
100 Ω

Temperature range
Cable with PUR jacket
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C
Cable with PVC jacket
Fixed installation: -40°C to +80°C
Flexing: -10°C bis +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
PVC sheath						
2170485	ETHERLINE® FD CAT.6$_A$	4x2xAWG24/7	1.3	8.9	44	88
PUR outer sheath, halogen-free						
2170484	ETHERLINE® FD P CAT.6$_A$	4x2xAWG24/7	1.3	8.9	44	90

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

Accessories

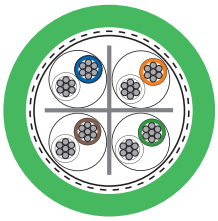
- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA M12X refer to page 462
- EPIC® DATA CCR FA refer to page 463

ETHERLINE® TORSION Cat.6$_A$

Highly flexible application

Info

- Industrial Ethernet Cable, 4-pair, suitable for torsion stress
- CAT.6$_A$ qualified for 10Gbit/s
- For PROFINET applications



Benefits

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Premium screening against electromagnetic interference
- Can be used for Industrial Ethernet in harsh industrial environments

Application range

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Can be used for Industrial Ethernet in harsh industrial environments
- Max. cable lenght for 100 Mbit/s is 85 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR version is halogen-free according to IEC 60754
- Oil-resistant acc. IEC 60811-2-1
- Cable suitable for high torsion stress. Tested with more than 1 million bending cycles and a right/left movement of 180° per metre.
- Meets the requirements according to CAT.6$_A$, ISO/IEC 11801 and EN 50173

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- PUR cable is UL/CSA-certified (CMX)
- PUR versions: UL AWM Style 21576
- PVC cable is UL/CSA-certified (CM)
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR, halogen-free/PVC
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x cable diameter

Characteristic impedance
100 Ω

Temperature range
Cable with PUR jacket
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C
Cable with PVC jacket
Fixed installation: -40°C to +80°C
Flexing: -10°C bis +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)
PVC jacket					
2170482	ETHERLINE® TORSION Y CAT6$_A$	4 x 2 x AWG24/7	1.3	8.9	44
PUR outer sheath, halogen-free					
2170483	ETHERLINE® TORSION P CAT6$_A$	4 x 2 x AWG24/7	1.3	8.9	44

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

Accessories

- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA M12X refer to page 462
- EPIC® DATA CCR FA refer to page 463

ETHERLINE® TORSION Cat.6$_A$ Patch cables

Info

- Industrial Ethernet Cable, 4-pair, suitable for torsion stress
- Cat.6$_A$ qualified for 10Gbit/s
- Other types are available at www.lappgroup.com/assemblyfinder or on request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features

- Meets the requirements according to Cat.6$_A$ and class E$_A$
- Suitable for torsion stress

Product Make-up

- Braided conductor, 4x2x AWG24/7
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR, 9.4mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter

Protection rating
IP 67

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -30°C to +80°C

Coding
M12: X-Standard

		M12, plug, straight	M12, socket, straight	Open end
	Length	Article number		
M12, plug, straight	1.0m	2172264	2172278	2172271
	2.0m	2172265	2172279	2172272
	3.0m	2172266	2172280	2172273
	5.0m	2172267	2172281	2172274
	10.0m	2172268	2172282	2172275
M12, socket, straight	1.0m	2172278	2172292	2172285
	2.0m	2172279	2172293	2172286
	3.0m	2172280	2172294	2172287
	5.0m	2172281	2172295	2172288
	10.0m	2172282	2172296	2172289

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

PROFINET EtherNet/IP

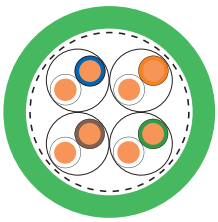
NEW

ETHERLINE® PN Cat.7

Ethernet cable Category 7, Class F for fixed installation - verified up to 600 MHz

Info

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s



Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s up to 10 Gbit/s is 100 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Robust, halogen-free FRNC outer sheath
- The oil-resistant PVC sheath enables usage in industrial environments
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Product Make-up

- Solid bare copper wire AWG23
- Core insulation: foamed polyethylen (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Cable with PVC jacket
Fixed installation: -30°C to +80°C
Flexing: -5°C bis +50°C
FRNC: -30°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)
PVC outer sheath					
2170594	ETHERLINE® PN CAT.7 Y	4x2xAWG23/1	1.4	8.1	40
Halogen-free jacket					
2170595	ETHERLINE® PN CAT.7 FRNC	4x2xAWG23/1	1.4	8.1	40
PUR outer sheath, halogen-free					
2170596	ETHERLINE® PN CAT.7 P	4x2xAWG23/1	1.4	8.1	40

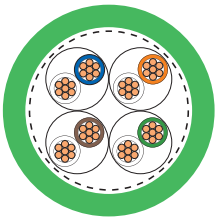
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA M12X refer to page 462
- EPIC® DATA CCR FA refer to page 463

ETHERLINE® PN Cat.7 FLEX

Ethernet cable Category 7, Class F for flexible application - verified up to 600 MHz



Info

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s up to 10 Gbit/s is 100 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- Robust, halogen-free outer sheath
- The oil-resistant PVC sheath enables usage in industrial environments
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- For fixed installation - UL/CSA CMG (PVC) and UL/CSA CM (FRNC) certification

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: foamed polyethylen (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -30°C to +80°C
Occasional flexing: -5°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)
ETHERLINE® PN Cat.7 FLEX					
2170597	ETHERLINE® PN CAT.7 Y FLEX	4x2xAWG23/7	1.53	8.7	45
2170598	ETHERLINE® PN CAT.7 FRNC FLEX	4x2xAWG23/7	1.53	8.7	45

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

Accessories

- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA M12X refer to page 462
- EPIC® DATA CCR FA refer to page 463

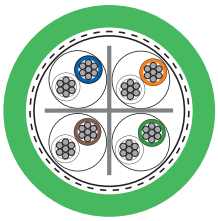
NEW

ETHERLINE® TORSION Cat.7

Highly flexible application

Info

- For Torsion applications (±180°)
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s



Benefits

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Premium screening against electromagnetic interference
- Can be used for Industrial Ethernet in harsh industrial environments

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable length for 100 Mbit/s is 85 m Max. cable length for 10 Gbit/s is 85 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- Halogen-free according to IEC 60754-1
- Oil-resistant acc. IEC 60811-2-1
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Cable suitable for high torsion stress. Tested with up to 5 million bending cycles and a right/left movement of 180° per metre.

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- UL/CSA-certified (CMX)
- UL AWM Style 21576
- Flame-retardant according IEC 60332-1-2

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

Article number	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)
ETHERLINE® TORSION Cat.7				
2170481	4x2xAWG24/7	1.4	9.4	44

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

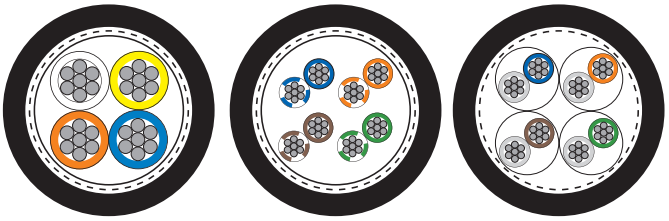
Accessories

- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA M12X refer to page 462
- EPIC® DATA CCR FA refer to page 463

NEW

ETHERLINE® TRAIN

Ethernet cables according to EN 50264-3-1 Type XM for high requirements in railway applications



Info

- Meets EN 50264-3-2 type XM and EN 45545-2
- Cat.5e Performance up to 100 / 1000 MBit/s
  Cat.6_A & Cat.7 qualified for 10 GBit/s

Benefits

- Good chemical resistance
- Resistant to mechanical influences in harsh environmental conditions
- Extended temperature range
- Reduced flame spreading increase the protection against damage to persons and property in the event of a fire

Application range

- For use in railway vehicles and buses, for fixed installations and applications where limited movement may occur
- Suitable for connecting to of e.g. camera systems, enter-/ infotainment for passengers, ticketing systems
- Also applicable within oily environments and areas with increased ambient temperature

Product features

- Fire behaviour according to EN/IEC:
  - Halogen-free acc. to EN 60754-1
  - No corrosive gases acc. to EN 60754-2
  - No fluorine acc. to EN 60684-2
  - No toxic gases acc. to EN 50305
  - Low smoke density acc. to EN 61034-2
  - Flame-retardant acc. to EN 60332-1-2
  - No fl ame propagation acc. to EN 60332-3-25
- Fire behaviour according to NF:
  - Toxicity of gases acc. to NF X 70-100
  - Low smoke density acc. to NF X 10-702
  - No flame propagation acc. to NF C 32-070, Cat. C1 and C2
- Chemical properties:
  - Oil resistant acc. to EN 50264-1
  - Fuel resistant acc. to EN 50264-1
  - Acid resistant acc. to EN 50264-1
  - Alkali resistant acc. to EN 50264-1
  - Ozone resistant acc. to EN 50264-3-2

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- EN 50264-1
- EN 45545-2 HL1, HL2, HL3

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation: Based on Polyolefin
- Cat.5e: SF/UTP - copper braid and foil screening as overall screening
- Cat.6_A/Cat.7: S/FTP - copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: electron beam cross-linked polymer-compound EM 104
- Outer sheath colour: Black

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 10 x outer diameter
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 1000 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation:
-45°C to +90°C
Occasional flexing: -35°C up to +90°C

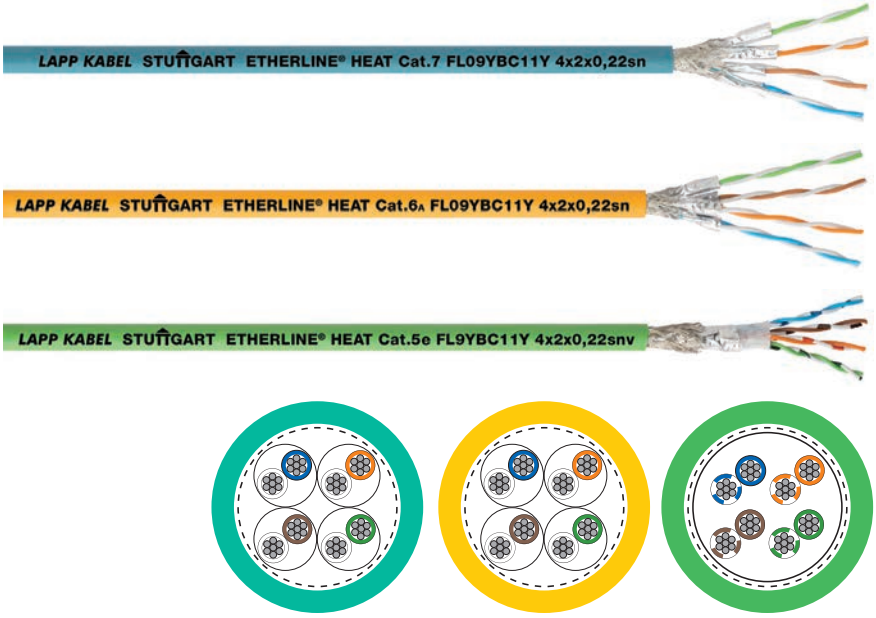
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)
Cat.5e, 2-pair version					
2170906	ETHERLINE TRAIN FLEX Cat.5e 1x4x22/7 PE	1x4xAWG22/7	1.5	6.5	30
2170910	ETHERLINE TRAIN FLEX Cat.5e 1x4x0,5 PE	1x4x0,5/7	2	7.6	41
Cat.5e, 4-pair version					
2170907	ETHERLINE TRAIN Cat.5e 4x2x24/7 PE	4x2xAWG24/7	1.2	7.7	38
Cat.6_A					
2170908	ETHERLINE TRAIN FLEX Cat. 6A 4x2x24/7 PE	4x2xAWG24/7	1.4	8.4	38
Cat.7					
2170909	ETHERLINE TRAIN FLEX Cat.7 4x2x24/7 PE	4x2xAWG24/7	1.4	8.4	43

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® HEAT 6722

Info

- Designed according to ISO 6722
- Tested acc.to ECE-R 118.01



Benefits

- Easy to strip and dismantle
- Extended temperature range
- Good resistance to oil, petrol, acids and alkalis
- Abrasion and cut-resistant, halogen-free, oil-resistant
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire

Application range

- For flexible applications (7-wire stranded conductor)
- For fixed, flexible and protected installations inside buses
- Suitable for connecting to of e.g. camera systems, enter-/ infotainment for passengers, ticketing systems
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Product features

- Halogen-free according to VDE 0472-815
- Good chemical resistance
- Flame retardant acc. to ISO 6722-1
- Temperature class B on the basis of ISO 6722-1

Norm references / Approvals

- DIN/ISO 6722
- Electrical requirements acc. to IEC 61156-6
- Tested acc.to ECE-R 118.01
- ISO 14572, 5.21
- LV 112-1, LV 212-2, LV 213-2

Product Make-up

- Stranded tinned 7-wire conductor
- Core insulation: Based on Polyolefin
- Colour-coded in accordance with EIA/TIA 568A and B
- Cat.5e: SF/UTP - copper braid and foil screening as overall screening
- Cat.6$_A$/Cat.7: S/FTP - copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR compound, halogen-free
- Outer sheath colour:
  Cat.5e green (RAL 6018)
  Cat.6$_A$ yellow (RAL 1003)
  Cat.7 blue (RAL 5021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 10 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Flexing: -30 °C to +105 °C
Fixed installation: -40 °C to +105 °C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® HEAT 6722						
2170850	ETHERLINE® Cat. 5e FL9YBC11Y 4x2x0,22sn	4x2xAWG24/7	1.17	7.7	38	72
2170581	ETHERLINE® Cat. 6A FL09YBC11Y 4x2x0,22sn	4x2xAWG24/7	1.3	8.1	38	77
2170582	ETHERLINE® Cat. 7 FL09YBC11Y 4x2x0,22sn	4x2xAWG24/7	1.3	8.1	38	77

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA M12X refer to page 462

ETHERLINE® FIRE Cat.5e PH120

Ethernet cable Category 5e, Class D with isolation integrity - verified up to 100 MHz

Info

- Isolation integrity for at least 120 minutes in the event of fire

Benefits

- Ensures that the cable can still transmit data during and after a fire for 120 min (according to EN50200)
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Application range

- In industrial areas that use fire as a tool
- Highly combustible or fire-prone areas
- For fixed installation
- For indoor use

Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1 & EN50267-2-1)
  - Flame-retardant (IEC 60332-1)
  - Fire retardant (IEC 60332-3-24)
  - Low smoke density (IEC 61034-2)
  - Circuit integrity (EN50200); 120 min
- Meets the requirements according to Cat. 5e and class D

Product Make-up

- Solid bare copper conductor
- Core insulation: Based on Polyolefin
- Each insulation will be wrapped with a special tape (anti-fire barrier)
- Twisting: 2 twisted-pair cores, stranding from 4 pairs
- F/UTP: foil screening as overall screening
- Halogen-free and flame-retardant FRNC outer sheath, colour: red (similar to RAL3000)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 15 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Operation: -20 °C to +70 °C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® FIRE Cat.5e PH120						
2170905	ETHERLINE® FIRE Cat.5e PH120	4 x 2 x AWG23/1	0.95	8.6	24	75

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® TRAY

Info

- PLTC (power limited tray cable) for protected use on cable trays

Benefits

- Wide application range due to multiple certifications
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

Application range

- Suitable for EtherNet/IP applications
- Fixed Installation
- Industrial machinery; plant engineering
- Can be used for Industrial Ethernet in harsh industrial environments
- Methods of Deployment: laying in trunking, ducts, trays, building riser

Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I

Norm references / Approvals

- c(UL)us Typ CMG (75°C) acc.to UL 444 / CSA 22.2
- c(UL)us Typ CMR acc.to UL 444
- c(UL)us Typ PLTC acc. to UL 13
- UL AWM Style 2570
- Electrical requirements acc. to IEC 61156-5 Type III

Product Make-up

- Stranded tinned 7-wire conductor
- Core insulation: Based on Polyolefin
- Colour-coded in accordance with EIA/TIA 568A and B
- TP structure
- Cat.5e: SF/UTP - copper braid and foil screening as overall screening
- PVC outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 10 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

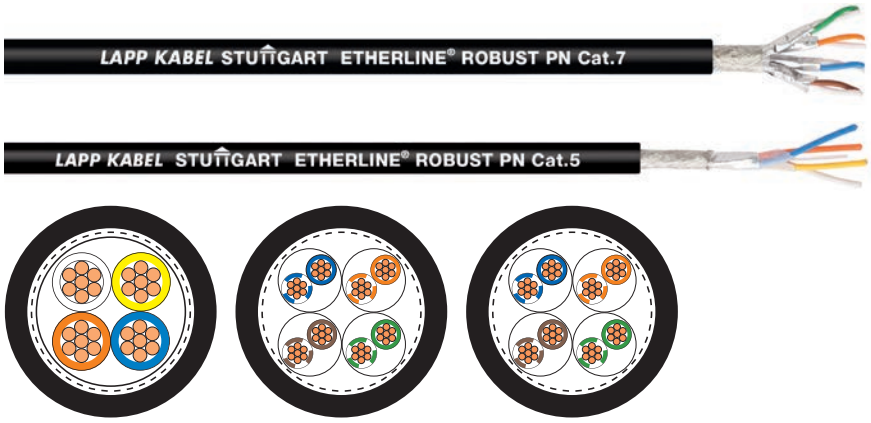
Temperature range
Occasional flexing: -25°C to +80°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® TRAY					
2170450	ETHERLINE® TRAY Cat.5e Y 4x2x22AWG	4x2xAWG22/7	9.6	59	119
2170463	ETHERLINE® TRAY Cat.6$_A$ Y 4x2x22AWG	4x2xAWG22/7	9.9	84	133

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ROBUST

Flexible use



Info

- For PROFINET applications
- Good chemical resistance

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with plant, animal or synthetic-based organic substances, oils, greases, waxes and the related emulsions
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- For flexible applications (7-wire stranded conductor)
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702

Product features

- Halogen-free materials
- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396
- Low smoke density according to IEC 61034-2

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: Based on Polyolefin
- Screening: wrapped with braided tinned-copper wires
- Outer sheath made of special TPE
- Colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Occasional flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
PROFINET Cat.5e						
2170451	ETHERLINE® ROBUST PN Cat.5	2x2xAWG22/7	1.5	6.5	30.4	50
PROFINET Cat.7						
2170452	ETHERLINE® ROBUST PN Cat.7	4x2xAWG23/7	1.5	8.7	48	75
Industrial Ethernet Cat.7						
2170453	ETHERLINE® ROBUST Cat.7 FLEX	4x2xAWG26/7	1	6.2	27	36

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

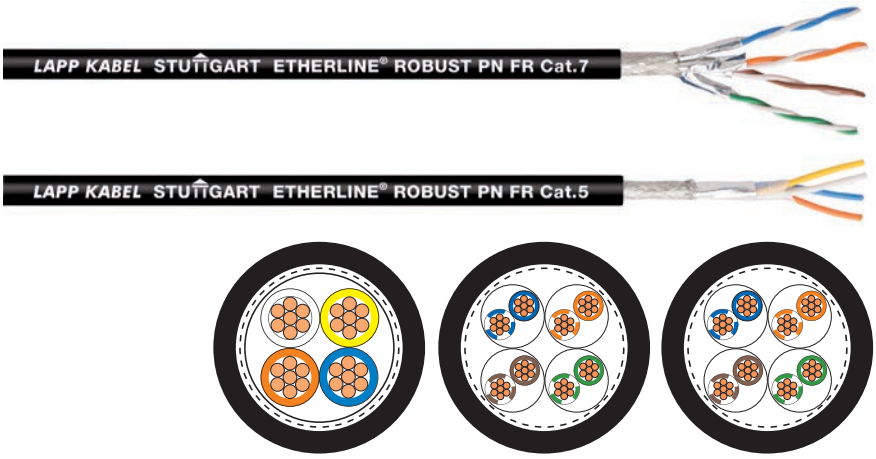
- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA M12D refer to page 462
- EPIC® DATA M12X refer to page 462
- EPIC® DATA CCR FA refer to page 463

ECOLAB

ETHERLINE® ROBUST FR

Info

- For PROFINET applications
- Flame-retardant



Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- For flexible applications (7-wire stranded conductor)
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Flame retardance makes it suitable for indoor and outdoor installations
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Many applications with Industrial Ethernet, e.g. PROFINET type B, i.e. fixed installation and flexible use.

Norm references / Approvals

- UV-resistant according to ISO 4892-2 and ozone-resistant according to EN 50396
- Flame-retardant according IEC 60332-1-2

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: Based on Polyolefin
- Screening: wrapped with braided tinned-copper wires
- Outer sheath made of special TPE
- Colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Flexing: 10 x outer diameter
Fixed installation: 4 x Outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Occasional flexing: -40°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
PROFINET Cat.5e						
2170454	ETHERLINE® ROBUST PN FR Cat.5	2x2xAWG22/7	1.5	6.5	30.4	55
PROFINET Cat.7						
2170455	ETHERLINE® ROBUST PN FR Cat.7	4x2xAWG23/7	1.5	8.7	48	80
Industrial Ethernet Cat.7						
2170456	ETHERLINE® ROBUST FR Cat.7 FLEX	4x2xAWG26/7	1	6.2	27	40

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 458
- EPIC® DATA PN 90 RJ45 refer to page 458
- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 460
- EPIC® DATA M12D refer to page 462
- EPIC® DATA M12X refer to page 462
- EPIC® DATA CCR FA refer to page 463

ETHERLINE® ACCESS M05T/M08T

Managed switches for industrial communication

Info

- Redundant power inputs
- Robust metal housing and DIN rail mounting
- Fanless maintenance free

Benefits

- Improve your total cost of ownership with faster installation and lower downtime
- Most flexible and globally present solutions from one hand

Product features

- Simple setup of redundant networktopologies with reconfiguration time < 20 ms
- RJ45 Ports: 10/100BaseT(X)
- Packet Buffer Size: 1 Mbit
- Supported protocols: HTTP, Telnet,EtherNet/IP, Modbus/TCP, IPv6, and many more
- Redundant Power Input: 24 VDC

Norm references / Approvals

- Shock IEC 60068-2-27
- Freefall IEC60068-2-32
- Vibration IEC 60068-2-6

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

Protection rating
IP 30

Temperature range
0°C to +60°C

Article number	Article designation	Type	RJ45 ports	MTBF in years
ETHERLINE® ACCESS M05T/M08T				
21700121	ETHERLINE® ACCESS M05T	Managed	5	> 97
21700122	ETHERLINE® ACCESS M08T	Managed	8	> 125

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- ETHERLINE® EC FD Cat.5e RJ4

NEW

ETHERLINE® ACCESS U05T/U08T

Unmanaged switches for industrial communication

Info

- Redundant power inputs
- Robust metal housing and DIN rail mounting
- Fanless maintenance free

Benefits

- Improve your total cost of ownership with faster installation and lower downtime
- Most flexible and globally present solutions from one hand

Product features

- RJ45 Ports: 10/100BaseT(X)
- Packet Buffer Size: 512 kbit
- Broadcast storm protection
- Redundant Power Input: 24 VDC

Norm references / Approvals

- Shock IEC 60068-2-27
- Freefall IEC60068-2-32
- Vibration IEC 60068-2-6

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description:
Network switch

Protection rating
IP 30

Temperature range
-10°C to +60°C

Article number	Article designation	Type	RJ45 ports	MTBF in years
ETHERLINE® ACCESS U05T/U08T				
21700118	ETHERLINE® ACCESS U05T	Unmanaged	5	> 347
21700119	ETHERLINE® ACCESS U08T	Unmanaged	8	> 277

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- ETHERLINE® EC FD Cat.5e RJ4

EPIC® DATA PN AX RJ45

Info

- For PROFINET applications
- Installation without tools

Product features

- For PROFINET applications
- Housing: zinc die-casting, grey
- Suitable for use in industrial applications
- By a multi-level relief setting the connector can accomodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Colour-coded in accordance with PROFINET for Cat.5 apllications

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. Core diameter in mm	Core diameter in mm	AWG solid	AWG 7-wire
EPIC® DATA PN AX RJ45							
21700605	ED-IE-AX-5-PN-20-FC	5	9	1.6	1	24 - 22	27 - 22

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
10 pieces in one blister
An approval is necessary for 19-wire cables by Lapp Group
Approved cable: 2170888 ETHERLINE® TORSION Cat.5

EPIC® DATA PN 90 RJ45

Info

- For PROFINET applications
- Installation without tools
- 4 different angled cable outlets possible

Product features

- For PROFINET applications
- Cable outlet in 4 different 90° angles possible
- Housing: zinc die-casting, grey
- Suitable for use in industrial applications
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Colour-coded in accordance with PROFINET for Cat.5 apllications

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. Core diameter in mm	Core diameter in mm	AWG solid	AWG 7-wire
EPIC® DATA PN 90 RJ45							
21700638	ED-IE-90-6A-PN-20-FC	5.5	10	1	1.6	24 - 22	27 - 22

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
An approval is necessary for 19-wire cables by Lapp Group
Approved cable: 2170888 ETHERLINE® TORSION Cat.5

EPIC® DATA AX RJ45 Cat.6$_A$

Info

- CAT.6$_A$ qualified for 10Gbit/s
- Installation without tools

Product features

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accomodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. Core diameter in mm	Core diameter in mm	AWG solid	AWG 7-wire	AWG 19-wire
RJ45 connector acc. to T568A								
21700600	EPIC® DATA ED-IE-AX-6A-A-20-FC	5	9	1	1.6	24 - 22	27 - 22	
RJ45 connector acc. to T568A, specifically for cables with 19-wire cores								
21700615	EPIC DATA ED-IE-AX-6$_A$-A-20-FD-FC	5	9	0.85	1.1	26 - 24	27 - 24	26*
RJ45 connector acc. to T568B								
21700601	EPIC® DATA ED-IE-AX-6A-B-20-FC	5	9	1	1.6	24 - 22	27 - 22	
RJ45 connector acc. to T568B, specifically for cables with 19-wire cores								
21700616	EPIC DATA ED-IE-AX-6$_A$-B-20-FD-FC	5	9	0.85	1.1	26 - 24	27 - 24	26*

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
10 pieces in one blister
An approval is necessary for 19-wire cables by Lapp Group
Approved cables: 2170289 & 2170489 ETHERLINE® Cat.5e FD; CE217489 ETHERLINE® Cat.5 FD BK; 2170488 ETHERLINE® Cat.6 FD

EPIC® DATA 90 RJ45 Cat.6$_A$

Info

- CAT.6$_A$ qualified for 10Gbit/s
- Installation without tools
- 4 different angled cable outlets possible

Product features

- Cable outlet in 4 different 90° angles possible
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. Core diameter in mm	Core diameter in mm	AWG solid	AWG 7-wire	AWG 19-wire
RJ45 connector acc. to T568A								
21700636	ED-IE-90-6A-A-20-FC	5.5	10	1	1.6	24 - 22	27 - 22	
RJ45 connector acc. to T568A, specifically for cables with 19-wire cores								
21700639	ED-IE-90-6A-A-20-FD-FC	5.5	10	0.85	1.1	26 - 24	27 - 24	26*
RJ45 connector acc. to T568B								
21700637	ED-IE-90-6A-B-20-FC	5.5	10	1	1.6	24 - 22	27 - 22	
RJ45 connector acc. to T568B, specifically for cables with 19-wire cores								
21700640	ED-IE-90-6A-B-20-FD-FC	5.5	10	0.85	1.1	26 - 24	27 - 24	26*

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA AX RJ45 Cat.6$_A$ IP68

RJ45 connector in IP68 housing

Product features

- Housing: brass nickel plated
- Qualified for 10 Gigabit Ethernet
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1
- By a multi-level relief setting the connector can accomodate a cable diameter from 5,0 mm up to 9,0 mm

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51

Info

- CAT.6$_A$ qualified for 10Gbit/s
- Installation without tools

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Protection rating
IP 68

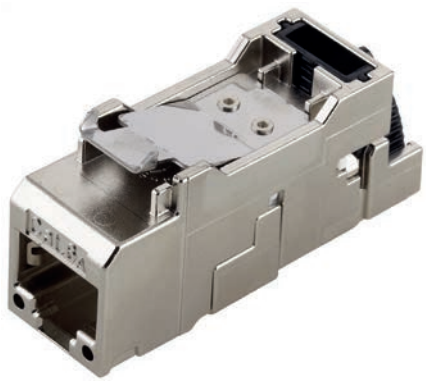
Ambient temperature (operation)
Plug/socket -40°C to +70°C
circular housing: -40°C to +85°C

Article number	Article designation
circular connector (male) inclusive RJ45 connector	
21700630	ED-IE-AX-RJ45-6A-B-68-FC
dust cap for RJ45 connector	
21700631	ED-IE-AX-RJ45-AC-DC
circular bulkead housing inclusive RJ45 Modul acc. to T568B	
21700632	ED-IE-RJ45F-6A-B-68-FC
dust cap for RJ45 Modul	
21700633	ED-IE-RJ45F-AC-DC

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA RJ45F Cat.6$_A$

RJ45 female connector



Product features

- Field assembly Industrial Ethernet module RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accomodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +70°C

Article number	Article designation
RJ45 Modul acc. to T568A	
21700611	ED-IE-AX-RJ45F-6A-A-FC
RJ45 Modul acc. to T568B	
21700612	ED-IE-AX-RJ45F-6A-B-FC

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA HS RJ45F Cat.6$_A$

Cat.6$_A$ rail mount adapter

Product features

- Plastic housing including Easy Connect RJ45 Modul Cat.6$_A$ 10G
- Suitable for use in industrial applications
- Integrated strain relief for cable O.D. to 9 mm
- Colour: light grey (RAL 7035)
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1

Norm references / Approvals

- Field assembly Industrial Ethernet module RJ45 according to IEC 60603-7-51

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +70°C

Article number	Article designation
Inclusive RJ45 Modul acc. to T568A	
21700613	EPIC DATA HS RJ45 F 10G A
Inclusive RJ45 Modul acc. to T568B	
21700614	EPIC DATA HS RJ45 F 10G B

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA M12D

M12 D-coded connectors

Info

- CAT.5-Performance
- Installation without tools

Product features

- Field assembly Industrial Ethernet connector, M12 D-coded according to IEC 61076-2-101
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Toolfree installation, small and compact design

Norm references / Approvals

- Data transmission is conform to category Cat.5 acc. to ISO 11801

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 67

Ambient temperature (operation)
-25°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	AWG solid	AWG 7-wire
M12 D-coded plug, straight, colour coding acc. to PROFINET					
21700647	ED-IE-AX-M12D-5-PN-67-FC	6.2	9.7	24 - 22	26 - 22
M12 D-coded plug, straight, colour coding acc. to TIA 568					
21700648	ED-IE-AX-M12D-5-67	5	6.1	24 - 22	26 - 22
M12 D-coded socket, straight, TIA 568 colour coding					
22261016	AB-C4-M12FSD-SH	4	8	26 - 22	26 - 22

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA M12X

M12 X-coded connectors

Info

- CAT.6_A qualified for 10Gbit/s
- Installation without tools

Product features

- Field assembly Industrial Ethernet connector, M12 X-coded according to IEC 61076-2-109
- Qualified for 10 Gigabit Ethernet
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Housing: zinc die-casting, grey
- Insulation displacement contacts for conductor diameter of AWG27/7 - AWG22/7 and AWG24/1 - AWG22/1; max. outer diameter 9,7 mm
- Toolfree installation, small and compact design

Norm references / Approvals

- Acc. to standard IEC 61076-2-109
- Data transmission is conform to category Cat.6_A acc. to ISO/IEC 11801:2010
- UL-listed (E-File E353543)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Article number	Article designation
M12 x-coded male connector straight	
21700602	ED-IE-AX-M12X-6_A-67-FC
M12 x-coded female connector straight	
21700621	ED-IE-AX-M12XF-6_A-67-FC
M12 x-coded female connector straight for wall mounting	
21700622	ED-IE-AX-M12XF-RM-6_A-67-FC

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA FT IE

Industrial Ethernet feed through

Product features

- Designs for front and rear wall-mounting
- M12 panel feed-throughs for direct connecting with PCB
- Can be used for Industrial Ethernet in harsh industrial environments
- Housing: zinc die-casting, grey

Norm references / Approvals

- Acc. to standard IEC 61076-2
- D-coded: Cat.5 acc. to ISO 11801
  X-coded: Cat.6_A acc. to ISO 11801

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

Protection rating
IP 67

Ambient temperature (operation)
-25°C to +85°C

Article number	Article designation
M12 feed through, socket on socket, D-coded	
22262022	AB-C4-DSI-M12FSD-M12FSD-M16-SH
M12 flush-type connector socket for front-mounting, X-coded	
21700617	ED-IE-M12F-X-FM
M12 flush-type connector socket for rear wall mounting, solder contacts for circuit board, X-coded	
21700618	ED-IE-M12F-X-RM

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA CCR FA

Cable coupler round

Info

- Installation without tools

Product features

- Field mountable cable coupler for data cables up to Cat.7_A
- Compact, round design
- Qualified for 10 Gigabit Ethernet
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Housing: zinc die-casting, grey
- Insulation displacement contacts for conductor diameter of AWG24/7 - AWG22/7 and AWG24/1 - AWG22/1; max. outer diameter 9,7 mm

Norm references / Approvals

- Compliance to class FA up to 1000 MHz in connection with Cat.7_A cables
- Data transmission is conform to category Cat.7_A acc. to ISO/IEC 11801
- UL-listed (E-File E353543)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description:
Modular connector

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

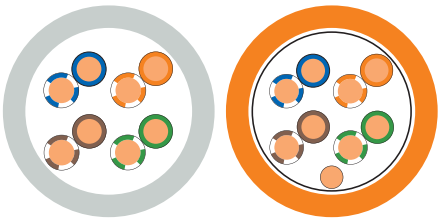
Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	AWG solid	AWG 7-wire
EPIC® DATA CCR FA					
21700623	EPIC® DATA CCR FA	5	9.7	24 - 22	24 - 22

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
An approval is necessary for 19-wire cables by Lapp Group
Approved cables: 2170289 & 2170489 ETHERLINE® Cat.5e FD; CE217489 ETHERLINE® Cat.5 FD BK; 2170488 ETHERLINE® Cat.6 FD

NEW

ETHERLINE® LAN 200 Cat.5e

Ethernet cable for Category 5e/ class D - verfied up to 200 MHz



Info

- CPR: Article number choice under www.lappkabel.com/cpr

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- Flame retardant acc. to IEC 60332-1-2

Norm references / Approvals

- LAN CAT.5e cables from Lapp Kabel for “Structured Cabling Systems” meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class D).

Product Make-up

- Solid conductor 4x2xAWG24/1
- U/UTP: no overall or pair screening
- F/UTP: foil screening as overall screening
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath either as PVC (grey RAL 7035) or LSZH (orange RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%/ 100 MHz

Temperature range
Fixed installation: -20°C to +60°C
During installation: 0 °C to +50 °C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Colour	Copper index (kg/km)	Weight (kg/km)
PVC							
2170126	200 F/UTP Cat.5e	4 x 2 x AWG24/1	1.0	6,2	grey	18	39
2170950	200 U/UTP Cat.5e	4 x 2 x AWG24/1	0.9	5.1	grey	17	32
2170951	200 SF/UTP Cat.5e	4 x 2 x AWG24/1	1.05	6.3	grey	28	46
LSZH							
2170952	200 F/UTP Cat.5e LSZH	4 x 2 x AWG24/1	1.05	6.3	orange	18	40
2170953	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG24/1	1.05	6.4	orange	28	46

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 472
- Crimping tool RJ45 Hirose refer to page 473

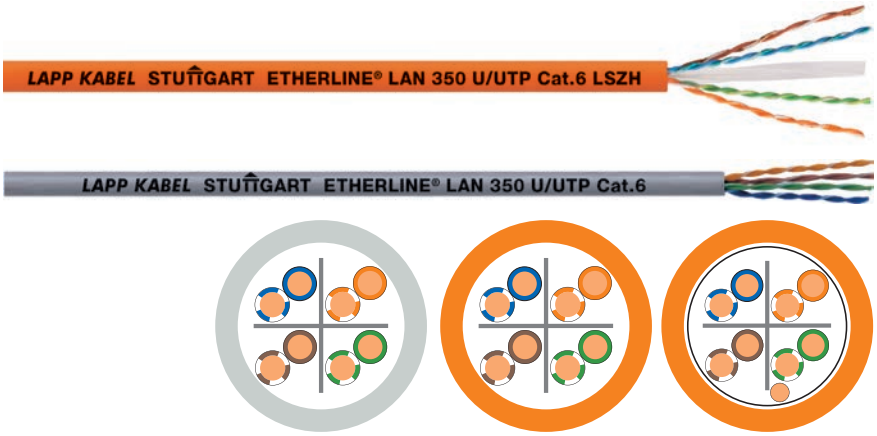
NEW

ETHERLINE® LAN 350 Cat.6

Ethernet cable for Category 6/ class E - verified up to 350 MHz

Info

- CPR: Article number choice under www.lappkabel.com/cpr



Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- Backward compatible
- Flame retardant acc. to IEC 60332-1-2

Norm references / Approvals

- LAN CAT.6 cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class E - permanent link).
- Class E out of the standard ISO/IEC 11801 corresponds to CAT.6

Product Make-up

- Solid conductor
- U/UTP: no overall or pair screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- F/UTP: Foil shielding as overall shielding, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Outer sheath either as PVC (grey RAL 7035) or LSZH (orange RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Fixed installation: -20°C to +60°C
During installation: 0 °C to +50 °C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Colour	Copper index (kg/km)	Weight (kg/km)
PVC							
2170954	350 U/UTP Cat.6	4 x 2 x AWG24/1	0.95	6.0	grey	18	40
LSZH							
2170955	350 U/UTP Cat.6 LSZH	4 x 2 x AWG24/1	0.95	6.0	orange	18	40
2170956	350 F/UTP Cat. 6 LSZH	4 x 2 x AWG23/1	1.07	7.4	orange	19	52

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

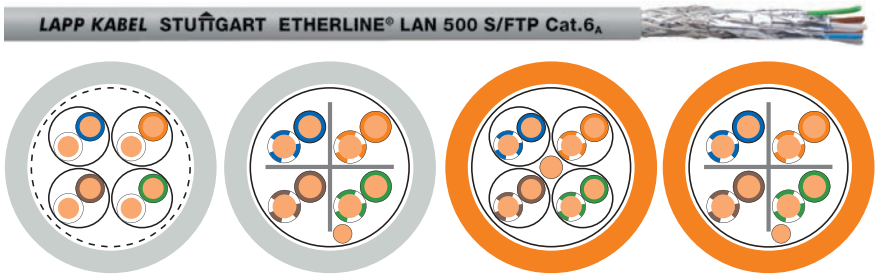
Accessories

- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 459
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 459

NEW

ETHERLINE® LAN 500 Cat.6_A

Ethernet cable for Category 6_A/ class E_A -verified up to 500 MHz



Info

- CPR: Article number choice under www.lappkabel.com/cpr

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- Backward compatible
- Flame retardant acc. to IEC 60332-1-2

Norm references / Approvals

- LAN Cat.6_A cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class EA - permanent link).

Product Make-up

- Solid conductor 4x2xAWG23/1
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- F/UTP: Foil shielding as overall shielding, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- F/FTP: aluminium compound foil as overall screening and pair screening
- Outer sheath either as PVC (grey RAL 7035) or LSZH (orange RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Fixed installation: -20°C to +60°C
During installation: 0 °C to +50 °C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Colour	Copper index (kg/km)	Weight (kg/km)
PVC							
2170960	500 S/FTP Cat.6_A	4 x 2 x AWG23/1	1.28	7.3	grey	24	52
2170961	500 F/UTP Cat.6_A	4 x 2 x AWG23/1	1.09	7.4	grey	24	52
LSZH							
2170962	500 F/FTP Cat.6_A LSZH	4 x 2 x AWG23/1	1.28	7.3	orange	22	54
2170963	500 F/UTP Cat.6_A LSZH	4 x 2 x AWG23/1	1.09	7.4	orange	24	56

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA AX RJ45 Cat.6_A refer to page 459
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 459

NEW

ETHERLINE® LAN 1000 Cat. 7$_A$

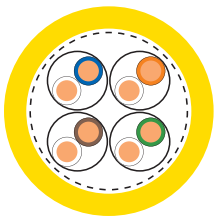
Ethernet cable for Category 7$_A$/ class F$_A$ - verified up to 1000 MHz

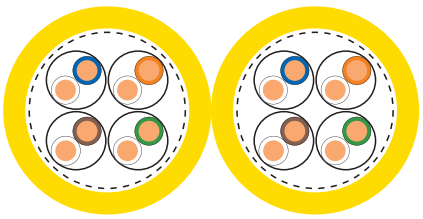
Info

- CPR: Article number choice under www.lappkabel.com/cpr

ETHERLINE® LAN 1200 Cat.7$_A$

Ethernet cable for Category 7$_A$/ class F$_A$ - verified up to 1200 MHz





Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing IEEE 802.3at: suitable for PoE, VoIP
- Backward compatible
- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)

Norm references / Approvals

- LAN Cat.7$_A$ cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36 as well as ISO/IEC 11801 or EN 50173 (Class FA - permanent link).

Product Make-up

- Solid conductor 4x2xAWG23/1, duplex 2x(4x2xAWG23/1)
- Core insulation: PE
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 1021)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Fixed installation: -20°C to +60°C
During installation: 0 °C to +50 °C

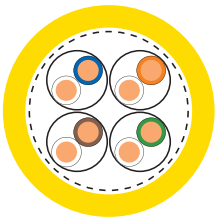
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Colour	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® LAN 1000 S/FTP Cat.7$_A$							
2170971	1000 S/FTP Cat.7$_A$ LSZH	4 x 2 x AWG23/1	1.3	7.5	yellow	24	56
2170972	1000 S/FTP Cat.7$_A$ LSZH duplex	2x (4x2xAWG23/1)	1.3	15.2	yellow	48	113
ETHERLINE® LAN 1200 S/FTP Cat.7$_A$							
2170974	1200 S/FTP Cat.7$_A$ LSZH	4 x 2 x AWG23/1	1.33	7.5	yellow	26	58
2170975	1200 S/FTP Cat.7$_A$ LSZH duplex	2x (4x2xAWG23/1)	1.33	15.2	yellow	52	114

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

ETHERLINE® LAN 1600 Cat.7_A

Data cable for Category 7_A/ class F_A - verified up to 1600 MHz



Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Verified up to 1600 MHz at max. 30m cable length (data centers)

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- 1500 MHz: Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)
- 1600 MHz: at max. 30m length (typical in data centers)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing IEEE 802.3at: suitable for PoE, VoIP
- Backward compatible
- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)

Norm references / Approvals

- LAN Cat.7_A cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36 as well as ISO/IEC 11801 or EN 50173 (Class FA - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

Product Make-up

- Solid conductor 4x2xAWG22/1
- Core insulation: cellular polyolefin
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 1021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Fixed installation: -20°C to +60°C
During installation: 0 °C to +50 °C

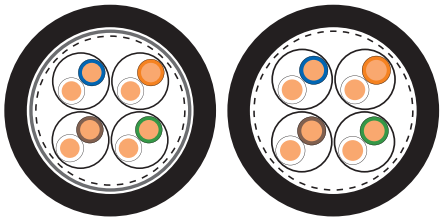
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Colour	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® LAN 1600 Cat.7_A							
2170976	1600 S/FTP Cat.7_A LSZH	4 x 2 x AWG22/1	1.56	8.2	yellow	34	71

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

UNITRONIC® LAN OUTDOOR

Ethernet cable for Category 7/ class F - verified up to 1000 MHz, for outdoor applications and direct burial



Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801
- Suitable for outdoor use and direct burial
- UV-resistant

Application range

- For outdoor use
- Suitable for direct burial
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Norm references / Approvals

- LAN Cat.7 cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class F - permanent link).

Product Make-up

- Solid conductor 4x2xAWG23/1
- Core insulation: PE
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PE, black (L)PE additional with aluminum tape

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Flexing: -10°C to +50°C
During laying: -30°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter [mm]	Colour	Copper index (kg/km)	Weight (kg/km)
Suitable for direct burial							
2170978	1000 S/FTP Cat.7 PE	4 x 2 x AWG23/1	1.3	7.7	black	24	48
Suitable for direct routing underground, not transversely waterproof							
2170977	1000 S/FTP Cat.7 (L)PE	4 x 2 x AWG23/1	1.3	9.6	black	24	77

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® LAN FLEX

Data cable for patchcable applications

Info

- Only for patch cable applications (max. 60 m)

Benefits

- For directly connecting two electric components
- Easy to assemble

Application range

- Indoor applications
- LAN connections
- Control cabinet wiring

Product features

- Good flexibility - easy installation with tight space requirements
- Flame retardant acc. to IEC 60332-1-2
  2170139: flame retardant acc. to IEC 60332-1-2 and IEC 60332-3-24

Product Make-up

- F/UTP: foil screening as overall screening
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath either as PVC or LSZH (color grey RAL 7035)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Mean characteristic Impedance
100 Ω ± 15%

Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
PVC versions					
2170127	200 F/UTP Cat.5e	4 x 2 x AWG26/7	5.6	13	28
2170129	200 SF/UTP Cat.5e	4 x 2 x AWG26/7	6.0	22	36
2170144	600 S/FTP CAT7 Y	4 x 2 x AWG26/7	6.5	22	39
Halogen-free versions					
2170172	200 F/UTP Cat.5e LSZH	4 x 2 x AWG26/7	5.6	13	28
2170139	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG26/7	6.0	22	36
2170142	600 S/FTP CAT7 LSZH	4 x 2 x AWG26/7	6.2	21	40

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 472
- EPIC® DATA AX RJ45 Cat.6_A refer to page 459
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 459

NEW

ETHERLINE® LAN RJ45 Cat.6$_A$

Double shielded S/FTP office patchcords RJ45 Cat.6$_A$

Info

- With flexible anti-kink protection and simple mechanism to unlock

Benefits

- Improved bending and anti-kink protection for lower bending radii without damage
- Stable locking lugs
- Gold plated contacts
- High EMC protection
- Different colors for the assignment of different applications

Application range

- Connecting- and Patchcable for use in structered building cabling acc. to ISO/IEC 11801 and EN 50173 (2nd Version)
- For use in the workplace (tertiary area) to connect various devices within the scope of “Structured Cabling”
- Suited for all applications of classes D to F Multimedia (video, data, voice)> 10 GbE acc. to IEEE802.3 (cable sharing, VoIP)

Product features

- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Backward compatible

Norm references / Approvals

- Halogen-free according to IEC 60754-1/2
- Flame retardant acc. to IEC 60332-1-2
- Connector acc. to IEC 60603-7-51

Product Make-up

- Cable make up: 4x2xAWG27/7 PIMF
- Core insulation: cellular-PE
- Tin-plated copper wire braiding
- Outer sheath: halogen-free, flame-retardant compound

Technical data

Minimum bending radius
In operation: 5 x outer diameter

Protection rating
IP20

Characteristic impedance
100 Ω ± 5%

Temperature range
-20°C to +60°C

Length (m)	Outer diameter (mm)	black	grey	blue	white	green	yellow	red
0.5	5.7	24441240	24441200	24441224	24441248	24441216	24441232	24441208
1	5.7	24441241	24441201	24441225	24441249	24441217	24441233	24441209
1.5	5.7	24441242	24441202	24441226	24441250	24441218	24441234	24441210
2	5.7	24441243	24441203	24441227	24441251	24441219	24441235	24441211
3	5.7	24441244	24441204	24441228	24441252	24441220	24441236	24441212
5	5.7	24441245	24441205	24441229	24441253	24441221	24441237	24441213
7.5	5.7	24441246	24441206	24441230	24441254	24441222	24441238	24441214
10	5.7	24441247	24441207	24441231	24441255	24441223	24441239	24441215

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
No copper surcharge.
Details of the clamping force are available upon request, halogen-free.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Connector RJ45 CAT.5e Hirose TM11

Product features

- Suitable for cross section (AWG24-27)
- Connection type: crimp
- Core insulation: app. 0,9-1,0 mm
- Max. outer sheath diameter: 5.8 mm
- Anti-kink protection: beige
- Set includes: RJ plug, anti-kink protection and guide plate
- Screened version

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Article number	Article designation
Connector RJ45 CAT.5e Hirose TM11	
CE6321	Connector RJ45 CAT.5e Hirose TM11

Hirose is a registered trademark of the HIROSE ELECTRIC Group
Other colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Crimping tool RJ45 Hirose refer to page 473

Connector RJ45 CAT.5 Stewart SS37

Product features

- Screened version
- Suitable for stranded conductors (AWG26)
- Included: bend protection and guide plate
- Anti-kink protection: light grey
- Max. outer sheath diameter: 5.72 mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Article number	Article designation
Connector RJ45 CAT.5 Stewart SS37	
CE6323	Connector RJ45 CAT.5 Stewart SS37

Stewart is a registered trademark of Bel Fuse Inc.
Other colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Crimping tool RJ45 Stewart refer to page 474

Field-Terminable Connector RJ45 CAT.5e FM45

Product features

- Screened version
- Suitable for AWG 23 - 26, AWG 22 possible with restrictions
- IDC/piercing terminal according to 60352-4
- Suitable for solid and stranded conductors
- Suitable for use in industrial applications

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Protection rating
IP 20

Ambient temperature (operation)
-20°C to +70°C

Article number	Article designation
RJ45 connector acc. to T568A	
21700540	Field-Terminable Connector RJ45 CAT.5e FM45

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Connector RJ45 CAT.6 Hirose TM21

Product features
- Channel Class E up to 250 MHz (CAT.6)
- Fully screened
- Conductor: Ø 0.5 mm solid wire: AWG 24 & 26; guide plate for 1.1 mm diameter wire; cable outer diameter: 6.6 mm
- Easy to handle
- Included: bend protection and guide plate
- Anti-kink protection: beige
- Suitable for solid and stranded conductors

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Article number	Article designation
Connector RJ45 CAT.6 Hirose TM21	
CE6324	Connector RJ45 CAT.6 Hirose TM21

Hirose is a registered trademark of the HIROSE ELECTRIC Group
Other colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Crimping tool RJ45 Hirose refer to page 473

NEW

Connector RJ45 Cat.6$_A$ Hirose TM31
Connector RJ45 Cat.6$_A$, Class E$_A$ bis 500 MHz

Application range
- Connector RJ45 CAT.6$_A$ Hirose TM31
- For data transfer rates up to 500 MHz

Product features
- Channel class E$_A$ up to 500 MHz (CAT.6$_A$)
- For core insulation ca. 0.9 - 1.0 mm
- Outer diameter max. 6,6 mm
- Easy to handle

Technical data
IP
Protection rating
IP 20

Ambient temperature (operation)
-25°C .. +60°C

Product Make-up
- Connector (inkl. Antikink & Guide Plate)
- Suitable for braided conductors: AWG24/7, AWG26/7, AWG27/7
- Fully screened

Article number	Article designation
Connector RJ45 Cat.6$_A$ Hirose TM31	
24441256	RJ45 connector TM31 Hirose Cat.6$_A$ GY
24441258	RJ45 Connector TM31 Hirose Cat.6$_A$ BK
24441259	RJ45 connector TM31 Hirose Cat.6$_A$ RD
24441260	RJ45 connector TM31 Hirose Cat.6$_A$ GN
24441261	RJ45 connector TM31 Hirose Cat.6$_A$ BU
24441262	RJ45 connector TM31 Hirose Cat.6$_A$ YE

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Crimping tool RJ45 Hirose refer to page 473

Crimping tool RJ45 Hirose

Product features
- Crimping tool for RJ45 connector Hirose TM11 TM21 and TM31

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000385
ETIM 5.0/6.0 Class-Description: Special tool for telecommunication technique

Article number	Article designation
Crimping tool RJ45 Hirose	
CE5091	Crimping tool RJ45 Hirose TM11/TM21 8-pole

Hirose is a registered trademark of the HIROSE ELECTRIC Group
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Connector RJ45 CAT.5 Hirose TM11 refer to page 472
- Connector RJ45 CAT.6 Hirose TM21 refer to page 473

Crimping tool RJ45 Stewart

Product features

- Crimping tool for RJ45 connector CAT.5 Stewart SS37
- Crimping tool for RJ plug 4, 6, 6-DEC and 8-pin

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000385
ETIM 5.0/6.0 Class-Description: Special tool for telecommunication technique

Article number	Article designation
Crimping tool RJ45 Stewart	
CE5093	Crimping tool RJ45 Stewart SS37 8-pole
CE5092	Crimping tool RJ 4-, 6-, 6-DEC- and 8-pole

Stewart is a registered trademark of Bel Fuse Inc.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Connector RJ45 CAT.5 Stewart SS37 refer to page 472

Frontplate 19” 1HE Cat.6A

Product features

- 19” modular patch panel, for fixed installation
- 24 Ports
- Stable metal structure
- Dimensions: 19” - 1RU
- Colour: grey (RAL 7035)
- Unpopulated
- Incl. cable strain relief and cable ties
- On frontplate portnumbers are printed on
- Potential equalisation with incl. grounding set (0,3 m)

Info

- Specially for RJ45 Cat.6_A female connector

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002601
ETIM 5.0/6.0 Class-Description: Box/housing for built-in mounting in the wall/ceiling

Article number	Article designation
Frontplate 19” 1HE Cat.6_A	
24441122	Frontplate 19” 1HE Cat.6_A

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA RJ45F Cat.6_A refer to page 460

Punch down tool LSA+

Product features

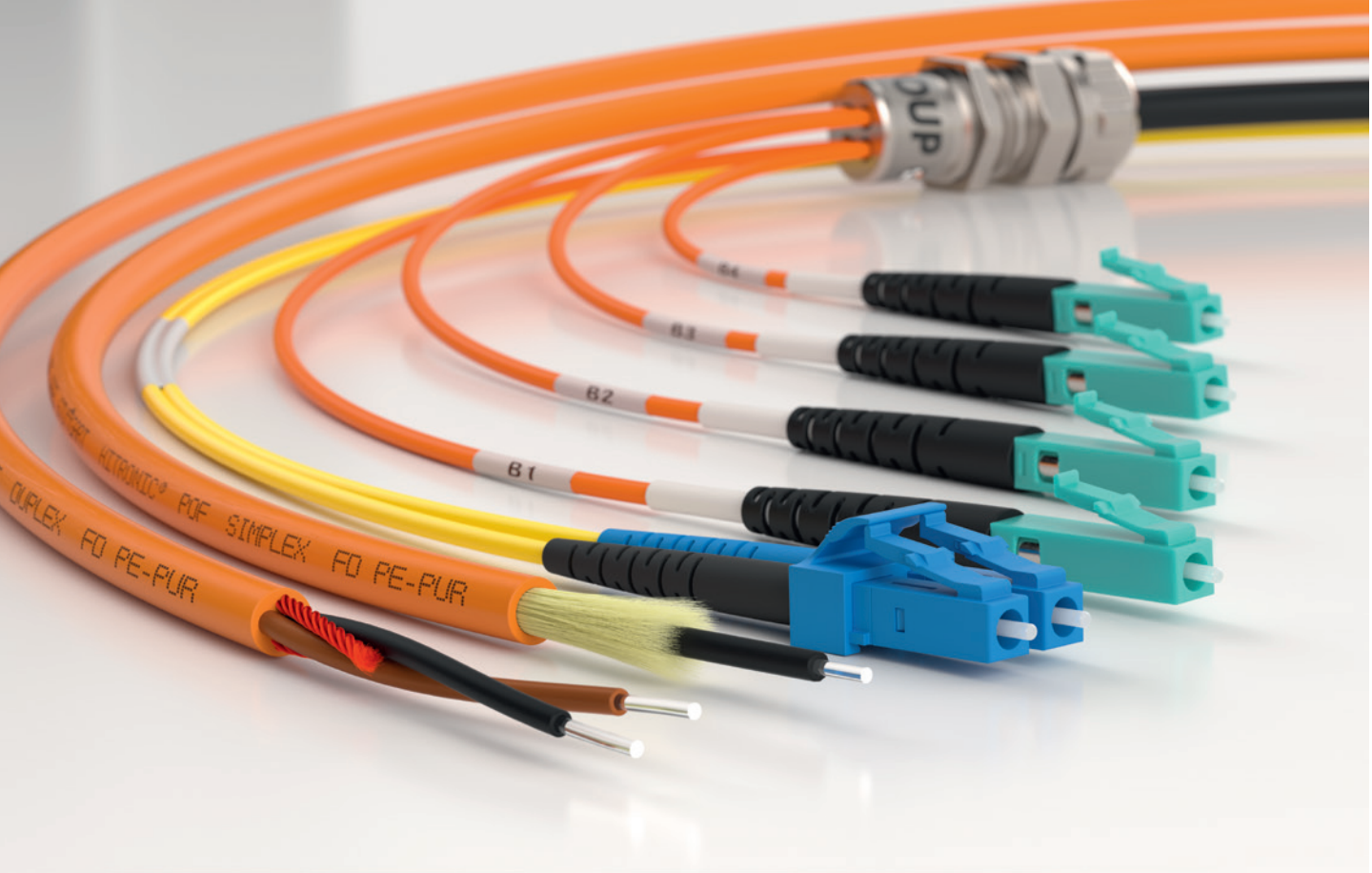
- LSA+ punch-down tool for setting the individual cores on the data outlets or patch panel.
- Cores are set properly in the terminal strip and cut off at the same time.

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000385
ETIM 5.0/6.0 Class-Description: Special tool for telecommunication technique

Article number	Article designation
Punch down tool LSA+	
CE5076	Punch down tool LSA+

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



4

HITRONIC®

Optical transmission systems

HITRONIC® fibre optic cables make transmitting large data volumes easy: fault free, bug proof and at almost light speed. Even electromagnetic radiation does not interfere with the transmission. The HITRONIC® range includes the ideal solution for indoor or outdoor use, for demanding conditions, and even for use in power chains.

Application range

- Telecommunications and network technology
- Industrial cabling and automation level
- Industrial machinery and plant engineering
- Data transmission under harsh conditions (mining and tunnel construction, oil and gas platforms, wind power plants)

POF - Polymer Optical Fibre Cable

One Buffered Fibre Applications (SIMPLEX)
HITRONIC® POF SIMPLEX BUFFERED FIBRE 480
HITRONIC® POF SIMPLEX CABLE 481
Two buffered fibres applications (DUPLEX)
HITRONIC® POF DUPLEX BUFFERED FIBRES 482
HITRONIC® POF DUPLEX CABLE 483
HITRONIC® POF cables for PROFINET Applications 484

POF - Polymer optical fibre accessories

Connectors and adapters
POF Connector and Adapter HFBR 485
POF Connector F05 Simplex 486
POF Connector F-SMA and ST(BFOC) 486
POF Connector SC-RJ 487
POF Adapter F-SMA 487
POF Adapter ST (BFOC) 487
POF Assembly Sets 488
POF Cutting Tools 488
Tools and Accessories
POF Polishing tools and accessories 489
POF Measurement Equipment 490

PCF - Plastic Cladded Fibre Cable

One Buffered Fibre Applications (SIMPLEX)
HITRONIC® PCF SIMPLEX Cable 491
Two buffered fibres applications (DUPLEX)
HITRONIC® PCF DUPLEX Cable 492
HITRONIC® PCF DUPLEX FD cables 493
HITRONIC® PCF cables for PROFINET Applications 494

PCF - Plastic Cladded Fibre Accessories

Connectors and adapters
PCF Connector HFBR 495
PCF Connector F-SMA and ST(BFOC) 495
PCF Connector SC-RJ 496
PCF Assembly Sets 496
Tools and Accessories
PCF Cutting Tools 497
PCF Measurement Equipment 497

GOF - Glass Optical Fibre

Industrial and special applications
HITRONIC® FIRE 498
HITRONIC® TORSION 499
HITRONIC® HDM Cable 500
HITRONIC® HRM-FD Cable 501
FTTx applications
HITRONIC® HVN-Mini Cable 502
Outdoor area
HITRONIC® HQN Outdoor Cable 503
HITRONIC® HVN Outdoor Cable 504
HITRONIC® HQW Armoured Outdoor Cable 505
HITRONIC® HVW Armoured Outdoor Cable 506
HITRONIC® HQW-Plus Armoured Outdoor Cable 507
Outdoor area - aerial cable
HITRONIC® HQA Aerial Cable 508
HITRONIC® HQA-Plus Aerial Cable 509
Outdoor and indoor area
HITRONIC® HUN Universal Cable 510
HITRONIC® HUW Armoured Universal Cable 511
Indoor area
HITRONIC® HRH Breakout Cable 512
HITRONIC® HDH Mini-Breakout Cable 513

GOF - Fiber optic accessories

Harnessed cables
GOF DUPLEX Patchcord 514
GOF SIMPLEX Pigtail 515
Connectors and adapters
GOF Connector 516
GOF Adapters 517
Housing and distribution boxes
19“ Splice Box for ST 518
19“ Splice Box for SC 518
Splice Box Compact 519
Mini wall-mounted rack 519
Accessories for splice boxes and wall-mounted rack 520

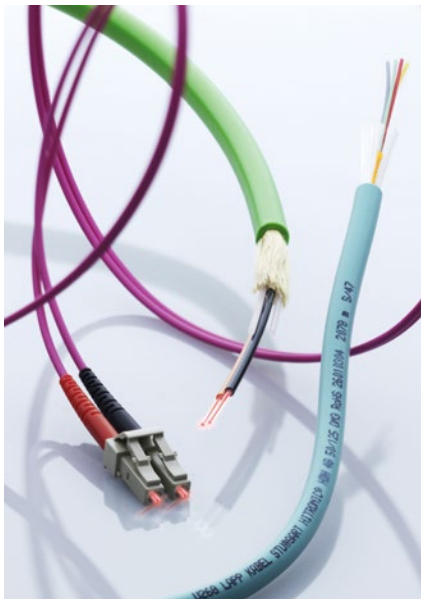
Fibre optic technology – General

The optical transmission of signals in fibre optic cables functions according to the principle of "total reflection". The reflection is attained by surrounding a light-conducting core with a sheath that is optically thinner – the light is totally reflected by the boundary surface of the sheath, enabling it to be guided through the fibre optic cable.

At a time when the demand for fast and secure communication networks is constantly growing, fibre optic cables are now an indispensable and irreplaceable communication medium.

Benefits of using fibre optic cables

- Insensitivity to electromagnetic interference
- Electrical isolation of connected devices
- Low attenuation values
- Large transmission distances and high bandwidths
- Lightweight design
- Compact dimensions
- Can be installed in explosive environments
- High level of interception protection



GOF – Glass Optical Fibre

There are the following different types of fibres:

- Singlemode (SM) fibre, E9/125 OS2
- Multimode (MM) fibre, G62.5/125 OM1, G50/125 OM2 to OM4

POF – Polymer Optical Fibre

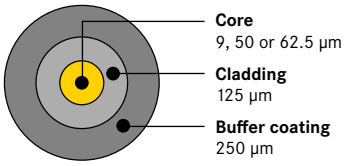
- P980/1000

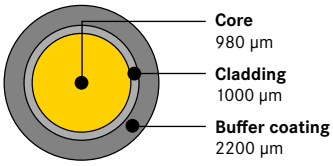
A distinction is made between the following application cases

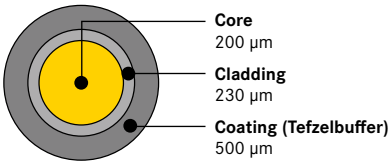
- SIMPLEX (one buffered fibre)
- DUPLEX (two buffered fibres)

PCF – Plastic Cladded Fibre

- K200/230
- PCF – Plastic Cladded Fibre
- Also known as HCS (Hard Cladded Silica Optical Fibre)







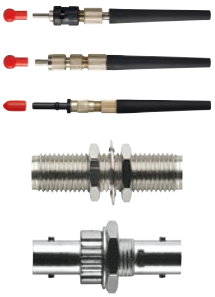
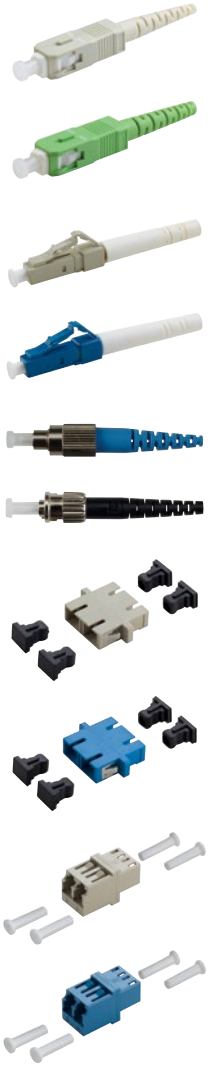
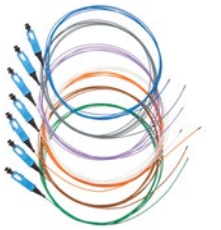
Fibre type/ wavelength	max. attenuation [dB/km]				max. transmission length [m]				Colour
	650 nm	850 nm	1300 nm	1550 nm	650 nm	850 nm	1300 nm	1550 nm	
POF 980 µm	160				100 Mbit/s (PN): 50				
PCF 200 µm	10.0	8.0			100 Mbit/s (PN): 100				
GOF MM 62.5 µm OM1		3.5 (3.0)	1.5 (0.7)			100 Mbit/s: 550 1 Gbit/s: 275 10 Gbit/s: 33	100 Mbit/s: 2,000 1 Gbit/s: 550 10 Gbit/s: 300		Orange
GOF MM 50 µm OM2		3.5 (2.5)	1.5 (0.7)			100 Mbit/s: 550 1 Gbit/s: 550 10 Gbit/s: 82	100 Mbit/s: 2,000 1 Gbit/s: 550 10 Gbit/s: 300		Orange
GOF MM 50 µm OM3		3.5 (2.5)	1.5 (0.7)			1 Gbit/s: 1,000 10 Gbit/s: 300 40 Gbit/s: 100 100 Gbit/s: 100	1 Gbit/s: 550 10 Gbit/s: 300		Aqua
GOF MM 50 µm OM4		3.5 (2.5)	1.5 (0.7)			1 Gbit/s: 1,100 10 Gbit/s: 550 40 Gbit/s: 150 100 Gbit/s: 150	1 Gbit/s: 550 10 Gbit/s: 300		Violet
GOF SM 9 µm OS2 (G652.D)			0.40 (0.35)	0.40 (0.21)			40 Gbit/s: 10,000	40 Gbit/s: 40,000	Yellow

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
For specific cable parameters see product pages or technical data sheets.

Optical transmission systems

LAPP

HITRONIC® Product Overview

Type of fibre	Cables		Connectors and adapters	Accessories
POF	POF SIMPLEX PE			
	POF DUPLEX PE			
	POF SIMPLEX PE-PUR	LAPP KABEL STUTTGART HITRONIC® POF SIMPLEX PE-PUR		
	POF DUPLEX PE-PUR	LAPP KABEL STUTTGART HITRONIC® POF DUPLEX PE-PUR		
	POF DUPLEX Heavy	LAPP KABEL STUTTGART HITRONIC® POF DUPLEX HEAVY PE-PUR		
	POF SIMPLEX/DUPLEX FD PE-PUR	LAPP KABEL STUTTGART HITRONIC® POF DUPLEX FD PE-PUR		
	POF DUPLEX for PROFINET® applications	LAPP KABEL STUTTGART HITRONIC® POF DUPLEX FD PNC PA-PUR		
PCF	PCF SIMPLEX Outdoor			
	PCF DUPLEX Outdoor	LAPP KABEL STUTTGART HITRONIC® PCF DUPLEX FRNC-PE outdoor		
	PCF DUPLEX Indoor	LAPP KABEL STUTTGART HITRONIC® PCF DUPLEX FRNC-PUR indoor		
	PCF DUPLEX FD Universal	LAPP KABEL STUTTGART HITRONIC® PCF DUPLEX FD FRNC-PUR		
	PCF DUPLEX for PROFINET® applications	LAPP KABEL STUTTGART HITRONIC® PCF DUPLEX PNC DUPLEX FD PNC PVC-PUR		
GOF	HITRONIC® FIRE			
	HITRONIC® TORSION			
	HRM-FD Flexible			
	HDM Reel			
	HQN Outdoor			
	HVN Stranded Outdoor			
	HVN-Mini Outdoor (air blowable)			
	HQW Armoured Outdoor			
	HVW Armoured Stranded Outdoor			
	HQW-Plus Armoured Outdoor			
	HQA Aerial ADSS			
	HQA-Plus Aerial ADSS			
	HUN Universal			
	HUW Armoured Universal			
	HRH Breakout	STUTTGART HITRONIC® HRH400 2G 50/125 OM3		
	HDH Mini Breakout			

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Customized Pre-Assembled FO Cable Solutions

ÖLFLEX® CONNECT – integrated solutions made by LAPP

LAPP is offering an integrated solution with **ÖLFLEX® CONNECT** – cables assembled exactly to your requirements. Everything is possible – from traditional cable assemblies to industry standard servo connections right up to highly complex drag chain systems. With **ÖLFLEX® CONNECT** LAPP offers as well customized fibre optic system assemblies (FO trunks).

Customers can choose the right cable from the wide range of HITRONIC® fibre optic cables which can be assembled exactly as per customer specification.

By using factory assembled fibre optic cable solutions the installation for industry, telecommunication and office applications are significantly simplified.

Depending on the planning approach, time consuming connector installation or splicing at site can be avoided. Just lay the trunk system and simply plug it in with the factory pre-assembled connectors. **A plug & play solution from LAPP.**

Technical benefits

- No splice connections are necessary during installation. This saves time and costs for equipment and special tooling.
- Low attenuation values by factory preassembled plugs
- Trunk-system are easy to use without any further time consuming on-site processing
- Available with all major cable and connector types (LAPP HITRONIC® range)
- Ready to use fibre optic cabling system
- IP 68 metallic cable unit splitter for glass fibre (GOF) loose tube cables up to 48 fibres

In a few steps to a customized FO-trunk-system:

1. Determination of the required fibre type
- POF (980/1000)
- PCF (200/230)
- GOF (single-mode 9/125 OS2)
  (multimode 62,5/125 OM1)
  (multimode 50/125 OM2; OM3; OM4)

2. Selection of cable type and version
See HITRONIC® cable range
(POF, PCF and GOF and number of fibers)

3. Determination of the system length

4. Connector configuration
Selection of connector type – side 1 and 2

5. Cable pulling device
Selection cable pulling device side 1 and/or side 2

6. Specific requirements
Regarding packaging and marking

7. LAPP in-house
LAPP will check the technical feasibility and plausibility (fibre – cable – connector) and make a quotation

8. Easy ordering and fast shipping

For questions about customized packaging and special issues we are happy to assist you.

Selection example:

Short designation:
TRUNK GOF HUN1500-4E9/125-SC/LC-85m

Description:
- Customized pre-assembled fibre optic cable solution
- Based on cable version
  HITRONIC® HUN 4E9/125 OS2
- Assembled at both ends with connectors
  - side 1: 2 x SC-duplex connector
  - side 2: 2 x LC-duplex connector
- Cable splitter unit IP68:
  - up to 24 fibres
  - M20 through hole
- Side 1 protected with a cable pulling device
  - outer diameter < 30 mm
- System length 85 m
- On disposable drum
- With test protocol

HITRONIC® POF SIMPLEX BUFFERED FIBRE

Polymer optical fibre as simplex buffered fibre version with PE sheath

Info

- Suitable for direct connector assembly

Benefits

- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk
- EMC protection

Application range

- For optical signal transmission in industrial applications
- Very suitable for fixed installation in control cabinets, cable ducts, or pipes with low mechanical stress

Product features

- Lightweight
- High flexibility
- Halogen-free buffer tube

Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Without outer sheath
- Colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 2.2 mm

Fibre type
POF - P980/1000

Standard designation
J-V2Y

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Permissible bending radius
≥ 10 x outer diameter

Permissible tensile force
Fixed installation: 5 N
Short-term: 15 N

Temperature range
Operation: -55°C to +85°C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® POF SIMPLEX PE					
28000001	HITRONIC® POF SIMPLEX PE	980/1000 POF	1	2.2	3.8

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- HITRONIC® POF SIMPLEX CABLE refer to page 481

Accessories

- POF Connector and Adapter HFBR refer to page 485
- POF Cutting Tools refer to page 488
- POF Connector F05 Simplex refer to page 486
- UNIVERSAL STRIP stripping tool refer to page 990
- TY-GRIP® FOL/ FO cable tie refer to page 1046

HITRONIC® POF SIMPLEX CABLE

Polymer optical fibre as simplex fibre cable version with PUR sheath for fixed or flexible application

Info

- Suitable for direct connector assembly

Benefits

- Optical data transmisson up to 70m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

Application range

- For optical signal transmission in industrial applications
- As a link between moving parts
- FD cable version:
  for flexible applications (power chains)

Product features

- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free
- Outer sheath flame-retardant and halogen-free
- FD cable version:
  5.000.000 bending cycles

Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 2.2 mm
Cable: see table

Fibre type
POF - P980/1000

Standard designation
J-V2Y(ZN)11Y

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Permissible bending radius
≥ 10 x outer diameter

Permissible tensile force
Fixed installation: 100 N
Short-term: 600 N

Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® POF SIMPLEX PE-PUR					
28020001	HITRONIC® POF SIMPLEX PE-PUR	980/1000 POF	1	5.5	25
HITRONIC® POF SIMPLEX FD PE-PUR for draig chain application					
28320001	HITRONIC® POF SIMPLEX FD PE-PUR	980/1000 POF	1	6	30

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- POF Assembly Sets refer to page 488
- POF Cutting Tools refer to page 488
- POF Connector F-SMA and ST(BFOC) refer to page 486
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

HITRONIC® POF DUPLEX BUFFERED FIBRES

Polymer optical fibre as duplex buffered fibres version with PE sheath

Info

- For direct connector assembly

Benefits

- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk
- EMC protection

Application range

- For optical signal transmission in industrial applications
- Very suitable for fixed installation in control cabinets, cable ducts, or pipes with low mechanical stress
- Light mechanical stress
- Identification by white dots

Product features

- Halogen-free
- Lightweight
- High flexibility

Product Make-up

- Polymer Optical Fibre (POF)
- Twin cable
- PE buffer tube
- Without outer sheath
- Colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Twin cable
2x2.2mm

Core identification code
Black/black with white dots

Fibre type
POF - P980/1000

Standard designation
J-V2Y

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Permissible bending radius
≥ 10 x outer diameter

Permissible tensile force
Fixed installation: 10 N
Short-term: 30 N

Temperature range
Operation: -55°C to +85°C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® POF DUPLEX BUFFERED FIBRES					
28000002	HITRONIC® POF DUPLEX PE	980/1000 POF	2	2.2	7.6

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- HITRONIC® POF SIMPLEX BUFFERED FIBRE refer to page 480
- HITRONIC® POF DUPLEX CABLE refer to page 483
- HITRONIC® POF cables for PROFINET Applications refer to page 484

Accessories

- POF Connector and Adapter HFBR refer to page 485
- POF Cutting Tools refer to page 488
- POF Connector F-SMA and ST(BFOC) refer to page 486
- UNIVERSAL STRIP stripping tool refer to page 990
- TY-GRIP® FOL/ FO cable tie refer to page 1046

EtherNet/IP

HITRONIC® POF DUPLEX CABLE

Polymer optical fibre as duplex fibre cable version with PUR sheath for fixed or flexible application

Info

- For direct connector assembly

Benefits

- Optical data transmisson up to 70m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

Application range

- For optical signal transmission in industrial applications
- FD cable version:
  for flexible applications (power chains)

Product features

- Outer sheath flame-retardant and halogen-free
- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free
- FD cable version:
  5.000.000 bending cycles

Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Fibre colour coding: black, orange
- Aramid yarns as strain relief
- PUR outer sheath, orange (RAL 2003)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 2.2 mm
Cable: see table

Core identification code
Black, orange

Fibre type
2x
POF - P980/1000

Standard designation
J-V2Y(ZN)11Y

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Permissible bending radius
≥ 10 x outer diameter

Permissible tensile force
Fixed installation: 100 N (PE-PUR),
130 N (Heavy PE-PUR)
Short-term: 400 N

Temperature range
Operation: -40°C to +7 °C
(FD: -20°C to +70°C)
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® POF DUPLEX PE-PUR					
28020002	HITRONIC® POF DUPLEX PE-PUR	980/1000 POF	2	5.5	27
HITRONIC® POF DUPLEX HEAVY PE-PUR					
28030002	HITRONIC® POF DUPLEX HEAVY PE-PUR	980/1000 POF	2	8	57
HITRONIC® POF DUPLEX FD PE-PUR for draig chain application					
28320002	HITRONIC® POF DUPLEX FD PE-PUR	980/1000 POF	2	6	30

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

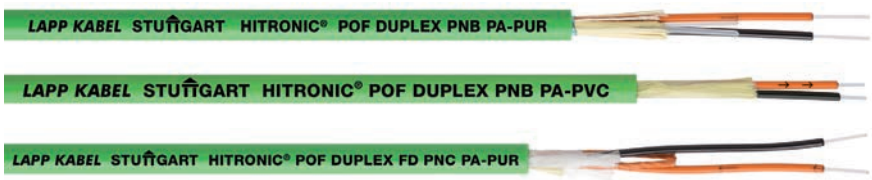
- HITRONIC® POF SIMPLEX CABLE refer to page 481
- HITRONIC® POF cables for PROFINET Applications refer to page 484

Accessories

- POF Assembly Sets refer to page 488
- POF Cutting Tools refer to page 488
- POF Connector F-SMA and ST(BFOC) refer to page 486
- POF Connector SC-RJ refer to page 487
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

HITRONIC® POF cables for PROFINET Applications

Polymer optical fibre as duplex fibre cable version with PUR sheath for PROFINET applications type B or C



Info

- PROFINET compliant
  - Type B or Type C

Benefits

- Optical data transmisson up to 70m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

Application range

- For optical signal transmission in industrial applications
- PROFINET / Industrial Ethernet
- At 100 Mbit/s: max 50 m cable length
- PROFINET type B:
  for fixed laying
- PROFINET type C:
  for flexible applications (power chains)

Product features

- Cable version with PVC outer sheath:
  for standard applications in industrial environments
- Cable version with PUR outer sheath:
  for high mechanical or chemical stress in industrial environments
- PNB - PROFINET-Type B
- PNC - PROFINET-Type C
- FD - Highly flexible (power chains)

Product Make-up

- Polymer Optical Fibre (POF)
- PA buffer tube
- Fibre colour coding: black, orange (with arrow printing)
- Aramid yarns as strain relief
- Outer sheath material PUR or PVC (see article description)
- Outer sheath colour: green (RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 2.2 mm
Cable: see table

Core identification code
Black, orange (with arrow printing)

Standard designation
J-V4Y(ZN)11Y 2P980/1000
J-V4Y(ZN)Y 2P980/1000
J-V4Y(ZN)11Y 2P980/1000 flex

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Permissible bending radius
≥ 10 x outer diameter

Permissible tensile force
see data sheet

Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
POF DUPLEX - PROFINET TYPE B					
28051002	HITRONIC® POF DUPLEX PNB PA-PUR	980/1000 POF	2	8	56
28052002	HITRONIC® POF DUPLEX PNB PA-PVC	980/1000 POF	2	7.8	59
POF DUPLEX - PROFINET TYPE C					
28351002	HITRONIC® POF DUPLEX FD PNC PA-PUR	980/1000 POF	2	8	55

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- POF Assembly Sets refer to page 488
- POF Cutting Tools refer to page 488
- POF Connector F-SMA and ST(BFOC) refer to page 486
- POF Connector SC-RJ refer to page 487
- EPIC® DATA PB Sub-D FO refer to page 354
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

POF Connector and Adapter HFBR

Accessories for polymer optical fibre cables, connectors and adapters type HFBR family (HFBR4501/4503/4506/4511/4513/4516/4531/4532/4533)

Benefits

- Compatible with HP Versatile Link Connectors and Components series
- Different colours for channel coding

Application range

- Factory automation
- Medical equipment
- Telecommunications Switching Systems
- Automotive Networks
- Printed Circuit Board

Product features

- HFBR connector series for 2.2 mm POF
- For crimping or clamping
- Simplex or Duplex variations

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Article designation	PU
Connector HFBR-4501, Simplex, with Crimp Sleve		
29140099	POF Connector HFBR4501 GY Simplex /4PC	4 piece
29140098	POF Connector HFBR4501 GY Simplex /50PC	50 piece
Latching Connector HFBR-4503, Simplex, with Crimp Sleve		
29141099	POF Connector HFBR4503 GY Simplex /4PC	4 piece
29141098	POF Connector HFBR4503 GY Simplex /50PC	50 piece
Connector HFBR-4506, Duplex, with Crimp Sleve		
29142099	POF Connector HFBR4506 WH Duplex /4PC	4 piece
29142098	POF Connector HFBR4506 WH Duplex /50PC	50 piece
Connector HFBR-4511, Simplex, with Crimp Sleve		
29143099	POF Connector HFBR4511 BL Simplex /4PC	4 piece
29143098	POF Connector HFBR4511 BL Simplex /50PC	50 piece
Latching Connector HFBR-4513, Simplex, with Crimp Sleve		
29144099	POF Connector HFBR4513 BL Simplex /4PC	4 piece
29144098	POF Connector HFBR4513 BL Simplex /50PC	50 piece
Latching Connector HFBR-4516, Duplex, with Crimp Sleve		
29145099	POF Connector HFBR4516 GY Duplex /4PC	4 piece
29145098	POF Connector HFBR4516 GY Duplex /50PC	50 piece
Clamp Connector HFBR-4531, Simplex		
29146099	POF Connector HFBR4531 BK Simplex /4PC	4 piece
29146098	POF Connector HFBR4531 BK Simplex /50PC	50 piece
Clamp and Latching Connector HFBR-4532, Simplex		
29147099	POF Connector HFBR4532 BK Simplex /4PC	4 piece
29147098	POF Connector HFBR4532 BK Simplex /50PC	50 piece
Clamp Connector HFBR-4533, Simplex		
29148099	POF Connector HFBR4533 BL Simplex /4PC	4 piece
29148098	POF Connector HFBR4533 BL Simplex /50PC	50 piece
HFBR4505 Adapters		
29440099	POF Adapter HFBR4505 GY Simplex /4PC	4 piece
HFBR4515 Adapters		
29441099	POF Adapter HFBR4515 BL Simplex /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- POF Cutting Tools refer to page 488
- POF Polishing tools and accessories refer to page 489

POF Connector F05 Simplex

Accessories for polymer optical fibre cables, connector and adapter type F05, compatible with TOCP155K

Benefits
- Easy to assemble

Application range
- Digital audio
- Factory automation
- Office Automation (Smart House)

Product features
- F-05 (TOCP) SIMPLEX clamp connector for connecting to polymer optical fibre without crimping or gluing
- Snap-In Connector
- Suitable for 2.2 mm POF

Info
- Compatible with TOCP155K

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

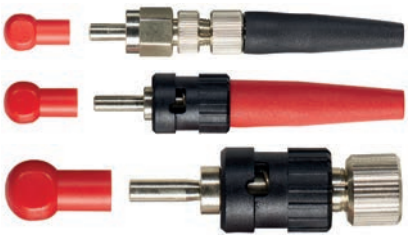
Article number	Article designation	PU
Connector F05 Simplex		
29150099	POF Connector F05 Simplex /4PC	4 piece
29150098	POF Connector F05 Simplex /50PC	50 piece
Adapter for Connector F05 Simplex		
29450099	POF Adapter F05 Simplex /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- POF Cutting Tools refer to page 488
- POF Polishing tools and accessories refer to page 489

POF Connector F-SMA and ST(BFOC)

Accessories for polymer optical fibre cables, connector type FSMA and ST(BFOC)



Benefits
- As crimp or clamp version for easy assembling

Product features
- FSMA and ST(BFOC) connector with knurled nut or hexagonal nut for crimping, gluing or easy clamping
- Suitable for 2.2 mm POF
- Available for different cable diameters (2.2 mm and 6.0 mm)
- Connector including bend protection boot and dust cap
- Bend protection boot colour: black and red

Info
- FSMA and ST(BFOC) connectors for POF cable assembly

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Article designation	PU
FSMA Connectors with knurled nut for crimping		
29135099	POF Connector FSMA Crimp 2.2 /4PC	4 piece
29135098	POF Connector FSMA Crimp 2.2 /50PC	50 piece
29137099	POF Connector FSMA Crimp 6.0 /4PC	4 piece
29137098	POF Connector FSMA Crimp 6.0 /50PC	50 piece
FSMA Connectors with hexagonal nut for crimping		
29135089	POF Connector FSMA Hex Crimp 2.2 /4PC	4 piece
29135088	POF Connector FSMA Hex Crimp 2.2 /50PC	50 piece
29132089	POF Connector FSMA Hex Crimp 6.0 /4PC	4 piece
29132088	POF Connector FSMA Hex Crimp 6.0 /50PC	50 piece
FSMA Connectors with knurled nut for clamping		
29130099	POF Connector FSMA Clamp 2.2 /4PC	4 piece
29130098	POF Connector FSMA Clamp 2.2 /50PC	50 piece
FSMA Connectors with hexagonal nut for clamping		
29130089	POF Connector FSMA Hex Clamp 2.2 /4PC	4 piece
29130088	POF Connector FSMA Hex Clamp 2.2 /50PC	50 piece
ST(BFOC) Connectors for crimping		
29125099	POF Connector ST(BFOC) Crimp 2.2 /4PC	4 piece
29125098	POF Connector ST(BFOC) Crimp 2.2 /50PC	50 piece
ST(BFOC) Connectors for clamping		
29120099	POF Connector ST(BFOC) Clamp 2.2 /4PC	4 piece
29120098	POF Connector ST(BFOC) Clamp 2.2 /50PC	50 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- POF Assembly Sets refer to page 488
- POF Cutting Tools refer to page 488
- POF Polishing tools and accessories refer to page 489
- POF Measurement Equipment refer to page 490

POF Connector SC-RJ

Accessories for polymer optical fibre cables, connector type SC-RJ

Benefits

- Connectors for PROFINET Data Cabling
- As crimp version for easy assembling

Product features

- Connector set included two SC connectors, SC-RJ housing, two bending protection boots, dust caps
- Suitable for 2.2 mm POF
- Bend protection boot colour: black and red

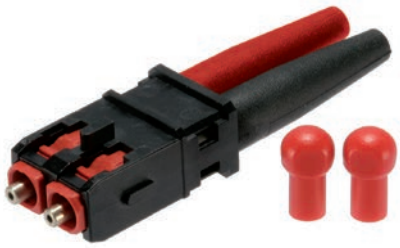
Info

- SC-RJ connectors for POF cable assembly
- Connectors for PROFINET Data Cabling

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

DIN VDE **Certifications**
SC-RJ complies with IEC61754-24



Article number	Article designation	PU
POF Connector SC-RJ		
29161097	POF Connector SC-RJ Crimp 2.2	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- POF Assembly Sets refer to page 488
- POF Cutting Tools refer to page 488
- POF Polishing tools and accessories refer to page 489
- POF Measurement Equipment refer to page 490

POF Adapter F-SMA

Accessories for polymer optical fibre cables, adapter for connector type FSMA

Product features

- POF Adapter FSMA: version with two fixing nuts and lock wahser
- POF Adapter FSMA hexa: version with hexagonal flange, fixing nuts and lock wahser

Info

- Can be used for POF and PCF connector types

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000752
ETIM 5.0/6.0 Class-Description: Fibre optic coupler

Article number	Article designation	PU
FSMA Adapters		
29430099	POF Adapter FSMA /4PC	4 piece
29430089	POF Adapter FSMA Hex /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

POF Adapter ST (BFOC)

Accessories for polymer optical fibre cables, adapter for connector type ST(BFOC)

Product features

- ST(BFOC) adapter with flange, fixing nuts and lock washer

Norm references / Approvals

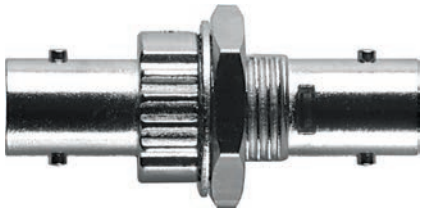
- ST comply with IEC standard 61754-2

Info

- Can be used for POF and PCF connector types

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000752
ETIM 5.0/6.0 Class-Description: Fibre optic coupler



Article number	Article designation	PU
ST(BFOC) Adaptera		
29420099	POF Adapter ST (BFOC) /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

POF Assembly Sets

... includes all necessary tools for connector assembly of POF crimp connector versions: FSMA; ST(BFOC); SC/SC-RJ

Benefits

- Easy to handle
- Set includes all the necessary tools for connector assembly
- Suitable for on-site assembly

Product features

- Sets available for POF connector types FSMA and ST (BFOC) and SC / SC-RJ
- Contents: crimp tool, buffered fibre stripper, polishing disc FSMA, polishing film, cutter

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002609
ETIM 5.0/6.0 Class-Description: Accessories for optic fibre technique

Article number	Article designation	PU
Assembly Set for POF FSMA Connector		
29500001	Assembly Set POF Connector FSMA	1 piece
Assembly Set for POF ST(BFOC) Connector		
29500002	Assembly Set POF Connector ST(BFOC)	1 piece
Assembly Set for POF SC/SC-RJ Connector		
29500004	Assembly Set for POF Connector SC	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

POF Cutting Tools

... for POF cable and connector product range; stripping tools for different sheath materials and cable diameters

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001126
ETIM 5.0/6.0 Class-Description: Fibre optic cleaver

Benefits

- Cutting tools for the POF cable and connector product range

Application range

- Cable stripper for different jacket materials and cable diameter

Product features

- Various tools for cutting buffered fibres (2.2mm)
  from very simple to version with automatic blade advance
- 29500011 - fibre stripper for PE buffer tube 2.2mm
- 29500013 - fibre stripper for PA buffer tube 2.2mm-2.3mm
- 29500012 - jacket stripper for cable diameter 3.6mm and 6.0mm
- Crimping tool suitable for the POF(PCF) connector program

Article number	Article designation	PU
POF Bare Fibre Cutter		
29500014	POF Cutter 2.2/1.0mm Guillotine	5 pieces
29500015	POF BufferedFibreCutter 2.2mm manuel	1 piece
29500016	POF BufferedFibreCutter 2.2mm automatic	1 piece
POF Cable Stripper		
29500011	POF Buffered Fibre Stripper 2.2 mm (P980/1000)	1 piece
29500013	POF Cable Stripper PA 2.2mm	1 piece
29500012	POF Cable Stripper 3.6/6.0mm	1 piece
Strain relief element scissors		
29500017	Strain relief element scissors	1 piece
POF Crimping Tool		
29500010	POF Crimp Tool 2.5/3.0/4.5/4.95mm	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- POF Assembly Sets refer to page 488

POF Polishing tools and accessories

Polishing discs for different connector designs; polishing sheets; accessories

Benefits

- Easy to handle
- Suitable to POF Connector Assembly Sets

Product features

- Accessories for POF Assembly
- Polishing disc for various POF connector types
- Other versions are available upon request
- Polishing film with different graining size types for fibre end face treatment
- Polishing process:
  POF - Polishing Film 1000 (BU)
  Polishing Film 5µm (BN)
  Polishing Film 1µm (GN)
  PCF - Polishing Film 5 µm (BN)
  Polishing Film 1 µm (GN)
  Polishing Film 0.3 µm (WH)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001126
ETIM 5.0/6.0 Class-Description: Fibre optic cleaver

Article number	Article designation	PU
Polishing Disc for POF connector assembly		
29500031	Polishing Disc POF FSMA Connector	1 piece
29500032	Polishing Disc POF ST(BFOC) Connector	1 piece
29500033	Polishing Disc POF HFBR4501/4511 SIMPLEX	1 piece
29500034	Polishing Disc POF HFBR4516 DUPLEX	1 piece
29500035	Polishing Disc POF F05 Connector	1 piece
29500036	Polishing Disc POF Simplex 2.2mm	1 piece
29500733	Polishing Disc PCF HFBR4521 Connector	1 piece
29500037	Polishing Disc POF SC Connector	1 piece
Polishing film		
29500021	Polishing film graining size 1000 (BL)	10 pieces
29500024	Polishing film graining size 5 µm (BR)	10 pieces
29500023	Polishing film graining size 1 µm (GN)	10 pieces
29500022	Polishing film graining size 0.3 µm (WH)	10 pieces
Polishing accessories		
29500020	Polishing glass plate 150x230mm	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- POF Assembly Sets refer to page 488

POF Measurement Equipment

Measuring equipment set for wavelength range 660 nm and 850 nm; suitable for measuring assembled POF and PCF systems

Benefits

- Measuring Equiment Set for wavelenghts 660/850nm
- Suitable for the measurement of assemblied POF and PCF systems
- Measuring Equiment Set for different wave lengths and connector types. Connector type and wavelength is defined by interchangeable adapter system

Product features

- The mesasurement device is supplied without adaters. Please order separatly
- Optical Transmitter (TMR): wavelength dependent on interchangeable adapter
  - 650nm
  - 660nm
  - 850nm (on request)
- Optical Power Meter: for attenuation measurement of an assembled POF (PCF) systems adapted to Optical Transmitter (TMR)

Product Make-up

- Optical Transmitter with digital display, wavelength dependent on adapter, active interchangeable adapters are not included, please order separately
- Optical Power Meter with digital display, wavelength meter 660/850 nm, interchangeable adapters (receiver side) are not included, please order separately
- Measuring Set (29500089): Optical Transmitter and Power Meter as set in a black suitcase, interchangeable adapters are not included

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002609
ETIM 5.0/6.0 Class-Description:
Accessories for optic fibre technique

Article number	Article designation	PU
POF Measurement Equipment		
29500070	POF Optical Transmitter (TMR)	1 piece
POF TMR Adapter, wavelength 650nm		
29500071	POF Optical TMR Adapter HFBR, 650nm	1 piece
29500072	POF Optical TMR Adapter FSMA, 650nm	1 piece
29500073	POF Optical TMR Adapter ST(BFOC), 650nm	1 piece
POF TMR Adapter, wavelength 660nm		
29500074	POF Optical TMR Adapter F05, 660nm	1 piece
29500075	POF Optical TMR Adapter HFBR, 660nm	1 piece
29500076	POF Optical TMR Adapter FSMA, 660nm	1 piece
29500077	POF Optical TMR Adapter ST(BFOC), 660nm	1 piece
POF Optical Power Meter 660/850 nm		
29500080	POF Optical Power Meter 660/850 nm	1 piece
POF Power Meter Adapters		
29500081	POF Power Meter Adapter HFBR4501/4521	1 piece
29500082	POF Power Meter Adapter FSMA	1 piece
29500083	POF Power Meter Adapter ST(BFOC)	1 piece
29500084	POF Power Meter Adapter F05	1 piece
POF Measuring Equiment Set without adapters		
29500089	POF Measuring Equiment Set 660/850nm	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

HITRONIC® PCF SIMPLEX Cable

Polymer Cladded Fibre as simplex fibre cable version for indoor or outdoor use, pur outer sheath; halogen-free

Info

- For direct connector assembly

Benefits

- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- High mechanical strength
- UV-resistant
- EMC protection

Application range

- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- Industrial environments

Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Outer sheath flame-retardant and halogen-free

Product Make-up

- Tight-buffered fibres
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
2.9mm

Fibre type
PCF - K200/230
PCF - Polymer Cladded Fibre

Minimum bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Standard designation
A-V(ZN)11Y

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Permissible tensile force
Fixed installation: 200 N

Temperature range
Operation: -10°C to +60°C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® PCF SIMPLEX Cable					
28600701	HITRONIC® PCF SIMPLEX PUR Outdoor	200/230 PCF	1	2.9	7.5

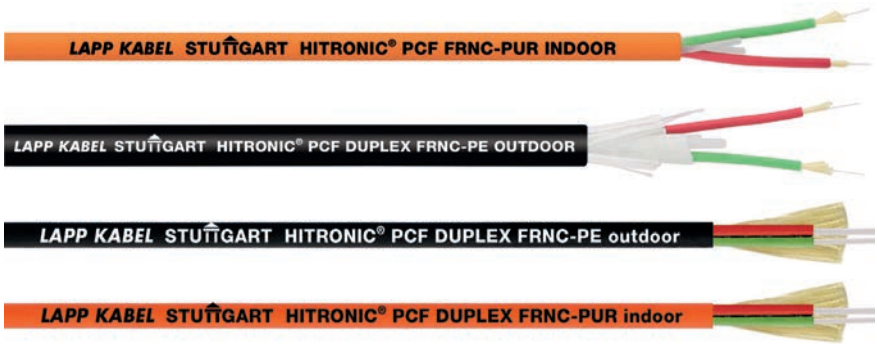
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- PCF Assembly Sets refer to page 496
- PCF Connector HFBR refer to page 495
- PCF Connector F-SMA and ST(BFOC) refer to page 495
- PCF Cutting Tools refer to page 497

HITRONIC® PCF DUPLEX Cable

Polymer Cladded Fibre as duplex fibre cable version for indoor or outdoor use



Info

- For direct connector assembly

Benefits

- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- Good resistance to oil, petrol, acids and alkalis
- High mechanical strength
- EMC protection

Application range

- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- Industrial environments

Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Complies with requirements for all BUS systems
- Halogen-free outer sheath

Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath (2.9mm)
- Aramid yarns as strain relief
- PUR outer sheath (indoor); PE outer sheath (outdoor)
- Colour: orange (indoor); black (outdoor)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 0.5mm
Single cable: 2.9 mm
Cable: see table

Core identification code
red, green

Fibre type
PCF - K200/230
PCF - Polymer Cladded Fibre

Minimum bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Standard designation
PCF DUPLEX Indoor: J-V(ZN)H11Y 2K200/230
PCF DUPLEX Outdoor: A-VQ(ZN)HB2Y 2K200/230

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Permissible tensile force
Fixed installation: 400 N (indoor); 500 N (outdoor)
Short-term: 1200 N (indoor); 1500 N (outdoor)

Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Indoor					
28020702	HITRONIC® PCF DUPLEX FRNC-PUR Indoor	200/230 PCF	2	8	53
Outdoor					
28620702	HITRONIC® PCF DUPLEX FRNC-PE Outdoor	200/230 PCF	2	10.5	89

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- HITRONIC® PCF DUPLEX FD cables refer to page 493
- HITRONIC® PCF cables for PROFINET Applications refer to page 494

Accessories

- PCF Assembly Sets refer to page 496
- PCF Connector HFBR refer to page 495
- PCF Connector F-SMA and ST(BFOC) refer to page 495
- PCF Connector SC-RJ refer to page 496
- STAR STRIP stripping tool refer to page 985

HITRONIC® PCF DUPLEX FD cables

Polymer Cladded Fibre as duplex fibre cable version for flexible applications, PUR outer sheath, halogen-free

Info

- Flexible PCF cable compatible with all BUS systems

Benefits

- Designed for use in power chains
- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- Good resistance to oil, petrol, acids and alkalis
- EMC protection

Application range

- For highly flexible applications
- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- As a link between moving parts
- Industrial environments

Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Complies with requirements for all BUS systems
- Outer sheath flame-retardant and halogen-free

Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath
- Sub cable outer diameter: 2.2mm
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 0.5mm
Single cable: 2.2 mm
Cable: 8.8mm

Core identification code
red, green

Fibre type
PCF - K200/230
PCF - Polymer Cladded Fibre

Minimum bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Standard designation
A/J-V(ZN)H11Y

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Permissible tensile force
Fixed installation: 800 N
Short-term: 2000 N

Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® PCF DUPLEX FD cables					
28320702	HITRONIC® PCF DUPLEX FD FRNC-PUR	200/230 PCF	2	8.8	63

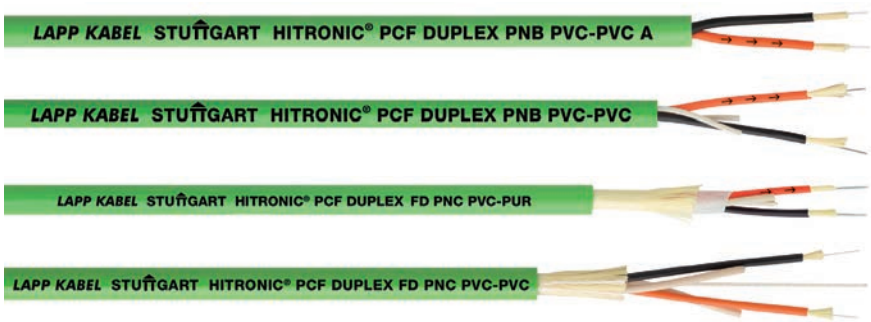
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- PCF Assembly Sets refer to page 496
- PCF Connector HFBR refer to page 495
- PCF Connector F-SMA and ST(BFOC) refer to page 495
- PCF Cutting Tools refer to page 497
- PCF Connector SC-RJ refer to page 496
- STAR STRIP stripping tool refer to page 985

HITRONIC® PCF cables for PROFINET Applications

Polymer optical fibre as duplex fibre cable version with PCV or PUR sheath for PROFINET applications type B or C



Info

- PROFINET compliant
  - Type B or Type C
- For direct connector assembly

Benefits

- Optical data transmisson up to 500m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

Application range

- PCF DUPLEX cabels for optical signal transmission in industrial applications
- PROFINET / Industrial Ethernet
- At 100 Mbit/s: max 100 m cable length
- PROFINET type B: for fixed laying
- PROFINET type C: for flexible applications (power chains)

Product features

- Cable version with PVC outer sheath: for standard applications in industrial environments
- Cable version with PUR outer sheath: for high mechanical or chemical stress in industrial environments
- PNB - PROFINET-Type B
- PNC - PROFINET-Type C
- FD - Highly flexible (power chains)

Norm references / Approvals

- 28055702: with c(UL)us certification (OFNG 75°C)

Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with PVC sheath
- Sub cable outer diameter: 2.2mm
- Aramid yarns as strain relief
- Outer sheath material PUR or PVC (see article description)
- Outer sheath colour: green (RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 0.5mm
Single cable: 2.2 mm
Cable: see table

Core identification code
Black, orange (with arrow printing)

Fibre type
PCF - K200/230
PCF - Polymer Cladded Fibre

Minimum bending radius
see data sheet

Standard designation
J-V(ZN)YY 2K200/230
J-V(ZN)Y(ZN)11Y 2K200/230 flex
J-V(ZN)Y(ZN)Y 2K200/230 flex

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Permissible tensile force
see data sheet

Temperature range
See data sheet

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
PCF DUPLEX - PROFINET TYPE B					
28055702	HITRONIC® PCF DUPLEX PNB PVC-PVC A	200/230 PCF	2	7.5	59
28052702	HITRONIC® PCF DUPLEX PNB PVC-PVC	200/230 PCF	2	7.2	55
PCF DUPLEX - PROFINET TYPE C					
28351702	HITRONIC® PCF DUPLEX FD PNC PVC-PUR	200/230 PCF	2	8.8	71
28352702	HITRONIC® PCF DUPLEX FD PNC PVC-PVC	200/230 PCF	2	8.8	76

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- PCF Assembly Sets refer to page 496
- PCF Connector F-SMA and ST(BFOC) refer to page 495
- PCF Cutting Tools refer to page 497
- PCF Connector SC-RJ refer to page 496
- EPIC® DATA PB Sub-D FO refer to page 354
- STAR STRIP stripping tool refer to page 985

PCF Connector HFBR

Accessories for polymer cladded optical fibre cables, connectors type HFBR4521

Benefits

- Compatible with HP Versatile Link Connectors and Components series

Application range

- Factory automation
- Medical equipment
- Telecommunications Switching Systems

Product features

- HFBR4521 connector for 2.2 mm PCF cable diameter as crimp version
- HFBR4521 connector for 3.0 mm PCF cable diameter as clamp version
- HFBR4521 clamp connector compatible with Assemby Set PCF Connector HFBR4521

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Article designation	PU
Connector HFBR4521 for 2.2 mm cables - crimp version		
29140799	PCF Connector HFBR4521 BK Simplex 2.2 /4PC	4 piece
29140798	PCF Connector HFBR4521 BK Simplex 2.2 /50PC	50 piece
Connector HFBR4521 for 3.0 mm cables - clamp version		
29141799	PCF Connector HFBR4521 Clamp 3.0 /4PC	4 piece
29141798	PCF Connector HFBR4521 Clamp 3.0 /50PC	50 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

PCF Connector F-SMA and ST(BFOC)

Accessories for Polymer Claddes Fibre cables, connector type FSMA and ST(BFOC)

Benefits

- Easy to assemble
- Designed for field assembly
- Reusable as it can be removed

Product features

- Connectors for clamp and cleave assembly
- Available for different cable diameters (2.2mm and 3.0mm)
- Adapters available on request
- Bend protection boot colour: black and red

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Article designation	PU
Connector FSMA Clamp for 3.0 mm cables		
29136799	PCF Connector FSMA Clamp 3.0 /4PC	4 piece
29136798	PCF Connector FSMA Clamp 3.0 /50PC	50 piece
Connector FSMA Clamp for 2.2 mm cables		
29135799	PCF Connector SC-RJ Clamp 2.2	4 piece
29135798	PCF Connector FSMA Clamp 2.2 /50PC	50 piece
Connector ST(BFOC) Clamp for 3.0 mm cables		
29126799	PCF Connector ST (BFOC) Clamp 3.0 /4PC	4 piece
29126798	PCF Connector ST (BFOC) Clamp 3.0 /50PC	50 piece
Connector ST(BFOC) Clamp for 2.2 mm cables		
29125799	PCF Connector ST (BFOC) Clamp 2.2 /4PC	4 piece
29125798	PCF Connector ST (BFOC) Clamp 2.2 /50PC	50 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- POF Adapter F-SMA refer to page 487
- POF Adapter ST (BFOC) refer to page 487

Accessories

- PCF Cutting Tools refer to page 497

PCF Connector SC-RJ

Accessories for PCF cables, connector type SC-RJ for clamp and cleave assembly, PROFINET

Benefits

- Easy to assemble
- Designed for field assembly
- Reusable as it can be removed

Product features

- Connector set included two SC connectors,
  SC-RJ housing, two bending protection boots, dust caps
- Connectors for clamp and cleave assembly
- Available for different cable diameters (2.2mm and 3.0mm)
- Bend protection boot colour: black and red

Info

- Connectors for PROFINET Data Cabling

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Certifications
SC-RJ complies with IEC61754-24

Article number	Article designation	PU
PCF Connector SC-RJ		
29166797	PCF Connector SC-RJ Clamp 3.0	1 piece
29165797	PCF Connector SC-RJ Clamp 2.2	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- PCF Cutting Tools refer to page 497

PCF Assembly Sets

... includes all necessary tools for connector assembly of PCF connector versions: FSMA, ST(BFOC), SC/SC-RJ, HFBR4521

Benefits

- Easy to handle
- Set includes all the necessary tools for connector assembly from clamp connector versions
- Suitable for on-site assembly

Product features

- Sets available for PCF clamp connector types
  FSMA, ST (BFOC), SC and HFBR4521
- Contents: stripper, cleave tool, kevlar scissor, cutter, microscope

Article number	Article designation	PU
Assembly Set For PCF FSMA Connectors		
29500701	Assemby Set PCF Connector FSMA	1 piece
Assembly Set For PCF ST(BFOC) Connectors		
29500702	Assemby Set PCF Connector ST(BFOC)	1 piece
Assembly Set For PCF HFBR4521 Connectors		
29500703	Assembly Set PCF Connector HFBR4521	1 piece
Assembly Set For PCF SC/SC-RJ Connectors		
29500704	Assemby Set PCF Connector SC	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- PCF Connector F-SMA and ST(BFOC) refer to page 495
- PCF Cutting Tools refer to page 497
- PCF Connector SC-RJ refer to page 496

PCF Cutting Tools

Accessories for Polymer Claddes Fibre cables

Benefits

- Optimally coordinated tools for the PCF cable and connector product range
- For the processing of PCF fibres

Product features

- PCF cleaving tool for connector types:
  -FSMA
  -ST(BFOC)
  -HFBR4521
  -SC

Article number	Article designation	PU
PCF Buffered Fibre Stripper		
29500711	PCF Buffered Fibre Stripper 0.5mm (K200/230)	1 piece
PCF Fibre Cleaving Tool		
29500712	PCF Cleaving Tool FSMA Connector	1 piece
29500713	PCF Cleaving Tool ST(BFOC) Connector	1 piece
29500714	PCF Cleaving Tool HFBR4521 Connector	1 piece
29500715	PCF Cleaving Tool SC Connector	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- PCF Assembly Sets refer to page 496

PCF Measurement Equipment

Inspection microscope for PCF connector types: FSMA; ST(BFOC); HFBR

Benefits

- Inspection Microscope with 100x magnification for connector inspection
- Easy to handle

Product features

- Interchangeable adapter for PCF connector types FSMA, ST(BFOC), HFBR
- Interchangeable adapters are not included in microscope, please order separately
- Other adapters available on request

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001685
ETIM 5.0/6.0 Class-Description:
Microscope for glass fibre

Article number	Article designation	PU
PCF Inspection Microscope (100x) without adapter		
29500770	PCF Inspection Microscope (100x)	1 piece
PCF Microscope Adapter For Connector Types		
29500771	PCF Microscope Adapter FSMA Simplex	1 piece
29500772	PCF Microscope Adapter ST(BFOC) Simplex	1 piece
29500773	PCF Microscope Adapter HFBR Simplex	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

HITRONIC® FIRE

Safety cable with central loose tube, LSZH inner and outer sheath, corrugated steel tape; halogen-free

Benefits

- Ensures that the fibres can still transmit data during and after a fire (according to IEC 60331-25)
- Suitable for installation in underground tunnels where fire safety is critical
- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- UV-resistant
  longitudinally and laterally watertight

Application range

- In industrial areas that use fire as a tool
- Highly combustible or fire-prone areas
- For indoor and outdoor use
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - Flame-retardant (IEC 60332-3)
  - Low smoke density (IEC 61034-1/2)
  - Circuit integrity (IEC 60331-25); Optical fibre cables
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Outer sheath flame-retardant and halogen-free

Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- LSZH inner and outer sheaths
- Colour: black (RAL 9005)

Info

- Fire-resistant for at least 180 minutes in the event of fire
- * Cable had been tested to withstand 180 min

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-DQ(ZN)BH(SR)H

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 1500 N
Short-term: 2200 N

Temperature range
Fixed installation: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM3					
27560304	HITRONIC® FIRE 4G 50/125 OM3	50/125 OM3	4	9.6	123
27560308	HITRONIC® FIRE 8G 50/125 OM3	50/125 OM3	8	9.6	123
27560312	HITRONIC® FIRE 12G 50/125 OM3	50/125 OM3	12	9.6	123
27560324	HITRONIC® FIRE 24G 50/125 OM3	50/125 OM3	24	12.6	188
Multimode G 50 OM2					
27560204	HITRONIC® FIRE 4G 50/125 OM2	50/125 OM2	4	9.6	123
27560208	HITRONIC® FIRE 8G 50/125 OM2	50/125 OM2	8	9.6	123
27560212	HITRONIC® FIRE 12G 50/125 OM2	50/125 OM2	12	9.6	123
27560224	HITRONIC® FIRE 24G 50/125 OM2	50/125 OM2	24	12.6	188
Multimode G 62.5 OM1					
27560104	HITRONIC® FIRE 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	123
27560108	HITRONIC® FIRE 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	123
27560112	HITRONIC® FIRE 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	123
27560124	HITRONIC® FIRE 24G 62.5/125 OM1	62.5/125 OM1	24	12.6	188
Single-mode E 9 OS2					
27560904	HITRONIC® FIRE 4E 9/125 OS2	9/125 OS2	4	9.6	123
27560908	HITRONIC® FIRE 8E 9/125 OS2	9/125 OS2	8	9.6	123
27560912	HITRONIC® FIRE 12E 9/125 OS2	9/125 OS2	12	9.6	123
27560924	HITRONIC® FIRE 24E 9/125 OS2	9/125 OS2	24	12.6	188

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985

HITRONIC® TORSION

Breakout cable specially designed to withstand high torsional stresses; PUR outer sheath

Info

- Torsion-resistant and very flexible

Benefits

- Designed to withstand high torsion in the windmill drip loop
- Suitable for field assembly
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For fixed and flexible installations, as well as for applications with torsional movements (e.g. machinery, wind turbines)
- Industrial environments
- In vertical installations
- As a link between moving parts
- For indoor and outdoor use

Product features

- Based on military norm MIL-C-85045
- Torsion-resistant and very flexible
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

Product Make-up

- 2.5 mm tight-buffered sub-cable with LSZH sheath
- Aramid yarns as strain relief
- Central element
- PUR outer sheath
- Colour: black (RAL 9005)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
sub-cable: 2.5mm
Cable: see table

Core identification code
Details see datasheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-V(ZN)H11Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -40°C to +70°C
Occasional flexing: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM3					
26310302	HITRONIC® TORSION 2G 50/125 OM3	50/125 OM3	2	8.4	54
26310304	HITRONIC® TORSION 4G 50/125 OM3	50/125 OM3	4	8.4	54
26310308	HITRONIC® TORSION 8G 50/125 OM3	50/125 OM3	8	11.6	95
26310312	HITRONIC® TORSION 12G 50/125 OM3	50/125 OM3	12	14.7	122
Multimode G 50 OM2					
26310202	HITRONIC® TORSION 2G 50/125 OM2	50/125 OM2	2	8.4	54
26310204	HITRONIC® TORSION 4G 50/125 OM2	50/125 OM2	4	8.4	54
26310208	HITRONIC® TORSION 8G 50/125 OM2	50/125 OM2	8	11.6	95
26310212	HITRONIC® TORSION 12G 50/125 OM2	50/125 OM2	12	14.7	122
Multimode G 62.5 OM1					
26310102	HITRONIC® TORSION 2G 62.5/125 OM1	62.5/125 OM1	2	8.4	54
26310104	HITRONIC® TORSION 4G 62.5/125 OM1	62.5/125 OM1	4	8.4	54
26310108	HITRONIC® TORSION 8G 62.5/125 OM1	62.5/125 OM1	8	11.6	95
26310112	HITRONIC® TORSION 12G 62.5/125 OM1	62.5/125 OM1	12	14.7	122
Single-mode E 9 OS2					
26310902	HITRONIC® TORSION 2E 9/125 OS2	9/125 OS2	2	8.4	54
26310904	HITRONIC® TORSION 4E 9/125 OS2	9/125 OS2	4	8.4	54
26310908	HITRONIC® TORSION 8E 9/125 OS2	9/125 OS2	8	11.6	95
26310912	HITRONIC® TORSION 12E 9/125 OS2	9/125 OS2	12	14.7	122

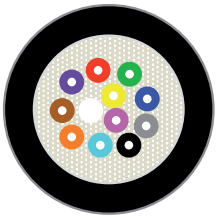
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Connector refer to page 516
- STAR STRIP stripping tool refer to page 985

HITRONIC® HDM Cable

Mini breakout/distribution cable designed for frequent reeling and unreeling, reelable



Info

- Mobile field cables

Benefits

- Suitable for field application
- Reelable for mobile use
- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- Light & sound technology
- For indoor and outdoor use
- Industrial environments
- TV broadcasts
  Camera technology
  Building monitoring
- Field application

Product features

- Based on military norm MIL-C-85045
- Highly flexible, reelable and tensile strength
- Colour-coded tight buffered fibres for easy channel identification
- Outer sheath halogen-free
- Mechanically robust

Product Make-up

- Up to 12 tight-buffered fibres (900µm)
- Colour-coded
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
tight-buffer (secondary coated fibre): 900µm
Cable: see table

Core identification code
Buffered-fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-V(ZN)11Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -40°C to +70°C
Flexible use: -20°C to +60°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
26610404	HITRONIC® HDM600 4G 50/125 OM4	50/125 OM4	4	5.5	24
26610406	HITRONIC® HDM600 6G 50/125 OM4	50/125 OM4	6	5.6	29
26610408	HITRONIC® HDM700 8G 50/125 OM4	50/125 OM4	8	6.2	36
Multimode G 50 OM3					
26610304	HITRONIC® HDM600 4G 50/125 OM3	50/125 OM3	4	5.5	24
26610306	HITRONIC® HDM600 6G 50/125 OM3	50/125 OM3	6	5.6	29
26610308	HITRONIC® HDM700 8G 50/125 OM3	50/125 OM3	8	6.2	36
Multimode G 50 OM2					
26610204	HITRONIC® HDM600 4G 50/125 OM2	50/125 OM2	4	5.5	24
26610206	HITRONIC® HDM600 6G 50/125 OM2	50/125 OM2	6	5.6	29
26610208	HITRONIC® HDM700 8G 50/125 OM2	50/125 OM2	8	6.2	36
Multimode G 62.5 OM1					
26610104	HITRONIC® HDM600 4G 62.5/125 OM1	62.5/125 OM1	4	5.5	24
26610106	HITRONIC® HDM600 6G 62.5/125 OM1	62.5/125 OM1	6	5.6	29
26610108	HITRONIC® HDM700 8G 62.5/125 OM1	62.5/125 OM1	8	6.2	36
Single-mode E 9 OS2					
26610904	HITRONIC® HDM600 4E9/125 OS2	9/125 OS2	4	5.5	24
26610906	HITRONIC® HDM600 6E9/125 OS2	9/125 OS2	6	5.6	29
26610908	HITRONIC® HDM700 8E9/125 OS2	9/125 OS2	8	6.2	36
26610912	HITRONIC® HDM700 12E9/125 OS2	9/125 OS2	12	6.7	49

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

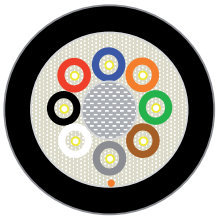
Accessories

- GOF DUPLEX Patchcord refer to page 514
- STAR STRIP stripping tool refer to page 985

EtherNet/IP

HITRONIC® HRM-FD Cable

flexible deivisible breakout cable designed for use in power chains



Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
sub-cable: 2.0mm
Cable: see table

Core identification code
Details see datasheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-V(ZN)H(ZN)11Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -40°C to +70°C
Flexible use: -20°C to +60°C

Benefits

- Designed for use in power chains
- Suitable for field assembly
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For highly flexible industrial applications
- As a link between moving parts
- In vertical installations
- Industrial environments
- For indoor and outdoor use

Product features

- Based on military norm MIL-C-85045
- For use in power chains and moving machinery parts in dry or damp rooms
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

Product Make-up

- 2.0 mm tight-buffered sub-cable with LSZH sheath
- Aramid yarns as strain relief
- Central element
- PUR outer sheath
- Colour: black (RAL 9005)

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
26300402	HITRONIC® HRM-FD800 2G 50/125 OM4	50/125 OM4	2	7.8	50
26300404	HITRONIC® HRM-FD1000 4G 50/125 OM4	50/125 OM4	4	7.8	50
26300408	HITRONIC® HRM-FD1400 8G 50/125 OM4	50/125 OM4	8	10.4	93
26300412	HITRONIC® HRM-FD1800 12G 50/125 OM4	50/125 OM4	12	13	98
Multimode G 50 OM3					
26300302	HITRONIC® HRM-FD800 2G 50/125 OM3	50/125 OM3	2	7.8	50
26300304	HITRONIC® HRM-FD1000 4G 50/125 OM3	50/125 OM3	4	7.8	50
26300308	HITRONIC® HRM-FD1400 8G 50/125 OM3	50/125 OM3	8	10.4	93
26300312	HITRONIC® HRM-FD1800 12G 50/125 OM3	50/125 OM3	12	13	98
Multimode G 50 OM2					
26300202	HITRONIC® HRM-FD800 2G 50/125 OM2	50/125 OM2	2	7.8	50
26300204	HITRONIC® HRM-FD1000 4G 50/125 OM2	50/125 OM2	4	7.8	50
26300208	HITRONIC® HRM-FD1400 8G 50/125 OM2	50/125 OM2	8	10.4	93
26300212	HITRONIC® HRM-FD1800 12G 50/125 OM2	50/125 OM2	12	13	98
Multimode G 62.5 OM1					
26300102	HITRONIC® HRM-FD800 2G 62.5/125 OM1	62.5/125 OM1	2	7.8	50
26300104	HITRONIC® HRM-FD1000 4G 62.5/125 OM1	62.5/125 OM1	4	7.8	50
26300108	HITRONIC® HRM-FD1400 8G 62.5/125 OM1	62.5/125 OM1	8	10.4	93
26300112	HITRONIC® HRM-FD1800 12G 62.5/125 OM1	62.5/125 OM1	12	13	98
Single-mode E 9 OS2					
26300902	HITRONIC® HRM-FD800 2E 9/125 OS2	9/125 OS2	2	7.8	50
26300904	HITRONIC® HRM-FD1000 4E 9/125 OS2	9/125 OS2	4	7.8	50
26300908	HITRONIC® HRM-FD1400 8E 9/125 OS2	9/125 OS2	8	10.4	93
26300912	HITRONIC® HRM-FD1800 12E 9/125 OS2	9/125 OS2	12	13	98

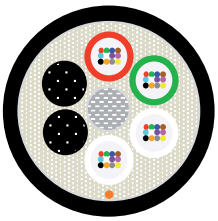
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Connector refer to page 516
- STAR STRIP stripping tool refer to page 985

HITRONIC® HVN-Mini Cable

Mini outdoor cable designed for installation by air-blowing systems (Ducts)



Benefits

- Suitable for blowing into ducts
- Compact dimensions
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- Backbone-Area, FTTH applications
- Telecommunications network
- WAN applications
- For installations by blowing
- Methods of deployment: for blowing or pulling into ducts

Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Reduced dimensions
- Halogen-free, low-friction outer sheath
- UV-resistant

Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Fibre type
GOF - Glass Optical Fibre
Single-mode
E9/125 OS2

Standard designation
A-DQ(ZN)2Y

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Single-mode E 9 OS2					
26609912	HITRONIC® HVN-Mini500 1x12E 9/125 OS2	9/125 OS2	12	5.8	30
26609924	HITRONIC® HVN-Mini500 2x12E 9/125 OS2	9/125 OS2	24	5.8	30
26609948	HITRONIC® HVN-Mini500 4x12E 9/125 OS2	9/125 OS2	48	5.8	33
26609972	HITRONIC® HVN-Mini500 6x12E 9/125 OS2	9/125 OS2	72	5.8	33
26609996	HITRONIC® HVN-Mini1200 8x12E 9/125 OS2	9/125 OS2	96	7.2	52
26609944	HITRONIC® HVN-Mini1000 12x12E 9/125	9/125 OS2	144	8	80

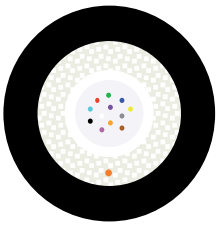
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF SIMPLEX Pigtail refer to page 515
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

HITRONIC® HQN Outdoor Cable

Outdoor cable with central loose tube and non-metallic strain relief



Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)B2Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 1500 N
Short-term: 3000 N

Temperature range
Fixed installation: -40°C to +70°C

Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays
  Suitable for blowing-in technics

Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

Product Make-up

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM3					
27600304	HITRONIC® HQN 1500 4G 50/125 OM3	50/125 OM3	4	7.3	40
27600308	HITRONIC® HQN 1500 8G 50/125 OM3	50/125 OM3	8	7.3	40
27600312	HITRONIC® HQN 1500 12G 50/125 OM3	50/125 OM3	12	7.3	40
27600324	HITRONIC® HQN 1500 24G 50/125 OM3	50/125 OM3	24	8.3	65
Multimode G 50 OM2					
27600204	HITRONIC® HQN 1500 4G 50/125 OM2	50/125 OM2	4	7.3	40
27600208	HITRONIC® HQN 1500 8G 50/125 OM2	50/125 OM2	8	7.3	40
27600212	HITRONIC® HQN 1500 12G 50/125 OM2	50/125 OM2	12	7.3	40
27600224	HITRONIC® HQN 1500 24G 50/125 OM2	50/125 OM2	24	8.3	65
Multimode G 62.5 OM1					
27600104	HITRONIC® HQN 1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3	40
27600108	HITRONIC® HQN 1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3	40
27600112	HITRONIC® HQN 1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3	40
27600124	HITRONIC® HQN 1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3	65
Single-mode E 9 OS2					
27600904	HITRONIC® HQN 1500 4E 9/125 OS2	9/125 OS2	4	7.3	40
27600908	HITRONIC® HQN 1500 8E 9/125 OS2	9/125 OS2	8	7.3	40
27600912	HITRONIC® HQN 1500 12E 9/125 OS2	9/125 OS2	12	7.3	40
27600924	HITRONIC® HQN 1500 24E 9/125 OS2	9/125 OS2	24	8.3	65

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

Similar products

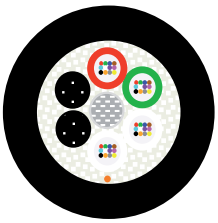
- HITRONIC® HUN Universal Cable refer to page 510
- HITRONIC® HVN Outdoor Cable refer to page 504
- HITRONIC® HQW Armoured Outdoor Cable refer to page 505

Accessories

- GOF SIMPLEX Pigtail refer to page 515
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

HITRONIC® HVN Outdoor Cable

Outdoor cable with stranded loose tubes and non-metallic strain relief



Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Suitable for blowing-in technic (low friction outer sheath)
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)B2Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM3					
26600324	HITRONIC® HVN5000 2x12G 50/125 OM3	50/125 OM3	24	11	64
26600348	HITRONIC® HVN5000 4x12G 50/125 OM3	50/125 OM3	48	11	84
Multimode G 50 OM2					
26600224	HITRONIC® HVN5000 2x12G 50/125 OM2	50/125 OM2	24	11	64
26600248	HITRONIC® HVN5000 4x12G 50/125 OM2	50/125 OM2	48	11	84
Single-mode E 9 OS2					
26600924	HITRONIC® HVN5000 2x12E 9/125 OS2	9/125 OS2	24	11	64
26600948	HITRONIC® HVN5000 4x12E 9/125 OS2	9/125 OS2	48	11	84
HVN Telecom Single-mode E 9 OS2					
26601924	HITRONIC® HVN1500 2x12E 9/125 OS2	9/125 OS2	24	10.5	89
26601948	HITRONIC® HVN1500 4x12E 9/125 OS2	9/125 OS2	48	10.5	91
26601972	HITRONIC® HVN2000 6x12E 9/125 OS2	9/125 OS2	72	10.8	97
26601996	HITRONIC® HVN2000 8x12E 9/125 OS2	9/125 OS2	96	11.9	121
26601944	HITRONIC® HVN2000 12x12E 9/125 OS2	9/125 OS2	144	14.3	183

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Other models are available upon request.

Similar products

- HITRONIC® HVN-Mini Cable refer to page 502
- HITRONIC® HVW Armoured Outdoor Cable refer to page 506

Accessories

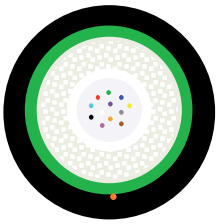
- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985

HITRONIC® HQW Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, central loose tube, non-metallic strain relief

Info

- Cable with corrugated steel tape (CST) for increased mechanical stress



Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight

Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)(SR)2Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 3000 N
Short-term: 5000 N

Temperature range
Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM3					
27900304	HITRONIC® HQW3000 4G 50/125 OM3	50/125 OM3	4	9.6	88
27900308	HITRONIC® HQW3000 8G 50/125 OM3	50/125 OM3	8	9.6	88
27900312	HITRONIC® HQW3000 12G 50/125 OM3	50/125 OM3	12	9.6	88
27900324	HITRONIC® HQW3000 24G 50/125 OM3	50/125 OM3	24	9.6	88
Multimode G 50 OM2					
27900204	HITRONIC® HQW3000 4G 50/125 OM2	50/125 OM2	4	9.6	88
27900208	HITRONIC® HQW3000 8G 50/125 OM2	50/125 OM2	8	9.6	88
27900212	HITRONIC® HQW3000 12G 50/125 OM2	50/125 OM2	12	9.6	88
27900224	HITRONIC® HQW3000 24G 50/125 OM2	50/125 OM2	24	9.6	88
Multimode G 62.5 OM1					
27900104	HITRONIC® HQW3000 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	88
27900108	HITRONIC® HQW3000 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	88
27900112	HITRONIC® HQW3000 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	88
27900124	HITRONIC® HQW3000 24G 62.5/125 OM1	62.5/125 OM1	24	9.6	88
Single-mode E 9 OS2					
27900904	HITRONIC® HQW3000 4E 9/125 OS2	9/125 OS2	4	9.6	88
27900908	HITRONIC® HQW3000 8E 9/125 OS2	9/125 OS2	8	9.6	88
27900912	HITRONIC® HQW3000 12E 9/125 OS2	9/125 OS2	12	9.6	88
27900924	HITRONIC® HQW3000 24E 9/125 OS2	9/125 OS2	24	9.6	88

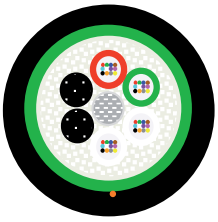
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985

HITRONIC® HVW Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, stranded loose tubes and non-metallic strain relief



Info

- Cable with corrugated steel tape (CST) for increased mechanical stress

Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight

Application range

- Methods of Deployment: empty plastic pipes, ducts and trays
- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments

Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)(SR)2Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 3000 N
Short-term: 5000 N

Temperature range
Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Single-mode E 9 OS2					
26900924	HITRONIC® HVW3000 2x12E 9/125 OS2	9/125 OS2	24	10	98
26900948	HITRONIC® HVW3000 4x12E 9/125 OS2	9/125 OS2	48	12.5	148
26900972	HITRONIC® HVW3000 6x12E 9/125 OS2	9/125 OS2	72	16	215
26900996	HITRONIC® HVW3000 8x12E 9/125 OS2	9/125 OS2	96	16	222
26900944	HITRONIC® HVW3000 12x12E 9/125 OS2	9/125 OS2	144	18.5	261

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

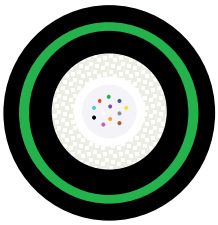
- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985

HITRONIC® HQW-Plus Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, central loose tube, non-metallic strain relief and PE inner and outer sheath

Info

- Cable with corrugated steel tape (CST) for increased mechanical stress



Benefits

- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- UV-resistant
  longitudinally and laterally watertight

Application range

- For outdoor use
- Harsh industrial environment
- Campus backbone
- WAN applications
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE inner and outer sheaths
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)B2Y(SR)2Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 3000 N
Short-term: 5000 N

Temperature range
Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM3					
27920304	HITRONIC® HQW-Plus3000 4G 50/125 OM3	50/125 OM3	4	9.6	95
27920308	HITRONIC® HQW-Plus3000 8G 50/125 OM3	50/125 OM3	8	9.6	95
27920312	HITRONIC® HQW-Plus3000 12G 50/125 OM3	50/125 OM3	12	9.6	95
27920324	HITRONIC® HQW-Plus3000 24G 50/125 OM3	50/125 OM3	24	12.6	135
Multimode G 50 OM2					
27920204	HITRONIC® HQW-Plus3000 4G 50/125 OM2	50/125 OM2	4	9.6	95
27920208	HITRONIC® HQW-Plus3000 8G 50/125 OM2	50/125 OM2	8	9.6	95
27920212	HITRONIC® HQW-Plus3000 12G 50/125 OM2	50/125 OM2	12	9.6	95
27920224	HITRONIC® HQW-Plus3000 24G 50/125 OM2	50/125 OM2	24	12.6	135
Multimode G 62.5 OM1					
27920104	HITRONIC® HQW-Plus3000 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	95
27920108	HITRONIC® HQW-Plus3000 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	95
27920112	HITRONIC® HQW-Plus3000 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	95
27920124	HITRONIC® HQW-Plus3000 24G 62.5/125 OM1	62.5/125 OM1	24	12.6	135
Single-mode E 9 OS2					
27920904	HITRONIC® HQW-Plus3000 4E 9/125 OS2	9/125 OS2	4	9.6	95
27920908	HITRONIC® HQW-Plus3000 8E 9/125 OS2	9/125 OS2	8	9.6	95
27920912	HITRONIC® HQW-Plus3000 12E 9/125 OS2	9/125 OS2	12	9.6	95
27920924	HITRONIC® HQW-Plus3000 24E 9/125 OS2	9/125 OS2	24	12.6	135

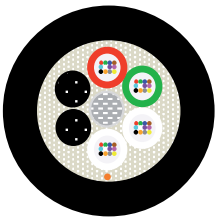
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985

HITRONIC® HQA Aerial Cable

Outdoor self-supporting aerial cable with stranded loose tubes and non-metallic strain relief; ADSS cable type



Benefits

- Suitable for mild weather conditions
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For outdoor use
- Hanging on poles
- Laying on poles
- Installation on building columns

Product features

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Mechanical support members (central filler and aramid yarns)
- Robust, halogen-free outer sheath
- Span width up to 90m

Product Make-up

- Up to 8 stranded gel-filled loose tubes
- Central GRP strength element
- Aramid yarns as strain relief
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)2Y - ADSS
All-Dielectric Self-Supporting

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
MAT: 2000 N
EDS: 800 N

Temperature range
Fixed installation: -40°C to +70°C
Occasional flexing: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Single-mode E 9 OS2					
26640912	HITRONIC® HQA800 6x2E 9/125 OS2	9/125 OS2	12	9.7	73
26640924	HITRONIC® HQA800 6x4E 9/125 OS2	9/125 OS2	24	9.7	73
26640948	HITRONIC® HQA800 6x8E 9/125 OS2	9/125 OS2	48	10.9	92
26640972	HITRONIC® HQA800 6x12E 9/125 OS2	9/125 OS2	72	10.9	94
26640996	HITRONIC® HQA800 8x12E 9/125 OS2	9/125 OS2	96	12.4	121

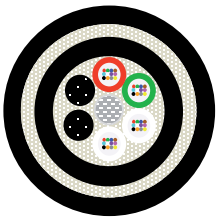
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further cable versions are available on request.

Accessories

- STAR STRIP stripping tool refer to page 985

HITRONIC® HQA-Plus Aerial Cable

Outdoor self-supporting aerial cable with stranded loose tubes, non-metallic strain relief and PE inner and outer sheath; ADSS cable type



Benefits

- Designed to withstand harsh weather conditions
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For long span widths
- Hanging on poles
- For outdoor use
- Laying on poles
- Installation on building columns

Product features

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Mechanical support members (central filler and aramid yarns)
- Robust, halogen-free outer sheath
- Span width up to 250m

Product Make-up

- Up to 8 stranded gel-filled loose tubes
- Central GRP strength element
- Aramid yarns as strain relief
- PE inner and outer sheaths
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ2Y(ZN)2Y ADSS
All-Dielectric Self-Supporting

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
MAT: 8000 N
EDS: 3200 N

Temperature range
Fixed installation: -40°C to +70°C
Occasional flexing: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Single-mode E 9 OS2					
26644912	HITRONIC® HQA-Plus3200 6x2E 9/125 OS2	9/125 OS2	12	12.8	132
26644924	HITRONIC® HQA-Plus3200 6x4E 9/125 OS2	9/125 OS2	24	12.8	132
26644948	HITRONIC® HQA-Plus3200 6x8E 9/125 OS2	9/125 OS2	48	13.7	151
26644972	HITRONIC® HQA-Plus3200 6x12E 9/125 OS2	9/125 OS2	72	13.7	153
26644996	HITRONIC® HQA-Plus3200 8x12E 9/125 OS2	9/125 OS2	96	15.3	188

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further cable versions are available on request.

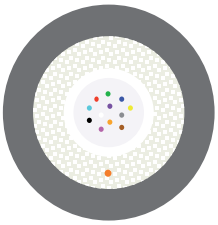
Accessories

- STAR STRIP stripping tool refer to page 985

EtherNet/IP

HITRONIC® HUN Universal Cable

Universal cable with corrugated steel tape armour, central loose tube and non-metallic strain relief



Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For indoor and outdoor use

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-DQ(ZN)BH
U-DQ(ZN)BH

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 1500 N
Short-term: 2000 N

Temperature range
Fixed installation: -30°C to +70°C

Benefits

- Flame retardance makes it suitable for indoor and outdoor installations
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Outer sheath flame-retardant and halogen-free
- Rodent-protection

Product Make-up

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- Colour: dark grey

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
27400404	HITRONIC® HUN 1500 4G 50/125 OM4	50/125 OM4	4	7.3	53
27400408	HITRONIC® HUN 1500 8G 50/125 OM4	50/125 OM4	8	7.3	53
27400412	HITRONIC® HUN 1500 12G 50/125 OM4	50/125 OM4	12	7.3	53
27400424	HITRONIC® HUN 1500 24G 50/125 OM4	50/125 OM4	24	8.3	60
Multimode G 50 OM3					
27400304	HITRONIC® HUN 1500 4G 50/125 OM3	50/125 OM3	4	7.3	53
27400308	HITRONIC® HUN 1500 8G 50/125 OM3	50/125 OM3	8	7.3	53
27400312	HITRONIC® HUN 1500 12G 50/125 OM3	50/125 OM3	12	7.3	53
27400324	HITRONIC® HUN 1500 24G 50/125 OM3	50/125 OM3	24	8.3	60
Multimode G 50 OM2					
27400204	HITRONIC® HUN 1500 4G 50/125 OM2	50/125 OM2	4	7.3	53
27400208	HITRONIC® HUN 1500 8G 50/125 OM2	50/125 OM2	8	7.3	53
27400212	HITRONIC® HUN 1500 12G 50/125 OM2	50/125 OM2	12	7.3	53
27400224	HITRONIC® HUN 1500 24G 50/125 OM2	50/125 OM2	24	8.3	60
Multimode G 62.5 OM1					
27400104	HITRONIC® HUN 1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3	53
27400108	HITRONIC® HUN 1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3	53
27400112	HITRONIC® HUN 1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3	53
27400124	HITRONIC® HUN 1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3	60
Single-mode E 9 OS2					
27400904	HITRONIC® HUN 1500 4E 9/125 OS2	9/125 OS2	4	7.3	53
27400908	HITRONIC® HUN 1500 8E 9/125 OS2	9/125 OS2	8	7.3	53
27400912	HITRONIC® HUN 1500 12E 9/125 OS2	9/125 OS2	12	7.3	53
27400924	HITRONIC® HUN 1500 24E 9/125 OS2	9/125 OS2	24	8.3	60

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

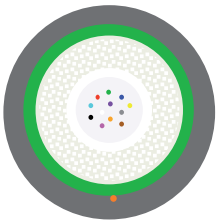
Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF SIMPLEX Pigtail refer to page 515
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC

EtherNet/IP

HITRONIC® HUW Armoured Universal Cable

Universal cable with central loose tube, corrugated steel tape and non-metallic strain relief for applications with extended mechanical stress



Info

- CPR: Article number choice under www.lappkabel.com/cpr
- For indoor and outdoor use
- Cable with corrugated steel tape (CST) for increased mechanical stress

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-DQ(ZN)(SR)H
U-DQ(ZN)(SR)H

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 1500 N
Short-term: 2000 N

Temperature range
Fixed installation: -30°C to +70°C

Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Flame retardance makes it suitable for indoor and outdoor installations
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Water-resistant

Application range

- For indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Outer sheath flame-retardant and halogen-free
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection

Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- LSZH outer sheath
- Colour: green (based on RAL 6018)

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM3					
27500304	HITRONIC® HUW1500 4G 50/125 OM3	50/125 OM3	4	9.6	88
27500308	HITRONIC® HUW1500 8G 50/125 OM3	50/125 OM3	8	9.6	88
27500312	HITRONIC® HUW1500 12G 50/125 OM3	50/125 OM3	12	9.6	88
27500324	HITRONIC® HUW1500 24G 50/125 OM3	50/125 OM3	24	9.6	88
Multimode G 50 OM2					
27500204	HITRONIC® HUW1500 4G 50/125 OM2	50/125 OM2	4	9.6	88
27500208	HITRONIC® HUW1500 8G 50/125 OM2	50/125 OM2	8	9.6	88
27500212	HITRONIC® HUW1500 12G 50/125 OM2	50/125 OM2	12	9.6	88
27500224	HITRONIC® HUW1500 24G 50/125 OM2	50/125 OM2	24	9.6	88
Multimode G 62.5 OM1					
27500104	HITRONIC® HUW1500 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	88
27500108	HITRONIC® HUW1500 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	88
27500112	HITRONIC® HUW1500 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	88
27500124	HITRONIC® HUW1500 24G 62.5/125 OM1	62.5/125 OM1	24	9.6	88
Single-mode E 9 OS2					
27500904	HITRONIC® HUW1500 4E 9/125 OS2	9/125 OS2	4	9.6	88
27500908	HITRONIC® HUW1500 8E 9/125 OS2	9/125 OS2	8	9.6	88
27500912	HITRONIC® HUW1500 12E 9/125 OS2	9/125 OS2	12	9.6	88
27500924	HITRONIC® HUW1500 24E 9/125 OS2	9/125 OS2	24	9.6	88

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

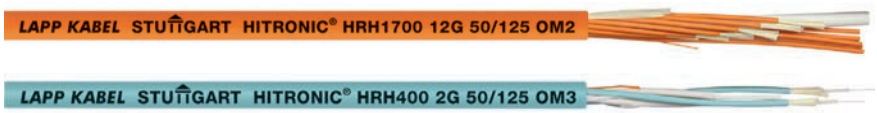
Accessories

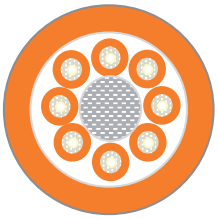
- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985

EtherNet/IP

HITRONIC® HRH Breakout Cable

Divisible breakout cable for direct connector assembly; J-V(ZN)HH





Benefits

- Suitable for field assembly
- Universal cable for cabling of buildings
- Very easy to install due to compact design, high flexibility, and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

Product features

- Installation cable with up to 12 Simplex cables
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

Product Make-up

- 2.1 mm tight-buffered sub-cable with LSZH sheath (identified by numbers)
- Central GRP strength element
- Aramid yarns as strain relief
- LSZH inner and outer sheaths
- Colour: aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1, yellow for Single-mode

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Breakout cable for direct connector assembly

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
tight-buffer (secondary coated fibre): 900µm
sub-cable: 2.1mm

Core identification code
Sub-cable: with black numbers

Fibre type
GOF - Glass Optical Fibre

Standard designation
J-V(ZN)HH

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -20°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM3					
26000302	HITRONIC® HRH400 2G 50/125 OM3	50/125 OM3	2	7	35
26000304	HITRONIC® HRH600 4G 50/125 OM3	50/125 OM3	4	7	44
26000308	HITRONIC® HRH1200 8G 50/125 OM3	50/125 OM3	8	9.7	77
26000312	HITRONIC® HRH1700 12G 50/125 OM3	50/125 OM3	12	10.3	100
Multimode G 50 OM2					
26000202	HITRONIC® HRH400 2G 50/125 OM2	50/125 OM2	2	7	35
26000204	HITRONIC® HRH600 4G 50/125 OM2	50/125 OM2	4	7	44
26000208	HITRONIC® HRH1200 8G 50/125 OM2	50/125 OM2	8	9.7	77
26000212	HITRONIC® HRH1700 12G 50/125 OM2	50/125 OM2	12	10.3	100
Multimode G 62.5 OM1					
26000102	HITRONIC® HRH400 2G 62.5/125 OM1	62.5/125 OM1	2	7	35
26000104	HITRONIC® HRH600 4G 62.5/125 OM1	62.5/125 OM1	4	7	44
26000108	HITRONIC® HRH1200 8G 62.5/125 OM1	62.5/125 OM1	8	9.7	77
26000112	HITRONIC® HRH1700 12G 62.5/125 OM1	62.5/125 OM1	12	10.3	100
Single-mode E 9 OS2					
26000902	HITRONIC® HRH400 2E 9/125 OS2	9/125 OS2	2	7	35
26000904	HITRONIC® HRH600 4E 9/125 OS2	9/125 OS2	4	7	44
26000908	HITRONIC® HRH1200 8E 9/125 OS2	9/125 OS2	8	9.7	77
26000912	HITRONIC® HRH1700 12E 9/125 OS2	9/125 OS2	12	10.3	100

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with multi-mode OM4 fibres
(outer sheath colour violet).

Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Connector refer to page 516
- DATA STRIP stripping tool refer to page 986
- TY-GRIP® FOL/ FO cable tie refer to page 1046
- Fibre Strip DC

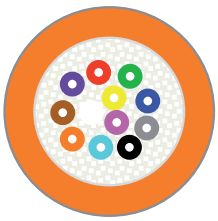
EtherNet/IP

HITRONIC® HDH Mini-Breakout Cable

Divisible indoor cable (distribution-style) with LSZH outer sheath, halogenfree; J-V(ZN)HH

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Mini breakout/distribution cable for direct connector assembly



Benefits

- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Suitable for field assembly
- Universal cable for cabling of buildings
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

Product features

- Up to 12 tight-buffered fibres (900µm)
- Colour-coded fibres
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

Product Make-up

- Tight-buffered fibres
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- Colour: aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1
- Available on request: single-mode OS2 (yellow) and multimode OM4 (violet)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
tight-buffer (secondary coated fibre): 900µm
Cable: see table

Core identification code
Buffered-fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
J-V(ZN)H

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -20°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM3					
26010302	HITRONIC® HDH 2G 50/125 OM3	50/125 OM3	2	6	34
26010304	HITRONIC® HDH 4G 50/125 OM3	50/125 OM3	4	6.3	37
26010308	HITRONIC® HDH 8G 50/125 OM3	50/125 OM3	8	7.5	57
26010312	HITRONIC® HDH 12G 50/125 OM3	50/125 OM3	12	8.3	69
Multimode G 50 OM2					
26010202	HITRONIC® HDH 2G 50/125 OM2	50/125 OM2	2	6	34
26010204	HITRONIC® HDH 4G 50/125 OM2	50/125 OM2	4	6.3	37
26010208	HITRONIC® HDH 8G 50/125 OM2	50/125 OM2	8	7.5	57
26010212	HITRONIC® HDH 12G 50/125 OM2	50/125 OM2	12	8.3	69
Multimode G 62.5 OM1					
26010102	HITRONIC® HDH 2G 62.5/125 OM1	62.5/125 OM1	2	6	34
26010104	HITRONIC® HDH 4G 62.5/125 OM1	62.5/125 OM1	4	6.3	37
26010108	HITRONIC® HDH 8G 62.5/125 OM1	62.5/125 OM1	8	7.5	57
26010112	HITRONIC® HDH 12G 62.5/125 OM1	62.5/125 OM1	12	8.3	69

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

Accessories

- DATA STRIP stripping tool refer to page 986
- TY-GRIP® FOL/ FO cable tie refer to page 1046
- Fibre Strip DC

EtherNet/IP

GOF DUPLEX Patchcord

Optical patch cords with various types of connectors available in single-mode or multi-mode fibre version

Benefits

- To connect optical transmitter, receiver and terminal box
- "Plug & Play" connection between optical devices
- Non-permanent connections allow for easy change of equipment
- For direct connection between two active optical components

Application range

- For indoor use
- LAN connections
- Data Centers
- Distributor cabinet

Product features

- Outer sheath flame-retardant and halogen-free
- High flexibility
- Cable termination with durable ceramic ferrules
- Pre-assembled connectors:
  -Low insertion loss
  -High return loss

Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2
- FC complies with IEC61754-13

Product Make-up

- Tight-buffered duplex cable with LSZH outer sheath
- Connector: LC, SC or ST
- Cable colour:
  violet for multimode OM4,
  aqua for multimode OM3,
  orange for multimode OM2 and OM1,
  yellow for single-mode OS2
- Standard length: 2 m
- On request: 1 m, 3 m, 5 m and 10 m

Info

- Pre-assembled duplex tight-buffered optical fibre cables with durable ceramic ferrule connectors
- Other types are available at www.lappgroup.com/assemblyfinder or on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001263
ETIM 5.0/6.0 Class-Description: Fibre optic patch cord

Dimensions
Primary coated fibre: 250µm
tight-buffer (secondary coated fibre): 900µm
sub-cable: 1.9mm

Fibre type
GOF - Glass Optical Fibre

Standard designation
J-VH 2x1G/E...

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 30 mm
Dynamic: ≥ 40 mm

Permissible tensile force
Fixed installation: 100 N

Temperature range
Fixed installation: -20°C to +60°C
Occasional flexing: -5°C to +50°C

Article number	Article designation	PU
Multimode G 50 OM4		
29011402	GOF Duplex Patchcord SC/SC G50 OM4, 2m	1 piece
29021402	GOF Duplex Patchcord ST/SC G50 OM4, 2m	1 piece
29022402	GOF Duplex Patchcord ST/ST G50 OM4, 2m	1 piece
29031402	GOF Duplex Patchcord LC/SC G50 OM4, 2m	1 piece
29032402	GOF Duplex Patchcord LC/ST G50 OM4, 2m	1 piece
29033402	GOF Duplex Patchcord LC/LC G50 OM4, 2m	1 piece
29044402	GOF Duplex Patchcord FC/FC G50 OM4, 2m	1 piece
Multimode G 50 OM3		
29011302	GOF Duplex Patchcord SC/SC G50 OM3, 2m	1 piece
29021302	GOF Duplex Patchcord ST/SC G50 OM3, 2m	1 piece
29022302	GOF Duplex Patchcord ST/ST G50 OM3, 2m	1 piece
29031302	GOF Duplex Patchcord LC/SC G50 OM3, 2m	1 piece
29032302	GOF Duplex Patchcord LC/ST G50 OM3, 2m	1 piece
29033302	GOF Duplex Patchcord LC/LC G50 OM3, 2m	1 piece
29044302	GOF Duplex Patchcord FC/FC G50 OM3, 2m	1 piece
Multimode G 50 OM2		
29011202	GOF Duplex Patchcord SC/SC G50 OM2, 2m	1 piece
29021202	GOF Duplex Patchcord ST/SC G50 OM2, 2m	1 piece
29022202	GOF Duplex Patchcord ST/ST G50 OM2, 2m	1 piece
29031202	GOF Duplex Patchcord LC/SC G50 OM2, 2m	1 piece
29032202	GOF Duplex Patchcord LC/ST G50 OM2, 2m	1 piece
29033202	GOF Duplex Patchcord LC/LC G50 OM2, 2m	1 piece
29044202	GOF Duplex Patchcord FC/FC G50 OM2, 2m	1 piece
Multimode G 62.5 OM1		
29011102	GOF Duplex Patchcord SC/SC G62.5, 2m	1 piece
29021102	GOF Duplex Patchcord ST/SC G62.5, 2m	1 piece
29022102	GOF Duplex Patchcord ST/ST G62.5, 2m	1 piece
29031102	GOF Duplex Patchcord LC/SC G62.5, 2m	1 piece
29032102	GOF Duplex Patchcord LC/ST G62.5, 2m	1 piece
29033102	GOF Duplex Patchcord LC/LC G62.5, 2m	1 piece
29044102	GOF Duplex Patchcord FC/FC G62.5, 2m	1 piece
Single-mode E 9 OS2		
29011902	GOF Duplex Patchcord SC/SC E9 OS2, 2m	1 piece
29021902	GOF Duplex Patchcord ST/SC E9 OS2, 2m	1 piece
29022902	GOF Duplex Patchcord ST/ST E9 OS2, 2m	1 piece
29031902	GOF Duplex Patchcord LC/SC E9 OS2, 2m	1 piece
29032902	GOF Duplex Patchcord LC/ST E9 OS2, 2m	1 piece
29033902	GOF Duplex Patchcord LC/LC E9 OS2, 2m	1 piece
29033802	GOF DUPLEX Patchcord LC/LC 9/125 APC, 2m	1 piece
29039902	GOF DUPLEX Patchcord LC/SC-APC E9 OS2, 2m	1 piece

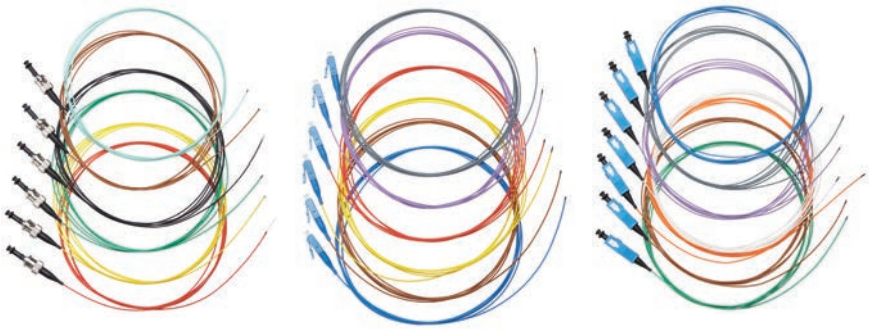
Other lengths and types of connectors are available upon request. / Photographs and graphics are not to scale and do not represent detailed images of the respective products.

GOF SIMPLEX Pigtail

12x assorted colour coded pigtails with various types of connectors (LC, ST, LC) with Singlemode OS2 and Multimode OM1, OM2, OM3, OM4 fibres

Info

- Pre-assembled simplex tight-buffered optical fibre with a durable ceramic ferrule connector



Benefits

- Ease of installation and assembly
- Create a direct plug connection for installation cables with splicing
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For indoor use
- Connection to an end optical device

Product features

- High flexibility
- Cable termination with durable ceramic ferrules
- Set consisting of 12 colour-coded pigtails

Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2

Product Make-up

- Tight buffered simplex fibres
- Connector: LC, SC or ST
- Colour-coded primary and secondary coatings
- Standard length: 2 m

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000748
ETIM 5.0/6.0 Class-Description: Pigtail

Dimensions
Primary coated fibre: 250µm
tight-buffer (secondary coated fibre): 900µm

Fibre type
GOF - Glass Optical Fibre

Standard designation
J-VH 1G/E...

Optical fibre type
Core material: glass
Cladding material: glass

Permissible tensile force
Fixed installation: 100 N

Temperature range
Fixed installation: -20°C to +60°C
Occasional flexing: -5°C to +50°C

Article number	Article designation	PU
Multimode G 50 OM4		
29310402	GOF Simplex Pigtail SC G50 OM4, 2m	12 piece
29320402	GOF Simplex Pigtail ST G50 OM4, 2m	12 piece
29330402	GOF Simplex Pigtail LC G50 OM4, 2m	12 piece
Multimode G 50 OM3		
29310302	GOF Simplex Pigtail SC G50 OM3, 2m	12 piece
29320302	GOF Simplex Pigtail ST G50 OM3, 2m	12 piece
29330302	GOF Simplex Pigtail LC G50 OM3, 2m	12 piece
Multimode G 50 OM2		
29310202	GOF Simplex Pigtail SC G50 OM2, 2m	12 piece
29320202	GOF Simplex Pigtail ST G50 OM2, 2m	12 piece
29330202	GOF Simplex Pigtail LC G50 OM2, 2m	12 piece
Multimode G 62.5 OM1		
29310102	GOF Simplex Pigtail SC G62.5, 2m	12 piece
29320102	GOF Simplex Pigtail ST G62.5, 2m	12 piece
29330102	GOF Simplex Pigtail LC G62.5, 2m	12 piece
Single-mode E 9 OS2		
29310902	GOF Simplex Pigtail SC E9 OS2, 2m	12 piece
29320902	GOF Simplex Pigtail ST E9 OS2, 2m	12 piece
29330902	GOF Simplex Pigtail LC E9 OS2, 2m	12 piece

Other types of connectors (e.g. LC, MTRJ, E2000) are available upon request.Judy Lim:This will not apply to Hitronic anymore, as LC will become a standard product and MTRJ/E2000 will be removed.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

GOF Connector

Accessories for glass optical fibre cable, connector types LC, SC, ST and FC

Benefits

- Ideal for assembling
- For assembly process: cable preparation/ glueing/crimping/polishing
- Assembly instructions can be found in the GOF assembly toolbox (not included in Lapp product range)
- Trained optical installers should be used in all connector assembly

Application range

- For connector assemblies in production or laboratory environment

Product features

- Connector sets include all needed parts for assembly

Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2

Product Make-up

- Ferrule diameter:
  LC: 1.25mm (zirconia)
  SC, ST: 2.5mm (zirconia)
- Can be assembled with cables of 1.7mm-2.1mm diameter
- LC and SC connector sets available in green (single-mode APC), blue (single-mode PC) and grey (multimode)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Permissible tensile force
Tensile load 70N
Tensile strength after assembly > 100N

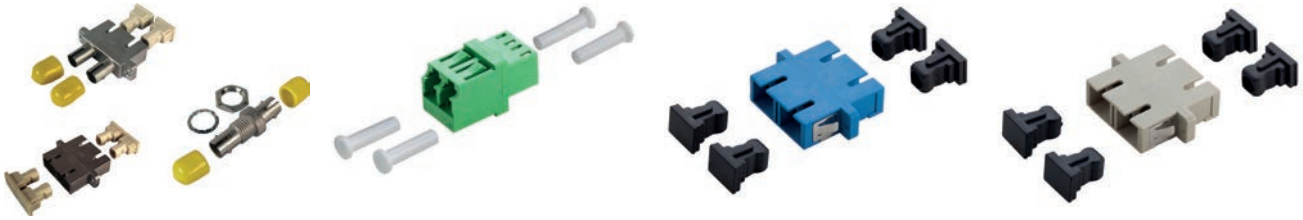
Temperature range
Operating
LC: -40°C to 75°C
SC: -40°C to 75°C
ST: -40°C to 85°C
Humidity 95%
Flammability UL 94 V-0

Article number	Article designation	PU
Singlemode		
29110999	GOF Connector SC Single-mode Blue /4PC	4 piece
29110998	GOF Connector SC Single-mode Blue /50PC	50 piece
29110989	GOF Connector SC Single-mode APC Green/ 4PC	4 piece
29110988	GOF Connector SC Single-mode APC Green/ 50PC	50 piece
29130999	GOF Connector LC Single-mode Blue /4PC	4 piece
29130998	GOF Connector LC Single-mode Blue /50PC	50 piece
29130989	GOF Connector LC Single-mode APC GR /4PC	4 piece
29130988	GOF Connector LC Single-mode APC GR/50PC	50 piece
29120999	GOF Connector ST Single-mode /4PC	4 piece
29120998	GOF Connector ST Single-mode /50PC	50 piece
29140999	GOF Connector FC Single-mode /4PC	4 piece
Multimode		
29110199	GOF Connector SC Multimode Beige /4PC	4 piece
29110198	GOF Connector SC Multimode Beige /50PC	50 piece
29130199	GOF Connector LC Multimode Beige /4PC	4 piece
29130198	GOF Connector LC Multimode Beige /50PC	50 piece
29120199	GOF Connector ST Multimode /4PC	4 piece
29120198	GOF Connector ST Multimode /50PC	50 piece
29140199	GOF Connector FC Multimode /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

GOF Adapters

Accessories for glass optical fibre cable, adapters for connector types LC, SC and ST



Product features

- The couplings connect the glass fibre connectors with the same or different connector types.

Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2
- Comply with IEC, EIA/TIA standards

Product Make-up

- Zirconia sleeves
- LC and SC adapters available in green (single-mode APC), blue (single-mode PC) and grey (multimode)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000752
ETIM 5.0/6.0 Class-Description: Fibre optic coupler

Attenuation
Attenuation (dB) < 0.2
Repeatability
1000 cycles (dB) < 0.2

Temperature range
Operating
LC: -25°C to 70°C
SC: -40°C to 75°C
ST: -40°C to 85°C
Humidity 95%
Flammability UL 94 V-0

Article number	Article designation	PU
Singlemode		
29410999	GOF Adapter Duplex SC Single-mode Blue /4PC	4 piece
29410989	GOF Adapter Duplex SC Single-mode APC Green /4PC	4 piece
29430999	GOF Adapter Duplex LC Single-mode Blue /4PC	4 piece
29430989	GOF Adapter Duplex LC Single-mode APC Green /4PC	4 piece
29420999	GOF Adapter Simplex ST(BFOC) Single-mode /4PC	4 piece
29421999	GOF Adapter Duplex ST-SC Single-mode /4PC	4 piece
Multimode		
29410199	GOF Adaper Duplex SC Multimode Beige /4PC	4 piece
29430199	GOF Adaper Duplex LC Multimode Beige /4PC	4 piece
29420199	GOF Adapter Simplex ST(BFOC) Multimode /4PC	4 piece
29421199	GOF Adaper Duplex ST-SC Multimode /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

19” Splice Box for ST

Product features

- For up to 12 or 24 fibres
- Can be pulled out
- Unpopulated
- For a maximum of 4 splicing catridges
- Height: 1 RU
- Dimensions (WxHxD): 483 x 44.5 x 244 mm
- Material: steel plate, 1.5 mm
- Colour: light grey (RAL 7035)

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001130
ETIM 5.0/6.0 Class-Description: Patch panel fibre optic

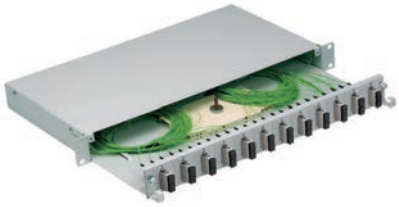
Article number	Article designation	PU
Splice Box Compact		
CE9138	19” Splice Box for 12 ST	1 piece
CE9139	19” Splice Box for 24 ST	1 piece

Splice boxes for more fibres with other types of connectors are available upon request. Also available in pre-assembled versions with coupings and pigtails.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Adapters refer to page 517
- GOF SIMPLEX Pigtail refer to page 515
- Accessories for splice boxes and wall-mounted rack refer to page 520

19” Splice Box for SC



Product features

- For up to 24 fibres
- Included: front panel with 12 SC-duplex holes
- Can be pulled out
- Unpopulated
- Height: 1 RU
- Material: steel plate, 1.5 mm
- Colour: light grey (RAL 7035)

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001130
ETIM 5.0/6.0 Class-Description: Patch panel fibre optic

Article number	Article designation	PU
Splice Box Compact		
CE9135	19” Splice Box for SC	1 piece

Splice boxes for more fibres with other types of connectors are available upon request. Also available in pre-assembled versions with coupings and pigtails.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Adapters refer to page 517
- GOF SIMPLEX Pigtail refer to page 515
- Accessories for splice boxes and wall-mounted rack refer to page 520

Splice Box Compact

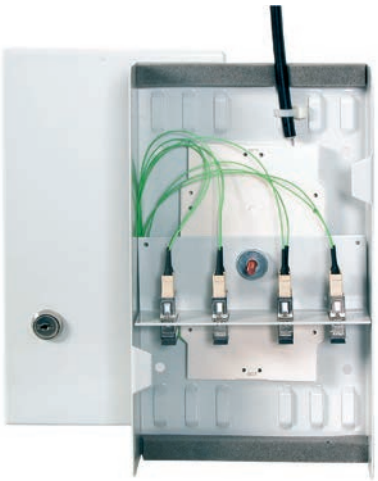
Product features

- Panel mounting
- Lockable
- Max. capacity of 8 splicing cartridges or 4 splicing cartridges and one distribution plate
- Includes distributor plate for 8 ST couplings
- Includes distributor plate for 4 SC duplex couplings
- Dimensions (WxHxD): 265 x 150 x 55 mm
- Colour: light grey (RAL 7035)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001130
ETIM 5.0/6.0 Class-Description: Patch panel fibre optic



Article number	Article designation	PU
Splice Box Compact		
CE9147	Splice Box Compact	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Adapters refer to page 517
- GOF SIMPLEX Pigtail refer to page 515
- Accessories for splice boxes and wall-mounted rack refer to page 520

Mini wall-mounted rack

Product features

- Panel mounting
- Lockable
- Max. capacity of 8 splicing cartridges or 4 splicing cartridges and one distribution plate
- Accessories for Mini wall-mounted rack:
  - Distributor plate for 24 ST couplings
  - Distributor plate for 24 SC Simplex couplings
  - Distributor plate for 12 SC Duplex couplings
- Dimensions (W x H x D): 320 x 280 x 54 mm
- Colour: light grey (RAL 7035)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001130
ETIM 5.0/6.0 Class-Description: Patch panel fibre optic

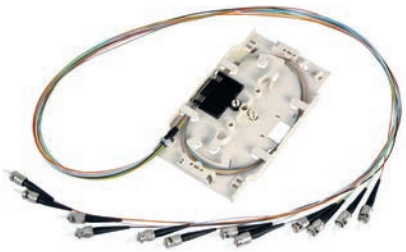
Article number	Article designation	PU
Mini wall-mounted rack		
CE9150	Mini wall-mounted rack	1 piece
Accessories for Mini wall-mounted rack		
CE9151	Distribution plate for 24 x ST-Couplers	1 piece
CE9152	Distribution plate for 24 x SC-simplex-Couplers	1 piece
CE9153	Distribution plate for 12 x SC-duplex-Couplers	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Adapters refer to page 517
- GOF SIMPLEX Pigtail refer to page 515
- Accessories for splice boxes and wall-mounted rack refer to page 520

Accessories for splice boxes and wall-mounted rack



Product features

- Splicing cassette for up to 2 splicing protection holders
- Cover for splicing cartridge
- 12-fold splicing protection holder
- Splicing protection sleeve for ANT splicing device
- Blind cap instead of E2000 coupling
- Blind cap instead of ST coupling
- Dummy cap instead of SC duplex coupling

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001123
ETIM 5.0/6.0 Class-Description: Splice protection

Article number	Article designation	PU
Accessories for splice boxes and wall-mounted rack		
CE9914	Splicing cassette for up to 2 splicing protection holders	1 piece
CE9914D	Cover for splicing cartridge	1 piece
CE9916	12-fold splicing protection holder	1 piece
CE9913	Splicing protection sleeve for ANT splicing device	15 pieces
CE9917	Blind cap instead of E2000 coupling	10 pieces
CE9918	Blind cap instead of ST coupling	10 pieces
CE9919	Blind cap instead of SC duplex coupling	10 pieces

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Adapters refer to page 517
- GOF SIMPLEX Pigtail refer to page 515
- TY-GRIP® FOL/ FO cable tie refer to page 1046

5

EPIC®

Industrial connectors

EPIC® industrial connectors can be found everywhere in industrial machinery and plant engineering, for measuring, control and drives. EPIC® is a flexible system of housings, inserts and contacts: all extremely robust, absolutely safe and simplicity itself to assemble.

Application range

- Electronics and telecommunications
- Measurement, testing and control technology
- Industrial machinery and appliances
- Drive technology and industrial automation
- Photovoltaic plants

Rectangular connectors

EPIC® H-A Inserts
EPIC® H-A 3 526
EPIC® H-A 4 526
EPIC® H-A 10 527
EPIC® H-A 16 527
EPIC® STA inserts
EPIC® STA 6 Screw termination 528
EPIC® STA 6 Solder termination 528
EPIC® STA 14 Screw termination 529
EPIC® STA 14 Solder termination 529
EPIC® STA 20 Screw termination 530
EPIC® STA 20 Solder termination 530
EPIC® H-Q 5 / H-Q 12 Inserts
EPIC® H-Q 5 531
EPIC® H-Q 12 531
EPIC® H-D Inserts
EPIC® H-D 7 machined 532
EPIC® H-D 7 stamped 532
EPIC® H-D 8 533
EPIC® H-D 15 machined 534
EPIC® H-D 15 stamped 534
EPIC® H-D 25 machined 535
EPIC® H-D 25 stamped 535
EPIC® H-D 40 machined 536
EPIC® H-D 40 stamped 536
EPIC® H-D 64 machined 537
EPIC® H-D 64 stamped 537
EPIC® H-DD Inserts
EPIC® H-DD 24 538
EPIC® H-DD 42 538
EPIC® H-DD 72 539
EPIC® H-DD 108 539
EPIC® H-BE Inserts
EPIC® H-BE 6 Screw termination 540
EPIC® H-BE 6 Crimp termination 540
EPIC® H-BE 6 Cage clamp 540
EPIC® H-BE 6 Push-In termination 540
EPIC® H-BE 10 Screw termination 542
EPIC® H-BE 10 Crimp termination 542
EPIC® H-BE 10 Cage clamp 542
EPIC® H-BE 10 Push-In termination 542
EPIC® H-BE 16 Screw termination 544
EPIC® H-BE 16 Crimp termination 544
EPIC® H-BE 16 Cage clamp 544
EPIC® H-BE 16 Push-In termination 544
EPIC® H-BE 24 Screw termination 546
EPIC® H-BE 24 Crimp termination 546
EPIC® H-BE 24 Cage clamp 546
EPIC® H-BE 24 Push-In termination 546
EPIC® H-EE Inserts
EPIC® H-EE 10 548
EPIC® H-EE 18 548
EPIC® H-EE 32 549
EPIC® H-EE 46 549
EPIC® H-BS Inserts
EPIC® H-BS 6 550
EPIC® H-BS 12 550
EPIC® H-BVE Inserts
EPIC® H-BVE 3 551
EPIC® H-BVE 6 551
EPIC® H-BVE 10 551
H-S Inserts
Power H-S 552
EPIC® K-Inserts
EPIC® Power K 4/0 553
EPIC® Power K 4/2 553
EPIC® TB-H-BE Terminal adapter
EPIC® TB-H-BE 16 554
EPIC® TB-H-BE 24 554
EPIC® MH modular system module
EPIC® MH 2 555
EPIC® MH 3 556
EPIC® MH 3+4 557
EPIC® MH 4 558
EPIC® MH 6 559
EPIC® MH 8 560
EPIC® MH 12 561
EPIC® MH 17 562
EPIC® MH 20 563
EPIC® MH 36 564
EPIC® MH Gigabit Modul 565
EPIC® MH BUS 566
EPIC® MH Bus PIN 1x(4) contact holder 566
EPIC® MH Coax 1.6mm 567
EPIC® MH Coax 2.5mm 567
EPIC® MH Potential set 568
EPIC® MH D-SUB 568
EPIC® MH 0 blind modul 569
EPIC® MH Modular System frame
EPIC® MH 6 multi frame 570
EPIC® MH 10 multi frame 570
EPIC® MH 16 multi frame 570
EPIC® MH 24 multi frame 570
EPIC® MH Clip 570
EPIC® MC Modules
EPIC® MC module: HC1+PE 572
EPIC® MC module: HC2 572
Power module: HC2 573
Power module: HHC2 573
Power module: HHC1 573
EPIC® MC module: HC3 574
EPIC® MC module: HC4+PE 575
EPIC® MC Module: 3pole 575
EPIC® MC Module: HE 4pole 575
EPIC® MC Module: Cage clamp 4pole 576
EPIC® MC Module: 5pole 576
EPIC® MC Module: 10pole 576
EPIC® MC Module: 10pole stamped 577
EPIC® MC Module: 20pole 577
EPIC® MC Dummy Module 577
EPIC® MC Module: Koax 3pole 578
EPIC® MC Module: PROFIBUS DP 578
EPIC® MC Module: Universal Bus 578
EPIC® MC Module: RJ45 579
EPIC® MC BUS 580
EPIC® MC Module Pneumatic 1pole 581
EPIC® MC Module Pneumatic 2pole 581
EPIC® MC Module removal tool 582
EPIC® MCR Frames
EPIC® MCR 6 583
EPIC® MCR 10 583
EPIC® MCR 16 583
EPIC® MCR 24 583
EPIC® MH Modular System contacts and accessories
EPIC® MH 0.8mm contacts stamped 584
EPIC® MH 1.0mm contacts stamped 585
EPIC® MH 1.0mm contacts machined 585
EPIC® Contacts + tools
EPIC® M-D 1.0 D-Sub stamped contacts-on-reel 586
EPIC® Tools for M-D 1,0 D-Sub contacts-on-reel stamped 586
EPIC® H-D 1.6 machined contacts 587
EPIC® Tools for contacts H-D 1.6 machined 587
EPIC® H-D 1.6 stamped contacts 588
EPIC® Tools for contacts H-D 1.6 stamped 588
EPIC® H-D 1.6 stamped contacts-on-reel 589
EPIC® H-BE 2.5 machined contacts 590
EPIC® Tools for contacts H-BE 2.5 machined 590
EPIC® MC 2.5 machined contacts 591
EPIC® Tools for contacts MC 2.5 machined 591
EPIC® MC 2.5 stamped contacts 592
EPIC® Tools for contacts MC 2.5 stamped 592
EPIC® MC 2.5 stamped contacts-on-reel 593
EPIC® MC 3.6 machined contacts 594
EPIC® Tools for contacts MC 3.6 machined 594
EPIC® MC 3.6 machined contacts 16 mm2 595
EPIC® MH 4.0mm Contacts 595
EPIC® MH Modular System contacts and accessories
MC 6.0 machined contacts 596
EPIC® MH 8.0mm Contacts 596
EPIC® TOOL DIE 8.0mm 597
EPIC® MH contact removal tool 8.0mm 597
MC 10.0 machined contacts 597
EPIC® Contacts + tools
EPIC® MC Coax-Contacts 598
EPIC® Tools for contacts MC Coax 599
EPIC® H-A Housing
EPIC® ULTRA H-A 3 Housing 600
EPIC® H-A 3 Hood and cable coupler hood 601
EPIC® H-A 3 Panel-mount- and surface-mount base 602
EPIC® H-A 10 Hood and cable coupler hood 603
EPIC® H-A 10 Panel-mount- and surface-mount base 604
EPIC® H-A 16 Hood and cable coupler hood 605
EPIC® H-A 16 Panel-mount- and surface-mount base 606
EPIC® ULTRA H-B 6
EPIC® ULTRA H-B 6 TG LB 607
EPIC® ULTRA H-B 6 TS LB 607
EPIC® ULTRA H-B 6 AG LB 608
EPIC® ULTRA H-B 6 SGR LB 608
EPIC® H-B Housing single lever
EPIC® H-B 6 Hood and cable coupler hood 609
EPIC® H-B 6 Panel-mount- and surface-mount base 610
EPIC® ULTRA H-B 10
EPIC® ULTRA H-B 10 TS QB 611

EPIC® ULTRA H-B 10 AG QB 611
EPIC® H-B Housing double lever
EPIC® H-B 10 Hood and cable coupler hood 612
EPIC® H-B Housing single lever
EPIC® H-B 10 Hood and cable coupler hood 613
EPIC® H-B Housing double lever
EPIC® H-B 10 Panel-mount- and surface-mount base 614
EPIC® H-B Housing single lever
EPIC® H-B 10 Panel-mount- and surface-mount base 615
EPIC® ULTRA H-B 16
EPIC® ULTRA H-B 16 TS QB 616
EPIC® ULTRA H-B 16 AG QB 616
EPIC® H-B Housing double lever
EPIC® H-B 16 Hood and cable coupler hood 617
EPIC® H-B Housing single lever
EPIC® H-B 16 Hood and cable coupler hood 618
EPIC® H-B Housing double lever
EPIC® H-B 16 Panel-mount- and surface-mount base 619
EPIC® H-B Housing single lever
EPIC® H-B 16 Panel-mount- and surface-mount base 620
EPIC® ULTRA H-B 24
EPIC® ULTRA H-B 24 TS QB 621
EPIC® ULTRA H-B 24 AG QB 621
EPIC® H-B Housing double lever
EPIC® H-B 24 Hood and cable coupler hood 622
EPIC® H-B Housing single lever
EPIC® H-B 24 Hood and cable coupler hood 623
EPIC® H-B Housing double lever
EPIC® H-B 24 Panel-mount- and surface-mount base 624
EPIC® H-B Housing single lever
EPIC® H-B 24 Panel-mount- and surface-mount base 625
EPIC® H-B Housing double lever
EPIC® H-B 32 Housings 626
EPIC® H-B Housing single lever
EPIC® H-B 48 Housings 627
EPIC® Mounting systems
EPIC® Docking frame 628
EPIC® QUICK & EASY Mounting system 628
EPIC® Housing accessories
EPIC® Flat gaskets for housings H-A and H-B 629
EPIC® Fixing screws 629
EPIC® Coding parts 629
EPIC® Protective cover H-A 3 630
EPIC® Protective cover H-A 630
EPIC® Protective cover H-B 630
EPIC® Cover plates 631
EPIC® Adapter plates for 1 D-Sub insert 631
EPIC® Adapter plates for 2 D-Sub inserts 631
EPIC® Locking levers for H-A, H-B 631

Circular connectors

EPIC® POWER M12 630V
EPIC® POWER M12 630V panel base 632
EPIC® POWER M12 630V cable connector 632
EPIC® POWER M17
EPIC® POWER M17 A1 633
EPIC® POWER M17 A3 633
EPIC® POWER M17 G4 633
EPIC® POWER M17 D6 635
EPIC® POWER M17 F6 635
EPIC® SIGNAL M17
EPIC® SIGNAL M17 A1 636
EPIC® SIGNAL M17 A3 636
EPIC® SIGNAL M17 G4 636
EPIC® SIGNAL M17 D6 637
EPIC® SIGNAL M17 F6 637
EPIC® M17 Contacts, tools, accessories
EPIC® M17 Contacts 638
EPIC® M17 Tools 638
EPIC® SIGNAL M23 Housings
EPIC® SIGNAL M23 A1 639
EPIC® SIGNAL M23 A1 D3.2 639
EPIC® SIGNAL M23 A3 639
EPIC® SIGNAL M23 G4 640
EPIC® SIGNAL M23 G5 640
EPIC® SIGNAL M23 G6 640
EPIC® SIGNAL M23 B1 641
EPIC® SIGNAL M23 B2 641
EPIC® SIGNAL M23 C2 642
EPIC® SIGNAL M23 D6 643
EPIC® SIGNAL M23 F6 643
EPIC® SIGNAL M23 F7 643
EPIC® SIGNAL M23 Inserts
EPIC® SIGNAL M23 Inserts 6 pole 644
EPIC® SIGNAL M23 Inserts 7 pole 644
EPIC® SIGNAL M23 Inserts 8+1 pole 645
EPIC® SIGNAL M23 Inserts 9 pole 645
EPIC® SIGNAL M23 Inserts 12 pole 646
EPIC® SIGNAL M23 Inserts 16 pole 646
EPIC® SIGNAL M23 Inserts 17 pole 647
EPIC® SIGNAL M23 Inserts 12 pole D-Sub 648
EPIC® SIGNAL M23 Inserts 17 pole D-Sub 648
EPIC® SIGNAL M23 Contacts, tools, accessories
EPIC® SIGNAL M23 Contacts male 649
EPIC® SIGNAL M23 Contacts female 649
EPIC® SIGNAL M23 Tools 650
EPIC® SIGNAL M23 Accessories 650
EPIC® SIGNAL R 3.0
EPIC® SIGNAL R 3.0 D PG16 651
EPIC® SIGNAL R 3.0 F PG16 651
EPIC® SIGNAL R 3.0 A 651
EPIC® SIGNAL R 3.0 B1 652
EPIC® SIGNAL R 3.0 B2 652
EPIC® SIGNAL R 3.0 G1 652
EPIC® SIGNAL R3.0 tools, accessories
EPIC® SIGNAL R 3.0 Tools 653
EPIC® SIGNAL R 3.0 Accessories 653
EPIC® POWER LS1
EPIC® POWER LS1 A1 654
EPIC® POWER LS1 A3 654
EPIC® POWER LS1 G5 655
EPIC® POWER LS1 A6 655
EPIC® POWER LS1 D6 656
EPIC® POWER LS1 D6 (short) 656
EPIC® POWER LS1 F6 657
EPIC® POWER LS1 F7 657
EPIC® POWER LS1 Contacts, tools, accessories
EPIC® POWER LS1 Contacts male 658
EPIC® POWER LS1 Contacts female 658
EPIC® POWER LS1 Tools 659
EPIC® POWER LS1 Accessories 659
EPIC® POWER LS1.5
EPIC® POWER LS1.5 A1 660
EPIC® POWER LS1.5 A3 660
EPIC® POWER LS1.5 A6 660
EPIC® POWER LS1.5 D6 661
EPIC® POWER LS1.5 F6 661
EPIC® POWER LS1.5 contact, tools, accessories
EPIC® POWER LS1.5 Contacts male 662
EPIC® POWER LS1.5 Contacts female 662
EPIC® POWER LS1.5 Tools 662
EPIC® POWER LS3
EPIC® POWER LS3 A1 663
EPIC® POWER LS3 D6 663
EPIC® POWER LS3 F6 663
EPIC® POWER LS3 Contacts, tools, accessories
EPIC® POWER LS3 male contacts 664
EPIC® POWER LS3 female contacts 664
EPIC® POWER LS3 Tools 664
EPIC® POWERLOCK SCREW 400A
EPIC® POWERLOCK A1 S 665
EPIC® POWERLOCK A6 S 665
EPIC® POWERLOCK D6 S 666
EPIC® POWERLOCK F6 S 666
POWERLOCK BOX S* 667
EPIC® POWERLOCK Contacts, tools, accessories
EPIC® POWERLOCK Screw contacts 668
EPIC® POWERLOCK Tools 668
EPIC® POWERLOCK Accessories 668
EPIC® POWERLOCK CRIMP 660A
EPIC® POWERLOCK A1 C 669
EPIC® POWERLOCK A6 C 669
EPIC® POWERLOCK D6 C 670
EPIC® POWERLOCK F6 C 670
POWERLOCK BOX C* 671
EPIC® POWERLOCK Contacts, tools, accessories
EPIC® POWERLOCK Crimp contacts 672
EPIC® POWERLOCK Tools 672
EPIC® POWERLOCK Accessories 672

Solar connectors

EPIC® SOLAR 4
EPIC® SOLAR 4 M 673
EPIC® SOLAR 4 F 673
EPIC® SOLAR TOOL
EPIC® SOLAR TOOL CSC 674
EPIC® SOLAR TOOL 674
EPIC® SOLAR 4
EPIC® SOLAR 4 Splitter 675

eMobility - System components

Components for charging infrastructure
CHARGE KIT charging station 676
Mobile CHARGE box 677
EVCS2 Tester type 2 678
Test adapter T2 on T1 678
Test adapter RCD 678

EPIC® Industrial connectors

Flexible, robust connectors for mechanical engineering

EPIC® industrial connectors have successfully been in use around the globe in the most diverse applications for many years. EPIC® connectors are particularly valuable in situations where maximum safety and reliability are paramount. EPIC® rectangular connectors are available as individual components or as kits. As a result, customers can select from the best solutions to meet their demands in terms of housing, inserts and contacts.

The main areas of application are:

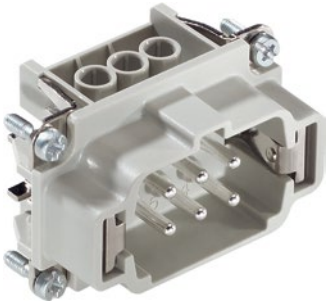
- Electronics and telecommunications
- Measurement, testing and control engineering
- Industrial machinery and appliances
- Drive systems and industrial automation
- Photovoltaic systems

products.lappgroup.com/connectorselector

EPIC® Rectangular connector housing

EPIC® – apart from the products' quality and reliability, tried and tested many times on the market, our customers greatly value the option to be able to almost completely define the cable entry of the housing to meet individual specifications.
EPIC® ULTRA – the high-quality, nickel-plated housing of this EPIC® ULTRA series provides even better corrosion protection. As a result of the outstanding EMC features of this surface, the connector provides perfect, low-resistance 360° screening thanks to the high-quality bolts and clamps made of stainless steel.

products.lappgroup.com/connector-housing



EPIC® Rectangular connector inserts

EPIC® – fixed pin inserts guarantee safe and simple handling suitable for plenty of industrial applications.

EPIC® – modular inserts provide maximum flexibility thanks to modules customers can configure to suit their individual requirements. Users can configure modules for data, signals, output, FOC and pneumatics in any combination in one housing.

EPIC® Accessories

Matching accessories are available for EPIC® housings and inserts. In addition to certified and approved crimping tools we also provide the matching assembly or disassembly tools. Protective covers made of impact-resistant plastic provide effective screening from environmental influences. Coding elements are suitable to prevent incorrect connections and protect the system. The range is rounded off by cover panelsand spare parts for housings.

EPIC® rectangular connectors

Flexible, robust connectors for mechanical engineering

The connector system for mechanical and plant engineering and wherever a robust connection system is required. EPIC® Rectangular connectors are available as components. The right connector for any application can be made individually from housings, inserts and contacts. **www.lappgroup.com/connectorfinder**

For the housing, there are two performance classes to choose from
- EPIC® Standard is robust and there is a flexible choice of cable entries **www.lappgroup.com/connector-housing**
- EPIC® ULTRA has a high corrosion protection, EMC protection as well as a stainless steel interlocking device

EPIC® inserts are available in a fixed pin design and as a modular system
- EPIC® fixed pin inserts are easy to handle and come in a wide variety of designs
- EPIC® modular inserts offer flexibility with modules for data, signals, power, fibre-optics and pneumatics. This means every insert is individually tailor-made for the relevant modul configuration

EPIC® circular connectors

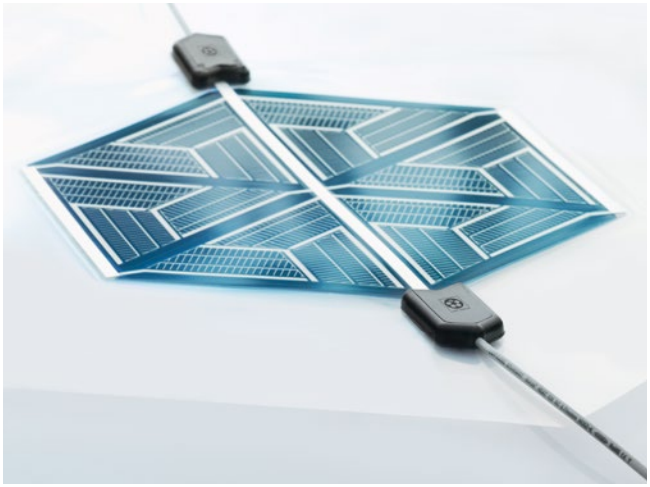
Compact connectors for motion control and energy transfer

Circular connections come in two designs, a signal design with gold-plated contacts for transmitting delicate signals and as high-reserve power connectors.

EPIC® SIGNAL connectors are available as M17, M23 and R3.0 (M27)
- The metal housing with an integrated EMC screen contact reliably prevents electromagnetic interferences
- Gold-plated signal contacts reliably transmit with the lowest of currents and voltages

EPIC® POWER connectors are available as M12, M17, LS1 (M23), LS1.5 (M40) and LS3 (M58)
- The integrated EMC cable glands offer strain relief and are perfectly sealed
- High-quality sealing materials for good chemical protection

EPIC® POWERLOCK
- Perfect for transmitting very high currents
- Colour coded and geometrically coded in order to prevent incorrect connections



EPIC® SOLAR connectors

Durable connectors for photovoltaics

High-quality connections for a long-term and reliable outdoor connection

EPIC® SOLAR field harnessable
- Crimp and insert the contact, twist the cable gland, it's that simple

EPIC® SOLAR Map for organic PV modules
- Customised production instead of off-the-shelf products, that's what the new PV connection technology made by LAPP is about

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-A 3

H-A inserts with screw termination up to 2.5 mm² wire cross section

Info

- Small power connector for single - or three-phase current
- Easy to assemble due to straight entry of conductors
- Railway applications

EPIC® H-A 4

H-A inserts with screw termination up to 2.5 mm² wire cross section

Info

- Insert for three-phase current application with neutral conductor
- Easy to assemble due to straight entry of conductors
- Railway applications

Suitable housing

- EPIC® ULTRA H-A 3 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Benefits

- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4
- The small H-A 3 / H-A 4 are used whenever there is minimal space.
- Easy to service screw connection
- Easy cable connection with strait cable entry in the contacts

Application range

- Railway applications / vehicle construction
- Machine and equipment manufacturing
- Control engineering
- Apparatus construction

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 400 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
4 kV

Rated current (A)
IEC: 23 A
UL: 10 A
CSA: 10 A

Pollution degree
3

Contact resistance
1.5 - 4 mohm

Contacts
Copper alloy, hard silver-plated

Number of contacts
EPIC® H-A 3
3 + PE
EPIC® H-A 4
4 + PE

Termination methods
Screw termination: 0.5 - 2.5 mm²
(2.5 mm² with conductor end sleeves depending on the crimping profile)

Stripping length (mm)
6

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

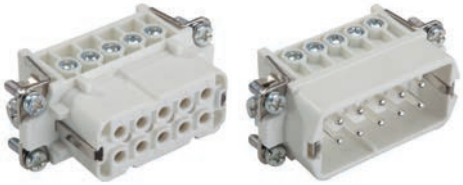
Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
H-A 3 screw termination				
10420000	H-A 3 SS	male	1 - 3	10
10421000	H-A 3 BS	female	1 - 3	10
H-A 4 screw termination				
10431000	H-A 4 SS	male	1 - 4	10
10432000	H-A 4 BS	female	1 - 4	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-A 10

H-A inserts with screw termination up to 2.5 mm² wire cross section

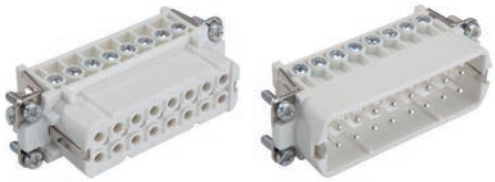


Info

- Slim standard insert, easy to connect by screw
- Universal for current and voltage transmission

EPIC® H-A 16

H-A inserts with screw termination up to 2.5 mm² wire cross section



Info

- Slim standard insert, easy to connect by screw
- Universal for current and voltage transmission

Suitable housing

EPIC® H-A 10

- EPIC® H-A 10 Housings

EPIC® H-A 16

- EPIC® H-A 16 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Similar products

- Further products with higher numbering in the internet. (H-A 32, H-A 48)

Benefits

- Slim connector insert for standard application
- Easy to service screw connection
- Universal for current and voltage transmission

Application range

- Machine and equipment manufacturing
- Control engineering

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 250 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
4 kV

Rated current (A)
IEC: 16 A
UL: 14 A
CSA: 16 A

Pollution degree
3

Contact resistance
1.5 - 4 mohm

Contacts
Copper alloy, hard silver-plated

Number of contacts
EPIC® H-A 10
10 + PE
EPIC® H-A 16
16 + PE

Termination methods
Screw termination: 0.5 - 2.5 mm²
(2.5 mm² with conductor end sleeves depending on the crimping profile)

Stripping length (mm)
8

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Wire protection	Number of operating contacts	Pieces / PU
H-A 10 screw termination					
10440100	H-A 10 SS	male	yes	1 - 10	5
10441100	H-A 10 BS	female	yes	1 - 10	5
10440000	H-A 10 SS	male		1 - 10	5
10441000	H-A 10 BS	female		1 - 10	5
H-A 16 screw termination					
10530000	H-A 16 SS	male	yes	1 - 16	5
10531000	H-A 16 BS	female	yes	1 - 16	5
10532000	H-A 16 SS	male		1 - 16	5
10533000	H-A 16 BS	female		1 - 16	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Further products with higher numbering in the internet. (H-A 32, H-A 48)

EPIC® STA 6 Screw termination

The proven STA inserts with spring contacts

Info

- For reliable signal transmission in harsh environmental conditions
- Mechanically robust spring contacts

EPIC® STA 6 Solder termination

The proven STA inserts with spring contacts

Info

- For reliable signal transmission in harsh environmental conditions
- Mechanically robust spring contacts

Suitable housing

- EPIC® ULTRA H-A 3 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Benefits

- Good contact due to the strong contact springs.
- The proven STA inserts with spring contacts

Application range

- Control systems
- Rack technology
- Electronic laboratory

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 24 V AC, 60 V DC
UL: 48 V
CSA: 48 V

Rated current (A)
IEC: 10 A
UL: 10 A
CSA: 10 A

Pollution degree
2

Contact resistance
< 3 mOhm

Contacts
Copper alloy, tinned

Number of contacts
6

Termination methods
EPIC® STA 6 Screw termination
Screw termination: 0.5 - 1.5 mm²
EPIC® STA 6 Solder termination
Solder termination: up to 1.5 mm²

Stripping length (mm)
5

Cycle of mechanical operation
100

VDE-tested
UL-tested:
UL File Number: E75770

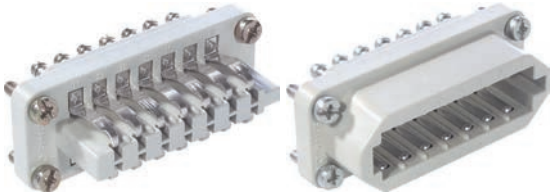
Temperature range
-40°C up to +80°C

Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
STA 6 screw termination				
10486100	STA 6 SS	Pin	1 - 6	10
10488100	STA 6 FS	Spring	1 - 6	10
STA 6 solder termination				
10485200	STA 6 SL	male	1 - 6	10
10487200	STA 6 FL	Spring	1 - 6	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® STA 14 Screw termination

The proven STA inserts with spring contacts



Info

- For reliable signal transmission in harsh environmental conditions
- Mechanically robust spring contacts

EPIC® STA 14 Solder termination

The proven STA inserts with spring contacts

Info

- For reliable signal transmission in harsh environmental conditions
- Mechanically robust spring contacts

Suitable housing

- EPIC® H-A 10 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Benefits

- Good contact due to the strong contact springs.
- The proven STA inserts with spring contacts

Application range

- Control systems
- Rack technology
- Electronic laboratory

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 24 V AC, 60 V DC
UL: 48 V
CSA: 48 V

Rated current (A)
IEC: 7.5 A
UL: 7.5 A
CSA: 7.5 A

Pollution degree
2

Contact resistance
< 3 mOhm

Contacts
Copper alloy, tinned

Number of contacts
14

Termination methods
EPIC® STA 14 Screw termination
Screw termination: 0.5 - 1.5 mm²
EPIC® STA 14 Solder termination
Solder termination: up to 1.5 mm²

Stripping length (mm)
5

Cycle of mechanical operation
100

VDE-tested
UL-tested:
UL File Number: E75770

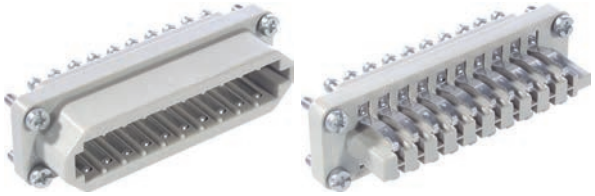
Temperature range
-40°C up to +80°C

Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
STA 14 screw termination				
10491100	STA 14 SS	male	1 - 14	5
10493100	STA 14 FS	Spring	1 - 14	5
STA 14 solder termination				
10490200	STA 14 SL	male	1 - 14	5
10492200	STA 14 FL	Spring	1 - 14	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® STA 20 Screw termination

The proven STA inserts with spring contacts

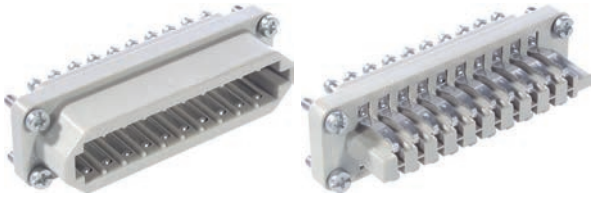


Info

- For reliable signal transmission in harsh environmental conditions
- Mechanically robust spring contacts

EPIC® STA 20 Solder termination

The proven STA inserts with spring contacts



Info

- For reliable signal transmission in harsh environmental conditions
- Mechanically robust spring contacts

Suitable housing

- EPIC® H-A 16 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Benefits

- Good contact due to the strong contact springs.
- The proven STA inserts with spring contacts

Application range

- Control systems
- Rack technology
- Electronic laboratory

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 24 V AC, 60 V DC
UL: 48 V
CSA: 48 V

Rated current (A)
IEC: 7 A
UL: 7 A
CSA: 7 A

Pollution degree
2

Contact resistance
< 3 mOhm

Contacts
Copper alloy, tinned

Number of contacts
20

Termination methods
EPIC® STA 20 Screw termination
Screw termination: 0.5 - 1.5 mm²
EPIC® STA 20 Solder termination
Solder termination: up to 1.5 mm²

Stripping length (mm)
5

Cycle of mechanical operation
100

VDE-tested
UL-tested:
UL File Number: E75770

Temperature range
-40°C up to +80°C

Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
STA 20 screw termination				
10501100	STA 20 SS	male	1 - 20	5
10503100	STA 20 FS	Spring	1 - 20	5
STA 20 solder termination				
10500200	STA 20 SL	male	1 - 20	5
10502200	STA 20 FL	Spring	1 - 20	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-Q 5

With five working contacts in the proven crimp technology and one PE contact with screw termination.

Info

- Compact, powerful standard insert
- Space saving, crimping contact

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 230 V / 400 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
4 kV

Rated current (A)
IEC: 16 A
UL: 16 A
CSA: 16 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
5 + PE

Termination methods
Crimp termination: 0.5 - 2.5 mm²

Material
PBT Polyester

Cycle of mechanical operation
100

VDE-tested
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Suitable housing

- EPIC® ULTRA H-A 3 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

- EPIC® H-BE 2.5 machined contacts
  Page 590

Benefits

- High performance crimping contacts
- PE contact with screw connection

Application range

- Machine and equipment manufacturing
- Control engineering

Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
H-Q 5 crimp termination				
10431500	H-Q 5 SC	male	1 - 5	10
10432500	H-Q 5 BC	female	1 - 5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-Q 12

Multi-pole insert for the small H-A 3 housing

Info

- 12 power contacts in confined spaces
- Space saving, crimping contact

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 400 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 10 A
UL: 14 A
CSA: 10 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 3 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
12 + PE

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
PA Polyamid

Cycle of mechanical operation
200

VDE-tested
CSA-tested:
CSA File Number: 262771
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +120°C

Suitable housing

- EPIC® ULTRA H-A 3 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

- EPIC® H-D 1.6 machined contacts
  Page 587

Benefits

- High performance crimping contacts
- PE contact with screw connection

Application range

- Machine and equipment manufacturing
- Control engineering

Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
H-Q 12 Crimp termination				
44424049	H-Q 12 SC	male	1 - 12	10
44424050	H-Q 12 BC	female	1 - 12	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-D 7 machined

Multi-pole inserts for machined crimp contacts

Info

- Compact, powerful standard insert
- For machined contacts for fast processing with the crimping tool

EPIC® H-D 7 stamped

Multi-pole inserts for stamped crimp contacts

Info

- For automated production with crimping machine
- Space saving, crimping contact
- Suitable for processing with contacts on reel

Suitable housing

- EPIC® ULTRA H-A 3 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

EPIC® H-D 7 machined

- EPIC® H-D 1.6 machined contacts Page 587

EPIC® H-D 7 stamped

- EPIC® H-D 1.6 stamped contacts Page 588
- EPIC® H-D 1.6 stamped contacts-on-reel Page 589

Benefits

- Small, high-performance connector
- High performance crimping contacts
- PE contact with screw connection

Application range

- Machine and equipment manufacturing
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 24 V (AC)/60 V (DC) metal housing; 250 V thermoplastic housing;
UL: 250 V

Rated impulse voltage
2.5 kV

Rated current (A)
IEC: 10 A
UL: 10 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
7 + PE

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
PBT Polyester

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
EPIC® H-D 7 machined					
11250500	H-D 7 SCM	male	machined	1 - 7	10
11251500	H-D 7 BCM	female	machined	1 - 7	10
EPIC® H-D 7 stamped					
11250000	H-D 7 SCG	male	stamped	1 - 7	10
11251000	H-D 7 BCG	female	stamped	1 - 7	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® Fixing screws refer to page 629

EPIC® H-D 8

Multi-pole inserts for machined crimp contacts

Info

- Compact, powerful standard insert
- For machined contacts for fast processing with the crimping tool

Suitable housing

- EPIC® ULTRA H-A 3 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

- EPIC® H-D 1.6 machined contacts Page 587

Benefits

- Small, high-performance connector
- High performance crimping contacts
- PE contact with screw connection

Application range

- Machine and equipment manufacturing
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 24 V (AC)/60 V (DC) metal housing; 250 V thermoplastic housing;
UL: 250 V

Rated impulse voltage
2.5 kV

Rated current (A)
IEC: 10 A
UL: 10 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
8

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
PBT Polyester

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
EPIC® H-D 8				
11252500	H-D 8 SCM	male	1 - 8	10
11253500	H-D 8 BCM	female	1 - 8	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® Fixing screws refer to page 629

EPIC® H-D 15 machined

Multi-pole inserts for machined crimp contacts

Info

- For machined contacts for fast processing with the crimping tool

EPIC® H-D 15 stamped

Multi-pole inserts for stamped crimp contacts

Info

- For automated production with crimping machine
- Suitable for processing with contacts on reel

Suitable housing

- EPIC® H-A 10 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

EPIC® H-D 15 machined

- EPIC® H-D 1.6 machined contacts Page 587

EPIC® H-D 15 stamped

- EPIC® H-D 1.6 stamped contacts Page 588
- EPIC® H-D 1.6 stamped contacts-on-reel Page 589

Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required.

Application range

- Machine and equipment manufacturing
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 250 V
UL: 250 V

Rated impulse voltage
2.5 kV

Rated current (A)
IEC: 10 A
UL: 10 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
15 + PE

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

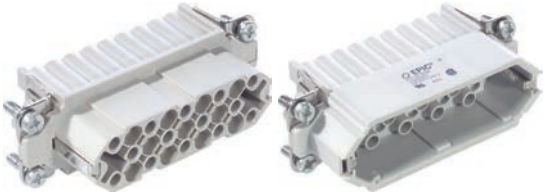
Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
EPIC® H-D 15 machined					
11283200	H-D 15 SCM	male	machined	1 - 15	5
11282200	H-D 15 BCM	female	machined	1 - 15	5
EPIC® H-D 15 stamped					
11255000	H-D 15 SCG	male	stamped	1 - 15	5
11256000	H-D 15 BCG	female	stamped	1 - 15	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-D 25 machined

Multi-pole inserts for machined crimp contacts

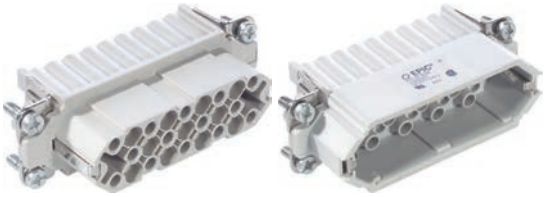


Info

- For machined contacts for fast processing with the crimping tool

EPIC® H-D 25 stamped

Multi-pole inserts for stamped crimp contacts



Info

- For automated production with crimping machine
- Suitable for processing with contacts on reel

Suitable housing

- EPIC® H-A 16 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

EPIC® H-D 25 machined

- EPIC® H-D 1.6 machined contacts Page 587

EPIC® H-D 25 stamped

- EPIC® H-D 1.6 stamped contacts Page 588
- EPIC® H-D 1.6 stamped contacts-on-reel Page 589

Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required.

Application range

- Machine and equipment manufacturing
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 250 V
UL: 250 V

Rated impulse voltage
2.5 kV

Rated current (A)
IEC: 10 A
UL: 10 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
25 + PE

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

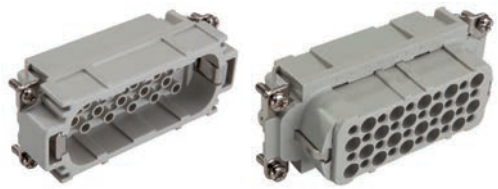
Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
EPIC® H-D 25 machined					
11283300	H-D 25 SCM	male	machined	1 - 25	5
11282300	H-D 25 BCM	female	machined	1 - 25	5
EPIC® H-D 25 stamped					
11260000	H-D 25 SCG	male	stamped	1 - 25	5
11261000	H-D 25 BCG	female	stamped	1 - 25	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-D 40 machined

Multi-pole inserts for machined crimp contacts

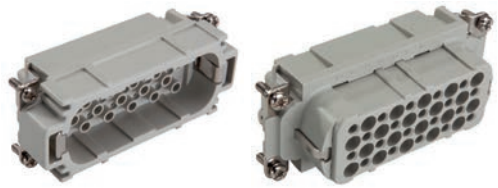


Info

- For machined contacts for fast processing with the crimping tool

EPIC® H-D 40 stamped

Multi-pole inserts for stamped crimp contacts



Info

- For automated production with crimping machine
- Suitable for processing with contacts on reel

Suitable housing

- EPIC® ULTRA H-B 16
- EPIC® H-B 16 Housings
- EPIC® QUICK & EASY Mounting system

Suitable contacts:

EPIC® H-D 40 machined

- EPIC® H-D 1.6 machined contacts Page 587

EPIC® H-D 40 stamped

- EPIC® H-D 1.6 stamped contacts Page 588
- EPIC® H-D 1.6 stamped contacts-on-reel Page 589

Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required.

Application range

- Plant engineering
- Light & sound technology

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 250 V
UL: 250 V

Rated impulse voltage
2.5 kV

Rated current (A)
IEC: 10 A
UL: 10 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
40 + PE

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Cycle of mechanical operation
100

VDE-tested
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
EPIC® H-D 40 machined					
11265200	H-D 40 SCM	male	machined	1 - 40	10
11266200	H-D 40 BCM	female	machined	1 - 40	10
EPIC® H-D 40 stamped					
11265000	H-D 40 SCG	male	stamped	1 - 40	5
11266000	H-D 40 BCG	female	stamped	1 - 40	5

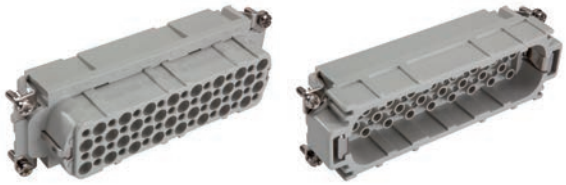
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-D 64 machined

Multi-pole inserts for machined crimp contacts

Info

- For machined contacts for fast processing with the crimping tool

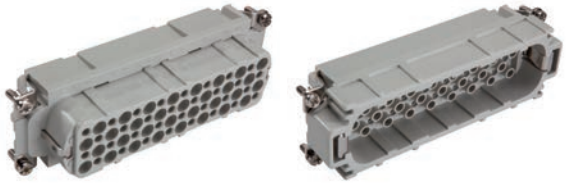


EPIC® H-D 64 stamped

Multi-pole inserts for stamped crimp contacts

Info

- For automated production with crimping machine
- Suitable for processing with contacts on reel



Suitable housing

- EPIC® ULTRA H-B 24
- EPIC® H-B 24 Housings
- EPIC® QUICK & EASY Mounting system

Suitable contacts:

EPIC® H-D 64 machined

- EPIC® H-D 1.6 machined contacts Page 587

EPIC® H-D 64 stamped

- EPIC® H-D 1.6 stamped contacts Page 588
- EPIC® H-D 1.6 stamped contacts-on-reel Page 589

Benefits

- Inserts of the connector series H-D are designed for applications in which a high number of contacts are required.

Application range

- Plant engineering
- Light & sound technology

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 250 V
UL: 250 V

Rated impulse voltage
2.5 kV

Rated current (A)
IEC: 10 A
UL: 10 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
64 + PE

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Cycle of mechanical operation
100

VDE-tested
UL-tested:
UL File Number: E75770

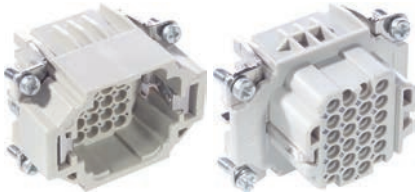
Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
EPIC® H-D 64 machined					
11272000	H-D 64 SCM	male	machined	1 - 64	10
11273000	H-D 64 BCM	female	machined	1 - 64	10
EPIC® H-D 64 stamped					
11270000	H-D 64 SCG	male	stamped	1 - 64	5
11271000	H-D 64 BCG	female	stamped	1 - 64	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-DD 24

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces.

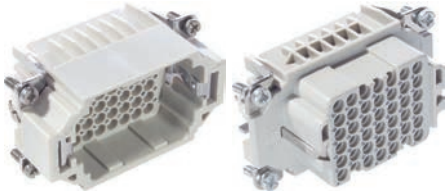


Info

- Highest packing density for compact connectors

EPIC® H-DD 42

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces.



Info

- Highest packing density for compact connectors

Suitable housing

EPIC® H-DD 24

- EPIC® ULTRA H-B 6
- EPIC® H-B 6 Housings
- EPIC® QUICK & EASY Mounting system

EPIC® H-DD 42

- EPIC® ULTRA H-B 10
- EPIC® H-B 10 Housings
- EPIC® QUICK & EASY Mounting system

Suitable contacts:

- EPIC® H-D 1.6 machined contacts
  Page 587

Benefits

- The H-DD series with machined contacts is designed for a high number of pins in very tight spaces. This allows for smaller housing types to be chosen.

Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 250 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
2.5 kV

Rated current (A)
IEC: 10 A
UL: 8.5 A
CSA: 10 A

Pollution degree
2

Contact resistance
< 3 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
EPIC® H-DD 24
24 + PE
EPIC® H-DD 42
42 + PE

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
H-DD 24 crimp termination					
11285000	H-DD 24 SCM	male	machined	1 - 24	5
11286000	H-DD 24 BCM	female	machined	1 - 24	5
H-DD 42 crimp termination					
11285100	H-DD 42 SCM	male	machined	1 - 42	5
11286100	H-DD 42 BCM	female	machined	1 - 42	5

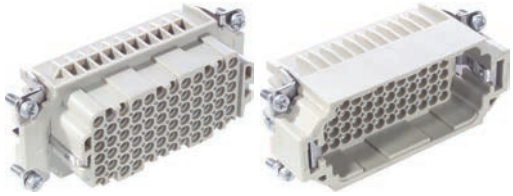
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-DD 72

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces.

Info

- Highest packing density for compact connectors
- Also as EPIC® H-DD 144 available

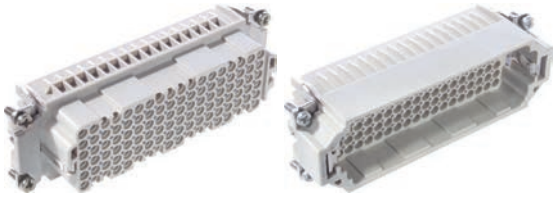


EPIC® H-DD 108

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces.

Info

- Highest packing density for compact connectors
- Also as EPIC® H-DD 216 available



Suitable housing

EPIC® H-DD 72

- EPIC® ULTRA H-B 16
- EPIC® H-B 16 Housings
- EPIC® QUICK & EASY Mounting system

EPIC® H-DD 108

- EPIC® ULTRA H-B 24
- EPIC® H-B 24 Housings
- EPIC® QUICK & EASY Mounting system

Suitable contacts:

- EPIC® H-D 1.6 machined contacts Page 587

Similar products

- Further products with higher numbering in the internet. (H-DD 144, H-DD 216)

Benefits

- The H-DD series with machined contacts is designed for a high number of pins in very tight spaces. This allows for smaller housing types to be chosen.

Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 250 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
2.5 kV

Rated current (A)
IEC: 10 A
UL: 8.5 A
CSA: 10 A

Pollution degree
2

Contact resistance
< 3 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
EPIC® H-DD 72
72 + PE
EPIC® H-DD 108
108 + PE

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
H-DD 72 crimp termination					
11285200	H-DD 72 SCM	male	machined	1 - 72	5
11286200	H-DD 72 BCM	female	machined	1 - 72	5
H-DD 108 crimp termination					
11285300	H-DD 108 SCM	male	machined	1 - 108	5
11286300	H-DD 108 BCM	female	machined	1 - 108	5

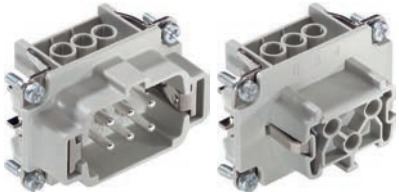
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Further products with higher numbering in the internet. (H-DD 144, H-DD 216)

EPIC® H-BE 6 Screw termination

The proven standard inserts for easy assembly

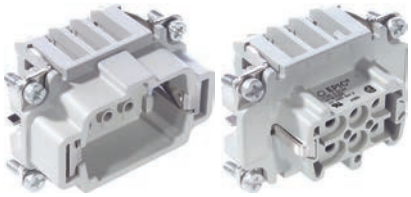


Info

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Railway applications

EPIC® H-BE 6 Crimp termination

The proven standard inserts for easy assembly

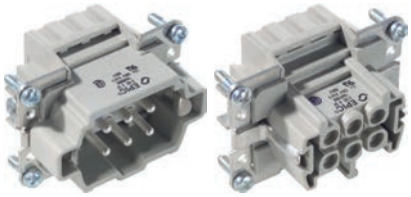


Info

- For wire connection up to 4 mm²
- Screw, crimp, cage clamp and Push-In version - freely combinable

EPIC® H-BE 6 Cage clamp

The proven standard inserts for easy assembly

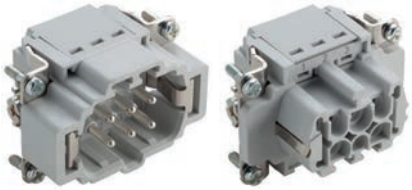


Info

- Vibration resistant and fast wire connection
- Screw, crimp, cage clamp and Push-In version - freely combinable

EPIC® H-BE 6 Push-In termination

The proven standard inserts for easy assembly



Info

- Push-In version - fast and easy tool free connection technology
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Multifunctional insert for versatile appliactions

Suitable housing

- EPIC® ULTRA H-B 6
- EPIC® H-B 6 Housings
- Refer to Selection Table A10 to select the required inserts and Housings
- EPIC® QUICK & EASY Mounting system

Suitable contacts:

EPIC® H-BE 6 Crimp termination

- EPIC® H-BE 2.5 machined contacts Page 590

Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

EPIC® H-BE 6 Screw termination

- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4
- UL tested for application in control cabinets according UL 508 / UL 2237

EPIC® H-BE 6 Push-In termination

- Insertion of cores with end sleeves in Push-In inserts gives mounting safety and time saving without any tools
- Easy dismantling and insertion of wires by pushing the orange button
- Test socket for standard 2mm test tip for easy testing of Push-In inserts
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

EPIC® H-BE 6 Push-In termination

EPIC® H-BE 6 Screw termination

- Railway applications / vehicle construction

Suitable tools

EPIC® H-BE 6 Screw termination

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 VUL: 600 VCSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
EPIC® H-BE 6 Screw termination
EPIC® H-BE 6 Crimp termination
EPIC® H-BE 6 Cage clamp
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-BE 6 Push-In termination
IEC: 16 A
UL: 13 A
CSA: 13 A

Pollution degree
3

Flammability
EPIC® H-BE 6 Screw termination
EPIC® H-BE 6 Crimp termination
EPIC® H-BE 6 Push-In termination
UL94 V-0
EPIC® H-BE 6 Cage clamp
UL94 V-2

Contact resistance
EPIC® H-BE 6 Screw termination
< 2 mOhm
EPIC® H-BE 6 Crimp termination
< 2 mOhm
EPIC® H-BE 6 Cage clamp
1.5 - 4 mohm
EPIC® H-BE 6 Push-In termination
< 2 mOhm

Contacts
EPIC® H-BE 6 Screw termination
Copper alloy, hard silver-plated
EPIC® H-BE 6 Crimp termination
Copper alloy, hard silver/gold-plated
EPIC® H-BE 6 Cage clamp
Copper alloy, hard silver-plated
EPIC® H-BE 6 Push-In termination
Copper alloy, hard silver-plated

Number of contacts
6 + PE

Termination methods
EPIC® H-BE 6 Screw termination
Screw termination: 0.5 - 2.5 mm²
EPIC® H-BE 6 Crimp termination
Crimp termination: 0.5 - 4.0 mm²
EPIC® H-BE 6 Cage clamp
Cage clamp termination: 0.5 - 2.5 mm²
EPIC® H-BE 6 Push-In termination
Push-In termination: 0.14 - 2.5mm²

Stripping length (mm)
EPIC® H-BE 6 Screw termination
8
EPIC® H-BE 6 Cage clamp
7
EPIC® H-BE 6 Push-In termination
10

Material
EPIC® H-BE 6 Screw termination
PC, polycarbonate
EPIC® H-BE 6 Crimp termination
PC, polycarbonate
EPIC® H-BE 6 Push-In termination
PA Polyamid

Cycle of mechanical operation
EPIC® H-BE 6 Screw termination
500
EPIC® H-BE 6 Crimp termination
100
EPIC® H-BE 6 Cage clamp
100
EPIC® H-BE 6 Push-In termination
500

Certifications
EPIC® H-BE 6 Screw termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770 and E483837
EPIC® H-BE 6 Crimp termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770
EPIC® H-BE 6 Cage clamp
UL-tested:
UL File Number: E75770
EPIC® H-BE 6 Push-In termination
UL-tested:
UL File Number: E75770

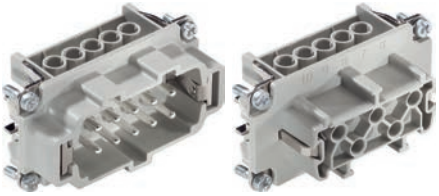
Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Wire protection	Number of operating contacts	Pieces / PU
H-BE 6 screw termination					
10190000	EPIC® H-BE 6 SS	male	yes	1 - 6	10
10191000	EPIC® H-BE 6 BS	female	yes	1 - 6	10
10190100	EPIC® H-BE 6 SS	male		1 - 6	10
10191100	EPIC® H-BE 6 BS	female		1 - 6	10
H-BE 6 crimp termination					
10180000	EPIC® H-BE 6 SCM	male		1 - 6	10
10181000	EPIC® H-BE 6 BCM	female		1 - 6	10
H-BE 6 cage clamp termination					
10400000	EPIC® H-BE 6 SF	male	yes	1 - 6	10
10401000	EPIC® H-BE 6 BF	female	yes	1 - 6	10
H-BE 6 Push-In termination					
44423200	EPIC® H-BE 6 SP	male	yes	1 - 6	10
44423201	EPIC® H-BE 6 BP	female	yes	1 - 6	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-BE 10 Screw termination

The proven standard inserts for easy assembly

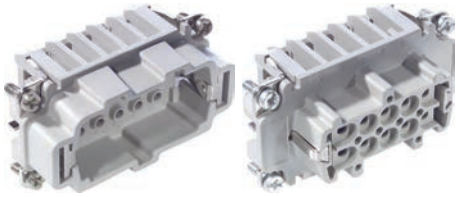


Info

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Railway applications

EPIC® H-BE 10 Crimp termination

The proven standard inserts for easy assembly

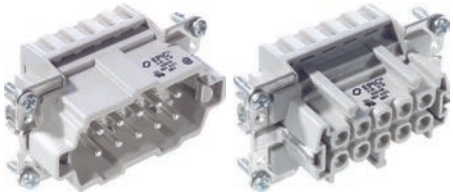


Info

- For wire connection up to 4 mm²
- Screw, crimp, cage clamp and Push-In version - freely combinable

EPIC® H-BE 10 Cage clamp

The proven standard inserts for easy assembly



Info

- Multifunctional insert for versatile appliactions
- Screw, crimp, cage clamp and Push-In version - freely combinable

EPIC® H-BE 10 Push-In termination

The proven standard inserts for easy assembly

Info

- Push-In version - fast and easy tool free connection technology
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Multifunctional insert for versatile appliactions

Suitable housing

- EPIC® ULTRA H-B 10
- EPIC® H-B 10 Housings
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

EPIC® H-BE 10 Crimp termination

- EPIC® H-BE 2.5 machined contacts Page 590

Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currentsEPIC® H-BE 10 Screw termination
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4
- UL tested for application in control cabinets according UL 508 / UL 2237

EPIC® H-BE 10 Push-In termination

- Insertion of cores with end sleeves in Push-In inserts gives mounting safety and time saving without any tools
- Easy dismantling and insertion of wires by pushing the orange button
- Test socket for standard 2mm test tip for easy testing of Push-In inserts
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Plastics industry
- Light & sound technology

EPIC® H-BE 10 Screw termination

EPIC® H-BE 10 Push-In termination

- Railway applications / vehicle construction

Suitable tools

EPIC® H-BE 10 Screw termination

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 VUL: 600 VCSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
EPIC® H-BE 10 Screw termination
EPIC® H-BE 10 Crimp termination
EPIC® H-BE 10 Cage clamp
IEC: 16 A
UL: 16 A
CSA: 16 A
IEC: 16 A
UL: 16 A
CSA: 16 AEPIC® H-BE 10 Push-In termination
IEC: 16 A
UL: 13 A
CSA: 13 A

Pollution degree
3

Flammability
EPIC® H-BE 10 Screw termination
EPIC® H-BE 10 Crimp termination
EPIC® H-BE 10 Push-In termination
UL94 V-0
EPIC® H-BE 10 Cage clamp
UL94 V-2

Contact resistance
EPIC® H-BE 10 Screw termination
< 2 mOhm
EPIC® H-BE 10 Crimp termination
< 2 mOhm
EPIC® H-BE 10 Cage clamp
1.5 - 4 mohm
EPIC® H-BE 10 Push-In termination
< 2 mOhm

Contacts
EPIC® H-BE 10 Screw termination
Copper alloy, hard silver-plated
EPIC® H-BE 10 Crimp termination
Copper alloy, hard silver/gold-plated
EPIC® H-BE 10 Cage clamp
Copper alloy, hard silver-plated
EPIC® H-BE 10 Push-In termination
Copper alloy, hard silver-plated

Number of contacts
10 + PE

Termination methods
EPIC® H-BE 10 Screw termination
Screw termination: 0.5 - 2.5 mm²
EPIC® H-BE 10 Crimp termination
Crimp termination: 0.5 - 4.0 mm²
EPIC® H-BE 10 Cage clamp
Cage clamp termination: 0.5 - 2.5 mm²
EPIC® H-BE 10 Push-In termination
Push-In termination: 0.14 - 2.5mm²

Stripping length (mm)
EPIC® H-BE 10 Screw termination
8
EPIC® H-BE 10 Cage clamp
7
EPIC® H-BE 10 Push-In termination
10

Material
EPIC® H-BE 10 Screw termination
PC, polycarbonate
EPIC® H-BE 10 Crimp termination
PC, polycarbonate
EPIC® H-BE 10 Push-In termination
PA Polyamid

Cycle of mechanical operation
EPIC® H-BE 10 Screw termination
500
EPIC® H-BE 10 Crimp termination
100
EPIC® H-BE 10 Cage clamp
100
EPIC® H-BE 10 Push-In termination
500

Certifications
EPIC® H-BE 10 Screw termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770 and E483837
EPIC® H-BE 10 Crimp termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770
EPIC® H-BE 10 Cage clamp
UL-tested:
UL File Number: E75770
EPIC® H-BE 10 Push-In termination
UL-tested:
UL File Number: E75770

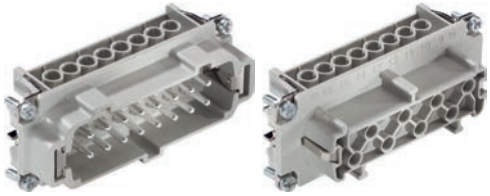
Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Wire protection	Number of operating contacts	Pieces / PU
H-BE 10 screw termination					
10192000	EPIC® H-BE 10 SS	male	yes	1 - 10	10
10193000	EPIC® H-BE 10 BS	female	yes	1 - 10	10
10192100	EPIC® H-BE 10 SS	male		1 - 10	10
10193100	EPIC® H-BE 10 BS	female		1 - 10	10
H-BE 10 crimp termination					
10182000	EPIC® H-BE 10 SCM	male		1 - 10	10
10183000	EPIC® H-BE 10 BCM	female		1 - 10	10
H-BE 10 cage clamp termination					
10400100	EPIC® H-BE 10 SF	male	yes	1 - 10	10
10401100	EPIC® H-BE 10 BF	female	yes	1 - 10	10
H-BE 10 Push-In termination					
44423202	EPIC® H-BE 10 SP	male	yes	1 - 10	10
44423203	EPIC® H-BE 10 BP	female	yes	1 - 10	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-BE 16 Screw termination

The proven standard inserts for easy assembly

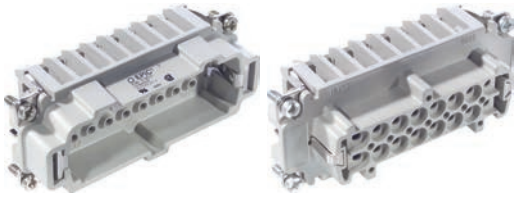


Info

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Also as EPIC® H-BE 32 available

EPIC® H-BE 16 Crimp termination

The proven standard inserts for easy assembly

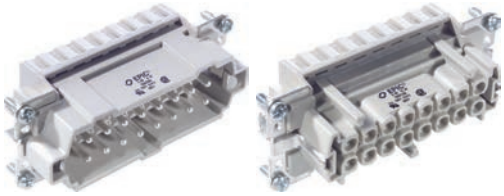


Info

- For wire connection up to 4 mm²
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Also as EPIC® H-BE 32 available

EPIC® H-BE 16 Cage clamp

The proven standard inserts for easy assembly

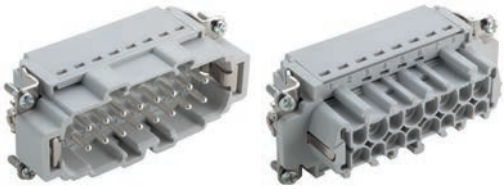


Info

- Multifunctional insert for versatile appliactions
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Also as EPIC® H-BE 32 available

EPIC® H-BE 16 Push-In termination

The proven standard inserts for easy assembly



Info

- Push-In version - fast and easy tool free connection technology
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Multifunctional insert for versatile appliactions

Suitable housing

- EPIC® ULTRA H-B 16
- EPIC® H-B 16 Housings
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

EPIC® H-BE 16 Crimp termination

- EPIC® H-BE 2.5 machined contacts Page 590

Similar products

- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currents

EPIC® H-BE 16 Screw termination

- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4
- UL tested for application in control cabinets according UL 508 / UL 2237

EPIC® H-BE 16 Push-In termination

- Insertion of cores with end sleeves in Push-In inserts gives mounting safety and time saving without any tools
- Easy dismantling and insertion of wires by pushing the orange button
- Test socket for standard 2mm test tip for easy testing of Push-In inserts
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Plastics industry
- Light & sound technology

EPIC® H-BE 16 Screw termination
EPIC® H-BE 16 Push-In termination

- Railway applications / vehicle construction

Suitable tools

EPIC® H-BE 16 Screw termination

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
EPIC® H-BE 16 Screw termination
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors
EPIC® H-BE 16 Cage clamp
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors
EPIC® H-BE 16 Push-In termination
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 VUL: 600 VCSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
EPIC® H-BE 16 Screw termination
EPIC® H-BE 16 Crimp termination
EPIC® H-BE 16 Cage clamp
IEC: 16 A
UL: 16 A
CSA: 16 A
IEC: 16 A
UL: 16 A
CSA: 16 AEPIC® H-BE 16 Push-In termination
IEC: 16 A
UL: 13 A
CSA: 13 A

Pollution degree
3

Flammability
EPIC® H-BE 16 Screw termination
UL94 V-0
EPIC® H-BE 16 Push-In termination
UL94 V-0

Contact resistance
EPIC® H-BE 16 Screw termination
< 2 mOhm
EPIC® H-BE 16 Crimp termination
< 2 mOhm
EPIC® H-BE 16 Cage clamp
1.5 - 4 mohm
EPIC® H-BE 16 Push-In termination
< 2 mOhm

Contacts
EPIC® H-BE 16 Screw termination
Copper alloy, hard silver-plated
EPIC® H-BE 16 Crimp termination
Copper alloy, hard silver/gold-plated
EPIC® H-BE 16 Cage clamp
Copper alloy, hard silver-plated
EPIC® H-BE 16 Push-In termination
Copper alloy, hard silver-plated

Number of contacts
16 + PE

Termination methods
EPIC® H-BE 16 Screw termination
Screw termination: 0.5 - 2.5 mm²
EPIC® H-BE 16 Crimp termination
Crimp termination: 0.5 - 4.0 mm²
EPIC® H-BE 16 Cage clamp
Cage clamp termination: 0.5 - 2.5 mm²
EPIC® H-BE 16 Push-In termination
Push-In termination: 0.14 - 2.5mm²

Stripping length (mm)
EPIC® H-BE 16 Screw termination
8
EPIC® H-BE 16 Cage clamp
7
EPIC® H-BE 16 Push-In termination
10

Material
EPIC® H-BE 16 Screw termination
PC, polycarbonate
EPIC® H-BE 16 Push-In termination
PA Polyamid

Cycle of mechanical operation
EPIC® H-BE 16 Screw termination
500
EPIC® H-BE 16 Crimp termination
100
EPIC® H-BE 16 Cage clamp
100
EPIC® H-BE 16 Push-In termination
500

Certifications
EPIC® H-BE 16 Screw termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770 and E483837
EPIC® H-BE 16 Crimp termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770
EPIC® H-BE 16 Cage clamp
UL-tested:
UL File Number: E75770
EPIC® H-BE 16 Push-In termination
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Wire protection	Number of operating contacts	Pieces / PU
H-BE 16 screw termination					
10194000	EPIC® H-BE 16 SS	male	yes	1 -16	5
10195000	EPIC® H-BE 16 BS	female	yes	1 -16	5
10194100	EPIC® H-BE 16 SS	male		1 -16	5
10195100	EPIC® H-BE 16 BS	female		1 -16	5
H-BE 16 crimp termination					
10184000	EPIC® H-BE 16 SCM	male		1 -16	5
10185000	EPIC® H-BE 16 BCM	female		1 -16	5
H-BE 16 cage clamp termination					
10400200	EPIC® H-BE 16 SF	male	yes	1 -16	5
10401200	EPIC® H-BE 16 BF	female	yes	1 -16	5
H-BE 16 Push-In termination					
44423204	EPIC® H-BE 16 SP	male	yes	1 - 16	5
44423205	EPIC® H-BE 16 BP	female	yes	1 - 16	5

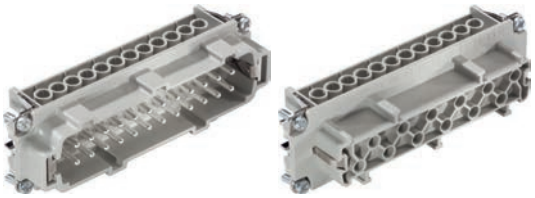
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

EPIC® H-BE 24 Screw termination

The proven standard inserts for easy assembly

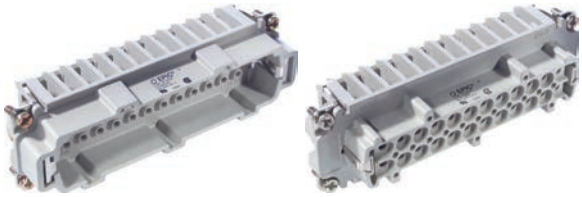


Info

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Also as EPIC® H-BE 48 available

EPIC® H-BE 24 Crimp termination

The proven standard inserts for easy assembly

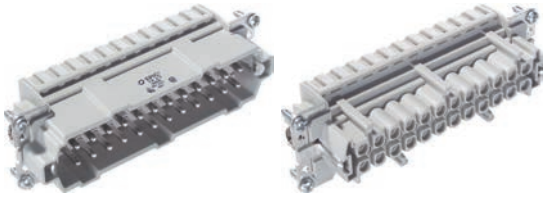


Info

- For wire connection up to 4 mm²
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Also as EPIC® H-BE 48 available

EPIC® H-BE 24 Cage clamp

The proven standard inserts for easy assembly

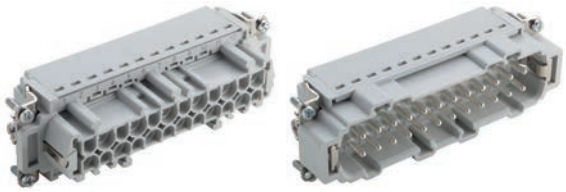


Info

- Multifunctional insert for versatile appliactions
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Also as EPIC® H-BE 48 available

EPIC® H-BE 24 Push-In termination

The proven standard inserts for easy assembly



Info

- Push-In version - fast and easy tool free connection technology
- Screw, crimp, cage clamp and Push-In version - freely combinable
- Multifunctional insert for versatile appliactions

Suitable housing

- EPIC® ULTRA H-B 24
- EPIC® H-B 24 Housings
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

EPIC® H-BE 24 Crimp termination

- EPIC® H-BE 2.5 machined contacts Page 590

Similar products

- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

Benefits

- Standard inserts with screw, crimp cage clamp and Push-In termination
- The EPIC® H-BE series is suitable for applications that require a reliable connection when working with high voltages and currentsEPIC® H-BE 24 Screw termination

EPIC® H-BE 24 Crimp termination

- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4
- UL tested for application in control cabinets according UL 508 / UL 2237

EPIC® H-BE 24 Push-In termination

- Insertion of cores with end sleeves in Push-In inserts gives mounting safety and time saving without any tools
- Easy dismantling and insertion of wires by pushing the orange button
- Test socket for standard 2mm test tip for easy testing of Push-In inserts
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

EPIC® H-BE 24 Push-In termination

EPIC® H-BE 24 Screw termination

- Railway applications / vehicle construction

Suitable tools

EPIC® H-BE 24 Screw termination

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 VUL: 600 VCSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
EPIC® H-BE 24 Screw termination
EPIC® H-BE 24 Crimp termination
EPIC® H-BE 24 Cage clamp
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-BE 24 Push-In termination
IEC: 16 A
UL: 13 A
CSA: 13 A

Pollution degree
3

Flammability
EPIC® H-BE 24 Screw termination
UL94 V-0
EPIC® H-BE 24 Crimp termination
UL94 V-0
EPIC® H-BE 24 Cage clamp
UL94 V-2
EPIC® H-BE 24 Push-In termination
UL94 V-0

Contact resistance
EPIC® H-BE 24 Screw termination
< 2 mOhm
EPIC® H-BE 24 Crimp termination
< 2 mOhm
EPIC® H-BE 24 Cage clamp
1.5 - 4 mohm
EPIC® H-BE 24 Push-In termination
< 2 mOhm

Contacts
EPIC® H-BE 24 Screw termination
Copper alloy, hard silver-plated
EPIC® H-BE 24 Crimp termination
Copper alloy, hard silver/gold-plated
EPIC® H-BE 24 Cage clamp
Copper alloy, hard silver-plated
EPIC® H-BE 24 Push-In termination
Copper alloy, hard silver-plated

Number of contacts
24 + PE

Termination methods
EPIC® H-BE 24 Screw termination
Screw termination: 0.5 - 2.5 mm²
EPIC® H-BE 24 Crimp termination
Crimp termination: 0.5 - 4.0 mm²
EPIC® H-BE 24 Cage clamp
Cage clamp termination: 0.5 - 2.5 mm²
EPIC® H-BE 24 Push-In termination
Push-In termination: 0.14 - 2.5mm²

Stripping length (mm)
EPIC® H-BE 24 Screw termination
8
EPIC® H-BE 24 Cage clamp
7
EPIC® H-BE 24 Push-In termination
10

Material
EPIC® H-BE 24 Screw termination
PC, polycarbonate
EPIC® H-BE 24 Push-In termination
PA Polyamid

Cycle of mechanical operation
EPIC® H-BE 24 Screw termination
500
EPIC® H-BE 24 Crimp termination
100
EPIC® H-BE 24 Cage clamp
100
EPIC® H-BE 24 Push-In termination
500

Certifications
EPIC® H-BE 24 Screw termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770 and E483837
EPIC® H-BE 24 Crimp termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770
EPIC® H-BE 24 Cage clamp
UL-tested:
UL File Number: E75770
EPIC® H-BE 24 Push-In termination
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Wire protection	Number of operating contacts	Pieces / PU
H-BE 24 screw termination					
10196000	EPIC® H-BE 24 SS	male	yes	1 - 24	5
10197000	EPIC® H-BE 24 BS	female	yes	1 - 24	5
10196100	EPIC® H-BE 24 SS	male		1 - 24	5
10197100	EPIC® H-BE 24 BS	female		1 - 24	5
H-BE 24 crimp termination					
10186000	EPIC® H-BE 24 SCM	male		1 - 24	5
10187000	EPIC® H-BE 24 BCM	female		1 - 24	5
H-BE 24 cage clamp termination					
10400300	EPIC® H-BE 24 SF	male	yes	1 - 24	5
10401300	EPIC® H-BE 24 BF	female	yes	1 - 24	5
H-BE 24 Push-In termination					
44423206	EPIC® H-BE 24 SP	male	yes	1 - 24	5
44423207	EPIC® H-BE 24 BP	female	yes	1 - 24	5

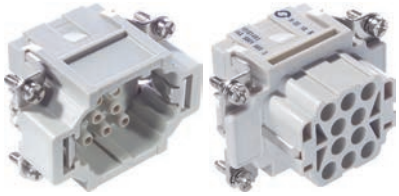
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

EPIC® H-EE 10

H-EE inserts with high contact density based on the proven H-BE series.

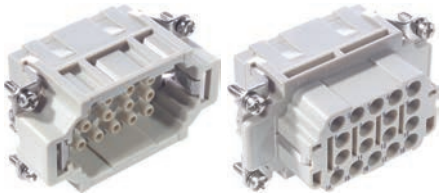


Info

- Inserts with high contact density for medium power

EPIC® H-EE 18

H-EE inserts with high contact density based on the proven H-BE series.



Info

- Inserts with high contact density for medium power

Suitable housing

EPIC® H-EE 10

- EPIC® ULTRA H-B 6
- EPIC® H-B 6 Housings
- EPIC® QUICK & EASY Mounting system
- EPIC® H-BE 2.5 machined contact

EPIC® H-EE 18

- EPIC® ULTRA H-B 10
- EPIC® H-B 10 Housings
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

- EPIC® H-BE 2.5 machined contacts
  Page 590

Benefits

- The H-EE inserts with machined contacts for a high number of pins in very tight spaces.
- For assembly in H-B housing

Application range

- Mechanical engineering
- Plant engineering
- Appliance and apparatus construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 VUL: 600 VCSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 16 A
UL: 16 A
CSA: 16 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
EPIC® H-EE 10
10 + PE
EPIC® H-EE 18
18 + PE

Termination methods
Crimp termination: 0.5 - 4.0 mm²

Cycle of mechanical operation
100

VDE-tested
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
H-EE 10 crimp termination					
10180400	H-EE 10 SC	male	machined	1 - 10	10
10181400	H-EE 10 BC	female	machined	1 - 10	10
H-EE 18 crimp termination					
10182400	H-EE 18 SC	male	machined	1 - 18	10
10183400	H-EE 18 BC	female	machined	1 - 18	10

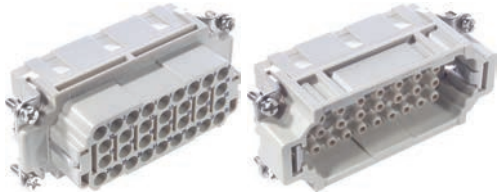
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-EE 32

H-EE inserts with high contact density based on the proven H-BE series.

Info

- Inserts with high contact density for medium power
- Also as EPIC® H-EE 64 available

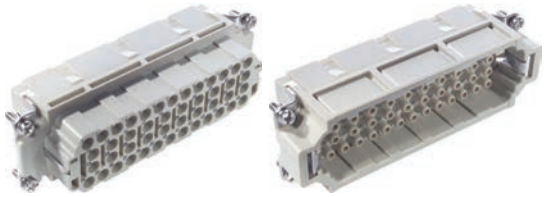


EPIC® H-EE 46

H-EE inserts with high contact density based on the proven H-BE series.

Info

- Inserts with high contact density for medium power
- Also as EPIC® H-EE 92 available



Suitable housing

EPIC® H-EE 32

- EPIC® ULTRA H-B 16
- EPIC® H-B 16 Housings
- EPIC® QUICK & EASY Mounting system
- EPIC® H-BE 2.5 machined contact

EPIC® H-EE 46

- EPIC® ULTRA H-B 24
- EPIC® H-B 24 Housings
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

- EPIC® H-BE 2.5 machined contacts Page 590

Similar products

- Further products with higher numbering in the internet. (H-EE 64, H-EE 92)

Benefits

- The H-EE inserts with machined contacts for a high number of pins in very tight spaces.
- For assembly in H-B housing

Application range

- Mechanical engineering
- Plant engineering
- Appliance and apparatus construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 VUL: 600 VCSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 16 A
UL: 16 A
CSA: 16 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
EPIC® H-EE 32
32 + PE
EPIC® H-EE 46
46 + PE

Termination methods
Crimp termination: 0.5 - 4.0 mm²

Cycle of mechanical operation
100

VDE-tested
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
H-EE 32 crimp termination					
10184400	H-EE 32 SC	male	machined	1 - 32	5
10185400	H-EE 32 BC	female	machined	1 - 32	5
H-EE 46 crimp termination					
10186400	H-EE 46 SC	male	machined	1 - 46	5
10187400	H-EE 46 BC	female	machined	1 - 46	5

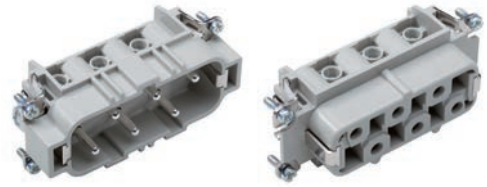
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Further products with higher numbering in the internet. (H-EE 64, H-EE 92)

EPIC® H-BS 6

Inserts for high currents.

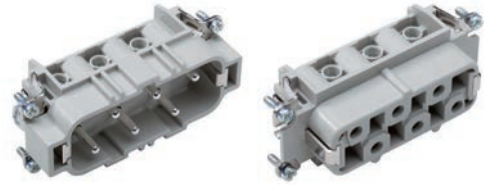


Info

- Standard insert for currents up to 35A
- Railway applications

EPIC® H-BS 12

Inserts for high currents.



Info

- Standard insert for currents up to 35A
- Railway applications

Suitable housing

EPIC® H-BS 6

- EPIC® ULTRA H-B 16
- EPIC® H-B 16 Housings
- EPIC® QUICK & EASY Mounting system

EPIC® H-BS 12

- EPIC® H-B 32 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Benefits

EPIC® H-BS 6

- High rating for currents up to 35 A
- Screw termination up to a conductor cross section of 6 mm²
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

EPIC® H-BS 12

- High rating for currents up to 35 A
- Screw termination up to a conductor cross section of 6 mm²
- Two H-BS 6 inserts with different contact-numbering for one housing.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 VUL: 600 VCSA: 600 V
Conductor - conductor: 690 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 35 A
UL: 35 A
CSA: 35 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver-plated

Number of contacts
EPIC® H-BS 6
6 + PE
EPIC® H-BS 12
12 + PE

Termination methods
Screw termination: 0.5 - 6 mm²

Stripping length (mm)
8

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Application range

EPIC® H-BS 6

- Railway applications / vehicle construction
- Plant engineering
- Mechanical engineering
- Drive systems

EPIC® H-BS 12

- Plant engineering
- Mechanical engineering
- Drive systems

Suitable tools

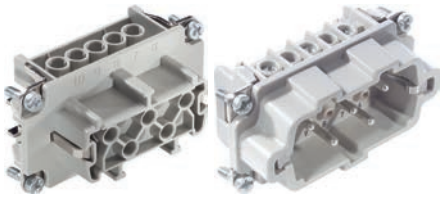
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1060

Article number	Article description	Contact type	Wire protection	Number of operating contacts	Pieces / PU
H-BS 6 screw termination					
10170000	H-BS 6 SS	male	yes	1 - 6	5
10171000	H-BS 6 BS	female	yes	1 - 6	5
H-BS 12 screw termination					
10170600	H-BS 6 SS 7-12	male	yes	7 - 12	5
10171600	H-BS 6 BS 7-12	female	yes	7 - 12	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-BVE 3

These high-voltage inserts are additionally equipped with 2 switching contacts

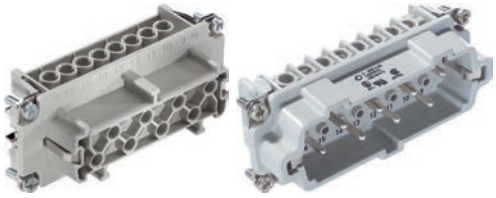


Info

- Multipole insert with lagging switch contacts
- Switching operations possible for disconnecting under load

EPIC® H-BVE 6

These high-voltage inserts are additionally equipped with 2 switching contacts

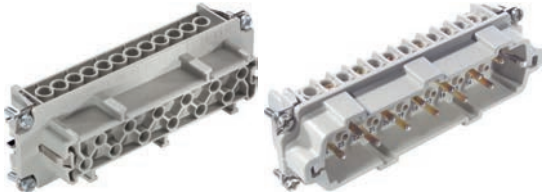


Info

- Multipole insert with lagging switch contacts
- Switching operations possible for disconnecting under load

EPIC® H-BVE 10

These high-voltage inserts are additionally equipped with 2 switching contacts



Info

- Multipole insert with lagging switch contacts
- Switching operations possible for disconnecting under load

Suitable housing

- EPIC® QUICK & EASY Mounting system

EPIC® H-BVE 3

- EPIC® ULTRA H-B 10
- EPIC® H-B 10 Housings

EPIC® H-BVE 6

- EPIC® ULTRA H-B 16
- EPIC® H-B 16 Housings

EPIC® H-BVE 10

- EPIC® ULTRA H-B 24
- EPIC® H-B 24 Housings

Benefits

- These high-voltage inserts are additionally equipped with 2 switching contacts
- With the relevant wiring, the lagging switch contacts interrupt the power supply before the working contacts are separated

Application range

- Plant engineering
- Mechanical engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 630 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 16 A
UL: 16 A
CSA: 16 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver-plated

Number of contacts
EPIC® H-BVE 3
3 + 2 + PE
EPIC® H-BVE 6
6 + 2 + PE
EPIC® H-BVE 10
10 + 2 + PE

Termination methods
Screw termination: 0.5 - 2.5 mm²

Stripping length (mm)
8

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Wire protection	Number of operating contacts	Pieces / PU
H-BVE 3 screw termination					
10210010	H-BVE 3 SS	male	yes	3 + 2	10
10211010	H-BVE 3 BS	female	yes	3 + 2	10
10210110	H-BVE 3 SS	male		3 + 2	10
10211110	H-BVE 3 BS	female		3 + 2	10
H-BVE 6 screw termination					
10239010	H-BVE 6 SS	male	yes	6 + 2	5
10240010	H-BVE 6 BS	female	yes	6 + 2	5
10239110	H-BVE 6 SS	male		6 + 2	5
10240110	H-BVE 6 BS	female		6 + 2	5
H-BVE 10 screw termination					
10270010	H-BVE 10 SS	male	yes	10 + 2	5
10271010	H-BVE 10 BS	female	yes	10 + 2	5
10270110	H-BVE 10 SS	male		10 + 2	5
10271110	H-BVE 10 BS	female		10 + 2	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Power H-S

Power inserts

Info

- Very high current transfer in a small space
- Axial screw termination for assembly without special tool

Suitable housing

- EPIC® ULTRA H-B 6
- EPIC® H-B 6 Housings

Benefits

- Fast and easy assembly
- Very high current transfer
- Lower space requirement
- Axial screw termination for assembly without special tool

Application range

- Mechanical engineering
- Plant engineering
- Renewable energy

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
1000

Rated impulse voltage
8 kV

Rated current (A)
65

Pollution degree
3

Contact resistance
< 1 mOhm

Number of contacts
4 + PE

Termination methods
Axial screw termination
2,5 mm² - 10 mm²

Stripping length (mm)
8

Material
PC, polycarbonate

Cycle of mechanical operation
500

Temperature range
-40°C to +125°C

Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
H-S Axial screw connection				
10407910	H-S 4+2xPE SAS	male	4 + PE	10
10407900	H-S 4+2xPE BAS	female	4 + PE	10
Tool for axial connection				
44424028	TOOL HEX 2x100	For tightening the contacts		1

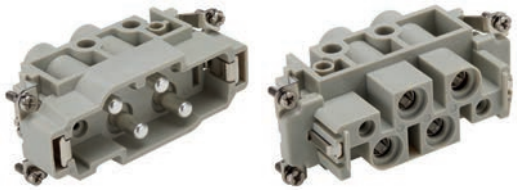
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Power K 4/0

Combination insert Power

Info

- Combination insert Power

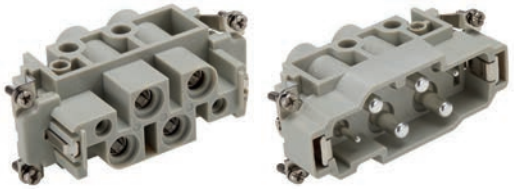


EPIC® Power K 4/2

Combination insert Power and Control

Info

- Combination insert Power and Control



Suitable housing

- EPIC® ULTRA H-B 16
- EPIC® H-B 16 Housings
- EPIC® QUICK & EASY Mounting system

Benefits

EPIC® Power K 4/0

- High power in one connector insert
- Best in combination with ÖLFLEX® SERVO

EPIC® Power K 4/2

- Power and control in one connector insert
- Best in combination with ÖLFLEX® SERVO

Application range

- Mechanical engineering
- Renewable energy
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
EPIC® Power K 4/0
830 V Power
EPIC® Power K 4/2
830 V Power
400 V Control

Rated impulse voltage
8 kV

Rated current (A)
EPIC® Power K 4/0
80 A Power
EPIC® Power K 4/2
80 A Power
16 A Control

Pollution degree
3

Flammability
EPIC® Power K 4/0
UL94 V-0

Contact resistance
< 5 mOhm

Number of contacts
EPIC® Power K 4/0
4 + PE
EPIC® Power K 4/2
4 + 2 + PE

Termination methods
Screw termination: 1.5 - 16.0 mm²

Stripping length (mm)
16
6

Material
PC, polycarbonate

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

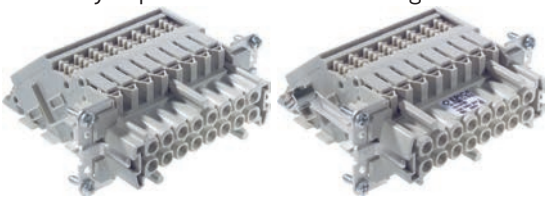
Temperature range
-40°C to +125°C

Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
EPIC® 4/0 screw termination				
44424041	EPIC® K 4/0 SS	male	4 + PE	10
44424042	EPIC® K 4/0 BS	female	4 + PE	10
EPIC® K 4/2 screw termination				
44424043	EPIC® K 4/2 SS	male	4 + 2 + PE	10
44424044	EPIC® K 4/2 BS	female	4 + 2 + PE	10

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® TB-H-BE 16

For convenient, clear wiring in control cabinets.
Assembly in panel-mount base housings.

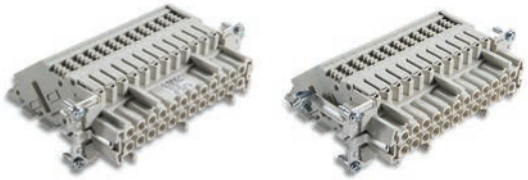


Info

- Plug connection for control cabinets
- Size with 6 and 10 contacts online

EPIC® TB-H-BE 24

For convenient, clear wiring in control cabinets.
Assembly in panel-mount base housings.



Info

- Plug connection for control cabinets
- Size with 6 and 10 contacts online

Suitable housing

EPIC® TB-H-BE 16

- EPIC® ULTRA H-B 16 AG QB Page 616
- EPIC® H-B 16 AG-L
- EPIC® H-B 16 AD-LB
- EPIC® H-B 16 AG
- EPIC® H-B 16 AD-BO
- EPIC® H-B 16 AG-ZR

EPIC® TB-H-BE 24

- EPIC® ULTRA H-B 24 AG QB Page 621
- EPIC® H-B 24 AG-LB
- EPIC® H-B 24 AD-LB
- EPIC® H-B 24 AG
- EPIC® H-B 24 AD-BO
- EPIC® H-B 24 AG-ZR

Benefits

- Standard H-BE inserts for use with switch cabinets
- Pluggable with H-BE male inserts in hoods
- Fastening on side = “left” means that when mounting the terminal adapter on the left wall of a control cabinet, the PE connection and pin “1” are on the “top” side

Application range

- Control cabinet manufacturing
- Plant engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 VUL: 600 VCSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 16 A
UL: 16 A
CSA: 16 A

Pollution degree
3

Contacts
Copper alloy, hard silver-plated

Number of contacts
EPIC® TB-H-BE 16
16 + PE
EPIC® TB-H-BE 24
24 + PE

Termination methods
Screw termination: 0.5 - 4.0 mm²

Stripping length (mm)
13

Cycle of mechanical operation
200

VDE-tested
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Fastening on side	Number of operating contacts	Pieces / PU
16-pin terminal adapter					
70315100	TB-H-BE 16 BRE	female	right	1 - 16	10
70314100	TB-H-BE 16 BLI	female	left	1 - 16	10
24-pin terminal adapter					
70317100	TB-H-BE 24 BRE	female	right	1 - 24	10
70316100	TB-H-BE 24 BLI	female	left	1 - 24	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 2

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard
- High power module 2pole for compact power transmission

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC MH 8.0mm Contacts Page 596

Benefits

- High power module 2pole for compact power transmission
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
100 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 5 mOhm

Number of contacts
2

Termination methods
Crimp termination: 10 mm² ... 35 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 2					
44423212	EPIC® MHS 2 CM	male	2	2	10
44423213	EPIC® MHB 2 CM	female	2	2	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MH 3

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard
- Power module 3pole for compact power transmission

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC MH 4.0mm Contacts Page 595

Benefits

- Power module 3pole for compact power transmission
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
400 V (conductor - ground)
690 V (conductor - conductor)

Rated impulse voltage
8 kV

Rated current (A)
40

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 5 mOhm

Number of contacts
3

Termination methods
Crimp termination: 1.5 mm² - 10 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 3					
44423214	EPIC® MHS 3 CM	male	3	1	10
44423215	EPIC® MHB 3 CM	female	3	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 3+4

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Modular connector system, mateable with the market standard
- Modul with 3 power contacts and 4 signal contacts

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570

Suitable contacts:

- EPIC MH 4.0mm Contacts Page 595
- EPIC® H-D 1.6 machined contacts Page 587

Benefits

- Hybridmodul for energy- and signal transmission in a minimum of space
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Rated voltage (V)
830 V

Rated impulse voltage
8 kV

Rated current (A)
40
10

Pollution degree
3

Flammability
UL94 V-0

Number of contacts
3 + 4

Material
PA

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Conductor cross-section (mm²)	Slots	Pieces / PU
EPIC® MH 3+4					
44423293	EPIC® MHS 3+4 CM	male	0.14 - 6.00	1	10
44423294	EPIC® MHB 3+4 CM	female	0.14 - 6.00	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MH 4

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard
- Power module 4 pole for compact power transmission

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC MH 4.0mm Contacts Page 595

Benefits

- Power module 4 pole for compact power transmission
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
830 V

Rated impulse voltage
8 kV

Rated current (A)
40

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 5 mOhm

Number of contacts
4

Termination methods
Crimp termination: 1.5 mm² - 10 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C
+125°C

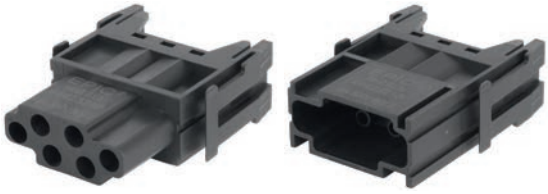
Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 4					
44423216	EPIC® MHS 4 CM	male	4	1	10
44423217	EPIC® MHB 4 CM	female	4	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 6

High flexibility by the use of any combination of inserts in one connector



Info

- Modular connector system, plugable with the market standard
- Module 6 pole for control signals

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® H-BE 2.5 machined contacts Page 590

Benefits

- Module 6 pole for control signals
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
500

Rated impulse voltage
6 kV

Rated current (A)
16 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 5 mOhm

Number of contacts
6

Termination methods
Crimp termination

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 6					
44423218	EPIC® MHS 6 CM	male	6	1	10
44423219	EPIC® MHB 6 CM	female	6	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 8

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard
- Module 8 pole for control signals

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® H-BE 2.5 machined contacts Page 590

Benefits

- Module 8 pole for control signals
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
400 V

Rated impulse voltage
6 kV

Rated current (A)
16 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 5 mOhm

Number of contacts
8

Termination methods
Crimp termination

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 8					
44423220	EPIC® MHS 8 CM	male	8	1	10
44423221	EPIC® MHB 8 CM	female	8	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 12

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard
- Module 12 pole for control signals

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® H-D 1.6 machined contacts Page 587

Benefits

- Module 12 pole for control signals
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
250 V

Rated impulse voltage
4 kV

Rated current (A)
10 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 5 mOhm

Number of contacts
12

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

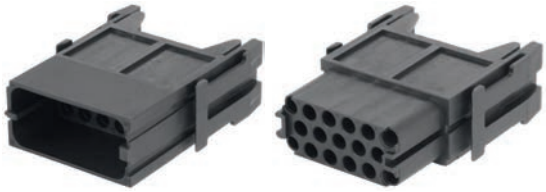
Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 12					
44423222	EPIC® MHS 12 CM	male	12	1	10
44423223	EPIC® MHB 12 CM	female	12	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MH 17

High flexibility by the use of any combination of inserts in one connector



Info

- Modular connector system, plugable with the market standard
- Universal module for 17 contacts in smallest space

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® H-D 1.6 machined contacts Page 587

Benefits

- Universal module for 17 contacts in smallest space
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
160 V

Rated impulse voltage
2.5 kV

Rated current (A)
10 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 5 mOhm

Number of contacts
17

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C
+125°C

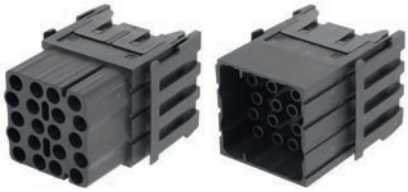
Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 17					
44423224	EPIC® MHS 17 CM	male	17	1	10
44423225	EPIC® MHB 17 CM	female	17	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 20

High flexibility by the use of any combination of inserts in one connector



Info

- Modular connector system, plugable with the market standard
- Double module 20 pole for control signals

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® H-BE 2.5 machined contacts Page 590

Benefits

- Double module 20 pole for control signals
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
500

Rated impulse voltage
6 kV

Rated current (A)
16 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 5 mOhm

Number of contacts
20

Termination methods
Crimp termination

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C
+125°C

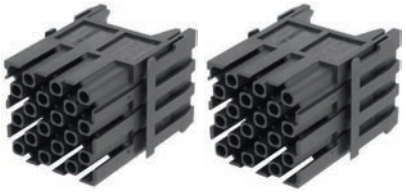
Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 20					
44423226	EPIC® MHS 20 CM	male	20	2	10
44423227	EPIC® MHB 20 CM	female	20	2	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 36

High flexibility by the use of any combination of inserts in one connector



Info

- Modular connector system, plugable with the market standard
- Double module for 36 contacts in smallest space

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® H-D 1.6 machined contacts Page 587

Benefits

- Double module for 36 contacts in smallest space
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
250 V

Rated impulse voltage
4 kV

Rated current (A)
10 A

Pollution degree
3

Flammability
UL94 V-0

Contact resistance
< 5 mOhm

Number of contacts
36

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 36					
44423266	EPIC® MHS 36 CM	male	36	2	10
44423267	EPIC® MHB 36 CM	female	36	2	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH Gigabit Modul

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Modular connector system, mateable with the market standard
- Gigabit module for Ethernet data rates up to 10 GBit/s, Cat. 7

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570

Suitable contacts:

- EPIC® MH 1.0mm contacts machined Page 585

Benefits

- Gigabitmodule, all around shielded, 4 pair of wires, for Ethernet data rates up to 10 GBit/s, Cat. 7
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Industrial machinery and plant engineering
- Industry 4.0 applications
- Robotics industry
- Renewable energy
- Railway applications / vehicle construction

Technical data

Rated voltage (V)
50

Rated impulse voltage
0,8 kV

Rated current (A)
5

Flammability
UL94 V-0

Number of contacts
8

Material
PA Polyamid
Zinc die-cast

Cycle of mechanical operation
500

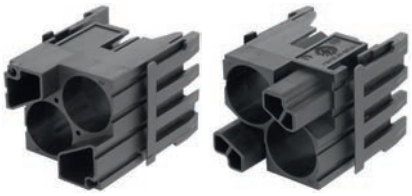
Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Connection cross section (mm²)	Slots	Pieces / PU
EPIC® MH Gigabit Kit					
44423291	EPIC® MHS Gigabit Kit small	male	5.00 - 7.00	1	1
44423292	EPIC® MHB Gigabit Kit small	female	5.00 - 7.00	1	1
44423326	EPIC® MHS Gigabit Kit medium	male	7.00 - 10.00	1	1
44423327	EPIC® MHB Gigabit Kit medium	female	7.00 - 10.00	1	1
EPIC® MH Gigabit Insulating body					
44423276	EPIC® MHS Gigabit	male		1	10
44423277	EPIC® MHB Gigabit	female		1	10
EPIC® MH Gigabit contact body metal					
44423278	EPIC® MHS Gigabit PIN	male			10
44423279	EPIC® MHS Gigabit PIN + GND	male			10
44423280	EPIC® MHB Gigabit PIN	female			10
44423281	EPIC® MHB Gigabit PIN + GND	female			10
EPIC® MH Gigabit cable clamp					
44423282	EPIC® MH Clamp 5 - 7 mm		5.00 - 7.00		10
44423283	EPIC® MH Clamp 7 - 10 mm		7.00 - 10.00		10
44423284	EPIC® MH Clamp 10 - 12 mm		10.00 - 12.00		10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MH BUS

High flexibility by the use of any combination of inserts in one connector



Info

- Modular connector system, plugable with the market standard
- Shielded modul for data and signal transmission.
  Usable for Ethernet CAT.5e

EPIC® MH Bus PIN 1x(4) contact holder

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard
- Shielded modul for data and signal transmission.
  Usable for Ethernet CAT.5e

Suitable housing

EPIC® MH BUS

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Suitable contacts:

EPIC® MH BUS

- EPIC® H-D 1.6 machined contacts Page 587
- EPIC MH Bus PIN 1x(4) Page 566
- EPIC MH Coax 1.6mm Page 567
- EPIC MH Coax 2.5mm Page 567
- EPIC MH Potential set Page 568

EPIC® MH Bus PIN 1x(4) contact holder

- EPIC® H-D 1.6 machined contacts Page 587

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
50

Rated impulse voltage
0,8 kV

Rated current (A)
10

Pollution degree
3

Flammability
UL94 V-0

EPIC® MH Bus PIN 1x(4) contact holder
4

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
PA

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C
+125°C

Benefits

- Shielded modul for data and signal transmission.
  Usable for Ethernet CAT.5e
- EPIC® MH system is mateable with the market standard
- Crimp connection for permanent vibration proof contact
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH BUS					
44423228	EPIC® MHS Bus	male	2	2	10
44423230	EPIC® MHB Bus	female	2	2	10
EPIC® MH BUS PIN 1x(4) contact holder					
44423229	EPIC® MHS Bus PIN 1x(4) CM	male	4 + shield		10
44423231	EPIC® MHB Bus PIN 1x(4) CM	female	4 + shield		10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH Coax 1.6mm

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Modular connector system, mateable with the market standard
- Shielded modul for data and signal transmission.

EPIC® MH Coax 2.5mm

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Modular connector system, mateable with the market standard
- Shielded modul for data and signal transmission.

Suitable contacts:

EPIC® MH Coax 1.6mm

- EPIC® H-D 1.6 machined contacts
  Page 587

EPIC® MH Coax 2.5mm

- EPIC® H-BE 2.5 machined contacts
  Page 590

Benefits

- Shielded modul for data and signal transmission.
- Modular connector system, plugable with the market standard
- Crimp connection for permanent vibration proof contact
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4
- The mix of different functions in one plug guarantees high flexibility

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
50

Rated impulse voltage
0,8 kV

Rated current (A)
16

Pollution degree
3

Flammability
UL94 V-0

Number of contacts
1

Cycle of mechanical operation
500

Certifications
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +125°C

Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
EPIC® MH Coax 1.6mm				
44423260	EPIC® MHS Coax D=1.6mm	male	1	10
44423261	EPIC® MHB Coax D=1.6mm	female	1	10
EPIC® MH Coax 2.5mm				
44423262	EPIC® MHS Coax D=2.5mm	male	1	10
44423263	EPIC® MHB Coax D=2.5mm	female	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH Potential set

High flexibility by the use of any combination of inserts in one connector

Benefits

- Potential spring for EPIC® MH multi frame
- For use in EPIC® MH BUS modules
- Two springs can be used for an EPIC® MH BUS module

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Info

- Potential spring for EPIC® MH multi frame

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Pieces / PU
EPIC® MH Potential set			
44423265	EPIC® MHS Potential Set	male	20
44423275	EPIC® MHB Potential Set	female	20

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH D-SUB

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Modular connector system, mateable with the market standard
- D-SUB insert with 9 or 15 contacts

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570

Suitable contacts:

- For D-SUB 9 pin: use contacts EPIC® MH 1.0mm stamped
- EPIC® MH 1.0mm contacts stamped Page 585
- For D-SUB 15 pin: use contacts EPIC® MH 0.8mm stamped
- EPIC® MH 0.8mm contacts stamped Page 584

Benefits

- D-Sub module for signal and data transmission with shielding
- Order contacts separately

Technical data

Rated voltage (V)
500

Rated impulse voltage
0,8 kV

Rated current (A)
5

Pollution degree
3

Flammability
UL94 V-0

Number of contacts
9
15

Material
PA

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- For renewable energy plants e.g. wind power
- Railway applications / vehicle construction

Article number	Article description	Contact type	Slots	Pieces / PU
EPIC® MH D-SUB 9 pins				
44423295	EPIC® MHS D-SUB 9 CM	male	1	10
44423296	EPIC® MHB D-SUB 9 CM	female	1	10
EPIC® MH D-SUB 15 pins				
44423297	EPIC® MHS D-SUB 15 CM	male	1	10
44423298	EPIC® MHB D-SUB 15 CM	female	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 0 blind modul

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard
- Dummy module as a placeholder for future expansion

Suitable housing

- EPIC MH 6 R Page 570
- EPIC MH 10 R Page 570
- EPIC MH 16 R Page 570
- EPIC MH 24 R Page 570
- EPIC® H-B housing use in high version

Benefits

- Dummy module as a placeholder for future expansion
- EPIC® MH system is mateable with the market standard
- “Z” version with centering function for plug in technique
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Number of contacts
0

Material
Polyamide, glass fibre-reinforced

Temperature range
-40°C
+125°C

Article number	Article description	Slots	Pieces / PU
EPIC® MH 0 blind modul			
44423232	EPIC® MH 0	1	10
EPIC® MH 0 blind modul with centering			
44423233	EPIC® MH 0 Z	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 6 multi frame

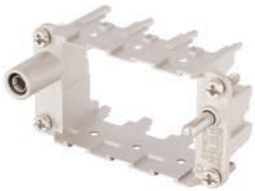
High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard
- Frame system for modules

EPIC® MH 10 multi frame

High flexibility by the use of any combination of inserts in one connector

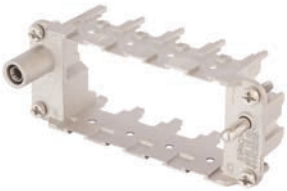


Info

- Modular connector system, plugable with the market standard
- Frame system for modules

EPIC® MH 16 multi frame

High flexibility by the use of any combination of inserts in one connector



Info

- Modular connector system, plugable with the market standard
- Frame system for modules

EPIC® MH 24 multi frame

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard
- Frame system for modules

EPIC® MH Clip

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard
- Adapter clip for modules of competition

Suitable housing

EPIC® MH 6 multi frame
- EPIC® ULTRA H-B 6
- EPIC® H-B 6 Housings]

EPIC® MH 10 multi frame
- EPIC® ULTRA H-B 10
- EPIC® H-B 10 Housings

EPIC® MH 16 multi frame
- EPIC® ULTRA H-B 16
- EPIC® H-B 16 Housings

EPIC® MH 24 multi frame
- EPIC® ULTRA H-B 24
- EPIC® H-B 24 Housings]

Benefits

EPIC® MH 6 multi frame
EPIC® MH 10 multi frame
EPIC® MH 16 multi frame
EPIC® MH 24 multi frame
- Multi frame for own and competition modules
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4
- PE connection from 1mm² up to 6mm² with end sleeve, 10mm² with adapter

EPIC® MH Clip
- EPIC® MH Clip for mounting of competition modules in EPIC® MH frame
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description:
Modular connector (industrial connector)

Material
EPIC® MH 6 multi frame
Zinc die-cast
EPIC® MH 10 multi frame
Zinc die-cast
EPIC® MH 16 multi frame
Zinc die-cast
EPIC® MH 24 multi frame
Zinc die-cast

Cycle of mechanical operation
EPIC® MH 6 multi frame
500
EPIC® MH 10 multi frame
500
EPIC® MH 16 multi frame
500
EPIC® MH 24 multi frame
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Slots	Pieces / PU
EPIC® MH 6 multi frame				
44423234	EPIC® MHS 6 R (A,B)	male	2	10
44423235	EPIC® MHB 6 R (a, b)	female	2	10
EPIC® MH 10 multi frame				
44423236	EPIC® MHS 10 R (A, B, C)	male	3	10
44423237	EPIC® MHB 10 R (a, b, c)	female	3	10
EPIC® MH 16 multi frame				
44423238	EPIC® MHS 16 R (A, B, C, D)	male	4	10
44423239	EPIC® MHB 16 R (a, b, c, d)	female	4	10
EPIC® MH 24 multi frame				
44423240	EPIC® MHS 24 R (A, B, C, D, E, F)	male	6	10
44423241	EPIC® MHB 24 R (a, b, c, d, e, f)	female	6	10
EPIC® MH Clip				
44423264	EPIC® MH Clip			20

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

EPIC® MH 6 multi frame
- EPIC MH Clip refer to page 570

EPIC® MH 10 multi frame
- EPIC MH Clip refer to page 570

EPIC® MH 16 multi frame
- EPIC MH Clip refer to page 570

EPIC® MH 24 multi frame
- EPIC MH Clip refer to page 570

EPIC® MC module: HC1+PE

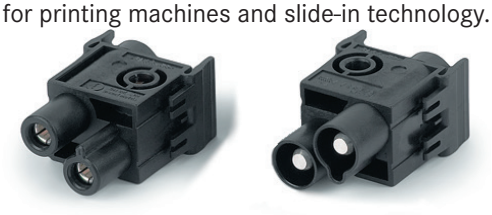
The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- High power module with screw connection and reinforced protection earth
- Lever for rapid removal of the module

EPIC® MC module: HC2

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



Info

- High power module 2pole with screw connection
- Lever for rapid removal of the module

Suitable housing

- EPIC® MCR 6 Page 583
- EPIC® MCR 10 Page 583
- EPIC® MCR 16 Page 583
- EPIC® MCR 24 Page 583
- Higher housing
- The suitable connector housings depend on the modular frame used

Benefits

EPIC® MC module: HC1+PE

- The mix of different functions in one plug guarantees high flexibility
- Screw connection up to 25mm² for easy assembly without speciall tools
- Separate protective conductor for increased safety

EPIC® MC module: HC2

- The mix of different functions in one plug guarantees high flexibility
- Screw connection up to 25mm² for easy assembly without speciall tools

Application range

- Plant engineering
- Printing machines
- Control engineering

Suitable tools

EPIC® MC module: HC1+PE

- Crimping tool for single contacts
- When connecting 25 mm² cables, please use the special crimping die (11147500) for the cable-end sleeves

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
IEC: 1000 V
UL: 600 V
CSA: 600 V

Rated current (A)
82 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver-plated

Number of contacts
EPIC® MC module: HC1+PE
1 + PE
EPIC® MC module: HC2
2

Termination methods
Screw termination: 10 - 25 mm²

Stripping length (mm)
15

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no. A870
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
Module: high current 1-pin + PE					
10344600	MCS-HC 1+PE	male	1 + PE	2	5
10345600	MCB-HC 1+PE	female	1 + PE	2	5
Module: high current 2-pin					
10344100	MCS-HC 2	male	2	2	5
10345100	MCB-HC 2	female	2	2	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

Power module: HC2

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- High current with only one module slot

Power module: HHC2

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- High current for sufficient power reserves
- Lever for rapid removal of the module

Power module: HHC1

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Extremely high current for sufficient power reserves
- Lever for rapid removal of the module

Suitable housing

- EPIC® MCR 6 Page 583
- EPIC® MCR 10 Page 583
- EPIC® MCR 16 Page 583
- EPIC® MCR 24 Page 583
- EPIC® H-B housing use in high version

Suitable contacts:

Power module: HC2

- EPIC® Modular 3.6 machined contacts 16 mm² Page 595
- Use only EPIC® MC 3.6 contacts 16mm²

Power module: HHC2

- MC 6.0 machined contacts Page 596

Power module: HHC1

- MC 10.0 machined contacts Page 597

Benefits

- High current transfer
- The mix of different functions in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contact

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
1000

Rated impulse voltage
8 kV

Rated current (A)
Power module: HC2
65
Power module: HHC2
150
Power module: HHC1
220

Pollution degree
3

Number of contacts
Power module: HC2
Power module: HHC2
2
Power module: HHC1
1

Termination methods
Power module: HC2
Crimp termination: 16.0 mm²
Power module: HHC2
Crimp termination: 16 mm² ... 35 mm²
Power module: HHC1
Crimp termination: 50 mm² ... 95mm²

Material
PA6

Cycle of mechanical operation
500

Temperature range
-40°C to +125°C

Application range

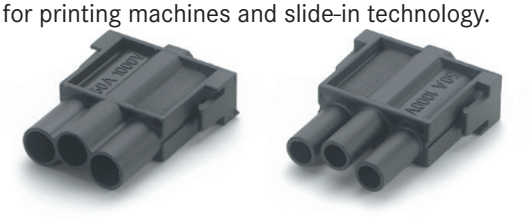
- Industrial machinery and plant engineering
- Robotics industry
- Control engineering
- Renewable energy

Article number	Article description	Contact type	Slots	Pieces / PU
Power module: HC2				
44424012	EPIC® MCS HC2	male	1	10
44424013	EPIC® MCB HC2	female	1	10
Power module: HHC2				
44424017	MCS HHC2	male	2	10
44424018	MCB HHC2	female	2	10
Power module: HHC1				
44424030	MCS HHC1	male	2	10
44424031	MCB HHC1	female	2	10

PE connection with a 16mm² wire only with the recommended ring lug 44424029 / The inserts must be used with the appropriate housings
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MC module: HC3

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



Info

- Very high current transfer in a small space

Suitable housing

- EPIC® MCR 6 Page 583
- EPIC® MCR 10 Page 583
- EPIC® MCR 16 Page 583
- EPIC® MCR 24 Page 583
- The suitable connector housings depend on the modular frame used

Suitable contacts:

- EPIC® MC 3.6 machined contacts Page 594

Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

Application range

- Plant engineering
- Printing machines
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
1000 V

Rated current (A)
50 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver-plated

Number of contacts
3

Termination methods
Crimp termination: 1.5 mm² - 10 mm²

Cycle of mechanical operation
100

VDE-tested
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
Module: high voltage 3-pin					
10399800	MCS 3 CM-HV	male	3	1	10
10399900	MCB 3 CM-HV	female	3	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® MC Module removal tool refer to page 582

EPIC® MC module: HC4+PE

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Suitable for processing with contacts on reel
- For automated production with crimping machine

EPIC® MC Module: 3pole

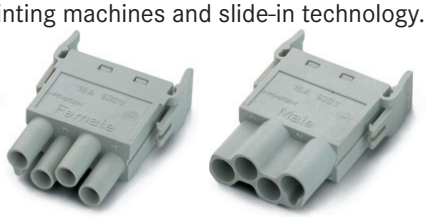
The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Very high current transfer in a small space

EPIC® MC Module: HE 4pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



Info

- Lever for rapid removal of the module

Suitable housing

- EPIC® MCR frame583
- The suitable connector housings depend on the modular frame used

Suitable contacts:

EPIC® MC module: HC4+PE

- EPIC® MC 2.5 stamped contacts Page 592
- EPIC® MC 2.5 stamped contacts-on-reel Page 593

EPIC® MC Module: 3pole

- EPIC® MC 3.6 machined contacts Page 594

EPIC® MC Module: HE 4pole

- EPIC® H-BE 2.5 machined contacts Page 590

Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

Application range

- Plant engineering
- Printing machines
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
EPIC® MC module: HC4+PE
1000 V
EPIC® MC Module: 3pole
630 V
EPIC® MC Module: HE 4pole
630 V

Rated current (A)
EPIC® MC module: HC4+PE
16 A
EPIC® MC Module: 3pole
40
EPIC® MC Module: HE 4pole
25 A

Pollution degree
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver-plated

Number of contacts
EPIC® MC module: HC4+PE
4 + PE
EPIC® MC Module: 3pole
3
EPIC® MC Module: HE 4pole
4

Termination methods
EPIC® MC module: HC4+PE
Crimp termination: 0.5 - 2.5 mm²
EPIC® MC Module: 3pole
Crimp termination: 1.5 mm² - 10 mm²
EPIC® MC Module: HE 4pole
Crimp termination: 0.5 - 4.0 mm²

Cycle of mechanical operation
100

VDE-tested
EPIC® MC module: HC4+PE
UL-tested:
UL File Number: E75770
EPIC® MC Module: 3pole
UL-tested:
UL File Number: E75770

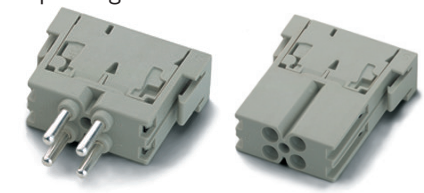
Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
Module: high voltage 4-pin + PE					
10383200	MCS 5 CG	male	4 + PE	1	10
10383300	MCB 5 CG	female	4 + PE	1	10
Module: 3-pin					
10382000	MCS 3 CM	male	3	1	10
10382100	MCB 3 CM	female	3	1	10
Module: 4-pin HE					
10399000	MCS 4 CM	male	4	1	10
10399100	MCB 4 CM	female	4	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MC Module: Cage clamp 4pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



Info

- Fast connection by cage spring

EPIC® MC Module: 5pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

EPIC® MC Module: 10pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Ideal for data transmission

Suitable housing

- EPIC® MCR frame
- The suitable connector housings depend on the modular frame used

Suitable contacts:

EPIC® MC Module: 5pole

- EPIC® MC 2.5 machined contacts
  Page 591

EPIC® MC Module: 10pole

- EPIC® H-D 1.6 machined contacts
  Page 587

Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

Application range

- Plant engineering
- Printing machines
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
400 V

Rated current (A)
EPIC® MC Module: Cage clamp 4pole
14 A
EPIC® MC Module: 5pole
20 A
EPIC® MC Module: 10pole
max. 10 A

Pollution degree
3

Contact resistance
EPIC® MC Module: Cage clamp 4pole
1.5 - 4 mohm
EPIC® MC Module: 5pole
EPIC® MC Module: 10pole
< 2 mOhm

Contacts
EPIC® MC Module: Cage clamp 4pole
EPIC® MC Module: 5pole
Copper alloy, hard silver-plated
EPIC® MC Module: 10pole
Copper alloy, hard silver/gold-plated

Number of contacts
EPIC® MC Module: Cage clamp 4pole
4
EPIC® MC Module: 5pole
5
EPIC® MC Module: 10pole
10

Termination methods
EPIC® MC Module: Cage clamp 4pole
Cage clamp termination: 0.5 - 2.5 mm²
EPIC® MC Module: 5pole
Crimp termination: 0.5 - 4.0 mm²
EPIC® MC Module: 10pole
Crimp termination: 0.14 - 2.5 mm²

Stripping length (mm)
EPIC® MC Module: Cage clamp 4pole
10

Cycle of mechanical operation
100

EPIC® MC Module: 5pole
EPIC® MC Module: 10pole
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
Module: 4-pin cage clamp					
10399600	MCS 4 F	male	4	1	10
10399700	MCB 4 F	female	4	1	10
Module: 5-pin					
10382200	MCS 5 CM	male	5	1	10
10382300	MCB 5 CM	female	5	1	10
Module: 10-pin					
10382400	MCS 10 CM	male	10	1	10
10382500	MCB 10 CM	female	10	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MC Module: 10pole stamped

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Suitable for processing with contacts on reel
- For automated production with crimping machine

EPIC® MC Module: 20pole

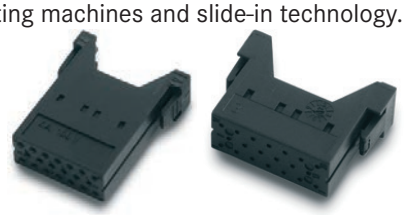
The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Suitable for processing with contacts on reel
- For automated production with crimping machine

EPIC® MC Dummy Module

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



Info

- Dummy module as a placeholder for future expansion

Suitable housing

- EPIC® MCR frame
- The suitable connector housings depend on the modular frame used

Suitable contacts:

EPIC® MC Module: 10pole stamped

- EPIC® H-D 1.6 stamped contacts Page 588
- EPIC® H-D 1.6 stamped contacts-on-reel Page 589

EPIC® MC Module: 20pole

- EPIC® M-D 1.0 D-Sub stamped contacts-on-reel Page 586

Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

Application range

- Plant engineering
- Printing machines
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
EPIC® MC Module: 10pole stamped
250 V
EPIC® MC Module: 20pole
100 V

Rated current (A)
EPIC® MC Module: 10pole stamped
max. 10 A
EPIC® MC Module: 20pole
4 A

Pollution degree
EPIC® MC Module: 10pole stamped
3
EPIC® MC Module: 20pole
3

Contacts
EPIC® MC Module: 10pole stamped
Copper alloy, hard silver/gold-plated
EPIC® MC Module: 20pole
Copper alloy, gold-plated

Number of contacts
EPIC® MC Module: 10pole stamped
10
EPIC® MC Module: 20pole
20

Termination methods
EPIC® MC Module: 10pole stamped
Crimp termination: 0.14 - 2.5 mm²
EPIC® MC Module: 20pole
Crimp termination: 0.08 - 0.56 mm²

Cycle of mechanical operation
EPIC® MC Module: 10pole stamped
100
EPIC® MC Module: 20pole
50

VDE-tested
EPIC® MC Module: 10pole stamped
UL-tested:
UL File Number: E75770
EPIC® MC Module: 20pole
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
Module: 10-pin					
10383400	MCS 10 CG	male	10	1	10
10383500	MCB 10 CG	female	10	1	10
Module: 20-pin					
10383600	MCS 20 CG	male	20	1	10
10383700	MCB 20 CG	female	20	1	10
Dummy module					
10399400	MCS 0 Blind	male	0	1	10
10399500	MCB 0 Blind	female	0	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MC Module: Koax 3pole

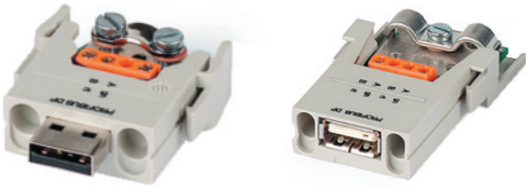
The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- RGB video signal transmission in one module

EPIC® MC Module: PROFIBUS DP

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.



Info

- Profibus DP module for uniterruptible fieldbus operation
- Lever for rapid removal of the module

EPIC® MC Module: Universal Bus

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Connector for shielded data cables
- Lever for rapid removal of the module

Suitable housing

- EPIC® MCR frame
- Higher housing
- The suitable connector housings depend on the modular frame used

Suitable contacts:

EPIC® MC Module: Koax 3pole

- EPIC® MC Coax-Contacts Page 598

Benefits

EPIC® MC Module: Koax 3pole

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

EPIC® MC Module: PROFIBUS DP

- Uninterrupible fieldbus operartion when pulling the connector
- Transmission rate up to 12 MBit/s
- Easy assembly by screw connection
- Shielding connection by strain relief

EPIC® MC Module: Universal Bus

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

Application range

- Plant engineering
- Light & sound technology
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
EPIC® MC Module: Koax 3pole
250 V
EPIC® MC Module: PROFIBUS DP
30 V
EPIC® MC Module: Universal Bus
30 V

EPIC® MC Module: PROFIBUS DP
1 A
EPIC® MC Module: Universal Bus
1 A

Pollution degree
3

Contact resistance
EPIC® MC Module: Koax 3pole
< 2,7 mOhm

Contacts
Copper alloy, gold-plated

Number of contacts
EPIC® MC Module: Koax 3pole
3
EPIC® MC Module: PROFIBUS DP
2 / 4 + shield
EPIC® MC Module: Universal Bus
4 + shield

Termination methods
EPIC® MC Module: Koax 3pole
Solder termination: var. coax cables
EPIC® MC Module: PROFIBUS DP
Screw termination: for Profibus cable
EPIC® MC Module: Universal Bus
Screw termination: 0.08 - 1.5 mm²

Cycle of mechanical operation
100

Temperature range
EPIC® MC Module: Koax 3pole
-40°C to +100°C, short-term up to +125°C
EPIC® MC Module: PROFIBUS DP
-20 °C ... +85 °C
EPIC® MC Module: Universal Bus
-20 °C ... +85 °C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
Module: 3-pin coax					
10399200	MCS 3 coax	male	3	1	10
10399300	MCB 3 coax	female	3	1	10
Module: Profibus DP					
10390400	MCS 2 SS	male	2 + shield	1	5
10390500	MCS 2 BS	female	2 + shield	1	5
Module: Universal Bus					
10390600	MCS 4 SS	male	4 + shield	1	5
10390700	MCS 4 BS	female	4 + shield	1	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

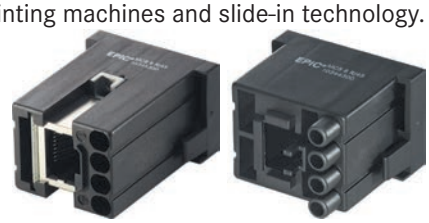
- EPIC® MC Module removal tool refer to page 582

EPIC® MC Module: RJ45

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- CAT.5-Performance



Suitable housing

- EPIC® MCR frame583
- Higher housing
- The suitable connector housings depend on the modular frame used

Suitable contacts:

- EPIC® H-D 1.6 machined contacts Page 587
- RJ45 connector for this module: CE6326 with 8 IDC contacts, AWG24-26 (Matching assembly tool for mounting crimp tong RJ45 Stewart CE5092)

Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

Application range

- Plant engineering
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
max. 600 V/max. 125 V

Rated current (A)
max. 10 A/max. 1.5 A

Pollution degree
3

Contacts
Copper alloy, gold-plated

Number of contacts
4 Power + 8 Data

Termination methods
Power: crimp termination: 0.14 - 2.5 mm²,
Data: IDC/piercing termination: Cat5, AWG 24-26

Cycle of mechanical operation
100

Temperature range
-20 °C ... +85 °C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
Module: RJ 45 (occupies 2 slots in the frame)					
10344300	MCS 8 RJ45	male	4 + 8	2	5
10345300	MCB 8 RJ45	female	4 + 8	2	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® MC Module removal tool refer to page 582
- RJ45 connector for MCS 8 RJ45: CE6326 (ArtNo.); connect with CE5092 (ArtNo.)

NEW

EPIC® MC BUS

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Shielded modul for data and signal transmission.
  Usable for Ethernet CAT.5e

Suitable housing

- EPIC® MCR frame

583Suitable contacts:

- EPIC® H-D 1.6 machined contacts
  Page 587

Benefits

- Shielded modul for data and signal transmission.
  Usable for Ethernet CAT.5e
- Crimp connection for permanent vibration proof contact
- CAT5e up to 1 Gigabit/s
- Cable clamp 3 - 9mm
- The mix of different functions in one plug guarantees high flexibility

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
50

Rated impulse voltage
0,8 kV

Rated current (A)
10

Pollution degree
3

Number of contacts
8

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
PA

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MC BUS					
10390410	EPIC® MCS BUS 2x(4) CM	male	2x (4 + shield)	2	10
10390411	EPIC® MCB BUS 2x(4) CM	female	2x (4 + shield)	2	10
EPIC® MC BUS PIN					
10390412	EPIC® MCS BUS PIN 1x(4) CM	male	4 + shield		10
10390413	EPIC® MCB BUS PIN 1x(4) CM	female	4 + shield		10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MC Module Pneumatic 1pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Pneumatic modules with valve for 2.5 and 4mm tubings

EPIC® MC Module Pneumatic 2pole

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Pneumatic modules with valve for 2.5 and 4mm tubings

Suitable housing

- EPIC® MCR frame
- Higher housing
- The suitable connector housings depend on the modular frame used

Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

Application range

- Plant engineering
- Printing machines
- Control engineering

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Contacts
Brass

Number of contacts
EPIC® MC Module Pneumatic 1pole
1
EPIC® MC Module Pneumatic 2pole
2

Termination methods
Plug-in connection: for hose with inner diameter 2.5 mm/4.0 mm

Cycle of mechanical operation
100

Operating presure
8 bar

Testing presure
10 bar

Temperature range
-20°C to +100°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
Module: pneumatic 1-pin					
44424004	MCS 1x2,5 PNEU (10)	male	1	1	10
44424005	MCB 1x2,5 PNEU (10)	female with valve	1	1	10
44424006	MCS 1x4,0 PNEU (10)	male	1	1	10
44424007	MCB 1x4,0 PNEU (10)	female with valve	1	1	10
Module: pneumatic 2-pin					
44424008	MCS 2x2,5 PNEU (10)	male	2	1	10
44424009	MCB 2x2,5 PNEU (10)	female with valve	2	1	10
44424010	MCS 2x4,0 PNEU (10)	male	2	1	10
44424011	MCB 2x4,0 PNEU (10)	female with valve	2	1	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® MC Module removal tool refer to page 582

EPIC® MC Module removal tool

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Suitable housing

- EPIC® MCR Frames

Benefits

- This tool is used to lift built-in modules out of the module frames

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article description	Pieces / PU
MC module removal tool		
11171200	MC module removal tool	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MCR 6

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

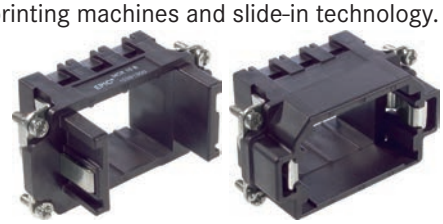
- Frame system for modules
- Various functions can be used together in one connector

EPIC® MCR 10

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Frame system for modules
- Various functions can be used together in one connector

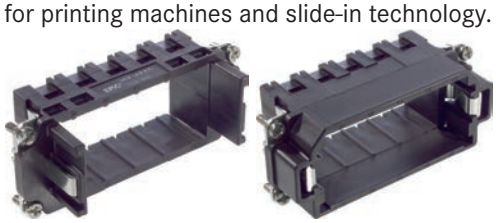


EPIC® MCR 16

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Frame system for modules
- Various functions can be used together in one connector



EPIC® MCR 24

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Frame system for modules
- Various functions can be used together in one connector

Suitable housing

- EPIC® QUICK & EASY Mounting system

EPIC® MCR 6

- EPIC® ULTRA H-B 6
- EPIC® H-B 6 Housings

EPIC® MCR 10

- EPIC® ULTRA H-B 10
- EPIC® H-B 10 Housings

EPIC® MCR 16

- EPIC® ULTRA H-B 16616
- EPIC® H-B 16 Housings

EPIC® MCR 24

- EPIC® ULTRA H-B 24
- EPIC® H-B 24 Housings

Benefits

- The mix of different functions in one plug guarantees high flexibility
- Assembly of individual connectors, suitable for different applications

Product features

- The MCR "male" frame version is designed for use with modules with male contacts; the "female" version is designed for use with modules with female contacts

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002310
ETIM 5.0/6.0 Class-Description: Fixing frame industrial connectors

DIN VDE

VDE-tested
Certified production control:
VDE-REG. no. A870
UL-tested:
UL File Number: E75770

Article number	Article	Slots	Version	Pieces / PU
MCR 6 frame				
10381000	MCR 6 S	2	male	5
10381100	MCR 6 B	2	female	5
MCR 10 frame				
10381200	MCR 10 S	3	male	5
10381300	MCR 10 B	3	female	5
MCR 16 frame				
10381400	MCR 16 S	5	male	5
10381500	MCR 16 B	5	female	5
MCR 24 frame				
10381600	MCR 24 S	7	male	5
10381700	MCR 24 B	7	female	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 0.8mm contacts stamped

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Modular connector system, plugable with the market standard
- Gold-plated contacts for low transfer resistance
- Stamped gold plated contacts with 0.8 mm diameter for D-Sub inserts

Benefits

- Modular connector system, plugable with the market standard
- Gold-plated contacts for low transfer resistance

Application range

- Mechanical and plant engineering
- Robotics industry
- Renewable energy
- Railway applications / vehicle construction

Article number	Article description	Contact type	Conductor cross-section AWG	Pieces / PU
EPIC® MH 0.8mm contacts stamped				
44423324	EPIC® MH SCEG AU 0.09 - 0.25sqmm D=0.8	male	28 - 24	100
44423325	EPIC® MH BCEG AU 0.09 - 0.25sqmm D=1.0	female	28 - 24	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 1.0mm contacts stamped

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Stamped gold plated contacts with 1.0mm diameter for D-Sub inserts

Benefits

- Stamped gold plated contacts with 1.0mm diameter for D-Sub inserts
- Gold-plated contacts for low transfer resistance

Application range

- Mechanical and plant engineering
- Robotics industry
- Renewable energy
- Railway applications / vehicle construction

Technical data

Termination methods
Crimp termination

Stripping length (mm)
3 ± 0.5

Material
brass gold plated CuZn / Au

Cycle of mechanical operation
500

Article number	Article description	Contact type	Conductor cross-section AWG	Pieces / PU
EPIC® MH 1.0mm contacts stamped				
44423320	EPIC® MH SCEG AU 0.09 - 0.25sqmm D=1.0	male	28 - 24	100
44423322	EPIC® MH BCEG AU 0.09 - 0.25sqmm D=1.0	female	28 - 24	100
44423321	EPIC® MH SCEG AU 0.25 - 0.52 sqmm D=1.0	male	24 - 20	100
44423323	EPIC® MH SCEG AU 0.25 - 0.52 sqmm D=1.0	female	24 - 20	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 1.0mm contacts machined

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Machined gold plated contacts with 1mm diameter for EPIC® MH Gigabit module
- Gold-plated contacts for low transfer resistance

Benefits

- Machined gold plated contacts with 1mm diameter for EPIC® MH Gigabit module
- Gold-plated contacts for low transfer resistance

Application range

- Mechanical and plant engineering
- Robotics industry
- Renewable energy
- Railway applications / vehicle construction

Technical data

Stripping length (mm)
4.2 ± 0.5mm

Material
brass gold plated CuZn / Au

Cycle of mechanical operation
500

Article number	Article description	Contact type	Conductor cross-section AWG	Pieces / PU
EPIC® MH 1.0mm contacts machined				
44423285	EPIC® MH SCEM AU 0.09 - 0.25sqmm D=1.0	male	28 -24	100
44423286	EPIC® MH BCEM AU 0.09 - 0.25sqmm D=1.0	female	28 -24	100
44423287	EPIC® MH SCEM AU 0.13 - 0.33sqmm D=1.0	male	26 - 22	100
44423288	EPIC® MH BCEM AU 0.13 - 0.33sqmm D=1.0	female	26 - 22	100
44423289	EPIC® MH SCEM AU 0.25 - 0.52sqmm D=1.0	male	24 - 20	100
44423290	EPIC® MH BCEM AU 0.25 - 0.52sqmm D=1.0	female	24 - 20	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® M-D 1.0 D-Sub stamped contacts-on-reel

For inserts and modules of the EPIC® rectangular connectors

Info

- Gold plated contacts in 2 quality levels
- For automated production with crimping machine
- 2 crimp areas for wire and insulation crimp

Suitable tools

- Crimping tool for contacts-on-reel D-Sub
- Removal tool

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Conductor cross-section (mm²)	Surface	Stripping length (mm)	Note	Pieces / PU
Contacts							
44429011	EPIC® D-SUB SCBG AU G2 0,08-0,22 (500)	male	0.08 - 0.22	Au (0.8 µm)	2.5 + 0.5	1 reel (PU) = 500 contacts	1
44429007	EPIC® D-SUB BCBG AU G2 0,08-0,22 (500)	female	0.08 - 0.22	Au (0.8 µm)	2.5 + 0.5	1 reel (PU) = 500 contacts	1
44429013	EPIC® D-SUB SCBG AU G3 0,08-0,22 (500)	male	0.08 - 0.22	Au (0.1 µm)	2.5 + 0.5	1 reel (PU) = 500 contacts	1
44429009	EPIC® D-SUB BCBG AU G3 0,08-0,22 (500)	female	0.08 - 0.22	Au (0.1 µm)	2.5 + 0.5	1 reel (PU) = 500 contacts	1
44429012	EPIC® D-SUB SCBG AU G2 0,22-0,56 (500)	male	0.22 - 0.56	Au (0.8 µm)	2.5 + 0.5	1 reel (PU) = 500 contacts	1
44429008	EPIC® D-SUB BCBG AU G2 0,22-0,56 (500)	female	0.22 - 0.56	Au (0.8 µm)	2.5 + 0.5	1 reel (PU) = 500 contacts	1
44429014	EPIC® D-SUB SCBG AU G3 0,22-0,56 (500)	male	0.22 - 0.56	Au (0.1 µm)	2.5 + 0.5	1 reel (PU) = 500 contacts	1
44429010	EPIC® D-SUB BCBG AU G3 0,22-0,56 (500)	female	0.22 - 0.56	Au (0.1 µm)	2.5 + 0.5	1 reel (PU) = 500 contacts	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Tools for M-D 1,0 D-Sub contacts-on-reel stamped

For inserts and modules of the EPIC® rectangular connectors

Suitable contacts:

- EPIC® M-D 1.0 D-Sub stamped contacts-on-reel Page 586

Article number	Article description	Version	Note	Pieces / PU
Tools				
11158400	Crimping tool	In tool case	Crimping dies included, for contacts H-D 1.0 D-Sub (0.08 - 0.56 mm²)	1
11132500	Removal tool		For ribbon contacts: D-Sub 1.0 stamped	1

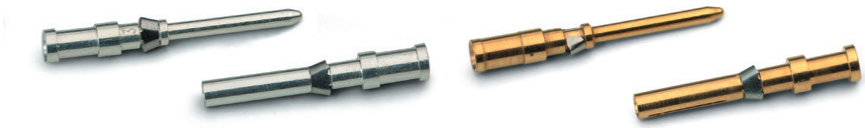
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-D 1.6 machined contacts

For inserts and modules of the EPIC® rectangular connectors

Info

- Choice of high quality gold or silver plated contacts



Suitable tools

- EPIC® Tools for contacts H-D 1.6 machined refer to page 587
- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Conductor cross-section (mm²)	Cross-section identification	Surface	Stripping length (mm)	Pieces / PU
Contacts							
13162000	H-D 1.6 machined	male	0.14 - 0.37	1	Ag	8.0	100
13163000	H-D 1.6 machined	female	0.14 - 0.37	1	Ag	8.0	100
13162100	H-D 1.6 machined	male	0.50	2	Ag	8.0	100
13163100	H-D 1.6 machined	female	0.50	2	Ag	8.0	100
13162200	H-D 1.6 machined	male	0.75 - 1.00	3	Ag	8.0	100
13163200	H-D 1.6 machined	female	0.75 - 1.00	3	Ag	8.0	100
13162300	H-D 1.6 machined	male	1.50	4	Ag	8.0	100
13163300	H-D 1.6 machined	female	1.50	4	Ag	8.0	100
13162400	H-D 1.6 machined	male	2.50	5	Ag	5.8	100
13163400	H-D 1.6 machined	female	2.50	5	Ag	5.8	100
13162500	H-D 1.6 machined	male	0.14 - 0.37	1	Au	8.0	100
13163500	H-D 1.6 machined	female	0.14 - 0.37	1	Au	8.0	100
13162600	H-D 1.6 machined	male	0.50	2	Au	8.0	100
13163600	H-D 1.6 machined	female	0.50	2	Au	8.0	100
13162700	H-D 1.6 machined	male	0.75 - 1.00	3	Au	8.0	100
13163700	H-D 1.6 machined	female	0.75 - 1.00	3	Au	8.0	100
13162800	H-D 1.6 machined	male	1.50	4	Au	8.0	100
13163800	H-D 1.6 machined	female	1.50	4	Au	8.0	100
13162900	H-D 1.6 machined	male	2.50	5	Au	5.8	100
13163900	H-D 1.6 machined	female	2.50	5	Au	5.8	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Tools for contacts H-D 1.6 machined

For inserts and modules of the EPIC® rectangular connectors

11147001

Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article description	Inserts	Conductor cross-section (mm²)	Version	Note	Pieces / PU
Tools						
11147000	Crimping tool	without crimping dies, without locator		In tool case		1
11147001	Crimping machine	without crimping dies, without locator		Pneumatic, 5 - 10 bar		1
11147100	Crimping dies	For crimping tools 11147000, 11147001	0.14 - 4.00		For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined, MH 4.0	1
11147200	Locator			For crimping tools 11147000, 11147001	For contacts: H-D 1.6 machined, H-BE machined, MC 2.5 machined, MC 2.5 stamped	1
11161000	Removal tool	LS1 removal tool for 1 mm contacts			For contacts: H-D 1.6 machined, H-D 1.6 stamped	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-D 1.6 stamped contacts

For inserts and modules of the EPIC® rectangular connectors

Info

- Choice of high quality gold or silver plated contacts
- 2 crimp areas for wire and insulation crimp

Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Conductor cross-section (mm²)	Surface	Stripping length (mm)	Pieces / PU
Contacts						
11241100	H-D 1.6 stamped	male	0.14 - 0.50	Ag	2.5 + 0.5	100
11231100	H-D 1.6 stamped	female	0.14 - 0.50	Ag	2.5 + 0.5	100
11221000	H-D 1.6 stamped	male	0.50 - 1.50	Ag	3.5 + 0.5	100
11236100	H-D 1.6 stamped	female	0.50 - 1.50	Ag	3.5 + 0.5	100
11223500	H-D 1.6 stamped	male	1.50 - 2.50	Ag	3.5 + 0.5	100
11228500	H-D 1.6 stamped	female	1.50 - 2.50	Ag	3.5 + 0.5	100
11243100	H-D 1.6 stamped	male	0.14 - 0.50	Au	2.5 + 0.5	100
11233100	H-D 1.6 stamped	female	0.14 - 0.50	Au	2.5 + 0.5	100
11221300	H-D 1.6 stamped	male	0.50 - 1.50	Au	3.5 + 0.5	100
11238100	H-D 1.6 stamped	female	0.50 - 1.50	Au	3.5 + 0.5	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Tools for contacts H-D 1.6 stamped

For inserts and modules of the EPIC® rectangular connectors

Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article description	Inserts	Version	Note	Pieces / PU
Tools					
11147000	Crimping tool	without crimping dies, without locator	In tool case		1
11147001	Crimping machine	without crimping dies, without locator	Pneumatic, 5 - 10 bar		1
11147170	Crimping dies		For crimping tools 11147000, 11147001	For contacts: H-D 1.6 stamped (0.14 - 0.5 mm²)	1
11147180	Crimping dies		For crimping tools 11147000, 11147001	For contacts: H-D 1.6 stamped (0.5 - 1.5 mm²), MC 2.5 stamped (0.5 - 1.5 mm²)	1
11147190	Crimping dies		For crimping tools 11147000, 11147001	For contacts: H-D 1.6 stamped (1.5 - 2.5 mm²), MC 2.5 stamped (1.5 - 2.5 mm²)	1
11147300	Locator			For contacts: H-D 1.6 machined, H-D 1.6 stamped	1
11161000	Removal tool	LS1 removal tool for 1 mm contacts		For contacts: H-D 1.6 machined, H-D 1.6 stamped	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® H-D 1.6 stamped contacts-on-reel

For inserts and modules of the EPIC® rectangular connectors

Info

- Choice of high quality gold or silver plated contacts
- For automated production with crimping machine
- 2 crimp areas for wire and insulation crimp

Suitable tools

- Crimping tool for contacts-on-reel
- Crimping dies for contacts-on-reel
- Locator
- Removal tool

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Conductor cross-section (mm²)	Surface	Stripping length (mm)	Note	Pieces / PU
Contacts							
11240700	H-D SCBG AG 0.14-0.5 200 LI	male	0.14 - 0.50	Ag	2.5 + 0.5	1 reel (PU) = 200 contacts	1
11230700	H-D BCBG AG 0.14-0.5 200 LI	female	0.14 - 0.50	Ag	2.5 + 0.5	1 reel (PU) = 200 contacts	1
11240400	H-D SCBG AG 0.14-0.5 2000 LI	male	0.14 - 0.50	Ag	2.5 + 0.5	1 reel (PU) = 2000 contacts	1
11230400	H-D BCBG AG 0.14-0.5 2000 LI	female	0.14 - 0.50	Ag	2.5 + 0.5	1 reel (PU) = 2000 contacts	1
11240000	H-D SCBG AG 0.14-0.5 2000 RE	male	0.14 - 0.50	Ag	2.5 + 0.5	1 reel (PU) = 2000 contacts	1
11230000	H-D BCBG AG 0.14-0.5 2000 RE	female	0.14 - 0.50	Ag	2.5 + 0.5	1 reel (PU) = 2000 contacts	1
11240500	H-D SCBG AU 0.14-0.5 2000 LI	male	0.14 - 0.50	Au	2.5 + 0.5	1 reel (PU) = 2000 contacts	1
11230500	H-D BCBG AU 0.14-0.5 2000 LI	female	0.14 - 0.50	Au	2.5 + 0.5	1 reel (PU) = 2000 contacts	1
11220700	H-D SCBG AG 0.5-1.5 200 LI	male	0.50 - 1.50	Ag	3.5 + 0.5	1 reel (PU) = 200 contacts	1
11235700	H-D BCBG AG 0.14-0.5 200 LI	female	0.50 - 1.50	Ag	3.5 + 0.5	1 reel (PU) = 200 contacts	1
11226000	H-D SCBG AG 0.5-1.5 2000 LI	male	0.50 - 1.50	Ag	3.5 + 0.5	1 reel (PU) = 2000 contacts	1
11226500	H-D BCBG AG 0.5-1.5 2000 LI	female	0.50 - 1.50	Ag	3.5 + 0.5	1 reel (PU) = 2000 contacts	1
11220000	H-D SCBG AG 0.5-1.5 2000 RE	male	0.50 - 1.50	Ag	2.5 + 0.5	1 reel (PU) = 2000 contacts	1
11235000	H-D BCBG AG 0.5-1.5 2000 RE	female	0.50 - 1.50	Ag	2.5 + 0.5	1 reel (PU) = 2000 contacts	1
11220100	H-D SCBG AU 0.5-1.5 2000 RE	male	0.50 - 1.50	Au	2.5 + 0.5	1 reel (PU) = 2000 contacts	1
11235200	H-D BCBG AG 0.5-1.5 200 LI	female	0.50 - 1.50	Au	2.5 + 0.5	1 reel (PU) = 2000 contacts	1
11223000	H-D SCBG AG 1.5-2.5 100 LI	male	1.50 - 2.50	Ag	3.5 + 0.5	1 reel (PU) = 100 contacts	1
11228000	H-D BCBG AG 1.5-2.5 100 LI	female	1.50 - 2.50	Ag	3.5 + 0.5	1 reel (PU) = 100 contacts	1
11222700	H-D SCBG AG 1.5-2.5 2000 LI	male	1.50 - 2.50	Ag	3.5 + 0.5	1 reel (PU) = 2000 contacts	1
11227700	H-D BCBG AG 1.5-2.5 2000 LI	female	1.50 - 2.50	Ag	3.5 + 0.5	1 reel (PU) = 2000 contacts	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-BE 2.5 machined contacts

For inserts and modules of the EPIC® rectangular connectors

Info

- Choice of high quality gold or silver plated contacts

Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Conductor cross-section (mm²)	Cross-section identification	Surface	Stripping length (mm)	Pieces / PU
Contacts							
11190000	H-BE 2.5 machined	male	0.50	0	Ag	7.4	100
11195000	H-BE 2.5 machined	female	0.50	0	Ag	7.4	100
11190100	H-BE 2.5 machined	male	0.75 - 1.00	1	Ag	7.4	100
11195100	H-BE 2.5 machined	female	0.75 - 1.00	1	Ag	7.4	100
11190200	H-BE 2.5 machined	male	1.50	2	Ag	7.4	100
11195200	H-BE 2.5 machined	female	1.50	2	Ag	7.4	100
11190300	H-BE 2.5 machined	male	2.50	3	Ag	7.4	100
11195300	H-BE 2.5 machined	female	2.50	3	Ag	7.4	100
11190400	H-BE 2.5 machined	male	4.00	0	Ag	7.4	100
11195400	H-BE 2.5 machined	female	4.00	0	Ag	7.4	100
Contacts							
11190301	H-BE 2.5 machined	male	0.14 - 0.37	2	Au	7.4	100
11190302	H-BE 2.5 machined	female	0.14 - 0.37	2	Au	7.4	100
11192000	H-BE 2.5 machined	male	0.50	0	Au	7.4	100
11197000	H-BE 2.5 machined	female	0.50	0	Au	7.4	100
11192100	H-BE 2.5 machined	male	0.75 - 1.00	1	Au	7.4	100
11197100	H-BE 2.5 machined	female	0.75 - 1.00	1	Au	7.4	100
11192200	H-BE 2.5 machined	male	1.50	2	Au	7.4	100
11197200	H-BE 2.5 machined	female	1.50	2	Au	7.4	100
11192300	H-BE 2.5 machined	Pin	2.50	3	Au	7.4	100
11197300	H-BE 2.5 machined	female	2.50	3	Au	7.4	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Tools for contacts H-BE 2.5 machined

For inserts and modules of the EPIC® rectangular connectors

Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article description	Inserts	Conductor cross-section (mm²)	Version	Note	Pieces / PU
Tools						
11147000	Crimping tool	without crimping dies, without locator		In tool case		1
11147001	Crimping machine	without crimping dies, without locator		Pneumatic, 5 - 10 bar		1
11147100	Crimping dies	For crimping tools 11147000, 11147001	0.14 - 4.00		For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined, MH 4.0	1
11147200	Locator			For crimping tools 11147000, 11147001	For contacts: H-D 1.6 machined, H-BE machined, MC 2.5 machined, MC 2.5 stamped	1
11182500	Removal tool	LS1 removal tool for 2 mm contacts			For contacts: H-BE 2.5 machined	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MC 2.5 machined contacts

For inserts and modules of the EPIC® rectangular connectors

Info

- Silver plated and passivated contacts

Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Version	Conductor cross-section (mm²)	Cross-section identification	Surface	Stripping length (mm)	Pieces / PU
Contacts							
1121300C	MC 2.5 machined	male	0.50		Ag	7.8	100
1121800C	MC 2.5 machined	female	0.50		Ag	7.8	100
1121310C	MC 2.5 machined	male	1.00	1	Ag	7.8	100
1121810C	MC 2.5 machined	female	1.00	1	Ag	7.8	100
1121320C	MC 2.5 machined	male	1.50	2	Ag	7.8	100
1121820C	MC 2.5 machined	female	1.50	2	Ag	7.8	100
1121330C	MC 2.5 machined	male	2.50	3	Ag	7.8	100
1121830C	MC 2.5 machined	female	2.50	3	Ag	7.8	100
1121340C	MC 2.5 machined	male	4.00		Ag	7.8	100
1121840C	MC 2.5 machined	female	4.00		Ag	7.8	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Tools for contacts MC 2.5 machined

For inserts and modules of the EPIC® rectangular connectors

Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article description	Inserts	Conductor cross-section (mm²)	Version	Note	Pieces / PU
Tools						
11147000	Crimping tool	without crimping dies, without locator		In tool case		1
11147001	Crimping machine	without crimping dies, without locator		Pneumatic, 5 - 10 bar		1
11147100	Crimping dies	For crimping tools 11147000, 11147001	0.14 - 4.00		For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined, MH 4.0	1
11147200	Locator			For crimping tools 11147000, 11147001	For contacts: H-D 1.6 machined, H-BE machined, MC 2.5 machined, MC 2.5 stamped	1
11171000	Removal tool				For contacts: MC 2.5 machined	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MC 2.5 stamped contacts

For inserts and modules of the EPIC® rectangular connectors

Info

- Silver plated and passivated contacts
- 2 crimp areas for wire and insulation crimp

Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Conductor cross-section (mm²)	Surface	Stripping length (mm)	Pieces / PU
Contacts						
11201000	MC 2.5 stamped	male	0.50 - 1.50	Ag	3.5 + 0.5	100
11205000	MC 2.5 stamped	female	0.50 - 1.50	Ag	3.5 + 0.5	100
11202000	MC 2.5 stamped	male	1.50 - 2.50	Ag	3.5 + 0.5	100
11206000	MC 2.5 stamped	female	1.50 - 2.50	Ag	3.5 + 0.5	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Tools for contacts MC 2.5 stamped

For inserts and modules of the EPIC® rectangular connectors

Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article description	Inserts	Version	Note	Pieces / PU
Tools					
11147000	Crimping tool	without crimping dies, without locator	In tool case		1
11147001	Crimping machine	without crimping dies, without locator	Pneumatic, 5 - 10 bar		1
11147180	Crimping dies		For crimping tools 11147000, 11147001	For contacts: H-D 1.6 stamped (0.5 - 1.5 mm²), MC 2.5 stamped (0.5 - 1.5 mm²)	1
11147190	Crimping dies		For crimping tools 11147000, 11147001	For contacts: H-D 1.6 stamped (1.5 - 2.5 mm²), MC 2.5 stamped (1.5 - 2.5 mm²)	1
11147300	Locator			For contacts: H-D 1.6 machined, H-D 1.6 stamped	1
11160000	Removal tool			For contacts: MC 2.5 stamped	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MC 2.5 stamped contacts-on-reel

For inserts and modules of the EPIC® rectangular connectors

Info

- Silver plated and passivated contacts
- For automated production with crimping machine
- 2 crimp areas for wire and insulation crimp

Suitable tools

- Crimping tool for contacts-on-reel
- Crimping dies for contacts-on-reel
- Locator
- Removal tool

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Conductor cross-section (mm²)	Surface	Stripping length (mm)	Note	Pieces / PU
Contacts							
11208000	MC SCBG AG 0.5-1.5 200 LI	male	0.50 - 1.50	Ag	3.5 + 0.5	1 reel (PU) = 200 contacts	1
11209000	MC BCBG AG 0.5-1.5 200 LI	female	0.50 - 1.50	Ag	3.5 + 0.5	1 reel (PU) = 200 contacts	1
11208500	H-D SCBG AG 1.5-2.5 100 LI	male	1.50 - 2.50	Ag	3.5 + 0.5	1 reel (PU) = 100 contacts	1
11209500	MC BCBG AG 1.5-2.5 100 LI	female	1.50 - 2.50	Ag	3.5 + 0.5	1 reel (PU) = 100 contacts	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MC 3.6 machined contacts

For inserts and modules of the EPIC® rectangular connectors

Info

- Silver plated and passivated contacts

Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Conductor cross-section (mm²)	Surface	Stripping length (mm)	Pieces / PU
Contacts						
1121070C	MC 3.6 machined	male	1.50	Ag	10.0	100
1121570C	MC 3.6 machined	female	1.50	Ag	10.0	100
1121060C	MC 3.6 machined	male	2.50	Ag	10.0	100
1121560C	MC 3.6 machined	female	2.50	Ag	10.0	100
1121000C	MC 3.6 machined	male	4.00	Ag	10.0	100
1121500C	MC 3.6 machined	female	4.00	Ag	10.0	100
1121010C	MC 3.6 machined	male	6.00	Ag	10.0	100
1121510C	MC 3.6 machined	female	6.00	Ag	10.0	100
1121020C	MC 3.6 machined	male	10.00	Ag	10.0	100
1121520C	MC 3.6 machined	female	10.00	Ag	10.0	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Tools for contacts MC 3.6 machined

For inserts and modules of the EPIC® rectangular connectors

Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article description	Inserts	Version	Note	Pieces / PU
Tools					
11147000	Crimping tool	without crimping dies, without locator	In tool case		1
11147001	Crimping machine	without crimping dies, without locator	Pneumatic, 5 - 10 bar		1
11147110	Crimping dies		For crimping tools 11147000, 11147001	For contacts: MC 3.6 machined (1.5 - 2.5 mm²)	1
11147120	Crimping dies		For crimping tools 11147000, 11147001	For contacts: MC 3.6 machined (4.0 - 10 mm²)	1
11147210	Locator		For crimping tools 11147000, 11147001	For contacts: MC 3.6 machined	1
11171100	Removal tool			For contacts: MC 3.6 machined	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® MC 3.6 machined contacts 16 mm²

For inserts and modules of the EPIC® rectangular connectors

Info

- Crimping contact for power modules
- Silver plated and passivated contacts

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Contact resistance
< 1 mOhm

Contacts
Copper alloy, hard silver-plated

Cycle of mechanical operation
500

Article number	Article description	Inserts	Version	Cross-section (mm²)	Surface	Pieces / PU
Contacts						
44424014	EPIC® Modular SCEM AG 16 D=3.6	Crimping contacts for HC2 modules	male	16	Ag	20
44424015	EPIC® Modular BCEM AG 16 D=3.6	Crimping contacts for HC2 modules	female	16	Ag	20
Ring lug for Protection earth						
44424029	EPIC® KB 16-4R	Ring cable lug to connect a 16mm² protective wire to the module frame	Ringlug	16		10
Crimping die for contacts of HC2 modules						
11147111	EPIC® TOOL DIE D=3.6/16 mm²	Crimping dies		16		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 4.0mm Contacts

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard

Benefits

- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Suitable tools

- EPIC MH Tools 4.0mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors

Contact resistance
< 5 mOhm

Termination methods
Crimp termination: 1.5 mm² - 10 mm²

Stripping length (mm)
10

Cycle of mechanical operation
500

Article number	Article description	Contact type	Connection cross section (mm²)	Pieces / PU
EPIC® MH 4.0mm Contacts				
44423250	EPIC® MH SCEM AG 1.5sqmm D=4.0	male	1.5	100
44423255	EPIC® MH BCEM AG 1.5sqmm D=4.0	female	1.5	100
44423251	EPIC® MH SCEM AG 2.5sqmm D=4.0	male	2.5	100
44423256	EPIC® MH BCEM AG 2.5sqmm D=4.0	female	2.5	100
44423252	EPIC® MH SCEM AG 4sqmm D=4.0	male	4	100
44423257	EPIC® MH BCEM AG 4sqmm D=4.0	female	4	100
44423253	EPIC® MH SCEM AG 6sqmm D=4.0	male	6	100
44423258	EPIC® MH BCEM AG 6sqmm D=4.0	female	6	100
44423254	EPIC® MH SCEM AG 10sqmm D=4.0	male	10	100
44423259	EPIC® MH BCEM AG 10sqmm D=4.0	female	10	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

MC 6.0 machined contacts

For inserts and modules of the EPIC® rectangular connectors

Info

- Silver plated and passivated contacts

Suitable tools

- For use in battery hydraulic crimping tool Klauke type EK 60/22-L

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Contact resistance
< 1 mOhm

Material
Copper alloy, hard silver-plated

Cycle of mechanical operation
500

Article number	Article description	Inserts	Version	Cross-section (mm²)	Cross-section identification	Surface	Pieces / PU
Contacts							
44424019	MC SCEM AG 16 D=6.0	Crimping contacts for HHC2 modules	male	16	1	Ag	20
44424022	MC BCEM AG 16 D=6.0	Crimping contacts for HHC2 modules	female	16	1	Ag	20
44424020	MC SCEM AG 25 D=6.0	Crimping contacts for HHC2 modules	male	25	2	Ag	20
44424023	MC BCEM AG 25 D=6.0	Crimping contacts for HHC2 modules	female	25	2	Ag	20
44424021	MC SCEM AG 35 D=6.0	Crimping contacts for HHC2 modules	male	35	3	Ag	20
44424024	MC BCEM AG 35 D=6.0	Crimping contacts for HHC2 modules	female	35	3	Ag	20
Crimping die for contacts of HHC2 modules							
44424025	TOOL DIE D=6.0/16 mm²	Crimping dies		16			1
44424026	TOOL DIE D=6.0/25 mm²	Crimping dies		25			1
44424027	TOOL DIE D=6.0/35 mm²	Crimping dies		35			1

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MH 8.0mm Contacts

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector system, plugable with the market standard

Benefits

- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard

Application range

- Mechanical engineering
- Robot-building
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Suitable tools

- For use in battery hydraulic crimping tool Klauke type EK 120/42-L

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Contact resistance
< 5 mOhm

Termination methods
Crimp termination: 10 mm² ... 35 mm²

Stripping length (mm)
18

Cycle of mechanical operation
500

Article number	Article description	Contact type	Connection cross section (mm²)	Pieces / PU
EPIC® MH D=8.0 contacts				
44423242	EPIC® MH SCEM AG 10sqmm D=8.0	male	10	10
44423246	EPIC® MH BCEG AU 0.09 - 0.25sqmm D=1.0	female	10	10
44423243	EPIC® MH SCEM AG 16sqmm D=8.0	male	16	10
44423247	EPIC® MH BCEM AG 16sqmm D=8.0	female	16	10
44423244	EPIC® MH SCEM AG 25sqmm D=8.0	male	25	10
44423248	EPIC® MH BCEM AG 25sqmm D=8.0	female	25	10
44423245	EPIC® MH SCEM AG 35sqmm D=8.0	male	35	10
44423249	EPIC® MH BCEM AG 35sqmm D=8.0	female	35	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® TOOL DIE 8.0mm

High flexibility by the use of any combination of inserts in one connector

Info

- Crimp dies for electro hydraulic crimp tool

EPIC® MH contact removal tool 8.0mm

High flexibility by the use of any combination of inserts in one connector

Info

- Tool for removing the 8.0mm contacts from the EPIC® MH modules

Suitable contacts:

EPIC® TOOL DIE 8.0mm

- EPIC MH 8.0mm Contacts Page 596

Benefits

EPIC® MH contact removal tool 8.0mm

- Tool for removing the 8.0mm contacts from the EPIC® MH modules

Suitable tools

EPIC® TOOL DIE 8.0mm

- For use in battery hydraulic crimping tool Klauke type EK 120/42-L

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article description	Connection cross section (mm²)	Pieces / PU
Crimping dies			
44423270	EPIC® TOOL DIE D=8.0 10sqmm	10	1
44423271	EPIC® TOOL DIE D=8.0 16sqmm	16	1
44423272	EPIC® TOOL DIE D=8.0 25sqmm	25	1
44423273	EPIC® TOOL DIE D=8.0 35sqmm	35	1
EPIC® MH contact removal tool 8.0mm			
44423269	EPIC® MH Contact Removal Tool D=8.0		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

MC 10.0 machined contacts

For inserts and modules of the EPIC® rectangular connectors

Info

- Crimping contacts for maximum cross sections and currents
- Silver plated and passivated contacts

Suitable tools

- For use in battery hydraulic crimping tool Klauke type EK 120/42-L

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors

Contact resistance
< 1 mOhm

Material
Copper alloy, hard silver-plated

Cycle of mechanical operation
500

Article number	Article description	Inserts	Version	Cross-section (mm²)	Surface	Pieces / PU
Contacts						
44424032	Modular SCEM AG 50 D=10.0	Crimping contacts for HHC1 modules	male	50	Ag	10
44424035	Modular BCEM AG 50 D=10.0	Crimping contacts for HHC1 modules	female	50	Ag	10
44424033	Modular SCEM AG 70 D=10.0	Crimping contacts for HHC1 modules	male	70	Ag	10
44424036	Modular BCEM AG 70 D=10.0	Crimping contacts for HHC1 modules	female	70	Ag	10
44424034	Modular SCEM AG 95 D=10.0	Crimping contacts for HHC1 modules	male	95	Ag	10
44424037	Modular BCEM AG 95 D=10.0	Crimping contacts for HHC1 modules	female	95	Ag	10
Crimping die for contacts of HHC1 modules						
44424038	TOOL DIE D=10.0/50 mm²	Crimping dies		50		1
44424039	TOOL DIE D=10.0/70 mm²	Crimping dies		70		1
44424040	TOOL DIE D=10.0/95 mm²	Crimping dies		95		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® MC Coax-Contacts

For inserts and modules of the EPIC® rectangular connectors

Info

- Selection between 50 and 75 ohms contacts
- All contacts are high quality gold plated

Product features

- Solder termination: the inner conductor and the outer sleeve of the COAX cable are terminated by soldering

Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Surface	For cable type	Pieces / PU
Solder termination					
44429018	EPIC® MC SLEM 50Ohm RG58CU	male	Au	RG 58 CU	10
44429017	EPIC® MC BLEM 50Ohm RG58CU	female	Au	RG 58 CU	10
44429020	EPIC® MC SLEM 75Ohm RG180BU	male	Au	RG 180 BU	10
44429019	EPIC® MC BLEM 75Ohm RG180BU	female	Au	RG 180 BU	10
44429022	EPIC® MC SLEM 75Ohm RG187AU	male	Au	RG 187 AU	10
44429021	EPIC® MC BLEM 75Ohm RG187AU	female	Au	RG 187 AU	10
Solder/crimp termination					
11214200	MC SLEM COAX MALE	male	Au	RG 58	1
11219200	MC BLEM COAX FEMALE	female	Au	RG 58	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Tools for contacts MC Coax

For inserts and modules of the EPIC® rectangular connectors

Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article description	Inserts	Version	Note	Pieces / PU
Tools					
11147000	Crimping tool	without crimping dies, without locator	In tool case		1
11147001	Crimping machine	without crimping dies, without locator	Pneumatic, 5 - 10 bar		1
11147130	Crimping dies		For crimping tools 11147000, 11147001	For coax-contacts 11214200, 11219200	1
11171100	Removal tool			For contacts: MC 3.6 machined	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® ULTRA H-A 3 Housing

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested

Technical data

Material
Housing: nickel-plated zinc diecasting
Lever: stainless steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12, 4, 4X (latched)

Temperature range
-40°C to +100°C,
short-term up to +125°C

Benefits

- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- High mechanical and chemical resistance
- Plugable with standard housings
- Optimum, low-resistance 360° screening

Application range

- Electric motor manufacturing
- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery

Product features

- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours
- Corrosion-resistant according to DIN EN 6988
- Matching EMC cable gland seperatly: 53112630
- Delivery including stainless steel screw for the inserts

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	PU	Dimensions	
		AG	M 20
Hood			
	10		10423300
	10		10423201
Cable coupler hood			
	10		10423204
Panel-mount base			
	10	10423200	
	10	10423202	
	10		10423203

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-A 3 Hood and cable coupler hood

The robust and reliable industry connector housing

Info

- Lightweight, chemically resistant plastic housing or robust zinc-die casting housing
- Protection rating UL50E tested

Benefits

- Housing in plastic or metal version. For power supply in the smallest possible space

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

- Hood and cable coupler hood
- Versions with / without cable gland
- Single lever or bolts for single lever

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated zinc die-casting, grey
thermoplastic, grey, black
Lever: zinc-plated steel

Protection rating
IP 65 (latched)
NEMA 250, UL50E: 12, 4, 4X (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Illustration	Material	Cable gland	PU	Dimensions	
				M 20	PG 11
Hood					
	Zinc die-casting		10	19512100	10512100
	Zinc die-casting	yes	10	19426500	10426500
	Thermoplastic		10	19425500	10425500
	Thermoplastic	yes	10		10426700
	Thermoplastic		10	19426000	10426000
	Thermoplastic	yes	10		10426400
	Zinc die-casting		10	19512300	10512300
	Zinc die-casting	yes	10	19427500	10427500
	Thermoplastic		10	19427300	10427300
	Thermoplastic	yes	10		10620600
	Thermoplastic		10	19427000	10427000
	Thermoplastic	yes	10		10427100
Cable coupler hood					
	Zinc die-casting		10	19512900	10512900
	Zinc die-casting	yes	10		10429500
	Thermoplastic		10	19429200	10429200
	Thermoplastic	yes	10		10620300
	Thermoplastic		10	19429000	10429000
	Thermoplastic	yes	10		10429100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-A 3 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

Technical data

Material
Housing: powder-coated zinc die-casting, grey
thermoplastic, grey, black
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)
IP 44 (cover closed)
NEMA 250, UL50E: 12, 4, 4X (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437 (except MAGD)
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Info

- Lightweight, chemically resistant plastic housing or robust zinc-die casting housing
- Protection rating UL50E tested

Benefits

- Housing in plastic or metal version. For power supply in the smallest possible space

Application range

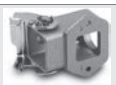
- Mechanical and plant engineering
- Control engineering
- Electronic laboratory

Product features

- Panel-mount base and surface-mount base
- Versions with / without cable gland
- Panel-mount base with cover (with sealing, for female inserts)
- Panel-mount base, flat gasket included (version with open base)

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	Material	Cable gland	PU	Dimensions		
				AG	M 20	PG 11
Panel-mount base						
	Zinc die-casting		10	10422500		
	Thermoplastic		10	10422200		
	Thermoplastic		10	10422000		
	Zinc die-casting		10	10423500		
	Thermoplastic		10	10423100		
	Thermoplastic		10	10423000		
	Aluninium die-casting		10	44429015		
Surface-mount base						
	Zinc die-casting		10		19512700	10512700
	Zinc die-casting	yes	10		19424500	10424500
	Thermoplastic		10			10424000
	Thermoplastic	yes	10		19421900	10424200
	Zinc die-casting		10		19517200	
	Thermoplastic		10		19515200	

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-A 10 Hood and cable coupler hood

The robust and reliable industry connector housing

Info

- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring
- Protection rating UL50E tested

Benefits

- Small and space-saving for narrow available space

Application range

- Mechanical and plant engineering
- Control engineering
- Electronic laboratory

Product features

- Hood with bolts for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)
NEMA 250, UL50E: 12, 4, 4X (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Illustration	High design	Neck	PU	Dimensions				
				M 20	M 25	PG 13.5	PG 16	PG 21
Hood								
		yes	5			10446000	10446100	
	yes	yes	5				70460200	70460400
		yes	5	19445000	19445500		10445000	10445500
	yes	yes	5				70462200	70462400
			5	19446000	19446100			
	yes		5	79460200	79460400			
	yes		5	79462200	79462400			
Cable coupler hood								
		yes	5			10439000	70450000	
	yes	yes	5					70450400
			5	19439000	79450000			
	yes		5		79450400			

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-A 10 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)
NEMA 250, UL50E: 12, 4, 4X (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Info

- Non-slip ridges for comfortable disconnecting
- Protection rating UL50E tested

Benefits

- Small and space-saving for narrow available space

Application range

- Mechanical and plant engineering
- Control engineering
- Electronic laboratory

Product features

- Panel-mount base, with flat gasket included and single lever
- Version with metal cover
- Surface-mount base with 1 or 2 cable outlets

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	Cable entry	PU	Dimensions				
			AG	M 20	M 25	PG 16	PG 21
Panel-mount base							
		5	70444000				
		5	10442000				
Surface-mount base							
		5		79455200	79455400	70455200	70455400
	1	5		79456200	79456400	70456200	70456400
		5		19448100	19448000	10448100	10448000
	1	5		19450100		10450100	

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-A 16 Hood and cable coupler hood

The robust and reliable industry connector housing

Info

- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring
- Protection rating UL50E tested

Benefits

- Small and space-saving for narrow available space

Application range

- Mechanical and plant engineering
- Control engineering
- Electronic laboratory

Product features

- Hood with bolts for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)
NEMA 250, UL50E: 12, 4, 4X (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Illustration	High design	Neck	PU	Dimensions			
				M 20	M 25	PG 16	PG 21
Hood							
		yes	5			10565000	10565300
	yes	yes	5			70490200	70490400
		yes	5	19564000	19564500	10564000	10564500
	yes	yes	5			70492200	70492400
			5	19565000	19565300		
	yes		5	79490200	79490400		
	yes		5	79492200	79492400		
Cable coupler hood							
			5	19563000	19563200		
	yes		5	79480200	79480400		
		yes	5			10563000	
	yes	yes	5			70480200	70480400

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-A 16 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

Technical data

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)
NEMA 250, UL50E: 12, 4, 4X (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Info

- Protection rating UL50E tested

Benefits

- Small and compact, for applications with high number of contacts

Application range

- Mechanical and plant engineering
- Control engineering
- Electronic laboratory

Product features

- Panel-mount base incl. flat gasket included
- Variants with or without hinged cover
- Surface-mount base with 1 or 2 cable outlets
- With single lever

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	Cable entry	PU	Dimensions				
			AG	M 20	M 25	PG 16	PG 21
Panel-mount base							
		5	70474000				
		5	10462000				
Surface-mount base							
	1	5		79485200	79485400	70485200	70485400
	2	5		79485400	79486400	70486200	70486400
	1	5		19567100	19567000	10567100	10567000
	2	5		19568100	19568000	10568100	10568000

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® ULTRA H-B 6 TG LB

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

EPIC® ULTRA H-B 6 TS LB

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Material
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

Protection rating
IP 65
NEMA 250, UL50E: 12, 4, 4X (latched)

Temperature range
-40°C to +100°C

Article number	Article description	Clamping range in mm	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: hood (straight cable entry, bolts for single lever)				
70250200	ULTRA H-B 6 TG-LB 6-13	6 - 13		1
70250266	ULTRA H-B 6 TG-LB 6-13 BRUSH	6 - 13	6	1
70250201	ULTRA H-B 6 TG-LB 9-17	9 - 17		1
70250202	ULTRA H-B 6 TG-LB 9-17 BRUSH	9 - 17	6	1
H-B housing: hood (side cable entry, bolts for single lever)				
70250203	ULTRA H-B 6 TS-LB 6-13	6 - 13		1
70250267	ULTRA H-B 6 TS-LB 6-13 BRUSH	6 - 13	6	1
70250204	ULTRA H-B 6 TS-LB 9-17	9 - 17		1
70250205	ULTRA H-B 6 TS-LB 9-17 BRUSH	9 - 17	6	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® ULTRA H-B 6 AG LB

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant

EPIC® ULTRA H-B 6 SGR LB

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Material
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

Protection rating
IP 65
NEMA 250, UL50E: 12, 4, 4X (latched)

Temperature range
-40°C to +100°C

Article number	Article description	Clamping range in mm	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: panel-mount base (single lever)				
70250206	ULTRA H-B 6 AG LB			1
H-B housing: surface-mount base (1 cable entry, single lever)				
70250207	ULTRA H-B 6 SGR LB 6-13	6 - 13		1
70250268	ULTRA H-B 6 SGR LB 6-13 BRUSH	6 - 13	6	1
70250208	ULTRA H-B 6 SGR LB 9-17	9 - 17		1
70250209	ULTRA H-B 6 SGR LB 9-17 BRUSH	9 - 17	6	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 6 Hood and cable coupler hood

The robust and reliable industry connector housing

Info

- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

Benefits

- The smallest housing out of the H-B series. For inserts with high electrical properties

Application range

- Plant engineering
- Control engineering
- Plastics industry

Product features

- Hood with bolts for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

Temperature range
-40°C to +100°C,
short-term up to +125°C

Illustration	High design	Neck	PU	Dimensions							
				M 20	M 16	M 25	M 32	PG 13.5	PG 16	PG 21	PG 29
Hood											
		yes	10					10011000	10021000		
			10	19011000		19021000					
		yes	10	19012000		19022000		10012000	10022000		
	yes	yes	10							70020200	70020400
	yes		10	79020100	79020000	79020200	79020400				
	yes	yes	10							70022200	70022400
	yes		10			79022200	79022400				
Cable coupler hood											
		yes	10					10014000	10024000		
			10	19014000		19024000					
	yes	yes	10							70010200	70010400
	yes		10			79010200					

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 6 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

Info

- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)
NEMA 250, UL50E: 12, 4 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Benefits

- The smallest housing out of the H-B series. For inserts with high electrical properties

Application range

- Plant engineering
- Control engineering
- Plastics industry

Product features

- Panel-mount base incl. flat gasket included
- Version with metal cover
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- With single lever

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	High design	Cable entry	PU	Dimensions						
				AG	M 20	M 25	M 32	PG 16	PG 21	PG 29
Panel-mount base										
			10	10004000						
			10	10003000						
Surface-mount base										
		1	10		19007000	79015600		10007000		
		2	10		19009000	79016600		10009000		
	yes	1	10			79015200	79015400		70015200	
	yes	2	10			79016200	79016400		70016200	
		1	10		19005000	79005600		10005000		
		2	10		19006000	79006600		10006000		
	yes	1	10			79005200	79005400		70005200	70005400
	yes	2	10			79006200	79006400		70006200	

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® ULTRA H-B 10 TS QB

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

EPIC® ULTRA H-B 10 AG QB

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant

Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Material
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

Protection rating
IP 68
NEMA 250, UL50E: 12, 4, 4X (latched)

Temperature range
-40°C to +100°C

Article number	Article description	Clamping range in mm	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: hood (side cable entry, bolts for double lever)				
70250210	ULTRA H-B 10 TS QB 7-15	7 - 15		1
70250265	ULTRA H-B 10 TS QB 7-15 BRUSH	7 - 15	8	1
70250211	ULTRA H-B 10 TS QB 11-21	11 - 21		1
70250212	ULTRA H-B 10 TS QB 11-21 BRUSH	11 - 21	8	1
H-B housing: panel-mount base (double lever)				
70250213	ULTRA H-B 10 AG QB			1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 10 Hood and cable coupler hood

The robust and reliable industry connector housing

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12, 4 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Info

- Protection rating UL50E tested
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

Benefits

- The smallest housing with single and double lever. The right housing is available for every application

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Hood and cable coupler hood
- Standard and high version
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	High design	Neck	PU	Dimensions					
				M 20	M 25	M 32	PG 16	PG 21	PG 29
Hood									
		yes	10				10040000	10040100	
		yes	10				10041000		
		yes	10	19042000	19042100		10042000	10042100	
		yes	10	19045000	79057700		10045000		
	yes	yes	10					70050400	70050600
	yes		10		79050400	79050600			
	yes	yes	10					70057200	70057400
	yes		10		79057200				
	yes	yes	10					70052400	70052600
	yes		10		79052400	79052600			
			10	19041000	79055700				
	yes	yes	10					70055200	70055400
	yes		10		79055200	79055400			
			10	19040000	19040100				
Cable coupler hood									
		yes	10				10046000	70040200	
			10	19046000	79040200				
	yes	yes	10					70040400	70040600
	yes		10		79040400	79040600			

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 10 Hood and cable coupler hood

The robust and reliable industry connector housing

Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

Benefits

- The smallest housing with single and double lever. The right housing is available for every application

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Hood with reels for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12, 4 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Illustration	High design	Neck	PU	Dimensions					
				M 20	M 25	M 32	PG 16	PG 21	PG 29
Hood									
		yes	10				10040900	10040900	
		yes	10	19042900	19042800		10042900	10042800	
	yes	yes	10					70044200	70044400
	yes		10		79044200	79044400			
	yes	yes	10					70054200	70054400
	yes		10		79054200	79054400			
Cable coupler hood									
		yes	10				10046900	70042200	
			10	19046900	79042200				
	yes	yes	10					70042400	70042600
	yes		10		79042400	79042600			

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 10 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12, 4 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Info

- Protection rating UL50E tested

Benefits

- The smallest housing with single and double lever. The right housing is available for every application

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Panel-mount base, flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Double lever or bolts for double lever
- Version with metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	High design	Cable entry	PU	Dimensions						
				AG	M 20	M 25	M 32	PG 16	PG 21	PG 29
Panel-mount base										
			10	10033000						
			10	10032000						
Surface-mount base										
		1	10		19036000	19036100		10036000		
		2	10		19038000	79046600		10038000		
	yes	1	5			79045200			70045200	70045400
	yes	2	5			79046200	79046400		70046200	

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 10 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

Benefits

- The smallest housing with single and double lever. The right housing is available for every application

Application range

- Plant engineering
- Drive systems
- Light & sound technology
- Plastics industry

Product features

- Panel-mount base incl. flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Version with metal cover
- With single lever

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12 (latched)

Temperature range
-40°C to +100°C,
short-term up to +125°C

Illustration	High design	Cable entry	PU	Dimensions						
				AG	M 20	M 25	M 32	PG 16	PG 21	PG 29
Panel-mount base										
			10	10033900						
			10	10032900						
Surface-mount base										
	yes	1	5			79064200	79064400		70064200	70064400
	yes	2	5			79065200	79065400		70065200	70065400
		2	10		19038900	79065600		10038900		
		1	10		19036900	79064600		10036900		
	yes	1	10			79060200	79060400		70060200	70060400
	yes	2	10			79061200	79061400		70061200	70061400
		1	10		19034900	19034700		10034900	10034700	
		2	10		19035900	79061600		10035900		

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® ULTRA H-B 16 TS QB

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

EPIC® ULTRA H-B 16 AG QB

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant

Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

Application range

- Construction machinery
- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Electric motor manufacturing

Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Material
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

Protection rating
IP 68
NEMA 250, UL50E: 12, 4, 4X (latched)

Temperature range
-40°C to +100°C

Article number	Article description	Clamping range in mm	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: hood (side cable entry, bolts for double lever)				
70250214	ULTRA H-B 16 TS QB 7-15	7 - 15		1
70250264	ULTRA H-B 16 TS QB 7-15 BRUSH	7 - 15	8	1
70250215	ULTRA H-B 16 TS QB 11-21	11 - 21		1
70250216	ULTRA H-B 16 TS QB 11-21 BRUSH	11 - 21	8	1
H-B housing: panel-mount base (double lever)				
70250217	ULTRA H-B 16 AG QB			1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 16 Hood and cable coupler hood

The robust and reliable industry connector housing

Info

- Protection rating UL50E tested
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

Benefits

- The smallest housing with single and double lever. The right housing is available for every application

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Hood and cable coupler hood
- Standard and high version
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12, 4 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Illustration	High design	Neck	PU	Dimensions						
				M 25	M 32	M 40	M 2 x 25	M 2 x 32	PG 21	PG 29
Hood										
		yes	5						10080000	10090000
			5	19080000	19090000					
		yes	5						10081000	
			5	19081000						
	yes	yes	5						70105200	70105400
	yes		5	79105200	79105400					
	yes	yes	5						70100200	70100400
	yes		5	79100200	79100400	79100800				
		yes	5	19082000	19092000				10082000	10092000
		yes	5	19083000					10083000	
	yes	yes	5						70107200	70107400
	yes		5	79107200	79107400					
	yes	yes	5						70102200	70102400
	yes		5	79102200	79102400	79102800				
		yes	5				19080500			
	yes		5				44422018	79128600		
Cable coupler hood										
		yes	5						10086000	
			5	19086000						
	yes	yes	5						70090200	70090400
	yes		5					79090401		
	yes		5	79090200	79090400					

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 16 Hood and cable coupler hood

The robust and reliable industry connector housing

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)
UL50 Type 12 (latched) or higher

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Info

- Non-slip ridges for comfortable disconnecting
- Single Lever version for quick locking and simple unlocking with lifting aid
- High version: More interior space for wiring

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Hood with reels for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	High design	Neck	PU	Dimensions				
				M 25	M 32	M 40	PG 21	PG 29
Hood								
	yes	yes	5				70094200	70094400
	yes		5	79094200	79094400	79094600		
		yes	5				10080900	
			5	19080900				
	yes	yes	5				70104200	70104400
		yes	5	19082900	19092900		10082900	10092900
	yes		5	79104200	79104400	79104800		
Cable coupler hood								
	yes	yes	5				70092200	70092400
	yes		5	79092200	79092400			
		yes	5				10086900	
			5	19086900				

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 16 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

Info

- Protection rating UL50E tested
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

Benefits

- The smallest housing with single and double lever. The right housing is available for every application

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Panel-mount base, flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Double lever or bolts for double lever
- Version with metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12, 4 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Illustration	High design	Cable entry	PU	Dimensions				
				AG	M 25	M 32	PG 21	PG 29
Panel-mount base								
			5	10073000				
			5	10072000				
Surface-mount base								
		1	5		19076000		10076000	
		2	5		79096000		70096000	
	yes	1	5		79095200	79095400	70095200	70095400
	yes	2	5		79096200	79096400	70096200	
		1	5		19074000		10074000	
		2	5		19075000		10075000	
	yes	1	5		79085200	79085400	70085200	70085400
	yes	2	5		79086200	79086400	70086200	70086400

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 16 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

Info

- Metal lid with sturdy hinge
- Single Lever version for quick locking and simple unlocking with lifting aid
- High version: More interior space for wiring

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Benefits

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Panel-mount base, straight entry, flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Version with metal cover
- With single lever

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	High design	Cable entry	PU	Dimensions				
				AG	M 25	M 32	PG 21	PG 29
Panel-mount base								
			5	10073900				
			5	10072900				
Surface-mount base								
	yes	1	5		79114200	79114400	70114200	70114400
	yes	2	5		79115200	79115400	70115200	70115400
		1	5		19076900		10076900	
		2	5		19078900		10078900	
	yes	1	5		79110200	79110400	70110200	70110400
	yes	2	5		79111200	79111400	70111200	70111400
		1	5		19074900		10074900	
		2	5		19075900		10075900	

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® ULTRA H-B 24 TS QB

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

EPIC® ULTRA H-B 24 AG QB

The robust and reliable industry connector housing as EMC version

Info

- EMC protection
- Corrosion-resistant

Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

Product features

- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Material
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

Protection rating
IP 65
NEMA 250, UL50E: 12 (latched)

Temperature range
-40°C to +100°C

Article number	Article description	Clamping range in mm	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: hood (side cable entry, bolts for double lever)				
70250219	ULTRA H-B 24 TS QB 7-15	7 - 15		1
70250263	ULTRA H-B 24 TS QB 7-15 BRUSH	7 - 15	8	1
70250220	ULTRA H-B 24 TS QB 11-21	11 - 21		1
70250221	ULTRA H-B 24 TS QB 11-21 BRUSH	11 - 21	8	1
H-B housing: panel-mount base (double lever)				
70250222	ULTRA H-B 24 AG QB			1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 24 Hood and cable coupler hood

The robust and reliable industry connector housing

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Info

- Protection rating UL50E tested
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

Benefits

- Ideal for many applications due to a wide range of housings and inserts

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Standard and high version
- Versions with / without neck
- Hood and cable coupler hood

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	High design	Neck	PU	Dimensions						
				M 25	M 32	M 40	M 2 x 25	M 2 x 32	PG 21	PG 29
Hood										
		yes	5						10121000	10111000
			5	19121000	19111000	19111500				
		yes	5						10122000	10112000
			5	19122000	19112000					
	yes	yes	5						70155400	70155600
	yes		5	79155400	79155600					
	yes	yes	5						70150400	70150600
	yes		5	79150400	79150600	79150800				
	yes		5	79157400	79157600					
	yes	yes	5						70152400	70152600
	yes		5	79152400	79152600	79152800				
	yes	yes	5						70157400	70157600
		yes	5	19113000	19123000				10113000	10123000
		yes	5	19114000	19124000				10114000	10124000
		yes	5				44422019	44422020		
	yes		5				44422021	79178500		
Cable coupler hood										
		yes	5						10127000	10117000
			5	19127000	19117000					
	yes	yes	5						70140400	70140600
	yes		5	79140400	79140600					

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 24 Hood and cable coupler hood

The robust and reliable industry connector housing

Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- High version: More interior space for wiring

Benefits

- Ideal for many applications due to a wide range of housings and inserts

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Hood with reels for single lever
- Cable coupler hood with single lever
- Standard and high version
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Illustration	High design	Neck	PU	Dimensions				
				M 25	M 32	M 40	PG 21	PG 29
Hood								
		yes	5				10121900	10111900
			5	19121900	19111900			
		yes	5	19113900	19123900		10113900	10123900
	yes	yes	5				70144400	70144600
	yes		5	79144400	79144600	79144800		
	yes	yes	5				70154400	70154600
	yes		5	79154400	79154600	79154800		
Cable coupler hood								
	yes	yes	5				70142400	
	yes		5	79142400	79142600			
			5	19127900	19117900			
		yes	5				10127900	10117900

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 24 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)
NEMA 250, UL50E: 12 (latched) or higher

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Info

- Protection rating UL50E tested
- Non-slip ridges for comfortable disconnecting
- High version: More interior space for wiring

Benefits

- Ideal for many applications due to a wide range of housings and inserts

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Panel-mount base, flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Double lever or bolts for double lever
- Version with metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Illustration	High design	Cable entry	PU	Dimensions				
				AG	M 25	M 32	PG 21	PG 29
Panel-mount base								
			5	10103000				
			5	10102000				
Surface-mount base								
		1	5		10107000		10107000	
		2	5		19109000		10109000	
	yes	1	5			79145400	70145200	70145400
	yes	2	5			79146400	70146200	70146400
		1	5		19104000		10104000	
		2	5		19105000		10105000	
	yes	1	5		79135200	79135400	70135200	70135400
	yes	2	5		79136200	79136400	70136200	70136400

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 24 Panel-mount- and surface-mount base

The robust and reliable industry connector housing

Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- Metal lid with sturdy hinge
- High version: More interior space for wiring

Benefits

- Ideal for many applications due to a wide range of housings and inserts

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Panel-mount base, straight entry, flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Standard and high version
- Version with metal cover
- With single lever

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Illustration	High design	Cable entry	PU	Dimensions				
				AG	M 25	M 32	PG 21	PG 29
Panel-mount base								
			5	10103900				
			5	10102900				
Surface-mount base								
	yes	1	5		79164200	79164400	70164200	70164400
	yes	2	5		79165200	79165400	70165200	70165400
		1	5		19107900		10107900	
		2	5		19109900		10109900	
	yes	1	5		79160200	79160400	70160200	70160400
	yes	2	5		79161200	79161400	70161200	70161400
		1	5		19104900		10104900	
		2	5		19105900		10105900	

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 32 Housings

The robust and reliable industry connector housing

Info

- Double lever version with 2 levers for increased safety
- Non-slip ridges for comfortable disconnecting

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

Benefits

- Two inserts in one housing. With two levers for high safety

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Hood
- Gerade Panel-mount base, straight entry, flat gasket included
- Surface-mount base with 1 or 2 cable outlets

Suitable inserts

- The H-B 32 housings can also be assembled with 2 different inserts of size H-B 16
- Refer to Selection Table A10 to select the required inserts and housings

Illustration	Neck	Cable entry	PU		Dimensions						
				AG	M 2 x 25	M 2 x 32	M 25	M 32	M 40	PG 21	PG 29
Hood											
			5		44422022	44422023					
	yes		5							10133000	10134000
			5					19134000	19134400		
	yes		5							10135000	10136000
			5				19135000	19136000	19136200		10135600
Cable coupler hood											
	yes		5								10139500
			5					19139500			
Panel-mount base											
			5	10132000							
Surface-mount base											
		1	5					19137000	19146400		10137000
		2	5					19138000	19145400		10138000

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 48 Housings

The robust and reliable industry connector housing

Benefits

- The large, robust housing for two inserts in one connector. Power and data in a single connector

Application range

- Plant engineering
- Plastics industry

Product features

- Panel-mount base, straight entry, flat gasket included
- Surface-mount base with 1 or 2 cable outlets
- Versions with / without neck
- Version with plastic cover
- With single lever

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

VDE-tested
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

Temperature range
-40 °C to +100 °C,
short-term up to +125 °C

Illustration	Neck	Cable entry	PU	Dimensions						
				M 32	M 40	M 50	AG	PG 29	PG 36	PG 42
Hood										
	yes		1					10155000	10156000	10157000
			1	19155000	19156000	19157000			10156200	
	yes		1					10158000	10159000	10160000
			1	19158000	19159000	19160000			10159200	
Panel-mount base										
			1				10152000			
			1				10161000			
Surface-mount base										
		1	1	19165000	19165100			10165000	10165100	
		2	1	19166000	19166100			10166000	10166100	
		1	1	19167000	19167100			10167000	10167100	
		2	1	19168000	19168100			10168000	10168100	

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® Docking frame

Info

- Mounting system for control cabinets
- For float-mounting fixing of the inserts

Application range

- Control cabinet manufacturing
- Wind power plants

Product features

- Scope of delivery per packaging unit: 2 frams with 8 screws
- Special screws adapted to frame
- Pull-In range in x and y axis: + - 1,5mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002312
ETIM 5.0/6.0 Class-Description: Contact insert holder for industrial connectors

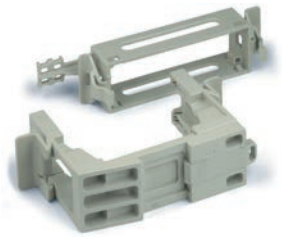
Material
Docking frame: stainless steel
Screws: steel zinc plated

Cycle of mechanical operation
500

Article number	Article description	Version	Pieces / PU
EPIC® Docking frame			
44429440	H-B 6 DF	4 fixing screws each included	2
44429441	H-B 10 DF	4 fixing screws each included	2
44429442	H-B 16 DF	4 fixing screws each included	2
44429443	H-B 24 DF	4 fixing screws each included	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® QUICK & EASY Mounting system



Info

- Mounting system for control cabinets

Application range

- Control cabinet manufacturing

Product features

- For mounting inserts on top-hat rails according to DIN EN 50022
- Available as a complete set or as single parts (top part for use as a cable connector, bottom part for mounting on a top-hat rail)
- QUICK & EASY top parts are available in housing types H-B 6, H-B 10, H-B 16, H-B 24. The suitable size (number of contacts) of the different insert types are listed at the connector housings (H-B 6 ..H-B 24)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002312
ETIM 5.0/6.0 Class-Description: Contact insert holder for industrial connectors

Flammability
UL94 V-0

Cycle of mechanical operation
50

Article number	Article description	Material	Version	Pieces / PU
QUICK & EASY complete set				
10027000	EPIC® H-B 6 Q+E Set	Polycarbonate	Complete, for inserts size H-B 6	1
10027100	EPIC® H-B 10 Q+E Set	Polycarbonate	Complete, for inserts size H-B 10	1
10027200	EPIC® H-B 16 Q+E Set	Polycarbonate	Complete, for inserts size H-B 16	1
10027300	EPIC® H-B 24 Q+E Set	Polycarbonate	Complete, for inserts size H-B 24	1
QUICK & EASY top part				
10027410	EPIC® H-B 6 Q+E top part	Polycarbonate	For inserts size H-B 6	10
10027510	EPIC® H-B 10 Q+E top part	Polycarbonate	For inserts size H-B 10	10
10027610	EPIC® H-B 16 Q+E top part	Polycarbonate	For inserts size H-B 16	10
10027710	EPIC® H-B 24 Q+E top part	Polycarbonate	For inserts size H-B 24	10
QUICK & EASY bottom part				
10027810	EPIC® H-B 6-24 Q+E bottom part	Polycarbonate	For inserts size H-B 6 - 24	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Flat gaskets for housings H-A and H-B

EPIC® Fixing screws

Application range

- Accessories for an effective use of EPIC® rectangular connectors

Product features

EPIC® Flat gaskets for housings H-A and H-B

- Flat gaskets as spare parts for panel-mount base

EPIC® Fixing screws

- Spare parts for fastening inserts in H-A 3 housings

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Article number	Article description	Pieces / PU
Flat gasket for panel-mount base H-A		
10607100	Flat gasket for panel-mount base H-A 3	10
10607200	Flat gasket for panel-mount base H-A 10	10
10607300	Flat gasket for panel-mount base H-A 16	10
10607600	Flat gasket for panel-mount base H-A 32	10
Flat gasket for panel-mount base H-B		
10051000	Flat gasket for panel-mount base H-B 6	10
10051200	Flat gasket for panel-mount base H-B 10	10
10051400	Flat gasket for panel-mount base H-B 16	10
10051600	Flat gasket for panel-mount base H-B 24	10
10052000	Flat gasket for panel-mount base H-B 32/H-A 48	10
10052200	Flat gasket for panel-mount base H-B 48	10
Fastening screws		
44423017	Screw with O-ring for EPIC H-A 3/4, H-D7/8, H-Q 5	10
44423041	Screw with O-ring for EPIC H-A 3/4, H-D7/8, H-Q 5	10
44423018	EPIC® STA Screw	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Coding parts

Application range

- Accessories for an effective use of EPIC® rectangular connectors

Product features

- For rectangular connector inserts, the key pin replaces one or more fastening screws. This enables simple coding.
- In rectangular connector inserts, the guide pin replaces the fastening screws on one side and on the other side the guide socket replaces the screw. This enables a lot of coding possibilities. Also the connector gets a perfect guiding and prevents a skew mating.
- With these inserts, the H-A 3/H-A 4 Codepin is pressed into a socket contact. The corresponding pin contact is removed, meaning one electrical contact will be lost.

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002311
ETIM 5.0/6.0 Class-Description:
Coding for industrial connectors

Article number	Article description	Pieces / PU
EPIC® H-A 3/4 Code pin		
10451400	EPIC® H-A 3/4 Code pin	50
Key pin		
10019000	EPIC® Key pin	50
Guide pin, guide socket		
11281000	EPIC® Guide socket	50
11280000	EPIC® Guide pin	50
EPIC® H-Q 12 Codepin		
44424052	EPIC® H-Q 12 Key Pin	20

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Protective cover H-A 3

EPIC® Protective cover H-A

EPIC® Protective cover H-B

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002314
ETIM 5.0/6.0 Class-Description: Cap for industrial connectors

Product features

EPIC® Protective cover H-A 3

- Protective cover made of thermoplastics and metal for H-A 3 housings
- Retaining cord with cable lug for attachment with screw on mounting base or wall
- Retaining cord with variable loop for attachment to the cable

EPIC® Protective cover H-A

- Retaining cord with cable lug for attachment with screw on mounting base or wall
- Retaining cord with variable loop for attachment to the cable
- Protective cover made of thermoplastics for H-A 10, H-A 16, H-A 32, H-A 48 housings

EPIC® Protective cover H-B

- Retaining cord with cable lug for attachment with screw on mounting base or wall
- Retaining cord with variable loop for attachment to the cable
- Protective cover made of thermoplastics for H-B 6, H-B 10, H-B 16, H-B 24, H-B 32 housings

Article number	Article description	Version	Bolts	Securing cord	Clamp	Material	Pieces / PU
For H-A 3 panel-mount base, surface-mount base, cable coupler hood with male or female inserts							
10513000	H-A 3 MDBF-S	for housing H-A 3 with male inserts	2	with cable lug		Metal	10
10513100	H-A 3 MDBF-B	for housing H-A 3 with female inserts	2	with cable lug		Metal	10
For H-A 3 panel-mount base, surface-mount base, cable coupler hood with male inserts							
10430000	H-A 3 KDB-S	for housing H-A 3 with male inserts	2			Plastic	10
10430400	H-A 3 KDBF-S	for housing H-A 3 with male inserts	2	with cable lug		Plastic	10
For H-A 3 panel-mount base, surface-mount base, cable coupler hood with female inserts							
10430300	H-A 3 KDB-B	for housing H-A 3 with female inserts	2			Plastic	10
10430100	H-A 3 KDBF-B	for housing H-A 3 with female inserts	2	with cable lug		Plastic	10
with bolts for H-A 10-32 panel-mount base, surface-mount base, cable coupler hood							
10457700	H-A 10 KDB	for housing H-A 10	2	-		Plastic	5
10469700	H-A 16 KDB	for housing H-A 16	2			Plastic	5
10481700	H-A 32 KDB	for housing H-A 32	4			Plastic	5
10457500	H-A 10 KDBF	for housing H-A 10	2	with cable lug		Plastic	5
10469500	H-A 16 KDBF	for housing H-A 16	2	with cable lug		Plastic	5
10481500	H-A 32 KDBF	for housing H-A 32	4	with cable lug		Plastic	10
with lever for H-A 10-32 hoods							
10457800	H-A 10 KDT	for H-A 10 hood			2 snap-in hooks	Plastic	5
10469800	H-A 16 KDT	for H-A 16 hood			2 snap-in hooks	Plastic	5
10481800	H-A 32 KDT	for H-A 32 hood			4 snap-in hooks	Plastic	5
10457600	H-A 10 KDTF	for H-A 10 hood		with loop	2 snap-in hooks	Plastic	5
10469600	H-A 16 KDTF	for H-A 16 hood		with loop	2 snap-in hooks	Plastic	5
10481600	H-A 32 KDT	for H-A 32 hood		with loop	4 snap-in hooks	Plastic	10
with bolts for H-B 6-24 panel-mount base, surface-mount base, cable coupler hood							
10015000	H-B 6 KDB	for housing H-B 6	2	with loop		Plastic	10
10047000	H-B 10 KDB	for housing H-B 10	4	with loop		Plastic	10
10087000	H-B 16 KDB	for housing H-B 16	4	with loop		Plastic	5
10118000	H-B 24 KDB	for housing H-B 24	4	with loop		Plastic	5
with lever for H-B 6-24 hood with bolts							
10016500	H-B 6 KDT	for H-B 6 hood		with loop	Single lever	Plastic	10
10048500	H-B 10 KDT	for H-B 10 hood		with loop	Double Lever	Plastic	10
10088500	H-B 16 KDT	for H-B 16 hood		with loop	Double Lever	Plastic	5
10119500	H-B 24 KDT	for H-B 24 hood		with loop	Double Lever	Plastic	5
with bolts for H-B 6-24 hoods with levers							
10015100	H-B 6 KDBP	for H-B 6 hood	2	with loop		Plastic	10
10047100	H-B 10 KDBP	for H-B 10 hood	4	with loop		Plastic	10
10087100	H-B 16 KDBP	for H-B 16 hood	4	with loop		Plastic	10
10118100	H-B 24 KDBP	for H-B 24 hood	4	with loop		Plastic	5
with bolts for H-B 10-32 panel-mount base, surface-mount base, cable coupler hood							
10048700	H-B 10 KDBF	for housing H-B 10	2	with loop		Plastic	10
10088700	H-B 16 KDBF	for housing H-B 16	2	with loop		Plastic	10
10118700	H-B 24 KDBF	for housing H-B 24	2	with loop		Plastic	10
10118020	H-B 32 / H-A 48 KDBF	for housing H-B 32/H-A 48	4	with loop		Plastic	10
with lever for H-B 10-24 hood with bolts							
10048600	H-B 10 KDTF	for H-B 10 hood		with loop	Single lever	Plastic	10
10088600	H-B 16 KDTF	for H-B 16 hood		with loop	Single lever	Plastic	10
10118600	H-B 24 KDTF	for H-B 24 hood		with loop	Single lever	Plastic	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® Cover plates

EPIC® Adapter plates for 1 D-Sub insert

EPIC® Adapter plates for 2 D-Sub inserts

EPIC® Locking levers for H-A, H-B

Technical data

ETIM

Classification ETIM 5/6
EPIC® Cover plates
ETIM 5.0/6.0 Class-ID: EC002309
ETIM 5.0/6.0 Class-Description:
Adapter plate industrial connectors
EPIC® Adapter plates for 1 D-Sub insert
ETIM 5.0/6.0 Class-ID: EC002309
ETIM 5.0/6.0 Class-Description:
Adapter plate industrial connectors
EPIC® Adapter plates for 2 D-Sub inserts
ETIM 5.0/6.0 Class-ID: EC002309
ETIM 5.0/6.0 Class-Description:
Adapter plate industrial connectors
EPIC® Locking levers for H-A, H-B
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Similar products

EPIC® Cover plates
- SKINTOP® CUBE refer to page 722
- SKINTOP® CUBE MULTI refer to page 724
- SKINTOP® MULTI refer to page 721

Product features

EPIC® Cover plates
- For coverage of panel cut-outs for panel-mount base housings type H-A and H-B

EPIC® Adapter plates for 1 D-Sub insert
- For use of D-Sub inserts in H-B housings

EPIC® Adapter plates for 2 D-Sub inserts
- For use of D-Sub inserts in H-B housings

EPIC® Locking levers for H-A, H-B
- Locking levers as spare parts for H-A and H-B housings

Article number	Article description	Version	Material	Pieces / PU
Cover plates for mounting cut-out H-A and H-B				
71180200	H-A 3	for H-A 3 panel-mount base housing		10
10018920	H-B 6	for H-B 6 panel-mount base housing		10
10018921	H-B 10	for H-B 10 panel-mount base housing		10
10018922	H-B 16	for H-B 16 panel-mount base housing		10
10018923	H-B 24	for H-B 24 panel-mount base housing		10
Adapter plates for 1 D-Sub insert				
11764200	H-B 6 / M-D 9	for 1 x D-Sub 9–pin		10
11764202	H-B 6 / M-D 15	for 1 x D-Sub 15–pin		10
11764300	H-B 10 / M-D 25	for 1 x D-Sub 25–pin		10
11764400	H-B 16 / M-D 25	for 1 x D-Sub 25–pin		10
Adapter plates for 2 D-Sub inserts				
11764201	H-B 6 / 2xM-D 9	for 2 x D-Sub 9–pin		10
11764203	H-B 6 / 2xM-D 15	for 2 x D-Sub 15–pin		10
11764301	H-B 10 / 2xM-D 25	for 2 x D-Sub 25–pin		10
Single and double levers for H-A and H-B housings				
10458000	H-A 10 LB	single lever for H-A 10 housing	Steel	10
10468000	EPIC H-A 16 LB/H-B 32 QB	single lever for H-A 16 housing	Steel	10
10480100	H-A 32 QB	double lever for H-A 32 housing	Steel	10
10049000	H-B 10-24 QB	double lever for H-B 10 - 24 housing	Steel	10
10017000	H-B 6 LB	single lever for H-B 6 housing	Steel	10
10017100	H-B 6 LB-K	single lever for H-B 6 housing	Stainless steel	10
10049100	H-B 10-24 QB-K	double lever for H-A 32 housing	Stainless steel	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

EPIC® Cover plates
- SKINTOP® CUBE refer to page 722
- SKINTOP® CUBE MULTI refer to page 724
- SKINTOP® MULTI refer to page 721

EPIC® POWER M12 630V panel base

Circular connectors for servomotors and power supply

Info

- Simply screw in given metric thread

Benefits

- Standard M20 Version with screw contacts
- Small M16 Version with preharnessed wires
- High performance gold plated contacts

Application range

- Power Supply for small devices
- For 1-phase cables or 3-phase wihout N

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description:
Circular connector (industrial connector)

Rated voltage (V)
630 V

Rated impulse voltage
6 kV

Rated current (A)
12 A

Pollution degree
3

Contact resistance
< 3 mOhm

Number of contacts
3 + PE
S-coded

Termination methods
Screw termination: 0.75 - 1.5mm²
with 0,2m PP-wire, 4x1.5mm²

Protection rating
IP 67

Cycle of mechanical operation
100

Temperature range
-40 °C to +85 °C

Article number	Article description	Fastening type	Pieces / PU
EPIC® POWER M12 630V panel base			
44423144	Panel base with pin contacts	M20	1
44423145	Panel base with socket contacts	M20	1
44423146	Panel base with pin contacts	M16 (with wires 4xAWG16/0.2m)	1
44423147	Panel base with socket contacts	M16 (with wires 4xAWG16/0.2m)	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER M12 630V cable connector

Circular connectors for servomotors and power supply

Info

- Smallest Power connector

Benefits

- To terminate only screw driver is neccessary
- Small and space-saving for narrow available space
- High performance gold plated contacts

Application range

- Power Supply for small devices
- For 1-phase cables or 3-phase wihout N

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description:
Circular connector (industrial connector)

Rated voltage (V)
630 V

Rated impulse voltage
6 kV

Rated current (A)
12 A

Pollution degree
3

Contact resistance
< 3 mOhm

Number of contacts
3 + PE
S-coded

Termination methods
Screw termination: 0.75 - 1.5mm²

Protection rating
IP 67

Cycle of mechanical operation
100

Temperature range
-40 °C to +85 °C

Article number	Article description	Clamping range in mm	Pieces / PU
EPIC® POWER M12 630V cable connector			
44423140	Cable coupler with pin contacts	8 - 10	1
44423141	Cable connector with socket contacts	8 - 10	1
44423142	Cable coupler with pin contacts, angled	8 - 10	1
44423143	Cable connector with socket contacts, angled	8 - 10	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER M17 A1

Circular connectors for servomotors and power supply

Info

- High Power with smallest space requirements

EPIC® POWER M17 A3

Circular connectors for servomotors and power supply

Info

- Rotateable with 310° cable outlet

EPIC® POWER M17 G4

Circular connectors for servomotors and power supply

Info

- For installation in existing hole

Suitable contacts:

- EPIC® M17 Contacts Page 638
- The contacts have to be ordered separately

Benefits

- Version with less contacts for higher current
- Sensor/ ac
- EMC protection

Application range

- Servo drives and servo assemblies
- Plant engineering, machinery manufacturing

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
630V: 2mm and 1mm contacts
60V: 0,6mm contacts

Rated impulse voltage
6KV: 2mm and 1mm contacts
1.5KV: 0.6mm contacts

Rated current (A)
3+PE: 20A, 5+PE/6+PE/7+PE:14A, 3+PE+5:14A/3,6A

Pollution degree
3

Contacts
Gold-plated brass

Number of contacts
3+PE, 5+PE, 6+PE, 7+PE, 3+PE+5 Contacts:3+PE(2mm), 5+PE(1mm), 6+PE(1mm), 7+PE(1mm), 3+PE+5(1mm/0.6mm)

Termination methods
Crimp: 3+PE: 0.5-2.5mm², 5+PE/6+PE/7+PE: 0.06-1mm², 3+P+5: 0.06-1/0.06-0.5mm²

Material
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

Protection rating
IP 67

Cycle of mechanical operation
100

Temperature range
-40°C to +125°C

Article number	Article description	Fastening type	Pin configuration	Pieces / PU
Type M17 A1, front wall mounting				
44423075	EPIC® M17 female	Ø 2.7 mm (4x)	3+PE (2mm contacts)	5
44423070	EPIC® M17 male	Ø 2.7 mm (4x)	3+PE (2mm contacts)	5
44423076	EPIC® M17 female	Ø 2.7 mm (4x)	5+PE (1mm contacts)	5
44423071	EPIC® M17 male	Ø 2.7 mm (4x)	5+PE (1mm contacts)	5
44423077	EPIC® M17 female	Ø 2.7 mm (4x)	6+PE (1mm contacts)	5
44423072	EPIC® M17 male	Ø 2.7 mm (4x)	6+PE (1mm contacts)	5
44423078	EPIC® M17 female	Ø 2.7 mm (4x)	7+PE (1mm contacts)	5
44423073	EPIC® M17 male	Ø 2.7 mm (4x)	7+PE (1mm contacts)	5
44423079	EPIC® M17 female	Ø 2.7 mm (4x)	3+PE+5 (1mm/0.6mm contacts)	5
44423074	EPIC® M17 male	Ø 2.7 mm (4x)	3+PE+5 (1mm/0.6mm contacts)	5
Type M17 A3, angled and rotateable				
44423085	EPIC® M17 female	Ø 2.7 mm (4x)	3+PE (2mm contacts)	5
44423080	EPIC® M17 male	Ø 2.7 mm (4x)	3+PE (2mm contacts)	5
44423086	EPIC® M17 female	Ø 2.7 mm (4x)	5+PE	5
44423081	EPIC® M17 male	Ø 2.7 mm (4x)	5+PE	5
44423087	EPIC® M17 female	Ø 2.7 mm (4x)	6+PE (1mm contacts)	5
44423082	EPIC® M17 male	Ø 2.7 mm (4x)	6+PE (1mm contacts)	5
44423088	EPIC® M17 female	Ø 2.7 mm (4x)	7+PE (1mm contacts)	5
44423083	EPIC® M17 male	Ø 2.7 mm (4x)	7+PE (1mm contacts)	5
44423089	EPIC® M17 female	Ø 2.7 mm (4x)	3+PE+5 (1mm/0.6mm contacts)	5
44423084	EPIC® M17 male	Ø 2.7 mm (4x)	3+PE+5 (1mm/0.6mm contacts)	5
Type M17 G4, front wall mounting				
44423095	EPIC® M17 female	M18x0,75 (order counternut separately)	3+PE (2mm contacts)	5
44423090	EPIC® M17 male	M18x0,75 (order counternut separately)	3+PE (2mm contacts)	5
44423099	EPIC® M17 female	M18x0,75 (order counternut separately)	5+PE (1mm contacts)	5
44423094	EPIC® M17 male	M18x0,75 (order counternut separately)	5+PE (1mm contacts)	5
44423096	EPIC® M17 female	M18x0,75 (order counternut separately)	6+PE (1mm contacts)	5
44423091	EPIC® M17 male	M18x0,75 (order counternut separately)	6+PE (1mm contacts)	5
44423097	EPIC® M17 female	M18x0,75 (order counternut separately)	7+PE (1mm contacts)	5
44423092	EPIC® M17 male	M18x0,75 (order counternut separately)	7+PE (1mm contacts)	5
44423098	EPIC® M17 female	M18x0,75 (order counternut separately)	3+PE+5 (1mm/0.6mm contacts)	5
44423093	EPIC® M17 male	M18x0,75 (order counternut separately)	3+PE+5 (1mm/0.6mm contacts)	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

EPIC® POWER M17 G4

- EPIC® M17 Accessories

EPIC® POWER M17 D6

Circular connectors for servomotors and power supply

Info

- High Power with smallest space requirements

EPIC® POWER M17 F6

Circular connectors for servomotors and power supply

Suitable contacts:

- EPIC® M17 Contacts Page 638
- The contacts have to be ordered separately

Benefits

- Sensor/ ac
- Version with less contacts for higher current
- EMC protection

Application range

- Servo drives and servo assemblies
- Plant engineering, machinery manufacturing

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
630V: 2mm and 1mm contacts
60V: 0,6mm contacts

Rated impulse voltage
6KV: 2mm and 1mm contacts
1.5KV: 0.6mm contacts

Rated current (A)
3+PE: 20A, 5+PE/6+PE/7+PE: 14A, 3+PE+5: 14A/3,6A

Pollution degree
3

Contacts
Gold-plated brass

Number of contacts
3+PE, 5+PE, 6+PE, 7+PE, 3+PE+5
Contacts:3+PE(2mm), 5+PE(1mm), 6+PE(1mm), 7+PE(1mm), 3+PE+5(1mm/0.6mm)

Termination methods
Crimp: 3+PE: 0.5-2.5mm², 5+PE/6+PE/7+PE: 0.06-1mm², 3+P+5: 0.06-1/0.06-0.5mm²

Material
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

Protection rating
IP 67

Cycle of mechanical operation
100

Temperature range
-40°C to +125°C

Article number	Article description	Clamping range in mm	Pin configuration	Pieces / PU
Type M17 D6, cable connector				
44423050	EPIC® M17 female	3.5 - 11	3+PE (2mm contacts)	5
44423055	EPIC® M17 male	3.5 - 11	3+PE (2mm contacts)	5
44423051	EPIC® M17 female	3.5 - 11	5+PE (1mm contacts)	5
44423056	EPIC® M17 male	3.5 - 11	5+PE (1mm contacts)	5
44423052	EPIC® M17 female	3.5 - 11	6+PE (1mm contacts)	5
44423057	EPIC® M17 male	3.5 - 11	6+PE (1mm contacts)	5
44423053	EPIC® M17 female	3.5 - 11	7+PE (1mm contacts)	5
44423058	EPIC® M17 male	3.5 - 11	7+PE (1mm contacts)	5
44423054	EPIC® M17 female	3.5 - 11	3+PE+5 (1mm/0.6mm contacts)	5
44423059	EPIC® M17 male	3.5 - 11	3+PE+5 (1mm/0.6mm contacts)	5
Type M17 F6, cable coupler				
44423065	EPIC® M17 female	3.5 - 11	3+PE (2mm contacts)	5
44423060	EPIC® M17 male	3.5 - 11	3+PE (2mm contacts)	5
44423066	EPIC® M17 female	3.5 - 11	5+PE (1mm contacts)	5
44423061	EPIC® M17 male	3.5 - 11	5+PE (1mm contacts)	5
44423067	EPIC® M17 female	3.5 - 11	6+PE (1mm contacts)	5
44423062	EPIC® M17 male	3.5 - 11	6+PE (1mm contacts)	5
44423068	EPIC® M17 female	3.5 - 11	7+PE (1mm contacts)	5
44423063	EPIC® M17 male	3.5 - 11	7+PE (1mm contacts)	5
44423069	EPIC® M17 female	3.5 - 11	3+PE+5 (1mm/0.6mm contacts)	5
44423064	EPIC® M17 male	3.5 - 11	3+PE+5 (1mm/0.6mm contacts)	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M17 A1

Circular connectors for servomotors and power supply

Info

- Connector for shielded data cables

EPIC® SIGNAL M17 A3

Circular connectors for servomotors and power supply

Info

- Rotateable with 310° cable outlet

EPIC® SIGNAL M17 G4

Circular connectors for servomotors and power supply

Info

- For installation in existing hole

Suitable contacts:

- EPIC® M17 Contacts Page 638
- The contacts have to be ordered separately

Benefits

- Sensor/ ac
- EMC protection

Application range

- Feedback / signal cables

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description:
Circular connector (industrial connector)

Rated voltage (V)
60 V

Rated impulse voltage
1.5 kV

Rated current (A)
3.6 A

Pollution degree
3

Contacts
Gold-plated brass

Number of contacts
Contacts: 8(1mm), 17(0.6mm)

Termination methods
Crimp termination: 0.06 - 0.56 mm² (0,6mm contacts)
Crimp termination: 0.06 - 1.0 mm² (1mm contacts)

Material
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

Protection rating
IP 67

Cycle of mechanical operation
100

Temperature range
-40°C to +125°C

Article number	Article description	Fastening type	Pin configuration	Pieces / PU
Type M17 A1, front wall mounting				
44423110	EPIC® M17 female	Ø 2.7 mm (4x)	8	5
44423108	EPIC® M17 male	Ø 2.7 mm (4x)	8	5
44423111	EPIC® M17 female	Ø 2.7 mm (4x)	17	5
44423109	EPIC® M17 male	Ø 2.7 mm (4x)	17	5
Type M17 A3, angled and rotateable				
44423114	EPIC® M17 female	Ø 2.7 mm (4x)	8	5
44423112	EPIC® M17 male	Ø 2.7 mm (4x)	8	5
44423115	EPIC® M17 female	Ø 2.7 mm (4x)	17	5
44423113	EPIC® M17 male	Ø 2.7 mm (4x)	17	5
Type M17 G4, front wall mounting				
44423118	EPIC® M17 female	M18x0,75 (order counternut separately)	8	5
44423116	EPIC® M17 male	M18x0,75 (order counternut separately)	8	5
44423119	EPIC® M17 female	M18x0,75 (order counternut separately)	17	5
44423117	EPIC® M17 male	M18x0,75 (order counternut separately)	17	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

EPIC® SIGNAL M17 G4

- EPIC® M17 Accessories

EPIC® SIGNAL M17 D6

Circular connectors for servomotors and power supply

Info

- Connector for shielded data cables

EPIC® SIGNAL M17 F6

Circular connectors for servomotors and power supply

Suitable contacts:

- EPIC® M17 Contacts Page 638
- The contacts have to be ordered separately

Benefits

- Sensor/ ac
- EMC protection

Application range

- Feedback / signal cables

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description:
Circular connector (industrial connector)

Rated voltage (V)
60 V

Rated impulse voltage
1.5 kV

Rated current (A)
3.6 A

Pollution degree
3

Contacts
Gold-plated brass

Number of contacts
Contacts: 8(1mm), 17(0.6mm)

Termination methods
Crimp termination: 0.06 - 0.56 mm² (0,6mm contacts)
Crimp termination: 0.06 - 1.0 mm² (1mm contacts)

Material
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

Protection rating
IP 67

Cycle of mechanical operation
100

Temperature range
-40°C to +125°C

Article number	Article description	Clamping range in mm	Pin configuration	Pieces / PU
Type M17 D6, cable connector				
44423100	EPIC® M17 female	3.5 - 11	8	5
44423102	EPIC® M17 male	3.5 - 11	8	5
44423101	EPIC® M17 female	3.5 - 11	17	5
44423103	EPIC® M17 male	3.5 - 11	17	5
Type M17 F6, cable coupler				
44423106	EPIC® M17 female	3.5 - 11	8	5
44423104	EPIC® M17 male	3.5 - 11	8	5
44423107	EPIC® M17 female	3.5 - 11	17	5
44423105	EPIC® M17 male	3.5 - 11	17	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® M 17 Contacts

Contacts, tools, accessories for circular connectors

EPIC® M 17 Tools

Contacts, tools, accessories for circular connectors

Technical data

ETIM

Classification ETIM 5/6
EPIC® M 17 Contacts
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors
EPIC® M 17 Tools
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article description	Version	Inserts	Version	Pieces / PU
0.6mm contacts female					
44423125	M 17 BCM 0,6mm 0,06-0,25			0.06-0.25mm²	10
44423126	M 17 BCM 0.6mm 0.06-0.34			0.06-0.34mm²	10
44423127	M 17 BCM 0,6mm 0,34-0,5			0.34-0.5mm²	10
1mm contacts female					
44423122	M 17 BCM 1mm 0,06-0,25			0.06-0.25mm²	10
44423123	M 17 BCM 1mm 0.34-0.5			0.34-0.5mm²	10
44423124	M 17 BCM 1mm 0,5-1,0			0.5-1.0mm²	10
2mm contacts female					
44423120	M 17 BCM 2mm 0,25-1,0			0.25-1.0mm²	10
44423121	M 17 BCM 2mm 1,0-2,5			1.0-2.5mm²	10
0.6mm contacts male					
44423133	M 17 SCM 0,6mm 0,06-0,25			0.06-0.25mm²	10
44423134	M 17 SCM 0,6mm 0,06-0,34			0.06-0.34mm²	10
44423135	M 17 SCM 0,6mm 0,34-0,5			0.34-0.5mm²	10
1mm contacts male					
44423130	M 17 SCM 1mm 0,06-0,25			0.06-0.25mm²	10
44423131	M 17 SCM 1mm 0,34-0,5			0.34-0.5mm²	10
44423132	M 17 SCM 1mm 0,5-1,0				10
2mm contacts male					
44423128	M 17 SCM 2mm 0,25-1,0			0.25-1.0mm²	10
44423129	M 17 SCM 2mm 1,0-2,5			1.0-2.5mm²	10
Crimping tool					
44423136	Crimptool M17	Crimpzange with Locator for EPIC® M 17	for EPIC® M 17 POWER and SIGNAL		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 A1

Circular connectors for Servo Cables and encoders

Info

- Coulour coding for easy connecting

EPIC® SIGNAL M23 A1 D3.2

Circular connectors for Servo Cables and encoders

EPIC® SIGNAL M23 A3

Circular connectors for Servo Cables and encoders

Info

- Rotateable with clearly defined adjustment positions

Benefits

EPIC® SIGNAL M23 A1

- Safe fixing with 4 screws
- Permanent vibration protection

EPIC® SIGNAL M23 A1 D3.2

EPIC® SIGNAL M23 A3

- Housings are very flexible - cable connectors with wide clamping range, receptacle housings for assembling the inserts from the front and rear
- Permanent vibration protection

Application range

- Plant engineering
- Servo drives and servo assemblies
- Measurement and control technology

Product features

- Mounting: Ø2.7mm for screws M2.5. Ø3.2mm for screws M3

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Material
Housing: nickel-plated zinc die-casting
Sealing: FPM

Protection rating
EPIC® SIGNAL M23 A1
IP68 (10h/1m)
EPIC® SIGNAL M23 A1 D3.2
IP68 (10h/1m)
EPIC® SIGNAL M23 A3
IP 65

VDE-tested
Certified production control:
VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

Temperature range
-25°C up to +125°C

Article number	Article	Coding	Fastening type	Pieces / PU
Type M23 A1 panel-mount box, front wall mounting				
72004000	M23 A1	black (N)	Ø 2.7 mm (4x)	5
72004010	M23 A1	black (N)	Ø 2.7 mm (4x)	20
72004200	M23 A1	red (+20°)	Ø 2.7 mm (4x)	5
72004210	M23 A1	red (+20°)	Ø 2.7 mm (4x)	20
72004100	M23 A1	blue (-20°)	Ø 2.7 mm (4x)	5
72004110	M23 A1	blue (-20°)	Ø 2.7 mm (4x)	20
Type M23 A1 D3.2 panel-mount box, front wall mounting				
44420018	M23 A1 D3,2	black (N)	Ø 3.2 mm (4x)	5
44420017	M23 A1 D3,2	black (N)	Ø 3.2 mm (4x)	20
44420020	M23 A1 D3,2	red (+20°)	Ø 3.2 mm (4x)	5
44420019	M23 A1 D3,2	red (+20°)	Ø 3.2 mm (4x)	20
44420016	M23 A1 D3,2	blue (-20°)	Ø 3.2 mm (4x)	5
44420015	M23 A1 D3,2	blue (-20°)	Ø 3.2 mm (4x)	20
Type M23 A3 panel-mount connector, angled, rotatable, front wall mounting				
24420055	M23 A3	black (N)	Ø 2.7 mm (4x)	5
24420054	M23 A3	black (N)	Ø 2.7 mm (4x)	20

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 G4

Circular connectors for Servo Cables and encoders

Info

- For mounting in existing M25 threads or boreholes

EPIC® SIGNAL M23 G5

Circular connectors for Servo Cables and encoders

EPIC® SIGNAL M23 G6

Circular connectors for Servo Cables and encoders

Benefits

- Fast and easy assembly
- Only one M25 bore hole necessary

Application range

- Plant engineering
- Servo drives and servo assemblies
- Measurement and control technology

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Material
Housing: nickel-plated zinc die-casting
Sealing: FPM

Protection rating
IP68 (10h/1m)

VDE-tested
Certified production control:
VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

Temperature range
-25°C up to +125°C

Article number	Article	Coding	Fastening type	Pieces / PU
Type M23 G4 panel-mount box, front wall mounting				
44420032	M23 G4	black (N)	M25 x 1.5	5
44420031	M23 G4	black (N)	M25 x 1.5	20
44420034	M23 G4	red (+20°)	M25 x 1.5	5
44420033	M23 G4	red (+20°)	M25 x 1.5	20
44420030	M23 G4	blue (-20°)	M25 x 1.5	5
44420029	M23 G4	blue (-20°)	M25 x 1.5	20
Type M23 G5 panel-mount box, front wall mounting				
44420046	M23 G5	black (N)	M25 x 1.5 (with nut)	5
44420045	M23 G5	black (N)	M25 x 1.5 (with nut)	20
44420048	M23 G5	red (+20°)	M25 x 1.5 (with nut)	5
44420047	M23 G5	red (+20°)	M25 x 1.5 (with nut)	20
44420044	M23 G5	blue (-20°)	M25 x 1.5 (with nut)	5
44420043	M23 G5	blue (-20°)	M25 x 1.5 (with nut)	20
Type M23 G6 panel-mount box, rear wall mounting				
44420071	M23 G6	black (N)	M25 x 1.5 (with nut)	5
44420073	M23 G6	black (N)	M25 x 1.5 (with nut)	20

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 B1

Circular connectors for Servo Cables and encoders

Info

- Housing for mounting at inner side to save space outside of device

EPIC® SIGNAL M23 B2

Circular connectors for Servo Cables and encoders

Benefits

EPIC® SIGNAL M23 B1

- Defined stop position when mounting at device prevents uncontrolled pressing of sealing
- Harnessed insulation body can easily inserted from back side in already mounted housing

EPIC® SIGNAL M23 B2

- Housings are very flexible - cable connectors with wide clamping range, receptacle housings for assembling the inserts from the front and rear
- Harnessed insulation body can easily inserted from back side in already mounted housing

Application range

- Plant engineering
- Servo drives and servo assemblies
- Measurement and control technology

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Material
Housing: nickel-plated zinc die-casting
Sealing: FPM

Protection rating
IP68 (10h/1m)

VDE-tested
Certified production control:
VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

Temperature range
-25°C up to +125°C

Article number	Article	Coding	Fastening type	Pieces / PU
Type M23 B1 panel-mount box, rear wall mounting				
44420024	M23 B1	black (N)	M2.5 (4x)	5
44420023	M23 B1	black (N)	M2.5 (4x)	20
44420026	M23 B1	red (+20°)	M2.5 (4x)	5
44420025	M23 B1	red (+20°)	M2.5 (4x)	20
44420022	M23 B1	blue (-20°)	M2.5 (4x)	5
44420021	M23 B1	blue (-20°)	M2.5 (4x)	20
Type M23 B2 panel-mount box, rear wall mounting				
44420050	M23 B2	black (N)	Ø 2.7 mm (4x)	5
44420051	M23 B2	black (N)	Ø 2.7 mm (4x)	20
44420035	M23 B2	red (+20°)	Ø 2.7 mm (4x)	5
44420049	M23 B2	red (+20°)	Ø 2.7 mm (4x)	20
44420052	M23 B2	blue (-20°)	Ø 2.7 mm (4x)	5
44420053	M23 B2	blue (-20°)	Ø 2.7 mm (4x)	20

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 C2

Circular connectors for Servo Cables and encoders

Benefits

- Quick and easy separation of connection from both sides of a wall
- For connecting two pre-assembled M23 D6 cable connectors

Application range

- Plant engineering
- Measurement and control technology

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description:
Circular connector (industrial connector)

Material
Housing: nickel-plated copper alloy
Insert: thermoplastic
Sealing: neoprene

Protection rating
IP 67

Temperature range
-25°C up to +125°C

Article number	Article description	Version	Contacts included	Fastening type	Pin configuration	Pieces / PU
Type M23 C2 feed-through connector						
00010108	EPIC® M23 C2 12	black (N)	12	Ø 2.7 mm (4x)	12E male - 12P female	5
00010521	EPIC® M23 C2 17	black (N)	17	Ø 2.7 mm (4x)	17E male - 17P female	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 D6

Circular connectors for Servo Cables and encoders

EPIC® SIGNAL M23 F6

Circular connectors for Servo Cables and encoders

EPIC® SIGNAL M23 F7

Circular connectors for Servo Cables and encoders

Info

- Robust metal connector with integrated EMC cable gland

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Material
Housing: nickel-plated zinc die-casting
Sealing: FPM

Protection rating
IP68 (10h/1m)

VDE-tested
Certified production control:
VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

Temperature range
-25°C up to +125°C

Benefits

- Low-resistance screen contact, optimum EMC protection
- Use of high quality materials for increased reliability

Application range

- Plant engineering
- Servo drives and servo assemblies
- Measurement and control technology

Article number	Article	Coding	Cable clamping range	Fastening type	Pieces / PU
Type M23 D6 cable connector					
44420037	M23 D6	black (N)	7.0 - 13.5		5
72044030	M23 D6	black (N)	7.0 - 10.0		5
72044020	M23 D6	black (N)	7.0 - 10.0		20
72044000	M23 D6	black (N)	9.5 - 13.5		5
72044010	M23 D6	black (N)	9.5 - 13.5		20
44420038	M23 D6	red (+20°)	7.0 - 13.5		5
72044230	M23 D6	red (+20°)	7.0 - 10.0		5
72044220	M23 D6	red (+20°)	7.0 - 10.0		20
72044200	M23 D6	red (+20°)	9.5 - 13.5		5
72044210	M23 D6	red (+20°)	9.5 - 13.5		20
44420036	M23 D6	blue (-20°)	7.0 - 13.5		5
72044130	M23 D6	blue (-20°)	7.0 - 10.0		5
72044120	M23 D6	blue (-20°)	7.0 - 10.0		20
72044100	M23 D6	blue (-20°)	9.5 - 13.5		5
72044110	M23 D6	blue (-20°)	9.5 - 13.5		20
Type M23 F6 coupling connector					
44420040	M23 F6	black (N)	7.0 - 13.5		5
72064030	M23 F6	black (N)	7.0 - 10.0		5
72064020	M23 F6	black (N)	7.0 - 10.0		20
72064000	M23 F6	black (N)	9.5 - 13.5		5
72064010	M23 F6	black (N)	9.5 - 13.5		20
44420041	M23 F6	red (+20°)	7.0 - 13.5		5
72064230	M23 F6	red (+20°)	7.0 - 10.0		5
72064220	M23 F6	red (+20°)	7.0 - 10.0		20
72064200	M23 F6	red (+20°)	9.5 - 13.5		5
72064210	M23 F6	red (+20°)	9.5 - 13.5		20
44420039	M23 F6	blue (-20°)	7.0 - 13.5		5
72064130	M23 F6	blue (-20°)	7.0 - 10.0		5
72064120	M23 F6	blue (-20°)	7.0 - 10.0		20
72064100	M23 F6	blue (-20°)	9.5 - 13.5		5
Type M23 F7 panel-mount connector, front/rear wall mounting					
44420009	M23 F7	black (N)	7.0 - 10.0	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5
44420010	M23 F7	black (N)	7.0 - 10.0	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	20
44420011	M23 F7	black (N)	9.5 - 13.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5
44420012	M23 F7	black (N)	9.5 - 13.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	20
44420001	M23 F7	red (+20°)	7.0 - 10.0	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5
44420002	M23 F7	red (+20°)	7.0 - 10.0	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	20
44420003	M23 F7	red (+20°)	9.5 - 13.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5
44420004	M23 F7	red (+20°)	9.5 - 13.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	20
44420005	M23 F7	blue (-20°)	7.0 - 10.0	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5
44420006	M23 F7	blue (-20°)	7.0 - 10.0	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	20
44420007	M23 F7	blue (-20°)	9.5 - 13.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5
44420008	M23 F7	blue (-20°)	9.5 - 13.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	20

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 Inserts 6 pole

Inserts for M23 circular connectors

EPIC® SIGNAL M23 Inserts 7 pole

Inserts for M23 circular connectors

Suitable housing

- EPIC® SIGNAL M23 A1 Page 639
- EPIC® SIGNAL M23 A1 D3.2 Page 639
- EPIC® SIGNAL M23 A3 Page 639
- EPIC® SIGNAL M23 G4 Page 640
- EPIC® SIGNAL M23 G5 Page 640
- EPIC® SIGNAL M23 G6 Page 640
- EPIC® SIGNAL M23 B1 Page 641
- EPIC® SIGNAL M23 B2 Page 641
- EPIC® SIGNAL M23 D6 Page 643
- EPIC® SIGNAL M23 F6 Page 643
- EPIC® SIGNAL M23 F7 Page 643
- All inserts fit into all housings

Suitable contacts:

- EPIC® SIGNAL M23 Contacts male Page 649
- EPIC® SIGNAL M23 Contacts female Page 649
- Use 2 mm contacts

Benefits

- Universal further processing of the M23 inserts through different packaging units. Fully assembled with suitable solder contacts or unpopulated for individual assembly with crimp or solder contacts

Application range

- Plant engineering
- Measurement and control technology
- Apparatus construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
according to IEC 61984: 150 V

Rated impulse voltage
4 kV

Rated current (A)
18 A

Pollution degree
3

Contact resistance
< 4 mOhm

Contacts
Gold-plated brass

Number of contacts
EPIC® SIGNAL M23 Inserts 6 pole
6
EPIC® SIGNAL M23 Inserts 7 pole
7

Termination methods
Crimp termination: 1.0 - 2.5 mm²
Solder termination: up to 2.5 mm²

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

Temperature range
-25°C up to +125°C

Article number	Article description	Inserts	Contacts included	Pin configuration	Pieces / PU
6-pin inserts, P-part = rotation to the left (plug side anticlockwise)					
73002760	P-part	without contacts		6	5
73002761	P-part	without contacts		6	20
73002762	P-part	+ male contacts, solder	6	6	5
73002763	P-part	+ male contacts, solder	6	6	20
73002764	P-part	+ female contacts, solder	6	6	5
73002765	P-part	+ female contacts, solder	6	6	20
6-pin inserts, E-part = rotation to the right (plug side clockwise)					
73002766	E-Part	without contacts		6	5
73002767	E-Part	without contacts		6	20
73002768	E-Part	+ male contacts, solder	6	6	5
73002769	E-Part	+ male contacts, solder	6	6	20
73002770	E-Part	+ female contacts, solder	6	6	5
73002771	E-Part	+ female contacts, solder	6	6	20
7-pin inserts, P-part = rotation to the left (plug side anticlockwise)					
44420148	P-part	without contacts		7	5
44420149	P-part	without contacts		7	20
44420150	P-part	+ male contacts, solder	7	7	5
44420151	P-part	+ male contacts, solder	7	7	20
44420152	P-part	+ female contacts, solder	7	7	5
44420153	P-part	+ female contacts, solder	7	7	20
7-pin inserts, E-part = rotation to the right (plug side clockwise)					
44420154	E-Part	without contacts		7	5
44420155	E-Part	without contacts		7	20
44420156	E-Part	+ male contacts, solder	7	7	5
44420157	E-Part	+ male contacts, solder	7	7	20
44420158	E-Part	+ female contacts, solder	7	7	5
44420159	E-Part	+ female contacts, solder	7	7	20

The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise) / Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 Inserts 8+1 pole

Inserts for M23 circular connectors

EPIC® SIGNAL M23 Inserts 9 pole

Inserts for M23 circular connectors

Suitable housing

- EPIC® SIGNAL M23 A1 Page 639
- EPIC® SIGNAL M23 A1 D3.2 Page 639
- EPIC® SIGNAL M23 A3 Page 639
- EPIC® SIGNAL M23 G4 Page 640
- EPIC® SIGNAL M23 G5 Page 640
- EPIC® SIGNAL M23 G6 Page 640
- EPIC® SIGNAL M23 B1 Page 641
- EPIC® SIGNAL M23 B2 Page 641
- EPIC® SIGNAL M23 D6 Page 643
- EPIC® SIGNAL M23 F6 Page 643
- EPIC® SIGNAL M23 F7 Page 643
- All inserts fit into all housings

Suitable contacts:

- EPIC® SIGNAL M23 Contacts male Page 649
- EPIC® SIGNAL M23 Contacts female Page 649

EPIC® SIGNAL M23 Inserts 8+1 pole

- 8+1: 8*1 mm contact, 1*2 mm contact

EPIC® SIGNAL M23 Inserts 9 pole

- 9: 9*1 mm contact

Benefits

- Universal further processing of the M23 inserts through different packaging units. Fully assembled with suitable solder contacts or unpopulated for individual assembly with crimp or solder contacts

Application range

- Plant engineering
- Measurement and control technology
- Apparatus construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
according to IEC 61984: 150 V

Rated impulse voltage
EPIC® SIGNAL M23 Inserts 8+1 pole
2.5 kV
EPIC® SIGNAL M23 Inserts 9 pole
1.5 kV

Rated current (A)
EPIC® SIGNAL M23 Inserts 8+1 pole
20 A (2 mm contact)
7 A (1 mm contacts)
EPIC® SIGNAL M23 Inserts 9 pole
7 A

Pollution degree
3

Contact resistance
< 4 mOhm

Contacts
Gold-plated brass

Number of contacts
EPIC® SIGNAL M23 Inserts 8+1 pole
8 + 1
EPIC® SIGNAL M23 Inserts 9 pole
9

Termination methods
EPIC® SIGNAL M23 Inserts 8+1 pole
Crimp termination: 0.14 - 1.0 mm²
(1.0 - 2.5 mm² for 2-mm contact)
Solder termination: up to 1.0 mm²
(up to 2.5 mm² for 2-mm contact)
EPIC® SIGNAL M23 Inserts 9 pole
Crimp termination: 0.14 - 1.0 mm²
Solder termination: up to 1.0 mm²

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

Temperature range
-25°C up to +125°C

Article number	Article description	Inserts	Contacts included	Pin configuration	Pieces / PU
8+1-pin inserts, P-part = rotation to the left (plug side anticlockwise)					
73002736	P-part	without contacts		8+1	5
73002737	P-part	without contacts		8+1	20
73002738	P-part	+ male contacts, solder	9	8+1	5
73002739	P-part	+ male contacts, solder	9	8+1	20
73002740	P-part	+ female contacts, solder	9	8+1	5
73002741	P-part	+ female contacts, solder	9	8+1	20
8+1-pin inserts, E-part = rotation to the right (plugside clockwise)					
73002742	E-Part	without contacts		8+1	5
73002743	E-Part	without contacts		8+1	20
73002744	E-Part	+ male contacts, solder	9	8+1	5
73002745	E-Part	+ male contacts, solder	9	8+1	20
73002746	E-Part	+ female contacts, solder	9	8+1	5
73002747	E-Part	+ female contacts, solder	9	8+1	20
9-pin inserts, P-part = rotation to the left (plug side anticlockwise)					
73002724	P-part	Unpopulated		9	5
73002725	P-part	Unpopulated		9	20
73002726	P-part	+ male contacts, solder	9	9	5
73002727	P-part	+ male contacts, solder	9	9	20
73002728	P-part	+ female contacts, solder	9	9	5
73002729	P-part	+ female contacts, solder	9	9	20
9-pin inserts, E-part = rotation to the right (plug side clockwise)					
73002730	E-Part	Unpopulated		9	5
73002731	E-Part	Unpopulated		9	20
73002732	E-Part	+ male contacts, solder	9	9	5
73002733	E-Part	+ male contacts, solder	9	9	20
73002734	E-Part	+ female contacts, solder	9	9	5
73002735	E-Part	+ female contacts, solder	9	9	20

The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise) / Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 Inserts 12 pole

Inserts for M23 circular connectors

EPIC® SIGNAL M23 Inserts 16 pole

Inserts for M23 circular connectors

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
according to IEC 61984: 100 V

Rated impulse voltage
1.5 kV

Rated current (A)
7 A

Pollution degree
3

Contact resistance
< 4 mOhm

Contacts
Gold-plated brass

Number of contacts
EPIC® SIGNAL M23 Inserts 12 pole
13
EPIC® SIGNAL M23 Inserts 16 pole
16

Termination methods
Crimp termination: 0.14 - 1.0 mm²
Solder termination: up to 1.0 mm²

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no. C24 (according to
EN 61984, SELV according to
DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

Temperature range
-25°C up to +125°C

Suitable housing

- EPIC® SIGNAL M23 A1 Page 639
- EPIC® SIGNAL M23 A1 D3.2 Page 639
- EPIC® SIGNAL M23 A3 Page 639
- EPIC® SIGNAL M23 G4 Page 640
- EPIC® SIGNAL M23 G5 Page 640
- EPIC® SIGNAL M23 G6 Page 640
- EPIC® SIGNAL M23 B1 Page 641
- EPIC® SIGNAL M23 B2 Page 641
- EPIC® SIGNAL M23 D6 Page 643
- EPIC® SIGNAL M23 F6 Page 643
- EPIC® SIGNAL M23 F7 Page 643
- All inserts fit into all housings

Suitable contacts:

- EPIC® SIGNAL M23 Contacts male Page 649
- EPIC® SIGNAL M23 Contacts female Page 649

Benefits

- Universal further processing of the M23 inserts through different packaging units. Fully assembled with suitable solder contacts or unpopulated for individual assembly with crimp or solder contacts

Application range

- Plant engineering
- Measurement and control technology
- Apparatus construction

Article number	Article description	Inserts	Contacts included	Pin configuration	Pieces / PU
12-pin inserts, P-part = rotation to the left (plug side anticlockwise)					
73002712	P-part	Unpopulated		12	5
73002713	P-part	Unpopulated		12	20
73002714	P-part	+ male contacts, solder	12	12	5
73002715	P-part	+ male contacts, solder	12	12	20
73002716	P-part	+ female contacts, solder	12	12	5
73002717	P-part	+ female contacts, solder	12	12	20
12-pin inserts, E-part = rotation to the right (plug side clockwise)					
73002718	E-Part	Unpopulated		12	5
73002719	E-Part	Unpopulated		12	20
73002720	E-Part	+ male contacts, solder	12	12	5
73002721	E-Part	+ male contacts, solder	12	12	20
73002722	E-Part	+ female contacts, solder	12	12	5
73002723	E-Part	+ female contacts, solder	12	12	20
16-pin inserts, P-part = rotation to the left (plug site anticlockwise)					
73002700	P-part	Unpopulated		16	5
73002701	P-part	Unpopulated		16	20
73002702	P-part	+ male contacts, solder	16	16	5
73002703	P-part	+ male contacts, solder	16	16	20
73002704	P-part	+ female contacts, solder	16	16	5
73002705	P-part	+ female contacts, solder	16	16	20
16-pin inserts, E-part = rotation to the right (plug side clockwise)					
73002706	E-Part	Unpopulated		16	5
73002707	E-Part	Unpopulated		16	20
73002708	E-Part	+ male contacts, solder	16	16	5
73002709	E-Part	+ male contacts, solder	16	16	20
73002710	E-Part	+ female contacts, solder	16	16	5
73002711	E-Part	+ female contacts, solder	16	16	20

The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 Inserts 17 pole

Inserts for M23 circular connectors

Suitable housing

- EPIC® SIGNAL M23 A1 Page 639
- EPIC® SIGNAL M23 A1 D3.2 Page 639
- EPIC® SIGNAL M23 A3 Page 639
- EPIC® SIGNAL M23 G4 Page 640
- EPIC® SIGNAL M23 G5 Page 640
- EPIC® SIGNAL M23 G6 Page 640
- EPIC® SIGNAL M23 B1 Page 641
- EPIC® SIGNAL M23 B2 Page 641
- EPIC® SIGNAL M23 D6 Page 643
- EPIC® SIGNAL M23 F6 Page 643
- EPIC® SIGNAL M23 F7 Page 643
- All inserts fit into all housings

Suitable contacts:

- EPIC® SIGNAL M23 Contacts male Page 649
- EPIC® SIGNAL M23 Contacts female Page 649

Benefits

- Universal further processing of the M23 inserts through different packaging units. Fully assembled with suitable solder contacts or unpopulated for individual assembly with crimp or solder contacts

Application range

- Plant engineering
- Measurement and control technology
- Apparatus construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
according to IEC 61984: 50 V

Rated impulse voltage
0,8 kV

Rated current (A)
7 A

Pollution degree
3

Contact resistance
< 4 mOhm

Contacts
Gold-plated brass

Number of contacts
17

Termination methods
Crimp termination: 0.14 - 1.0 mm²
Solder termination: up to 1.0 mm²

Cycle of mechanical operation
100

VDE-tested
Certified production control:
VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

Temperature range
-25°C up to +125°C

Article number	Article description	Inserts	Contacts included	Pin configuration	Pieces / PU
17-pin inserts, P-part = rotation to the left (plug side anticlockwise)					
73008000	P-part	Unpopulated		17	5
73008010	P-part	Unpopulated		17	20
73028000	P-part	+ male contacts, solder	17	17	5
73028010	P-part	+ male contacts, solder	17	17	20
73018000	P-part	+ female contacts, solder	17	17	5
73018010	P-part	+ female contacts, solder	17	17	20
17-pin inserts, E-part = rotation to the right (plug side clockwise)					
73008500	E-Part	Unpopulated		17	5
73008510	E-Part	Unpopulated		17	20
73028500	E-Part	+ male contacts, solder	17	17	5
73028510	E-Part	+ male contacts, solder	17	17	20
73018500	E-Part	+ female contacts, solder	17	17	5
73018510	E-Part	+ female contacts, solder	17	17	20

The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 Inserts 12 pole D-Sub

Inserts for M23 circular connectors

Info

- For D-Sub ribbon contacts
- For automated production with crimping machine

EPIC® SIGNAL M23 Inserts 17 pole D-Sub

Inserts for M23 circular connectors

Info

- For D-Sub ribbon contacts
- For automated production with crimping machine

Suitable housing

- EPIC® SIGNAL M23 A1 Page 639
- EPIC® SIGNAL M23 A1 D3.2 Page 639
- EPIC® SIGNAL M23 A3 Page 639
- EPIC® SIGNAL M23 G4 Page 640
- EPIC® SIGNAL M23 G5 Page 640
- EPIC® SIGNAL M23 G6 Page 640
- EPIC® SIGNAL M23 B1 Page 641
- EPIC® SIGNAL M23 B2 Page 641
- EPIC® SIGNAL M23 D6 Page 643
- EPIC® SIGNAL M23 F6 Page 643
- EPIC® SIGNAL M23 F7 Page 643

Suitable contacts:

- EPIC® M-D 1.0 D-Sub stamped contacts-on-reel Page 586

Benefits

- Efficient assembling due to the use of D-Sub contacts-on-reel

Application range

- Plant engineering
- Measurement and control technology
- Apparatus construction

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000438
ETIM 5.0/6.0 Class-Description:
Contact insert for industrial connectors

Rated voltage (V)
EPIC® SIGNAL M23 Inserts 12 pole D-Sub
according to IEC 61984: 100 V
EPIC® SIGNAL M23 Inserts 17 pole D-Sub
according to IEC 61984: 50 V

Rated impulse voltage
EPIC® SIGNAL M23 Inserts 12 pole D-Sub
1.5 kV
EPIC® SIGNAL M23 Inserts 17 pole D-Sub
0,8 kV

Rated current (A)
4 A

Pollution degree
3

Contact resistance
< 4 mOhm

Contacts
Partly gold-plated brass

Number of contacts
EPIC® SIGNAL M23 Inserts 12 pole D-Sub
13
EPIC® SIGNAL M23 Inserts 17 pole D-Sub
17

Termination methods
Crimp termination: 0.08 - 0.56 mm²

Cycle of mechanical operation
50

Temperature range
-25°C up to +125°C

Article number	Article description	Inserts	Pin configuration	Pieces / PU
12-pin inserts, E-part = rotation to the right (plug side clockwise)				
44420120	E-Part	Unpopulated, for male D-Sub crimp-contacts on reel	12	5
44420121	E-Part	Unpopulated, for male D-Sub crimp-contacts on reel	12	20
44420122	E-Part	Unpopulated, for female D-Sub crimp-contacts on reel	12	5
44420123	E-Part	Unpopulated, for female D-Sub crimp-contacts on reel	12	20
12-pin inserts, P-part = rotation to the left (plug side anticlockwise)				
44420124	P-part	Unpopulated, for male D-Sub crimp-contacts on reel	12	5
44420125	P-part	Unpopulated, for male D-Sub crimp-contacts on reel	12	20
44420126	P-part	Unpopulated, for female D-Sub crimp-contacts on reel	12	5
44420127	P-part	Unpopulated, for female D-Sub crimp-contacts on reel	12	20
17-pin inserts, E-part = rotation to the right (plug side clockwise)				
44420128	E-Part	Unpopulated, for male D-Sub crimp-contacts on reel	17	5
44420129	E-Part	Unpopulated, for male D-Sub crimp-contacts on reel	17	20
44420130	E-Part	Unpopulated, for female D-Sub crimp-contacts on reel	17	5
44420131	E-Part	Unpopulated, for female D-Sub crimp-contacts on reel	17	20
17-pin inserts, P-part = rotation to the left (plug side anticlockwise)				
44420132	P-part	Unpopulated, for male D-Sub crimp-contacts on reel	17	5
44420133	P-part	Unpopulated, for male D-Sub crimp-contacts on reel	17	20
44420134	P-part	Unpopulated, for female D-Sub crimp-contacts on reel	17	5
44420135	P-part	Unpopulated, for female D-Sub crimp-contacts on reel	17	20

The inserts are suitable for both male and female contacts. For a complete connection, you will need one P-component and one E-component. P-component = left turning (anticlockwise), E-component = right turning (clockwise) / Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 Contacts male

Contacts, tools, accessories for circular connectors M23

Info

- All contacts are high quality gold plated
- Contacts are designed for wide crimping range, therefore low number of variants
- Contacts in solder or crimp version available

EPIC® SIGNAL M23 Contacts female

Contacts, tools, accessories for circular connectors M23

Info

- All contacts are high quality gold plated
- Contacts are designed for wide crimping range, therefore low number of variants
- Contacts in solder or crimp version available

Article number	Article designation	Version	For design	Pieces / PU
1mm contacts male				
72400001	SIGNAL M23 SCM 1mm AU 0.14-1.0	1 mm male 0.14 - 1.0 mm²	M23 inserts (not D-Sub)	10
72400000		1 mm male 0.14 - 1.0 mm²	M23 inserts (not D-Sub)	100
72402001	SIGNAL M23 SLM 1mm AU 1.0	1 mm male solder	M23 inserts (not D-Sub)	10
72402000	SIGNAL M23 SLM 1mm AU 1.0	1 mm male solder	M23 inserts (not D-Sub)	100
2mm contacts male				
72401000	M23 SCM 2mm AU 1.0-2.5	2 mm male crimp	M23 inserts (not D-Sub)	100
72403100	SIGNAL M23 SLM 2mm AU 1.0-2.5	2 mm male solder	M23 inserts (not D-Sub)	10
72403000	SIGNAL M23 SLM 2mm AU 1.0-2.5	2 mm male solder	M23 inserts (not D-Sub)	100
1mm contacts female				
74020601	M23/LS1 BCMS 1mm AU 0.14-1.0	1 mm female slot 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, LS1 A6	10
74200600	M23/LS1 BCMS 1mm AU 0.14-1.0	1 mm female slot 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, LS1 A6	100
72402601	SIGNAL M23 BLMS 1mm AU 1.0	1 mm female slot solder	M23 inserts (not D-Sub)	10
72402600	SIGNAL M23 BLMS 1mm AU 1.0	1 mm female slot solder	M23 inserts (not D-Sub)	100
74034500	M23/LS1 BCMD 1mm AU 0.14-1.0	1 mm female hyperboloid 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, LS1 A6	100
74034501	M23/LS1 BCMD 1mm AU 0.14-1.0	1 mm female hyperboloid 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, LS1 A6	10
2mm contacts female				
72401601	SIGNAL M23 BCMS 2mm AU 1,0-2,5	2 mm female 1.0 - 2.5 mm²	M23 inserts (not D-Sub)	10
72401600		2 mm female 1.0 - 2.5 mm²	M23 inserts (not D-Sub)	100
72404100	SIGNAL M23 BLMS 2mm AU 2.5	2 mm female solder	M23 inserts (not D-Sub)	10
72404000	SIGNAL M23 BLMS 2mm AU 2.5	2 mm female solder	M23 inserts (not D-Sub)	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 Tools

Contacts, tools, accessories for circular connectors M23

Info

- Universal 4-indent crimping tool
- Resolver Locator for quick changes in processing other contacts

Article number	Article description	Inserts	Pieces / PU
Tools			
11148000	Crimping tool	In tool case, without locator	1
11148001	4-mandrel digital crimping tool	In tool case, without locator	1
11148002	Crimping machine	Pneumatic for 5 - 10 bar, locator not included	1
11148300	Locator for crimping tool LS1, M23		1
44420078	M23 removal tool for inserts	For housing type A, B, G, O	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M23 Accessories

Contacts, tools, accessories for circular connectors M23

Info

- Simple protective cover as transport protection
- Metall screw cap for safe covering
- SYLVIN® adapter for mounting a cable conduit or an additional cable gland

Article number	Article description	Inserts	Pieces / PU
EPIC® SIGNAL M23 Accessories			
75007810	M23-LS1 A, B, F, G protective cap	Plastic cap for A1, B1, B2, F6, F7, G4, G5, G6	20
75007710	M23 / LS1 D protective cap	Plastic cap for D6, A6	20
75018010	M23 A, B protective cap, plastic cord with cable lug	Metal cap for A1, A3, B1, B2	20
75018110	M23 A, B, G, F protective cap, plastic cord with variable loop	Metal cap for A1, A3, F6, F7, G4, G5	20
75018410	M23 D screw cap, plastic cord with loop	Metal screw cap for D	20
55001312	SILVYN ADAPTER M23/M20x1,5	For all integrated M23 cable glands	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL R 3.0 D PG16

Circular connectors with solder termination, 21-pin and 26-pin

Info

- Compact and reliable connector for multicore signal cables

EPIC® SIGNAL R 3.0 F PG16

Circular connectors with solder termination, 21-pin and 26-pin

EPIC® SIGNAL R 3.0 A

Circular connectors with solder termination, 21-pin and 26-pin

Benefits

- Highest contact density at small space requirements
- Connector in solder version for easy maintanance

Application range

- Machine and equipment manufacturing
- Measurement and control technology

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
24V AC / 60VDC

Rated impulse voltage
1.5 kV

Rated current (A)
7.5 A

Contact resistance
< 3 mOhm

Contacts
Copper alloy, gold-plated

Number of contacts
21-pin / 26-pin

Termination methods
Solder termination: up to 1.0 mm²

Material
Housing: nickel-plated copper alloy
Insert: thermoplastic
Sealing: neoprene

Protection rating
IP 67 (maximum, dependant on cable gland used)

Cycle of mechanical operation
500

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article	Version	Contacts	Pin configuration	Coding	Cable clamping range	Fastening type	Pieces / PU
R 3.0 D PG16								
00009045	SIGNAL R 3.0 D	male	1 - 21	E-Part	N	6.5 - 16.0		5
00008899	SIGNAL R 3.0 D	male	1 - 26	E-Part	N	6.5 - 16.0		5
00008749	SIGNAL R 3.0 D	female	1 - 21	P-Part	N	6.5 - 16.0		5
00008829	SIGNAL R 3.0 D	female	1 - 26	P-Part	N	6.5 - 16.0		5
R 3.0 F PG16								
00008854	SIGNAL R 3.0 F	male	1 - 21	E-Part	N	6.5 - 16.0		5
00008822	SIGNAL R 3.0 F	male	1 - 26	E-Part	N	6.5 - 16.0		5
00008779	SIGNAL R 3.0 F	female	1 - 21	P-Part	N	6.5 - 16.0		5
00008979	SIGNAL R 3.0 F	female	1 - 26	P-Part	N	6.5 - 16.0		5
R 3.0 A								
00008747	SIGNAL R 3.0 A	male	1 - 21	E-Part	N		Ø 3.2 mm (4x)	5
00008825	SIGNAL R 3.0 A	male	1 - 26	E-Part	N		Ø 3.2 mm (4x)	5
00008867	SIGNAL R 3.0 A	female	1 - 21	P-Part	N		Ø 3.2 mm (4x)	5
00008746	SIGNAL R 3.0 A	female	1 - 26	P-Part	N		Ø 3.2 mm (4x)	5

The housing is available with male or female inserts. The pin configuration corresponds to the versions shown. Inserts with male contacts (E-component) are right turning (plug side clockwise). The female inserts have the opposite pin configuration (P-component = left turning, plug side anticlockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL R 3.0 B1

Circular connectors with solder termination, 21-pin and 26-pin

Info

- Compact and reliable connector for multicore signal cables

EPIC® SIGNAL R 3.0 B2

Circular connectors with solder termination, 21-pin and 26-pin

EPIC® SIGNAL R 3.0 G1

Circular connectors with solder termination, 21-pin and 26-pin

Benefits

- Highest contact density at small space requirements
- Connector in solder version for easy maintanance

Application range

- Machine and equipment manufacturing
- Measurement and control technology

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
24V AC / 60VDC

Rated impulse voltage
1.5 kV

Rated current (A)
7.5 A

Contact resistance
< 3 mOhm

Contacts
Copper alloy, gold-plated

Number of contacts
21-pin / 26-pin

Termination methods
Solder termination: up to 1.0 mm²

Material
Housing: nickel-plated copper alloy
Insert: thermoplastic
Sealing: neoprene

Protection rating
IP 67 (maximum, dependant on cable gland used)

Cycle of mechanical operation
500

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article	Version	Contacts	Pin configuration	Coding	Fastening type	Pieces / PU
R 3.0 B1							
00009082	SIGNAL R 3.0 B1	male	1 - 21	E-Part	N	M3 (4x)	5
00009135	SIGNAL R 3.0 B1	female	1 - 21	P-Part	N	M3 (4x)	5
00008978	SIGNAL R 3.0 B1	female	1 - 26	P-Part	N	M3 (4x)	5
R 3.0 B2							
00008939	SIGNAL R 3.0 B2	male	1 - 26	E-Part	N	Ø 3.2 mm (4x)	5
00009470	SIGNAL R 3.0 B2	female	1 - 26	P-Part	N	Ø 3.2 mm (4x)	5
R 3.0 G1							
00009371	ZYLIN R 3.0 G1	male	1 - 21	E-Part	N	Ø 25 mm (1x)	5
00009894	ZYLIN R 3.0 G1	male	1 - 26	E-Part	N	Ø 25 mm (1x)	5
00009057	ZYLIN R 3.0 G1	female	1 - 21	P-Part	N	Ø 25 mm (1x)	5
00009005	ZYLIN R 3.0 G1	female	1 - 26	P-Part	N	Ø 25 mm (1x)	5

The housing is available with male or female inserts. The pin configuration corresponds to the versions shown. Inserts with male contacts (E-component) are right turning (plug side clockwise). The female inserts have the opposite pin configuration (P-component = left turning, plug side anticlockwise)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL R 3.0 Tools

Contacts, tools, accessories for circular connectors

EPIC® SIGNAL R 3.0 Accessories

Contacts, tools, accessories for circular connectors

Technical data

ETIM

Classification ETIM 5/6
EPIC® SIGNAL R 3.0 Tools
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection
EPIC® SIGNAL R 3.0 Accessories
ETIM 5.0/6.0 Class-ID: EC002314
ETIM 5.0/6.0 Class-Description: Cap for industrial connectors

Article number	Article designation	For design	Pieces / PU
EPIC® SIGNAL R 3.0 Tools			
50200800	R3.0 assembly/disassembly tool	for type D, F	1
Flat gasket			
50201203	R3.0 A flat gasket	for type A1	5
50202203	R3.0 B flat gasket	for type B	5
Metal cap			
50201120	R3.0 A metal screw-cap	for type A1	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS1 A1

Circular connectors for servomotors and power supply

EPIC® POWER LS1 A3

Circular connectors for servomotors and power supply

Info

- Rotateable with clearly defined adjustment positions

Suitable contacts:

- EPIC® POWER LS1 Contacts male Page 658
- PU = 5 pieces: the contacts are included. 2 mm contact crimp range is 0.5 - 2.5 mm².
- PU = 20 pieces: the contacts must be ordered separately

Benefits

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised design
- Safety use in field environment by high protection class

Application range

- Plant engineering
- Servo drives and servo assemblies

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
630 V (2 mm contacts)
250 V (1 mm contacts)

Rated impulse voltage
6 kV (2 mm contacts)
4 kV (1 mm contacts)

Rated current (A)
26A/3+PE+4, 25A/5+PE (2mm contacts)
7 A (1 mm contacts)

Pollution degree
3

Contact resistance
< 4 mOhm

Contacts
Gold-plated brass

Number of contacts
3+PE+4(2mm/1mm)
5+PE(2mm)

Termination methods
Crimp termination: 0.5 - 2.5 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)

Material
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

Protection rating
EPIC® POWER LS1 A1
IP68 (10h/1m)
EPIC® POWER LS1 A3
IP 65

Cycle of mechanical operation
500

VDE-tested
EPIC® POWER LS1 A1
Certified production control: VDE-REG. no. B25

Temperature range
-25°C up to +125°C

Article number	Article description	Contacts included	Fastening type	Pin configuration	Pieces / PU
Type LS1 A1, front wall mounting, 6-pin, for male contacts					
76003000	LS1 A1	6	Ø 2.7 mm (4x)	5+PE	5
76003510	LS1 A1		Ø 2.7 mm (4x)	5+PE	20
Type LS1 A1, front wall mounting, 8-pin, for male contacts					
76004000	LS1 A1	8	Ø 2.7 mm (4x)	3+PE+4	5
76004510	LS1 A1		Ø 2.7 mm (4x)	3+PE+4	20
Type LS1 A3, angled, rotatable, 6-pin, for male contacts					
24420058	LS1 A3	6	Ø 2.7 mm (4x)	5+PE	5
24420059	LS1 A3		Ø 2.7 mm (4x)	5+PE	20
Type LS1 A3, angled, rotatable, 8-pin, for male contacts					
24420056	LS1 A3	8	Ø 2.7 mm (4x)	3+PE+4	5
24420057	LS1 A3		Ø 2.7 mm (4x)	3+PE+4	20

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS1 G5

Circular connectors for servomotors and power supply

EPIC® POWER LS1 A6

Circular connectors for servomotors and power supply

Info

- Allows a elecrical disconnecting point directly at power source

Suitable contacts:

EPIC® POWER LS1 G5

- EPIC® POWER LS1 Contacts male
  Page 658

EPIC® POWER LS1 A6

- EPIC® POWER LS1 Contacts female
  Page 658
- PU = 5 pieces: the contacts are included. 2 mm contact crimp range is 0.5 - 2.5 mm².
- PU = 20 pieces: the contacts must be ordered separately

Benefits

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised design
- Safety use in field environment by high protection class

Application range

- Plant engineering
- Servo drives and servo assemblies

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
630 V (2 mm contacts)
250 V (1 mm contacts)

Rated impulse voltage
6 kV (2 mm contacts)
4 kV (1 mm contacts)

Rated current (A)
26A/3+PE+4, 25A/5+PE (2mm contacts)
7 A (1 mm contacts)

Pollution degree
3

Contact resistance
< 4 mOhm

Contacts
Gold-plated brass

Number of contacts
3+PE+4(2mm/1mm)
5+PE(2mm)

Termination methods
Crimp termination: 0.5 - 2.5 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)

Material
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

Protection rating
IP68 (10h/1m)

Cycle of mechanical operation
500

VDE-tested
Certified production control: VDE-REG. no. B25

Temperature range
-25°C up to +125°C

Article number	Article description	Contacts included	Fastening type	Pin configuration	Pieces / PU
Type LS1 G5,front wall mounting, 6-pin, for male contacts					
76153000	LS1 G5	6	M25 x 1.5 (with nut)	5+PE	5
76153510	LS1 G5		M25 x 1.5 (with nut)	5+PE	20
Type LS1 G5, front wall mouning, 8-pin, for male contacts					
76154000	LS1 G5	8	M25 x 1.5 (with nut)	3+PE+4	5
76154510	LS1 G5		M25 x 1.5 (with nut)	3+PE+4	20
Type LS1 A6, front wall mounting, 6-pin, for female contacts					
76083000	LS1 A6	6	Ø 2.7 mm (4x)	5+PE	5
76083510	LS1 A6		Ø 2.7 mm (4x)	5+PE	20
Type LS1 A6, front wall mounting, 8-pin, for female contacts					
76084000	LS1 A6	8	Ø 2.7 mm (4x)	3+PE+4	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS1 D6

Circular connectors for servomotors and power supply

EPIC® POWER LS1 D6 (short)

Circular connectors for servomotors and power supply

Info

- Reduced length for cables which are easy to assemble

Suitable contacts:

- EPIC® POWER LS1 Contacts female Page 658
- PU = 5 pieces: the contacts are included. 2 mm contact crimp range is 0.5 - 2.5 mm².
- PU = 20 pieces: the contacts must be ordered separately

Benefits

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised design
- Safety use in field environment by high protection class

Application range

- Plant engineering
- Servo drives and servo assemblies

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
630 V (2 mm contacts)
250 V (1 mm contacts)

Rated impulse voltage
6 kV (2 mm contacts)
4 kV (1 mm contacts)

Rated current (A)
26A/3+PE+4, 25A/5+PE (2mm contacts)
7 A (1 mm contacts)

Pollution degree
3

Contact resistance
< 4 mOhm

Contacts
Gold-plated brass

Number of contacts
3+PE+4(2mm/1mm)
5+PE(2mm)

Termination methods
Crimp termination: 0.5 - 4.0 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)

Material
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

Protection rating
IP68 (10h/1m)

Cycle of mechanical operation
500

VDE-tested
Certified production control: VDE-REG. no. B25

Temperature range
-25°C up to +125°C

Article number	Article description	Contacts included	Clamping range in mm	Pin configuration	Pieces / PU
Type LS1 D6, cable connector, 6-pin, for female contacts					
73000004	LS1 D6	6	8.5 - 11	5+PE	5
73000006	LS1 D6		8.5 - 11	5+PE	20
73000005	LS1 D6	6	10.5 - 15.5	5+PE	5
73000007	LS1 D6		10.5 - 15.5	5+PE	20
76123000	LS1 D6	6	7.5 - 15.5	5+PE	5
76123510	LS1 D6		7.5 - 15.5	5+PE	20
44420091	LS1 D6 with 2mm contact for 4mm² termination	6	14 - 17	5+PE	5
44420090	LS1 D6		14 - 17	5+PE	20
Type LS1 D6, cable connector, 8-pin, for female contacts					
73000000	LS1 D6	8	8.5 - 11	3+PE+4	5
73000002	LS1 D6		8.5 - 11	3+PE+4	20
73000001	LS1 D6	8	10.5 - 15.5	3+PE+4	5
73000003	LS1 D6		10.5 - 15.5	3+PE+4	20
76124000	LS1 D6	8	7.5 - 15.5	3+PE+4	5
76124510	LS1 D6		7.5 - 15.5	3+PE+4	20
44420089	LS1 D6 with 2mm contact for 4mm² termination	8	14 - 17	3+PE+4	5
44420088	LS1 D6		14 - 17	3+PE+4	20
Type LS1 D6 short, cable connector, 6-pin, for female contacts					
73000028	LS1 D6	6	8.5 - 11	5+PE	5
73000030	LS1 D6		8.5 - 11	5+PE	20
73000029	LS1 D6	6	10.5 - 15.5	5+PE	5
73000031	LS1 D6		10.5 - 15.5	5+PE	20
76123100	LS1 D6	6	7.5 - 15.5	5+PE	5
76123610	LS1 D6		7.5 - 15.5	5+PE	20
Type LS1 D6 short, cable connecor, 8-pin, for female contacts					
73000024	LS1 D6	8	8.5 - 11	3+PE+4	5
73000026	LS1 D6		8.5 - 11	3+PE+4	20
73000025	LS1 D6	8	10.5 - 15.5	3+PE+4	5
73000027	LS1 D6		10.5 - 15.5	3+PE+4	20
76124100	LS1 D6	8	7.5 - 15.5	3+PE+4	5
76124610	LS1 D6		7.5 - 15.5	3+PE+4	20

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS1 F6

Circular connectors for servomotors and power supply

EPIC® POWER LS1 F7

Circular connectors for servomotors and power supply

Info

- For fast and safe wall mounting of a cable extension

Suitable contacts:

- EPIC® POWER LS1 Contacts male Page 658
- PU = 5 pieces: the contacts are included. 2 mm contact crimp range is 0.5 - 2.5 mm².
- PU = 20 pieces: the contacts must be ordered separately

Benefits

- High power at smallest installation space, Optimal solution for electric motors
- EMC-optimised design
- Safety use in field environment by high protection class

Application range

- Plant engineering
- Servo drives and servo assemblies

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
630 V (2 mm contacts)
250 V (1 mm contacts)

Rated impulse voltage
6 kV (2 mm contacts)
4 kV (1 mm contacts)

Rated current (A)
26A/3+PE+4, 25A/5+PE (2mm contacts)
7 A (1 mm contacts)

Pollution degree
3

Contact resistance
< 4 mOhm

Contacts
Gold-plated brass

Number of contacts
3+PE+4(2mm/1mm)
5+PE(2mm)

Termination methods
Crimp termination: 0.5 - 4.0 mm² (2 mm contacts)
Crimp termination: 0.14 - 1.0 mm² (1 mm contacts)

Material
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

Protection rating
IP68 (10h/1m)

Cycle of mechanical operation
500

VDE-tested
EPIC® POWER LS1 F6
Certified production control: VDE-REG. no. B25

Temperature range
-25°C up to +125°C

Article number	Article description	Contacts included	Clamping range in mm	Fastening type	Pin configuration	Pieces / PU
Type LS1 F6, cable coupler, 6-pin, for male contacts						
73000012	LS1 F6	6	8.5 - 11		5+PE	5
73000014	LS1 F6		8.5 - 11		5+PE	20
73000013	LS1 F6	6	10.5 - 15.5		5+PE	5
73000015	LS1 F6		10.5 - 15.5		5+PE	20
76133000	LS1 F6	6	7.5 - 15.5		5+PE	5
76133510	LS1 F6		7.5 - 15.5		5+PE	20
44420095	LS1 F6 with 2mm contact for 4mm² termination	6	14 - 17		5+PE	5
44420094	LS1 F6		14 - 17		5+PE	20
Type LS1 F6, cable coupler, 8-pin, for male contacts						
73000008	LS1 F6	8	8.5 - 11		3+PE+4	5
73000010	LS1 F6		8.5 - 11		3+PE+4	20
73000009	LS1 F6	8	10.5 - 15.5		3+PE+4	5
73000011	LS1 F6		10.5 - 15.5		3+PE+4	20
76134000	LS1 F6	8	7.5 - 15.5		3+PE+4	5
76134510	LS1 F6		7.5 - 15.5		3+PE+4	20
44420093	LS1 F6 with 2mm contact for 4mm² termination	8	14 - 17		3+PE+4	5
44420092	LS1 F6		14 - 17		3+PE+4	20
Type LS1 F7, cable coupler wih mounting flange, 6-pin, for male contacts						
73000020	LS1 F7	6	8.5 - 11	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5+PE	5
73000021	LS1 F7	6	10.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5+PE	5
73000023	LS1 F7		10.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5+PE	20
76143000	LS1 F7	6	7.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	5+PE	5
Type LS1 F7, 8-pin, for male contacts						
73000016	LS1 F7	8	8.5 - 11	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	3+PE+4	5
73000017	LS1 F7	8	10.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	3+PE+4	5
76144000	LS1 F7	8	7.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	3+PE+4	5
76144510	LS1 F7		7.5 - 15.5	Ø 3.2 mm (4x), M25 x 1.5 (with nut)	3+PE+4	20

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS1 Contacts male

Contacts, tools, accessories for circular connectors

Info

- All contacts are high quality gold plated
- Contacts are designed for wide crimping range, therefore low number of variants
- Only available as crimp version due to the high mechanical stress in servo applications

EPIC® POWER LS1 Contacts female

Contacts, tools, accessories for circular connectors

Info

- All contacts are high quality gold plated
- Contacts are designed for wide crimping range, therefore low number of variants
- Only available as crimp version due to the high mechanical stress in servo applications

Article number	Article designation	Version	For design	Pieces / PU
1mm contacts male				
74033001	POWER LS1 A SCM 1mm AU 0.14-1.0	1 mm male 0.14 - 1.0 mm²	LSI A1, A3, G5	10
74033000	POWER LS1 A SCM 1mm AU 0.14-1.0	1 mm male 0.14 - 1.0 mm²	LSI A1, A3, G5	100
74034001	POWER LS1 F SCM 1mm AU 0.14-1.0	1 mm male 0.14 - 1.0 mm²	LS1 F6, F7	10
74034000	POWER LS1 F SCM 1mm AU 0.14-1.0	1 mm male 0.14 - 1.0 mm²	LS1 F6, F7	100
2mm contacts male				
74033101	POWER LS1 A SCM 2mm AU 0.5-2.5	2 mm male 0.5 - 2.5 mm²	LSI A1, A3, G5	10
74033100	POWER LS1 A SCM 2mm AU 0.5-2.5	2 mm male 0.5 - 2.5 mm²	LSI A1, A3, G5	100
74034101	POWER LS1 F SCM 2mm AU 0.5-2.5	2 mm male 0.5 - 2.5 mm²	LS1 F6, F7	10
74034100	POWER LS1 F SCM 2mm AU 0.5-2.5	2 mm male 0.5 - 2.5 mm²	LS1 F6, F7	100
44420103	POWER LS1 F SCM 2mm AU 4.0	2 mm male 4.0 mm²	LS1 F6, F7	100
1mm contacts female				
74020601	M23/LS1 BCMS 1mm AU 0.14-1.0	1 mm female slot 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, LS1 A6	10
74200600	M23/LS1 BCMS 1mm AU 0.14-1.0	1 mm female slot 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, LS1 A6	100
74034501	M23/LS1 BCMD 1mm AU 0.14-1.0	1 mm female hyperboloid 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, LS1 A6	10
74034500	M23/LS1 BCMD 1mm AU 0.14-1.0	1 mm female hyperboloid 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, LS1 A6	100
2mm contacts female				
44429371	POWER LS1 D BCMF 2mm AU 0.5-2.5	2 mm female spring 0,5-2,5mm²	LS1 D6, A6	10
2mm contacts female				
44429370	POWER LS1 D BCMF 2mm AU 0.5-2.5	2 mm female spring 0,5-2,5mm²	LS1 D6, A6	100
44420104	POWER LS1 D BCMD 2mm AU 4.0	2 mm female hyperboloid 4 mm²	for type D6, A6	10
44420105	POWER LS1 D BCMD 2mm AU 4.0	2 mm female hyperboloid 4 mm²	for type D6, A6	100
44429001	POWER LS1 BCBG 2mm 1.0-2.5 (3000) RE	2 mm female 1.0 - 2.5 mm²	LS1 D6, A6	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS1 Tools

Contacts, tools, accessories for circular connectors

Article number	Article	Version	Pieces / PU
Tools			
11148000	Crimping tool	In tool case, without locator	1
11148001	4-mandrel digital crimping tool	In tool case, without locator	1
11148002	Crimping machine	Pneumatic for 5 - 10 bar, locator not included	1
11148300	Locator for crimping tool LS1, M23		1
75017400	LS1 removal tool for 1 mm contacts	For housing type A, G	1
75017500	LS1 removal tool for 2 mm contacts	For housing type A, G	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS1 Accessories

Contacts, tools, accessories for circular connectors

Article number	Article	Version	Pieces / PU
EPIC® POWER LS1 Accessories			
75007810	M23-LS1 A, B, F, G protective cap	Plastic cap for A1, B1, B2, F6, F7, G4, G5, G6	20
75007710	M23 / LS1 D protective cap	Plastic cap for D6, A6	20
75018010	M23 A, B protective cap, plastic cord with cable lug	Metal cap for A1, A3, B1, B2	20
Accessories			
75018310	LS1 A, G, F screw cap, plastic cord with loop	Metal cap for A1, A3, F6, F7, G4, G5	20
55001310	SILVYN Adapter LS1/M25x1,5	For integrated cable glands 8.5 - 11mm, 10.5 - 15.5mm	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS1.5 A1

Circular connectors for servomotors and power supply

EPIC® POWER LS1.5 A3

Circular connectors for servomotors and power supply

Info

- Rotateable with 310° cable outlet

EPIC® POWER LS1.5 A6

Circular connectors for servomotors and power supply

Suitable contacts:

EPIC® POWER LS1.5 A1

- EPIC® POWER LS1.5 Contacts male Page 662

EPIC® POWER LS1.5 A3

- EPIC® POWER LS1.5 Contacts male Page 662

EPIC® POWER LS1.5 A6

- EPIC® POWER LS1.5 Contacts female Page 662
- The contacts have to be ordered separately

Benefits

- More power for servo motors
- Vibration-proof rugged design
- EMC version for cables with large cross-sections

Application range

- Plant engineering
- Servo drives and servo assemblies

Suitable tools

- EPIC® POWER LS1.5 Tools refer to page 662

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
630 V (3.6 mm contacts)
250 V (2 mm contacts)

Rated impulse voltage
6 kV (3.6 mm contacts)
4 kV (2 mm contacts)

Rated current (A)
70 A (3.6-mm contacts) at 25 °C
30 A (2-mm contacts) at 25 °C

Pollution degree
3

Contacts
Gold-plated brass

Number of contacts
3+PE+2(3.6mm/2mm)
3+PE+4(3.6mm/2mm)

Termination methods
Crimp termination: 0.75 - 10 mm² (3.6 mm contacts)
Crimp termination: 0.14 - 4.0 mm² (2 mm contacts)

Material
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

Protection rating
IP 67

Cycle of mechanical operation
50

Temperature range
-20 °C až +125 °C

Article number	Article description	Fastening type	Pin configuration	Pieces / PU
Type LS1.5 A1 for male contacts				
44429308	EPIC® POWER LS1.5 A1	Ø 4.2 mm (4x)	3+PE+2	1
44429309	EPIC® POWER LS1.5 A1	Ø 4.2 mm (4x)	3+PE+4	1
Type LS1.5 A3 for male contacts				
44429306	EPIC® POWER LS1.5 A3	Ø 4.2 mm (4x)	3+PE+2	1
44429307	EPIC® POWER LS1.5 A3	Ø 4.2 mm (4x)	3+PE+4	1
Type LS1.5 A6 for female contacts				
44429316	EPIC® POWER LS1.5 A6	Ø 4.2 mm (4x)	3+PE+2	1
44429317	EPIC® POWER LS1.5 A6	Ø 4.2 mm (4x)	3+PE+4	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS1.5 D6

Circular connectors for servomotors and power supply

Info

- EMC protection

EPIC® POWER LS1.5 F6

Circular connectors for servomotors and power supply

Suitable contacts:

EPIC® POWER LS1.5 D6

- EPIC® POWER LS1.5 Contacts female Page 662

EPIC® POWER LS1.5 F6

- EPIC® POWER LS1.5 Contacts male Page 662
- The contacts have to be ordered separately

Benefits

- More power for servo motors
- Vibration-proof rugged design
- EMC version for cables with large cross-sections

Application range

- Plant engineering
- Servo drives and servo assemblies

Suitable tools

- EPIC® POWER LS1.5 Tools refer to page 662

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description:
Circular connector (industrial connector)

Rated voltage (V)
630 V (3.6 mm contacts)
250 V (2 mm contacts)

Rated impulse voltage
6 kV (3.6 mm contacts)
4 kV (2 mm contacts)

Rated current (A)
70 A (3.6-mm contacts) at 25 °C
30 A (2-mm contacts) at 25 °C

Pollution degree
3

Contacts
Gold-plated brass

Number of contacts
3+PE+2(3.6mm/2mm)
3+PE+4(3.6mm/2mm)

Termination methods
Crimp termination: 0.75 - 10 mm²
(3.6 mm contacts)
Crimp termination: 0.14 - 4.0 mm²
(2 mm contacts)

Material
Housing: nickel-plated zinc die-casting, nickel-plated brass
Insert: PA,
Seal: FPM

Protection rating
IP 67

Cycle of mechanical operation
50

Temperature range
-20 °C až +125 °C

Article number	Article description	Clamping range in mm	Pin configuration	Pieces / PU
Type LS1.5 D6 for female contacts				
44429310	EPIC® POWER LS1.5 D6	9 - 14	3+PE+2	1
44429311	EPIC® POWER LS1.5 D6	14 - 20.5	3+PE+2	1
44429312	EPIC® POWER LS1.5 D6	20.5 - 26.5	3+PE+2	1
44429313	EPIC® POWER LS1.5 D6	9 - 14	3+PE+4	1
44429314	EPIC® POWER LS1.5 D6	14 - 20.5	3+PE+4	1
44429315	EPIC® POWER LS1.5 D6	20.5 - 26.5	3+PE+4	1
Type LS1.5 F6 for male contacts				
44429300	EPIC® POWER LS1.5 F6	9 - 14	3+PE+2	1
44429301	EPIC® POWER LS1.5 F6	14 - 20.5	3+PE+2	1
44429302	EPIC® POWER LS1.5 F6	20.5 - 26.5	3+PE+2	1
44429303	EPIC® POWER LS1.5 F6	9 - 14	3+PE+4	1
44429304	EPIC® POWER LS1.5 F6	14 - 20.5	3+PE+4	1
44429305	EPIC® POWER LS1.5 F6	20.5 - 26.5	3+PE+4	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS1.5 Contacts male

Contacts, tools, accessories for circular connectors

Info

- All contacts are high quality gold plated
- Only available as crimp version due to the high mechanical stress in servo applications

EPIC® POWER LS1.5 Contacts female

Contacts, tools, accessories for circular connectors

Info

- All contacts are high quality gold plated
- Slotted contacts with external pressure spring

EPIC® POWER LS1.5 Tools

Contacts, tools, accessories for circular connectors

Info

- Universal 4-indent crimping tool
- 2 different Crimping tool for contacts up to 6mm² and from 6mm²

Suitable tools

EPIC® POWER LS1.5 Contacts female

- Crimping tool for termination of 16 mm² wires are available upon request

Technical data

ETIM

Classification ETIM 5/6
EPIC® POWER LS1.5 Contacts male
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors
EPIC® POWER LS1.5 Contacts female
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors
EPIC® POWER LS1.5 Tools
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article designation	Description	Version	For design	Pieces / PU
3.6 mm male contacts					
44429334	LS1.5 A SCEM 3,6MM AU 0,75-1,5		3.6 mm male 0.75 - 1.5	for type A1, A3	10
44429335	LS1.5 A SCEM 3,6MM AU 1,0-2,5		3.6 mm male 1.0 - 2.5 mm²	for type A1, A3	10
44429336	LS1.5 A SCEM 3,6MM AU 1,5-4,0		3.6 mm male 1.5 - 4.0 mm²	for type A1, A3	10
44429337	LS1.5 A SCEM 3,6MM AU 4,0-6,0		3.6 mm male 4.0 - 6.0 mm²	for type A1, A3	10
44429338	LS1.5 A SCEM 3,6MM AU 6,0-10,0		3.6 mm male 6.0 - 10.0 mm²	for type A1, A3	10
44429326	LS1.5 F SCEM 3,6MM AU 1,0-2,5		3.6 mm male 1.0 - 2.5 mm²	for type F6	10
44429327	LS1.5 F SCEM 3,6MM AU 2,5-4,0		3.6 mm male 2.5 - 4.0 mm²	for type F6	10
44429328	LS1.5 F SCEM 3,6MM AU 4,0-6,0		3.6 mm male 4.0 - 6.0 mm²	for type F6	10
44429329	LS1.5 F SCEM 3,6MM AU 6,0-10,0		3.6 mm male 6.0 - 10.0 mm²	for type F6	10
2 mm male contacts					
44429339	LS1.5 A SCEM 2MM AU 0,14-0,25		2 mm male 0.14 - 0.25 mm²	for type A1, A3	10
44429340	LS1.5 A SCEM 2MM AU 0,25-1,0		2 mm male 0.25 - 1.0 mm²	for type A1, A3	10
44429341	LS1.5 A SCEM 2MM AU 0,75-1,5		2 mm male 0.75 - 1.5 mm²	for type A1, A3	10
44429342	LS1.5 A SCEM 2MM AU 1,0-2,5		2 mm male 1.0 - 2.5 mm²	for type A1, A3	10
44429343	LS1.5 A SCEM 2MM AU 4,0		2 mm male 2.5-4.0 mm²	for type A1, A3	10
44429330	LS1.5 F SCEM 2MM AU 0,25-1,0		2 mm male 0.25 - 1.0 mm²	for type F6	10
44429331	LS1.5 F SCEM 2MM AU 0,75-1,5		2 mm male 0.75 - 1.5 mm²	for type F6	10
44429332	LS1.5 F SCEM 2MM AU 1,0-2,5		2 mm male 1.0 - 2.5 mm²	for type F6	10
44429333	LS1.5 F SCEM 2MM AU 2,5-4,0		2 mm male 2.5-4.0 mm²	for type F6	10
3.6 mm female contacts					
44429318	LS1.5 D BCEM 3,6MM AU 1,0-2,5		3.6 mm female 1.0 - 2.5 mm²	for type D6, A6	10
44429319	LS1.5 D BCEM 3,6MM AU 2,5-4,0		3.6 mm female 2.5 - 4.0 mm²	for type D6, A6	10
44429320	LS1.5 D BCEM 3,6MM AU 4,0-6,0		3.6 mm female 4.0 - 6.0 mm²	for type D6, A6	10
44429321	LS1.5 D BCEM 3,6MM AU 6,0-10,0		3.6 mm female 6.0 - 10.0 mm²	for type D6, A6	10
2 mm female contacts					
44429322	LS1.5 D BCEM 2MM AU 0,25-1,0		2 mm female 0.25 - 1.0 mm²	for type D6, A6	10
44429323	LS1.5 D BCEM 2MM AU 0,75-1,5		2 mm female 0.75 - 1.5 mm²	for type D6, A6	10
44429324	LS1.5 D BCEM 2MM AU 1,0-2,5		2 mm female 1.0 - 2.5 mm²	for type D6, A6	10
44429325	LS1.5 D BCEM 2MM AU 4,0		2 mm female 4.0 mm²	for type D6, A6	10
Crimping tool					
44429367	LS1.5 CRIMPING TOOL 0.08 - 6.0	4-mandrel digital crimping tool including locator	0.14 - 6.0 mm²	for LS1.5, LS3	1
44429368	LS1.5 CRIMPING TOOL 6.0 - 10.0	4-mandrel digital crimping tool including locator	6.0 - 10.0 mm²	for LS1.5	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS3 A1

Circular connectors for servomotors and power supply

EPIC® POWER LS3 D6

Circular connectors for servomotors and power supply

EPIC® POWER LS3 F6

Circular connectors for servomotors and power supply

Info

- Robust power supply connector

Suitable contacts:

EPIC® POWER LS3 A1

- EPIC® POWER LS3 male contacts
  Page 664

EPIC® POWER LS3 D6

- EPIC® POWER LS3 female contacts
  Page 664

EPIC® POWER LS3 F6

- EPIC® POWER LS3 male contacts
  Page 664
- The contacts have to be ordered separately

Benefits

- More power for servo motors
- Robust against mechanical impacts
- EMC protection

Application range

- Plant engineering
- Servo drives and servo assemblies

Suitable tools

- EPIC® POWER LS3 Tools refer to page 664

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description:
Circular connector (industrial connector)

Rated voltage (V)
630 V (10 mm contacts)
250 V (1.6 mm contacts)

Rated impulse voltage
6 KV (10 mm contacts)
4 kV (1.6 mm contacts)

Rated current (A)
150 A (10-mm contacts) at 25 °C
12 A (1.6-mm contacts) at 25 °C

Pollution degree
3

Contacts
Silver-plated brass
Gold-plated brass

Number of contacts
3+PE+2(10mm/1.6mm)
3+PE+4(10mm/1.6mm)

Termination methods
Crimp termination 10 - 50 mm²
(10 mm contacts)
Crimp termination 0.75 - 1.5 mm²
(1.6 mm contacts)

Material
Housing: anodised aluminium
Insert: PA
Seal: FPM

Protection rating
IP 67

Cycle of mechanical operation
50

Temperature range
-20 °C až +120 °C

Article number	Article description	Clamping range in mm	Fastening type	Pin configuration	Pieces / PU
Type LS3 A1 for male contacts					
44429352	LS3 A1		Ø 4.2 mm (4x)	3+PE+2	1
44429353	LS3 A1		Ø 4.2 mm (4x)	3+PE+4	1
Type LS3 D6 for female contacts					
44429344	LS3 D6	17 - 25		3+PE+2	1
44429345	LS3 D6	25 - 36		3+PE+2	1
44429346	LS3 D6	17 - 25		3+PE+4	1
44429347	LS3 D6	25 - 36		3+PE+4	1
Type LS3 F6 for male contacts					
44429348	LS3 F6	17 - 25		3+PE+2	1
44429349	LS3 F6	25 - 36		3+PE+2	1
44429350	LS3 F6	17 - 25		3+PE+4	1
44429351	LS3 F6	25 - 36		3+PE+4	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER LS3 male contacts

Contacts, tools, accessories for circular connectors

Info

- Only available as crimp version due to the high mechanical stress in servo applications
- Power contacts silver plated, signal contacts gold plated

EPIC® POWER LS3 female contacts

Contacts, tools, accessories for circular connectors

Info

- Only available as crimp version due to the high mechanical stress in servo applications
- Power contacts silver plated, signal contacts gold plated

EPIC® POWER LS3 Tools

Contacts, tools, accessories for circular connectors

Info

- Complete tool set for all cable cross-sections
- Individual components available on request
- For the signal contacts crimping tool 44429367 is used

Technical data

ETIM

Classification ETIM 5/6
EPIC® POWER LS3 male contacts
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors
EPIC® POWER LS3 female contacts
ETIM 5.0/6.0 Class-ID: EC000796
ETIM 5.0/6.0 Class-Description: Contact for industrial connectors
EPIC® POWER LS3 Tools
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article designation	Description	Version	For design	Pieces / PU
EPIC® POWER LS3 male contacts					
44429360	LS3 A, F SCEM 10MM AG 10		10 mm male 10 mm²	for type A1, F6	4
44429361	LS3 A, F SCEM 10MM AG 16		10 mm male 16 mm²	for type A1, F6	4
44429362	LS3 A, F SCEM 10MM AG 25		10 mm male 25 mm²	for type A1, F6	4
44429363	LS3 A, F SCEM 10MM AG 35		10 mm male 35 mm²	for type A1, F6	4
44429364	LS3 A, F SCEM 10MM AG 50		10 mm male 50 mm²	for type A1, F6	4
44429365	LS3 A, F SCEM 1.6MM AU 0.75-1.5		1.6 mm male 0.75 - 1.5 mm²	for type A1, F6	4
EPIC® POWER LS3 female contacts					
44429354	LS3 D BCEM 10MM AG 10		10 mm female 10 mm²	for type D6	4
44429355	LS3 D BCEM 10MM AG 16		10 mm female 16 mm²	for type D6	4
44429356	LS3 D BCEM 10MM AG 25		10 mm female 25 mm²	for type D6	4
44429357	LS3 D BCEM 10MM AG 35		10 mm female 50 mm²	for type D6	4
44429358	LS3 D BCEM 10MM AG 50		10 mm female 35 mm²	for type D6	4
44429359	LS3 D BCEM 1.6MM AU 0.75-1.5		1.6 mm female 0.75 - 1.5 mm²	for type D6	4
Crimping tool					
44429366	LS3 crimping tool 10.0 - 50.0	Electro-hydraulic crimping tool includes charging device, accumulator and crimping dies for 10 - 50 mm²	10.0 - 50.0 mm²	for LS3	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK A1 S

Single-pin circular connector for mobile power distribution, electro motors and generators

EPIC® POWERLOCK A6 S

Single-pin circular connector for mobile power distribution, electro motors and generators

Info

- Connector for unscreened single-core power cables

Suitable contacts:

- EPIC® POWERLOCK Screw contacts Page 668
- Housing without contact, order contact separately

Benefits

- Resistant to mechanical influences in harsh environmental conditions
- Connectors in harmonised colours according to European standards
- Every colour has a different coding to prevent incorrect plugging

Application range

- For renewable energy plants e.g. wind power
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

Product features

- Panel-mount base, straight entry, flat gasket included
- Contact fixing by contact retention pin, each pin can only be used once
- Housing without contact, order contact separately

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
Screw max. 400 A

Pollution degree
3

Contacts
Screw termination: silver-plated brass

Number of contacts
1

Termination methods
Screw termination: 50 - 120 mm²

Material
Housing: PBT
Contact retention pin: PA

Protection rating
IP 67 (maximum, dependant on cable gland used)
IP 20 (unmated)

Cycle of mechanical operation
500

VDE-tested
VDE Reg. No. D42

Temperature range
-25°C up to +125°C

Article number	Article description	Fastening type	Pin configuration	Pieces / PU
POWERLOCK panel-mount box without contact				
Panel-mount box A1, drain				
44420272	POWERLOCK A1 PE/GN	Ø 5.5 mm (4x)	PE, Green	1
44420273	POWERLOCK A1 N/BL	Ø 5.5 mm (4x)	N, Blue	1
44420274	POWERLOCK A1 L1/BN	Ø 5.5 mm (4x)	L1, Brown	1
44420275	POWERLOCK A1 L2/BK	Ø 5.5 mm (4x)	L2, Black	1
44420276	POWERLOCK A1 L3/GY	Ø 5.5 mm (4x)	L3, Grey	1
For direct current applications in conjunction with L2/black				
44420320	POWERLOCK A1 L1/RD	Ø 5.5 mm (4x)	L1, Red	1
Panel-mount box A6, source				
44420277	POWERLOCK A6 PE/GN	Ø 5.5 mm (4x)	PE, Green	1
44420278	POWERLOCK A6 N/BL	Ø 5.5 mm (4x)	N, Blue	1
44420279	POWERLOCK A6 L1/BN	Ø 5.5 mm (4x)	L1, Brown	1
44420280	POWERLOCK A6 L2/BK	Ø 5.5 mm (4x)	L2, Black	1
44420281	POWERLOCK A6 L3/GY	Ø 5.5 mm (4x)	L3, Grey	1
Type A6, source - for direct current applications in conjunction with L2/black				
44420321	POWERLOCK A6 L1/RD	Ø 5.5 mm (4x)	L1, Red	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK D6 S

Single-pin circular connector for mobile power distribution, electro motors and generators

EPIC® POWERLOCK F6 S

Single-pin circular connector for mobile power distribution, electro motors and generators

Info

- Connector for unscreened single-core power cables

Suitable contacts:

- EPIC® POWERLOCK Screw contacts Page 668
- Housing without contact, order contact separately

Benefits

- Resistant to mechanical influences in harsh environmental conditions
- Connectors in harmonised colours according to European standards
- Every colour has a different coding to prevent incorrect plugging

Application range

- For renewable energy plants e.g. wind power
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

Product features

- Straight connector with M40 thread
- Order SKINTOP® ST-M 40 or STR-M 40 separately
- Contact fixing by contact retention pin, each pin can only be used once
- Housing without contact, order contact separately

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
Screw max. 400 A

Pollution degree
3

Contacts
Screw termination: silver-plated brass

Number of contacts
1

Termination methods
Screw termination: 50 - 120 mm²

Material
Housing: PBT
Contact retention pin: PA

Protection rating
IP 67 (maximum, dependant on cable gland used)
IP 20 (unmated)

Cycle of mechanical operation
500

VDE-tested
VDE Reg. No. D42

Temperature range
-25°C up to +125°C

Article number	Article description	M	Pin configuration	Pieces / PU
POWERLOCK D6 coupling connector /F6 ohne Kontakt (for screw contact)				
Type D6, source				
44420267	POWERLOCK D6 PE/GN	40	PE, Green	1
44420268	POWERLOCK D6 N/BL	40	N, Blue	1
44420269	POWERLOCK D6 L1/BN	40	L1, Brown	1
44420270	POWERLOCK D6 L2/BK	40	L2, Black	1
44420271	POWERLOCK D6 L3/GY	40	L3, Grey	1
For direct current applications in conjunction with L2/black				
44420305	POWERLOCK D6 L1/RD	40	L1, Red	1
Type F6, drain				
44420262	POWERLOCK F6 PE/GN	40	PE, Green	1
44420263	POWERLOCK F6 N/BL	40	N, Blue	1
44420264	POWERLOCK F6 L1/BN	40	L1, Brown	1
44420265	POWERLOCK F6 L2/BK	40	L2, Black	1
44420266	POWERLOCK F6 L3/GY	40	L3, Grey	1
For direct current applications in conjunction with L2/black				
44420301	POWERLOCK F6 L1/RD	40	L1, Red	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

POWERLOCK BOX S*

Circular connectors for servomotors and power supply

Info

- Can be locked to prevent unauthorised disconnection

Benefits

- Guarantees the correct sequence is followed when connecting and disconnecting a set of connectors (PE, N, L1, L2, L3)
- Every colour has a different coding to prevent incorrect plugging
- IP 20 finger-protected
- Integrated micro-switch that can be connected to circuit breaker or alarm circuit

Application range

- Alternative energy installations
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

Housings

- Sealed security lid is optional

Product features

- Included: Contacts with M12 threaded post
- Cable connector for microswitch optional
- 19” housing with height unit 2HE/2U

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
1000 V

Rated current (A)
Screw max. 400 A

Pollution degree
3

Contacts
Screw termination: silver-plated brass

Number of contacts
4 + PE

Termination methods
Screw termination: 50 - 120 mm²

Protection rating
IP 67

Cycle of mechanical operation
500

Temperature range
-20 °C ... +85 °C

Article number	Article description	Fastening type	Pin configuration	Pieces / PU
POWERLOCK BOX, panel-mount base with contacts (M12 threaded posts)				
Type A1, drain				
44420282	POWERLOCK BOX A1 S	Ø 6.5 mm (4x)	4+PE	1
Type A1, drain, with cover				
44420283	POWERLOCK BOX A1 SD	Ø 6.5 mm (4x)	4+PE	1
Type A6, source				
44420286	POWERLOCK BOX A6 S	Ø 6.5 mm (4x)	4+PE	1
Type A6, source, with cover				
44420287	POWERLOCK BOX A6 SD	Ø 6.5 mm (4x)	4+PE	1

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK Screw contacts

Contacts, tools, accessories for circular connectors

Info

- Screw max. 400 A
- Do not plug with crimp-type (660 A)

Article number	Article designation	Version	For design	PU
Contact with M12 threaded post, contact retaining pin included				
For type POWERLOCK A1 S, drain				
44420241	POWERLOCK SP M12	Contact Drain, M12 Thread for cable lugs	for type A1	1
For type POWERLOCK A6 S, source				
44420242	POWERLOCK QP M12	Lamella contact source, M12 thread for cable lug	for type A6	1
Screw contact, contact retaining pin included				
For type POWERLOCK D6 S, source				
44420237	POWERLOCK QS 120	120 mm²	for type D6	1
For type POWERLOCK F6 S, drain				
44420232	POWERLOCK SS 120	120 mm²	for type F6	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK Tools

Contacts, tools, accessories for circular connectors

Article number	Article description	Version	PU
Tools			
44420243	Disconnection tool	for mated connection	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK Accessories

Contacts, tools, accessories for circular connectors

Article number	Article	For design	Version	PU
Protective caps				
44420252	POWERLOCK PROTECTION CAP A1	for type A1	IP54	1
44420253	POWERLOCK PROTECTION CAP A6	for type A6	IP54	1
44420251	POWERLOCK PROTECTION CAP D6	for type D6	IP54	1
44420250	POWERLOCK PROTECTION CAP F6	for type F6	IP54	1
Spare part: Contact retention pin				
44420259	POWERLOCK RETENTION PIN A1, A6	for type A1, A6		1
44420255	POWERLOCK RETENTION PIN D6	for type D6		1
44420254	POWERLOCK RETENTION PIN F6	for type F6		1
Conductor end sleeves for POWERLOCK screw contact				
44420244	POWERLOCK WIRE SLEEVE 120	Spare part for POWERLOCK 120 SS/QS contact	120 mm²	1
44420245	POWERLOCK WIRE SLEEVE SET 95	Reduction set for POWERLOCK 120 SS/QS screw contact	95mm²	1
44420246	POWERLOCK WIRE SLEEVE SET 70	Reduction set for POWERLOCK 120 SS/QS screw contact	70 mm²	1
44420247	POWERLOCK WIRE SLEEVE SET 50	Reduction set for POWERLOCK 120 SS/QS screw contact	50 mm²	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK A1 C

Single-pin circular connector for mobile power distribution, electro motors and generators

EPIC® POWERLOCK A6 C

Single-pin circular connector for mobile power distribution, electro motors and generators

Info

- Connector for unscreened single-core power cables

Suitable contacts:

- EPIC® POWERLOCK Crimp contacts Page 672
- Housing without contact, order contact separately

Benefits

- Resistant to mechanical influences in harsh environmental conditions
- Connectors in harmonised colours according to European standards
- Every colour has a different coding to prevent incorrect plugging

Application range

- For renewable energy plants e.g. wind power
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

Product features

- Panel-mount base, straight entry, flat gasket included
- Contact fixing by contact retention pin, each pin can only be used once
- Housing without contact, order contact separately

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
Max. crimp 660 A

Pollution degree
3

Contacts
Crimp termination: copper, silver-plated

Number of contacts
1

Termination methods
Crimp termination: 35 - 240 mm²

Material
Housing: PBT
Contact retention pin: PA

Protection rating
IP 67 (maximum, dependant on cable gland used)
IP 20 (unmated)

Cycle of mechanical operation
500

VDE-tested
VDE Reg. No. D42

Temperature range
-25°C up to +125°C

Article number	Article description	Fastening type	Pin configuration	Pieces / PU
POWERLOCK panel-mount box without contact				
Panel-mount box A1, drain				
44420221	POWERLOCK A1 PE/GN	Ø 5.5 mm (4x)	PE, Green	1
44420222	POWERLOCK A1 N/BL	Ø 5.5 mm (4x)	N, Blue	1
44420223	POWERLOCK A1 L1/BN	Ø 5.5 mm (4x)	L1, Brown	1
44420224	POWERLOCK A1 L2/BK	Ø 5.5 mm (4x)	L2, Black	1
44420225	POWERLOCK A1 L3/GY	Ø 5.5 mm (4x)	L3, Grey	1
For direct current applications in conjunction with L2/black				
44420316	POWERLOCK A1 L1/RD	Ø 5.5 mm (4x)	L1, Red	1
POWERLOCK panel-mount box without contact				
Panel-mount box A6, source				
44420226	POWERLOCK A6 PE/GN	Ø 5.5 mm (4x)	PE, Green	1
44420227	POWERLOCK A6 N/BL	Ø 5.5 mm (4x)	N, Blue	1
44420228	POWERLOCK A6 L1/BN	Ø 5.5 mm (4x)	L1, Brown	1
44420229	POWERLOCK A6 L2/BK	Ø 5.5 mm (4x)	L2, Black	1
44420230	POWERLOCK A6 L3/GY	Ø 5.5 mm (4x)	L3, Grey	1
For direct current applications in conjunction with L2/black				
44420317	POWERLOCK A6 L1/RD	Ø 5.5 mm (4x)	L1, Red	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK D6 C

Single-pin circular connector for mobile power distribution, electro motors and generators

EPIC® POWERLOCK F6 C

Single-pin circular connector for mobile power distribution, electro motors and generators

Info

- Connector for unscreened single-core power cables

Suitable contacts:

- EPIC® POWERLOCK Crimp contacts Page 672
- Housing without contact, order contact separately

Benefits

- Resistant to mechanical influences in harsh environmental conditions
- Connectors in harmonised colours according to European standards
- Every colour has a different coding to prevent incorrect plugging

Application range

- For renewable energy plants e.g. wind power
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

Product features

- Straight connector with M40 thread
- Order SKINTOP® ST-M 40 or STR-M 40 separately
- Contact fixing by contact retention pin, each pin can only be used once
- Housing without contact, order contact separately

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000437
ETIM 5.0/6.0 Class-Description:
Housing for industrial connectors

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
Max. crimp 660 A

Pollution degree
3

Contacts
Crimp termination: copper, silver-plated

Number of contacts
1

Termination methods
Crimp termination: 35 - 240 mm²

Material
Housing: PBT
Contact retention pin: PA

Protection rating
IP 67 (maximum, dependant on cable gland used)
IP 20 (unmated)

Cycle of mechanical operation
500

VDE-tested
VDE Reg. No. D42

Temperature range
-25°C up to +125°C

Article number	Article description	M	Pin configuration	Pieces / PU
POWERLOCK panel-mount box without contact				
Panel-mount box D6, source				
44420216	POWERLOCK D6 PE/GN	40	PE, Green	1
44420217	POWERLOCK D6 N/BL	40	N, Blue	1
44420218	POWERLOCK D6 L1/BN	40	L1, Brown	1
44420219	POWERLOCK D6 L2/BK	40	L2, Black	1
44420220	POWERLOCK D6 L3/GY	40	L3, Grey	1
For direct current applications in conjunction with L2/black				
44420319	POWERLOCK D6 L1/RD	40	L1, Red	1
POWERLOCK connector without contacts (for crimp contact)				
Type POWERLOCK F6, drain				
44420211	POWERLOCK F6 PE/GN	40	PE, Green	1
44420212	POWERLOCK F6 N/BL	40	N, Blue	1
44420213	POWERLOCK F6 L1/BN	40	L1, Brown	1
44420214	POWERLOCK F6 L2/BK	40	L2, Black	1
44420215	POWERLOCK F6 L3/GY	40	L3, Grey	1
For direct current applications in conjunction with L2/black				
44420318	POWERLOCK F6 L1/RD	40	L1, Red	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

POWERLOCK BOX C*

Circular connectors for servomotors and power supply

Info

- Can be locked to prevent unauthorised disconnection

Benefits

- Guarantees the correct sequence is followed when connecting and disconnecting a set of connectors (PE, N, L1, L2, L3)
- Every colour has a different coding to prevent incorrect plugging
- IP 20 finger-protected
- Integrated micro-switch that can be connected to circuit breaker or alarm circuit

Application range

- Alternative energy installations
- For mobile and stationary power distribution
- For the connection of motors, transformers and generators
- Light & sound technology

Housings

- Sealed security lid is optional

Product features

- Included: Contacts with M12 threaded post
- Cable connector for microswitch optional
- 19” housing with height unit 2HE/2U

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
1000 V

Rated current (A)
Max. crimp 660 A

Pollution degree
3

Contacts
Crimp termination: copper, silver-plated

Number of contacts
4 + PE

Termination methods
Crimp termination: 35 - 240 mm²

Protection rating
IP 65 (latched)

Cycle of mechanical operation
500

Temperature range
-25°C ... +85°C

Article number	Article description	Fastening type	Pin configuration	Pieces / PU
POWERLOCK BOX, panel-mount base with contacts (M12 threaded posts)				
Panel-mount box A1, drain				
44420288	POWERLOCK BOX A1 C	Ø 6.5 mm (4x)	4+PE	1
Type A1, drain, with cover				
44420289	POWERLOCK BOX A1 CD	Ø 6.5 mm (4x)	4+PE	1
Type A6, source				
44420284	POWERLOCK BOX A6 C	Ø 6.5 mm (4x)	4+PE	1
Type A6, source, with cover				
44420285	POWERLOCK BOX A6 CD	Ø 6.5 mm (4x)	4+PE	1

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK Crimp contacts

Contacts, tools, accessories for circular connectors

Info

- Max. crimp 660 A
- Do not plug with screw-type (400 A)

Article number	Article designation	Version	Crimp sunk	PU
For type POWERLOCK A1 C, drain				
44420260	POWERLOCK SP M12	Contact Drain, M12 Thread for cable lugs		1
For type POWERLOCK A6 C, source				
44420261	POWERLOCK QP M12	Lamella contact source, M12 thread for cable lug		1
Source - crimp contact for type POWERLOCK D6 C, contact retaining pin included				
44420290	POWERLOCK QCM 35	35 mm²	35	1
44420291	POWERLOCK QCM 50	50 mm²	50	1
44420292	POWERLOCK QCM 70	70 mm²	70	1
44420236	POWERLOCK QCM 95	95mm²	95	1
44420554	POWERLOCK QCM 120 NEW	120 mm²	120	1
44420556	POWERLOCK QCM 150 NEW	150 mm²	150	1
44420558	POWERLOCK QCM 185 NEW	185 mm²	185	1
44420324	POWERLOCK QCM 240 NEW	240mm²	240	1
For type POWERLOCK F6 C, drain				
44420293	POWERLOCK SCM 35	35 mm²	35	1
44420294	POWERLOCK SCM 50	50 mm²	50	1
44420295	POWERLOCK SCM 70	70 mm²	70	1
44420231	POWERLOCK SCM 95	95mm²	95	1
44420555	POWERLOCK SCM 120 NEW	120 mm²	120	1
44420557	POWERLOCK SCM 150 NEW	150 mm²	150	1
44420559	POWERLOCK SCM 185 NEW	185 mm²	185	1
44420339	POWERLOCK SCM 240 NEW	240mm²	240	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK Tools

Contacts, tools, accessories for circular connectors

Article number	Article description	Version	PU
Tools			
44420243	Disconnection tool	for mated connection	1
44420337	Crimping tool		1
44420330	Crimp die for Crimp tool	50 mm²	1
44420331	Crimp die for Crimp tool	70 mm²	1
44420332	Crimp die for Crimp tool	95mm²	1
44420333	Crimp die for Crimp tool	120 mm²	1
44420334	Crimp die for Crimp tool	150 mm²	1
44420335	Crimp die for Crimp tool	185 mm²	1
44420336	Crimp die for Crimp tool	240 mm²	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK Accessories

Contacts, tools, accessories for circular connectors

Article number	Article	For design	Version	PU
Protective caps				
44420252	POWERLOCK PROTECTION CAP A1	for type A1	IP54	1
44420253	POWERLOCK PROTECTION CAP A6	for type A6	IP54	1
44420251	POWERLOCK PROTECTION CAP D6	for type D6	IP54	1
44420250	POWERLOCK PROTECTION CAP F6	for type F6	IP54	1
Spare part: Contact retention pin				
44420259	POWERLOCK RETENTION PIN A1, A6	for type A1, A6		1
44420255	POWERLOCK RETENTION PIN D6	for type D6		1
44420254	POWERLOCK RETENTION PIN F6	for type F6		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SOLAR 4 M

Info

- 4 mm connector system with double hook
- Field-mountable solar connector

EPIC® SOLAR 4 F

Info

- 4 mm connector system with double hook
- Field-mountable solar connector

Benefits
- Low contact-resistance for efficient power transmission
- Crimp connection for field mounting
- Suitable for various ÖLFLEX® SOLAR cables

Application range
- Photovoltaic plants
- Crystalline and thin-film constructions
- Solartracker

Product features
- 4 mm connector system with double hook
- Inclusive contacts

Suitable cables
- H1Z2Z2-K 158
- ÖLFLEX® SOLAR XLWP 159

Suitable tools
- EPIC® SOLAR TOOL
- For easier assembly of the plastic parts, use EPIC® SOLAR 4 Assembly Tool Set (2 pieces). Holder for insulation body, spanner for cap nut and pins for unlocking

Suitable connectors
EPIC® SOLAR 4 F
- EPIC® SOLAR 4 M 673

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
1000 V AC/DC

Rated impulse voltage
8 kV

Pollution degree
3

Contact resistance
< 0.5 mOhm

Protection rating
IP 67

Protection class
II

Temperature range
-40°C to +105°C

Article number	Article designation	Cross-section (mm²)	Clamping range in mm	Rated current (A)	PU
EPIC® SOLAR 4 male field-mountable, inclusive contacts					
44428200	EPIC® SOLAR 4 M 2.5 mm²	2.5	4.8 - 6.0	22	100
44428201	EPIC® SOLAR 4 M 4mm² ... 6mm²	4 - 6	5.2 - 7.1	30	100
EPIC® SOLAR 4 female field-mountable, inclusive contacts					
44428203	EPIC® SOLAR 4 F 2.5 mm²	2.5	5.2 - 6.5	22	100
44428204	EPIC® SOLAR 4 F 4mm² ... 6mm²	4 - 6	5.2 - 7.1	30	100
EPIC® SOLAR 4 assembly tool					
44428224	EPIC® SOLAR 4 Assembly Tool Set				1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® CRIMPTOOL

EPIC® SOLAR TOOL CSC

Cutting, stripping and crimping with just one tool

Info

- Cutting, stripping and crimping with just onetool

EPIC® SOLAR TOOL

3 cross section in one tool

Info

- 3 cross section in one tool

Application range

- For crimping of the photovoltaic connector EPIC® SOLAR 4 in the field
- For EPIC® SOLAR 4 and MC4 suitable

Product features

EPIC® SOLAR TOOL CSC

- Multifunctional die for cutting, stripping and crimping with just one tool
- Locator (LOC) for the safe and accurate positioning of the crimping contacts

EPIC® SOLAR TOOL

- Crimping die (DIE) for the cable cross sections of 2.5mm² up to 10mm²
- Locator (LOC) for the safe and accurate positioning of the crimping contacts

Suitable cables

- H1Z2Z2-K 158
- ÖLFLEX® SOLAR XLWP 159

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article description	Cross-section (min) in mm²	Cross-section (max) in mm²	PU
Tools				
11147000	Crimping tool			
Multi-functional die CSC				
44428992	EPIC® SOLAR TOOL CSC DIE 4mm²		4	1
44428993	EPIC® SOLAR Tool CSC DIE 6mm²		6	1
44428994	EPIC® SOLAR TOOL LOC 4, 6mm²	4	6	1
Crimping die				
44428995	EPIC® SOLAR Tool DIE 2.5, 4, 6mm²	2.5	6	1
44428996	EPIC® SOLAR Tool LOC 2.5, 4, 6mm²	2.5	6	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® SOLAR 4 Splitter

Connector system for weatherproof cabling of photovoltaic systems

Info

- 4 mm connector system with double hook
- Splitter for parallel connection of photovoltaic modules

Benefits

- Splitter for pallalel connection of PV-modules and strings
- Easy plug and play
- Fixing option for a clear installation with a Ø 5mm mounting hole

Application range

- Photovoltaic plants
- Crystalline and thin-film constructions
- Solartracker

Product features

- Mateable with EPIC® SOLAR 4 THIN, EPIC® SOLAR 4PLUS, EPIC® SOLAR 4
- Splitter MFF 1x connection male, 2x connection female
- Splitter MFF 1x connection female, 2x connection male

Suitable connectors

- EPIC® SOLAR 4
- EPIC® SOLAR 4Plus

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
1000 V AC/DC

Rated impulse voltage
8 kV

Rated current (A)
30 A

Pollution degree
3

Protection rating
IP65/IP67

Cycle of mechanical operation
100

Protection class
II

Temperature range
-40 °C ... +85 °C

Article number	Article designation	PU
EPIC® SOLAR 4 Splitter		
44428226	EPIC® SOLAR 4 Splitter MFF	25
44428227	EPIC® SOLAR 4 Splitter FMM	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

CHARGE KIT charging station

Set consisting of charging socket Type 2, electric contactor, actuator cable and controller

Info

- Suitable for 16A continuous load

Benefits

- Installation kit for individual charging station designs

Application range

- Direct charge: Charging starts directly if connected and readiness for charging is available
- Switch function: Charging starts after authorisation via 12 V signal through e.g. RFID, key switch, ...
- Installation kit charging station for individual configurations

Product Make-up

- Charging socket: Standard (SO), with LED diagnosis (LED), 2-4-point fixing (2-4) or with shutter function (SHTR)
- EVCP2 controller: Integrated power supply 230V on 12V.
  Connection of RBG/ LED, max. 75 mA and RS485 possible
- Circuit breaker (MCB) B6A, 1p+N (control); C16A or C32A, 3p+N (load)
- With connector locking and matching actuator

Technical data

Nominal voltage
250 V

Protection rating
IP 54

Temperature range
-30°C up to +50°C

Article number	Article designation	Power	Charging socket	Installation protection
CHARGE KIT for direct charge				
74880602	CHARGE KIT T2 DL 20A 11kW SO	11 kW	Type 2/ Mode3/ 20A	24 A
74880606	CHARGE KIT T2 DL 20A 11kW SO LED	11 kW	Type 2/ Mode3/ 20A	24 A
74880610	CHARGE KIT T2 DL 20A 11kW SO SHTR	11 kW	Type 2/ Mode3/ 20A	24 A
74880614	CHARGE KIT T2 DL 20A 11kW SO 2-4	11 kW	Type 2/ Mode3/ 20A	24 A
74880603	CHARGE KIT T2 DL 32A 22kW SO	22 kW	Type 2/ Mode3/ 32A	40 A
74880607	CHARGE KIT T2 DL 32A 22kW SO LED	22 kW	Type 2/ Mode3/ 32A	40 A
74880615	CHARGE KIT T2 DL 32A 22kW SO 2-4	22 kW	Type 2/ Mode3/ 32A	40 A
74880611	CHARGE KIT T2 DL 32A 22kW SO SHTR	22 kW	Type 2/ Mode3/ 32A	40 A
CHARGE KIT for switching function				
74880600	CHARGE KIT T2 SF 20A 11kW SO	11 kW	Type 2/ Mode3/ 20A	40 A
74880604	CHARGE KIT T2 SF 20A 11kW SO LED	11 kW	Type 2/ Mode3/ 20A	24 A
74880608	CHARGE KIT T2 SF 20A 11kW SO SHTR	11 kW	Type 2/ Mode3/ 20A	24 A
74880612	CHARGE KIT T2 SF 20A 11kW SO 2-4	11 kW	Type 2/ Mode3/ 20A	24 A
74880601	CHARGE KIT T2 SF 32A 22kW SO	22 kW	Type 2/ Mode3/ 32A	40 A
74880605	CHARGE KIT T2 SF 32A 22kW SO LED	22 kW	Type 2/ Mode3/ 32A	40 A
74880609	CHARGE KIT T2 SF 32A 22kW SO SHTR	22 kW	Type 2/ Mode3/ 32A	40 A
74880613	CHARGE KIT T2 SF 32A 22kW SO 2-4	22 kW	Type 2/ Mode3/ 32A	40 A

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

Mobile CHARGE box

Benefits

- Robust mobile charging station for construction sites, car workshops and temporary events

Product features

- Direct charge - charging starts withour pre-authorisation
- Start-stop-button or key switch for start or end of the charging process
- Energy reserve in case of power failure
- Overheating monitoring
- Delievered ready for use

Product Make-up

- Solid rubber grip with nose for cable fixing
- Lockable stainless-steel quicklock
- Openable cover, user-friendly access to the safety devices
- High rubber feets protects against dirt on the floor
- Charging load limitation (32A variants) by switch from 22kW/ 32A to 11kW/ 16A. Works only with Type 2 charging connector 22kW/ 32A (220Ω)

Technical data

Nominal voltage
200-250 V

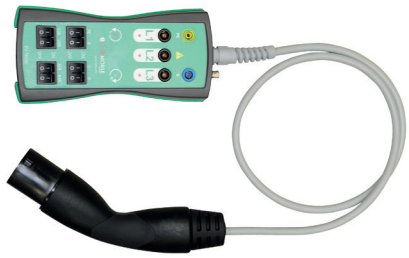
Article number	Article designation	Power	Charging socket	Installation protection
Direct charge				
74880628	CHARGE MOBILE T2 DL 16A 11kW SO LED	11 kW	Type 2/ Mode3/ 16A	16 A
74880631	CHARGE MOBILE T2 DL 32A 22kW SO LED	22 kW	Type 2/ Mode3/ 32A	32 A
Key switch				
74880630	CHARGE MOBILE T2 KS 16A 11kW SO LED	11 kW	Type 2/ Mode3/ 16A	16 A
74880633	CHARGE MOBILE T2 KS 32A 22kW SO LED	22 kW	Type 2/ Mode3/ 32A	32 A
Start-stop-button				
74880629	CHARGE MOBILE T2 SSB 16A 11kW SO LED	11 kW	Type 2/ Mode3/ 16A	16 A
74880632	CHARGE MOBILE T2 SSB 32A 22kW SO LED	22 kW	Type 2/ Mode3/ 32A	32 A

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

EVCS2 Tester type 2

Test device for EVCS charging facilities (Type 2 socket)



Benefits

- Ensure that your charging station works properly and is safe to use
- Preset of charging cable coding to test max. charging current, check of PE-connection between PWM and vehicle connector, Simulation of disconnection of the PE-ground wire
- Simulation of different car status values, monitoring of PWM-signal (measurement socket CP) / of phase L1, L2, L3, rotating field indicaton, test sockets (for simulation of external failure currents)

Application range

- Handy device for simulation of different status at a charging station
- Easy simulation of charging cable resistor coding, charging status changes or failures
- Integrated measuring signal enables easy visualisation of CP CWM signal (e.g. on oscilloscope)

Product Make-up

- Dimensions HxWxD: 205x105x40 mm
- Plastic housing with rubber covering on the sites
- Charging connector Type 2 with 1 m connection cable

Article number	Article designation
EVCS2 Tester type 2	
74880624	EVCS2 Tester Typ 2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

Test adapter T2 on T1

Accessory for EVCS2 Tester Typ 2

Product features

- For testing Typ 1 charging cables on the EVCS 2 Tester

Article number	Article designation
Test adapter T2 on T1	
74880627	Adapter T2 ON T1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

Test adapter RCD

Accessory for EVCS2 Tester Typ 2

Benefits

- For connection of a RCD testing device

Product features

- German or french socket outlet ground receptacle
- Adapter cable: H07RN-F 3G 2,5mm black
- 3x labatory connector on socket outlet ground receptacle

Article number	Article designation
Test adapter RCD	
74880626	Adapter RCD FRENCH
74880625	Adapter RCD GERMAN

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

6

SKINTOP®

Cable glands

Simply feed in the cable and twist. That's it. Our SKINTOP® cable glands provide secure connections in no time. The universal systems are simple but effective. They secure and centre the cable, hermetically seal it and guarantee optimum strain relief.

Application range

- Industrial machinery and plant engineering
- Drive systems
- Measurement and control technology
- Renewable energies
- Wherever cables need to be fastened securely and quickly

SKINTOP® metric plastic cable glands

Standard
SKINTOP® ST-M / SKINTOP® STR-M 684
SKINTOP® ST-M SORTIMO® T-BOXX 686
CLICK System
SKINTOP® CLICK / SKINTOP® CLICK-R 687
SKINTOP® CLICK SORTIMO® T-BOXX 688
Bending protection
SKINTOP® BS-M 689
SKINTOP® BT-M 690
SKINTOP® CLICK BS 691
Photovoltaics
SKINTOP® SOLAR / SKINTOP® SOLAR plus 692
Halogen-free
SKINTOP® ST-HF-M 693
Explosion-proof
SKINTOP® K-M ATEX plus / SKINTOP® KR-M ATEX plus 694
SKINTOP® K-M ATEX plus blue / SKINTOP® KR-M ATEX plus blue 695

SKINTOP® metric nickel-plated brass cable glands

Standard
SKINTOP® MS-M / SKINTOP® MSR-M 696
SKINTOP® MS-M-XL / SKINTOP® MSR-M-XL 697
SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL 698
SKINTOP® GRIP-M 699
EMC
SKINTOP® BRUSH ADD-ON 700
SKINTOP® MS-SC-M 701
SKINTOP® MS-M BRUSH 702
Cold-resistant
SKINTOP® COLD / SKINTOP® COLD-R 703
Industrial connectors
SKINTOP® MS-IS-M 704
Halogen-free
SKINTOP® MS-HF-M 705
SKINTOP® MS-HF-M GRIP 706
SKINTOP® MS-HF-M SC 707
SKINTOP® MS-HF-M BRUSH 708
Explosion-proof
SKINTOP® MS-M ATEX / SKINTOP® MSR-M ATEX 709
SKINTOP® MS-M ATEX BRUSH 710
SKINTOP® SDV-M ATEX / SKINTOP® SDVR-M ATEX 711

SKINTOP® cable glands stainless steel metric

Standard
SKINTOP® INOX / SKINTOP® INOX-R 712
SKINTOP® INOX SC 713
SKINTOP® HYGIENIC / SKINTOP® HYGIENIC-R 714
SKINTOP® HYGIENIC SC 715

SKINTOP® metric cable gland accessories

Counter nuts
SKINTOP® GMP-GL-M 716
SKINTOP® GMP-HF-M 717
Multiple sealing inserts/dust protection
SKINTOP® DIX-M 718
SKINTOP® DIX-M AUTOMATION 719
SKINTOP® DIX-DV / SKINTOP® SD-M / SKINTOP® DV-M 720

SKINTOP® cable bushing systems

Cable bushing systems
SKINTOP® MULTI 721
SKINTOP® CUBE 722
SKINTOP® CUBE SORTIMO® T-BOXX 723
SKINTOP® CUBE MULTI 724
EMC
SKINTOP® BRUSH ADD-ON 24 725

SKINDICHT® metric plastic or metal cable glands

Standard
SKINDICHT® SVRN-M / SKINDICHT® SVRE-M 726
SKINDICHT® SVRX 727
Flat cable
SKINDICHT® SVFK-M 728
SKINDICHT® SVF-M 729
Strain relief/bending protection
SKINDICHT® SKZ-M 730
SKINDICHT® SHZ-M 731
SKINDICHT® SR-M 732
SKINDICHT® SR-SV-M 733
EMC
SKINDICHT® SHVE-M 734
SKINDICHT® SRE-M 735
Special sealing cable glands
SKINDICHT® SHV-M 736
SKINDICHT® SHV-M FKM 737
SKINDICHT® MINI NBR / SKINDICHT® MINI FKM 738
SKINDICHT® CN-M 739
Angle cable glands
SKINDICHT® KW-M 740
SKINDICHT® RWV-M 740
SKINDICHT® RWV-M without E+D 741
SKINDICHT® SE-M 742
SKINDICHT® SE-M 220/320 742
SKINDICHT® SE-M without E+D 743

SKINDICHT® metric cable gland accessories

Counter nuts
SKINDICHT® SM-M / SKINDICHT® SM-PE-M 744
SKINDICHT® SM-M INOX 745
Blind plugs
SKINDICHT® BLK-M / SKINDICHT® BLK-GL-M 746
SKINTOP® CLICK BLK 747
SKINDICHT® BL-M 748
SKINDICHT® BL-M hex. 749
SKINDICHT® BL-M ATEX 749
Pressure compensation
SKINDICHT® VENT INOX 750
SKINDICHT® VENT PA6 751
Reducers
SKINDICHT® KU-M 752
SKINDICHT® MR-M 752
SKINDICHT® MR-M hex. 753
SKINDICHT® MR-M ATEX 754
SKINDICHT® EKU-M 754
Enlargers
SKINDICHT® ME-M 755
SKINDICHT® ME-M ATEX 755
Adapter
SKINDICHT® MA-M/PG / SKINDICHT® MA-M/NPT 756
SKINDICHT® ZS-M 757
SKINDICHT® ZSE-M 758
Compression screws / washers
SKINDICHT® D-M 759
SKINDICHT® U-M 759
Sealing rings/incised seals
SKINDICHT® E-M 760
SKINDICHT® O-Ring NBR metric 760
SKINDICHT® O-ring FKM metric 761
SKINDICHT® JT PTFE metric 761
Ducts
SKINDICHT® WN-M 762
SKINDICHT® DTN 762
SKINDICHT® LA 762

SKINTOP® cable glands plastic and metal NPT

SKINTOP® NPT polyamide cable glands
SKINTOP® ST NPT / BS NPT 763
Nickel-plated brass standard
SKINTOP® MS NPT 764
SKINTOP® COLD NPT 765
SKINTOP® MS-SC NPT 766
SKINTOP® MS-NPT BRUSH 767
Stainless steel
SKINTOP® INOX NPT 768

Cable gland accessories NPT

Counter nuts
SKINTOP® GMP-GL NPT 769
SKINDICHT® SM-NPT 770
SKINDICHT® SM-NPT INOX 770

SKINTOP® plastic cable glands PG

Standard
SKINTOP® ST / SKINTOP® STR 771
Bending protection
SKINTOP® BS 773
SKINTOP® BT 774

SKINTOP® PG nickel-plated brass cable glands

Easy to install
SKINTOP® MS / SKINTOP® MSR 775
SKINTOP® MS-XL / SKINTOP® MSR-XL 776
EMC
SKINTOP® MS-SC 777

SKINDICHT® PG cable gland accessories

Counter nuts
SKINTOP® GMP-GL 778
Multiple sealing inserts/dust protection
SKINTOP® DIX 779
SKINTOP® DIX-AUTOMATION 780
SKINTOP® DIX-DV / SKINTOP® SD / SKINTOP® DV 781

SKINDICHT® plastic or metal PG cable glands

Standard
SKINDICHT® SVRN / SKINDICHT® SVRE 782
Flat cable
SKINDICHT® SVFK 783
SKINDICHT® SVF 784
SKINDICHT® FL 785
Strain relief/bending protection
SKINDICHT® SH 786
SKINDICHT® SHZ 787
SKINDICHT® SK 788
SKINDICHT® SKZ 789
SKINDICHT® SR 790
SKINDICHT® SR-SV 791
EMC
SKINDICHT® SHVE 792
SKINDICHT® SRE 793
Special sealing cable glands
SKINDICHT® SHV 794
SKINDICHT® SHV FKM 795
SKINDICHT® CN 796
Angle cable glands
SKINDICHT® RWV 797
SKINDICHT® SE 798

SKINDICHT® PG cable gland accessories

Counter nuts
SKINDICHT® GMK 799
SKINDICHT® SM / SKINDICHT® SM-PE 800
SKINDICHT® SM INOX 800
Blind plugs
SKINDICHT® BLK / BLK-GL 801
SKINDICHT® BL 802
Reducers
SKINDICHT® KU, KUS, KUK 803
SKINDICHT® MR 804
Enlargers
SKINDICHT® EKU 805
SKINDICHT® ME 805
Adapter
SKINDICHT® A-PG/M 806
SKINDICHT® MA-PG/M 807
Fittings
SKINDICHT® ZS/ZS-XL 808
Dust protection
SKINDICHT® STK 809
SKINDICHT® E 809
Sealing rings/incised seals
SKINDICHT® EV 810
SKINDICHT® O-Ring NBR PG 810
SKINDICHT® O-Ring FKM PG 811
SKINDICHT® JT PTFE PG 811
Earthing sleeves
SKINDICHT® EH 812
Anti-kink sleeves/sealing cones
SKINDICHT® SHV cone seal 813
SKINDICHT® SNR 814

SKINMATIC® mounting tools

SKINMATIC® metric mounting tools
SKINMATIC® QUICK Set 1 815
SKINMATIC® MH Set 815
SKINMATIC® KB-M 816
SKINMATIC® SB-M 816
SKINMATIC® GB-M 816
SKINMATIC® RZ 816

Cable glands

LAPP

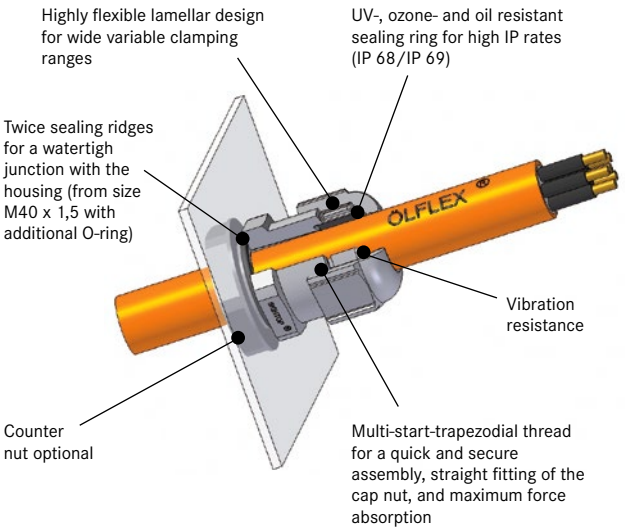
At a glance

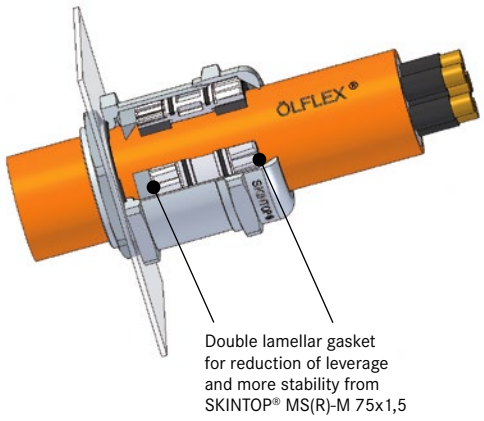
Characteristics	Page	protection class IP	Protection class NEMA	Connection thread metric	Connection thread PG	Connection thread NPT	Round cables	Flat cables	Plastic	Metal	Stainless steel	Angled	Strain relief	Vibration protection	Kink protection	Screen connection	Hazardous areas	Halogen free	Approvals
Cable glands																			
SKINTOP® BS	773	68	●		●		●		●				●	●	●				cULus, cURus, CSA
SKINTOP® BS NPT	763	68	●			●	●		●				●	●	●				cULus, cURus
SKINTOP® BS(R)-M/ISO	689	68	●	●			●		●				●	●	●				cULus, cURus, VDE, DNV-GL
SKINTOP® BS-M METAL	698	68/69		●			●			●			●		●				
SKINTOP® BT	774	68	●		●		●		●				●	●	●				cULus, cURus
SKINTOP® BT-M	690	68	●	●			●		●				●	●	●				cULus, cURus
SKINTOP® CLICK BS	691	68					●		●				●	●	●				cULus, cURus, VDE, DNV-GL
SKINTOP® CLICK(-R)	687	68					●		●				●	●					cULus, cURus, VDE, DNV-GL
SKINTOP® COLD(-R)	703	68	●	●			●			●			●						cULus, cURus, VDE
SKINTOP® COLD(-R) NPT	765	68				●	●			●			●						
SKINTOP® CUBE/CUBE MULTI	722/724	64	●				●		●				●	●					cURus
SKINTOP® HYGIENIC SC	715	68/69	●	●			●				●		●						cURus, ECOLAB, EHEDG, FDA
SKINTOP® HYGIENIC(-R)	714	68/69	●	●			●				●		●						cURus, ECOLAB, EHEDG, FDA
SKINTOP® INOX NPT	768	68/69	●			●	●				●		●						cULus, cURus, ECOLAB
SKINTOP® INOX SC	713	68/69	●	●			●				●		●						cULus, cURus, ECOLAB
SKINTOP® INOX(-R)	712	68/69	●	●			●				●		●						cULus, cURus, ECOLAB
SKINTOP® K(R)-M ATEX PLUS/PLUS BLUE	694/695	68		●			●		●				●	●			●		IECex, ATEX, EAC, DNV-GL
SKINTOP® MS BRUSH NPT	767	68/69	●			●	●			●			●			●	●		cULus
SKINTOP® MS(R)	775	68			●		●			●			●						
SKINTOP® MS(R) NPT	764	68	●			●	●			●			●						cULus, cURus
SKINTOP® MS(R)-M/XL	697	68/69	●	●			●			●			●						cULus, cURus, VDE, DNV-GL
SKINTOP® MS(R)-M ATEX/XL	709	68	●	●			●			●			●				●		cULus, cURus, VDE, DNV-GL
SKINTOP® MS(R)-M ATEX BRUSH	710	68	●	●			●			●			●				●		cULus, cURus, IECex, ATEX, DNV-GL
SKINTOP® MS-HF-M/GRIP	706	68		●			●			●			●					●	
SKINTOP® MS-HF-M SC/BRUSH	707/708	68		●			●			●			●			●		●	
SKINTOP® MS-IS-M	704	68		●			●			●			●						
SKINTOP® MS-M BRUSH/PLUS	702	68/69	●	●			●			●			●			●			cULus, VDE, DNV
SKINTOP® MS-SC/XL	777	68			●		●			●			●			●			
SKINTOP® MS-SC NPT	766	68	●			●	●			●			●			●			cULus, cURus
SKINTOP® MS-SC-M	701	68/69	●	●			●			●			●			●			cULus, cURus, DNV-GL
SKINTOP® MULTI	721	68	●				●		●				●	●					
SKINTOP® SOLAR/PLUS	692	68	●	●			●		●				●	●					cURus
SKINTOP® ST(R)	771	68	●		●		●		●				●	●					cULus, cURus, VDE
SKINTOP® ST(R) NPT/BS NPT	763	68	●			●	●		●				●	●					cULus, cURus
SKINTOP® ST(R)-M	684	68/69		●			●		●				●	●					cULus, cURus, VDE, DNV-GL, TÜV
SKINTOP® ST-HF-M	693	68		●			●		●				●	●				●	VDE
SKINDICHT® CN	796	68			●		●				●		●						
SKINDICHT® CN-M	739	68		●			●				●		●						
SKINDICHT® FL	785	65			●			●		●			●						
SKINDICHT® KW-M	740	55		●			●		●			●							
SKINDICHT® MINI NBR/FKM	738	68		●			●			●			●						
SKINDICHT® RWV	797	55			●		●			●		●							
SKINDICHT® RWV-M	740	55		●			●			●		●							
SKINDICHT® SE	798	55			●		●			●		●							
SKINDICHT® SE-M/220/320	742	55		●			●			●		●							
SKINDICHT® SH	786	20			●		●			●			●						
SKINDICHT® SHV	794	68			●		●			●			●						
SKINDICHT® SHV FKM	795	68			●		●			●			●						
SKINDICHT® SHVE	792	68			●		●			●			●						
SKINDICHT® SHVE-M	734	68		●			●			●			●			●			
SKINDICHT® SHV-M	736	68		●			●			●			●			●			
SKINDICHT® SHV-M FKM	737	68		●			●			●			●						
SKINDICHT® SHZ	787	55			●		●			●			●						
SKINDICHT® SHZ-M	731	55		●			●			●			●						
SKINDICHT® SK	788	20			●		●			●			●						
SKINDICHT® SKZ	789	55			●		●			●			●						
SKINDICHT® SKZ-M	730	55		●			●			●			●						
SKINDICHT® SR	790	65			●		●			●			●						
SKINDICHT® SRE	793	65			●		●			●			●		●	●			
SKINDICHT® SRE-M	735	65		●			●			●			●		●	●			
SKINDICHT® SR-M	732	65		●			●			●			●		●				
SKINDICHT® SR-SV	791	65			●		●			●			●		●				
SKINDICHT® SR-SV-M	733	65		●			●			●			●		●				
SKINDICHT® SVF	784	54			●			●		●									
SKINDICHT® SVFK	783	54			●			●	●										
SKINDICHT® SVF-M	729	54		●				●		●									
SKINDICHT® SVRE-M	726	54		●			●			●			●						
SKINDICHT® SVRN	782	54			●		●			●			●						
SKINDICHT® SVRN-M	726	54		●			●			●			●						
SKINDICHT® SVRX-W	727	54		●			●			●			●			●			
SKINDICHT® SVRX-Z	727	54		●			●			●			●						

SKINTOP® Single entry systems

Secured in less than no time

With SKINTOP® you can fix the cable in an instant. Just feed it in, turn till tight – ready. Your cable is fixed, centered, hermetically sealed and completely strainrelieved with a turn of the hand. Either way, with SKINTOP® you can achieve maximum reliablity. To ensure a steady quality, SKINTOP® products are continously monitored. A quality which has brought us numerous international approvals.

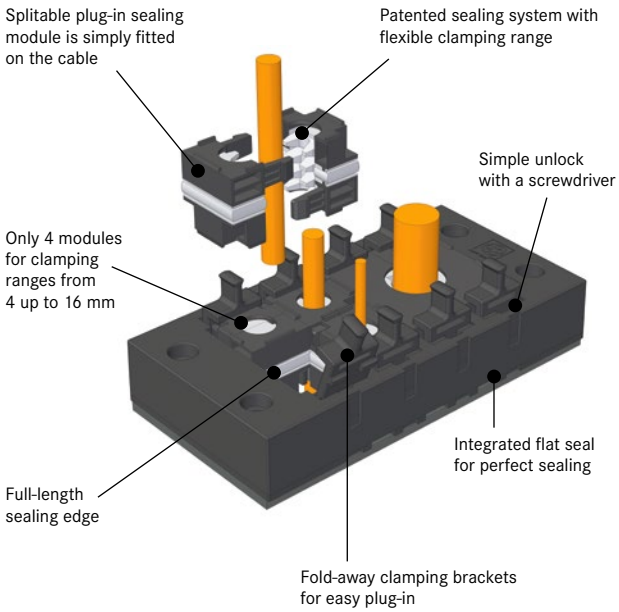




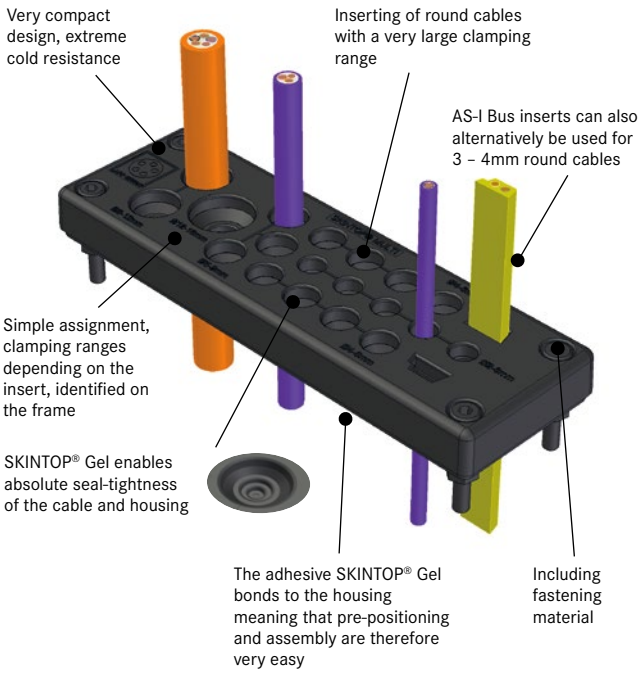
SKINTOP® Multi-cable entry systems

The SKINTOP® multi-cable entry system is used for assembled and non-assembled cables and wires. It stands out with large clamping ranges, high packing density and good tensile strength since the sealing technology adjusts itself perfectly onto the surface and shape of the cables.

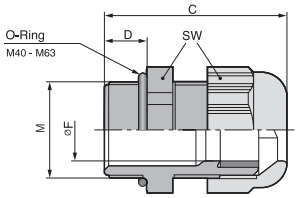
SKINTOP® CUBE



SKINTOP® MULTI



SKINTOP® ST-M / SKINTOP® STR-M



Info

- Now with IP69 approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!

Benefits

SKINTOP® ST-M

- High oil-resistance for maximum reliability
- Permanent vibration protection
- Wide, variable clamping ranges
- Optimum strain relief
- Various accessories (e.g. multiple sealing inserts)

Application range

SKINTOP® ST-M

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Machine and equipment manufacturing
- Automation technology
- Offshore platforms, equipment and shipyards

SKINTOP® STR-M

- With reducing seal insert, to seal cables with smaller outer diameters.

Norm references / Approvals

- UL File Nr. E79903
- GGVS: TÜ.EGG.020-95

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- SKINTOP® ST(R) M ISO types have an extra-long connection thread
- SKINTOP® ST(R) M ISO versions with extra-long connection thread, see table, no DNV approval

Suitable cables

SKINTOP® STR-M

- The following cables are recommended for IP 69 applications:
  ÖLFLEX® ROBUST 200
  H07RN8-F
  H07RN-F

Suitable tools

SKINTOP® ST-M

- SKINMATIC® QUICK Set 1 refer to page 815
- SKINMATIC® MH Set refer to page 815
- SKINTOP® LOCATOR
- SKINMATIC® RZ refer to page 816

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
SKINTOP® ST-M
Refer to Appendix T21 for the installation dimensions and torques
Size M 40 x 1,5 up tp M 63 x 1,5 with O-ring
SKINTOP® STR-M
Refer to Appendix T21 for the installation dimensions and torques

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: Polyamide
Seal: CR

Tests
GGVS: TÜ.EGG.020-95

Protection rating
IP 68 - 5 bar
IP 69
NEMA Type 1, 12

Temperature range
Fixed: -40°C to +100°C
Dynamic: -20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® ST-M silver grey						
53111000	M 12 x 1,5	3,5-7	15	30.0	8	100
53111010	M 16 x 1,5	4,5-10	19	34.0	8	100
53111020	M 20 x 1,5	7-13	25	37.0	9	100
53111030	M 25 x 1,5	8-17	30	40.0	10	50
53111040	M 32 x 1,5	11-21	36	47.0	10	25
53111050	M 40 x 1,5	16-28	46	52.0	10	10
53111060	M 50 x 1,5	27-35	55	62.0	12	5
53111070	M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST-M black						
53111200	M 12 x 1,5	3,5-7	15	30.0	8	100
53111210	M 16 x 1,5	4,5-10	19	34.0	8	100
53111220	M 20 x 1,5	7-13	25	37.0	9	100
53111230	M 25 x 1,5	8-17	30	40.0	10	50
53111240	M 32 x 1,5	11-21	36	47.0	10	25
53111250	M 40 x 1,5	16-28	46	52.0	10	10
53111260	M 50 x 1,5	27-35	55	62.0	12	5
53111270	M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST-M light grey						
53111400	M 12 x 1,5	3,5-7	15	30.0	8	100
53111410	M 16 x 1,5	4,5-10	19	34.0	8	100
53111420	M 20 x 1,5	7-13	25	37.0	9	100
53111430	M 25 x 1,5	8-17	30	40.0	10	50
53111440	M 32 x 1,5	11-21	36	47.0	10	25
53111450	M 40 x 1,5	16-28	46	52.0	10	10
53111460	M 50 x 1,5	27-35	55	62.0	12	5
53111470	M 63 x 1,5	34-45	66	71.0	12	5

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® ST M ISO silver-grey (with long metric connecting thread)						
53017010	M 16 x 1,5 ISO	3,5-8	19	40.0	12	100
53017030	M 20 x 1,5 ISO	5-12	24	45.0	13	100
53017040	M 25 x 1,5 ISO	9-14	27	47.0	13	50
SKINTOP® ST M ISO black (with long metric connecting thread)						
53010000	M 12 x 1,5 ISO	3,5-7	15	36.7	15	100
53017210	M 16 x 1,5 ISO	3,5-8	19	40.0	12	100
53017230	M 20 x 1,5 ISO	5-12	24	45.0	13	100
53017240	M 25 x 1,5 ISO	9-14	27	47.0	13	50
SKINTOP® STR-M silver grey						
53111100	M 12 x 1,5	1-5	15	30.0	8	100
53111110	M 16 x 1,5	2-7	19	34.0	8	100
53111120	M 20 x 1,5	5-10	25	37.0	9	100
53111130	M 25 x 1,5	6-13	30	40.0	10	50
53111140	M 32 x 1,5	7-15	36	47.0	10	25
53111150	M 40 x 1,5	9-23	46	52.0	10	10
53111160	M 50 x 1,5	22-29	55	62.0	12	5
53111170	M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR-M black						
53111300	M 12 x 1,5	1-5	15	30.0	8	100
53111310	M 16 x 1,5	2-7	19	34.0	8	100
53111320	M 20 x 1,5	5-10	25	37.0	9	100
53111330	M 25 x 1,5	6-13	30	40.0	10	50
53111340	M 32 x 1,5	7-15	36	47.0	10	25
53111350	M 40 x 1,5	9-23	46	52.0	10	10
53111360	M 50 x 1,5	22-29	55	62.0	12	5
53111370	M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR-M light grey						
53111500	M 12 x 1,5	1-5	15	30.0	8	100
53111510	M 16 x 1,5	2-7	19	34.0	8	100
53111520	M 20 x 1,5	5-10	25	37.0	9	100
53111530	M 25 x 1,5	6-13	30	40.0	10	50
53111540	M 32 x 1,5	7-15	36	47.0	10	25
53111550	M 40 x 1,5	9-23	46	52.0	10	10
53111560	M 50 x 1,5	22-29	55	62.0	12	5
53111570	M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR M ISO silver-grey (with long metric connecting thread)						
53017110	M 16 x 1,5 ISO	2-6	19	40.0	12	100
53017130	M 20 x 1,5 ISO	4-9	24	45.0	13	100
53017140	M 25 x 1,5 ISO	6-12	27	47.0	13	50
SKINTOP® STR M ISO black (with long metric connecting thread)						
53017310	M 16 x 1,5 ISO	2-6	19	40.0	12	100
53017330	M 20 x 1,5 ISO	4-9	24	45.0	13	100
53017340	M 25 x 1,5 ISO	6-12	27	47.0	13	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

SKINTOP® ST-M

- SKINTOP® DIX-M refer to page 718
- SKINTOP® GMP-GL-M refer to page 716
- SKINTOP® DIX-M AUTOMATION refer to page 719
- SKINTOP® SD-M refer to page 720
- SKINTOP® SDV-M ATEX refer to page 711
- SKINTOP® DV-M refer to page 720

SKINTOP® STR-M

- SKINTOP® GMP-GL-M refer to page 716
- SKINTOP® SD-M refer to page 720
- SKINTOP® SDVR-M ATEX refer to page 711

SKINTOP® ST-M SORTIMO® T-BOXX

Info

- Optimal order in the practical SORTIMO® T-BOXX
- The brand for universal cable gland according to the principle: quickly fixed, centered and hermetically sealed

Benefits

- High oil-resistance for maximum reliability
- Wide, variable clamping ranges
- Permanent vibration protection
- Optimum strain relief

Application range

- Control cabinet manufacturing
- Automation technology
- Measurement, control and electrical applications
- Air-conditioning technology

Product features

- Optimal order in the practical SORTIMO® T-BOXX
- Small packaging unit, wide variety
- Light and robust, shock- and impact-resistant polypropylene case
- Two sturdy locks - ideal for mounting use e.g. building site

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- To refill standard packaging units are available

Included

- Delivery in SORTIMO® T-BOXX
- Inclusive counter nuts SKINTOP® GMP-GL-M
- Assembly instructions
- SKINTOP® ST-M M12 / 50 pieces (Art.Nr. 53111400)
  SKINTOP® ST-M M16 / 50 pieces (Art.Nr. 53111410)
  SKINTOP® ST-M M20 / 40 pieces (Art.Nr. 53111420)
  SKINTOP® ST-M M25 / 25 pieces (Art.Nr. 53111430)
  SKINTOP® ST-M M32 / 9 pieces (Art.Nr. 53111440)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Colour delivered
Light grey (RAL 7035)

Material
Body: Polyamide
Seal: CR

Tests
GGVS: TÜ.EGG.020-95

Protection rating
IP 68 - 5 bar
IP 69

Temperature range
Dynamic: -20°C to +100°C
Fixed: -40°C to +100°C

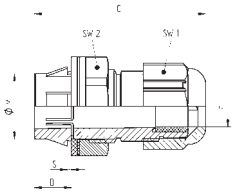
Article number	Article designation / size	Pieces / PU
SKINTOP® ST-M SORTIMO® T-BOXX		
53110030	SKINTOP® ST-M SORTIMO® T-BOXX	1

Other colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® CLICK / SKINTOP® CLICK-R

Info

- The most innovative cable insertion system in the market for a fast and highly flexible assembly. Simply click in - turn to the left - turn to the right - finished. The result: fixed, centred, strain-relieved fitting and maximum protection class in a few seconds.



Benefits

SKINTOP® CLICK

- Fewer parts, counter nut no longer needed
- Save up to 70% of the time with the innovative CLICK system
- Simple, free assembly in any position
- Vibration protection
- No thread required

SKINTOP® CLICK-R

- For the benefits, refer to SKINTOP® CLICK

Application range

SKINTOP® CLICK

- Automation technology
- Solar applications
- Control cabinet manufacturing
- Measurement, control and electrical applications
- Air-conditioning technology

SKINTOP® CLICK-R

- With reducing seal insert, to seal cables with smaller outer diameters.

Norm references / Approvals

- UL File Nr. E79903

Included

- Included: disassembly tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: special polyamide
Seal: special elastomer

Protection rating
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M25)
IP 68 - 1 bar (M32)

Temperature range
Dynamic: -20°C to +100°C
Fixed: -40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	M (hole in mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Wall thickness, S (mm)	Pieces / PU
SKINTOP® CLICK light grey								
53112692	CLICK 12	4.5 - 7.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112686	CLICK 16	5.0 - 9.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112687	CLICK 20	7.0 - 13.0	20.3 (-0.2)	25.0 / 27.0	45.5	8	1.0 - 4.0	25
53112688	CLICK 25	9.0 - 17.0	25.3 (-0.2)	30.0 / 34.0	48.5	8	1.0 - 4.0	25
53112694	CLICK 32	11.0 - 21.0	32.3 (-0.2)	36.0 / 40.0	55.0	8	1.0 - 4.0	25
SKINTOP® CLICK silver grey								
53112921	CLICK 12	4.5 - 7.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112876	CLICK 16	5.0 - 9.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112877	CLICK 20	7.0 - 13.0	20.3 (-0.2)	25.0 / 27.0	45.5	8	1.0 - 4.0	25
53112878	CLICK 25	9.0 - 17.0	25.3 (-0.2)	30.0 / 34.0	48.5	8	1.0 - 4.0	25
53112922	CLICK 32	11.0 - 21.0	32.3 (-0.2)	36.0 / 40.0	55.0	8	1.0 - 4.0	25
SKINTOP® CLICK black								
53112923	CLICK 12	4.5 - 7.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112882	CLICK 16	5.0 - 9.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112883	CLICK 20	7.0 - 13.0	20.3 (-0.2)	25.0 / 27.0	45.5	8	1.0 - 4.0	25
53112884	CLICK 25	9.0 - 17.0	25.3 (-0.2)	30.0 / 34.0	48.5	8	1.0 - 4.0	25
53112924	CLICK 32	11.0 - 21.0	32.3 (-0.2)	36.0 / 40.0	55.0	8	1.0 - 4.0	25
SKINTOP® CLICK-R light grey								
53112925	CLICK-R 12	3.5 - 5.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112689	CLICK-R 16	4.0 - 7.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112690	CLICK-R 20	5.0 - 10.0	20.3 (-0.2)	25.0 / 27.0	45.5	8	1.0 - 4.0	25
53112691	CLICK-R 25	6.0 - 13.0	25.3 (-0.2)	30.0 / 34.0	48.5	8	1.0 - 4.0	25
53112926	CLICK-R 32	7.0 - 15.0	32.3 (-0.2)	36.0 / 40.0	55.0	8	1.0 - 4.0	25
SKINTOP® CLICK-R silver grey								
53112927	CLICK-R 12	3.5 - 5.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112879	CLICK-R 16	4.0 - 7.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112880	CLICK-R 20	5.0 - 10.0	20.3 (-0.2)	25.0 / 27.0	45.5	8	1.0 - 4.0	25
53112881	CLICK-R 25	6.0 - 13.0	25.3 (-0.2)	30.0 / 34.0	48.5	8	1.0 - 4.0	25
53112928	CLICK-R 32	7.0 - 15.0	32.3 (-0.2)	36.0 / 40.0	55.0	8	1.0 - 4.0	25
SKINTOP® CLICK-R black								
53112929	CLICK-R 12	3.5 - 5.0	12.3 (-0.2)	15.0 / 18.0	40.0	8	1.0 - 4.0	50
53112885	CLICK-R 16	4.0 - 7.0	16.3 (-0.2)	19.0 / 22.0	42.0	8	1.0 - 4.0	50
53112886	CLICK-R 20	5.0 - 10.0	20.3 (-0.2)	25.0 / 27.0	45.5	8	1.0 - 4.0	25
53112887	CLICK-R 25	6.0 - 13.0	25.3 (-0.2)	30.0 / 34.0	48.5	8	1.0 - 4.0	25
53112931	CLICK-R 32	7.0 - 15.0	32.3 (-0.2)	36.0 / 40.0	55.0	8	1.0 - 4.0	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

SKINTOP® CLICK

- SKINTOP® DIX-M refer to page 718
- SKINTOP® DIX-M AUTOMATION refer to page 719
- SKINTOP® SD-M refer to page 720
- SKINTOP® SDV-M ATEX refer to page 711
- SKINTOP® DV-M refer to page 720

SKINTOP® CLICK-R

- SKINTOP® SDVR-M ATEX refer to page 711

SKINTOP® CLICK SORTIMO® T-BOXX

Info

- Optimal order in the practical SORTIMO® T-BOXX
- The most innovative cable insertion system in the market for a fast and highly flexible assembly. Simply click in - turn to the left - turn to the right - finished. The result: fixed, centred, strain-relieved fitting and maximum protection class in a few seconds.

Benefits

- Fewer parts, counter nut no longer needed
- Save up to 70% of the time with the innovative CLICK system
- Simple, free assembly in any position
- Vibration protection
- No thread required

Application range

- Automation technology
- Solar applications
- Control cabinet manufacturing
- Air-conditioning technology
- Measurement, control and electrical applications

Product features

- Optimal order in the practical SORTIMO® T-BOXX
- Small packaging unit, wide variety
- Light and robust, shock- and impact-resistant polypropylene case
- Two sturdy locks - ideal for mounting use e.g. building site

Norm references / Approvals

- UL File Nr. E79903

Note

- To refill standard packaging units are available

Included

- Included in all sizes: disassembly tool
- Delivery in SORTIMO® T-BOXX
- Assembly instructions
- SKINTOP® CLICK M12 / 40 Piece (Part.No. 53112692)
  SKINTOP® CLICK M16 / 55 Piece (Part.No 53112686)
  SKINTOP® CLICK M20 / 25 Piece (Part.No. 53112687)
  SKINTOP® CLICK M25 / 25 Piece (Part.No. 53112688)
  SKINTOP® CLICK M32 / 9 Piece (Part.No. 53112694)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
Body: special polyamide
Seal: special elastomer

Protection rating
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M25)
IP 68 - 1 bar (M32)

Temperature range
Dynamic: -20°C to +100°C
Fixed: -40°C to +100°C

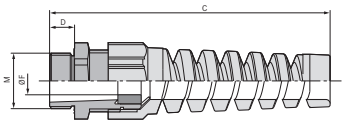
Article number	Article designation / size	Pieces / PU
SKINTOP® CLICK SORTIMO® T-BOXX		
53112695	SKINTOP® CLICK SORTIMO® BOXX	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® CLICK refer to page 687

SKINTOP® BS-M



Benefits

- Reliable bending and anti-kink protection
- Cable conservation
- Functional reliability
- To protect flexible cables

Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Robotics industry
- Light and sound applications
- Moving machine parts

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- Version with reducing insert to seal smaller cable cross-sections SKINTOP® BSR-M on request
- SKINTOP® BS M ISO versions with extra-long connection thread, see table, no DNV approval

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

On request
with reducing sealing ring

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: Polyamide
Seal: CR

Protection rating
IP 68 - 5 bar
NEMA Type 1, 12

Temperature range
-20°C to +100°C

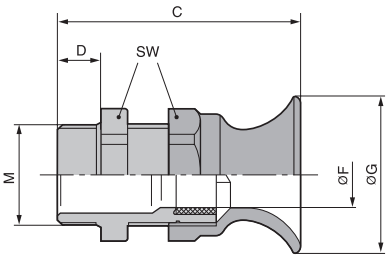
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® BS-M silver grey						
53111600	M 12 x 1,5	3,5-7	15	64.0	8	100
53111610	M 16 x 1,5	4,5-10	19	86.0	8	100
53111620	M 20 x 1,5	7-13	25	101.0	8	50
53111630	M 25 x 1,5	9-17	30	125.0	9	25
53111640	M 32 x 1,5	11-21	36	149.0	10	25
SKINTOP® BS-M black						
53111700	M 12 x 1,5	3,5-7	15	64.0	8	100
53111710	M 16 x 1,5	4,5-10	19	86.0	8	100
53111720	M 20 x 1,5	7-13	25	101.0	8	50
53111730	M 25 x 1,5	9-17	30	125.0	9	25
53111740	M 32 x 1,5	11-21	36	149.0	10	25
SKINTOP® BS-M light grey						
53111800	M 12 x 1,5	3,5-7	15	64.0	8	100
53111810	M 16 x 1,5	4,5-10	19	86.0	8	100
53111820	M 20 x 1,5	7-13	25	101.0	8	50
53111830	M 25 x 1,5	9-17	30	125.0	9	25
53111840	M 32 x 1,5	11-21	36	149.0	10	25
SKINTOP® BS M ISO silver-grey (with long metric connecting thread)						
53017610	M 16 x 1,5 ISO	3,5-8	19	77.5	12	100
53017630	M 20 x 1,5 ISO	5-12	24	102.0	13	50
53017640	M 25 x 1,5 ISO	9-14	27	114.5	13	50
SKINTOP® BS M ISO black (with long metric connecting thread)						
53017810	M 16 x 1,5 ISO	3,5-8	19	77.5	12	100
53017830	M 20 x 1,5 ISO	5-12	24	102.0	13	50
53017840	M 25 x 1,5 ISO	9-14	27	114.5	13	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® GMP-GL-M refer to page 716

SKINTOP® BT-M



Benefits

- Reliable bending and anti-kink protection
- Cable conservation
- Functional reliability
- To protect flexible cables

Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Apparatus construction
- Light and sound applications
- Moving machine parts

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Certifications
Size M16 - cURus
Size M20/M25 - cULus

Colour delivered
Silver grey (RAL 7001)

Material
Body: Polyamide
Seal: CR

Protection rating
IP 68 - 5 bar

Temperature range
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® BT-M						
53017420	M 16 x 1,5	3,5-8	19	45.0	12	100
53017430	M 20 x 1,5	5-12	24	54.0	13	50
53017440	M 25 x 1,5	9-14	27	57.0	13	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

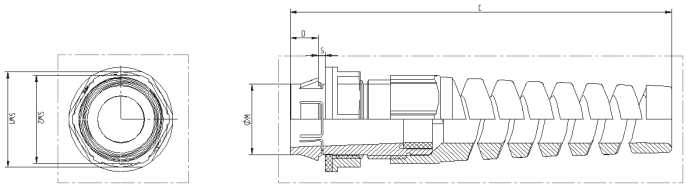
Accessories

- SKINTOP® GMP-GL-M refer to page 716

SKINTOP® CLICK BS

Info

- The most innovative cable insertion system in the market for a fast and highly flexible assembly. Simply click in - turn to the left - turn to the right - finished. The result: fixed, centred, strain-relieved fitting and maximum protection class in a few seconds.



Benefits

- Reliable bending protection for cable conservation and functional reliability
- Save up to 70% of the time with the innovative CLICK system
- No thread required
- To protect flexible cables
- Fewer parts, counter nut no longer needed

Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Robotics industry
- Moving machine parts
- Apparatus construction
- Light and sound applications

Norm references / Approvals

- UL File Nr. E79903

Included

- Included: disassembly tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: special polyamide
Seal: special elastomer

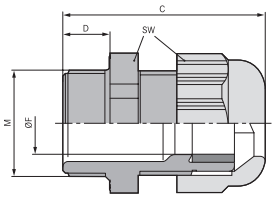
Protection rating
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M25)
IP 68 - 1 bar (M32)

Temperature range
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	M (hole in mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Wall thickness, S (mm)	Pieces / PU
SKINTOP® CLICK BS light grey								
53112932	CLICK BS 12	4,5-7	12.3 (-0.2)	18.0 / 15.0	74.0	8	1.0 - 4.0	50
53112888	CLICK BS 16	5-9	16.3 (-0.2)	22.0 / 19.0	94.0	8	1.0 - 4.0	50
53112889	CLICK BS 20	7-13	20.3 (-0.2)	27.0 / 25.0	108.0	8	1.0 - 4.0	25
53112890	CLICK BS 25	9-17	25.3 (-0.2)	32.0 / 30.0	127.0	8	1.0 - 4.0	25
53112933	CLICK BS 32	11-21	32.3 (-0.2)	40.0 / 36.0	155.0	8	1.0 - 4.0	25
SKINTOP® CLICK BS silver grey								
53112934	CLICK BS 12	4,5-7	12.3 (-0.2)	18.0 / 15.0	74.0	8	1.0 - 4.0	50
53112906	CLICK BS 16	5-9	16.3 (-0.2)	22.0 / 25.0	94.0	8	1.0 - 4.0	50
53112907	CLICK BS 20	7-13	20.3 (-0.2)	27.0 / 25.0	108.0	8	1.0 - 4.0	25
53112908	CLICK BS 25	9-17	25.3 (-0.2)	32.0 / 30.0	127.0	8	1.0 - 4.0	25
53112935	CLICK BS 32	11-21	32.3 (-0.2)	40.0 / 36.0	155.0	8	1.0 - 4.0	25
SKINTOP® CLICK BS black								
53112936	CLICK BS 12	4,5-7	12.3 (-0.2)	18.0 / 15.0	74.0	8	1.0 - 4.0	50
53112909	CLICK BS 16	5-9	16.3 (-0.2)	22.0 / 19.0	94.0	8	1.0 - 4.0	50
53112911	CLICK BS 20	7-13	20.3 (-0.2)	27.0 / 25.0	108.0	8	1.0 - 4.0	25
53112912	CLICK BS 25	9-17	25.3 (-0.2)	32.0 / 30.0	127.0	8	1.0 - 4.0	25
53112937	CLICK BS 32	11-21	32.3 (-0.2)	40.0 / 36.0	155.0	8	1.0 - 4.0	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® SOLAR / SKINTOP® SOLAR plus



Info

- Cable gland for photovoltaik applications, based on EN 50262, EN 50548 and UL 1703.
- Extended temperature range

Benefits

- UV and ozone-resistant
- UL 746 C - UL F1 outdoor use
- High strain relief
- Permanent vibration protection
- Extremely flame-retardant according to UL 94V-0 / 94-5VA

Application range

- Photovoltaic plants and solar parks

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

SKINTOP® SOLAR plus

- Counter nut to be used: SKINDICHT® SM-M
- Counter nut to be used: SKINTOP® GMP-GL-M

Suitable cables

- ÖLFLEX® SOLAR

Suitable tools

- SKINMATIC® RZ
- SKINMATIC® QUICK SET 1

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Colour delivered
RAL 9005 black/UV-resistant

Material
SKINTOP® SOLAR
Body: Polycarbonate
Seal: CR
SKINTOP® SOLAR plus
Body: Polycarbonate
Seal: Silicone
O-Ring: Silicone

Tests
Cold impact test according to UL 1703/UL 746 C

Protection rating
IP 68 - 5 bar

Temperature range
SKINTOP® SOLAR
-40°C to +100°C
SKINTOP® SOLAR plus
-40°C to +125°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® SOLAR						
53113300	M 12 x 1,5	3,5-7	15	36.0	15	100
53113310	M 16 x 1,5	7-9	19	34.0	8	100
SKINTOP® SOLAR plus						
53113321	M 12 x 1,5	3,5-7	15	36.0	15	100
53113331	M 16 x 1,5	7-9	19	34.0	8	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

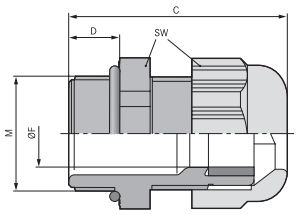
SKINTOP® SOLAR

- SKINTOP® GMP-GL-M refer to page 716
- SKINDICHT® SM-M refer to page 744

SKINTOP® ST-HF-M

Info

- Cable gland for railway applications



Benefits

- Maximum reliability
- Extremely flame-retardant according to UL 94 V0
- Completely halogen-free (including sealing material)
- Self-extinguishing, no dripping
- Permanent vibration protection

Application range

- Underground railways and trains
- When the protection of people and property is a priority.
- Public buildings
- Ventilation systems
- Tunnel construction

Norm references / Approvals

- DIN EN 45545-2: 2013
- Filament testing according to EN 60695-2-1/1 +960°C

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Colour delivered
Light grey (RAL 7035)

Material
Body: halogen-free polyamide acc. to UL 94 V0
Sealing ring: special elastomer
O-ring: special elastomer

Protection rating
IP 68 - 5 bar

Temperature range
Fixed: -40°C to +100°C
Dynamic: -20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® ST-HF-M						
53111407	M 12 x 1,5	4-5,5	15	30.0	8	100
53111417	M 16 x 1,5	5-9	19	34.0	8	100
53111427	M 20 x 1,5	7-13	25	37.0	9	100
53111437	M 25 x 1,5	9-17	30	40.0	10	50
53111447	M 32 x 1,5	11-21	36	47.0	10	25
53111457	M 40 x 1,5	19-28	46	52.0	10	10
53111467	M 50 x 1,5	27-35	55	62.0	12	5
53111477	M 63 x 1,5	34-45	66	71.0	12	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

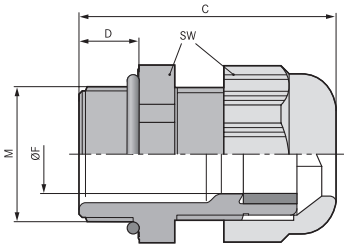
Accessories

- SKINTOP® GMP-HF-M refer to page 717

SKINTOP® K-M ATEX plus / SKINTOP® KR-M ATEX plus

SKINTOP® K-M ATEX plus

SKINTOP® KR-M ATEX plus



Benefits

SKINTOP® K-M ATEX plus

- High degree of protection
- Cold impact resistance
- High strain relief
- Wide, variable clamping ranges
- Permanent vibration protection

Application range

SKINTOP® K-M ATEX plus

- Devices, machines and apparatus of enhanced safety protection type “e”
- Equipment group II / Category 2G+1D
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

SKINTOP® KR-M ATEX plus

- With reducing seal insert, to seal cables with smaller outer diameters.

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Certifications
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0027X

Colour delivered
RAL 9005 black/UV-resistant

Material
Body: special polyamide
Seal: special elastomer
O-ring: CR

Tests
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

Protection rating
IP 68 - 10 bar

Temperature range
-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Thread M	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® K-M ATEX plus							
54115200	K-M 12 ATEX plus	3-5,5	12 x 1.5	15	30	8	50
54115210	K-M 16 ATEX plus	7-9	16 x 1.5	19	34	8	50
54115220	K-M 20 ATEX plus	7-13	20 x 1.5	25	38	9	50
54115230	K-M 25 ATEX plus	11-17	25 x 1.5	30	40	10	25
54115240	K-M 32 ATEX plus	12-21	32 x 1.5	36	47	10	25
54115250	K-M 40 ATEX plus	19-28	40 x 1.5	46	52	10	10
54115260	K-M 50 ATEX plus	27-35	50 x 1.5	55	62	12	5
54115270	K-M 63 ATEX plus	36-45	63 x 1.5	66	71	12	5
SKINTOP® KR-M ATEX plus							
54115205	KR-M 12 ATEX plus	2-4	12 x 1.5	15	30	8	50
54115215	KR-M 16 ATEX plus	4-6	16 x 1.5	19	34	8	50
54115225	KR-M 20 ATEX plus	5-10	20 x 1.5	25	38	9	50
54115235	KR-M 25 ATEX plus	6-13	25 x 1.5	30	40	10	25
54115245	KR-M 32 ATEX plus	9-15	32 x 1.5	36	47	10	25
54115255	KR-M 40 ATEX plus	16-23	40 x 1.5	46	52	10	10
54115265	KR-M 50 ATEX plus	22-29	50 x 1.5	55	62	12	5
54115275	KR-M 63 ATEX plus	29-39	63 x 1.5	66	71	12	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

SKINTOP® K-M ATEX plus

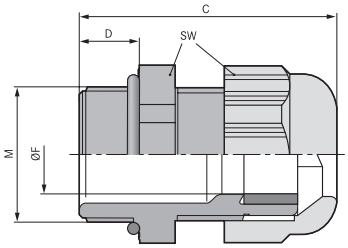
- SKINTOP® SDV-M ATEX refer to page 711

SKINTOP® KR-M ATEX plus

- SKINTOP® SDVR-M ATEX refer to page 711

SKINTOP® K-M ATEX plus blue / SKINTOP® KR-M ATEX plus blue

SKINTOP® K-M ATEX plus blue



SKINTOP® KR-M ATEX plus blue

Benefits

SKINTOP® K-M ATEX plus blue

- High degree of protection
- Cold impact resistance
- High strain relief
- Wide, variable clamping ranges
- Permanent vibration protection

Application range

SKINTOP® K-M ATEX plus blue

- Intrinsically safe circuits (class “i”) as well as in housings and devices that require class “e” safety.
- Equipment group II / Category 2G+1D
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

SKINTOP® KR-M ATEX plus blue

- With reducing seal insert, to seal cables with smaller outer diameters.

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Certifications
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0027X

Colour delivered
Blue (RAL 5015)

Material
Body: special polyamide
Seal: special elastomer
O-ring: CR

Tests
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

Protection rating
IP 68 - 10 bar

Temperature range
-20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Thread M	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® K-M ATEX plus blue							
54115400	K-M 12 ATEX plus blue	3-5,5	12 x 1.5	15	30	8	50
54115410	K-M 16 ATEX plus blue	7-9	16 x 1.5	19	34	8	50
54115420	K-M 20 ATEX plus blue	7-13	20 x 1.5	25	38	9	50
54115430	K-M 25 ATEX plus blue	11-17	25 x 1.5	30	40	10	25
54115440	K-M 32 ATEX plus blue	12-21	32 x 1.5	36	47	10	25
54115450	K-M 40 ATEX plus blue	19-28	40 x 1.5	46	52	10	10
54115460	K-M 50 ATEX plus blue	27-35	50 x 1.5	55	62	12	5
54115470	K-M 63 ATEX plus blue	36-45	63 x 1.5	66	71	12	5
SKINTOP® KR-M ATEX plus blue							
54115405	KR-M 12 ATEX plus blue	2-4	12 x 1.5	15	30	8	50
54115415	KR-M 16 ATEX plus blue	4-6	16 x 1.5	19	34	8	50
54115425	KR-M 20 ATEX plus blue	5-10	20 x 1.5	25	38	9	50
54115435	KR-M 25 ATEX plus blue	6-13	25 x 1.5	30	40	10	25
54115445	KR-M 32 ATEX plus blue	9-15	32 x 1.5	36	47	10	25
54115455	KR-M 40 ATEX plus blue	16-23	40 x 1.5	46	52	10	10
54115465	KR-M 50 ATEX plus blue	22-29	50 x 1.5	55	63	12	5
54115475	KR-M 63 ATEX plus blue	29-39	63 x 1.5	66	71	12	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

SKINTOP® K-M ATEX plus blue

- SKINTOP® SDV-M ATEX refer to page 711

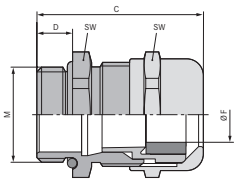
SKINTOP® KR-M ATEX plus blue

- SKINTOP® SDVR-M ATEX refer to page 711

SKINTOP® MS-M / SKINTOP® MSR-M

SKINTOP® MS-M

SKINTOP® MSR-M



Info

- SKINTOP® MS-M sizes 75 x 1.5 to 110 x 2 with innovative double lamella gasket for easier assembling of cables with large diameters.
- Now with IP69 approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Certifications
IP 69 approval from size M75 x 1.5 pending.
UL, CSA, DNV and VDE approval for sizes M90 x 2 to M110 x 2 pending.

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

Protection rating
IP 68 - 10 bar
IP 69 (M12 - M63)
NEMA Type 1, 4x, 6, 12

Temperature range
dynamic -25°C up to + 100°C
Fixed: -40°C to +100°C

Benefits

SKINTOP® MS-M
- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges
- For cable diameters up to 98 mm

Application range

SKINTOP® MS-M
- In areas where mechanical and chemical stability are critical
- Chemical industry
- Measurement and control technology
- Machine and equipment manufacturing
- Plant engineering

SKINTOP® MSR-M
- With reducing seal insert, to seal cables with smaller outer diameters.

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

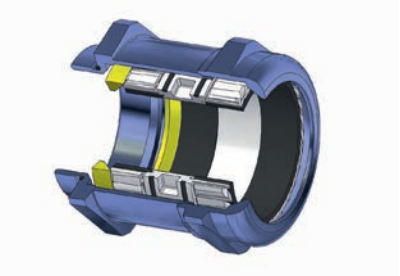
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-M						
53112000	M 12 x 1,5	3-7	16	26.5	6.5	100
53112010	M 16 x 1,5	4,5-10	20	32.0	7	100
53112020	M 20 x 1,5	7-13	24	35.5	8	50
53112030	M 25 x 1,5	9-17	29	37.5	8	25
53112040	M 32 x 1,5	11-21	36	42.2	9	25
53112050	M 40 x 1,5	19-28	45	49.5	9	10
53112060	M 50 x 1,5	27-35	54	52.0	10	5
53112070	M 63 x 1,5	34-45	67	61.3	15	5
53112080	M 63 x 1,5 plus	44-55	75	65.5	15	5
53112510	M 75 x 1,5	58-68	95	105.0	15	1
53112512	M 90 x 2	66-78	115	136.0	20	1
53112514	M 110 x 2	86-98	135	154.0	25	1
SKINTOP® MSR-M						
53112100	M 12 x 1,5	1-5	16	26.5	6.5	100
53112110	M 16 x 1,5	2-7	20	32.0	7	100
53112120	M 20 x 1,5	5-10	24	35.5	8	50
53112130	M 25 x 1,5	6-13	29	37.5	8	25
53112140	M 32 x 1,5	7-15	36	42.2	9	25
53112150	40 x 1,5	15-23	45	49.5	9	10
53112160	50 x 1,5	22-29	54	52.0	10	5
53112170	M 63 x 1,5	28-39	67	61.3	15	5
53112511	M 75 x 1,5	53-63	95	105.0	15	1
53112515	M 110 x 2	76-88	135	154.0	25	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

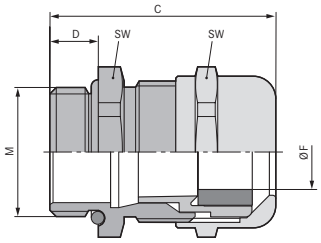
Accessories

SKINTOP® MS-M
- SKINDICHT® SM-M refer to page 744
- SKINTOP® DIX-M refer to page 718
- SKINMATIC® MH Set refer to page 815
- SKINTOP® DIX-M AUTOMATION refer to page 719
- SKINTOP® SD-M refer to page 720
- SKINTOP® SDV-M ATEX refer to page 711
- SKINTOP® DV-M refer to page 720

SKINTOP® MSR-M
- SKINDICHT® SM-M refer to page 744
- SKINTOP® SD-M refer to page 720
- SKINTOP® SDVR-M ATEX refer to page 711



SKINTOP® MS-M-XL / SKINTOP® MSR-M-XL



Benefits

SKINTOP® MS-M-XL

- Especially for thick walls
- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

Application range

SKINTOP® MS-M-XL

- With long connection thread for applications involving a thicker wall.

SKINTOP® MSR-M-XL

- With reducing seal insert, to seal cables with smaller outer diameters.

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

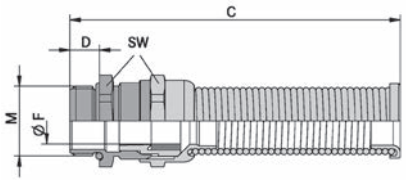
Protection rating
IP 68 - 10 bar
IP 69
NEMA Type 1, 4x, 6, 12

Temperature range
dynamic -25°C up to + 100°C
Fixed: -40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-M-XL						
53112005	M 12 x 1,5	3-7	16	32.8	12	100
53112015	M 16 x 1,5	4,5-10	20	37.0	12	50
53112025	M 20 x 1,5	7-13	24	39.5	12	50
53112035	M 25 x 1,5	9-17	29	41.5	12	25
53112045	M 32 x 1,5	11-21	36	48.2	15	25
53112055	M 40 x 1,5	19-28	45	53.5	15	10
53112065	M 50 x 1,5	27-35	54	57.0	15	5
SKINTOP® MSR-M-XL						
53112105	M 12 x 1,5	1-5	16	32.8	12	100
53112115	M 16 x 1,5	2-7	20	37.0	12	50
53112125	M 20 x 1,5	5-10	24	39.5	12	50
53112135	M 25 x 1,5	6-13	29	41.5	12	25
53112145	M 32 x 1,5	7-15	36	48.2	15	25
53112155	M 40 x 1,5	15-23	45	53.5	15	10
53112165	M 50 x 1,5	22-29	54	57.0	15	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL



Info

- Permanent bending protection under high mechanical stress

Benefits

- High mechanical stability
- Long service life
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability

Application range

- In areas where mechanical stability are critical
- Portable equipment
- Building sites
- Machine and equipment manufacturing
- Typical fields of application
  - Steel and glass works
  - Cement and ceramic works
  - Foundries
  - Shipbuilding industry
  - Furnace construction

Norm references / Approvals

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- M32 x 1,5 on request
- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR
Spiral - springs made of stainless steel

Protection rating
IP 68 - 10 bar
IP 69

Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	Thread length, D (mm)	SW wrench size mm	Overall length, C (mm)	Pieces / PU
SKINTOP® BS-M METAL						
53806759	M 12 x 1,5	3,5-7	6.5	16	65.0	25
53806760	M 16 x 1,5	4,5-10	7	20	79.0	25
53806761	M 20 x 1,5	7-13	8.5	24	95.0	25
53806762	M 25 x 1,5	9-17	8	29	109.0	25
SKINTOP® BSR-M METAL						
53806769	M 12 x 1,5	1-5	6.5	16	65.0	25
53806770	M 16 x 1,5	2-7	7	20	79.0	25
53806771	M 20 x 1,5	5-10	8.5	24	95.0	25
53806772	M 25 x 1,5	6-13	8	29	109.0	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

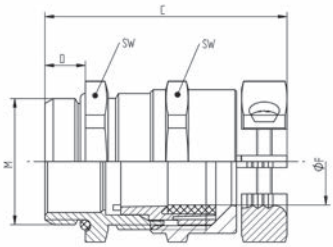
- SKINDICHT® SM-M refer to page 744
- SKINTOP® DIX-M refer to page 718
- SKINMATIC® MH Set refer to page 815
- SKINTOP® DIX-M AUTOMATION refer to page 719

NEW

SKINTOP® GRIP-M

Info

- Brass cable gland with with centred strain relief and kink protection



Benefits

- Protection against kinking and rip out of cables
- High strain relief
- For high mechanical stress
- Reliable bending and anti-kink protection

Application range

- Saddle clamp strain relief gland for harsh application conditions.
- Portable equipment
- Machines and systems on building sites
- Crane and conveying machinery
- Charging infrastructure for EV´s

Norm references / Approvals

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444
- Tested according to IEC 62196-1: Conductive charging of electric vehicles

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Material
Body: Nickel-plated brass
Sealing: CR/NBR
O-Ring - NBR

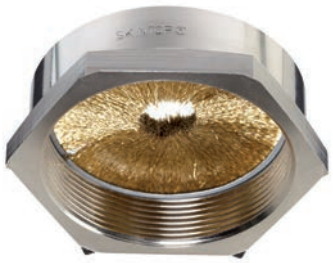
Protection rating
IP 68 - 10 bar
IP 69

Temperature range
-40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® GRIP-M						
53113180	M 16 x 1,5	4,5-10	20	41.0	7	25
53113200	M 20 x 1,5	7-13	24	46.0	8.5	25
53113210	M 25 x 1,5	9-17	29	48.5	8	25
53113220	M 32 x 1,5	11-21	36	56.5	9	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® BRUSH ADD-ON



Benefits

- Optimum, low-resistance 360° screen contact
- Cutting edges cut through the insulating layer of the housing or switch cabinets, thus guaranteeing an optimum EMC contact
- Easy disassembling
- Visible, large-scale screen contact
- Uncomplicated and reliable

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- For EMC-contact at through bore-holes
- Control cabinet manufacturing
- Automation systems
- Conveyor and transport systems

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Info

- Innovative EMC add-on for SKINTOP® ST(R)-M polyamide cable glands.
- Worlds first patented active EMC lock-nut!

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques
Apply SKINTOP® ST-M torques

Certifications
UL pending

Material
Body: nickel-plated brass
EMC brush: brass

Temperature range
Dynamic: -20°C to +100°C
Depending on the combination of the used cable gland

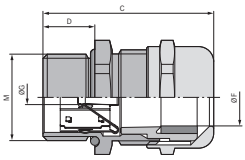
Article number	Article designation / size	Minimum Ø above braiding (mm)	SW wrench size mm	Thread length, D (mm)	Pieces / PU
SKINTOP® BRUSH ADD-ON					
54110839	M 12 x 1,5	4	24	10	25
54110840	M 16 x 1,5	5	24	10	25
54110841	M 20 x 1,5	5	24	10	10
54110842	M 25 x 1,5	5	30	10	10
54110843	M 32 x 1,5	8	39	12	10
54110844	M 40 x 1,5	10	47	12	5
54110845	M 50 x 1,5	14	56	12	5
54110846	M 63 x 1,5	14	63	12	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® BS-M refer to page 689
- SKINTOP® COLD refer to page 703
- SKINTOP® ST-HF-M refer to page 693
- SKINTOP® ST-M refer to page 684
- SKINTOP® COLD-R refer to page 703
- SKINTOP® STR-M refer to page 684
- SKINTOP® GRIP-M refer to page 699

SKINTOP® MS-SC-M



Benefits

- Low-resistance screen contact, optimum EMC protection
- Suitable for cables with and without inner sheath
- Also suitable for continuing the cable screen to another connection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Few operation steps, easy to assemble

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Telecommunication
- Industrial machinery and plant engineering
- Measurement and control technology
- Automation technology

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Refer to SKINTOP® metric accessories for suitable accessories
- As an alternative for thick-walled housings, we recommend SKINTOP® MS-SC-M-XL with long connection thread in the sizes M16 to M50

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Note
In stainless steel V2A available

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

Protection rating
IP 68 - 10 bar
NEMA Type 1, 4x, 6, 12

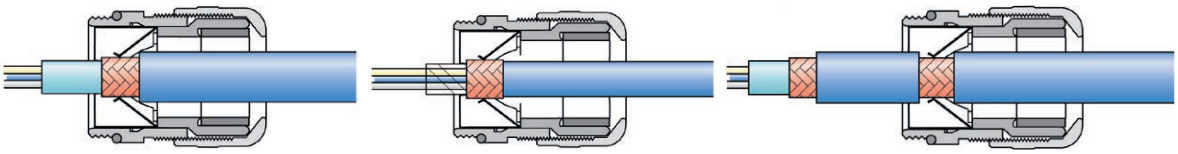
Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

Article number	Article designation / size	Outer Ø (mm), from - to	Minimum Ø above braiding (mm)	SW wrench size mm	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-SC-M						
53112610	M 12 x 1,5	3.5 - 7.0	2	16	6.5	50
53112620	M 16 x 1,5	4.5 - 9.0	4	20	7	50
53112630	M 20 x 1,5	7.0 - 12.5	5	24	8	25
53112640	M 25 x 1,5	9.0 - 16.5	7.5	29	8	25
53112650	M 32 x 1,5	11.0 - 21.0	9	36	9	25
53112660	M 40 x 1,5	19.0 - 28.0	15	45	9	10
53112670	M 50 x 1,5	27.0 - 35.0	21	54	10	5
SKINTOP® MS-SC-M-XL						
53112625	M 16 x 1,5	4.5 - 9.0	4	20	12	50
53112635	M 20 x 1,5	7.0 - 12.5	5	24	12	25
53112645	M 25 x 1,5	9.0 - 16.5	7.5	29	12	25
53112655	M 32 x 1,5	11.0 - 21.0	9	36	15	25
53112665	M 40 x 1,5	19.0 - 28.0	15	45	15	10
53112675	M 50 x 1,5	27.0 - 35.0	21	54	15	5

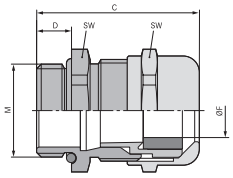
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-PE-M refer to page 744



SKINTOP® MS-M BRUSH



Benefits

- Optimum, low-resistance 360° screen contact
- Faster than any other comparable system
- Uncomplicated and reliable
- Maximum assembly freedom during adjustment

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Automation systems
- High-power drives
- Frequency converters
- Conveyor and transport systems

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

Info

- SKINTOP® MS-M BRUSH sizes 75 x 1.5 to 110 x 2 with innovative double lamella gasket for easier assembling of cables with large diameters.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Cap nut: nickel-plated brass
Insert: polyamide
EMC brush: brass wire
Sealing ring: elastomer
O-ring: elastomer

Protection rating
IP 68 - 10 bar (M12 - M110)
IP 69 (M12 - M63)
NEMA Type 1, 4x, 6, 12

Temperature range
dynamic -25°C up to + 100°C
Fixed: -40°C to +100°C

Article number	Article designation / size	Outer Ø (mm), from - to	Minimum Ø above braiding (mm)	SW wrench size mm	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-M BRUSH						
53112676	M 25 x 1,5	9.0 - 17.0	6	29	8	10
53112677	M 32 x 1,5	11.0 - 21.0	8	36	9	5
53112678	M 40 x 1,5	19.0 - 28.0	10	45	9	5
53112679	M 50 x 1,5	27.0 - 35.0	14	54	10	5
53112680	M 63 x 1,5	34.0 - 45.0	20	67	15	1
53112681	M 63 x 1,5 plus	44.0 - 55.0	25	75	15	1
53112501	M 75 x 1,5	53.0 - 63.0	35	95	15	1
53112500	M 75 x 1,5 plus	58.0 - 68.0	35	95	15	1
53112503	M 90 x 2	66.0 - 78.0	45	115	20	1
53112505	M 110 x 2	76.0 - 88.0	55	135	25	1
53112504	M 110 x 2 plus	86.0 - 98.0	55	135	25	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

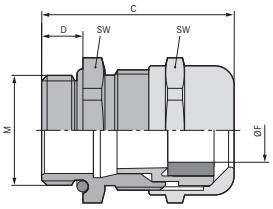
Accessories

- SKINDICHT® SM-PE-M refer to page 744

SKINTOP® COLD / SKINTOP® COLD-R

Info

- For extreme sub-zero temperatures



Benefits

SKINTOP® COLD
- High cold-resistance
- Cold impact resistance
- High mechanical stability
- Optimum strain relief
- Wide, variable clamping ranges

SKINTOP® COLD-R
- For the benefits, refer to SKINTOP® COLD

Application range

SKINTOP® COLD
- In areas where mechanical stability and high cold-resistance are critical
- Air-conditioning technology
- Freezing plants, cold storage
- Offshore sector
- Plant engineering

SKINTOP® COLD-R
- With reducing seal insert, to seal cables with smaller outer diameters.

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: special polyamide
Sealing ring: silicone
O-ring: silicone

Protection rating
SKINTOP® COLD
IP 68 - 10 bar (M12 - M20)
IP 68 - 5 bar (M25 - M63)
NEMA Type 1, 2, 4X, 6, 12

Temperature range
-70°C to +100°C

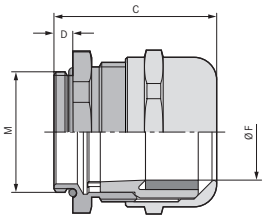
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
Cold-resistant						
53113500	M 12 x 1,5	3-7	16	26.5	6.5	100
53113510	M 16 x 1,5	4,5-10	20	32.0	7	100
53113520	M 20 x 1,5	7-13	24	35.5	8	50
53113530	M 25 x 1,5	9-17	29	37.5	8	25
53113540	M 32 x 1,5	11-21	36	42.2	9	25
53113550	M 40 x 1,5	19-28	45	49.5	9	10
53113560	M 50 x 1,5	27-35	54	52.0	10	5
53113570	M 63 x 1,5	34-45	67	61.3	15	5
SKINTOP® COLD-R						
53113600	M 12 x 1,5	1-5	16	26.5	6.5	100
53113610	M 16 x 1,5	2-7	20	32.0	7	100
53113620	M 20 x 1,5	5-10	24	35.5	8	50
53113630	M 25 x 1,5	6-13	29	37.5	8	25
53113640	M 32 x 1,5	7-15	36	42.2	9	25
53113650	M 40 x 1,5	15-23	45	49.5	9	10
53113660	M 50 x 1,5	22-29	54	52.0	10	5
53113670	M 63 x 1,5	28-39	67	61.3	15	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

SKINTOP® COLD
- SKINDICHT® SM-M refer to page 744

SKINTOP® MS-IS-M



Benefits

- Short connection thread for more space inside the industrial connectors
- Wide, variable clamping ranges
- Optimum strain relief

Application range

- Specially designed for use on industrial connectors.

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- For suitable multiple seal inserts please see SKINTOP® DIX PG 21 (25 x 1.5) and DIX PG 29 (32 x 1.5)

Included

- Rectangular connector is not included, just the cable gland

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

Protection rating
IP 68 - 5 bar

Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-IS-M						
53112780	M 25 x 1,5	11-18	30	37.0	5	25
53112790	M 32 x 1,5	16-25	40	43.0	5	25

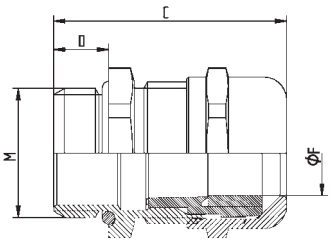
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

SKINTOP® MS-HF-M

Info

- Cable gland for railway applications
- Hazard Level: HL 3



Benefits

- Halogen-free and flame-retardant
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability

Application range

- Underground railways and trains
- In areas where mechanical and chemical stability are critical
- When the protection of people and property is a priority.

Norm references / Approvals

- DIN EN 45545-2
- DIN EN 45545-3: 2013-08
- DIN EN 1363-1: 2012-10
- DIN EN 13501-2: Classification E30

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: halogenfree polyamide acc. to UL 94 V0
Sealing: special elastomere
O-ring: special elastomere

Protection rating
IP 68 - 5 bar

Temperature range
dynamic -25°C up to + 100°C
Fixed: -40°C to +100°C

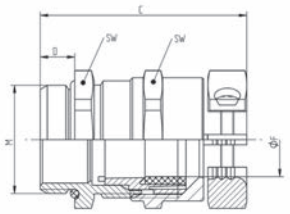
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-HF-M						
53112570	M 12 x 1,5	3,5-7	16	26.5	6.5	100
53112571	M 16 x 1,5	4,5-10	20	33.0	7	100
53112572	M 20 x 1,5	7-13	24	37.0	8	50
53112573	M 25 x 1,5	9-17	29	38.5	8	25
53112574	M 32 x 1,5	11-21	36	45.5	9	25
53112575	M 40 x 1,5	19-28	45	48.0	9	10
53112576	M 50 x 1,5	27-35	54	55.5	10	5
53112577	M 63 x 1,5	34-45	67	67.0	15	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINMATIC® MH Set refer to page 815

SKINTOP® MS-HF-M GRIP



Info

- Cable gland for railway applications
- Brass cable gland with with centred strain relief and kink protection
- Hazard Level: HL 3

Benefits

- Halogen-free and flame-retardant
- Reliable bending and anti-kink protection
- High strain relief
- For high mechanical stress

Application range

- Saddle clamp strain relief gland for harsh application conditions.
- Portable equipment
- Machines and systems on building sites
- Crane and conveying machinery
- Plant engineering

Norm references / Approvals

- DIN EN 45545-2
- DIN EN 45545-3: 2013-08
- DIN EN 1363-1: 2012-10
- DIN EN 13501-2: Classification E30

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Material
Body: nickel plated brass
Insert: halogen-free polyamid acc. to UL 94 V0
Sealing: special elastomer
O-ring: special elastomer

Protection rating
IP 68 - 5 bar

Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-HF-M GRIP						
53112551	M 16 x 1,5	4,5-10	20	41.0	7	25
53112552	M 20 x 1,5	7-13	24	46.0	8.5	25
53112553	M 25 x 1,5	9-17	29	48.5	8	25
53112554	M 32 x 1,5	11-21	36	56.6	9	25

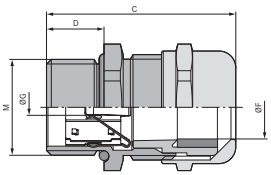
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

SKINTOP® MS-HF-M SC

Info

- Cable gland for railway applications
- Hazard Level: HL 3



Benefits

- Halogen-free and flame-retardant
- Suitable for cables with and without inner sheath
- Low-resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Few operation steps, easy to assemble

Application range

- Underground railways and trains
- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Industrial machinery and plant engineering
- Measurement and control technology
- Automation technology

Norm references / Approvals

- DIN EN 45545-2
- DIN EN 45545-3: 2013-08
- DIN EN 1363-1: 2012-10
- DIN EN 13501-2: Classification E30

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel plated brass
Insert: halogen-free polyamid acc. to UL 94 V0
Sealing: special elastomer
O-ring: special elastomer

Protection rating
IP 68 - 5 bar

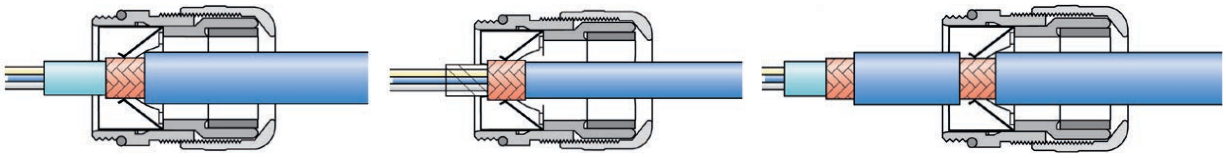
Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	Minimum Ø above braiding (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-HF-M SC							
53112530	M 12 x 1,5	3,5-7	1	16	26.5	6.5	50
53112531	M 16 x 1,5	4,5-10	4	20	33.0	7	50
53112532	M 20 x 1,5	7-13	5	24	37.0	8.5	25
53112533	M 25 x 1,5	9-17	7.5	29	38.5	8	25
53112534	M 32 x 1,5	11-21	9	36	45.5	9	25
53112535	M 40 x 1,5	19-28	15	45	48.0	9	10
53112536	M 50 x 1,5	27-35	21	50	55.5	10	5

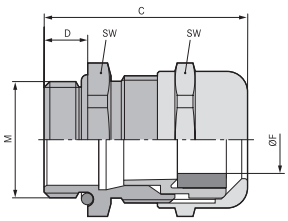
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-PE-M refer to page 744



SKINTOP® MS-HF-M BRUSH



Info

- Cable gland for railway applications
- Hazard Level: HL 3

Benefits

- Halogen-free and flame-retardant
- Optimum, low-resistance 360° screen contact
- Faster than any other comparable system
- Maximum reliability
- Maximum assembly freedom during adjustment

Application range

- Underground railways and trains
- Automation systems
- High-power drives
- Frequency converters
- Conveyor and transport systems

Norm references / Approvals

- DIN EN 45545-2
- DIN EN 45545-3: 2013-08
- DIN EN 1363-1: 2012-10
- DIN EN 13501-2: Classification E30

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickle plated brass
Insert: haolgen-free polyamide acc. to UL 94 V0
EMC-brush: brass wire
Sealing: special elastomere
O-ring: special elastomere

Protection rating
IP 68 - 5 bar

Temperature range
Fixed: -40°C to +100°C
dynamic -25°C up to + 100°C

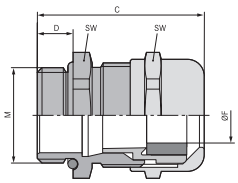
Article number	Article designation / size	Clamping range ØF (mm)	Minimum Ø above braiding (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-HF-M BRUSH							
53112543	M 25 x 1,5	9-17	6	29	36.0	8	10
53112544	M 32 x 1,5	11-21	8	36	42.2	9	5
53112545	M 40 x 1,5	19-28	10	45	49.5	9	5
53112546	M 50 x 1,5	27-35	14	54	52.0	10	5
53112547	M 63 x 1,5	34-45	20	67	61.3	15	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-PE-M refer to page 744

SKINTOP® MS-M ATEX / SKINTOP® MSR-M ATEX



SKINTOP® MS-M ATEX

SKINTOP® MSR-M ATEX

Benefits

SKINTOP® MS-M ATEX

- Cold impact resistance
- High strain relief
- Wide, variable clamping ranges
- Maximum reliability

Application range

SKINTOP® MS-M ATEX

- Devices, machines and apparatus of enhanced safety protection type “e”
- Equipment group II / Category 2G+1D
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

SKINTOP® MSR-M ATEX

- With reducing seal insert, to seal cables with smaller outer diameters.

Product features

SKINTOP® MS-M ATEX

- SKINTOP® MS-M-XL ATEX is similar to the SKINTOP® MS-M ATEX, but has an extended connection thread for thick walls

Norm references / Approvals

SKINTOP® MS-M ATEX

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

SKINTOP® MS-M ATEX

- Refer to SKINTOP® SDV-M ATEX for suitable accessories

SKINTOP® MSR-M ATEX

- Refer to SKINTOP® SDVR-M ATEX for suitable accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Certifications
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0026X

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

Tests
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

Protection rating
IP 68 - 10 bar
NEMA Type 1, 4x, 6, 12

Temperature range
-30°C to +90°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-M ATEX						
53112700	M 12 x 1,5	3.0 - 7.0	16	26.5	6.5	100
53112710	M 16 x 1,5	4.5 - 10.0	20	33.0	7	100
53112720	M 20 x 1,5	7.0 - 13.0	24	37.0	8	50
53112730	M 25 x 1,5	9.0 - 17.0	29	38.5	8	25
53112740	M 32 x 1,5	11.0 - 21.0	36	45.5	9	25
53112750	M 40 x 1,5	19.0 - 28.0	45	48.0	9	10
53112760	M 50 x 1,5	26.0 - 35.0	54	55.5	10	5
53112770	M 63 x 1,5	34.0 - 45.0	67	67.0	15	5
53112779	M 63 x 1,5 plus	44.0 - 55.0	75	65.5	15	1
SKINTOP® MS-M-XL ATEX						
53112800	M 12 x 1,5	3.0 - 7.0	16	32.8	12	100
53112810	M 16 x 1,5	4.5 - 10.0	20	37.0	12	100
53112820	M 20 x 1,5	7.0 - 13.0	24	39.5	12	50
53112830	M 25 x 1,5	9.0 - 17.0	29	41.5	12	25
53112840	M 32 x 1,5	11.0 - 21.0	36	48.2	15	25
53112850	M 40 x 1,5	19.0 - 28.0	45	53.5	15	10
53112860	M 50 x 1,5	26.0 - 35.0	54	57.5	15	5
SKINTOP® MSR-M ATEX						
53112705	M 12 x 1,5	2.0 - 5.0	16	26.5	6.5	100
53112715	M 16 x 1,5	4.0 - 7.0	20	33.0	7	100
53112725	M 20 x 1,5	5.0 - 10.0	24	37.0	8	50
53112735	M 25 x 1,5	6.0 - 13.0	29	38.5	8	25
53112745	M 32 x 1,5	7.0 - 15.0	36	45.5	9	25
53112755	M 40 x 1,5	16.0 - 23.0	45	48.0	9	10
53112765	M 50 x 1,5	19.0 - 29.0	54	55.5	10	5
53112775	M 63 x 1,5	32.0 - 39.0	67	67.0	15	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

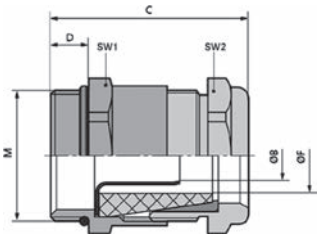
SKINTOP® MS-M ATEX

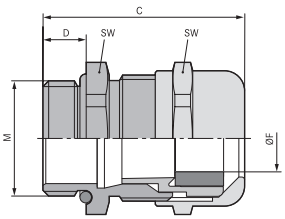
- SKINTOP® SDV-M ATEX refer to page 711

SKINTOP® MSR-M ATEX

- SKINTOP® SDVR-M ATEX refer to page 711

SKINTOP® MS-M ATEX BRUSH





Benefits

- Faster and less complicated assembling than any other system
- Optimum, low-resistance 360° screen contact
- Simple cable adjustment
- Easy to uninstall
- Anti-static, safe, and impact-resistant at cold temperatures

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Chemical and petrochemical industry
- Plant engineering
- Equipment group II / Category 2G+1D
- Devices, machines and apparatus of enhanced safety protection type “e”

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- SKINDICHT® SHVE-M 20 x 1.5 ATEX design with EMC earthing sleeve to cover smaller cable clamping ranges
- SKINDICHT® SHVE-M 20x1,5 ATEX is not IECex certified

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Certifications
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0026X

Material
SKINTOP® MS-M ATEX BRUSH
Body: nickel plated brass
Insert: special polyamide
EMV-Brush: brass
Seal: special elastomer
O-Ring: special elastomer

SKINDICHT® SHVE-M ATEX
Body: nickel plated brass
Earthing sleeve: brass
Seal: special elastomer
O-Ring: special elastomer

Tests
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

Protection rating
IP 68 - 10 bar

Temperature range
SKINTOP® MS-M ATEX BRUSH
-30°C to +90°C
SKINDICHT® SHVE-M ATEX
-20°C to +80°C

Article number	Article designation / size	Outer Ø (mm), from - to	Minimum Ø above braiding (mm)	SW wrench size mm	Thread length, D (mm)	Pieces / PU
SKINDICHT® SHVE-M ATEX						
52107102	M 20 x 1,5	6.9 - 8.9	5	22	6	10
SKINTOP® MS-M ATEX BRUSH						
52110023	M 25 x 1,5	9.0 - 17.0	6	29	8	10
52110024	M 32 x 1,5	11.0 - 21.0	8	36	9	5
52110025	M 40 x 1,5	19.0 - 28.0	10	45	9	5
52110026	M 50 x 1,5	27.0 - 35.0	14	54	10	5
52110027	M 63 x 1,5	34.0 - 45.0	20	67	15	1
52110028	M 63 x 1,5 plus	44.0 - 55.0	25	75	15	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® SDV-M ATEX / SKINTOP® SDVR-M ATEX

SKINTOP® SDV-M ATEX

Benefits

SKINTOP® SDV-M ATEX

- Permanent and secure sealing for areas with risks of explosion
- Easy to assemble
- High degree of protection

SKINTOP® SDVR-M ATEX

- For the benefits, refer to SKINTOP® SDV-M ATEX

Application range

SKINTOP® SDV-M ATEX

- SKINTOP® SDV-M is used together with SKINTOP® MS-M ATEX, MS-M ATEX BRUSH or SKINTOP® K-M ATEX plus (blue).
- Equipment group II / Category 2G+1D

SKINTOP® SDVR-M ATEX

- SKINTOP® SDVR-M is used together with SKINTOP® MSR-M ATEX or SKINTOP® KR-M ATEX plus (blue).
- Equipment group II / Category 2G+1D

Note

SKINTOP® SDV-M ATEX

- Outside areas with a risk of explosion, also suitable for use in combination with SKINTOP® ST-M and SKINTOP® MS-M

SKINTOP® SDVR-M ATEX

- Outside areas with a risk of explosion, also suitable for use in combination with SKINTOP® STR-M and SKINTOP® MSR-M

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Material
CR

Protection rating
IP 68 - 10 bar

Temperature range
-30°C to +70°C
Short-term: up to +90°C

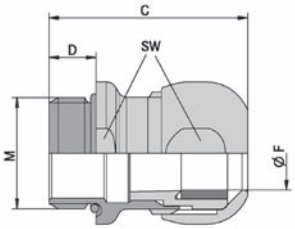
Article number	Article designation / size	Visible height (mm)	Pieces / PU
SKINTOP® SDV-M ATEX			
54113002	M 12 ATEX	3.0	50
54113012	M 16 ATEX	3.0	50
54113022	M 20 ATEX	3.5	50
54113032	M 25 ATEX	3.5	50
54113042	M 32 ATEX	4.0	25
54113052	M 40 ATEX	4.0	25
54113062	M 50 ATEX	4.5	10
54113072	M 63 ATEX	4.5	5
SKINTOP® SDVR-M ATEX			
54113013	M 16 ATEX	4.0	50
54113023	M 20 ATEX	5.0	50
54113033	M 25 ATEX	5.0	50
54113043	M 32 ATEX	5.5	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® K-M ATEX plus
- SKINTOP® K-M ATEX plus blau
- SKINTOP® KR-M ATEX plus
- SKINTOP® KR-M ATEX plus blau
- SKINTOP® MS-M ATEX
- SKINTOP® MSR-M ATEX

SKINTOP® INOX / SKINTOP® INOX-R



Info

- Stainless steel version with compact design
- For use in the splash zone in the food production

Benefits

- Corrosion-resistant
- Sea water-resistant
- Smooth surfaces - no edges
- Compact design
- Wide, variable clamping ranges

Application range

- Onshore and offshore applications
- Bottling plants and breweries
- Food industry (product-free zone, splash zone)

Norm references / Approvals

- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14 159
  Security of machinery Hygienic requirements for the design of machinery

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: stainless steelV4A (1.4404 / 316L)
Insert: polyamide
Sealing: silicone
O-Ring: silicone

Protection rating
IP 68 - 10 bar (M12 - M20)
IP 68 - 5 bar (M25 - M50)
IP 69
NEMA Type 1, 2, 4X, 6, 12

Temperature range
-40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	Thread length, D (mm)	SW wrench size mm	Overall length, C (mm)	Pieces / PU
SKINTOP® INOX						
53806739	M 12 x 1,5	4-7	6.5	16	29.3	5
53806740	M 16 x 1,5	6-10	7	20	32.4	5
53806741	M 20 x 1,5	7-13	8	24	35.8	5
53806742	M 25 x 1,5	9-17	8	29	37.8	5
53806743	M 32 x 1,5	11-21	9	36	43.3	5
53806744	M 40 x 1,5	19-28	9	45	51.2	5
53806745	M 50 x 1,5	27-35	10	54	56.2	5
SKINTOP® INOX-R						
53806749	M 12 x 1,5	3-5	6.5	16	29.3	5
53806750	M 16 x 1,5	5-7	7	20	32.4	5
53806751	M 20 x 1,5	5-10	8	24	35.8	5
53806752	M 25 x 1,5	7-13	8	29	37.8	5
53806753	M 32 x 1,5	7-15	9	36	43.3	5
53806754	M 40 x 1,5	15-23	9	45	51.2	5
53806755	M 50 x 1,5	22-29	10	54	56.2	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SKINDICHT® CN-M refer to page 739
- SKINTOP® HYGIENIC

Accessories

- Suitable counter nut SKINDICHT® SM CrNi M

SKINTOP® INOX SC

Info

- Stainless steel version with compact design
- Optimum EMC protection

Benefits

- Smooth surfaces - no edges
- Compact design
- Wide, variable clamping ranges
- Low-resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact for clamping various screen diameters

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Pharmaceutical industry
- Food industry (product-free zone, splash zone)
- Onshore and offshore applications
- Bottling plants and breweries

Norm references / Approvals

- DIN EN ISO 14 159
  Security of machinery Hygienic requirements for the design of machinery
- DIN EN 1672-2
  Guideline for the design of machinery
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- EMC counter nut, SKINDICHT® SM nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- For suitable accessories, refer to SKINTOP® metric accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Material
Body: stainless steelV4A (1.4404 / 316L)
Insert: polyamide
Sealing: silicone
O-Ring: silicone

Protection rating
IP 68 - 10 bar (M12 - M20)
IP 68 - 5 bar (M25 - M50)
IP 69
NEMA Type 1, 2, 4X, 6, 12

Temperature range
-40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	Thread length, D (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® INOX SC							
53806720	M 12 x 1,5	4-7	6.5	16	29.3	6.5	5
53806722	M 16 x 1,5	6-10	7	20	32.4	7	5
53806724	M 20 x 1,5	7-12,5	8	24	35.5	8	5
53806726	M 25 x 1,5	9-17	8	29	30.8	8	5
53806728	M 32 x 1,5	11-21	9	36	44.6	9	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

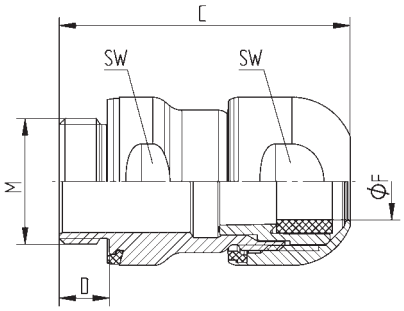
Similar products

- SKINDICHT® CN-M refer to page 739
- SKINTOP® HYGIENIC

Accessories

- Suitable counter nut SKINDICHT® SM CrNi M

SKINTOP® HYGIENIC / SKINTOP® HYGIENIC-R



Info

- Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
- No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components.

Benefits

- Hygienic Design for ideal cleaning results
- Smooth surfaces and no edges prevent the accumulation of fluids and formation of micro-organisms

Application range

- Food machinery, equipment and components
- For use in product zone
- Pharmaceutical industry

Norm references / Approvals

- EHEDG (TYPE EL Class I AUX)
  Hygienic design for machinery and components
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600
  Special sealing element for food and beverage industry in North America
- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14 159
  Security of machinery Hygienic requirements for the design of machinery

Product Make-up

- Material and shape provide an easy and safe cleaning
- By the blue coloring of the sealing material clearly distinguishable from foodstuffs
- One complete assembly is easily mounted from the outside
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Installation wrench for very high packing density on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: stainless steel - V4A (1.4404 / 316L)
Insert: polyamide
Sealing: special elastomer

Protection rating
IP 68 - 10 bar
IP 69
NEMA Type 1, 2, 4X, 6, 12

Temperature range
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	Thread length, D (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® HYGIENIC							
53105100	M 12 x 1,5	4-6	6.5	16	38.4	6.5	5
53105110	M 16 x 1,5	6,5-9	7	20	43.4	7	5
53105120	M 20 x 1,5	9-12	8	24	46.4	8	5
53105130	M 25 x 1,5	11,5-15,5	8	29	48.9	8	5
SKINTOP® HYGIENIC-R							
53105200	M 12 x 1,5	3-4,5	6.5	16	38.4	6.5	5
53105210	M 16 x 1,5	4,5-7	7	20	43.4	7	5
53105220	M 20 x 1,5	7-10	8	24	46.4	8	5
53105230	M 25 x 1,5	9-12,5	8	29	48.9	8	5

Other sizes are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SKINTOP® INOX / SKINTOP® INOX-R refer to page 712
- SKINTOP® INOX SC refer to page 713
- SKINTOP® INOX NPT refer to page 768

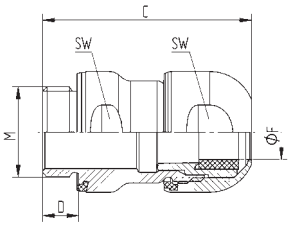
Accessories

- Suitable counter nut SKINDICHT® SM CrNi M

SKINTOP® HYGIENIC SC

Info

- Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
- No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components.



Benefits

- Low-resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Hygienic Design for ideal cleaning results
- Smooth surfaces and no edges prevent the accumulation of fluids and formation of micro-organisms

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Food machinery, equipment and components
- For use in product zone
- Pharmaceutical industry

Norm references / Approvals

- EHEDG (TYPE EL Class I AUX) Hygienic design for machinery and components
- ECOLAB® Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600 Special sealing element for food and beverage industry in North America
- DIN EN 1672-2 Guideline for the design of machinery
- DIN EN ISO 14 159 Security of machinery Hygienic requirements for the design of machinery

Product Make-up

- Material and shape provide an easy and safe cleaning
- By the blue coloring of the sealing material clearly distinguishable from foodstuffs
- One complete assembly is easily mounted from the outside
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Installation wrench for very high packing density on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: stainless steel - V4A (1.4404 / 316L)
Insert: polyamide
Sealing: special elastomer

Protection rating
IP 68 - 10 bar
IP 69
NEMA Type 1, 2, 4X, 6, 12

Temperature range
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® HYGIENIC SC						
53105300	M 12 x 1,5	4-6	16	39.9	6.5	5
53105301	M 16 x 1,5	6,5-9	20	43.4	7	5
53105302	M 20 x 1,5	9-12	24	46.4	8	5
53105303	M 25 x 1,5	11,5-15,5	29	48.9	8	5

Other sizes are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SKINTOP® INOX / SKINTOP® INOX-R refer to page 712
- SKINTOP® INOX SC refer to page 713

Accessories

- Suitable counter nut SKINDICHT® SM CrNi M

SKINTOP® GMP-GL-M

Benefits

- Glass fibre-reinforced for maximum mechanical stability
- Supporting surface for spanner means scratches on the housing are avoided

Application range

- For locking SKINTOP® cable glands in boreholes without thread.

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- UL approval only when used with the UL-approved SKINTOP® polyamide cable glands

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

On request
Available without collar
(without surface for assembling tool)

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Polyamide, glass fibre-reinforced

Temperature range
Fixed: -40°C to +100°C
Dynamic: -20°C to +100°C

Article number	Article designation / size	SW wrench size mm	Pieces / PU
SKINTOP® GMP-GL-M silver grey			
53119000	M 12 x 1,5	17	100
53119010	M 16 x 1,5	22	100
53119020	M 20 x 1,5	27	100
53119030	M 25 x 1,5	34	100
53119040	M 32 x 1,5	41	100
53119050	M 40 x 1,5	50	25
53119060	M 50 x 1,5	60	25
53119070	M 63 x 1,5	75	25
SKINTOP® GMP-GL-M black			
53119100	M 12 x 1,5	17	100
53119110	M 16 x 1,5	22	100
53119120	M 20 x 1,5	27	100
53119130	M 25 x 1,5	34	100
53119140	M 32 x 1,5	41	100
53119150	M 40 x 1,5	50	25
53119160	M 50 x 1,5	60	25
53119170	M 63 x 1,5	75	25
SKINTOP® GMP-GL-M light grey			
53119003	M 12 x 1,5	17	100
53119013	M 16 x 1,5	22	100
53119023	M 20 x 1,5	27	100
53119033	M 25 x 1,5	34	100
53119043	M 32 x 1,5	41	100
53119053	M 40 x 1,5	50	25
53119063	M 50 x 1,5	60	25
53119073	M 63 x 1,5	75	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® ST-M
- SKINTOP® STR-M

SKINTOP® GMP-HF-M

Benefits
- Halogen-free
- Extremely flame-retardant according to UL 94 V0
- Self-extinguishing, no dripping

Application range
- For locking SKINTOP® cable glands in boreholes without thread.
- Airports
- Tunnel construction
- Underground railways
- Public buildings

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
halogenfree polyamide acc. to UL 94 V0

Temperature range
Fixed: -40°C to +100°C
Dynamic: -20°C to +100°C

Article number	Article designation / size	SW wrench size mm	PU
SKINTOP® GMP-HF-M			
53119200	M 12 x 1,5	17	100
53119210	M 16 x 1,5	22	100
53119220	M 20 x 1,5	27	100
53119230	M 25 x 1,5	34	100
53119240	M 32 x 1,5	41	100
53119250	M 40 x 1,5	50	25
53119260	M 50 x 1,5	60	25
53119270	M 63 x 1,5	75	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® ST-HF-M refer to page 693

SKINTOP® DIX-M

Benefits

- Easy insertion of several cables into one gland
- Higher packing density allows smaller part construction

Application range

- For use in SKINTOP® cable glands.
- A sealing ring with several holes is used in place of the inner sealing insert.

Note

- IP 68 can be achieved when all openings are closed and all bores are optimally occupied, i.e. when using cables with nominal diameter and/or SKINTOP® DIX-DV sealing plugs

Product Make-up

- SKINTOP® DIX-M FKM is resistant to oil, water, alkaline solutions, acids, solvents etc.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

On request
Special shapes

Colour delivered
Black, RAL 9005

Material
NBR
FKM

Protection rating
IP 54

Temperature range
-50°C to +100°C

Article number	Article designation / size	Size M	Number of cables x cable Ø	Pieces / PU
SKINTOP® DIX-M				
53316220	16220	M 16	2 x 2.0	100
53316230	16230	M 16	2 x 3.0	100
53316240	16240	M 16	2 x 4.0	100
53316420	16420	M 16	4 x 2.0	100
53320250	20250	M 20	2 x 5.0	100
53320260	20260	M 20	2 x 6.0	100
53320340	20340	M 20	3 x 4.0	100
53320353	20353	M 20	3 x 5.3	100
53320440	20440	M 20	4 x 4.0	100
53320920	20920	M 20	9 x 2.0	100
53320430	20430	M 20	4 x 3.0	100
53325260	25260	M 25	2 x 6.0	50
53325250	25250	M 25	2 x 5.0	50
53325350	25350	M 25	3 x 5.0	50
53325360	25360	M 25	3 x 6.0	50
53325370	25370	M 25	3 x 7.0	50
53325450	25450	M 25	4 x 5.0	50
53325540	25540	M 25	5 x 4.0	50
53325640	25640	M 25	6 x 4.0	50
53332270	32270	M 32	2 x 7.0	50
53332280	32280	M 32	2 x 8.0	50
53332290	32290	M 32	2 x 9.0	50
53332370	32370	M 32	3 x 7.0	50
53332380	32380	M 32	3 x 8.0	50
53332460	32460	M 32	4 x 6.0	50
53332470	32470	M 32	4 x 7.0	50
53332560	32560	M 32	5 x 6.0	50
53332650	32650	M 32	6 x 5.0	50
53332840	32840	M 32	8 x 4.0	50
53332850	32850	M 32	8 x 5.0	50
53332940	32940	M 32	9 x 4.0	50
53340290	40290	M 40	2 x 9.0	25
53340310	40310	M 40	3 x 10.0	25
53340480	40480	M 40	4 x 8.0	25
53340490	40490	M 40	4 x 9.0	25
53340580	40580	M 40	5 x 8.0	25
53340590	40590	M 40	5 x 9.0	25
53340670	40670	M 40	6 x 7.0	25
53340860	40860	M 40	8 x 6.0	25
53340969	40969	M 40	9 x 6.9	25
53350118	50118	M 50	11 x 8.0	10
53350680	50680	M 50	6 x 8.0	10
53350780	50780	M 50	7 x 8.0	10
53350870	50870	M 50	8 x 7.0	10
53350147	50147	M 50	14 x 7.0	10
53350164	50164	M 50	16 x 4.0	10
53350166	50166	M 50	16 x 6.0	10
SKINTOP® DIX-M FKM				
53420250	20250	M 20	2 x 5.0	100
53420260	20260	M 20	2 x 6.0	100
53440969	40969	M 40	9 x 6.9	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® CLICK refer to page 687
- SKINTOP® ST-M refer to page 684
- SKINTOP® MS-M refer to page 696
- SKINTOP® DIX-DV refer to page 720

NEW

SKINTOP® DIX-M AUTOMATION

Benefits
- Optimal seal when using AS-I bus cables
- Easy insertion of pre-assembled cables (with fieldbus or RJ-45 connector)
- Strain relief

Application range
- These seals can be used instead of our standard seals in the SKINTOP® cable glands.
- Control cabinets
- Control panels
- Office applications
- Automation technology

Note
- IP 68 can be achieved if the hole is optimally occupied, i.e. when using standard AS-I bus cables

Product Make-up
- Precise cut for AS-I bus cables
- Seal with hole and cut for easy insertion of pre-assembled RJ45 network cables
- Seal with hole and cut for easy insertion of pre-assembled field bus cables
- Multiple seal inserts with holes and slits for easy insertion of pre-assembled cables

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

Colour delivered
Black, RAL 9005

Material
NBR

Protection rating
IP 54

Temperature range
-40°C to +100°C

Article number	Article designation / size	Number of cables x cable Ø	Pieces / PU
SKINTOP® DIX-M ASI			
53611001	M 20	1 x AS-I	50
SKINTOP® DIX-M ASI DUO			
53611004	M 25	2 x AS-I	50
SKINTOP® DIX-M RJ-45			
53440980	M 25	1 x 5.4	50
SKINTOP® DIX-M FIELDBUS			
53440970	M 32	1 x 6.5	50
SKINTOP® DIX-M CUT			
53310444	M 40	3 x 10.0	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® CLICK refer to page 687
- SKINTOP® MS-M refer to page 696
- SKINTOP® ST-M refer to page 684

SKINTOP® DIX-DV / SKINTOP® SD-M / SKINTOP® DV-M

SKINTOP® DIX-DV

SKINTOP® SD-M

SKINTOP® DV-M

Benefits

SKINTOP® DIX-DV

- Prevents water and dust penetrating into unused bore holes of SKINTOP® DIX-M multiple sealing inserts

SKINTOP® SD-M

- Prevents dust and dirt from getting into the housing

SKINTOP® DV-M

- Prevents humidity from seeping into the housing

Application range

SKINTOP® DIX-DV

- For inserting into unoccupied holes of the SKINTOP® DIX-M multiple sealing inserts, to ensure protection class.

SKINTOP® SD-M

- This dust protector can be placed under the cap nut of below mentioned SKINDICHT® types and specified SKINTOP® cable glands.
- Preparations
- Protection of unused connection points

SKINTOP® DV-M

- These seals are placed into the sealing ring of the SKINTOP® cable glands.
- Preparations
- Protection of unused connection points

Note

SKINTOP® DIX-DV

- When assembled professionally and properly, the protection class of IP 68 can be reached
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

SKINTOP® SD-M

- Easy to handle, without disassembly - push cable through
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

SKINTOP® DV-M

- When assembled professionally and properly, the protection class of IP 68 can be reached
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

RAL

Colour delivered
SKINTOP® DIX-DV
natural
SKINTOP® SD-M
Black
SKINTOP® DV-M
Black

Material
SKINTOP® DIX-DV
Polyamide
SKINTOP® SD-M
PE foam
SKINTOP® DV-M
CR

IP

Protection rating
SKINTOP® DIX-DV
IP 54

Temperature range
SKINTOP® DIX-DV
-40°C to +100°C
SKINTOP® SD-M
-70°C to +100°C
SKINTOP® DV-M
-30°C to +100°C

Article number	Article designation / size	Ø F mm	Height (mm)	Pieces / PU
SKINTOP® DIX-DV				
53100003	DIX-DV 3 x 9	3.0	9.0	100
53100004	DIX-DV 4 x 9	4.0	9.0	100
53100005	DIX-DV 5 x 11	5.0	11.0	100
53100055	DIX-DV 5,5 x 11	5.5	11.0	100
53100006	DIX-DV 6 x 14	6.0	14.0	100
53100007	DIX-DV 7 x 14	7.0	14.0	100
53100008	DIX-DV 8 x 14	8.0	14.0	100
53100009	DIX-DV 9 x 14	9.0	14.0	100
SKINTOP® SD-M				
54113100	SD-M 12	11.5	2.0	100
54113110	SD-M 16	15.0	2.0	100
54113120	SD-M 20	20.0	2.0	100
54113130	SD-M 25	25.0	2.0	50
54113140	SD-M 32	30.0	2.0	50
54113150	SD-M 40	40.0	2.0	25
54113160	SD-M 50	49.0	2.0	25
54113170	SD-M 63	58.0	2.0	25
SKINTOP® DV-M				
54113000	DV-M 12	7.2	7.0	500
54113010	DV-M 16	10.0	8.0	500
54113020	DV-M 20	13.2	8.4	250
54113030	DV-M 25	17.2	9.5	250
54113040	DV-M 32	21.2	12.0	250
54113050	DV-M 40	28.2	14.5	100
54113060	DV-M 50	35.8	18.0	100
54113070	DV-M 63	45.6	20.0	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

SKINTOP® DIX-DV

- SKINTOP® CLICK refer to page 687
- SKINTOP® DIX-M refer to page 718
- SKINTOP® MS-M refer to page 696
- SKINTOP® ST-M refer to page 684

SKINTOP® MULTI

Info

- Compact multi cable bushing system with innovative gel technology

Benefits

- Large clamping range of 4 mm and AS-I BUS entry system by elastic gel technology with innovative membrane technology
- Easy installation, high packing density
- Optimum strain relief at the entire cable bundle
- Error reduction through clear assignment of cable to be installed by a clear marker of implementing points
- Not used holes remain securely sealed

Application range

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- For not harnessed cables and media hoses
- Apparatus and switch cabinet construction
- Automation technology

Product features

- Integrated seal for the cable & housing (captive)
- Halogen-free
- UV-, Ozon and oil resistant
- The adhesive gel provides a very easy positioning at the enclosure during the assembling

Norm references / Approvals

- UL 50, UL 50E, CSA C22.2
- UL 508A for Industrial Control Panels
- UL File No. E349737

Product Make-up

- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

Included

- SKINTOP® MULTI including mounting material

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000240
ETIM 5.0/6.0 Class-Description: Cable entry

Caution
The installation dimensions can be found in appendix T21

Certifications
UL File No. E349737
Fire behaviour according to UL94 V-2

Note
Individual hole configuration on request

Material
Frame: Polycarbonat
Sealing: Gel

Protection rating
IP 68

Temperature range
-30°C to +110°C

Article number	Article designation / size	Max. number of executions	Number of cables x clamping range	Pieces / PU
SKINTOP® MULTI				
52220065	SKINTOP® MULTI Version 1	22	6 x 8-12 mm, 16 x 3-7 mm	1
52220073	SKINTOP® MULTI Version 2	21	5 x 2-6 mm, 8 x 4-8 mm, 3 x 5-9 mm, 2 x 8-12 mm, 1 x 12-16 mm, 2 x AS-I BUS / 2 x 2-4 mm	1
52220080	SKINTOP® MULTI Version 3	30	30 x 2-6 mm	1
52220085	SKINTOP® MULTI Version 4	11	8 x 8-12 mm, 2 x 12-16 mm, 1 x 16-20 mm	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

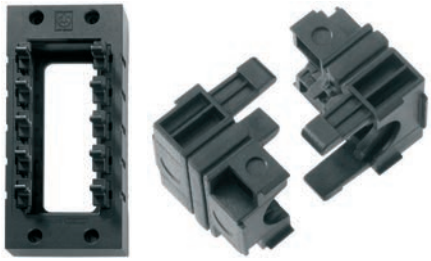
Similar products

- SKINTOP® CUBE MULTI refer to page 724

Accessories

- SKINTOP® DIX-DV refer to page 720

SKINTOP® CUBE



Info

- Innovative multi-cable bushing system with variable clamping ranges for high flexibility in assembling.
- When disassembling, the frame can remain on the housing and the plug-in module remains securely on the cable.

Benefits

- Variable clamping range
- Vibration-safe module fixation
- Strain relief
- Oil resistance
- Simplified servicing due to easy assembling and disassembling

Application range

- For installation of harnessed cables
- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Apparatus and switch cabinet construction
- Electronic installations
- Automation technology

Norm references / Approvals

- UL 50, UL 50E, CSA C22.2
- UL 508A for Industrial Control Panels
- UL File No. E349737

Product Make-up

- The SKINTOP® CUBE system consists of the SKINTOP® CUBE FRAME and the clip modules SKINTOP® CUBE MODULE.
- For cut-outs for industrial connectors with standard defined boreholes.
- For cut-outs for 16-pin industrial connectors (36 x 86 mm)
- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

Note

- SKINTOP® CUBE MODULE 20x20 BLIND can be used as a blind module and for clamping ranges 1 - 3 mm
- For better strain relief, the cable bundle can be fixed with help of a cable tie

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000240
ETIM 5.0/6.0 Class-Description: Cable entry

Caution
The installation dimensions can be found in appendix T21

Certifications
UL File No. E349737
Fire behaviour according to UL94 V-2

Material
Frame: glass fibre-reinforced polyamide
Frame seal: CR
Clip module: special polypropylene
Clip module seal: LSE 2

Protection rating
IP 64

Temperature range
Dynamic: -20°C up to +80°C
Static: -40°C up to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Max. number of executions	Pieces / PU
SKINTOP® CUBE Frame				
52220000	SKINTOP® CUBE FRAME 16		8	1
52220001	SKINTOP® CUBE FRAME 24		10	1
SKINTOP® CUBE clip modules				
52220004	SKINTOP® CUBE MODULE 20x20 BLIND	1.0 - 3.0		5
52220002	SKINTOP® CUBE MODULE 20x20 SMALL	4.0 - 6.0		5
52220003	SKINTOP® CUBE MODULE 20x20 LARGE	6.0 - 9.0		5
52220040	SKINTOP® CUBE MODULE 20x20 AS-I BUS			5
52220005	SKINTOP® CUBE MODULE 40x40 SMALL	9.0 - 12.0		5
52220006	SKINTOP® CUBE MODULE 40x40 LARGE	12.0 - 16.0		5
52220007	SKINTOP® CUBE MODULE 40x40 BLIND			5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SKINTOP® CUBE MULTI refer to page 724
- SKINTOP® MULTI refer to page 721

SKINTOP® CUBE SORTIMO® T-BOXX

Info

- Innovative multi-cable bushing system with variable clamping ranges for high flexibility in assembling.
- When disassembling, the frame can remain on the housing and the plug-in module remains securely on the cable.
- Optimal order in the practical SORTIMO® T-BOXX

Benefits

- Variable clamping range
- Vibration-safe module fixation
- Strain relief
- Oil resistance
- Simplified servicing due to easy assembling and disassembling

Application range

- For installation of harnessed cables
- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Apparatus and switch cabinet construction
- Electronic installations
- Automation technology

Product features

- Optimal order in the practical SORTIMO® T-BOXX
- Small packaging unit, wide variety
- Light and robust, shock- and impact-resistant polypropylene case
- Two sturdy locks - ideal for mounting use e.g. building site

Product Make-up

- The SKINTOP® CUBE system consists of the SKINTOP® CUBE FRAME and the clip modules SKINTOP® CUBE MODULE.
- For cut-outs for 16-pin industrial connectors (36 x 86 mm)
- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

Included

- SKINTOP® CUBE FRAME including mounting material
- Delivery in SORTIMO® T-BOXX
- Assembly instructions
- Screwdriver
- SKINTOP® CUBE FRAME 16
  2 Pcs. (PN 52220000)
  SKINTOP® CUBE FRAME 24
  2 Pcs. (PN 52220001)
  SKINTOP® CUBE MODULE 20x20 BLIND
  5 Pcs. (PN 52220004)
  SKINTOP® CUBE MODULE 20x20 SMALL
  5 Pcs. (PN 52220002)
  SKINTOP® CUBE MODULE 20x20 LARGE
  5 Pcs. (PN 52220003)
  SKINTOP® CUBE MODULE 20x20 AS-I BUS
  5 Pcs. (PN 52220040)
  SKINTOP® CUBE MODULE 40x40 SMALL
  5 Pcs. (PN 52220005)
  SKINTOP® CUBE MODULE 40x40 LARGE
  5 Pcs. (PN 52220006)
  SKINTOP® CUBE MODULE 40x40 BLIND
  5 Pcs. (PN 52220007)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000240
ETIM 5.0/6.0 Class-Description: Cable entry

Caution
The installation dimensions can be found in appendix T21

Certifications
UL File No. E349737
Fire behaviour according to UL94 V-2

Material
Frame: glass fibre-reinforced polyamide
Frame seal: CR
Clip module: special polypropylene
Clip module seal: LSE 2

Protection rating
IP 64

Temperature range
Dynamic: -20°C up to +80°C
Static: -40°C up to +80°C

Article number	Article designation / size	Pieces / PU
SKINTOP® CUBE SORTIMO® T-BOXX		
53110031	SKINTOP® CUBE SORTIMO® T-BOXX	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Kraftform Kompakt® 10
- FLEXIMARK® LB-10 W

SKINTOP® CUBE MULTI

Info

- Push the cable through the gel membrane and connect directly
- Huge potential of savings through quick installation

Benefits

- Large, variable clamping ranges due to elastic gel technology
- Easy installation, high packing density
- Optimum strain relief at the entire cable bundle
- Simplified servicing due to easy assembling and disassembling
- Not used holes remain securely sealed

Application range

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- For not harnessed cables and media hoses
- Apparatus and switch cabinet construction
- Automation technology

Product features

- SKINTOP® CUBE MULTI Version 1
  Number of cable bushings:
  9 x 3-6 mm clamping range
  9 x 6-9 mm clamping range
  2 x 9-13 mm clamping range
  1 x 13-16 mm clamping range
- SKINTOP® CUBE MULTI Version 2
  Number of cable bushings:
  23 x 5-8 mm clamping range

Norm references / Approvals

- UL 50, UL 50E, CSA C22.2
- UL 508A for Industrial Control Panels
- UL File No. E349737

Product Make-up

- The system consists of SKINTOP® CUBE FRAME and a gel insert SKINTOP® CUBE MULTI.
- Removal of the gel insert by opening the holder
- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

Note

- For better strain relief, the cable bundle can be fixed with help of a cable tie

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000240
ETIM 5.0/6.0 Class-Description: Cable entry

Caution
The installation dimensions can be found in appendix T21

Certifications
UL File No. E349737
Fire behaviour according to UL94 V-2

Note
Individual hole configuration on request

Material
Frame: Glass fiber reinforced polyamide
Frame seal: CR
Gel insert: PC / Gel

Protection rating
IP 66

Temperature range
-30°C to +100°C

Article number	Article designation / size	Max. number of executions	Number of cables x clamping range	Pieces / PU
SKINTOP® CUBE Frame				
52220001	SKINTOP® CUBE FRAME 24			1
SKINTOP® CUBE MULTI Gel-insert				
52220050	SKINTOP® CUBE MULTI Version 1	21	9 x 3-6 mm; 9 x 6-9 mm; 2 x 9-13 mm; 1 x 13-16 mm	1
52220053	SKINTOP® CUBE MULTI Version 2	23	23 x 5-8 mm	1
SKINTOP® CUBE MULTI Gel-insert incl. frame				
52220056	SKINTOP® CUBE MULTI Version 1 incl. frame	21	9 x 3-6 mm; 9 x 6-9 mm; 2 x 9-13 mm; 1 x 13-16 mm	1
52220057	SKINTOP® CUBE MULTI Version 2 incl. frame	23	23 x 5-8 mm	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SKINTOP® CUBE
- SKINTOP® MULTI

Accessories

- SKINTOP® DIX-DV refer to page 720
- Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set refer to page 1060
- Kraftform Kompakt® 10

NEW

SKINTOP® BRUSH ADD-ON 24

Info

- EMC Kit with brush technology suitable for the SKINTOP® multi cable bushing systems for the 24 pin cut-outs

Benefits

- Faster, easier screen contact
- Optimum EMC protection
- Quicker installation and EMC contacting compared with other systems
- Maximum assembly freedom during adjustment
- Usable with different cable diameters at the same time

Application range

- For the EMC screen contacting of cables when using the SKINTOP® multi-cable entry systems
- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Control cabinet manufacturing
- Automation systems

Product features

- Low-resistance screen contact
- Visible, large-scale screen contact

Included

- Brush frame
- Spacers
- Mounting material

Technical data

Caution
The installation dimensions can be found in appendix T21

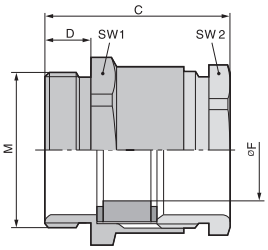
Material
Frame: Aluminium
EMC brush: brass

Temperature range
-30°C to +110°C

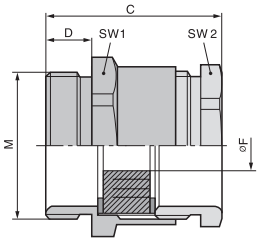
Article number	Dimensions overall	Executions range	Borehole	PU
SKINTOP® BRUSH ADD-ON 24				
52220089	40x120 mm	36.0 - 112.0	4.2	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® SVRN-M / SKINDICHT® SVRE-M



SKINDICHT® SVRN-M



SKINDICHT® SVRE-M

Benefits

SKINDICHT® SVRN-M

- High mechanical stability
- Optimum strain relief

SKINDICHT® SVRE-M

- With incised sealing ring for adjustment to several cable diameters
- Fewer sizes need to be kept in stock

Application range

SKINDICHT® SVRN-M

- Brass cable gland with hexagonal fitting, for fast assembly with a flat spanner.

SKINDICHT® SVRE-M

- Brass cable gland with hexagonal fitting and variable incised sealing ring.

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

SKINDICHT® SVRN-M

- Counter nut to be used: SKINDICHT® SM-M
- Example order identification:
  SVRN-M 12 / 7 / 5
  12 = Connection thread metric
  7 = Function thread PG
  5 = Clear width F

SKINDICHT® SVRE-M

- Refer to SKINDICHT® EV for additional accessories
- Counter nut to be used: SKINDICHT® SM-M

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
SKINDICHT® SVRN-M
Available with long connection thread
SKINDICHT® SVRE-M
Available with long connection thread
Available with FKM incised ring

Material
SKINDICHT® SVRN-M
Body: nickel-plated brass
Sealing ring: CR/NBR
SKINDICHT® SVRE-M
Body: nickel-plated brass
Incised seal: CR/NBR

Protection rating
IP 54

Temperature range
SKINDICHT® SVRN-M
-20°C to +100°C
SKINDICHT® SVRE-M
-20°C to +80°C

Article number	Article designation / size	Incised sealing ring ØF (mm)	Max. internal Ø (mm)	Function thread PG	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening F (mm)	Pieces / PU
SKINDICHT® SVRN-M									
52104800	M 12 x 1,5			7	14.0 / 13.0	20.6	5	5	100
52104810	M 12 x 1,5			7	14.0 / 13.0	20.6	5	6	100
52104820	M 12 x 1,5			7	14.0 / 13.0	20.6	5	7	100
52104830	M 16 x 1,5			9	18.0 / 15.0	21.6	5	7	100
52104840	M 16 x 1,5			9	18.0 / 15.0	21.6	5	8	100
52104850	M 16 x 1,5			9	18.0 / 15.0	21.6	5	9	100
52104860	M 20 x 1,5			11	22.0 / 18.0	23.6	6	10	50
52104870	M 20 x 1,5			11	22.0 / 18.0	23.6	6	11	50
52104890	M 20 x 1,5			13.5	22.0 / 20.0	25.6	6	12	50
52104900	M 20 x 1,5			16	24.0 / 22.0	26.6	6	13	50
52104910	M 20 x 1,5			16	24.0 / 22.0	26.6	6	14	50
52104920	M 25 x 1,5			21	30.0 / 28.0	29.6	7	18	50
52104930	M 32 x 1,5			29	40.0 / 37.0	32.6	8	27	50
52104940	M 40 x 1,5			36	50.0 / 47.0	37.6	8	34	20
SKINDICHT® SVRE-M									
52104980	M 16 x 1,5	5/8	10	9	18.0 / 15.0	21.6	5		100
52104990	M 20 x 1,5	7/10/12.5	12	11	22.0 / 18.0	23.6	6		50
52105000	M 20 x 1,5	7/10.5/13/16	14	13.5	22.0 / 20.0	25.6	6		50
52105010	M 20 x 1,5	8/10.5/13.5/16	15	16	24.0 / 22.0	26.6	6		50
52105002	M 25 x 1,5	11/15/18/20	20	21	30.0 / 28.0	29.6	7		50
52105003	M 32 x 1,5	19/23/27/31	27	29	40.0 / 37.0	32.6	8		50
52105004	M 40 x 1,5	25/28/31/35	34	36	50.0 / 47.0	37.6	8		20
52105005	M 50 x 1,5	35.5/39/42.5/46	43	42	57.0 / 54.0	42.6	9		5
52105006	M 63 x 1,5	40.5/44/47/50.5	48	48	66.0 / 60.0	45.1	10		5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SKINDICHT® SVRX

Benefits

- EMC version for cables with large cross-sections
- SKINDICHT® SVRX 105 x 2 for cable diameters up to 83 mm

Application range

- The cable gland is in accordance with DIN 89280, with round intermediate supports made from brass, plain.
- Shipbuilding
- Off-Shore
- High-power drives
- Wind power plants

Note

- EMC counter nuts (with claw) SKINDICHT® SM-PE / SVRX M24-M56 for painted, anodised or powder-coated housing on request
- For more EMC cable glands, refer to SKINTOP® MS-SC-M and MS-M BRUSH, and compatible counter nut SKINDICHT® SM-PE-M

Product Make-up

- Type “W” for cable without screen (figure 1)
- Type “Z” for cables with screen (figure 2)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Certifications
DIN 89280

Material
Body: Blank brass
Seal: EPDM

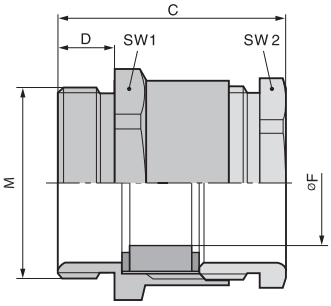
Protection rating
IP 56

Temperature range
-20°C to +80°C

Article number	Article designation / size	Thread	SW wrench size mm	Clear opening F (mm)	Pieces / PU
SKINDICHT® SVRX - version W					
52006460	SVRX 5635	M 56 x 2	55	32 - 35	1
52006470	SVRX 5638	M 56 x 2	55	35 - 38	1
52006480	SVRX 5641	M 56 x 2	55	38 - 41	1
52006490	SVRX 7244	M 72 x 2	70	41 - 44	1
52006500	SVRX 7248	M 72 x 2	70	44 - 48	1
52006510	SVRX 7252	M 72 x 2	70	48 - 52	1
52006520	SVRX 7256	M 72 x 2	70	52 - 56	1
52006564	SVRX 8059	M 80 x 2	85	56 - 59	1
52006530	SVRX 8066	M 80 x 2	85	62 - 66	1
52006540	SVRX 10573	M 105 x 2	104	68 - 73	1
52006550	SVRX 10572	M 105 x 2	104	78 - 83	1
SKINDICHT® SVRX - version Z					
52006345	SVRX 2412	M 24 x 1.5	24	10 - 12	1
52006355	SVRX 2414	M 24 x 1.5	24	12 - 14	1
52006365	SVRX 2416	M 24 x 1.5	24	14 - 16	1
52006375	SVRX 2417	M 24 x 1.5	24	16 - 17	1
52006425	SVRX 3626	M 36 x 2	36	24 - 26	1
52006465	SVRX 5635	M 56 x 2	55	32 - 35	1
52006475	SVRX 5638	M 56 x 2	55	35 - 38	1
52006485	SVRX 5641	M 56 x 2	55	38 - 41	1
52006495	SVRX 7244	M 72 x 2	70	41 - 44	1
52006505	SVRX 7248	M 72 x 2	70	44 - 48	1
52006515	SVRX 7252	M 72 x 2	70	48 - 52	1
52006565	SVRX 8059	M 80 x 2	85	56 - 59	1
52006535	SVRX 8066	M 80 x 2	85	62 - 66	1
52006545	SVRX 10573	M 105 x 2	104	68 - 73	1
SKINDICHT® SM/SVRX Counter nuts					
52006321	SM 24	M24	30		1
52006401	SM 36	M36	41		1
52006461	SM 56	M56	65		1
52006491	SM 72	M72	85		1
52006531	SM 80	M80	90		1
52006541	SM 105	M105	120		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® SVFK-M



Benefits

- Economical type
- Lateral sealing lips fit automatically around various cable dimensions
- Cable-specific seal dimensions are no longer necessary
- Tolerance
- Large opening allows clamping of up to two flat cables

Application range

- For inserting flat cables
- Conveyor systems
- Pumps
- Lifts
- Control cabinet manufacturing

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Counter nut to be used: SKINTOP® GMP-GL-M
- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Colour delivered
Light grey (RAL 7035)

Material
Body: Polyamide
Special sealing insert: CR

Protection rating
IP 54

Temperature range
-30°C to +80°C

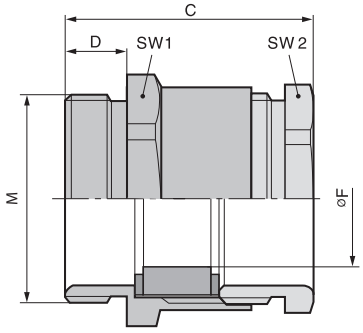
Article number	Article designation / size	Min./max. flat cable width	Min./max. cable thickness (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SVFK-M							
52107900	M 25 x 1,5	- / 15.0	- - 5.0	27.0 / 23.0	41.0	11	25
52107901	M 32 x 1,5	10.0 / 21.0	3.0 - 8.0	36.0 / 30.0	39.0	10	25
52107902	M 40 x 1,5	16.0 / 28.0	4.0 - 11.5	42.0 / 40.0	44.0	11	25
52107903	M 50 x 1,5	26.0 / 35.0	4.0 - 11.5	53.0 / 50.0	50.5	11	5
52107904	M 50 x 1,5	30.0 / 40.0	5.0 - 12.0	60.0 / 55.0	53.5	11	5
52107905	M 63 x 1,5	36.0 / 45.0	5.0 - 12.0	65.0 / 60.0	54.5	11	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SKINDICHT® SVF-M



Benefits

- Lateral sealing lips fit automatically around various cable dimensions
- Cable-specific seal dimensions are no longer necessary
- Large opening allows clamping of up to two flat cables
- Optimum strain relief
- Tolerance

Application range

- For inserting flat cables
- Control cabinet manufacturing
- Conveyor systems
- Pumps
- Lifts

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications
- Counter nut to be used: SKINDICHT® SM-M

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated brass
Seal: CR

Protection rating
IP 54

Temperature range
-30°C to +100°C

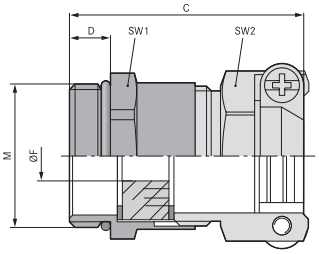
Article number	Article designation / size	Min./max. flat cable width	Function thread PG	Min./max. cable thickness (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SVF-M							
52107320	M 20 x 1,5	- / 15.0	16	- / 5	27.0	6	25
52107340	M 25 x 1,5	9.0 / 20.0	21	3 / 8	30.5	7	25
52107350	M 32 x 1,5	14.0 / 27.0	29	4 / 11	32.0	8	10
52107360	M 40 x 1,5	24.0 / 34.0	36	4 / 11	35.0	8	10
52107370	M 50 x 1,5	29.0 / 44.0	42	5 / 12	40.0	9	5
52107380	M 63 x 1,5	34.0 / 50.0	48	5 / 12	42.0	10	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SKINDICHT® SKZ-M



Benefits

- With incised sealing ring for adjustment to several cable diameters
- High strain relief
- High mechanical stability

Application range

- Saddle clamp strain relief gland for harsh application conditions.
- Building sites
- Plant engineering
- Electric motor manufacturing

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- SKINDICHT® SHZ-M-XL is similar to the SKINDICHT® SHZ-M, but has an extended connection thread for thick walls
- Counter nut to be used: SKINDICHT® SM-M
- Example description:
  SKZ-M 16/9
  16 = connection thread
  9 = PG function thread

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated brass
Incised sealing ring: CR/NBR
O-ring: NBR

Protection rating
IP 55

Temperature range
-20°C to +80°C

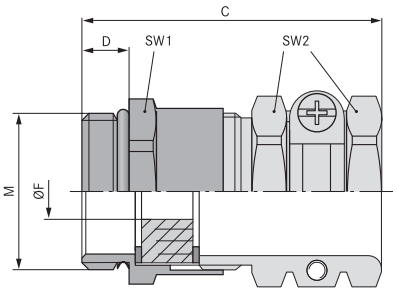
Article number	Article designation / size	Ø F mm	Max. fitting size for installation (mm)	Function thread PG	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SKZ-M								
52106800	M 16 x 1,5	5.0 - 8.0	24	9	18 / 17	29.0	5	50
52106810	M 20 x 1,5	7.0 - 12.0	27	11	22 / 20	30.0	6	50
52106820	M 20 x 1,5	11.0 - 13.0	30	13.5	22 / 22	33.5	6	25
52106830	M 20 x 1,5	13.0 - 15.0	33	16	24 / 24	34.5	6	25
52106840	M 25 x 1,5	16.0 - 19.3	42	21	30 / 30	41.0	7	25
52106850	M 32 x 1,5	19.0 - 27.0	58	29	40 / 41	46.0	8	10
SKINDICHT® SKZ-M-XL								
52106805	M 16 x 1,5	5.0 - 8.0	24	9	18 / 17	34.0	10	50
52106815	M 20 x 1,5	7.0 - 12.0	27	11	22 / 20	34.0	10	50
52106825	M 20 x 1,5	11.0 - 13.0	30	13.5	22 / 22	37.5	10	25
52106835	M 20 x 1,5	13.0 - 15.0	33	16	24 / 24	38.5	10	25
52106845	M 25 x 1,5	16.0 - 19.3	42	21	30 / 30	45.0	11	25
52106855	M 32 x 1,5	19.0 - 27.0	58	29	40 / 41	51.0	13	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINDICHT® E refer to page 809
- SKINDICHT® EV refer to page 810

SKINDICHT® SHZ-M



Benefits

- With incised sealing ring for adjustment to several cable diameters
- High strain relief
- Robust
- For cables with large outer diameters

Application range

- Compact brass cable gland for reliable strain relief, solid, for large cable diameters.

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- SKINDICHT® SHZ-M-XL is similar to the SKINDICHT® SHZ-M, but has an extended connection thread for thick walls
- Counter nut to be used: SKINDICHT® SM-M
- Example description:
  SHZ-M 16/9
  16 = metric connection thread
  9 = PG function thread

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated brass
Sealing ring: CR/NBR
O-ring: NBR

Protection rating
IP 55

Temperature range
-20°C to +80°C

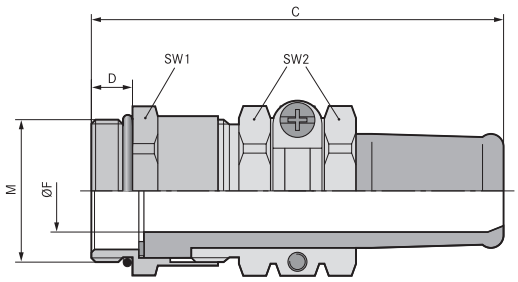
Article number	Article designation / size	Ø F mm	Max. fitting size for installation (mm)	Function thread PG	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SHZ-M								
52106700	M 12 x 1,5	5.5 - 6.5	21	7	14 / 15	30.0	5	50
52106710	M 16 x 1,5	5.0 - 8.0	25	9	18 / 17	33.0	5	50
52106720	M 20 x 1,5	8.0 - 12.0	28	11	22 / 20	35.0	6	25
52106730	M 20 x 1,5	8.5 - 13.0	32	13.5	22 / 22	39.5	6	25
52106740	M 20 x 1,5	8.0 - 15.0	35	16	24 / 24	41.5	6	25
52106750	M 25 x 1,5	14.0 - 19.3	46	21	30 / 30	47.0	7	25
52106760	M 32 x 1,5	19.0 - 27.0	58	29	40 / 41	53.0	8	10
52106770	M 40 x 1,5	27.0 - 34.0	70	36	50 / 50	60.0	8	10
52106780	M 50 x 1,5	35.0 - 43.0	78	42	57 / 57	65.0	9	5
52106790	M 63 x 1,5	40.0 - 47.5	86	48	66 / 64	68.0	10	5
SKINDICHT® SHZ-M-XL								
52106705	M 12 x 1,5	5.5 - 6.5	21	7	14 / 15	35.0	10	50
52106715	M 16 x 1,5	5.0 - 8.0	25	9	18 / 17	38.0	10	50
52106725	M 20 x 1,5	8.0 - 12.0	28	11	22 / 20	39.0	10	25
52106735	M 20 x 1,5	8.5 - 13.0	32	13.5	22 / 22	43.5	10	25
52106745	M 20 x 1,5	9.0 - 14.5	35	16	24 / 24	45.5	10	25
52106755	M 25 x 1,5	14.0 - 19.3	46	21	30 / 30	51.0	11	25
52106765	M 32 x 1,5	19.0 - 27.0	58	29	40 / 41	58.0	13	10
52106775	M 40 x 1,5	27.0 - 34.0	70	36	50 / 50	67.0	13	10
52106785	M 50 x 1,5	35.0 - 43.0	78	42	57 / 57	70.0	14	5
52106795	M 63 x 1,5	40.0 - 47.5	86	48	66 / 64	73.0	14	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINDICHT® E refer to page 809
- SKINDICHT® EV refer to page 810

SKINDICHT® SR-M



Benefits

- Reliable bending and anti-kink protection
- High strain relief
- Robust
- For cables with large outer diameters
- High degree of protection

Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Portable equipment
- Building sites
- Moving machine parts

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Counter nut to be used: SKINDICHT® SM-M
- For EMC version, refer to SKINDICHT® SRE-M
- Example description:
  SR-M 12/7/5
  12 = metric connection thread
  7 = PG function thread
  5 = clear opening of seal

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
Available with long connection thread

Material
Metal parts: nickel-plated brass
O-ring: NBR
Anti-kink protection: CR/NBR

Protection rating
IP 65

Temperature range
-20°C to +80°C

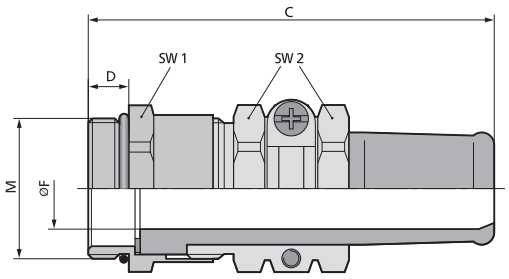
Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	Function thread PG	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening F (mm)	Pieces / PU
SKINDICHT® SR-M									
52106410	M 12 x 1,5	4.0 - 5.0	23	7	14 / 15	49.0	5	5	50
52106420	M 16 x 1,5	5.5 - 7.0	25	9	18 / 17	50.0	5	7	50
52106430	M 20 x 1,5	5.5 - 7.0	28	11	22 / 20	55.0	6	7	25
52106440	M 20 x 1,5	7.5 - 9.0	28	11	22 / 20	55.0	6	9	25
52106450	M 20 x 1,5	7.5 - 9.0	32	13.5	22 / 22	60.0	6	9	25
52106460	M 20 x 1,5	9.0 - 11.0	32	13.5	22 / 22	60.0	6	11	25
52106470	M 20 x 1,5	11.0 - 13.0	32	13.5	22 / 22	60.0	6	13	25
52106480	M 20 x 1,5	12.0 - 13.0	35	16	24 / 24	65.0	6	13	25
52106481	M 20 x 1,5	13.0 - 15.0	35	16	24 / 24	66.0	6	15	25
52106490	M 25 x 1,5	12.5 - 15.0	46	21	30 / 30	78.5	7	15	25
52106500	M 25 x 1,5	14.0 - 17.0	46	21	30 / 30	78.5	7	17	25
52106510	M 25 x 1,5	17.0 - 19.0	46	21	30 / 30	78.5	7	19	25
52106520	M 25 x 1,5	17.0 - 20.0	46	21	30 / 30	78.5	7	20	25
52106530	M 32 x 1,5	19.0 - 20.0	59	29	40 / 41	90.5	8	20	10
52106540	M 32 x 1,5	22.0 - 23.0	59	29	40 / 41	90.5	8	23	10
52106550	M 32 x 1,5	23.0 - 25.0	59	29	40 / 41	90.5	8	25	10
52106560	M 40 x 1,5	24.0 - 26.0	70	36	50 / 50	108.0	8	26	5
52106570	M 40 x 1,5	28.0 - 30.0	70	36	50 / 50	108.0	8	30	5
52106580	M 40 x 1,5	31.0 - 33.0	70	36	50 / 50	108.0	8	33	5
52106590	M 40 x 1,5	33.0 - 34.5	70	36	50 / 50	108.0	8	35	5
52106600	M 50 x 1,5	31.0 - 34.5	75	42	57 / 57	111.0	9	35	5
52106610	M 50 x 1,5	32.0 - 38.0	75	42	57 / 57	111.0	9	38	5
52106620	M 50 x 1,5	37.0 - 40.0	75	42	57 / 57	111.0	9	40	5
52106630	M 63 x 1,5	32.0 - 40.0	83	48	66 / 64	118.0	10	40	1
52106640	M 63 x 1,5	36.0 - 44.0	83	48	66 / 64	118.0	10	44	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINDICHT® SNR refer to page 814

SKINDICHT® SR-SV-M



Benefits

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Seawater-resistant
- High strain relief
- Robust

Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Special cable gland with FKM anti-kink sleeve. Our own reinforced acid-resistant FKM receptacle does not show any effects of aging even after an extended period of use at a temperature of +165°C.
- Machine and turbine manufacturing
- Power plant engineering
- Laboratory

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Counter nut to be used: SKINDICHT® SM-M
- EMC version is available upon request
- Example description:
  SR-SV-M 20/11/7
  20 = metric connection thread
  11 = PG function thread
  7 = clear opening of seal

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
Available with long connection thread

Material
Body: nickel-plated brass
O-ring: FKM
Anti-kink protection: FKM

IP **Protection rating**
IP 65

Temperature range
-15°C to +165°C

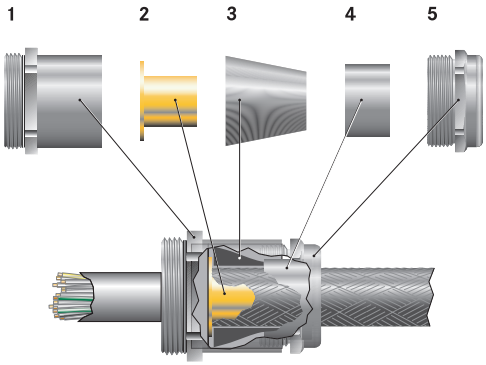
Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	Function thread PG	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening F (mm)	Pieces / PU
SKINDICHT® SR-SV-M									
52105820	M 20 x 1,5	5.5 - 7.0	28	11	22 / 20	56.0	6	7	25
52105830	M 20 x 1,5	7.5 - 9.0	28	11	22 / 20	56.0	6	9	25
52105840	M 20 x 1,5	7.5 - 9.0	32	13.5	22 / 22	61.5	6	9	25
52105850	M 20 x 1,5	8.5 - 11.0	32	13.5	22 / 22	61.5	6	11	25
52105860	M 20 x 1,5	10.5 - 13.0	32	13.5	22 / 22	61.5	6	13	25
52105870	M 20 x 1,5	11.0 - 13.0	35	16	24 / 24	66.5	6	13	10
52105880	M 20 x 1,5	12.0 - 15.0	35	16	24 / 24	66.5	6	15	10
52105890	M 25 x 1,5	13.5 - 15.0	40	21	30 / 30	79.0	7	15	10
52105900	M 25 x 1,5	15.5 - 17.0	46	21	30 / 30	79.0	7	17	10
52105910	M 25 x 1,5	16.5 - 19.0	46	21	30 / 30	79.0	7	19	10

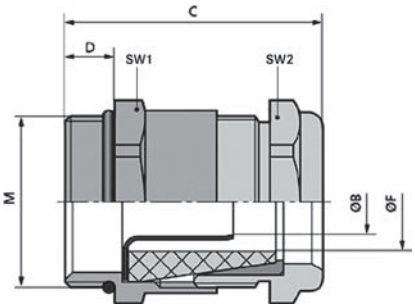
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SKINDICHT® SHVE-M





Benefits

- Optimum, low-resistance 360° screen contact
- High degree of protection
- High strain relief

Application range

- Earthing gland, for applications where electrical interference fields can occur.
- Medical engineering
- Frequency converters
- Airports
- Measurement and control technology

Product Make-up

- 1 fitting
- 2 earth sleeves
- 3 sealing cones
- 4 cone, brass
- 5 compression screws

Note

- Counter nut to be used: SKINDICHT® SM-M
- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- For more EMC cable glands, refer to SKINTOP® MS-SC-M and MS-M BRUSH, and compatible counter nut SKINDICHT® SM-PE-M
- Example order identification:
  SHVE-M 20 / 16 / 15 /11
  20 = Connection thread metric
  16 = Function thread PG
  15 = Clear width of sealing cone
  11 = Clear width of earthing sleeve

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated brass
Earthing sleeve: blank brass
Sealing cone: CR
O-ring: NBR

Protection rating
IP 68 - 10 bar

Temperature range
-20°C to +80°C

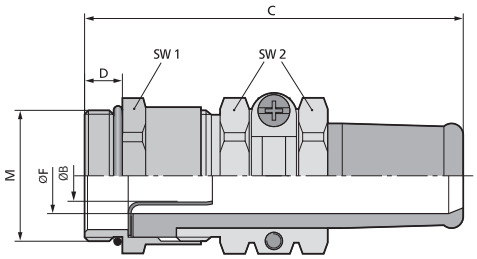
Article number	Article designation / size	Function thread PG	Outer sheath clamping range ØF (mm)	Inner sheath clamping range (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening earthing sleeve ØB	Clear opening F (mm)	Pieces / PU
SKINDICHT® SHVE-M										
52106860	M 16 x 1,5	9	4,5 - 5,8	2,2 - 3,2	18 / 17	26.5	5	3.2	6	25
52106870	M 16 x 1,5	9	4,5 - 6,8	2,2 - 3,2	18 / 17	26.5	5	3.2	7	25
52106880	M 16 x 1,5	9	5,5 - 5,8	2,6 - 3,6	18 / 17	26.5	5	3.6	6	25
52106890	M 16 x 1,5	9	5,5 - 6,8	2,6 - 3,6	18 / 17	26.5	5	3.6	7	25
52106910	M 20 x 1,5	11	3 - 6,8	3,5 - 4,5	22 / 20	31.0	6	4.5	7	25
52106920	M 20 x 1,5	11	6 - 8,8	3,5 - 4,5	22 / 20	31.0	6	4.5	9	25
52106930	M 20 x 1,5	13.5	6,5 - 8,8	3,5 - 5	22 / 22	32.0	6	5	9	25
52106940	M 20 x 1,5	13.5	6 - 8,8	4,5 - 6	22 / 22	32.0	6	6	9	25
52106950	M 20 x 1,5	13.5	8 - 10,8	5,5 - 7	22 / 22	32.0	6	7	11	25
52106960	M 20 x 1,5	16	8,5 - 10,8	6 - 8	24 / 24	34.5	6	8	11	25
52106970	M 20 x 1,5	16	10 - 12,8	7 - 9	24 / 24	34.5	6	9	13	25
52106980	M 20 x 1,5	16	10 - 12,8	8 - 10	24 / 24	34.5	6	10	13	25
52106990	M 20 x 1,5	16	12,5 - 14,8	9 - 11	24 / 24	34.5	6	11	15	25
52107000	M 25 x 1,5	21	13 - 15,8	10 - 12	30 / 30	39.0	7	12	16	25
52107010	M 25 x 1,5	21	13 - 15,8	11 - 13	30 / 30	39.0	7	13	16	25
52107020	M 25 x 1,5	21	15,5 - 17,8	12 - 14	30 / 30	39.0	7	14	18	25
52107030	M 25 x 1,5	21	15 - 17,8	13 - 15	30 / 30	39.0	7	15	18	25
52107040	M 25 x 1,5	21	17,5 - 19,8	14 - 16	30 / 30	39.0	7	16	20	25
52107050	M 32 x 1,5	29	19 - 21,8	15 - 17	40 / 40	45.5	8	17	22	10
52107060	M 32 x 1,5	29	18 - 23,8	16 - 18	40 / 40	45.5	8	18	22	10
52107070	M 32 x 1,5	29	20 - 23,8	17 - 19	40 / 40	45.5	8	19	24	10
52107080	M 32 x 1,5	29	23 - 25,8	17 - 19	40 / 40	45.5	8	19	26	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINDICHT® SM-PE-M refer to page 744

SKINDICHT® SRE-M



Benefits

- Perfect seal with anti-kink protection
- Optimum, low-resistance 360° screen contact
- Cable-protecting strain relief
- Gentle cable clamping
- High degree of protection

Application range

- Earthing gland with additional anti-kink protection. For applications where electrical interference fields can occur.
- Moving machine parts
- Conveyor and transport systems
- Production lines
- Measurement and control technology

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Example description:
  SRE-M 20/13.5/9/6
  20 = connection thread
  13.5 = PG function thread
  9 = clear opening of anti-kink sleeve (F)
  6 = clear opening of earthing sleeve (B)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
Available with long connection thread

Material
Body: nickel-plated brass
Earthing sleeve: plain brass
Anti-kink sleeve: CR/NBR
O-ring: NBR

Protection rating
IP 65

Temperature range
-20°C to +80°C

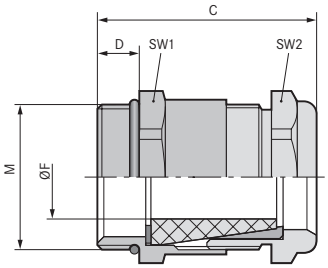
Article number	Article designation / size	Function thread PG	Outer sheath clamping range ØF (mm)	Inner sheath clamping range (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening earthing sleeve ØB	Clear opening F (mm)	Pieces / PU
SKINDICHT® SRE-M										
52105600	M 20 x 1,5	13.5	7,5 - 9	4,5 - 6	22 / 22	59.5	6	6	9	25
52105610	M 20 x 1,5	13.5	9 - 11	5,5 - 7	22 / 22	59.5	6	7	11	25
52105620	M 20 x 1,5	16	11 - 13	7 - 9	24 / 24	64.5	6	9	13	25
52105630	M 20 x 1,5	16	11 - 13	8 - 10	24 / 24	64.5	6	10	13	25
52105640	M 20 x 1,5	16	13,5 - 15	9 - 11	24 / 24	64.5	6	11	15	25
52105650	M 25 x 1,5	21	13,5 - 15	10 - 12	30 / 30	78.0	7	12	15	25
52105660	M 25 x 1,5	21	15 - 17	12 - 14	30 / 30	78.0	7	14	17	25
52105670	M 25 x 1,5	21	17 - 19	13 - 15	30 / 30	78.0	7	15	19	25
52105680	M 25 x 1,5	21	18 - 20	14 - 16	30 / 30	78.0	7	16	20	25
52105690	M 32 x 1,5	29	18 - 20	15 - 17	40 / 40	90.0	8	17	20	10
52105700	M 32 x 1,5	29	21 - 23	17 - 19	40 / 40	90.0	8	19	23	10
52105710	M 40 x 1,5	36	23,5 - 26	20 - 22	50 / 50	108.0	8	22	26	5
52105720	M 40 x 1,5	36	27 - 30	22 - 24	50 / 50	108.0	8	24	30	5
52105730	M 40 x 1,5	36	30 - 33	26 - 28	50 / 50	108.0	8	28	33	5
52105740	M 40 x 1,5	36	32 - 35	28 - 30	50 / 50	108.0	8	30	35	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINDICHT® SM-PE-M refer to page 744
- SKINDICHT® SNR refer to page 814

SKINDICHT® SHV-M



Benefits

- Watertight
- Gentle cable clamping
- Robust
- High strain relief

Application range

- Watertight cable gland with conical sealing element.
- Pumps
- Floater switches

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Counter nut to be used: SKINDICHT® SM-M
- Suitable accessory: SKINDICHT® SHV sealing cones
- Example description:
  SHV-M 20/11/7
  20 = metric connection thread
  11 = PG function thread
  7 = clear opening of sealing cone

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated brass
Sealing cone: CR
O-ring: NBR

Protection rating
IP 68 - 10 bar

Temperature range
-20°C to +80°C

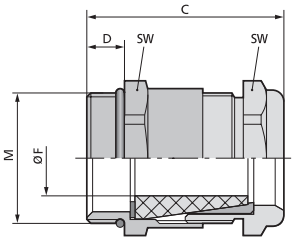
Article number	Article designation / size	Clamping range ØF (mm)	Function thread PG	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening seal	Pieces / PU
SKINDICHT® SHV-M								
52105270	M 12 x 1,5	3 - 4,8	7	14.0 / 14.0	26.0	5	5	50
52105280	M 16 x 1,5	4,5 - 5,8	9	18.0 / 17.0	26.5	5	6	50
52105290	M 16 x 1,5	5,5 - 6,8	9	18.0 / 17.0	26.5	5	7	50
52105300	M 20 x 1,5	6 - 6,8	11	22.0 / 20.0	31.0	6	7	25
52105310	M 20 x 1,5	6,5 - 8,8	11	22.0 / 20.0	31.0	6	9	25
52105320	M 20 x 1,5	6,5 - 8,8	13.5	22.0 / 22.0	32.5	6	9	25
52105330	M 20 x 1,5	9 - 10,8	13.5	22.0 / 22.0	32.5	6	11	25
52105340	M 20 x 1,5	9 - 10,8	16	24.0 / 24.0	34.5	6	11	25
52105350	M 20 x 1,5	9,5 - 12,8	16	24.0 / 24.0	34.5	6	13	25
52105360	M 20 x 1,5	13 - 14,8	16	24.0 / 24.0	34.5	6	15	25
52105370	M 25 x 1,5	13,5 - 15,8	21	30.0 / 30.0	38.5	7	16	25
52105380	M 25 x 1,5	15 - 17,8	21	30.0 / 30.0	38.5	7	18	25
52105390	M 25 x 1,5	17,5 - 19,8	21	30.0 / 30.0	38.5	7	20	25
52105400	M 32 x 1,5	17,5 - 21,8	29	40.0 / 40.0	42.5	8	22	10
52105410	M 32 x 1,5	19 - 23,8	29	40.0 / 40.0	42.5	8	24	10
52105420	M 32 x 1,5	23 - 25,8	29	40.0 / 40.0	42.5	8	26	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SKINDICHT® SHV-M FKM



Benefits

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Watertight
- High strain relief
- Robust

Application range

- Watertight and high temperature-resistant cable gland with special conical FKM sealing element
- Brickworks
- Sewage treatment plants
- Car wash sites

Product Make-up

- 1 fitting
- 2 washers
- 3 FKM sealing cone
- 4 brass cones
- 5 compression screws

Note

- Counter nut to be used: SKINDICHT® SM-M
- Example description:
  SHV-M-FKM 20/11/7
  20 = metric connection thread
  11 = PG function thread
  7 = clear opening of sealing cone

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated brass
Sealing cone: FKM
O-ring: FKM

Protection rating
IP 68 - 10 bar

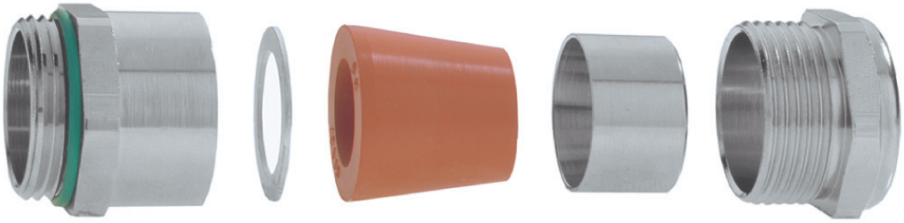
Temperature range
-15°C to +200°C

Article number	Article designation / size	Clamping range ØF (mm)	Function thread PG	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening F (mm)	Pieces / PU
SKINDICHT® SHV-M FKM								
52105430	M 12 x 1,5	3,8 - 4,8	7	14.0 / 14.0	26.0	5	5	50
52105440	M 16 x 1,5	4,8 - 5,8	9	18.0 / 17.0	27.5	5	6	50
52105450	M 16 x 1,5	5,8 - 6,8	9	18.0 / 17.0	27.5	5	7	50
52105460	M 20 x 1,5	5,8 - 6,8	11	22.0 / 20.0	31.0	6	7	25
52105470	M 20 x 1,5	6,8 - 8,8	11	22.0 / 20.0	31.0	6	9	25
52105480	M 20 x 1,5	8,5 - 10,8	13.5	22.0 / 22.0	32.5	6	11	25
52105490	M 20 x 1,5	6,8 - 8,8	13.5	22.0 / 22.0	32.5	6	9	25
52105500	M 20 x 1,5	10,8 - 12,8	16	24.0 / 24.0	34.5	6	13	25
52105510	M 20 x 1,5	13,8 - 14,8	16	24.0 / 24.0	34.5	6	15	25
52105520	M 25 x 1,5	15,8 - 17,8	21	30.0 / 30.0	38.0	7	18	25
52105530	M 25 x 1,5	17,5 - 19,8	21	30.0 / 30.0	38.0	7	20	25
52105540	M 32 x 1,5	19,5 - 21,8	29	40.0 / 40.0	44.5	8	22	10

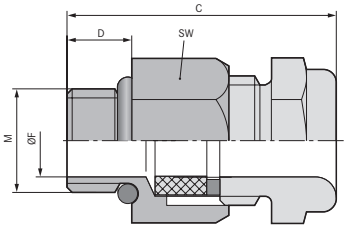
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744



SKINDICHT® MINI NBR / SKINDICHT® MINI FKM



Benefits

- High degree of protection
- For the smallest conductor sizes
- Low height
- Gentle cable clamping
- High packing density

Application range

- For use wherever there is limited assembly space.
- Sensors
- Measurement and control technology

Product features

SKINDICHT® MINI FKM

- Suitable for high temperature and aggressive media surroundings

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Recommendation of torque
M 6 x 1 1,5 Nm
M 8 x 1 3,0 Nm
M 10 x 1 6,0 Nm

Material
SKINDICHT® MINI NBR
Body: Nickel-plated brass
Sealing: CR/NBR
SKINDICHT® MINI FKM
Body: Nickel-plated brass
Sealing: FKM

Protection rating
IP 66
IP 68 - 5 bar

Temperature range
SKINDICHT® MINI NBR
-20°C to +100°C
SKINDICHT® MINI FKM
-20°C up to +200°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening F (mm)	Pieces / PU
SKINDICHT® MINI NBR							
52001860	MINI 6 x 1	2 - 3	9	19.7	5	3	50
52001880	MINI 8 x 1	3,5 - 5,5	11	20.5	5	5	50
52001895	MINI 10 x 1	5 - 7	14	22.3	5	7	50
SKINDICHT® MINI FKM							
52001889	MINI 6 x 1	2 - 3	9	19.7	5	3	50
52001887	MINI 8 x 1	3,5 - 5,5	11	20.5	5	5	50
52001894	MINI 10 x 1	5 - 7	14	22.3	5	7	50

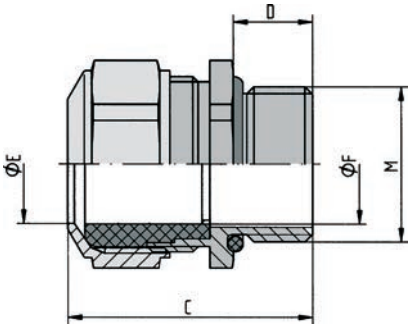
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

CE ECOLAB

SKINDICHT® CN-M



Benefits
- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Seawater-resistant
- For high mechanical stress
- High corrosion-resistance

Application range
- Chromium nickel steel cable gland with FPM seal, specially designed for use under tough conditions
- Pharmaceutical and petrochemical industry
- Offshore sector
- Wind power plants
- Brickworks

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note
- Refer to the chart to find a suitable counter-nut for SKINDICHT® SM-M INOX

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: chrome-nickel steel in accordance with DIN, material no. 1.4305
Inner seal: FPM
O-ring: FPM

Protection rating
IP 68 - 5 bar
IP 69

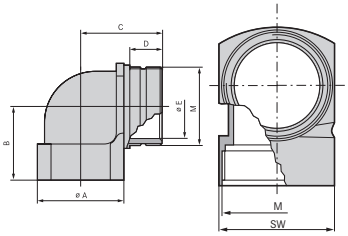
Temperature range
-40°C to +200°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® CN-M						
52032580	M 12 x 1,5/1	3,5 - 5	17	27.0	10	5
52032590	M 12 x 1,5/2	5 - 6,5	17	27.0	10	5
52032600	M 12 x 1,5/3	6,5 - 8	17	27.0	10	5
52032610	M 16 x 1,5	8 - 10,5	18	30.0	10	5
52032620	M 20 x 1,5	11 - 15	24	31.0	10	5
52032630	M 25 x 1,5	16 - 20,5	30	36.0	11	5
52032640	M 32 x 1,5	21 - 25,5	36	41.0	13	5
52032650	M 40 x 1,5	28,5 - 33	46	44.0	13	1
52032660	M 50 x 1,5	37 - 42	55	48.0	14	1
52032670	M 63 x 1,5	46 - 52	70	51.0	14	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-M INOX refer to page 745

SKINDICHT® KW-M



Benefits

- Space- and weight-saving application due to thin cable diameters
- Decrease in installation height

Application range

- Angled glands are used in areas where cables have to run in parallel to the housing wall.
- Light and sound applications
- Control cabinet manufacturing

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Refer to SKINDICHT® O-ring NBR for suitable O-rings
- SKINDICHT® KW-M can be combined with any cable gland, in particular with SKINTOP® ST-M
- Counter nut to be used: SKINTOP® GMP-GL-M

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Silver grey (RAL 7001)

Material
Polyamide, glass fibre-reinforced

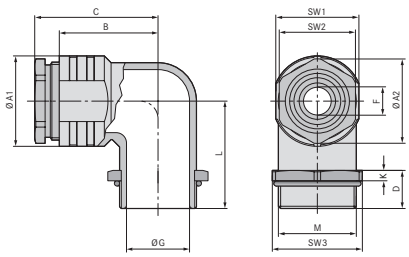
Protection rating
IP 55

Temperature range
-20°C to +80°C

Article number	Article designation / size	A mm	B in mm	Ø E mm	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® KW-M								
52106210	M 16 x 1,5	19	21.5	11	19	24.0	13	25
52106220	M 20 x 1,5	25	24.5	15	25	29.5	15	25
52106230	M 25 x 1,5	30	28	20	30	33.5	16	25
52106240	M 32 x 1,5	36	31.5	26	36	38.0	17	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® RWV-M



Benefits

- Strain relief
- Sealed by incised sealing ring
- Corrosion-resistant
- Decrease in installation height
- Seawater-resistant

Application range

- Angled glands are used in areas where cables have to run in parallel to the housing wall.
- Electric motor manufacturing
- Machine and equipment manufacturing
- Plant engineering
- Light and sound applications

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Counter nut to be used: SKINDICHT® SM-M

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: zinc die-casting, nickel-plated
Compression screw and hexagon nut: nickel-plated brass
Incised sealing ring: CR/NBR
O-ring: NBR

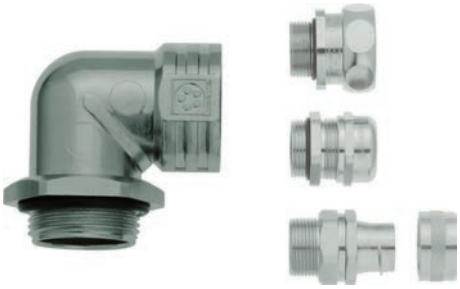
Protection rating
IP 55

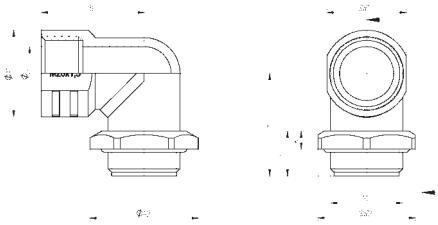
Temperature range
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	L	SW1	Ø A1	SW2	Ø A2	Ø G	Height (mm)	Overall length, C (mm)	Thread length, D (mm)	SW3	Pieces / PU
SKINDICHT® RWV-M													
52107800	M 12 x 1,5	5.0	20.5	14.0	16	12.0	13.2	8	5.0	26.1	11.5	17	25
52107810	M 16 x 1,5	9.0 - 3.0	23.5	18.0	20	16.0	17.6	12	5.0	28.6	11.5	22	25
52107820	M 20 x 1,5	13.0 - 4.0	28.5	22.0	24	20.0	22.2	15	5.0	35.1	12.5	27	25
52107830	M 25 x 1,5	17.5 - 8.5	31	27.0	29	25.0	27.5	20	5.0	38.1	13.5	32	10
52107840	M 32 x 1,5	25.0 - 16.0	33	34.0	36	32.0	35.2	27	5.0	44.6	13.5	41	10
52107850	M 40 x 1,5	32.0 - 23.0	43	42.0	45	40.0	43.5	35	5.0	53.1	15.5	46	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® RWV-M without E+D





Benefits

- Combination of different conduit glands is possible
- Space- and weight-saving application due to thin cable diameters
- Decrease in installation height
- Cable runs parallel to the housing wall
- Corrosion-resistant

Application range

- Angled glands are used in areas where cables have to run in parallel to the housing wall.
- Electric motor manufacturing
- Machine and equipment manufacturing
- Plant engineering
- Light and sound applications

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- The protection class is dependent on the combination with the various special glands. The minimum standard is IP 55.
- Counter nut to be used: SKINDICHT® SM-M
- Cable glands are not included in scope of delivery

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: zinc die-casting
Hexagon nut: nickel-plated brass
O-ring: NBR

Protection rating
IP 55

Temperature range
-20°C to +100°C

Article number	Article designation / size	B in mm	Thread length, D (mm)	K	L	Ø G	SW1	Ø A1	SW2	Ø A2	Pieces / PU
SKINDICHT® RWV-M without E+D											
52107801	M 12 x 1,5	21	11.5	5	21	8	14	16	17	18.9	25
52107811	M 16 x 1,5	23	11.5	5	24	12	18	20	22	24.5	25
52107821	M 20 x 1,5	28.5	12.5	5	29	15	22	24	27	30.1	25
52107831	M 25 x 1,5	30	13.5	5	31	20	27	29	32	35.7	10
52107841	M 32 x 1,5	33.5	13.5	5	33	27	34	33.5	41	45.6	10
52107851	M 40 x 1,5	43	15.5	5	43	35	42	43	46	50.6	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SKINDICHT® SE-M

SKINDICHT® SE-M 220/320

Benefits

SKINDICHT® SE-M

- Sealed by incised sealing ring
- Corrosion-resistant
- Easy to install
- Completely safe cable entry
- Low overall height

SKINDICHT® SE-M 220/320

- Combination of various conduit glands is possible depending on the type
- Low overall height
- High stability
- Two or three separate cable outlets

Application range

- For high mechanical stress
- When no connection thread is provided

Product Make-up

SKINDICHT® SE-M

- M20 x 1.5 - M25 x 1.5 with 2 screw holes M32 x 1.5 with 4 screw holes
- With incised sealing ring

Note

SKINDICHT® SE-M 220/320

- Type SKINDICHT® SE-M 220/320 without E+D is without incised sealing ring and without compression screw
- Type SKINDICHT® SE-M 220/320 without E+D can be combined with all cable glands (incl. O-ring) such as sealing, strain-relief, anti-kink, conduit-connecting or earthing glands
- The protection class is dependent on the combination with the various special glands. The minimum standard is IP 55.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
SKINDICHT® SE-M
Body: zinc die-casting, grey, hammer tone finish
Compression screw: nickel-plated brass
Incised sealing ring: CR/NBR
O-ring: NBR
SKINDICHT® SE-M 220/320
Body: zinc die-casting, hammer tone finish
Compression screw: nickel-plated brass
Incised sealing ring: CR/NBR
Flat sealing: SBR

Protection rating
IP 55

Temperature range
-20°C to +80°C

Article number	Article designation / size	Incised sealing ring ØF (mm)	Overall height (mm)	SW wrench size mm	Overall length, C (mm)	Overall width (mm)	Pieces / PU
SKINDICHT® SE-M							
52108000	M 20 x 1,5	4/7/10/13	31	20	49.2	42	10
52108010	M 25 x 1,5	8.5/11.5/14.5/17.5	40	25	68.2	60	5
52108020	M 32 x 1,5	16/19/22/25	51.5	32	84.2	66	1
SKINDICHT® SE-M 220/320							
52108040	2 x M20 x 1,5	2 x 4/7/10/13					1
52108050	3 x M20 x 1,5	3 x 4/7/10/13					1
SKINDICHT® SE-M 220/320 without E+D							
52108041	2 x M20 x 1,5						1
52108051	3 x M20 x 1,5						1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® SE-M without E+D

Benefits
- Combination of different conduit glands is possible
- Corrosion-resistant
- Easy to install
- Completely safe cable entry
- Low overall height

Application range
- The flange angle gland can be combined with all glands (including O-ring) e.g. strain relief, bending protection and conduit glands
- For high mechanical stress
- When no connection thread is provided

Product Make-up
- M20 x 1.5 - M25 x 1.5 with 2 screw holes
  M32 x 1.5 with 4 screw holes

Note
- The protection class is dependent on the combination with the various special glands. The minimum standard is IP 55.
- Cable glands are not included in scope of delivery

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: zinc die-casting, grey, hammer tone finish
O-ring: NBR

Protection rating
IP 55

Temperature range
-20°C to +100°C

Article number	Article designation / size	Height (mm)	Overall width (mm)	Length (mm)	PU
SKINDICHT® SE-M without E+D					
52108001	M 20 x 1,5	31.0	42	42.0	10
52108011	M 25 x 1,5	40.0	60	60.0	5
52108021	M 32 x 1,5	51.5	66	76.0	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® SM-M / SKINDICHT® SM-PE-M

SKINDICHT® SM-M

SKINDICHT® SM-PE-M

Benefits

SKINDICHT® SM-PE-M

- Cutting edges cut through the insulating layer, thus guaranteeing an optimum EMC contact
- Suitable for all metric glands used in earthing and EMC applications

Application range

SKINDICHT® SM-M

- Used when a gland has to be countered, or in through-holes on thin-walled housings

SKINDICHT® SM-PE-M

- For lacquered, anodised or powder-coated housings.

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description: Locknut for cable screw gland

Material
Nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Article designation / size	Thickness (mm)	SW wrench size mm	Outer Ø (mm)	Pieces / PU
SKINDICHT® SM-M					
52102998	MINI 6 x 1	3.2	10	11,1	100
52102997	MINI 8 x 1	4.0	13	14,4	100
52102999	MINI 10 x 1	5.0	17	19,1	100
52103000	M 12 x 1,5	3.0	15	16.5	100
52103010	M 16 x 1,5	3.0	19	20.9	100
52103020	M 20 x 1,5	3.5	24	26.4	100
52103030	M 25 x 1,5	4.0	30	33.0	100
52103040	M 32 x 1,5	4.0	36	39.6	100
52103050	M 40 x 1,5	5.0	46	50.6	50
52103060	M 50 x 1,5	5.0	60	65.0	50
52103070	M 63 x 1,5	5.0	70	77.0	25
52103071	M 75 x 1,5	8.0	85	95.0	1
52103072	M 90 x 2	10.0	102	114.0	1
52103073	M 110 x 2	12.0	124	135.0	1
SKINDICHT® SM-PE-M					
52103300	M 12 x 1,5	4.7	15	17.3	100
52103310	M 16 x 1,5	4.7	19	21.9	100
52103320	M 20 x 1,5	4.7	24	27.7	100
52103330	M 25 x 1,5	5.2	30	34.6	50
52103340	M 32 x 1,5	5.7	36	41.5	50
52103350	M 40 x 1,5	6.5	46	53.1	25
52103360	M 50 x 1,5	6.5	60	69.3	10
52103370	M 63 x 1,5	7.0	70	80.8	10
52103371	M 75 x 1,5	8.0	85	95.0	1
52006494	M 72 x 2	10,0	85	98,0	1
52103372	M 90 x 2	10.0	102	114.0	1
52103373	M 110 x 2	12.0	124	135.0	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

SKINDICHT® SM-M INOX

Info

- Metric threaded, stainless steel counter nut

Application range

- Used when a gland has to be countered, or in through-holes on thin-walled housings

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description:
Locknut for cable screw gland

Material
Stainless steel 303

Temperature range
-60°C to +200°C

Article number	Article designation / size	Thickness (mm)	SW wrench size mm	Outer Ø (mm)	Pieces / PU
SKINDICHT® SM-M INOX					
52032585	M 12 x 1,5	2.8	17	16.5	10
52032615	M 16 x 1,5	2.8	19	20.9	10
52032625	M 20 x 1,5	3.0	24	26.7	10
52032635	M 25 x 1,5	3.5	30	33.0	10
52032645	M 32 x 1,5	4.0	36	39.0	10
52032655	M 40 x 1,5	5.0	46	50.0	10
52032665	M 50 x 1,5	5.0	55	60.0	10
52032675	M 63 x 1,5	6.0	70	78.0	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® BLK-M / SKINDICHT® BLK-GL-M

Benefits

SKINDICHT® BLK-M
- For closing pre-threaded holes
- Cost-effective solution

SKINDICHT® BLK-GL-M
- For closing pre-threaded holes
- High stability due to glass fibre reinforcement

Application range

- Control cabinet manufacturing
- Distribution box
- Junction boxes

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

Colour delivered
SKINDICHT® BLK-M
Light grey (RAL 7035)
SKINDICHT® BLK-GL-M
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005)

Material
SKINDICHT® BLK-M
Fire behaviour according to UL 94 HB
Impact-resistant polystyrene
SKINDICHT® BLK-GL-M
Fire behaviour according to UL 94 HB
Polyamide, glass fibre-reinforced

Protection rating
IP 54
IP 68 (with O-Ring)

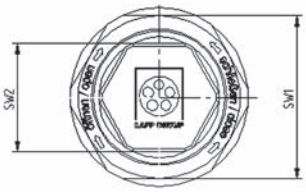
Temperature range
SKINDICHT® BLK-M
-25°C to +60°C
SKINDICHT® BLK-GL-M
-40°C to +100°C

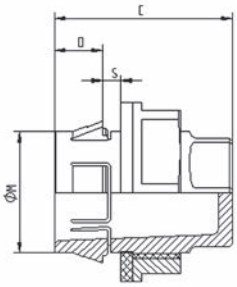
Article number	Article designation / size	Thread length, D (mm)	Pieces / PU
SKINDICHT® BLK-M			
52006600	M 12 x 1,5	6	100
52006610	M 16 x 1,5	6	100
52006620	M 20 x 1,5	6	100
52006630	M 25 x 1,5	8	100
52006640	M 32 x 1,5	8	50
52006650	M 40 x 1,5	8	25
52006660	M 50 x 1,5	10	25
52006670	M 63 x 1,5	12	25
SKINDICHT® BLK-GL-M silver-grey			
52006101	M 12 x 1,5	6	100
52006111	M 16 x 1,5	6	100
52006121	M 20 x 1,5	6	100
52006131	M 25 x 1,5	8	100
52006141	M 32 x 1,5	8	50
52006151	M 40 x 1,5	8	25
52006161	M 50 x 1,5	10	25
52006171	M 63 x 1,5	12	25
SKINDICHT® BLK-GL-M light grey			
52006100	M 12 x 1,5	6	100
52006110	M 16 x 1,5	6	100
52006120	M 20 x 1,5	6	100
52006130	M 25 x 1,5	8	100
52006140	M 32 x 1,5	8	50
52006150	M 40 x 1,5	8	25
52006160	M 50 x 1,5	10	25
52006170	M 63 x 1,5	12	25
SKINDICHT® BLK-GL-M black			
52006103	M 12 x 1,5	6	100
52006113	M 16 x 1,5	6	100
52006123	M 20 x 1,5	6	100
52006133	M 25 x 1,5	8	100

Article number	Article designation / size	Thread length, D (mm)	Pieces / PU
52006143	M 32 x 1,5	8	50
52006153	M 40 x 1,5	8	25
52006163	M 50 x 1,5	10	25
52006173	M 63 x 1,5	12	25
SKINDICHT® BLK-GL-M silver-grey mounted with O-ring			
52006109	M 12 x 1,5	6	100
52006119	M 16 x 1,5	6	100
52006129	M 20 x 1,5	6	100
52006139	M 25 x 1,5	8	100
52006149	M 32 x 1,5	8	50
52006159	M 40 x 1,5	8	25
52006169	M 50 x 1,5	10	25
52006179	M 63 x 1,5	12	25
SKINDICHT® BLK-GL-M light grey mounted with O-ring			
52006107	M 12 x 1,5	6	100
52006117	M 16 x 1,5	6	100
52006127	M 20 x 1,5	6	100
52006137	M 25 x 1,5	8	100
52006147	M 32 x 1,5	8	50
52006157	M 40 x 1,5	8	25
52006167	M 50 x 1,5	10	25
52006177	M 63 x 1,5	12	25
SKINDICHT® BLK-GL-M black mounted with O-ring			
52006106	M 12 x 1,5	6	100
52006116	M 16 x 1,5	6	100
52006126	M 20 x 1,5	6	100
52006136	M 25 x 1,5	8	100
52006146	M 32 x 1,5	8	50
52006156	M 40 x 1,5	8	25
52006166	M 50 x 1,5	10	25
52006176	M 63 x 1,5	12	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® CLICK BLK





Benefits
- Save up to 70% of the time with the innovative CLICK system
- Simple, free assembly in any position
- Fewer parts, counter nut no longer needed
- No thread required

Application range
- Dummy plug with innovative CLICK system for fast installation in hard-to-reach locations. Perfect solution for closing pre-made bore holes that are no longer required.
- Control cabinet manufacturing
- Measurement, control and electrical applications
- Automation technology
- Plant engineering, machinery manufacturing

Included
- Included: disassembly tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
Body: special polyamide
Seal: special elastomer

Protection rating
IP 68 - 5 bar

Temperature range
-20°C to +100°C

Article number	Article designation / size	M (hole in mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Wall thickness, S (mm)	Pieces / PU
SKINTOP® CLICK BLK light grey							
52109013	CLICK BLK 16	16.3 (-0.2)	14.0 / 22.0	28.5	8	1.0 - 4.0	50
52109014	CLICK BLK 20	20.3 (-0.2)	18.0 / 27.0	29.5	8	1.0 - 4.0	25
52109015	CLICK BLK 25	25.3 (-0.2)	22.0 / 14.0	30.5	8	1.0 - 4.0	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® BL-M

Benefits
- For closing pre-threaded holes
- Assembling with screwdriver

Application range
- Machine and equipment manufacturing
- Electric motor manufacturing

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

On request
Fitted with FKM O-ring

Material
Body: nickel-plated brass

Protection rating
IP 54
IP 68 (with O-Ring)

Temperature range
With O-ring: -30°C to +100°C
Without O-ring: -60°C to +200°C

Article number	Article designation / size	Outer Ø (mm)	Pieces / PU
SKINDICHT® BL-M			
52103100	M 12 x 1,5	14.0	100
52103110	M 16 x 1,5	18.0	100
52103120	M 20 x 1,5	22.0	100
52103130	M 25 x 1,5	28.0	100
52103140	M 32 x 1,5	35.0	50
52103150	M 40 x 1,5	44.0	25
52103160	M 50 x 1,5	54.0	10
52103170	M 63 x 1,5	70.0	10
52103190	M 75 x 1,5	80.0	1
SKINDICHT® BL-M with O-ring			
52103105	M 12 x 1,5	14.0	100
52103115	M 16 x 1,5	18.0	100
52103125	M 20 x 1,5	22.0	100
52103135	M 25 x 1,5	28.0	100
52103145	M 32 x 1,5	35.0	50
52103155	M 40 x 1,5	44.0	25
52103165	M 50 x 1,5	54.0	10
52103175	M 63 x 1,5	70.0	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® O-Ring NBR metric refer to page 760
- SKINDICHT® O-ring FKM metric refer to page 761

SKINDICHT® BL-M hex.

Benefits
- For closing pre-threaded holes
- High degree of protection

Application range
- Machine and equipment manufacturing
- Electric motor manufacturing

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note
- Dummy plug made of chromium nickel steel on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

On request
FKM O-ring
-20 °C to +200 °C

Material
Body: nickel-plated brass
O-ring: NBR

Protection rating
IP 68 - 5 bar

Temperature range
-30°C to +100°C

Article number	Article designation / size	SW wrench size mm	Outer Ø (mm)	Pieces / PU
SKINDICHT® BL-M hexagon				
52103405	M 12 x 1,5	16	17.8	50
52103415	M 16 x 1,5	20	22.0	50
52103425	M 20 x 1,5	24	26.4	50
52103435	M 25 x 1,5	29	31.9	50
52103445	M 32 x 1,5	36	39.6	25
52103455	M 40 x 1,5	45	49.5	25
52103465	M 50 x 1,5	54	59.0	10
52103475	M 63 x 1,5	67	73.5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® BL-M ATEX

Benefits
- High degree of protection
- Cold impact resistance

Application range
- Equipment group II / Category 2G+1D
- Devices, machines and apparatus
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

Certifications
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0029X

Material
Body: nickel-plated brass
O-ring: NBR

Tests
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

Protection rating
IP 68 - 5 bar

Temperature range
-30°C to +90°C

Article number	Article designation / size	SW wrench size mm	Thread length, D (mm)	Outer Ø (mm)	PU
SKINDICHT® BL-M ATEX					
52103103	M 12 x 1,5	16	5	17.8	50
52103113	M 16 x 1,5	20	5	22.0	50
52103123	M 20 x 1,5	24	6	26.4	50
52103133	M 25 x 1,5	29	7	31.9	50
52103143	M 32 x 1,5	36	8	39.6	25
52103153	M 40 x 1,5	45	8	49.5	25
52103163	M 50 x 1,5	54	9	59.0	10
52103173	M 63 x 1,5	67	10	73.5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® VENT INOX

Info

- Breathable pressure compensation element with membrane technology

Benefits

- Ventilation system for housing
- Formation of condensation in electronic housings is prevented
- Pressure compensation elements guarantee a trouble-free and maintenance-free operation

Application range

- Lighting engineering
- Railway applications
- Weather station
- Manufacturing of control cabinets and equipment
- Housing and distribution boxes

Product features

- Closure element and a pressure equalization in one system
- Lower space requirement
- High air flow

Norm references / Approvals

- Optionally approved acc. to UL 508 A

Product Make-up

- Air flow rates: 100mbar=0.4 l/min - Standard version
  Air flow rates: 100mbar=2.4 l/min - UL version

Note

- Refer to data sheet for more details

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Certifications
Metric thread acc. to EN 60423

Note
Membrane: Acryl - copolymere

Material
Stainless steel 303
O-Ring - NBR

Protection rating
Standard: IP66 / IP68 / IP69
UL: IP66 / IP67 / IP69

Temperature range
- 40 °C to + 105 °C

Article number	Article designation / size	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
Not certified version				
51730204	SKINDICHT® VENT INOX 12x1,5	21.0	10	10
cURus certified version				
51730205	SKINDICHT® VENT INOX 12x1,5 plus	21.0	10	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® VENT PA6

Info

- Breathable pressure compensation element with membrane technology

Benefits

- Ventilation system for housing
- Formation of condensation in electronic housings is prevented
- Pressure compensation elements guarantee a trouble-free and maintenance-free operation

Application range

- Lighting engineering
- Railway applications
- Weather station
- Housing and distribution boxes
- Manufacturing of control cabinets and equipment

Product features

- Closure element and a pressure equalization in one system
- Lower space requirement
- High air flow

Norm references / Approvals

- Optionally approved acc. to UL 508 A

Product Make-up

- Air flow rates: 100mbar=0,8l/min - Standard version
  Air flow rates: 100mbar=3,5l/min - UL version

Note

- Refer to data sheet for more details

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Certifications
Metric thread acc. to EN 60423

Note
Membrane: Acryl - copolymere

Colour delivered
Light grey (RAL 7035)
RAL 9005 black/UV-resistant

Material
Polyamide 6 - Standard version / UL 94 V2
Polyamide 66 - UL Version / UL 94 V0
Flat sealing NBR - Standard version
O-Ring NBR - UL version

Protection rating
Standard: IP66 / IP68 / IP69
UL: IP66 / IP67 / IP69

Temperature range
-20°C to +100°C

Article number	Article designation / size	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
Not certified version				
51730200	SKINDICHT® VENT 12x1,5 BK	17.3	10	25
51730202	SKINDICHT® VENT 12x1,5 LGY	17.3	10	25
cURus certified version				
51730201	SKINDICHT® VENT 12x1,5 BK plus	17.3	10	25
51730203	SKINDICHT® VENT 12x1,5 LGY plus	17.3	10	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® KU-M

Benefits
- Enables the use of cable glands with smaller connection threads than the existing threaded holes

Application range
- Machines
- Devices
- Housings

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
Polyamide, glass fibre-reinforced

Temperature range
-40°C to +100°C

Article number	Thread, male M1	Thread, female M2	SW wrench size mm	Pieces / PU
SKINDICHT® KU-M				
52104505	16 x 1.5	12 x 1.5	22	100
52104470	20 x 1.5	12 x 1.5	24	100
52104504	20 x 1.5	16 x 1.5	24	100
52104472	25 x 1.5	12 x 1.5	29	100
52104473	25 x 1.5	16 x 1.5	29	100
52104474	25 x 1.5	20 x 1.5	29	100
52104475	32 x 1.5	12 x 1.5	36	50
52104476	32 x 1.5	16 x 1.5	36	50
52104477	32 x 1.5	20 x 1.5	36	50
52104478	32 x 1.5	25 x 1.5	36	50
52104479	40 x 1.5	16 x 1.5	46	50
52104480	40 x 1.5	20 x 1.5	46	50
52104481	40 x 1.5	25 x 1.5	46	25
52104482	40 x 1.5	32 x 1.5	46	25
52104483	50 x 1.5	20 x 1.5	55	5
52104484	50 x 1.5	25 x 1.5	55	5
52104485	50 x 1.5	32 x 1.5	55	5
52104486	50 x 1.5	40 x 1.5	55	5
52104487	63 x 1.5	25 x 1.5	68	5
52104488	63 x 1.5	32 x 1.5	68	5
52104489	63 x 1.5	40 x 1.5	68	5
52104469	63 x 1.5	50 x 1.5	68	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 716

SKINDICHT® MR-M

Benefits
- Enables the use of cable glands with smaller connection threads than the existing threaded holes

Application range
- Machines
- Devices
- Housings

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

On request
Also available with pre-installed O-ring

Material
Nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Thread, male M1	Thread, female M2	Pieces / PU
SKINDICHT® MR-M			
52104310	16 x 1.5	12 x 1.5	100
52104311	20 x 1.5	12 x 1.5	100
52104312	20 x 1.5	16 x 1.5	100
52104313	25 x 1.5	16 x 1.5	50
52104314	25 x 1.5	20 x 1.5	50
52104315	32 x 1.5	20 x 1.5	50
52104316	32 x 1.5	25 x 1.5	50
52104317	40 x 1.5	25 x 1.5	25
52104318	40 x 1.5	32 x 1.5	25
52104319	50 x 1.5	32 x 1.5	25
52104320	50 x 1.5	40 x 1.5	10
52104321	63 x 1.5	40 x 1.5	10
52104322	63 x 1.5	50 x 1.5	10
52006575	72 x 2	63 x 1.5	1
SKINDICHT® MR-M, blank brass			
52006579	80 x 2	75 x 1.5	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SKINDICHT® MR-M hex.

Benefits

- Enables the use of cable glands with smaller connection threads than the existing threaded holes
- With guide notch for O-ring
- Assembling with a wrench

Application range

- Machines
- Devices
- Housings

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

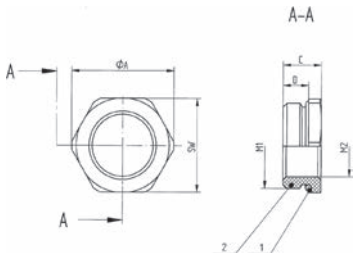
Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

On request
FKM O-ring
-20 °C to +200 °C

Material
Body: nickel-plated brass
O-ring: NBR

Temperature range
-30°C to +100°C



Article number	Thread, male M1	Thread, female M2	SW wrench size mm	Ø A (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® MR-M hexagon							
52101965	16 x 1.5	12 x 1.5	18	20.2	8.5	5.5	50
52101966	20 x 1.5	16 x 1.5	22	24.4	9.0	6	50
52101967	25 x 1.5	16 x 1.5	28	31.2	10.0	6.5	50
52101968	25 x 1.5	20 x 1.5	28	31.2	10.0	6.5	50
52101969	32 x 1.5	16 x 1.5	36	40.0	11.5	8	25
52101972	32 x 1.5	20 x 1.5	36	40.0	11.5	8	25
52101973	32 x 1.5	25 x 1.5	36	40.0	11.5	8	25
52101974	40 x 1.5	25 x 1.5	43	47.5	12.5	8.5	10
52101975	40 x 1.5	32 x 1.5	43	47.5	12.5	8.5	10
52101976	50 x 1.5	40 x 1.5	54	58.0	14.0	10	5
52101977	63 x 1.5	50 x 1.5	67	74.0	14.0	9.5	5
52101979	75 x 1.5	63 x 1.5	80	90.0	17.0	11	1
SKINDICHT® MR-M, blank brass, with hexagon							
52006563	80 x 2	63 x 1.5	85	93.5	23.0	15	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SKINDICHT® MR-M ATEX

Benefits
- Enables the use of cable glands with smaller connection threads than the existing threaded holes
- With guide notch for O-ring
- Assembling with a wrench

Application range
- Equipment group II / Category 2G+1D
- Devices, machines and apparatus
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Certifications
CE 0637 Ex II 2G
Ex eb IIC
Ex II 1D Ex ta IIIC
IECEx IBE 13.0028X
DIN EN 60079-0DIN EN 60079-7DIN EN 60079-31

Material
Body: nickel-plated brass
O-ring: NBR

Temperature range
-30°C to +90°C

Article number	Thread, male M1	Thread, female M2	Overall height (mm)	SW wrench size mm	Thread length, D (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® MR-M ATEX							
52104570	16 x 1.5	12 x 1.5	10.5	17	5	19.0	50
52104571	20 x 1.5	16 x 1.5	13	22	6	24.5	50
52104572	25 x 1.5	20 x 1.5	15	27	7	30.1	25
52104573	32 x 1.5	25 x 1.5	16.5	34	8	37.2	25
52104574	40 x 1.5	32 x 1.5	16.5	41	8	45.6	10
52104575	50 x 1.5	40 x 1.5	19.5	50	10	55.3	5
52104576	63 x 1.5	50 x 1.5	18.5	65	8.5	71.3	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-M refer to page 744

SKINDICHT® EKU-M

Benefits
- Enables the use of cable glands with larger connection threads than the existing threaded holes
- Assembling with a wrench
- Supporting surface for spanner means scratches on the housing are avoided

Application range
- Machines
- Devices
- Housings

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
Polyamide, glass fibre-reinforced

Temperature range
-40°C to +100°C

Article number	Thread, male M1	Thread, female M2	SW wrench size mm	Pieces / PU
SKINDICHT® EKU-M				
52100300	12 x 1.5	16 x 1.5	20	100
52100301	16 x 1.5	20 x 1.5	24	100
52100302	20 x 1.5	25 x 1.5	29	100
52100303	25 x 1.5	32 x 1.5	36	50
52100304	32 x 1.5	40 x 1.5	46	25
52100305	40 x 1.5	50 x 1.5	55	10
52100306	50 x 1.5	63 x 1.5	68	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 716

SKINDICHT® ME-M

Benefits
- Enables the use of cable glands with larger connection threads than the existing threaded holes

Application range
- Machines
- Devices
- Housings

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

On request
with O-ring fitted

Material
Nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Thread, male M1	Thread, female M2	Pieces / PU
SKINDICHT® ME-M			
52104450	12 x 1.5	16 x 1.5	100
52104452	16 x 1.5	20 x 1.5	100
52104454	20 x 1.5	25 x 1.5	100
52104456	25 x 1.5	32 x 1.5	50
52104458	32 x 1.5	40 x 1.5	50
52104460	40 x 1.5	50 x 1.5	25
52104462	50 x 1.5	63 x 1.5	25
SKINDICHT® ME-M hexagon			
52104463	63 x 1.5	75 x 1.5	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-M refer to page 744

SKINDICHT® ME-M ATEX

Benefits
- Enables the use of cable glands with larger connection threads than the existing threaded holes
- With guide notch for O-ring
- Assembling with a wrench

Application range
- Equipment group II / Category 2G+1D
- Devices, machines and apparatus
- For mobile applications in offshore and marine industries
- Chemical and petrochemical industry

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Certifications
CE 0637 Ex II 2G
Ex eb IIC
Ex II 1D Ex ta IIIC
IECEx IBE 13.0028X
DIN EN 60079-0DIN EN 60079-7DIN EN 60079-31

Material
Body: nickel-plated brass
O-ring: NBR

Temperature range
-30°C to +90°C

Article number	Thread, male M1	Thread, female M2	Overall height (mm)	SW wrench size mm	Outer thread length (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® ME-M ATEX							
52104580	12 x 1.5	16 x 1.5	17	18	5	20.0	50
52104581	16 x 1.5	20 x 1.5	20	22	6	24.0	50
52104582	20 x 1.5	25 x 1.5	22.5	27	6.5	30.0	50
52104583	25 x 1.5	32 x 1.5	21.5	34	6.5	37.7	25
52104584	32 x 1.5	40 x 1.5	23	42	7	46.0	25
52104585	40 x 1.5	50 x 1.5	26	54	8	59.0	25
52104586	50 x 1.5	63 x 1.5	32	67	9	73.0	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-M refer to page 744

SKINDICHT® MA-M/PG / SKINDICHT® MA-M/NPT

SKINDICHT® MA-M/PG

SKINDICHT® MA-M/NPT

Benefits

SKINDICHT® MA-M/PG

- Enables the use of PG accessories in metric threads

SKINDICHT® MA-M/NPT

- Enables the use of NPT accessories in metric threads

Application range

SKINDICHT® MA-M/PG

- Adapter from a metric outer thread to a PG inner thread.
- Machines
- Devices
- Housings

SKINDICHT® MA-M/NPT

- Adapter from a metric outer thread to an NPT inner thread.
- Machines
- Devices
- Housings

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

On request
with O-ring fitted

Material
Nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Thread, male M1	Thread, female PG/NPT	Pieces / PU
SKINDICHT® MA-M / PG			
52104200	16 x 1.5	7	100
52104210	20 x 1.5	9	50
52104220	25 x 1.5	11	50
52104230	25 x 1.5	13,5	50
52104240	25 x 1.5	16	50
52104250	32 x 1.5	16	25
52104260	32 x 1.5	21	25
52104270	40 x 1.5	21	25
52104280	50 x 1.5	29	10
52104290	63 x 1.5	36	10
52104300	63 x 1.5	42	10
SKINDICHT® MA-M / NPT			
54020100	16 x 1.5	1/2	50
54020110	20 x 1.5	1/2	50
54020120	25 x 1.5	1/2	25
54020130	25 x 1.5	3/4	25
54020140	32 x 1.5	1/2	25
54020152	32 x 1.5	1	25
54020153	40 x 1.5	1 1/4	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SKINDICHT® ZS-M

Benefits
- Enables the use of PG accessories in metric threads
- Assembling with a wrench

Application range
- Hexagonal converter from a metric outer thread to a PG inner thread.
- Machines
- Devices
- Housings

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note
- SKINDICHT® ZS-M-XL offers a long metric connection thread

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Thread, male M1	Thread, female PG/NPT	Pieces / PU
SKINDICHT® ZS-M			
52104330	12 x 1.5	7.0	100
52104340	16 x 1.5	9.0	100
52104010	16 x 1.5	11.0	100
52104360	20 x 1.5	11.0	100
52104370	20 x 1.5	13.5	100
52104380	20 x 1.5	16.0	50
52104400	25 x 1.5	21.0	50
52104410	32 x 1.5	29.0	25
52104420	40 x 1.5	36.0	10
52104430	50 x 1.5	42.0	10
52104440	63 x 1.5	48.0	10
SKINDICHT® ZS-M-XL			
52104335	12 x 1.5	7.0	100
52104345	16 x 1.5	9.0	100
52104365	20 x 1.5	11.0	100
52104375	20 x 1.5	13.5	100
52104385	20 x 1.5	16.0	50
52104405	25 x 1.5	21.0	50
52104415	32 x 1.5	29.0	25
52104425	40 x 1.5	36.0	10
52104435	50 x 1.5	42.0	10
52104445	63 x 1.5	48.0	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-M refer to page 744

SKINDICHT® ZSE-M

Benefits
- Enables the use of PG accessories in metric threads
- Assembling with a wrench

Application range
- Hexagonal converter from a metric outer thread to a PG inner thread.
- Machines
- Devices
- Housings

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note
- SKINDICHT® ZSE-M-XL offers a long metric connection thread

Product Make-up
- These converters are used in our cable glands:
- SKINDICHT® SHV-M
- SKINDICHT® SHVE-M
- SKINDICHT® SRE-M
- SKINDICHT® SR-SV-M

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Thread, male M1	Thread, female PG/NPT	Pieces / PU
SKINDICHT® ZSE-M			
52106000	12 x 1.5	7.0	100
52106010	16 x 1.5	9.0	100
52106020	20 x 1.5	11.0	100
52106030	20 x 1.5	13.5	100
52106040	20 x 1.5	16.0	50
52104050	20 x 1.5	21.0	50
52106050	25 x 1.5	21.0	50
52106060	32 x 1.5	29.0	25
52106070	40 x 1.5	36.0	10
52106080	50 x 1.5	42.0	10
52106090	63 x 1.5	48.0	10
SKINDICHT® ZSE-M-XL			
52106005	12 x 1.5	7.0	100
52106015	16 x 1.5	9.0	100
52106025	20 x 1.5	11.0	100
52106035	20 x 1.5	13.5	100
52106045	20 x 1.5	16.0	50
52106055	25 x 1.5	21.0	50
52106065	32 x 1.5	29.0	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-M refer to page 744

SKINDICHT® D-M

Application range

- SKINDICHT® D-M compression screws with thread in accordance with EN 50262.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000814
ETIM 5.0/6.0 Class-Description: Threaded bush

Material
Nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Article designation / size	SW wrench size mm	Pieces / PU
SKINDICHT® D-M			
52100600	M 12 x 1,5	12	100
52100601	M 16 x 1,5	16	100
52100602	M 20 x 1,5	20	100
52100603	M 25 x 1,5	25	50
52100604	M 32 x 1,5	32	25
52100605	M 40 x 1,5	40	25
52100606	M 50 x 1,5	50	10
52100607	M 63 x 1,5	65	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® U-M

Application range

- For use between compression screw and adapter.

Note

- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000098
ETIM 5.0/6.0 Class-Description: Washer

Material
Steel, galvanized

Temperature range
-60°C to +200°C

Article number	Article designation / size	Outer Ø x inner Ø (mm)	Pieces / PU
SKINDICHT® U-M			
52100610	U-M 12	10.0 x 7.0	300
52100611	U-M 16	14.0 x 10.0	300
52100612	U-M 20	17.9 x 13.9	300
52100613	U-M 25	22.7 x 18.7	200
52100614	U-M 32	29.8 x 26.0	200
52100615	U-M 40	37.8 x 33.3	100
52100616	U-M 50	47.8 x 41.4	100
52100617	U-M 63	60.7 x 53.5	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® E-M

Benefits

- One seal for several clamping ranges
- Rings can be individually adapted to various cable diameters

Application range

- Incised sealing ring for SKINDICHT® cable glands

Note

- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

Colour delivered
Black

Material
CR

Temperature range
-20°C to +80°C

Article number	Article designation / size	Outer Ø x holes (mm)	Thickness (mm)	Pieces / PU
SKINDICHT® E-M				
52100620	E-M 12	10.00 x 5	5.0	250
52100621	E-M 16	13.80 x 3/6/9	5.5	250
52100622	E-M 20	17.60 x 4/7/10/13	6.0	250
52100623	E-M 25	22.60 x 8.5/11.5/14.5/17.5	7.5	100
52100624	E-M 32	29.60 x 16/19/22/25	9.5	100
52100625	E-M 40	37.60 x 23/26/29/32	12.0	50
52100626	E-M 50	47.60 x 30/33/36/39	12.0	50
52100627	E-M 63	60.60 x 36/39/42/45	14.0	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® O-Ring NBR metric

Application range

- For sealing the housing reliably to protect against oils, dust, and water at the connection thread of a gland or other similar parts

Note

- O-rings with thickness of 1.5 mm are recommended for optimum sealing of the converter SKINDICHT® ZSE-M 12/16/20 x 1.5
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

Colour delivered
Black

Material
NBR

Temperature range
-30°C to +100°C

Article number	Article designation / size	Inner Ø (mm)	Cable thickness (mm)	Pieces / PU
SKINDICHT® O-Ring NBR				
53102001	M 12 x 1,5	9.0	1.5	100
53102000	M 12 x 2,0	9.0	2	100
53102010	M 16 x 2,0	13.0	2	100
53102021	M 20 x 1,5	17.0	1.5	100
53102020	M 20 x 2,0	17.0	2	100
53102030	M 25 x 2,0	22.0	2	100
53102040	M 32 x 2,0	28.0	2	50
53102050	M 40 x 2,0	36.0	2	50
53102060	M 50 x 2,0	46.0	2	25
53102070	M 63 x 2,0	57.0	2	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® O-ring FKM metric

Application range
- For sealing the housing reliably to protect against oils, acids, and chemicals at the connection thread of a gland or other similar parts under extreme conditions

Note
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

Colour delivered
Green

Material
FKM

Temperature range
-20°C to +200°C

Article number	Article designation / size	Inner Ø (mm)	Cable thickness (mm)	Pieces / PU
SKINDICHT® O-ring FKM metric				
52122000	M 12 x 2,0	9.0	2	100
52122001	M 12 x 1,5	9.0	1.5	100
52122010	M 16 x 2,0	13.0	2	100
52122020	M 20 x 2,0	17.0	2	100
52122021	M 20 x 1,5	17.0	1.5	100
52122030	M 25 x 2,0	22.0	2	100
52122040	M 32 x 2,0	28.0	2	50
52122050	M 40 x 2,0	36.0	2	50
52122060	M 50 x 2,0	46.0	2	25
52122070	M 63 x 2,0	57.0	2	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® JT PTFE metric

Benefits
- Resistant to oil, water, alkaline solutions, acids, solvents, etc.
- Suitable for foodstuffs

Application range
- PTFE sealing disks for SKINTOP® and SKINDICHT® cable glands

Note
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

Colour delivered
White

Material
PTFE

Temperature range
-120°C to +250°C
Short-term: up to +300°C

Article number	Article designation / size	Inner Ø (mm)	Thickness (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® JT PTFE					
53801030	M 12	12.1	2.0	16.6	100
53801040	M 16	16.1	2.0	21.1	100
53801050	M 20	20.1	2.0	27.5	100
53801060	M 25	25.1	3.0	33.4	50
53801070	M 32	32.1	3.0	40.3	50
53801080	M 40	40.2	3.0	51.5	25
53801090	M 50	50.2	3.0	61.6	25
53801100	M 63	63.2	3.0	73.9	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® WN-M

Benefits
- Pierceable membrane

Application range
- Easy cable feed-through wherever strain relief is not required.

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
PE

Protection rating
IP 54

Temperature range
-30°C to +80°C

Article number	Article designation / size	Opening (mm)	SW wrench size mm	Thread length, D (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® WN-M						
52020513	M 16 x 1,5	5.0 - 10.0	15	10	20.0	200
52020523	M 20 x 1,5	8.0 - 13.5	19	12	24.0	200
52020533	M 25 x 1,5	9.0 - 16.0	24	12	28.0	100
52020543	M 32 x 1,5	11.0 - 22.0	30	14	37.0	50
52020553	M 40 x 1,5	17.0 - 34.0	37	16	45.0	50
52020563	M 50 x 1,5	22.0 - 35.0	46	18	55.5	20
52020573	M 63 x 1,5	24.0 - 43.0	56	20	68.5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® DTN

Benefits
- Can be used as multiple-duct sleeve
- Strain relief

Application range
- Grommets for cables from 4 to 32 mm cable diameter.

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000879
ETIM 5.0/6.0 Class-Description: Feed through spout

Colour delivered
Black

Material
CR

Temperature range
-30°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	Metal thickness (mm)	Hole in housing Ø (mm)	Sleeve inner Ø (mm)	Pieces / PU
SKINDICHT® DTN						
52105020	DTN 1	4.0 - 9.0	2.5	16	9	50
52105030	DTN 2	7.0 - 12.0	2.5	19	12	50
52105040	DTN 3	12.0 - 17.5	2.5	25	18	50
52105050	DTN 4	18.0 - 23.0	2.5	32	25	25
52105060	DTN 5	25.0 - 29.0	3.0	38	32	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® LA

Benefits
- Protection against sharp or angular housing walls
- Easy to assemble

Application range
- Housings
- Control cabinet manufacturing

Note
- Simply push the grommet into the hole until the groove engages.

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000879
ETIM 5.0/6.0 Class-Description: Feed through spout

Colour delivered
Black

Material
CR

Temperature range
-30°C to +90°C

Article number	Article designation / size	Metal thickness (mm)	Sleeve outer Ø (mm)	Hole in housing Ø (mm)	Sleeve inner Ø (mm)	Pieces / PU
SKINDICHT® LA						
61713520	LA 3	1.5 - 2.0	10	7	3	100
61713530	LA 4	1.5 - 2.0	11	8	4	100
61713540	LA 5	1.5 - 2.0	11	7	5	100
61713550	LA 6	1.5 - 2.0	14	9	6	100
61713560	LA 7	1.5 - 2.0	16	12	7	100
61713570	LA 8	1.5 - 2.0	15	11	8	100
61713580	LA 9	1.5 - 2.0	16	11	9	100
61713590	LA 11	1.5 - 2.0	19	14	11	100
61713600	LA 12	1.5 - 2.0	25	18	12	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® ST NPT / BS NPT

Benefits
- Conical NPT thread
- Permanent vibration protection
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability

Application range
- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Machine and equipment manufacturing
- Automation technology
- Devices
- Housings

Norm references / Approvals
- UL File Nr. E79903

Product Make-up
- NPT connection thread acc. to ASME B1.20.1 - 2013
- SKINTOP® STR NPT is equipped with a reduction seal insert to seal cables and wires with small outer diameters.

Note
- Refer to SKINTOP® PG accessories for suitable accessories. Note that SKINTOP® GMP-GL counter nut is not compatible with this model.
- 3/8” = PG9
- 1/2” = PG13.5
- 3/4” = PG21
- 1” = PG29

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Silver grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
Body: Polyamide
Seal: CR

Protection rating
IP 68 - 5 bar

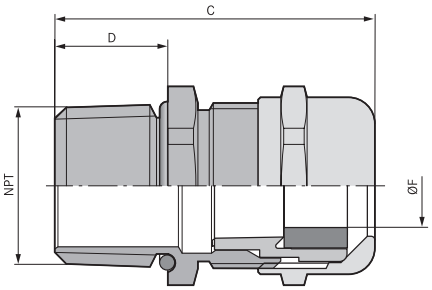
Temperature range
Dynamic: -20°C to +100°C
Fixed: -40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® ST NPT silver grey						
53016010	NPT 3/8”	3,5 - 8	19	43.0	15	100
53016030	NPT 1/2”	5 - 12	24	45.0	15	100
53016050	NPT 3/4”	13 - 18	33	53.0	15	50
53016060	NPT 1”	19 - 25,4	42	60.0	15	25
SKINTOP® ST NPT black						
53016210	NPT 3/8”	3,5 - 8	19	43.0	15	100
53016230	NPT 1/2”	5 - 12	24	45.0	15	100
53016250	NPT 3/4”	13 - 18	33	53.0	15	50
53016260	NPT 1”	19 - 25,4	42	60.0	15	25
SKINTOP® STR NPT silver grey						
53016110	NPT 3/8”	2 - 6	19	43.0	15	100
53016130	NPT 1/2”	4 - 9	24	45.0	15	100
53016150	NPT 3/4”	9 - 16	33	53.0	15	50
SKINTOP® STR NPT black						
53016310	NPT 3/8”	2 - 6	19	43.0	15	100
53016330	NPT 1/2”	4 - 9	24	45.0	15	100
53016350	NPT 3/4”	9 - 16	33	53.0	15	50
SKINTOP® BS NPT silver grey						
53016610	NPT 3/8”	3,5 - 8	19	82.0	15	100
53016630	NPT 1/2”	5 - 12	24	104.0	15	100
53016650	NPT 3/4”	13 - 18	33	133.0	15	50
SKINTOP® BS NPT black						
53016810	NPT 3/8”	3,5 - 8	19	82.0	15	100
53016830	NPT 1/2”	5 - 12	24	104.0	15	100
53016850	NPT 3/4”	13 - 18	33	133.0	15	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL NPT refer to page 769

SKINTOP® MS NPT



Benefits
- Conical NPT thread
- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

Application range
- In areas where mechanical and chemical stability are critical
- Chemical industry
- Measurement and control technology
- Machine and equipment manufacturing
- Plant engineering

Norm references / Approvals
- UL File Nr. E79903

Product Make-up
- NPT connection thread acc. to ASME B1.20.1 - 2013
- SKINTOP® MSR NPT is equipped with a reduction seal insert to seal cables and wires with small outer diameters

Note
- Refer to SKINTOP® metric accessories for suitable accessories. Note that SKINDICHT® SM-M counter nut is not compatible with this model.
- 1/4” = M12, 3/8” = M16
- 1/2” = M20, 3/4” = M25
- 1” = M32, 1 1/4” = M40
- 1 1/2” = M50, 2” = M63

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

Protection rating
IP 68 - 10 bar

Temperature range
dynamic -25°C up to + 100°C
Fixed: -40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS NPT						
53112004	NPT 1/4”	3,5 - 7	16	36.0	15	100
53112014	NPT 3/8”	4,5 - 10	20	39.7	15	100
53112024	NPT 1/2”	7 - 13	24	42.5	15	50
53112034	NPT 3/4”	9 - 17	29	44.5	15	25
53112044	NPT 1”	11 - 21	36	49.0	15	25
53112054	NPT 1 1/4”	19 - 28	45	57.5	17	10
53112064	NPT 1 1/2”	27 - 35	54	61.5	17	5
53112074	NPT 2”	34 - 45	67	63.5	17	5
SKINTOP® MSR NPT						
53112006	NPT 1/4”	1 - 5	16	36.0	15	100
53112016	NPT 3/8”	2 - 7	20	39.7	15	100
53112026	NPT 1/2”	5 - 10	24	42.5	15	50
53112036	NPT 3/4”	6 - 13	29	44.5	15	25
53112046	NPT 1”	7 - 15	36	49.0	15	25
53112056	NPT 1 1/4”	15 - 23	45	57.5	17	10
53112066	NPT 1 1/2”	22 - 29	54	61.5	17	5
53112076	NPT 2”	28 - 39	67	63.5	17	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

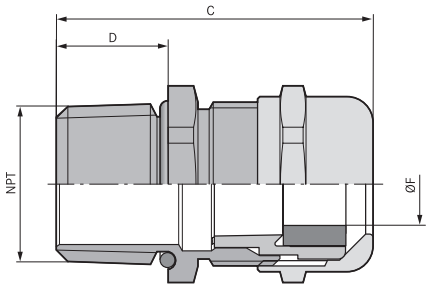
Accessories
- SKINDICHT® SM-NPT refer to page 770

NEW

SKINTOP® COLD NPT

Info

- For extreme sub-zero temperatures



Benefits

- High cold-resistance
- Cold impact resistance
- High mechanical stability
- Optimum strain relief
- Wide, variable clamping ranges

Application range

- In areas where mechanical stability and high cold-resistance are critical
- Air-conditioning technology
- Freezing plants, cold storage
- Offshore sector
- Plant engineering

Product Make-up

- NPT connection thread acc. to ASME B1.20.1 - 2013

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: nickel-plated brass
Insert: special polyamide
Sealing ring: silicone
O-ring: silicone

Protection rating
IP 68 - 10 bar

Temperature range
-70°C to +100°C

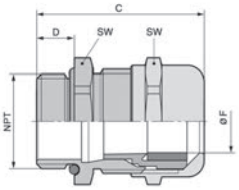
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® COLD NPT						
53113700	1/4”	3,5 - 7	16	36.0	15	100
53113701	3/8”	4,5 - 10	20	39.7	15	100
53113702	1/2”	7 - 13	24	42.5	15	50
53113703	3/4”	9 - 17	29	44.5	15	25
53113704	1”	11 - 21	36	49.0	15	25
53113705	1 1/4”	19 - 28	45	57.5	15	10
53113706	1 1/2”	27 - 35	54	61.5	17	5
53113707	2”	34 - 45	67	63.5	17	5
SKINTOP® COLD-R NPT						
53113710	1/4”	1 - 5	16	36.0	15	100
53113711	3/8”	2 - 7	20	39.7	15	100
53113712	1/2”	5 - 10	24	42.5	15	50
53113713	3/4”	6 - 13	29	44.5	15	25
53113714	1”	7 - 15	36	49.0	15	25
53113715	1 1/4”	15 - 23	45	57.5	15	10
53113716	1 1/2”	22 - 29	54	61.5	17	5
53113717	2”	28 - 39	67	63.5	17	5

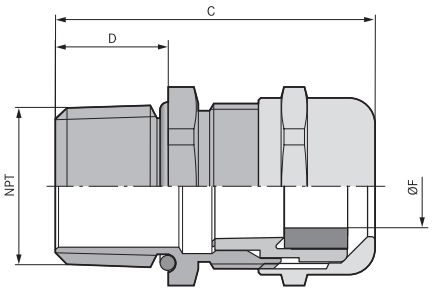
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-NPT refer to page 770

SKINTOP® MS-SC NPT





Benefits

- Highly conductive, flexible EMC contact for clamping various screen diameters
- Low-resistance screen contact, optimum EMC protection
- Also suitable for continuing the cable screen to another connection
- Suitable for cables with and without inner sheath

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Automation technology
- Telecommunication
- Measurement and control technology
- Industrial machinery and plant engineering

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- NPT connection thread acc. to ASME B1.20.1 - 2013

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

Protection rating
IP 68 - 10 bar

Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

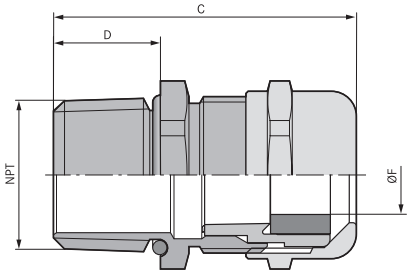
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-SC NPT						
53112910	NPT 3/8”	4,5 - 10	20	39.7	15	100
53112920	NPT 1/2”	7 - 13	24	42.5	15	50
53112930	NPT 3/4”	9 - 17	29	44.5	15	25
53112940	NPT 1”	11 - 21	36	49.0	15	25
53112950	NPT 1 1/4”	19 - 28	45	57.5	17	10
53112960	NPT 1 1/2”	27 - 35	54	61.5	17	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-NPT refer to page 770

SKINTOP® MS-NPT BRUSH



Benefits

- Faster, easier screen contact
- Optimum, low-resistance 360° screen contact
- Faster than any other comparable system
- Uncomplicated and reliable
- Maximum assembly freedom during adjustment

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Automation technology
- Conveyor technology
- High-power drives
- Frequency converters

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- NPT connection thread acc. to ASME B1.20.1 - 2013

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: nickel-plated brass
Cap nut: nickel-plated brass
Insert: polyamide
EMC brush: brass wire
Sealing ring: elastomer
O-ring: elastomer

Protection rating
IP 68 - 10 bar

Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

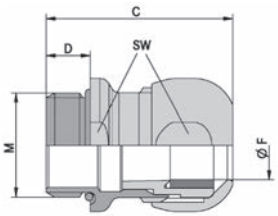
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-NPT BRUSH						
53112037	NPT 3/4”	9 - 17	29	43.0	15	10
53112047	NPT 1”	11 - 21	36	48.0	15	1
53112057	NPT 1 1/4”	19 - 28	45	57.5	17	1
53112067	NPT 1 1/2”	27 - 35	54	59.0	17	1
53112077	NPT 2”	34 - 45	67	63.0	17	1
53112087	NPT 2” plus	44 - 55	75	72.0	17	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-NPT refer to page 770

SKINTOP® INOX NPT



Info

- Stainless steel version with compact design
- For use in the splash zone in the food production

Benefits

- Corrosion-resistant
- Sea water-resistant
- Smooth surfaces - no edges
- Compact design
- Wide, variable clamping ranges

Application range

- Onshore and offshore applications
- Bottling plants and breweries
- Food industry (product-free zone, splash zone)

Norm references / Approvals

- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14 159
  Security of machinery Hygienic requirements for the design of machinery

Product Make-up

- NPT connection thread acc. to ASME B1.20.1 - 2013

Note

- Refer to SKINTOP® metric accessories for suitable accessories. Note that SKINDICHT® SM-M counter nut is not compatible with this model.
- 1/2” = M20, 3/4” = M25
- 1” = M32, 1 1/4” = M40
- 1 1/2” = M50, 2” = M63

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: stainless steelV4A (1.4404 / 316L)
Insert: polyamide
Sealing: silicone
O-Ring: silicone

Protection rating
IP 69
NEMA Type 1, 2, 4x, 6, 12

Temperature range
-40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	Thread length, D (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® INOX NPT							
53806780	NPT 1/2”	7-13	15	24	42.5	15	5
53806781	NPT 3/4”	9-17	15	29	46.2	15	5
53806782	NPT 1”	11-21	15	36	50.6	15	5
53806783	NPT 1 1/4”	19-28	17	45	59.2	17	5
53806784	NPT 1 1/2”	27-35	17	54	63.2	17	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SKINDICHT® CN-M refer to page 739
- SKINTOP® HYGIENIC

Accessories

- SKINDICHT® SM-NPT INOX refer to page 770

NEW

SKINTOP® GMP-GL NPT

Benefits
- Glass fibre-reinforced for maximum mechanical stability

Application range
- For locking SKINTOP® cable glands in boreholes without thread.

Product Make-up
- NPT connection thread

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description:
Locknut for cable screw gland

Material
Polyamide, glass fibre-reinforced

Temperature range
-20°C to +100°C

Article number	Article designation / size	Thickness (mm)	SW wrench size mm	Pieces / PU
SKINTOP® GMP-GL NPT black				
53019305	3/8”	5.0	22	100
53019315	1/2”	6.0	27	100
53019325	3/4”	7.0	36	100
53019335	1”	7.0	42	100
SKINTOP® GMP-GL NPT lightgrey				
53019300	3/8”	5.0	22	100
53019310	1/2”	6.0	27	100
53019320	3/4”	7.0	36	100
53019330	1”	7.0	42	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® SM-NPT

Application range

- Used when a gland has to be countered, or in through-holes on thin-walled housings

Product Make-up

- NPT connection thread

Note

- Other sizes are available upon request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description:
Locknut for cable screw gland

Material
Nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Article designation / size	Pieces / PU
SKINDICHT® SM-NPT		
52103540	1/2”	50
52103550	3/4”	20
52103560	1”	20
52103570	1 1/4”	20
52103580	1 1/2”	10
52103590	2”	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® SM-NPT INOX

Application range

- Used when a gland has to be countered, or in through-holes on thin-walled housings

Product Make-up

- NPT connection thread

Note

- Other sizes are available upon request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description:
Locknut for cable screw gland

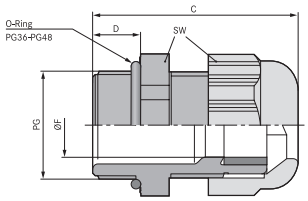
Material
Stainless steel

Temperature range
-60°C to +200°C

Article number	Article designation / size	Pieces / PU
SKINDICHT® SM-NPT INOX		
52103500	1/2”	50
52103510	3/4”	50
52103520	1”	25
52103530	1 1/4”	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® ST / SKINTOP® STR



Benefits

- Various accessories (e.g. multiple sealing inserts)
- High oil-resistance for maximum reliability
- Permanent vibration protection
- Optimum strain relief
- Wide, variable clamping ranges

Application range

SKINTOP® ST

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Machine and equipment manufacturing
- Photovoltaic
- Automation technology

SKINTOP® STR

- With reducing seal insert, to seal cables with smaller outer diameters.

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

SKINTOP® ST

- PG connection thread acc. to DIN 40430

SKINTOP® STR

- PG connection thread

Note

- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: Polyamide
Seal: CR

Tests
GGVS: TÜ.EGG.020-95

Protection rating
SKINTOP® ST
IP 68 - 5 bar
NEMA Type 1, 12
SKINTOP® STR
IP 68 - 5 bar

Temperature range
Dynamic: -20°C up to +80°C
Fixed: -40°C to +100°C

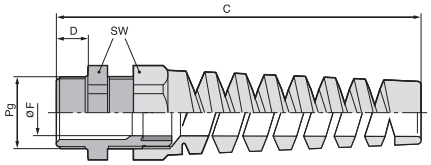
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® ST NPT silver grey						
53015000	PG 7	2,5 - 6,5	15	32.0	8	100
53015010	PG 9	3,5 - 8	19	36.0	8	100
53015020	PG 11	4 - 10	22	38.0	8	100
53015030	PG 13,5	6 - 12	24	41.0	9	100
53015040	PG 16	9 - 14	27	44.0	10	50
53015050	PG 21	13 - 18	33	49.0	11	50
53015060	PG 29	14 - 25	42	56.0	11	25
53015070	PG 36	24 - 32	53	66.0	13	10
53015080	PG 42	35 - 38	60	68.0	13	5
53015090	PG 48	39 - 44	65	69.0	14	5
SKINTOP® ST NPT black						
53015200	PG 7	2,5 - 6,5	15	32.0	8	100
53015210	PG 9	3,5 - 8	19	36.0	8	100
53015220	PG 11	4 - 10	22	38.0	8	100
53015230	PG 13,5	6 - 12	24	41.0	9	100
53015240	PG 16	9 - 14	27	44.0	10	50
53015250	PG 21	13 - 18	33	49.0	11	50
53015260	PG 29	14 - 25	42	56.0	11	25
53015270	PG 36	24 - 32	53	66.0	13	10
53015280	PG 42	35 - 38	60	68.0	13	5
53015290	PG 48	39 - 44	65	69.0	14	5
SKINTOP® ST light grey						
53018000	PG 7	2,5 - 6,5	15	32.0	8	100
53018010	PG 9	3,5 - 8	19	36.0	8	100
53018020	PG 11	4 - 10	22	38.0	8	100
53018030	PG 13,5	6 - 12	24	41.0	9	100
53018040	PG 16	9 - 14	27	44.0	10	50
53018050	PG 21	13 - 18	33	49.0	11	50
53018060	PG 29	14 - 25	42	56.0	11	25
53018070	PG 36	24 - 32	53	66.0	13	10
53018080	PG 42	35 - 38	60	68.0	13	5
53018090	PG 48	39 - 44	65	69.0	14	5

SKINTOP® plastic cable glands PG • Standard

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® STR NPT silver grey						
53015100	PG 7	1,5 - 5	15	32.0	8	100
53015110	PG 9	2 - 6	19	36.0	8	100
53015120	PG 11	2 - 7	22	38.0	8	100
53015130	PG 13,5	4 - 9	24	41.0	9	100
53015140	PG 16	6 - 12	27	44.0	10	50
53015150	PG 21	9 - 16	33	49.0	11	50
53015160	PG 29	11 - 20	42	56.0	11	25
53015170	PG 36	17 - 26	53	66.0	13	10
53015180	PG 42	22 - 31	60	68.0	13	5
53015190	PG 48	26 - 35	65	69.0	14	5
SKINTOP® STR NPT black						
53015300	PG 7	1,5 - 5	15	32.0	8	100
53015310	PG 9	2 - 6	19	36.0	8	100
53015320	PG 11	2 - 7	22	38.0	8	100
53015330	PG 13,5	4 - 9	24	41.0	9	100
53015340	PG 16	6 - 12	27	44.0	10	50
53015350	PG 21	9 - 16	33	49.0	11	50
53015360	PG 29	11 - 20	42	56.0	11	25
53015370	PG 36	17 - 26	53	66.0	13	10
53015380	PG 42	22 - 31	60	68.0	13	5
53015390	PG 48	26 - 35	65	69.0	14	5
SKINTOP® STR light grey						
53018100	PG 7	1,5 - 5	15	32.0	8	100
53018110	PG 9	2 - 6	19	36.0	8	100
53018120	PG 11	2 - 7	22	38.0	8	100
53018130	PG 13,5	4 - 9	24	41.0	9	100
53018140	PG 16	6 - 12	27	44.0	10	50
53018150	PG 21	9 - 16	33	49.0	11	50
53018160	PG 29	11 - 20	42	56.0	11	25
53018170	PG 36	17 - 26	53	66.0	13	10
53018180	PG 42	22 - 31	60	68.0	13	5
53018190	PG 48	26 - 35	65	69.0	14	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® BS



Benefits
- Reliable bending and anti-kink protection
- Cable conservation
- Functional reliability
- To protect flexible cables

Application range
- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Robotics industry
- Light and sound applications
- Moving machine parts

Norm references / Approvals
- UL File Nr. E79903

Product Make-up
- PG connection thread acc. to DIN 40430

Note
- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL
- Version with smaller insert to seal smaller cable cross-sections, SKINTOP® BSR, is available upon request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Colour delivered
Silver grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
Body: Polyamide
Seal: CR

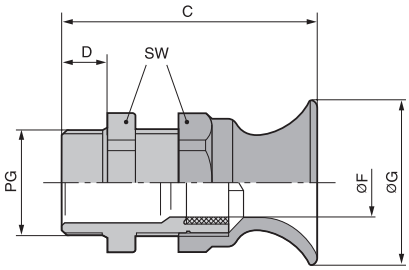
Protection rating
IP 68 - 5 bar

Temperature range
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® BS NPT silver grey						
53015600	PG 7	2,5 - 6,5	15	62.0	8	100
53015610	PG 9	3,5 - 8	19	73.5	8	100
53015620	PG 11	4 - 10	22	86.0	8	100
53015630	PG 13,5	6 - 12	24	98.0	9	50
53015640	PG 16	9 - 14	27	111.5	10	25
53015650	PG 21	13 - 18	33	129.0	11	25
SKINTOP® BS NPT black						
53015800	PG 7	2,5 - 6,5	15	62.0	8	100
53015810	PG 9	3,5 - 8	19	73.5	8	100
53015820	PG 11	4 - 10	22	86.0	8	100
53015830	PG 13,5	6 - 12	24	98.0	9	50
53015840	PG 16	9 - 14	27	111.5	10	25
53015850	PG 21	13 - 18	33	129.0	11	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® BT



Benefits

- Reliable bending and anti-kink protection
- Cable conservation
- Functional reliability

Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Apparatus construction
- Light and sound applications
- Moving machine parts

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- PG connection thread acc. to DIN 40430

Note

- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Colour delivered
Silver grey (RAL 7001)

Material
Body: Polyamide
Seal: CR

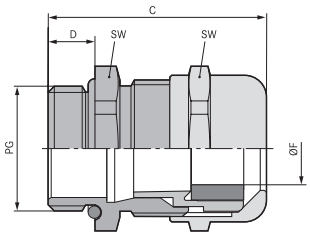
Protection rating
IP 68 - 5 bar

Temperature range
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® BT silver grey						
53015410	PG 9	3,5 - 8	19	42.9	8	100
53015420	PG 11	4 - 10	22	47.7	8	100
53015430	PG 13,5	5 - 12	24	52.0	9	50
53015440	PG 16	9 - 14	27	55.9	10	50
53015450	PG 21	13 - 18	33	64.4	11	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® MS / SKINTOP® MSR



Benefits

SKINTOP® MS

- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

SKINTOP® MSR

- For the benefits, refer to SKINTOP® MS

Application range

SKINTOP® MS

- In areas where mechanical and chemical stability are critical
- Chemical industry
- Measurement and control technology
- Machine and equipment manufacturing
- Plant engineering

SKINTOP® MSR

- With reducing seal insert, to seal cables with smaller outer diameters.

Product Make-up

- PG connection thread acc. to DIN 40430

Note

- Counter nut to be used: SKINDICHT® SM
- Refer to SKINTOP® PG accessories for suitable accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

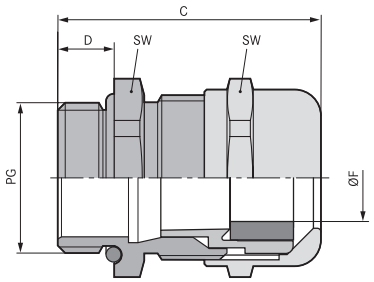
Protection rating
IP 68 - 10 bar

Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS						
52015700	PG 7	2.0 - 6.5	14	25.0	5	100
52015710	PG 9	4.0 - 8.0	17	29.0	6	100
52015720	PG 11	4.0 - 10.0	20	32.0	6	50
52015730	PG 13,5	5.0 - 12.0	22	34.0	6.5	50
52015740	PG 16	8.0 - 14.0	24	35.0	6.5	50
52015750	PG 21	11.0 - 18.0	30	40.0	7	25
52015760	PG 29	16.0 - 25.0	40	48.0	8	25
52015765	PG 36	19.0 - 32.0	50	62.0	15	10
52015766	PG 42	28.0 - 38.0	57	62.0	15	5
52015767	PG 48	34.0 - 44.0	64	62.0	15	5
SKINTOP® MSR						
52015770	PG 7	2.0 - 5.0	14	25.0	5	100
52015780	PG 9	2.0 - 6.0	17	29.0	6	100
52015790	PG 11	3.0 - 7.0	20	32.0	6	50
52015800	PG 13,5	4.0 - 9.0	22	34.0	6.5	50
52015810	PG 16	6.0 - 13.0	24	35.0	6.5	50
52015820	PG 21	8.0 - 16.0	30	40.0	7	25
52015830	PG 29	10.5 - 20.0	40	48.0	8	25
52015831	PG 36	19.0 - 26.0	50	62.0	15	10
52015832	PG 42	24.0 - 31.0	57	62.0	15	5
52015833	PG 48	28.0 - 35.0	64	62.0	15	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® MS-XL / SKINTOP® MSR-XL



Benefits

SKINTOP® MS-XL

- Especially for thick walls
- Maximum reliability
- Wide, variable clamping ranges
- Optimum strain relief

SKINTOP® MSR-XL

- For the benefits, refer to SKINTOP® MS-XL

Application range

SKINTOP® MS-XL

- With long connection thread for applications involving a thicker wall.

SKINTOP® MSR-XL

- With reducing seal insert, to seal cables with smaller outer diameters.

Product Make-up

- PG connection thread acc. to DIN 40430

Note

- Counter nut to be used: SKINDICHT® SM
- Refer to SKINTOP® PG accessories for suitable accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

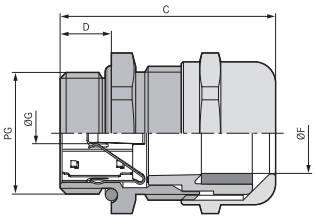
Protection rating
IP 68 - 10 bar

Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-XL						
52115700	PG 7	2.0 - 6.5	14	32.0	12	100
52115710	PG 9	4.0 - 8.0	17	35.0	12	100
52115720	PG 11	4.0 - 10.0	20	38.0	12	50
52115730	PG 13,5	5.0 - 12.0	22	39.5	12	50
52115740	PG 16	8.0 - 14.0	24	40.5	12	50
52115750	PG 21	11.0 - 18.0	30	45.0	12	25
52115760	PG 29	16.0 - 25.0	40	52.0	15	25
SKINTOP® MSR-XL						
52115770	PG 7	2.0 - 5.0	14	32.0	12	100
52115780	PG 9	2.0 - 6.0	17	35.0	12	100
52115790	PG 11	3.0 - 7.0	20	38.0	12	50
52115800	PG 13,5	4.0 - 9.0	22	39.5	12	50
52115810	PG 16	6.0 - 13.0	24	40.5	12	50
52115820	PG 21	8.0 - 16.0	30	45.0	12	25
52115830	PG 29	10.5 - 20.0	40	52.0	15	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® MS-SC



Benefits
- Suitable for cables with and without inner sheath
- Also suitable for continuing the cable screen to another connection
- Low-resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Few operation steps, easy to assemble

Application range
- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Automation technology
- Telecommunication
- Measurement and control technology
- Industrial machinery and plant engineering

Product Make-up
- PG connection thread acc. to DIN 40430

Note
- Refer to SKINTOP® PG accessories for suitable accessories
- EMC counter nut, SKINDICHT® SM nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

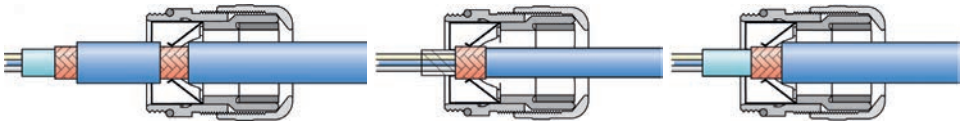
Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing: CR
O-ring: NBR

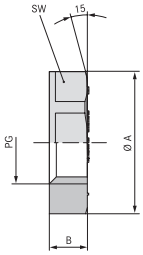
Protection rating
IP 68 - 10 bar

Article number	Article designation / size	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-SC			
53112210	PG 9	6	50
53112220	PG 11	6	50
53112230	PG 13,5	6.5	25
53112240	PG 16	6.5	25
53112250	PG 21	7	25
53112260	PG 29	8	10
53112270	PG 36	15	5
SKINTOP® MS-SC XL			
53112310	PG 9	12	50
53112320	PG 11	12	50
53112330	PG 13,5	12	25
53112340	PG 16	12	25
53112350	PG 21	12	25
53112360	PG 29	15	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



SKINTOP® GMP-GL



Benefits
- Glass fibre-reinforced for maximum mechanical stability
- Supporting surface for spanner means scratches on the housing are avoided

Application range
- For locking SKINTOP® cable glands in boreholes without thread.

Norm references / Approvals
- UL File Nr. E79903

Product Make-up
- PG connection thread

Note
- UL approval only when used with the UL-approved SKINTOP® polyamide cable glands
- Designed for use with SKINTOP® ST(R)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

On request
Available without collar
(without surface for assembling tool)

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Polyamide, glass fibre-reinforced

Temperature range
-20°C to +100°C

Article number	Article designation / size	SW wrench size mm	Pieces / PU
SKINTOP® GMP-GL silver grey with collar			
53019000	PG 7	19	100
53019010	PG 9	22	100
53019020	PG 11	24	100
53019030	PG 13,5	27	100
53019040	PG 16	30	100
53019050	PG 21	36	50
53019060	PG 29	46	50
53019070	PG 36	60	25
53019080	PG 42	65	25
53019090	PG 48	70	25
SKINTOP® GMP-GL black with collar			
53019200	PG 7	19	100
53019210	PG 9	22	100
53019220	PG 11	24	100
53019230	PG 13,5	27	100
53019240	PG 16	30	100
53019250	PG 21	36	50
53019260	PG 29	46	50
53019270	PG 36	60	25
53019280	PG 42	65	25
53019290	PG 48	70	25
SKINTOP® GMP-GL light grey with collar			
53019001	PG 7	19	100
53019011	PG 9	22	100
53019021	PG 11	24	100
53019031	PG 13,5	27	100
53019041	PG 16	30	100
53019051	PG 21	36	50
53019061	PG 29	46	50
53019071	PG 36	60	25
53019081	PG 42	65	25
53019091	PG 48	70	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® DIX

Benefits
- Easy insertion of several cables into one gland
- Higher packing density allows smaller part construction

Application range
- For use in SKINTOP® cable glands.
- A sealing ring with several holes is used in place of the inner sealing insert.

Note
- IP 68 can be achieved when all openings are closed and all bores are optimally occupied, i.e. when using cables with nominal diameter and/or SKINTOP® DIX-DV sealing plugs

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

Colour delivered
natural

Material
Silicone

Protection rating
IP 54

Temperature range
-40°C to +100°C

Article number	Article designation / size	PG size	Number of cables x clamping range	Pieces / PU
SKINTOP® DIX				
53607225	DIX 7225	7	2 x 2.5	100
53607417	DIX 7417	7	4 x 1.7	100
53609230	DIX 9230	9	2 x 3.0	100
53611225	DIX 11225	11	2 x 2.5	100
53611330	DIX 11330	11	3 x 3.0	100
53611240	DIX 11240	11	2 x 4.0	100
53611430	DIX 11430	11	4 x 3.0	100
53613250	DIX 13250	13.5	2 x 5.0	100
53613340	DIX 13340	13.5	3 x 4.0	100
53613440	DIX 13440	13.5	4 x 4.0	100
53616140	DIX 16140	16	1 x 4.0	50
53616225	DIX 16225	16	2 x 2.5	50
53616240	DIX 16240	16	2 x 4.0	50
53616340	DIX 16340	16	3 x 4.0	50
53616350	DIX 16350	16	3 x 5.0	50
53616440	DIX 16440	16	4 x 4.0	50
53616540	DIX 16540	16	5 x 4.0	50
53616450	DIX 16450	16	4 x 5.0	50
53616356	DIX 16356	16	3 x 5.6	50
53616260	DIX 16260	16	2 x 6.0	50
53616360	DIX 16360	16	3 x 6.0	50
53621550	DIX 21550	21	5 x 5.0	50
53621460	DIX 21460	21	4 x 6.0	50
53621640	DIX 21640	21	6 x 4.0	50
53621270	DIX 21270	21	2 x 7.0	50
53621370	DIX 21370	21	3 x 7.0	50
53621280	DIX 21280	21	2 x 8.0	50
53621380	DIX 21380	21	3 x 8.0	50
53629556	DIX 29556	29	5 x 5.6	50
53629470	DIX 29470	29	4 x 7.0	50
53629570	DIX 29570	29	5 x 7.0	50
53629480	DIX 29480	29	4 x 8.0	50
53629290	DIX 29290	29	2 x 9.0	50
53629390	DIX 29390	29	3 x 9.0	50
53629490	DIX 29490	29	4 x 9.0	50
53629675	DIX 29675	29	6 x 7.5	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® DIX-AUTOMATION

Benefits
- Optimal seal when using AS-I bus cables
- Strain relief

Application range
- These seals can be used instead of our standard seals in the SKINTOP® cable glands.
- Control cabinets
- Control panels
- Office applications

Note
- IP 68 can be achieved if the hole is optimally occupied, i.e. when using standard AS-I cables

Product Make-up
- Precise cut for AS-I bus cables

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

Colour delivered
Black, RAL 9005

Material
NBR

Protection rating
IP 54

Temperature range
-40°C to +100°C

Article number	Article designation / size	Pieces / PU
SKINTOP® DIX ASI		
53611000	DIX ASI 11	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINTOP® DIX-DV / SKINTOP® SD / SKINTOP® DV

SKINTOP® DIX-DV SKINTOP® SD SKINTOP® DV

Benefits

SKINTOP® DIX-DV
- Prevents water and dust penetrating into unused bore holes of SKINTOP® DIX multiple sealing inserts

SKINTOP® SD
- Prevents dust and dirt from getting into the housing

SKINTOP® DV
- Prevents humidity from seeping into the housing

Application range

SKINTOP® DIX-DV
- For inserting into unoccupied holes of the SKINTOP® DIX multiple sealing inserts, to ensure protection class.

SKINTOP® SD
- This dust protector can be placed under the cap nut of below mentioned SKINDICHT® types and specified SKINTOP® cable glands.
- Preparations
- Protection of unused connection points

SKINTOP® DV
- These seals are placed into the sealing ring of the SKINTOP® cable glands.
- Preparations
- Protection of unused connection points

Note

SKINTOP® DIX-DV
- When assembled professionally and properly, the protection class of IP 68 can be reached

SKINTOP® SD
- Easy to handle, without disassembly - push cable through
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

SKINTOP® DV
- When assembled professionally and properly, the protection class of IP 68 can be reached
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

ETIM

SKINTOP® SD
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland
SKINTOP® DV
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

RAL

Colour delivered
SKINTOP® DIX-DV
natural
SKINTOP® SD
Black
SKINTOP® DV
Black

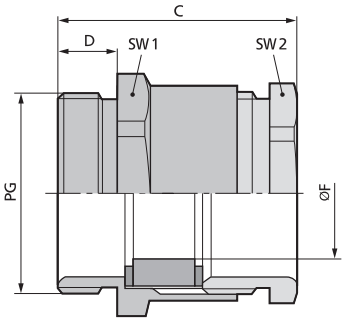
Material
SKINTOP® DIX-DV
Polyamide
SKINTOP® SD
PE foam
SKINTOP® DV
CR

Temperature range
SKINTOP® DIX-DV
-40°C to +100°C
SKINTOP® SD
-70°C to +100°C
SKINTOP® DV
-30°C to +100°C

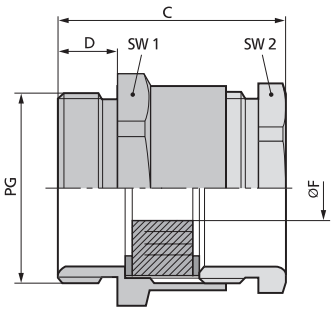
Article number	Article designation / size	Ø F mm	Height (mm)	Pieces / PU
SKINTOP® DIX-DV				
53100003	DIX-DV 3 x 9	3.0	9.0	100
53100004	DIX-DV 4 x 9	4.0	9.0	100
53100005	DIX-DV 5 x 11	5.0	11.0	100
53100055	DIX-DV 5,5 x 11	5.5	11.0	100
53100006	DIX-DV 6 x 14	6.0	14.0	100
53100007	DIX-DV 7 x 14	7.0	14.0	100
53100008	DIX-DV 8 x 14	8.0	14.0	100
53100009	DIX-DV 9 x 14	9.0	14.0	100
SKINTOP® SD				
52025235	SD 7	10.5	2.0	500
52025240	SD 9	13.5	2.0	500
52025250	SD 11	17.0	2.0	250
52025260	SD 13,5	18.5	2.0	250
52025270	SD 16	20.5	2.0	250
52025280	SD 21	26.0	2.0	100
52025290	SD 29	34.5	2.0	100
52025291	SD 36	44.5	2.0	100
SKINTOP® DV				
53800640	DV 7	7.0	6.5	500
53800641	DV 9	8.5	7.5	500
53800579	DV 11	10.5	8.5	250
53800583	DV 13,5	12.5	8.5	250
53800642	DV 16	14.5	9.0	250
53800643	DV 21	18.5	11.0	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® SVRN / SKINDICHT® SVRE



SKINDICHT® SVRN



SKINDICHT® SVRE

Benefits

SKINDICHT® SVRN
- High mechanical stability
- Optimum strain relief

SKINDICHT® SVRE
- With incised sealing ring for adjustment to several cable diameters
- Fewer sizes need to be kept in stock

Application range

SKINDICHT® SVRN
- Brass cable gland with hexagonal fitting, for fast assembly with a flat spanner.

SKINDICHT® SVRE
- Brass cable gland with hexagonal fitting and variable incised sealing ring.

Product Make-up

- PG connection thread

Note

SKINDICHT® SVRN
- Counter nut to be used: SKINDICHT® SM

SKINDICHT® SVRE
- Refer to SKINDICHT® EV for additional accessories
- Counter nut to be used: SKINDICHT® SM

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

SKINDICHT® SVRE
Available with long connection thread
Available with PG 11 to 36 with FKM incised ring

Material
SKINDICHT® SVRN
Body: nickel-plated brass
Sealing ring: CR
SKINDICHT® SVRE
Body: nickel-plated brass
Incised seal: CR

Protection rating
IP 54

Temperature range
SKINDICHT® SVRN
-20°C to +100°C
SKINDICHT® SVRE
-20°C to +80°C

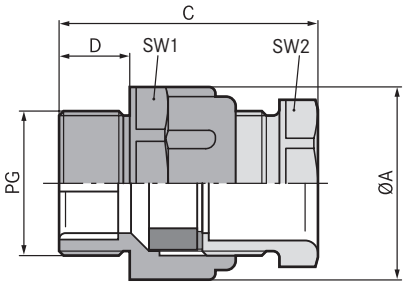
Article number	Article designation / size	Incised sealing ring ØF (mm)	PG size	Clamping range in mm	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SVRN								
52000210	SVRN 7005/N		7	5	14.0 / 13.0	20.6	5	100
52020300	SVRN 7006/N		7	6	14.0 / 13.0	20.6	5	100
52020310	SVRN 7007/N		7	7	14.0 / 13.0	20.6	5	100
52020320	SVRN 9007/N		9	7	17.0 / 15.0	22.6	6	100
52020330	SVRN 9008/N		9	8	17.0 / 15.0	22.6	6	100
52000220	SVRN 9009/N		9	9	17.0 / 15.0	22.6	6	100
52020341	SVRN 11010/N		11	10	20.0 / 18.0	23.6	6	50
52000240	SVRN 13011/N		13.5	11	22.0 / 20.0	26.1	6.5	50
52000241	SVRN 13012/N		13.5	12	22.0 / 20.0	26.1	6.5	50
52000251	SVRN 16014/N		16	14	24.0 / 22.0	27.1	6.5	50
52000260	SVRN 21018/N		21	18	30.0 / 28.0	29.6	7	50
52000270	SVRN 29027/N		29	27	40.0 / 37.0	32.6	8	50
52000280	SVRN 36034/N		36	34	50.0 / 47.0	38.6	9	20
SKINDICHT® SVRE								
52005540	SVRE 9	5/8			17.0 / 15.0	22.6	6	100
52000310	SVRE 11	7/10/12.5			20.0 / 18.0	22.6	6	50
52000320	SVRE 13,5	7/10.5/13/16			22.0 / 20.0	26.1	6.5	50
52000330	SVRE 16	8/10.5/13.5/16			24.0 / 22.0	27.1	6.5	50
52000340	SVRE 21	11/15/18/20			30.0 / 28.0	29.6	7	50
52000350	SVRE 29	19/23/27/31			40.0 / 37.0	32.6	8	50
52000360	SVRE 36	25/28/31/35			50.0 / 47.0	38.6	9	20
52005550	SVRE 42	35.5/39/42.5/46			57.0 / 54.0	43.6	10	10
52005560	SVRE 48	40.5/44/47/50.5			64.0 / 60.0	45.1	10	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800

SKINDICHT® SVFK



Benefits

- Economical type
- Lateral sealing lips fit automatically around various cable dimensions
- Cable-specific seal dimensions are no longer necessary
- Tolerance
- Large opening allows clamping of up to two flat cables

Application range

- For inserting flat cables
- Conveyor systems
- Pumps
- Lifts
- Control cabinet manufacturing

Product Make-up

- PG connection thread

Note

- Counter nut to be used: SKINDICHT® GMK
- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Colour delivered
Light grey (RAL 7035)

Material
Body: Polystyrene
Special sealing insert: CR

Protection rating
IP 54

Temperature range
-20°C to +60°C

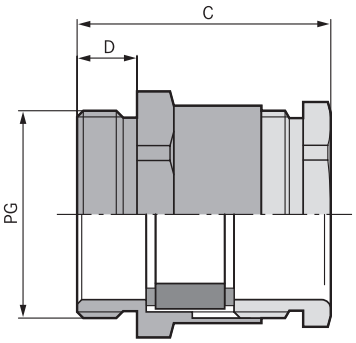
Article number	Article designation / size	Min./max. flat cable width	Min./max. cable thickness (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SVFK							
52005470	PG 16	- - 15.0	- - 5.0	27.0 / 23.0	39.5	10	25
52005680	PG 21	10.0 - 20.5	3.0 - 8.0	32.0 / 30.0	43.0	11	25
52005690	PG 29	15.0 - 27.0	4.0 - 11.5	42.0 / 41.0	45.0	11	25
52005700	PG 36	25.0 - 34.0	4.0 - 11.5	53.0 / 50.0	51.0	13	10
52005710	PG 42	30.0 - 40.0	5.0 - 12.0	60.0 / 55.0	54.0	13	5
52005720	PG 48	35.0 - 45.0	5.0 - 12.0	65.0 / 60.0	55.0	15	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® GMK refer to page 799

SKINDICHT® SVF



Benefits

- High mechanical stability
- Lateral sealing lips fit automatically around various cable dimensions
- Optimum strain relief
- Large opening allows clamping of up to two flat cables

Application range

- For inserting flat cables
- Conveyor systems
- Pumps
- Lifts
- Control cabinet manufacturing

Product Make-up

- PG connection thread

Note

- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications
- Counter nut to be used: SKINDICHT® SM

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
Available with long connection thread

Material
Body: nickel-plated brass
Special sealing insert: CR

Protection rating
IP 54

Temperature range
-20°C to +100°C

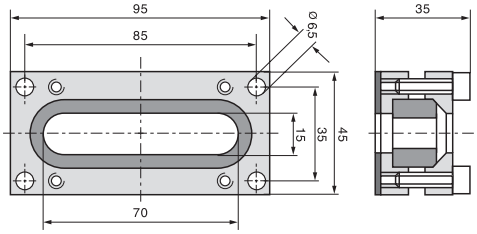
Article number	Article designation / size	Min./max. flat cable width	Min./max. cable thickness (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SVF							
52005480	PG 16	- - 16.0	- - 5.0	24.0 / 22.0	27.5	6.5	25
52005490	PG 21	9.0 - 21.0	3.0 - 8.0	30.0 / 28.0	30.0	7	25
52005500	PG 29	14.0 - 30.0	4.0 - 11.5	40.0 / 37.0	31.5	8	10
52005510	PG36	24.0 - 40.0	4.0 - 11.5	50.0 / 47.0	36.0	9	10
52005520	PG 42	29.0 - 45.0	5.0 - 12.0	57.0 / 54.0	40.0	10	5
52005530	PG 48	34.0 - 50.0	5.0 - 12.0	64.0 / 60.0	41.5	10	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800
- SKINDICHT® SM-PE refer to page 800

SKINDICHT® FL



Benefits

- The seal profiles enable many problems to be solved
- Several flat and round cables can be fed through at the same time
- Through the internal conical contour in the upper part of the housing, the sealing inserts are pressed onto the cable

Application range

- Cable flange that can be used universally, mainly for large flat cables.
- Lifts
- Conveyor systems
- Crane and conveying machinery
- Power chains

Note

- When assembled professionally and properly, the protection class of IP 65 can be reached
- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

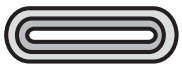
Material
Body: aluminium, special untreated alloy
Screws and spring washers: zinc-plated steel
Seal: NBR

Protection rating
IP 65

Temperature range
-20°C to +100°C

Article number	Article designation / size	Cable pass length x width in mm	Dimensions: L x W x H (mm)	Pieces / PU
SKINDICHT® FL				
52008010	FL 1	70 x 12 + 63 x 7	45.0 x 35.0 x 95.0	1
52008020	FL 2	49 x 4,5	45.0 x 35.0 x 95.0	1
52008030	FL 3	49 x 4,5 + 49 x 4,5 (49 x 11,5)	45.0 x 35.0 x 95.0	1
52008040	FL 4	63 x 12,0 (+0,2)	45.0 x 35.0 x 95.0	1
52008050	FL 5	70 x 12	45.0 x 35.0 x 95.0	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.


FL 1
1 x 70 x 12 mm
1 x 63 x 7 mm

FL 4
63 x 12 mm

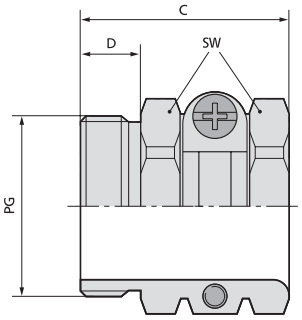
FL 2
49 x 4,5 mm

FL 5
70 x 12 mm

FL 3
2 x 49 x 4,5 mm
1 x 49 x 11,5 mm

e.g. 4 x ÖLFLEX® CLASSIC 110
3 x 1,5 mm² / Ø 6,7 mm

SKINDICHT® SH



Benefits

- Seawater-resistant
- Anti-magnetic
- Corrosion-resistant
- Stable and safe strain relief

Application range

- Extremely robust and solid strain relief cable gland
- Building sites
- Plant engineering
- Electric motor manufacturing

Product Make-up

- PG connection thread

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
Available with long connection thread

Material
Body: nickel-plated brass

Protection rating
IP 20

Temperature range
-20°C up to +200°C

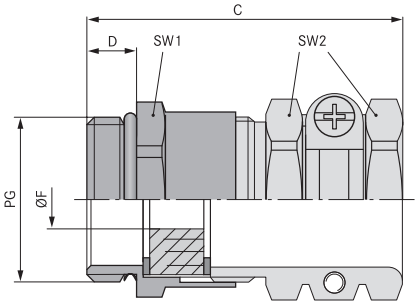
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Max. fitting size for installation (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SH							
52000830	PG 7	8 - 10	15.0	22	17.5	5.5	50
52000840	PG 9	10 - 12,5	17.0	25	20.5	6	50
52000850	PG 11	11 - 15	20.0	28	21.5	6	50
52000860	PG 13,5	14 - 16,5	22.0	32	24.0	7.5	25
52000870	PG 16	15 - 18	24.0	35	26.0	7.5	25
52000880	PG 21	18 - 23,5	30.0	46	29.0	8	25
52000890	PG 29	23 - 31	41.0	58	33.0	8	10
52000900	PG 36	29 - 40,5	50.0	70	36.5	9.5	10
52000910	PG 42	34 - 45	57.0	78	38.0	10	5
52000920	PG 48	39 - 50	64.0	86	39.5	11.5	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800

SKINDICHT® SHZ



Benefits

- With incised sealing ring for adjustment to several cable diameters
- High strain relief
- Robust
- For cables with large outer diameters

Application range

- Compact brass cable gland for reliable strain relief, solid, for large cable diameters.

Product Make-up

- PG connection thread

Note

- SKINDICHT® SHZ-XL is similar to the SKINDICHT® SHZ, but has an extended connection thread for thick walls
- Refer to SKINDICHT® EV for additional accessories
- Counter nut to be used: SKINDICHT® SM

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated brass
Sealing: CR
O-ring: NBR

Protection rating
IP 55

Temperature range
-20°C to +80°C

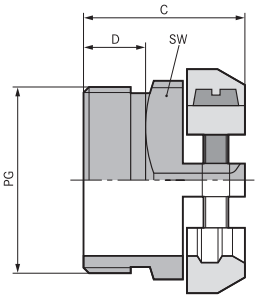
Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SHZ							
52005590	PG 7	5 - 6	21	14.0 / 15.0	30.0	5	50
52005600	PG 9	7,5 - 8,5	25	17.0 / 17.0	34.0	6	50
52000930	PG 11	9,5 - 12	28	20.0 / 20.0	35.0	6	25
52000940	PG 13,5	12,5 - 14	32	22.0 / 22.0	40.0	6.5	25
52000950	PG 16	13,5 - 16	35	24.0 / 24.0	42.0	6.5	25
52000960	PG 21	15,5 - 21	46	30.0 / 30.0	47.0	7	25
52000970	PG 29	21,5 - 27,5	58	40.0 / 41.0	53.0	8	10
52000980	PG 36	27 - 34	70	50.0 / 50.0	61.0	9	10
52005610	PG 42	34 - 43	78	57.0 / 57.0	66.0	10	5
52005620	PG 48	38 - 48	86	64.0 / 64.0	68.0	10	5
SKINDICHT® SHZ-XL							
52023717	PG 9	7,5 - 8,5	25	17.0 / 17.0	43.0	10	50
52023718	PG 11	9,5 - 12	28	20.0 / 20.0	44.0	10	25
52023719	PG 13,5	12,5 - 14	32	22.0 / 22.0	48.5	10	25
52023720	PG 16	13,5 - 16	35	24.0 / 24.0	50.5	10	25
52024840	PG 21	15,5 - 21	46	30.0 / 30.0	55.0	11	25
52025530	PG 29	21,5 - 27,5	58	40.0 / 41.0	60.0	13	10
52023721	PG 36	27 - 34	70	50.0 / 50.0	67.0	13	10
52023722	PG 42	34 - 43	78	57.0 / 57.0	71.0	14	5
52023723	PG 48	38 - 48	86	64.0 / 64.0	73.0	14	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800

SKINDICHT® SK



Benefits

- Reliable strain relief
- Wide clamping range

Application range

- Cable gland with two solid brass saddle clamps
- Connectors
- Switches
- Control panels

Product Make-up

- PG connection thread

Note

- Counter nut to be used: SKINDICHT® SM

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
Available with long connection thread

Material
Body: nickel-plated brass

Protection rating
IP 20

Temperature range
-20°C up to +200°C

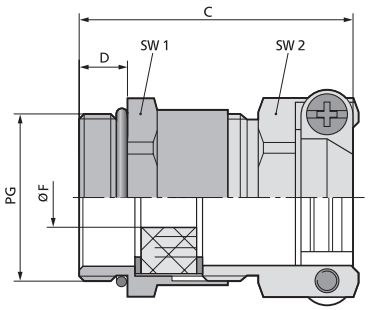
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Max. fitting size for installation (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SK							
52004230	PG 9	6 - 12	19.0	24	16.5	6	50
52004240	PG 11	7 - 15	21.0	27	16.5	6	50
52004250	PG 13,5	12 - 16,5	22.0	30	18.5	7.5	25
52004260	PG 16	13 - 18	24.0	33	19.0	7.5	25
52004270	PG 21	15 - 23	30.0	42	22.5	8	25
51712740	PG 29	20 - 31	41.0	58	26.0	8	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800

SKINDICHT® SKZ



Benefits
- With incised sealing ring for adjustment to several cable diameters
- High strain relief
- High mechanical stability

Application range
- Saddle clamp strain relief gland for harsh application conditions.
- Building sites
- Plant engineering
- Electric motor manufacturing

Product Make-up
- PG connection thread

Note
- SKINDICHT® SKZ-XL is similar to the SKINDICHT® SKZ, but has an extended connection thread for thick walls
- Counter nut to be used: SKINDICHT® SM
- Refer to SKINDICHT® EV for additional accessories

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated brass
Incised sealing ring: CR
O-ring: NBR

Protection rating
IP 55

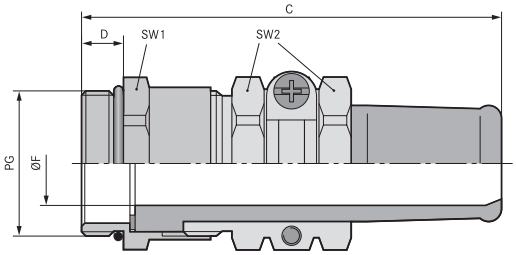
Temperature range
-30°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SKZ							
52004280	PG 9	6 - 8,5	24	17.0 / 17.0	30.0	6	50
52004290	PG 11	8 - 12	27	20.0 / 21.0	30.0	6	50
52004300	PG 13,5	12 - 14	30	22.0 / 22.0	34.0	6.5	25
52004310	PG 16	13 - 16	33	24.0 / 24.0	35.0	6.5	25
52004320	PG 21	15 - 21	42	30.0 / 30.0	41.0	7	25
52005570	PG 29	20 - 29	58	40.0 / 41.0	46.0	8	10
SKINDICHT® SKZ-XL							
52005575	PG 9	6 - 8,5	24	17.0 / 17.0	39.0	15	50
52005576	PG 11	8 - 12	27	20.0 / 21.0	39.0	15	50
52005577	PG 13,5	12 - 14	30	22.0 / 22.0	42.5	15	25
54000043	PG 16	13 - 16	33	24.0 / 24.0	43.5	15	25
54000011	PG 21	15 - 21	42	30.0 / 30.0	49.0	15	25
54000098	PG 29	20 - 27,5	58	40.0 / 41.0	53.0	15	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 800

SKINDICHT® SR



Benefits

- Reliable bending and anti-kink protection
- High strain relief
- Robust
- For cables with large outer diameters
- High degree of protection

Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Portable equipment
- Building sites
- Moving machine parts

Product Make-up

- PG connection thread

Note

- Counter nut to be used: SKINDICHT® SM
- For EMC version, refer to SKINDICHT® SRE

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
Available with long connection thread

Material
Body: nickel-plated brass
O-ring: NBR
Anti-kink protection: CR

Protection rating
IP 65

Temperature range
-20°C to +80°C

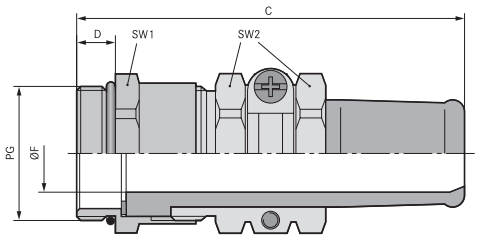
Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SR							
52000990	SR 07/05	3,5 - 5	23	14.0 / 15.0	50.0	5	50
52001000	SR 09/07	5,5 - 7	25	17.0 / 17.0	52.0	6	50
52001010	SR 11/07	5,5 - 7	28	20.0 / 20.0	56.0	6	25
52001020	SR 11/09	7,5 - 9	28	20.0 / 20.0	56.0	6	25
52001030	SR 13/09	7,5 - 9	32	22.0 / 22.0	62.0	6.5	25
52001040	SR 13/11	9 - 11	32	22.0 / 22.0	62.0	6.5	25
52001050	SR 13/13	11 - 13	32	22.0 / 22.0	62.0	6.5	25
52001060	SR 16/13	11,5 - 13	35	24.0 / 24.0	67.0	6.5	25
52001070	SR 16/15	13 - 15	35	24.0 / 24.0	67.0	6.5	25
52001080	SR 21/15	13,5 - 15	46	30.0 / 30.0	79.0	7	25
52001090	SR 21/17	15 - 17	46	30.0 / 30.0	79.0	7	25
52001100	SR 21/19	17 - 19	46	30.0 / 30.0	79.0	7	25
52001110	SR 21/20	18 - 20	46	30.0 / 30.0	79.0	7	25
52001120	SR 29/20	18 - 20	59	40.0 / 41.0	91.0	8	10
52001130	SR 29/23	21 - 23	59	40.0 / 41.0	91.0	8	10
52001140	SR 29/25	23 - 25	59	40.0 / 41.0	91.0	8	10
52001150	SR 36/26	23 - 26	70	50.0 / 50.0	110.0	9	5
52001160	SR 36/30	27 - 30	70	50.0 / 50.0	110.0	9	5
52001170	SR 36/33	30 - 33	70	50.0 / 50.0	110.0	9	5
52001180	SR 36/35	32 - 35	70	50.0 / 50.0	110.0	9	5
52001190	SR 42/35	32 - 35	75	57.0 / 57.0	114.0	10	5
52001200	SR 42/38	35 - 38	75	57.0 / 57.0	114.0	10	5
52001210	SR 42/40	36 - 40	75	57.0 / 57.0	114.0	10	5
52001220	SR 48/40	36 - 40	83	64.0 / 64.0	119.0	10	1
52001230	SR 48/44	40 - 44	83	64.0 / 64.0	119.0	10	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SNR refer to page 814
- SKINDICHT® SM refer to page 800

SKINDICHT® SR-SV



Benefits
- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Seawater-resistant
- High strain relief
- Robust

Application range
- Special cable gland with FKM anti-kink sleeve. Our own reinforced acid-resistant FKM receptacle does not show any effects of aging even after an extended period of use at a temperature of +165°C.
- Machine and turbine manufacturing
- Power plant engineering
- Laboratory

Product Make-up
- PG connection thread

Note
- Counter nut to be used: SKINDICHT® SM
- EMC version is available upon request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
Available with long connection thread

Material
Body: nickel-plated brass
O-ring: FKM
Anti-kink protection: FKM

Protection rating
IP 65

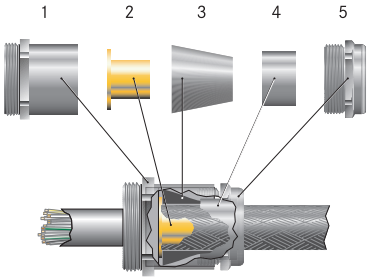
Temperature range
-15°C to +165°C

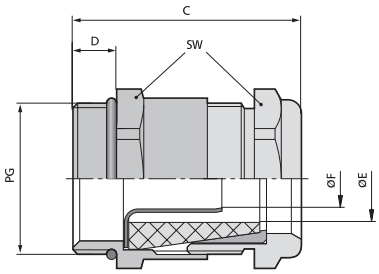
Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SR-SV							
52023620	SR-SV 11/07	5,5 - 7	28	20.0 / 20.0	56.0	6	25
52023621	SR-SV 11/09	7,5 - 9	28	20.0 / 20.0	56.0	6	25
52023622	SR-SV 13/09	7,5 - 9	32	22.0 / 22.0	62.0	6.5	25
52023623	SR-SV 13/11	9 - 11	32	22.0 / 22.0	62.0	6.5	25
52023624	SR-SV 13/13	11 - 13	32	22.0 / 22.0	62.0	6.5	25
52023625	SR-SV 16/13	11,5 - 13	35	24.0 / 24.0	67.0	6.5	10
52023626	SR-SV 16/15	13 - 15	35	24.0 / 24.0	67.0	6.5	10
52023627	SR-SV 21/15	13,5 - 15	40	30.0 / 30.0	79.0	7	10
52023628	SR-SV 21/17	15 - 17	46	30.0 / 30.0	79.0	7	10
52023629	SR-SV 21/19	17 - 19	46	30.0 / 30.0	79.0	7	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 800

SKINDICHT® SHVE





Benefits

- Optimum, low-resistance 360° screen contact
- High degree of protection
- High strain relief

Application range

- Earthing gland, for applications where electrical interference fields can occur.
- Medical engineering
- Frequency converters
- Airports
- Measurement and control technology

Product Make-up

- 1 fitting
- 2 earth sleeves
- 3 sealing cones
- 4 cone, brass
- 5 compression screws

Note

- Counter nut to be used: SKINDICHT® SM
- EMC counter nut, SKINDICHT® SM nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- Example order identification:
  SHVE 13.5 / 9 / 9 / 5
  13.5 = PG thread compression screw
  9 = PG connection thread
  9 = Clear width of sealing cone
  5 = Clear width earthing sleeve

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated
Earthing sleeve: blank brass
Special sealing cone: CR
O-ring: NBR

Protection rating
IP 68 - 10 bar

Temperature range
-20°C to +80°C

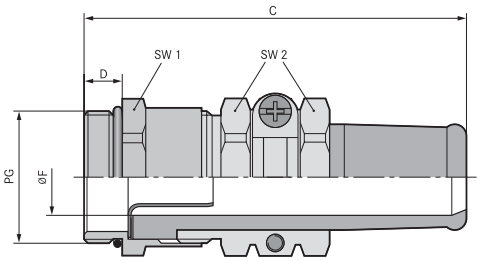
Article number	Article designation / size	Outer sheath Ø, min./ max. (mm)	Min./max. inner sheath Ø (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SHVE							
52010400	9/9/6/3,2	4.0 / 5,8	2,2 / 3,2	17	28.5	6	25
52010405	9/9/7/3,2	5.0 / 6,8	2,2 / 3,2	17	28.5	6	25
52010415	9/9/6/3,6	4.0 / 5,8	2,6 / 3,6	17	28.5	6	25
52010420	9/9/7/3,6	5.0 / 6,8	2,6 / 3,6	17	28.5	6	25
52010440	11/11/7/4,5	5.0 / 6,8	3,5 / 4,5	20	31.0	6	25
52010450	11/11/9/4,5	6,8 / 8,8	3,5 / 4,5	20	31.0	6	25
52010460	13,5/9/9/5	6,8 / 8,8	3,5 / 5.0	22	32.5	5.5	25
52010490	13,5/11/9/5	6,8 / 8,8	3,5 / 5.0	22	32.5	5.5	25
52010470	13,5/9/9/6	6,8 / 8,8	4,5 / 6.0	22	32.5	5.5	25
52010500	13,5/11/9/6	6,8 / 8,8	4,5 / 6.0	22	32.5	5.5	25
52005080	13,5/13,5/9/6	6,8 / 8,8	4,5 / 6.0	22	37.0	6	25
52010480	13,5/9/11/7	8,5 / 10,8	5,5 / 7.0	22	32.5	5.5	25
52010510	13,5/11/11/7	8,5 / 10,8	5,5 / 7.0	22	32.5	5.5	25
52005090	13,5/13,5/11/7	8,5 / 10,8	5,5 / 7.0	22	37.0	6	25
52010520	16/11/11/8	8,5 / 10,8	6.0 / 8.0	24	35.0	5.5	25
52010560	16/13,5/11/8	8,5 / 10,8	6.0 / 8.0	24	35.5	6	25
52005100	16/16/11/8	8,5 / 10,8	6.0 / 8.0	24	37.5	6	25
52010530	16/11/13/9	10,8 / 12,8	7.0 / 9.0	24	35.0	5.5	25
52010570	16/13,5/13/9	10,8 / 12,8	7.0 / 9.0	24	35.5	6	25
52005110	16/16/13/9	10,8 / 12,8	7.0 / 9.0	24	37.5	6	25
52010540	16/11/13/10	10,8 / 12,8	8.0 / 10.0	24	35.0	5.5	25
52010580	16/13,5/13/10	10,8 / 12,8	8.0 / 10.0	24	35.5	6	25
52005120	16/16/13/10	10,8 / 12,8	8.0 / 10.0	24	37.5	6	25
52010550	16/11/15/11	12.0 / 14,8	9.0 / 11.0	24	35.0	5.5	25
52010590	16/13,5/15/11	12.0 / 14,8	9.0 / 11.0	24	35.5	6	25
52005130	16/16/15/11	12.0 / 14,8	9.0 / 11.0	24	37.5	6	25
52010600	21/16/16/12	14.0 / 15,8	10.0 / 12.0	30	38.5	6.5	25
52005140	21/21/16/12	14.0 / 15,8	10.0 / 12.0	30	43.5	7	25
52010610	21/16/16/13	14.0 / 15,8	11.0 / 13.0	30	38.5	6.5	25
52005150	21/21/16/13	14.0 / 15,8	11.0 / 13.0	30	43.5	7	25
52010620	21/16/18/14	15,8 / 17,8	12.0 / 14.0	30	38.5	6.5	25
52005160	21/21/18/14	15,8 / 17,8	12.0 / 14.0	30	43.5	7	25
52010630	21/16/18/15	15,8 / 17,8	13.0 / 15.0	30	38.5	6.5	25
52005170	21/21/18/15	15,8 / 17,8	13.0 / 15.0	30	43.5	7	25
52010640	21/16/20/16	17,5 / 19,8	14.0 / 16.0	30	38.5	6.5	25
52005180	21/21/20/16	17,5 / 19,8	14.0 / 16.0	30	43.5	7	25
52005190	29/29/22/17	19,5 / 21,8	15.0 / 17.0	40	47.5	8	10
52005200	29/29/22/18	19,5 / 21,8	16.0 / 18.0	40	47.5	8	10
52005210	29/29/24/19	21,5 / 23,8	17.0 / 19.0	40	47.5	8	10
52005240	29/29/26/19	23,5 / 25,8	17.0 / 19.0	40	47.5	8	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800
- SKINDICHT® SM-PE refer to page 800

SKINDICHT® SRE



Benefits

- Perfect seal with anti-kink protection
- Optimum, low-resistance 360° screen contact
- Cable-protecting strain relief
- Gentle cable clamping
- High degree of protection

Application range

- Earthing gland with additional anti-kink protection. For applications where electrical interference fields can occur.
- Moving machine parts
- Conveyor and transport systems
- Production lines
- Measurement and control technology

Product Make-up

- PG connection thread

Note

- Counter nut to be used: SKINDICHT® SM
- EMC counter nut, SKINDICHT® SM nut should be used to ensure optimum contact with painted, anodised or powder-coated housings

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
Available with longer connection thread

Material
Body: nickel-plated brass
Earthing sleeve: plain brass
Anti-kink sleeve: CR/NBR
O-ring: NBR

Protection rating
IP 65

Temperature range
-20°C to +80°C

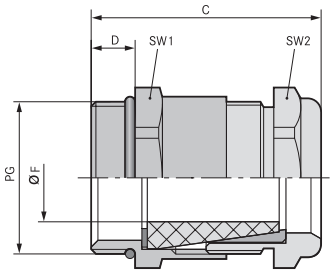
Article number	Article designation / size	Outer sheath Ø, min./max. (mm)	Min./max. inner sheath Ø (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SRE							
52010780	13,5/9/9/6	7,5 / 9.0	4,5 / 6.0	22.0 / 22.0	60.0	5.5	25
52010790	13,5/9/11/7	9.0 / 11.0	5,5 / 7.0	22.0 / 22.0	60.0	5.5	25
52010800	13,5/11/9/6	7,5 / 9.0	4,5 / 6.0	22.0 / 22.0	60.0	5.5	25
52010810	13,5/11/11/7	9.0 / 11.0	5,5 / 7.0	22.0 / 22.0	60.0	5.5	25
52005310	13,5/13,5/9/6	7,5 / 9.0	4,5 / 6.0	22.0 / 22.0	60.0	6.5	25
52005320	13,5/13,5/11/7	9.0 / 11.0	5,5 / 7.0	22.0 / 22.0	60.0	6.5	25
52010820	16/11/13/9	11.0 / 13.0	7.0 / 9.0	24.0 / 24.0	65.0	5.5	25
52010830	16/11/13/10	11.0 / 13.0	8.0 / 10.0	24.0 / 24.0	65.0	5.5	25
52010840	16/11/15/11	13.0 / 15.0	9.0 / 11.0	24.0 / 24.0	65.0	5.5	25
52010850	16/13,5/13/9	11.0 / 13.0	7.0 / 9.0	24.0 / 24.0	67.0	6	25
52010860	16/13,5/13/10	11.0 / 13.0	8.0 / 10.0	24.0 / 24.0	67.0	6	25
52010870	16/13,5/15/11	13.0 / 15.0	9.0 / 11.0	24.0 / 24.0	67.0	6	25
52005330	16/16/13/9	11.0 / 13.0	7.0 / 9.0	24.0 / 24.0	65.0	6.5	25
52005340	16/16/13/10	11.0 / 13.0	8.0 / 10.0	24.0 / 24.0	65.0	6.5	25
52005350	16/16/15/11	13,5 / 15.0	9.0 / 11.0	24.0 / 24.0	65.0	6.5	25
52010880	21/16/15/12	13,5 / 15.0	10.0 / 12.0	30.0 / 30.0	78.0	6.5	25
52010890	21/16/17/14	15.0 / 17.0	12.0 / 14.0	30.0 / 30.0	78.0	6.5	25
52010900	21/16/19/15	17.0 / 19.0	13.0 / 15.0	30.0 / 30.0	78.0	6.5	25
52010910	21/16/20/16	18.0 / 20.0	14.0 / 16.0	30.0 / 30.0	78.0	6.5	25
52005360	21/21/15/12	13.0 / 15.0	10.0 / 12.0	30.0 / 30.0	78.0	7	25
52005370	21/21/17/14	15.0 / 17.0	12.0 / 14.0	30.0 / 30.0	78.0	7	25
52005380	21/21/19/15	17.0 / 19.0	13.0 / 15.0	30.0 / 30.0	78.0	7	25
52005390	21/21/20/16	18.0 / 20.0	14.0 / 16.0	30.0 / 30.0	78.0	7	25
52005400	29/29/20/17	19.0 / 20.0	15.0 / 17.0	40.0 / 41.0	90.0	8	10
52005410	29/29/23/19	22.0 / 23.0	17.0 / 19.0	40.0 / 41.0	90.0	8	10
52005411	36/36/26/22	23,5 / 26.0	20.0 / 22.0	50.0 / 50.0	109.0	9	5
52005412	36/36/30/24	27.0 / 30.0	22.0 / 24.0	50.0 / 50.0	109.0	9	5
52003585	36/36/30/26	27.0 / 30.0	24.0 / 26.0	50.0 / 50.0	109.0	9	5
52005414	36/36/33/28	30.0 / 33.0	26.0 / 28.0	50.0 / 50.0	109.0	9	5
52023586	36/36/35/30	32.0 / 35.0	28.0 / 30.0	50.0 / 50.0	109.0	9	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SNR refer to page 814
- SKINDICHT® SM refer to page 800
- SKINDICHT® SM-PE refer to page 800

SKINDICHT® SHV



Benefits

- Watertight
- Gentle cable clamping
- Robust
- High strain relief

Application range

- Watertight cable gland with conical sealing element.
- Pumps
- Floater switches

Product Make-up

- PG connection thread

Note

- Counter nut to be used: SKINDICHT® SM
- Suitable accessory: SKINDICHT® SHV sealing cones
- Example order designation:
  SHV 13.5/9/9
  13.5 = PG thread of compression screw
  9 = PG connection thread
  9 = clear opening of sealing cone

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated brass
Sealing cone: CR
O-ring: NBR

Protection rating
IP 68 - 10 bar

Temperature range
-20°C to +80°C

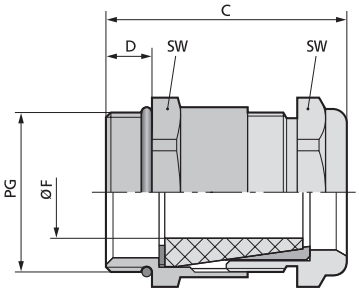
Article number	Article designation / size	Clamping range ØF (mm)	SW 1/2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SHV						
52002530	SHV 7/7/5	3,8 - 4,8	14	26.0	5	50
52002550	SHV 9/9/6	4,8 - 5,8	17	28.5	6	50
52002540	SHV 9/9/7	5,8 - 6,8	17	28.5	6	50
52002570	SHV 11/11/7	5,8 - 6,8	20	31.0	6	25
52002560	SHV 11/11/9	6,8 - 8,8	20	31.0	6	25
52010650	SHV 13,5/9/9	6,5 - 8,8	22	33.0	6.5	25
52010660	SHV 13,5/9/11	8,5 - 10,8	22	33.0	6.5	25
52010670	SHV 13,5/11/9	6,8 - 8,8	22	33.0	6.5	25
52010680	SHV 13,5/11/11	8,5 - 10,8	22	33.0	6.5	25
52002600	SHV 13,5/13,5/9	6,8 - 8,8	22	33.0	6.5	25
52002590	SHV 13,5/13,5/11	8,5 - 10,8	22	33.0	6.5	25
52010690	SHV 16/11/11	8,5 - 10,8	24	35.0	6.5	25
52010700	SHV 16/11/13	10,8 - 12,8	24	35.0	6.5	25
52010710	SHV 16/11/15	13,8 - 14,8	24	35.0	6.5	25
52010720	SHV 16/13,5/11	8,5 - 10,8	24	35.0	6.5	25
52010730	SHV 16/13,5/13	10,8 - 12,8	24	35.0	6.5	25
52010740	SHV 16/13,5/15	13,8 - 14,8	24	35.0	6.5	25
52002640	SHV 16/16/11	8,5 - 10,8	24	35.0	6.5	25
52002630	SHV 16/16/13	10,8 - 12,8	24	35.0	6.5	25
52002620	SHV 16/16/15	13,8 - 14,8	24	35.0	6.5	25
52010750	SHV 21/16/16	13,3 - 15,6	30	40.0	7	25
52010760	SHV 21/16/18	15,8 - 17,8	30	38.0	7	25
52010770	SHV 21/16/20	17,5 - 19,8	30	38.0	7	25
52002670	SHV 21/21/16	14,8 - 15,8	30	38.0	7	25
52002660	SHV 21/21/18	15,8 - 17,8	30	38.0	7	25
52002650	SHV 21/21/20	17,5 - 19,8	30	38.0	7	25
52002710	SHV 29/29/22	19,5 - 21,8	40	44.5	8	10
52002700	SHV 29/29/24	21,8 - 23,8	40	44.5	8	10
52002690	SHV 29/29/26	23,8 - 25,8	40	44.5	8	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800

SKINDICHT® SHV FKM



Benefits

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Watertight
- High strain relief
- Robust

Application range

- Watertight and high temperature-resistant cable gland with special conical FKM sealing element
- Brickworks
- Sewage treatment plants
- Car wash sites

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

Material
Body: nickel-plated brass
Sealing cone: FKM
O-ring: FKM

Protection rating
IP 68 - 10 bar

Temperature range
-15°C to +200°C

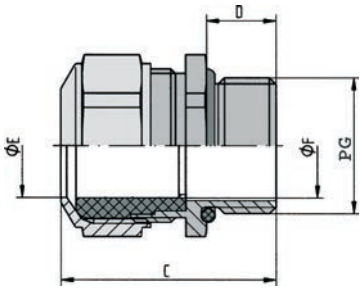
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SHV FKM						
52024934	SHV-FKM 7/7/5	3,8 - 4,8	14	26.0	5	50
54000015	SHV-FKM 9/9/6	4,8 - 5,8	17	28.5	6	50
52024935	SHV-FKM 9/9/7	5,8 - 6,8	17	28.5	6	50
52024936	SHV-FKM 11/11/7	5,8 - 6,8	20	31.0	6	25
52024937	SHV-FKM 11/11/9	6,8 - 8,8	20	31.0	6	25
52024970	SHV-FKM 13,5/9/11	8,5 - 10,8	22	33.0	6.5	25
52024968	SHV-FKM 13,5/11/9	6,8 - 8,8	22	33.0	6.5	25
52024969	SHV-FKM 13,5/11/11	8,5 - 10,8	22	33.0	6.5	25
52024961	SHV-FKM 13,5/13,5/9	6,8 - 8,8	22	33.0	6.5	25
52024962	SHV-FKM 13,5/13,5/11	8,5 - 10,8	22	33.0	6.5	25
52024971	SHV-FKM 16/11/13	10,8 - 12,8	24	35.0	6.5	25
52024973	SHV-FKM 16/13,5/13	10,8 - 12,8	24	35.0	6.5	25
52024964	SHV-FKM 16/16/13	10,8 - 12,8	24	35.0	6.5	25
52024965	SHV-FKM 16/16/15	13,8 - 14,8	24	35.0	6.5	25
52024966	SHV-FKM 21/21/18	15,8 - 17,8	30	38.0	7	25
52024967	SHV-FKM 21/21/20	17,5 - 19,8	30	38.0	7	25
52024974	SHV-FKM 29/29/22	19,5 - 21,8	40	44.5	8	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800

SKINDICHT® CN



Info

- Flexible down to -40°C

Benefits

- For high temperatures
- Resistant to oils, solvents, acids and chemicals
- Seawater-resistant
- For high mechanical stress
- High corrosion-resistance

Application range

- Chromium nickel steel cable gland with FPM seal, specially designed for use under tough conditions
- Pharmaceutical and petrochemical industry
- Offshore sector
- Wind power plants
- Brickworks

Product Make-up

- PG connection thread

Note

- Refer to the chart to find a suitable counter-nut for SKINDICHT® SM INOX

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
The installation dimensions can be found in appendix T21

On request
TPE seal

Material
Body: Chrome-nickel steel in accordance with DIN, material no. 1.4305
Seal: FPM
O-ring: FPM

Protection rating
IP 68 - 5 bar

Temperature range
-40°C to +200°C

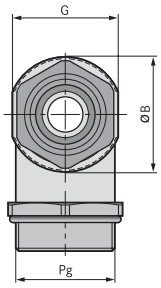
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® CN						
52032520	PG 9	6 - 10	18	28.0	10	5
52032525	PG 11	5 - 12	22	32.0	10	5
52032540	PG 13,5	8 - 15	24	34.0	10	5
52032550	PG 16	8 - 15	24	34.0	10	5
52032560	PG 21	12,5 - 20,5	30	42.0	12	5
52032570	PG 29	19 - 27,5	41	53.0	12	5

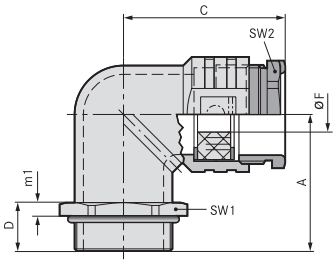
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM INOX refer to page 800

SKINDICHT® RWV





Benefits

- Strain relief
- Sealed by incised sealing ring
- Corrosion-resistant
- Decrease in installation height
- Seawater-resistant

Application range

- Angled glands are used in areas where cables have to run in parallel to the housing wall.
- Electric motor manufacturing
- Machine and equipment manufacturing
- Plant engineering
- Light and sound applications

Product Make-up

- PG connection thread

Note

- Counter nut to be used: SKINDICHT® SM
- For combination with other SKINDICHT® or SKINTOP® cable glands, we propose our SKINDICHT® RWV without incised sealing ring and compression screw

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: zinc die-casting
Compression screw and hexagon nut: nickel-plated brass
Incised sealing ring: CR
O-ring: NBR

Protection rating
IP 55

Temperature range
-20°C to +80°C
Without incised sealing ring: -20°C to +100°C

Article number	Article designation / size	A mm	G mm	Ø B mm	Incised sealing ring ØF (mm)	Overall length, C (mm)	Thread length, D (mm)	SW1/SW2 mm	Pieces / PU
SKINDICHT® RWV									
52004180	PG 7	20.5	14	15.3	5	26.0	8.5	15.0 / 13.0	25
52004190	PG 9	23.5	17	18.3	5/8	28.0	9.5	18.0 / 15.0	25
52004200	PG 11	26	20	21.9	7/10/12.5	31.5	10	21.0 / 18.0	25
52004210	PG 13,5	28.5	22	24	7/10.5/13/16	34.5	10.5	23.0 / 20.0	25
52004220	PG 16	31	24	26.1	8/10.5/13.5/16	35.5	11	26.0 / 22.0	10
52005420	PG 21	33.5	30	32.5	11/15/18/20	42.5	11.5	32.0 / 28.0	10
52004225	PG 29	43	40	42	19/23/27/31	49.0	13	41.0 / 37.0	10
SKINDICHT® RWV without E+D									
52024020	PG 7	20.5	14	15.3		20.2	8.5	15.0 / 13.0	25
52023970	PG 9	23.5	17	18.3		21.8	9.5	18.0 / 15.0	25
52023980	PG 11	26	20	21.9		24.9	10	21.0 / 18.0	25
52023990	PG 13,5	28.5	22	24		27.4	10.5	23.0 / 20.0	25
52024000	PG 16	31	24	26.1		28.5	11	26.0 / 22.0	10
52024010	PG 21	33.5	30	32.5		34.8	11.5	32.0 / 28.0	10
52024015	PG 29	43	40	42		41.2	13	41.0 / 37.0	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800

SKINDICHT® SE

Benefits

- Sealed by incised sealing ring
- Corrosion-resistant
- Easy to install
- Completely safe cable entry
- Low overall height

Application range

- For high mechanical stress
- When no connection thread is provided

Product Make-up

- PG 16 - 21 with 2 screw holes
  PG 29 - 36 with 4 screw holes

Note

- For combination with other SKINDICHT® or SKINTOP® cable glands, we propose our SKINDICHT® SE without incised sealing ring (E) and compression screw (D)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Body: zinc die-casting, grey, hammer tone finish
Incised sealing ring: CR
O-ring: NBR
Compression screw: nickel-plated brass

Protection rating
IP 55

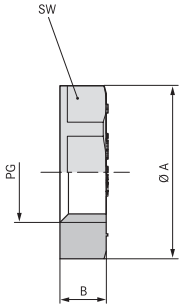
Temperature range
-20°C to +80°C

Article number	Article designation / size	Incised sealing ring ØF (mm)	SW wrench size mm	Overall length (mm)	Overall width (mm)	Overall height (mm)	Pieces / PU
SKINDICHT® SE							
52004130	PG 16	8/10.5/13.5/16	22	49.2	42	36.0	10
52004140	PG 21	11/15/18/20	28	68.1	60	52.5	10
52005430	PG 29	19/23/27/31	37	83.6	66	54.0	5
52004150	PG 36	25/28/31/35	47	99.6	85	73.0	1
SKINDICHT® SE without E+D							
52024090	PG 16			42.0	42	36.0	10
52024100	PG 21			60.0	60	52.5	10
52024110	PG 29			76.0	66	54.0	5
52024120	PG 36			90.0	85	73.0	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

CE

SKINDICHT® GMK



Benefits
- Supporting surface for spanner means scratches on the housing are avoided

Application range
- For locking SKINDICHT® cable glands in boreholes without thread.

Product Make-up
- PG connection thread

Note
- SKINTOP® GMP-GL counter nuts are recommended if there are high mechanical stress and high torques for tightening are required

Technical data

ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description:
Locknut for cable screw gland

RAL
Colour delivered
Light grey (RAL 7035)

Material
Polystyrene

Temperature range
-20°C to +70°C

Article number	Article designation / size	Height (mm)	SW wrench size mm	Pieces / PU
SKINDICHT® GMK				
52000110	PG 7	5.0	19	100
52000120	PG 9	5.0	22	100
52000130	PG 11	5.0	24	100
52000140	PG 13,5	6.0	27	100
52000150	PG 16	6.0	30	100
52000160	PG 21	7.0	36	50
52000170	PG 29	7.0	46	50
52000180	PG 36	8.0	60	25
52000190	PG 42	8.0	65	25
52000200	PG 48	8.0	70	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® SM / SKINDICHT® SM-PE

SKINDICHT® SM

SKINDICHT® SM-PE

Benefits

SKINDICHT® SM-PE

- Cutting edges cut through the insulating layer, thus guaranteeing an optimum EMC contact

Application range

SKINDICHT® SM

- Used when a gland has to be countered, or in through-holes on thin-walled housings

SKINDICHT® SM-PE

- For lacquered, anodised or powder-coated housings.

Product Make-up

- PG connection thread

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description:
Locknut for cable screw gland

Material
Nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Article designation / size	Height (mm)	SW wrench size mm	Far corner dimension	Pieces / PU
SKINDICHT® SM					
52003490	PG 7	2.8	15	16.6	100
52003500	PG 9	2.8	18	20	100
52003510	PG 11	3.0	21	23.5	100
52003520	PG 13,5	3.0	23	25.5	100
52003530	PG 16	3.0	26	29	100
52003540	PG 21	3.5	32	35.5	50
52003550	PG 29	3.5	41	45	50
52003560	PG 36	5.0	51	56	25
52003570	SM 42	5.0	60	65	25
52003580	PG 48	5.5	64	69	25
SKINDICHT® SM-PE					
52103200	PG 7	4.7	15	17.3	100
52103210	PG 9	4.7	18	20.8	100
52103220	PG 11	4.7	21	24.3	100
52103230	PG 13,5	4.7	23	26.6	100
52103240	PG 16	4.7	26	30	100
52103250	PG 21	5.2	32	37	50
52103260	PG 29	5.7	41	47.3	50
52103270	PG 36	6.5	51	58.9	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

SKINDICHT® SM INOX

Application range

- Used when a gland has to be countered, or in through-holes on thin-walled housings

Product Make-up

- PG connection thread

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000940
ETIM 5.0/6.0 Class-Description:
Locknut for cable screw gland

Material
Stainless steel

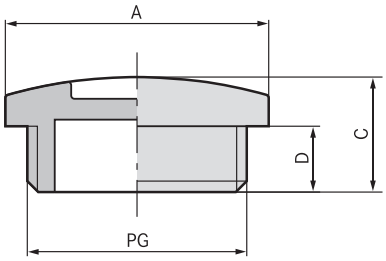
Temperature range
-60°C to +200°C

Article number	Article designation / size	Height (mm)	SW wrench size mm	Pieces / PU
SKINDICHT® SM INOX				
52032517	PG 7	3.5	17	50
52032553	PG 9	3,5	19	50
52032559	PG 11	3.5	22	50
5203254	PG 13,5	4.0	24	50
52032555	PG 16	4.0	27	50
52032556	PG 21	4.5	32	25
52032557	PG 29	5.5	41	10
52032558	PG 36	6.0	51	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

CE

SKINDICHT® BLK / BLK-GL



Benefits
- For closing pre-threaded holes

Application range
- Control cabinet manufacturing
- Distribution box
- Junction boxes

Product Make-up
- PG connection thread

Note
- SKINDICHT® BLK-GL offers high stability due to glass fibre reinforcement

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

On request
with O-ring fitted

Colour delivered
Light grey (RAL 7035)

Material
BLK: polystyrene
BLK-GL: glass fibre-reinforced polyamide

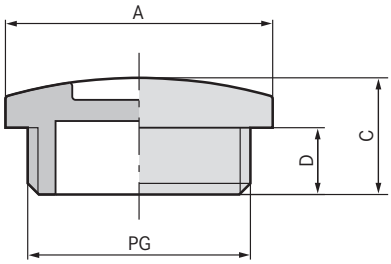
Protection rating
IP 54
IP 68 (with O-Ring)

Temperature range
BLK: -20°C to +70°C
BLK-GL: -40°C to +100°C

Article number	Article designation / size	Thread length, D (mm)	Pieces / PU
SKINDICHT® BLK			
52005949	PG 7	6	100
52005950	PG 9	6	100
52005960	PG 11	6	100
52005970	PG 13,5	6	100
52005980	PG 16	6	100
52005990	PG 21	8	50
52006000	PG 29	8	50
52006010	PG 36	10	25
52006020	PG 42	10	25
52006030	PG 48	12	25
SKINDICHT® BLK-GL			
52024848	PG 7	6	100
52024849	PG 9	6	100
52024850	PG 11	6	100
52024851	PG 13,5	6	100
52024852	PG 16	6	100
52024853	PG 21	8	50
52024854	PG 29	8	50
52024855	PG 36	10	25
52024856	PG 42	10	25
52024857	PG 48	12	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® BL



Benefits
- For closing pre-threaded holes
- Assembling with screwdriver

Application range
- Machine and equipment manufacturing
- Electric motor manufacturing

Product Make-up
- PG connection thread

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

Material
Body: nickel-plated brass
O-ring: NBR

Protection rating
IP 54
IP 68 (with O-Ring)

Temperature range
With O-ring: -30°C to +100°C
Without O-ring: -60°C to +200°C

Article number	Article designation / size	Pieces / PU
SKINDICHT® BL		
52002680	PG 7	100
52003390	PG 9	100
52003400	PG 11	100
52003410	PG 13,5	100
52003420	PG 16	100
52003430	PG 21	50
52003440	PG 29	50
52003450	PG 36	25
52003460	PG 42	10
52002790	PG 48	10
SKINDICHT® BL with O-ring		
54001610	PG 7	100
54000071	PG 9	100
54000040	PG 11	100
54001630	PG 13,5	100
54001640	PG 16	100
54001660	PG 21	50
54001620	PG 29	50
54001650	PG 36	25
54001670	PG 42	10
54001680	PG 48	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® KU, KUS, KUK

1

2

3

Benefits

- Enables the use of cable glands with smaller connection threads than the existing threaded holes
- Glass fibre-reinforced for maximum mechanical stability

Application range

- Machines
- Devices
- Housings

Product Make-up

- PG connection thread

Product Make-up

- SKINDICHT® KU with hexagon and flat design (1)
- SKINDICHT® KUS with hexagon and larger height (2)
- SKINDICHT® KUK with knurled heads (3)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
Polyamide, glass fibre-reinforced

Temperature range
-40°C to +100°C

Article number	Article designation / size	Pieces / PU
SKINDICHT® KU		
51730010	KU 11/7	50
52025100	KU 13,5/7	50
52025110	KU 16/9	50
52025120	KU 21/11	25
51730040	KU 21/13,5	25
52025130	KU 29/13,5	25
51730050	KU 29/16	25
52025140	KU 36/16	25
52025150	KU 36/21	25
52025050	KU 36/29	25
52025160	KU 42/21	25
52025170	KU 42/29	25
52025060	KU 42/36	25
52025180	KU 48/29	25
52025190	KU 48/36	25
52025070	KU 48/42	25
SKINDICHT® KUS		
52025040	KUS 9/7	50
51730060	KUS 11/9	50
51730070	KUS 13,5/11	50
51730080	KUS 16/13,5	50
SKINDICHT® KUK		
51730020	KUK 13,5/9	50
51730025	KUK 16 /9	50
51730030	KUK 16/11	50
51730035	KUK 21/13,5	50
51730090	KUK 21/16	50
51730100	KUK 29/21	25
51730110	KUK 36/29	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® GMP-GL refer to page 778

SKINDICHT® MR

Benefits
- Enables the use of cable glands with smaller connection threads than the existing threaded holes

Application range
- Machines
- Devices
- Housings

Product Make-up
- PG connection thread

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Article designation / size	Pieces / PU
SKINDICHT® MR		
52003750	MR 9/7	100
52003760	MR 11/7	100
52003770	MR 11/9	100
52003780	MR 13,5/7	100
52003790	MR 13,5/9	100
52003800	MR 13,5/11	100
52003810	MR 16/7	100
52003820	MR 16/9	100
52003830	MR 16/11	100
52003840	MR 16/13,5	100
52003850	MR 21/11	50
52003860	MR 21/13,5	50
52003870	MR 21/16	50
52003880	MR 29/13,5	50
52003890	MR 29/16	50
52003900	MR 29/21	50
52003910	MR 36/16	25
52003920	MR 36/21	25
52003930	MR 36/29	25
52003940	MR 42/29	10
52003950	MR 42/36	10
52003970	MR 48/36	10
52003980	MR 48/42	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 800

SKINDICHT® EKU

Benefits
- Enables the use of cable glands with larger connection threads than the existing threaded holes
- Assembling with a wrench
- Supporting surface for spanner means scratches on the housing are avoided

Application range
- Machines
- Devices
- Housings

Product Make-up
- PG connection thread

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
Polyamide, glass fibre-reinforced

Temperature range
-40°C to +100°C

Article number	Article designation / size	Pieces / PU
SKINDICHT® EKU		
52025200	EKU 7/9	100
51731000	EKU 9/11	100
51731010	EKU 11/13,5	100
51731020	EKU 13,5/16	100
51731030	EKU 16/21	50
51731040	EKU 21/29	25
52025210	EKU 29/36	25
52025220	EKU 36/42	25
52025230	EKU 42/48	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL refer to page 778

SKINDICHT® ME

Benefits
- Enables the use of cable glands with larger connection threads than the existing threaded holes

Application range
- Industrial connectors
- Devices
- Housings
- Machines

Product Make-up
- PG connection thread

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Nickel-plated brass

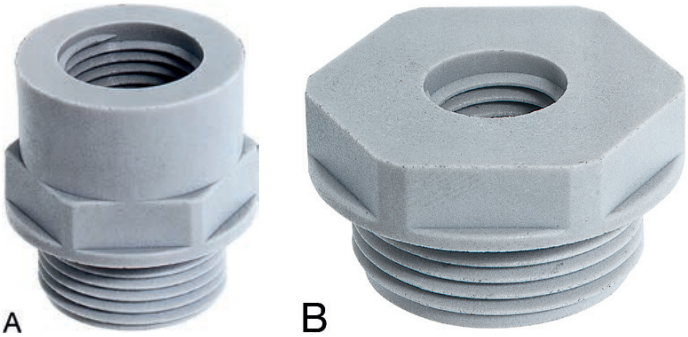
Temperature range
-60°C to +200°C

Article number	Article designation / size	Pieces / PU
SKINDICHT® ME		
52003990	ME 7/9	100
52004000	ME 9/11	100
52004010	ME 9/13,5	100
52004020	ME 11/13,5	100
52004030	ME 11/16	100
52004040	ME 11/21	100
52004050	ME 13,5/16	100
52004060	ME 13,5/21	50
52004070	ME 16/21	50
52004080	ME 16/29	50
52004090	ME 21/29	50
52004100	ME 29/36	50
52004110	ME 36/42	10
52004120	ME 42/48	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 800

SKINDICHT® A-PG/M



Benefits
- Adapter from a PG outer thread to a metric inner thread

Application range
- Housings
- Industrial connectors
- Machines

Product Make-up
- PG connection thread

Product Make-up
- Form A = high
- Form B = flat

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
Polyamide, glass fibre-reinforced

Temperature range
-40°C to +100°C

Article number	Form	Thread, male PG	Thread, female M2	SW wrench size mm	Pieces / PU
SKINDICHT® A-PG/M					
52100320	A	PG 7	12 x 1.5	16	25
52100321	A	PG 7	16 x 1.5	20	25
52100322	A	PG 9	12 x 1.5	20	25
52100323	A	PG 9	16 x 1.5	20	25
52100324	A	PG 9	20 x 1.5	24	25
52100325	A	PG 11	16 x 1.5	22	25
52100326	A	PG 11	20 x 1.5	24	25
52100327	A	PG 11	25 x 1.5	29	25
52100328	A	PG 13.5	16 x 1.5	24	25
52100329	A	PG 13.5	20 x 1.5	24	25
52100330	A	PG 13.5	25 x 1.5	29	25
52100331	A	PG 16	20 x 1.5	27	25
52100332	A	PG 16	25 x 1.5	29	25
52100333	A	PG 16	32 x 1.5	36	25
52100334	A	PG 21	25 x 1.5	33	10
52100335	A	PG 21	32 x 1.5	36	10
52100336	A	PG 21	40 x 1.5	46	10
52100337	B	PG 29	32 x 1.5	42	10
52100338	A	PG 29	40 x 1.5	46	10
52100339	A	PG 29	50 x 1.5	55	10
52100340	B	PG 36	40 x 1.5	53	10
52100341	A	PG 36	50 x 1.5	55	10
52100342	A	PG 36	63 x 1.5	68	10
52100343	B	PG 42	40 x 1.5	60	5
52100344	A	PG 42	50 x 1.5	60	5
52100345	A	PG 42	63 x 1.5	68	5
52100346	B	PG 48	50 x 1.5	65	5
52100347	A	PG 48	63 x 1.5	68	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL refer to page 778

CE

SKINDICHT® MA-PG/M

Benefits
- Adapter from a PG outer thread to a metric inner thread

Application range
- Housings
- Industrial connectors
- Machines

Product Make-up
- PG connection thread

Product Make-up
- Form A: knurl
- Form B: smooth

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Nickel-plated brass

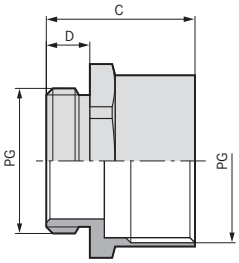
Temperature range
-60°C to +200°C

Article number	Form	PG size	Thread, female M2	Pieces / PU
SKINDICHT® MA-PG/M				
52104490	B	7	12 x 1.5	100
52104491	B	9	16 x 1.5	50
52104492	A	11	16 x 1.5	50
52104493	B	11	20 x 1.5	50
52104494	B	13	20 x 1.5	50
52104495	A	16	20 x 1.5	50
52104496	B	16	25 x 1.5	50
52104497	A	21	20 x 1.5	50
52104498	A	21	25 x 1.5	50
52104499	B	21	32 x 1.5	50
52104500	A	29	25 x 1.5	25
52104501	A	29	32 x 1.5	25
52104502	B	29	40 x 1.5	10
52104503	A	36	40 x 1.5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 800

SKINDICHT® ZS/ZS-XL



Benefits
- Can be used as an extension part or spare part
- Assembling with a wrench

Application range
- Hexagonal converter from a PG outer thread to a PG inner thread.
- Machines
- Devices
- Housings

Product Make-up
- PG connection thread

Note
- SKINDICHT® ZS-XL offers a long connection thread

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Material
Nickel-plated brass

Temperature range
-60°C to +200°C

Article number	Article designation / size	SW wrench size mm	Thread length, D (mm)	Pieces / PU
SKINDICHT® ZS				
52100010	PG 7	14	5	100
52100020	PG 9	17	6	100
52100030	PG 11	20	6	100
52100040	PG 13,5	22	6.5	100
52100050	PG 16	24	6.5	50
52100060	PG 21	30	7	50
52100070	PG 29	40	8	25
52100080	PG 36	50	9	10
52100090	PG 42	57	10	10
52100100	PG 48	64	10	10
SKINDICHT® ZS-XL				
52020940	PG 9	17	15	100
52020930	PG 11	20	15	100
52020950	PG 13,5	22	15	100
52020960	PG 16	24	15	50
52020970	PG 21	30	15	50
52020980	PG 29	40	15	25
52020990	PG 36	50	15	10
52021000	PG 42	57	15	10
52021010	PG 48	64	15	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 800

SKINDICHT® STK

Benefits
- Prevents dust and dirt from getting into the housing

Application range
- This dust protector can be placed under the cap nut of below mentioned SKINDICHT® types and specified SKINTOP® cable glands.

Note
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

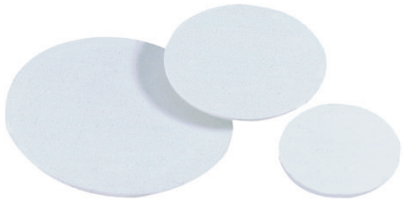
Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000032
ETIM 5.0/6.0 Class-Description: Plug for cable screw gland

Colour delivered
White

Material
PVC

Temperature range
-20°C to +80°C



Article number	Article designation / size	Thread, male PG	Suitable for SKINDICHT® SVRN-M, SHZ-M, SKZ-M, SVR-M, SVRE-M, SHVE-M, SHV-M	Pieces / PU
SKINDICHT® STK				
52020818	STK 7	7	M 12	500
52020820	STK 9	9	M 16	500
52020830	STK 11	11	M 20/11	250
52020840	STK 13,5	13	M 20/13,5	250
52020850	STK 16	16	M 20/16	250
52020860	STK 21	21	M 25	250
52020870	STK 29	29	M 32	100
52020880	STK 36	36	M 40	100
52020890	STK 42	42	M 50	50
52020900	STK 48	48	M 63	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® E

Benefits
- One seal for several clamping ranges
- Rings can be individually adapted to various cable diameters

Application range
- Incised sealing ring for SKINDICHT® cable glands

Note
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

Colour delivered
Black

Material
CR

Temperature range
-20°C to +80°C

Article number	Article designation / size	Outer diameter x bores (mm)	Thickness (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® E					
52005780	E 9	13.5 x 5/8	5.5	13.5	250
52003690	E11	16.5 x 7/10/12.5	6.0	16.5	250
52003700	E 13,5	18.5 x 7/10.5/13/16	6.5	18.5	250
52003710	E 16	20.5 x 8/10.5/13.5/16	7.5	20.5	250
52003720	E 21	26.0 x 11/15/18/20	8.0	26.0	100
52003730	E 29	35.0 x 19/23/27/31	9.5	35.0	100
52003740	E 36	45.0 x 25/28/31/35	12.0	45.0	50
52005790	E 42	52.0 x 35.5/39/42.5/46	14.0	52.0	50
52005800	E 48	57.0 x 40.5/44/47/50.5	14.0	57.0	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® EV

Benefits

- One seal for several clamping ranges
- Rings can be individually adapted to various cable diameters
- For high temperatures
- Resistant to oils, solvents, acids and chemicals

Application range

- Incised sealing ring made of FKM for SKINDICHT® cable glands

Note

- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

Colour delivered
Red brown

Material
FKM

Temperature range
-20°C to +200°C

Article number	Article designation / size	Outer diameter x bores (mm)	Thickness (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® EV					
52010340	EV 11	7/10/12.5	6.0	16.5	50
52010350	EV 13,5	7/10.5/13/16	6.5	18.5	50
52010360	EV 16	8/10.5/13.5/16	7.5	20.5	50
52010370	EV 21	11/15/18/20	8.0	26.0	25
52010380	EV 29	19/23/27/31	9.5	35.0	25
52010390	EV 36	25/28/31/35	12.0	45.0	25
52010410	EV 42	35.5/39/42.5/46	14.0	52.0	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® O-Ring NBR PG

Benefits

- Resistant to oil, dust and water

Application range

- For a reliable sealing against foreign objects and liquids at the connecting thread of a gland or similar components.

Note

- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

Colour delivered
Black

Material
NBR

Temperature range
-20°C to +100°C

Article number	Article designation / size	Inner Ø x thickness Ø (mm)	Pieces / PU
SKINDICHT® O-Ring NBR			
53001010	PG 7	10.0 x 1.5	100
53102011	PG 9	13.0 x 1.5	100
53001020	PG 11	16.0 x 1.5	100
52005740	PG 13,5	18.0 x 1.5	100
53001030	PG 16	20.0 x 1.5	100
52005750	PG 21	26.0 x 2.0	100
53001040	PG 29	34.0 x 2.0	50
52005760	PG 36	44.0 x 2.0	50
53001050	PG 42	50.0 x 2.0	50
52005770	PG 48	55.0 x 2.0	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® O-Ring FKM PG

Benefits
- For high temperatures
- Resistant to oils, solvents, acids and chemicals

Application range
- For a reliable sealing against foreign objects and liquids at the connecting thread of a gland or similar components.

Note
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

Colour delivered
Green

Material
FKM

Temperature range
-20°C to +200°C

Article number	Article designation / size	Inner Ø x thickness Ø (mm)	Pieces / PU
SKINDICHT® O-Ring FKM			
52023607	PG 7	10.0 x 1.5	100
52122011	PG 9	13.0 x 1.5	100
52023602	PG 11	16.0 x 1.5	100
52023601	PG 13,5	18.0 x 1.5	100
52023603	PG 16	20.0 x 1.5	50
52023604	PG 21	26.0 x 2.0	50
52023606	PG 29	34.0 x 2.0	50
52023608	PG 36	44.0 x 2.0	25
52023609	PG 42	50.0 x 2.0	25
52023611	PG 48	55.0 x 2.0	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® JT PTFE PG

Benefits
- Resistant to oil, water, alkaline solutions, acids, solvents, etc.
- Suitable for foodstuffs

Application range
- PTFE sealing disks for SKINTOP® and SKINDICHT® cable glands

Note
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

Colour delivered
White

Material
PTFE

Temperature range
-120°C to +250°C
Short-term: up to +300°C

Article number	Article designation / size	Internal Ø/external Ø (mm)	Thickness (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® JT PTFE					
53801035	PG 7	12 / 16	2.0	16.5	100
53801045	PG 9	15 / 19	2.0	19.0	100
53801055	PG 11	18 / 22	2.0	22.5	100
53801065	PG 13,5	20 / 25	2.0	25.0	100
53801075	PG 16	22 / 27	2.0	27.0	100
53801085	PG 21	28 / 33	3.0	33.5	50
53801095	PG 29	37 / 43	3.0	43.5	50
53801105	PG 36	47 / 55	3.0	55.0	25
53801115	PG 42	54 / 63	3.0	63.0	25
53801125	PG 48	59 / 69	3.0	69.0	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® EH

Benefits
- Alternative earthing sleeves

Application range
- Earthing sleeve for SKINDICHT® SHVE and SKINDICHT® SRE.

Note
- Allocation example, earthing sleeve for suitable gland
- SKINDICHT® EH 13.5/5 fits SKINDICHT® SHVE 13.5/9/9/5.
- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002317
ETIM 5.0/6.0 Class-Description:
Earthing lug for cable screw gland

Material
Brass

Article number	PG size/clear opening	Inner Ø (mm)	Flange Ø (mm)	Length (mm)	Pieces / PU
SKINDICHT® EH					
52010980	EH 9 / 3.2	3.2	13.3	11.0	100
52010985	EH 9 / 3.6	3.6	13.3	11.0	100
52010996	EH 11 / 4.5	4.5	16.7	9.0	100
52010000	EH 13.5 / 5.0	5.0	18.5	14.0	100
52010010	EH 13.5 / 6.0	6.0	18.5	14.0	100
52010020	EH 13.5 / 7.0	7.0	18.5	14.0	100
52010030	EH 16 / 8.0	8.0	20.5	14.0	50
52010040	EH 16 / 9.0	9.0	20.5	14.0	50
52010050	EH 16 / 10.0	10.0	20.5	14.0	50
52010060	EH 16 / 11.0	11.0	20.5	14.0	50
52010070	EH 21 / 12.0	12.0	26	16.0	50
52010080	EH 21 / 13.0	13.0	26	16.0	50
52010090	EH 21 / 14.0	14.0	26	16.0	50
52010100	EH 21 / 15.0	15.0	26	16.0	50
52010110	EH 21 / 16.0	16.0	26	16.0	50
52010120	EH 29 / 17.0	17.0	35	18.0	25
52010130	EH 29 / 18.0	18.0	35	18.0	25
52010140	EH 29 / 19.0	19.0	35	18.0	25
52010161	EH 36 / 22.0	22.0	45	10.0	10
52010162	EH 36 / 24.0	24.0	45	10.0	10
52010163	EH 36 / 26.0	26.0	45	10.0	10
52010164	EH 36 / 28.0	28.0	45	10.0	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® SHV cone seal

Benefits

- SKINDICHT® SHV CR resistant to oil, dust and water
- SKINDICHT® SHV FKM for high temperatures
- SKINDICHT® SHV FKM resistant to oils, solvents, acids and chemicals

Application range

- Sealing cone for SKINDICHT® cable glands.

Note

- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000451
ETIM 5.0/6.0 Class-Description: Cable plug sealing clamp

Colour delivered
CR: black
FKM: red

Material
CR
FKM

Temperature range
CR: -20°C to +80°C
FKM: -15°C to +200°C

Article number	PG size/clear opening	Inner Ø (mm)	Length (mm)	Pieces / PU
SKINDICHT® SHV CR				
52021120	SHV 7/5.0	5.0	13.8	100
52021130	SHV 9/6.0	6.0	14.8	100
52021140	SHV 9/7.0	7.0	14.8	100
52021150	SHV 11/7.0	7.0	17.5	100
52021160	SHV 11/9.0	9.0	17.0	100
52021180	SHV13.5/9.0	9.0	18.5	100
52021170	SHV13.5/11.0	11.0	18.5	100
52021190	SHV 16/11.0	11.0	19.5	50
52021200	SHV 16/13.0	13.0	19.5	50
52021210	SHV 16/15.0	15.0	19.5	50
52024460	SHV 21/16.0	16.0	19.8	50
52021220	SHV 21/18.0	18.0	19.8	50
52021230	SHV 21/20.0	20.0	19.8	50
52021240	SHV 29/22.0	22.0	24.0	25
52021250	SHV 29/24.0	24.0	24.0	25
52021260	SHV 29/26.0	26.0	24.0	25
SKINDICHT® SHV FKM				
52021259	SHV 7/5.0	5.0	13.8	100
52021146	SHV 9/6.0	6.0	14.8	100
52021261	SHV 9/7.0	7.0	14.8	100
52021262	SHV 11/7.0	7.0	17.5	100
52021263	SHV 11/9.0	9.0	17.0	100
52021271	SHV 13.5/9.0	9.0	18.5	100
52021272	SHV 13.5/11.0	11.0	18.5	100
52021265	SHV 16/13.0	13.0	19.5	50
52021269	SHV 16/15.0	15.0	19.5	50
52021268	SHV 21/18.0	18.0	19.5	50
52021266	SHV 21/20.0	20.0	19.8	50
52021267	SHV 29/22.0	22.0	19.8	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINDICHT® SNR

Benefits

- Alternative anti-kink sleeves

Application range

- Anti-kink sleeves for improved protection against kinking in SKINDICHT® cable glands.

Note

- Delivery will be made in the largest possible packing unit (bulk goods), minimum order quantity is one packing unit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000451
ETIM 5.0/6.0 Class-Description: Cable plug sealing clamp

Colour delivered
Black

Material
CR

Temperature range
-20°C to +80°C

Article number	External/internal PG size	Max. cable Ø (mm)	min. cable Ø (mm)	Pieces / PU
SKINDICHT® SNR				
52001970	7/5	5	3.5	100
52001980	9/7	7	5.5	100
52001990	11/7	7	5.5	100
52002000	11/9	9	7.5	100
52002010	13.5/9	9	7.5	100
52002020	13.5/11	11	9	100
52002030	13.5/13	13	11	100
52002040	16/13	13	11.5	100
52002050	16/15	15	13	100
52002060	21/15	15	13.5	50
52002070	21/17	17	15	50
52002080	21/19	19	17	50
52002090	21/20	20	18	50
52002100	29/20	20	18	25
52002110	29/23	23	21	25
52002120	29/25	25	23	25
52002130	36/26	26	23	25
52002140	36/30	30	27	25
52002150	36/33	33	30	25
52002160	36/35	35	32	25
52002170	42/35	35	32	10
52002180	42/38	38	35	10
52002190	42/40	40	36	10
52002200	48/40	40	36	10
52002210	48/44	44	40	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SKINMATIC® QUICK Set 1

Benefits
- Easy installation, high packing density
- Enormous time and cost saving
- Easy and safe handling using open ratchet system
- 4 sizes (M12, 16, 20, 25), only one tool

Application range
- Efficient assembly ratchet set for SKINTOP® plastic and brass cable glands.
- Optional SKINMATIC® TORQUE WRENCH with 9x12 mm adapter for use with SKINMATIC® QUICK SET 1

Product features
- Made of high-quality tool steel
- Included: a handy and strong box for storing
- 1x R1 - ratchet
- 1x V1 - extension
- 5x open nut for wrench size (N) 15, 16, 19, 20, 25, 30, suitable for ratchet head R1

Note
- Open nut N15 for M12 polyamide
- Open nut N16 for M12 brass
- Open nut N19 for M16 polyamide
- Open nut N 20 for M16 brass (extension)
- Open nut N 25 for M20 polyamide and brass
- Open nut N30 for M25 polyamide and brass

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000149
ETIM 5.0/6.0 Class-Description: Tool set

Article number	Article designation / size	Width of flat surface (mm)	Pieces / PU
SKINMATIC® QUICK SET 1			
61610000	QUICK SET 1	15, 16, 19, 20, 25, 30	1
SKINMATIC® TORQUE WRENCH			
61610012	SKINMATIC® DMG 2-10 Nm		1
61610013	SKINMATIC® DMG 5-25 Nm		1

Not subjected to RoHS directive.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

SKINMATIC® MH Set

Info
- Assembly tool for SKINTOP® gland sizes up to M110 x 2

Benefits
- Fast, secure and damage-free assembly
- Shaped contact surface prevents the spanner from sliding off

Application range
- Special tools designed for metric SKINTOP® brass types

Product features
- Assembly set manufactured from chromium-plated tool steel
- The SKINMATIC® MH set consists of three special keys:
- OK 16/20 mm (M12/M16)
- OK 24/29 mm (M20/M25)
- OK 36/45 mm (M32/M40)

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002130
ETIM 5.0/6.0 Class-Description: Spanner

Article number	Width of flat surface (mm)	Brass gland sizes	Overall length (mm)	PU pieces (set)
SKINMATIC® MH-Set				
61791273	16/20, 24/29, 36/45	M 12, M 16, M 20, M 32, M 40	200 / 220 / 250	1
SKINMATIC® MH single wrench				
61791267	54	M 50		1
61791268	67	M 63		1
61791269	75	M 63 PLUS		1
61791286	95	M 75		1
61791287	115	M 90		1
61791288	135	M 110		1

Not subjected to RoHS directive.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Cable glands

SKINMATIC® mounting tools • SKINMATIC® metric mounting tools

SKINMATIC® KB-M

SKINMATIC® SB-M

SKINMATIC® GB-M

Application range

SKINMATIC® KB-M

- For simultaneous core drilling and cutting of metric threads. Especially suitable for thin components and sheet metals.

SKINMATIC® SB-M

- For drilling the core-holes of metric threads.

SKINMATIC® GB-M

- For cutting metric threads.

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000945
ETIM 5.0/6.0 Class-Description: Drill

Material
SKINMATIC® KB-M
HSSE
SKINMATIC® SB-M
HSS
SKINMATIC® GB-M
HSSE

Article number	Article designation / size	Drill length (mm)	Overall length, C (mm)	Pieces / PU
SKINMATIC® KB-M				
61791274	M 12 x 1,5	30	130.0	1
61791275	M 16 x 1,5	35	150.0	1
61791276	M 20 x 1,5	40	165.0	1
61791277	M 25 x 1,5	45	185.0	1
SKINMATIC® SB-M				
61791278	M 32 x 1,5	180	301.0	1
61791279	M 40 x 1,5	200	349.0	1
61791280	M 50 x 1,5	220	369.0	1
SKINMATIC® GB-M				
61791282	M 32 x 1,5	28	150.0	1
61791283	M 40 x 1,5	28	170.0	1
61791284	M 50 x 1,5	32	190.0	1

Not subjected to RoHS directive.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Cable glands

SKINMATIC® mounting tools • Universal mounting tools

SKINMATIC® RZ

Benefits

- Adjustable for all wrench sizes ranging from 14 to 33 mm
- Assembling after the cables are already inserted
- Ergonomic plastic grips

Application range

- For quick allocation of cable and conduit glands
- Suitable for metric cable glands

Product features

- Made of chromium-plated tool steel
- With two expandable clamping ranges (lock positions)
- Small opening (14 - 22 mm): M12 to M16, PG7 to PG11, NPT 3/8”
- Large opening (24 - 33 mm): M20 to M25, PG13.5 to PG21, NPT 1/2” to 3/4”

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002498
ETIM 5.0/6.0 Class-Description: Accessories for low-voltage switch technology

Article number	Article designation / size	Width of flat surface (mm)	Overall length, C (mm)	Pieces / PU
SKINMATIC® RZ				
61791260	SKINMATIC® RZ	14 - 33	250.0	1

Not subjected to RoHS directive.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

7

SILVYN®

Protective cable conduit systems and cable carrier systems

The universal range of SILVYN® protection and guidance systems protect cables effectively against dust, moisture, mechanical, thermal and chemical influences. The versatile SILVYN® CHAIN range of energy supply chains also protects and guides cables in dynamic applications.

Application range

- Industrial machinery and plant engineering
- Automotive industry
- Machine tool manufacture
- Renewable energies
- Wherever cables require additional protection or guidance

Plastic protective cable conduit systems

Braided sleeve
SILVYN® BRAID PA6 / SILVYN® SNAP PET / SILVYN® SHRINK BRAID PET 821
Simple applications
SILVYN® SI 822
SILVYN® SP 823
SILVYN® SP-PU 824
SILVYN® SSV-M / SILVYN® SSVZ-M 825
SILVYN® SSV / SILVYN® SSVZ 826
SILVYN® SCH 827
SILVYN® USK-M / SILVYN® USK 828
Flexible with PVC spiral
SILVYN® EL 829
SILVYN® ELU 830
SILVYN® ELÖ 831
SILVYN® ELT 832
SILVYN® ELR 833
SILVYN® MPC-M / SILVYN® MPC 90° M 834
SILVYN® MPC 45° M 835
SILVYN® MPC / SILVYN® MPC 90° 836
Highly flexible with spring steel wire
SILVYN® FPS 837
SILVYN® FPS-EDU 838
SILVYN® FD-PU 839
SILVYN® MSK-M EE 840
SILVYN® MSK-M FPS-EDU 841
SILVYN® US-M EE / SILVYN® US EE 842
SILVYN® US-M FPS-EDU / SILVYN® US FPS-EDU 843
SILVYN® LKI-M / SILVYN® LKI 844
SILVYN® EE-K 845
SILVYN® US-FPS-EDU-AS 846

Parallel corrugated protective cable conduit systems

Various applications
SILVYN® RILL PA 6 847
SILVYN® RILL PA 12 848
SILVYN® KLICK-M 849
SILVYN® KLICK 90° M 850
SILVYN® KLICK GPZ-M 851
SILVYN® KLICK PG 852
SILVYN® KLICK 90° PG 853
SILVYN® KLICK-GPZ 854
SILVYN® KSE 855
SILVYN® KLICK NPT 856
SILVYN® KLICK-Y / SILVYN® KLICK-Y (TPE) 857
SILVYN® KLICK-S / SILVYN® KLICK-D / SILVYN® KLICK-V 858
SILVYN® KLICK-RH 859
SILVYN® K-EM 860
High mechanical resistance
SILVYN® FPAS 861
SILVYN® FPAX-M 862
SILVYN® FPAX 90° M 863
SILVYN® FPAX NPT 864
SILVYN® FPAX T / SILVYN® FPAX Y / SILVYN® FPAX R / SILVYN® FPAX P 865
SILVYN® FPAG-M 866
SILVYN® FPAG 90° M 867
SILVYN® KSE-M 868
SILVYN® FLEXILOK M / SILVYN® FLEXILOK 90° M 869
SILVYN® FLEXILOK PG / SILVYN® FLEXILOK 90° PG 870
SILVYN® FPAG PG / SILVYN® FPAG 90° PG 871
SILVYN® FCL 872
SILVYN® FPAC 873
SILVYN® EC 874
Metric dimensions
SILVYN® HCC 875
SILVYN® HG-M 876
Large dimensions
SILVYN® MAXI PA 877
SILVYN® AFG-PA / SILVYN® gasket AFG-PA / AFW-PA / SILVYN® AFW-PA 878
Inbuilt connection thread
SILVYN® TC 879
Reclosable
SILVYN® SPLIT 880
SILVYN® SPLIT COV-M / SILVYN® SPLIT GMP-M / SILVYN® SPLIT COS 881
Sinus-shaped slit
SILVYN® SINUS PA6 882

Metal protective cable conduit systems

Galvanized steel versions
SILVYN® AS 883
SILVYN® AS-P 884
SILVYN® EDU-AS 885
SILVYN® EMC AS-CU 886
SILVYN® MSK-M US 887
SILVYN® MSK-M BRUSH 888
SILVYN® MSK-M ATEX 889
SILVYN® MSK-M ATEX BRUSH 890
SILVYN® US-M 891
SILVYN® US 892
SILVYN® US-AS / SILVYN® US-EDU-AS / SILVYN® US-MS-DR 893
Galvanized steel / Stainless steel with interlocked profile
SILVYN® SSU / SILVYN® SSUE 894
SILVYN® LGEF-M 895
SILVYN® LGES-M 896
SILVYN® LGEP 897
Stainless steel with double-interlocked profile
SILVYN® UI 511 898
SILVYN® UI COMPACT M 899
SILVYN® UI 511 Insert set 900

Liquid-tight conduits (metal + jacket)

Metal conduit with thin-walled jacket
SILVYN® LCC-2 901
SILVYN® LCCH-2 902
SILVYN® LGF-2-M / SILVYN® LGS-2-M 903
SILVYN® LCG-M / SILVYN® LCW-M / SILVYN® LCS-M 904
SILVYN® LCC-C 905
SILVYN® LCC-E 906
Metal conduit with thick-walled jacket
SILVYN® HTDL 907
SILVYN® EF / SILVYN® OR 908
SILVYN® HCX / SILVYN® HFX 909
SILVYN® COMPACT M 910
SILVYN® COMPACT PG 911
SILVYN® COMPACT NPT 912
SILVYN® LTP 913
SILVYN® LTPG-M / SILVYN® LTPS-M / SILVYN® LTP 45° M / SILVYN® LTP 90° M 914
SILVYN® LTP-C 915
SILVYN® LTP-E 915
SILVYN® SEALING WASHER 916

Protective cable conduit systems for special applications

Heat protection
SILVYN® HIPROJACKET / SILVYN® HIPROSILTAPE 917
SILVYN® HIPROJACKET AMG 918
Food & Beverage
SILVYN® FG 919
SILVYN® FG NM 920
SILVYN® HYGIENIC 921
E-KIT
SILVYN® E-KIT 922
Special applications
SILVYN® CNP / SILVYN® CNP NPT 923

SILVYN® processing tools

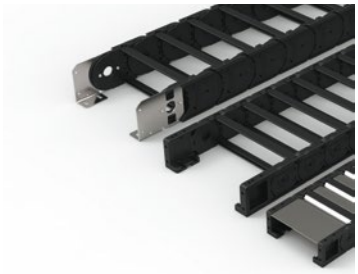
Cutting tools for protective cable conduit systems
SILVYN® Conduit scissor 924
SILVYN® vice 924
SILVYN® coupler 925
SILVYN® BW-K-M 925
SILVYN® BW-M 925
Mounting bracket
SILVYN® RKS 926

Characteristics	Page	Inner diameter from – to mm	Temperature range	Material	Flexibility	Compression strength	Tensile strength	Flexural behaviour	Oil resistance	Solvent resistance	Protection against hot chips	Reversed bending fatigue behaviour	Flame retardant	Halogen-free	UV resistance	Approvals
Protective conduits plastic																
SILVYN® BRAID PA 6	821	4.0 – 32.0	-55 °C to +125 °C	Polyamide 6.6	◑	○	◔	◔	●	◔	○	◕	◕	●	●	–
SILVYN® SNAP PET	821	25.0	-55 °C to +150 °C	Polyester – PET	◑	○	◔	◔	◔	◔	○	◔	◔	○	◔	–
SILVYN® SHRINK BRAID PET	821	6.0 – 35.0	-55 °C to +125 °C	Polyester – PET	◔	○	◔	◔	◑	◔	○	◑	◔	○	◔	–
SILVYN® SI	822	7.0 – 32.0	-5 °C to +80 °C	Soft PVC	◔	○	◔	◔	◑	◔	○	◔	◔	○	◔	–
SILVYN® SP	823	10.0 – 50.0	-20 °C to +60 °C	Soft PVC with Hard PVC Spiral	◔	◑	◑	◔	◑	◔	○	◔	◔	○	◔	–
SILVYN® SP-PU	824	10.0 – 38.0	-20 °C to +90 °C	PUR with Hard PVC Spiral	◔	◑	◑	◔	●	◑	○	◔	◑	○	●	–
SILVYN® EL	829	10.0 – 50.0	-20 °C to +70 °C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◑	◔	○	◔	◔	○	◔	cURus
SILVYN® ELU	830	10.0 – 50.0	-20 °C to +70 °C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◑	◔	○	◔	◔	○	●	cURus
SILVYN® ELÖ	831	10.0 – 50.0	-20 °C to +70 °C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◕	◔	○	◔	◔	○	◔	cURus
SILVYN® ELT	832	10.0 – 50.0	-20 °C to +90 °C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◔	◔	○	◔	◑	○	◔	cURus
SILVYN® FPS	837	7.0 – 48.0	-20 °C to +80 °C	Soft PVC with insul. Spring Steel Wire	●	◑	◑	●	◑	◑	○	●	◔	○	◑	VDE, cURus
SILVYN® FPS-EDU	838	9.0 – 48.0	-25 °C to +80 °C	PVC-insulated steel spring wire Soft PVC outer sheath Galvanised steel wire braiding	●	◑	◑	●	◑	◑	◕	●	◔	○	◑	–
SILVYN® FD-PU	839	7.0 – 48.0	-40 °C to +80 °C	PUR with insul. Spring Steel Wire	●	◑	◑	●	●	◑	○	●	◑	○	●	VDE
Protective corrugated conduits																
SILVYN® RILL PA 6	847	6.5 – 48.0	-40 °C to +115 °C	Polyamide 6	◑	◑	◑	◕	●	◑	○	◕	●	●	●	cURus, VDE, GGVS, DNV-GL, Lloyds
SILVYN® RILL PA 12	848	6.5 – 48.0	-50 °C to +100 °C	Polyamide 12	●	◑	◑	◕	●	◕	○	●	◕	●	●	cURus, VDE, DNV-GL, Lloyds
SILVYN® FPAS	861	6.3 – 56.3	-40 °C to +120 °C	Polyamide 6	◑	◕	◕	◕	●	◑	○	◕	◕	●	●	cURus, Lloyds, Link up
SILVYN® HCC	875	8.9 – 52.5	-25 °C to +100 °C	Polyamide 6	◑	◑	◑	◕	●	◔	○	◕	◑	●	●	–
SILVYN® TC	879	6.6 – 45.6	-40 °C to +120 °C	Polyamide 6	◑	◑	◑	◑	●	◑	○	◕	◔	●	●	–
SILVYN® SPLIT PA 6	880	6.3 – 87.5	-40 °C to +120 °C	Polyamide 6	◑	◑	◔	◕	●	◑	○	◕	◕	●	●	–
SILVYN® SPLIT PP	880	6.3 – 87.5	-40 °C to +135 °C	Polypropylene	◑	◑	◔	◑	◑	◑	○	◑	◕	○	●	–
SILVYN® SINUS PA 6	882	6.7 – 23.2	-40 °C to +140 °C	Polyamide 6	◑	○	◑	◕	●	◑	○	◕	◕	●	●	–
SILVYN® MAXI PA 6	877	66.5 – 91.0	-40 °C to +115 °C	Polyamide 6	◔	◑	◑	◔	●	◑	○	◔	◔	●	●	cURus
Protective conduits metal																
SILVYN® AS	883	8.0 – 51.0	to +220 °C	Galvanized Steel Strip	◕	◑	◑	●	●	●	◕	◔	●	●	●	VDE
SILVYN® AS-P	884	7.0 – 49.0	-25 °C to +80 °C	Galvanized Steel, Coating PVC	◕	◑	◑	◕	◑	◔	○	◑	◔	○	◔	VDE
SILVYN® EDU-AS	885	7.0 – 49.0	to +220 °C	Galvanized Steel, Braiding: galvanized steel wire	◕	◑	◕	●	●	●	●	◕	●	●	●	VDE
SILVYN® EMC AS-CU	886	7.0 – 49.0	to +220 °C	Galvanized Steel, Braiding: tinned copper	◕	◑	◕	●	●	●	◕	◕	●	●	●	VDE
SILVYN® SSUE	894	6.8 – 48.0	-100 °C to +400 °C	Stainless Steel AISI 316	●	●	◕	●	●	●	●	●	●	●	●	Link up
SILVYN® UI 511	898	9.5 – 52.0	-100 °C to +600 °C	Stainless Steel AISI 304	●	●	●	●	●	●	●	●	●	●	●	–
Protective conduits liquidtight (Metal conduit + jacket)																
SILVYN® LCC-2	901	6.8 – 70.0	-15 °C to +70 °C	Galvanized Steel, Coating PVC	◕	◕	◑	●	◑	◔	○	◕	◔	○	◕	–
SILVYN® LCCH-2	902	10.2 – 70.0	-25 °C to +90 °C	Galvanized Steel, Coating plastic halogen-free	◕	◕	◑	●	◑	◔	○	◕	●	●	◕	Lloyds, Link up
SILVYN® HTDL	907	12.6 – 51.6	-40 °C to +105 °C	Galvanized Steel, Copper wire, Coating PVC Mix	◑	●	◕	◑	◑	◔	○	◔	◑	○	●	cULus
SILVYN® EF	908	10.1 – 51.6	-25 °C to +70 °C	Galvanized Steel, Coating PVC Mix	◔	●	◕	◔	◑	◔	○	◔	◔	○	◔	–
SILVYN® OR	908	12.6 – 51.6	-20 °C to +100 °C	Galvanized Steel, Coating PVC Mix	◔	●	◕	◔	◕	◔	○	◔	◔	○	●	–
SILVYN® HCX	909	12.6 – 51.6	-55 °C to +145 °C	Galvanized Steel, Coating Elastomer plastic	◑	●	◕	◕	◑	◔	○	◑	◑	○	●	–
SILVYN® HFX	909	10.1 – 51.6	-55 °C to +105 °C	Galvanized Steel, Coating PUR	◔	●	◕	◔	◕	◔	○	◔	◔	●	●	–
SILVYN® LTP	913	7.0 – 51.6	-20 °C to +105 °C	Galvanized Steel, Coating Soft PVC	◑	●	●	◕	◕	◔	○	◔	◔	○	●	Lloyds
Protective conduits for special applications																
SILVYN® HIPROJACKET	917	6.0 – 102.0	-55 °C to +1640 °C	Fibre glass with iron oxide silicone coat	●	○	◔	●	◕	◑	●	●	●	●	◕	EN 45545
SILVYN® CNP	923	12.6 – 40.7	-20 °C to +60 °C	PVC Mix with Nylon Braid	◑	○	◔	◑	◑	◔	○	◑	◔	○	◕	cULus
SILVYN® FG	919	12.6 – 51.6	-20 °C to +80 °C	Galvanized Steel, PVC-mix special sheath	◔	●	◕	◔	◕	◔	○	◔	◔	○	●	FDA, NSF
SILVYN® FG NM	920	12.6 – 51.6	-20 °C to +60 °C	Hard PVC inner spiral PVC-mix special sheath	◔	◑	◑	◔	◕	◔	○	◑	◔	○	◔	FDA, NSF

● = very high ◕ = high ◑ = medium ◔ = low ○ = none

SILVYN® CHAIN overview cable chain application

As a system provider, we offer one-stop complete systems such as cable guiding systems and suitable wires. You will find more detailed information in the SILVYN® CHAIN catalogue on our web page under: **www.lappgroup.com/catalogues**

		Characteristics	Application areas
Nylon cable chains for multiple applications		• 30 versions • Inner height from 12 - 75.5mm • Inner width from 12 - 400mm • Bending radius from 18 - 600mm • Self-supporting capacity up to 6.5m	• Medium sliding applications • Automation with high travel frequency • Handling equipment • CNC machines • Smaller robot gantries
Nylon cable chains for heavy duty applications		• 13 versions • Inner height from 53.5 - 112mm • Inner width from 64 - 600mm • Bending radius from 150 - 750mm • Self-supporting capacity up to 9m	• Dirty environment • Machine tool centers • Outdoor equipment • Movement with high lateral acceleration
Nylon cable chains for sliding applications		• 12 versions • Inner height from 37 - 80.5mm • Inner width from 61 - 539mm • Bending radius from 107 - 700mm	• Sliding with high speed and high charge weight • Long life-cycle applications (very long lifetime)
Steel cable chains for multiple applications		• 10 versions • Inner height from 32 - 182mm • Inner width from 79 - 600mm • Bending radius from 75 - 1500mm • Self-supporting capacity up to 13m	• Steel mills/steel works • Off-Shore • Long-travel machining centers • Heavy duty environment
Steel cable chains for sliding applications		• 9 versions • Inner height from 32 - 138mm • Inner width from 79 - 506mm • Bending radius from 115 - 850mm	• Steel mills/steel works • Off-Shore • Long-travel machining centers • Heavy duty environment • Sliding with high charge weight
Cable chains for robot applications		• 6 versions • Inner height from 30 - 59mm • Inner width from 45 - 210mm • Bending radius from 100 - 220mm	• Welding robots • Painting robots • Handling robots

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® BRAID PA6 / SILVYN® SNAP PET / SILVYN® SHRINK BRAID PET

Info

- Simple, fast cable bundling

SILVYN® BRAID PA6

SILVYN® SNAP PET

SILVYN® SHRINK BRAID PET

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001182
ETIM 5.0/6.0 Class-Description:
Braided hose

On request
Bulk containers on rolls
More sizes available

Note
SILVYN® BRAID PA6
Halogen and cadmium-free
Fire behaviour according to UL94 V-2
SILVYN® SNAP PET
Halogen and cadmium-free
Fire behaviour according to UL94 V-2
SILVYN® SHRINK BRAID PET
No dielectric strength
Self extinguishing acc. to UL94 HB

Colour delivered
SILVYN® BRAID PA6
Black (RAL 9005), UV-resistant
SILVYN® SNAP PET
Black, grey, orange, yellow, white
SILVYN® SHRINK BRAID PET
Black (RAL 9005), UV-resistant

Material
SILVYN® BRAID PA6
Polyamide 6.6 - halogen-free
SILVYN® SNAP PET
Polyester - PET braid sidewise rolled up
SILVYN® SHRINK BRAID PET
Polyester - PET with shrinkable
Polyolefin fibres

Temperature range
SILVYN® BRAID PA6
-55°C to +125°C
SILVYN® SNAP PET
-55°C to +150°C
SILVYN® SHRINK BRAID PET
-40 °C to +150 °C
Processing: min. +180 °C

Benefits

SILVYN® BRAID PA6
- Can be cut without the need for a thermo-cutting tool
- Cut into length without frazzle on the conduit's end
- Abrasion protection
- Simple, fast cable bundling
- Protection against dust

SILVYN® SNAP PET
- Cables can be guided in or out of the SILVYN® SNAP at any point.
- Self-wrapping
- Simple, fast cable bundling
- Tidies away cables
- Protection against dust

SILVYN® SHRINK BRAID PET
- Additional abrasion protection for critical areas
- Cut into length without frazzle on the conduit's end
- Simple, fast cable bundling
- Protection against dust

Application range

SILVYN® BRAID PA6
- Easy cable protection
- Additional insulation
- Bundling and guiding of cables and wires
- Low rodent-protection

SILVYN® SNAP PET
- Easy cable protection
- Bundling and guiding of cables and wires
- Cable harness

SILVYN® SHRINK BRAID PET
- Easy cable protection
- Additional insulation
- Bundling and guiding of cables and wires
- Low rodent-protection

Product features

SILVYN® BRAID PA6
- Abrasion-resistant
- Flexible
- Can be cut at cold temperatures

SILVYN® SNAP PET
- Abrasion-resistant
- Flexible
- Self-wrapping
- Cut longitudinally

SILVYN® SHRINK BRAID PET
- Abrasion-resistant
- Flexible
- Shrinkable
- Shrinking ratio: 2:1
- Maximum length lost after shrinkage is less than 15 %

Product Make-up

SILVYN® BRAID PA6
- Polyamide 6.6 - halogen-free

SILVYN® SNAP PET
- Polyester - PET braid sidewise rolled up

SILVYN® SHRINK BRAID PET
- Polyester - PET with shrinkable Polyolefin fibres

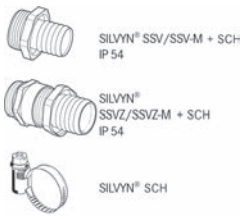
Suitable tools

- Multipurpose shears A and B

Article number	Nominal size	Clamping range in mm	Shrinkage range mm	Colour	PU (m)
SILVYN® BRAID PA6					
61721260	6	4.0 - 10.0		black	20
61721261	12	10.0 - 14.0		black	15
61721262	16	14.0 - 24.0		black	15
61721263	20	18.0 - 26.0		black	10
61721264	30	26.0 - 34.0		black	10
61721265	40	32.0 - 42.0		black	5
SILVYN® BRAID PA6 - reel length					
61721266	6	4.0 - 10.0		black	750
61721267	12	10.0 - 14.0		black	500
61721268	16	14.0 - 24.0		black	400
61721269	20	18.0 - 26.0		black	250
61721258	30	26.0 - 34.0		black	250
61721259	40	32.0 - 42.0		black	250
SILVYN® SNAP PET					
61721280	19	19.0 - 25.0		grey	2.5
61721281	19	19.0 - 25.0		orange	2.5
61721282	19	19.0 - 25.0		black	2.5
61721283	19	19.0 - 25.0		white	2.5
61721284	19	19.0 - 25.0		yellow	2.5
SILVYN® SHRINK BRAID PET					
61721270	12/06		12.0 - 6.0	black	5
61721271	25/12		25.0 - 12.0	black	5
61721272	30/15		30.0 - 15.0	black	5
61721273	50/25		50.0 - 25.0	black	4
61721274	70/35		70.0 - 35.0	black	4

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® SI



Benefits
- Protection against dust
- Protection against humidity
- Low abrasion protection

Application range
- Easy cable protection
- Additional insulation
- Bundling and guiding of cables and wires

Product features
- Flexible
- Soft

Product Make-up
- Soft-PVC conduit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Note
Flame-retardant and self-extinguishing
Dielectric strength: 25 kV/mm
Tear-resistance: 23 N/mm²
Shore A hardness: 75 °C to 90 °C

Colour delivered
Silver grey (RAL 7001)

Material
Soft PVC

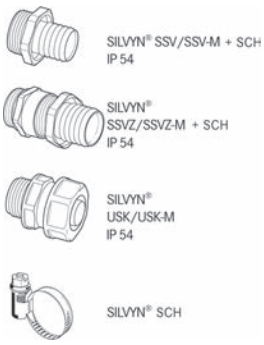
Temperature range
-5°C to +80°C

Article number	ID x OD mm	Suitable for SILVYN® SSV-M/SSVZ-M	Suitable for SILVYN® SSV/SSVZ	Suitable for SILVYN® SCH	PU ring (m)
SILVYN® SI					
61713210	7.0 x 9.0	12/1 / -		10 - 16 S	50
61713240	9.0 x 12.0	12/2 / -		10 - 16 S	50
61713270	11.0 x 14.0	16/1 / -		10 - 16 S	50
61713300	13.0 x 16.0	16/2 / -		12 - 20 S	50
61713330	14.0 x 18.0	20/1		12 - 20 S	50
61713360	18.0 x 22.0	20/3	13,5/1	16 - 25 S	50
61713390	23.0 x 28.0	25	21	25 - 40 S	50
61713420	32.0 x 38.0	32 / 32/2	29/2	32 - 50 S	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® SSV-M refer to page 825
- SILVYN® SSVZ-M refer to page 825
- SILVYN® SSV refer to page 826
- SILVYN® SSVZ refer to page 826
- SILVYN® SCH refer to page 827

SILVYN® SP



Benefits
- Protection against mechanical stress
- Protection against dust
- Protection against humidity

Application range
- Cable protection
- Additional insulation
- Bundling and guiding of cables and wires

Product features
- Flexible
- Dimensionally stable

Product Make-up
- Hard PVC inner spiral
- Soft PVC outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Silver grey (RAL 7001)

Material
Soft PVC with hard PVC spiral,
SBR/NBR

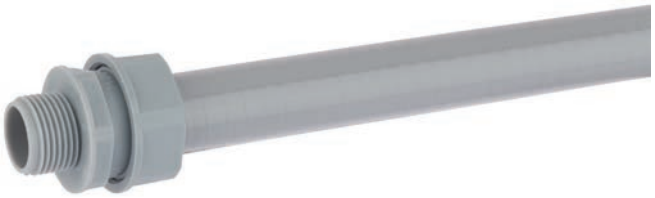
Temperature range
-15 °C to +60 °C

Article number	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® SSV-M/SSVZ-M	Suitable for SILVYN® USK-M	Suitable for SILVYN® SSV/SSVZ	Suitable for SILVYN® USK	Suitable for SILVYN® SCH	PU ring (m)
SILVYN® SP								
61714000	10.0 x 14.0	50	16 x 1,5/1	12 x 1,5	9/1	9	10 - 16 S	25
61714010	12.0 x 16.0	60	16 x 1,5/2	16 x 1,5	9/2	11	12 - 20 S	25
61714020	14.0 x 18.0	70	20 x 1,5/1		11/1	13,5	12 - 20 S	25
61714100	16.0 x 20.0	70	20 x 1,5/2	20 x 1,5	11/2	16	16 - 25 S	25
61714110	22.0 x 27.0	90	25 x 1,5	25 x 1,5	16	21	20 - 32 S	25
61714120	30.0 x 36.0	140	32 x 1,5	32 x 1,5	29/1	29	25 - 40 S	25
61714070	38.0 x 44.0	190	40 x 1,5	40 x 1,5	36	36	32 - 50 S	25
61714080	45,0 x 51,0	240	50 x 1,5		42		40 - 60 S	25
61714090	49.0 x 56.0	250	63 x 1,5	50 x 1,5	48	48	40 - 60 S	25

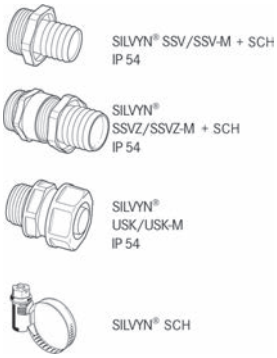
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® SP-PU refer to page 824

Accessories
- SILVYN® SSV-M refer to page 825
- SILVYN® SSVZ-M refer to page 825
- SILVYN® USK-M refer to page 828
- SILVYN® USK refer to page 828
- SILVYN® SSV refer to page 826
- SILVYN® SSVZ refer to page 826
- SILVYN® SCH refer to page 827



SILVYN® SP-PU



Benefits
- Protection against mechanical stress
- Abrasion protection
- Protection against chemicals
- UV-resistant and weather-resistant

Application range
- Cable protection
- Bundling and guiding of cables and wires
- Outdoors
- In harsh environment

Product features
- Tear-resistant
- Oil and petrol-resistant
- Halogen-free
- Resistant to microbes
- Dimensionally stable

Product Make-up
- Hard PVC inner spiral
- Polyurethane outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Black (RAL 9005), UV-resistant

Material
PUR with hard PVC spiral
Fire behaviour according to UL 94V-0

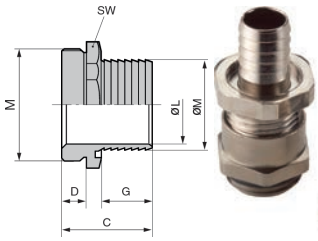
Temperature range
-20°C to +90°C

Article number	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® SSV-M/SSVZ-M	Suitable for SILVYN® USK-M	Suitable for SILVYN® SSV/ SSVZ	Suitable for SILVYN® USK	Suitable for SILVYN® SCH	PU ring (m)
SILVYN® SP-PU								
61793620	10.0 x 14.0	50	16 x 1,5/1	12 x 1,5	9/1	9	10 - 16 S	25
61793630	12.0 x 16.0	60	16 x 1,5/2	16 x 1,5	9/2	11	12 - 20 S	25
61793640	14.0 x 18.0	70	20 x 1,5/1		11/1	13,5	12 - 20 S	25
61793650	16.0 x 20.0	80	20 x 1,5/2	20 x 1,5	11/2	16	16 - 25 S	25
61793660	22.0 x 27.0	110	25 x 1,5	25 x 1,5		21	20 - 32 S	25
61793670	30.0 x 36.0	150	32 x 1,5	32 x 1,5	29/1	29	25 - 40 S	25
61793680	38.0 x 44.0	200	40 x 1,5	40 x 1,5	36	36	32 - 50 S	25

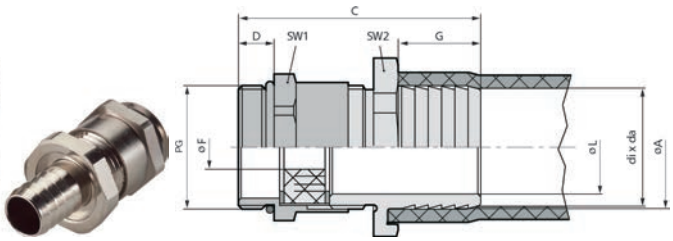
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® SSV-M refer to page 825
- SILVYN® SSVZ-M refer to page 825
- SILVYN® USK-M refer to page 828
- SILVYN® USK refer to page 828
- SILVYN® SSV refer to page 826
- SILVYN® SSVZ refer to page 826
- SILVYN® SCH refer to page 827

SILVYN® SSV-M / SILVYN® SSVZ-M



SILVYN® SSV-M



SILVYN® SSVZ-M

Benefits

SILVYN® SSV-M
- Conduit gland with high tensile strength for plastic conduits

SILVYN® SSVZ-M
- Conduit gland with high tensile strength for plastic conduits
- High-tensile cable protection

Application range

- In combination with protective conduit:
- SILVYN® SI
- SILVYN® SP
- SILVYN® SP-PU

Product features

SILVYN® SSV-M
- High-tensile
- Robust
- Compact design

SILVYN® SSVZ-M
- High-tensile
- Robust
- Compact design
- Cable strain relief
- Cable sealing

Product Make-up

SILVYN® SSV-M
- Metric connection thread
- Conduit entry with special grip profile

SILVYN® SSVZ-M
- Metric connection thread
- Integrated cable gland
- Conduit entry with special grip profile

Note

- Necessary conduit clamp SILVYN® SCH

Suitable conduits

- SILVYN® SI Page 822
- SILVYN® SP Page 823
- SILVYN® SP-PU Page 824

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
SILVYN® SSV-M
Body: nickel-plated brass
O-ring: NBR
SILVYN® SSVZ-M
Body: nickel-plated brass
Incised sealing ring: CR
O-ring: NBR

Temperature range
-20°C to +80°C

Article number	Metric size	SW wrench size mm	SW 1/2 mm	Overall length mm	Thread length mm	Clear opening (mm)	Suitable for SILVYN® SCH	Suitable for SILVYN® SI	Suitable for SILVYN® SP	Suitable for SILVYN® SP-PU	Pieces / PU
SILVYN® SSV-M											
52002827	12 x 1.5/1	16		25	8	7	10 - 16 S	7 x 9			50
52002828	12 x 1.5/2	19		25	8	9	10 - 16 S	9 x 12			50
52002840	16 x 1.5/1	19		25	8	8	10 - 16 S	11 x 14	10 x 14	10 x 14	50
52002839	16 x 1.5/2	19		25	8	10	12 - 20 S	13 x 16	12 x 16	12 x 16	50
52002841	20 x 1.5/1	22		25	8	12	16 - 25 S	14 x 18			50
52002842	20 x 1.5/3	25		25	8	15.5	20 - 32 S	18 x 23			50
52002843	25x1.5	32		29.5	8.5	19	20 - 32 S	23 x 28	22 x 27	22 x 27	25
52002844	32 x 1.5	40		32.5	9.5	27	32 - 50 S	32 x 38	30 x 36	30 x 36	25
52002845	40x1.5	50		36	11	34	32 - 50 S		38 x 44	38 x 44	10
52002846	50 x 1.5	57		39	12	41	40 - 60 S		45 x 51		5
52002847	63 x 1.5	67		43	12	46	40 - 60 S		49 x 56		5
SILVYN® SSVZ-M											
55501850	16 x 1.5/1		19 / 18	39	5	8	10 - 16 S		10 x 14	10 x 14	50
55501860	16 x 1.5/2		19 / 18	39	5	10	12 - 20 S		12 x 16	12 x 16	50
55501870	20 x 1.5/1		22 / 22	39.6	6	12	16 - 25 S	14 x 18	14 x 18	14 x 18	50
55501880	20 x 1.5/2		22 / 22	39.6	6	12.5	16 - 25 S		16 x 20	16 x 20	50
55501890	20 x 1.5/3		25 / 22	43	6	15.5	20 - 32 S	18 x 23			50
55501900	20 x 1.5/4		30 / 24	44	6	16	20 - 32 S		22 x 27	22 x 27	25
55501910	25 x 1.5		32 / 30	48	7	20	20 - 32 S	23 x 28			25
55501920	32 x 1.5/1		40 / 40	53.6	8	27	25 - 40 S		30 x 36	30 x 36	25
55501930	32 x 1.5/2		42 / 40	53.6	8	30	32 - 50 S	32 x 38			25
55501940	40 x 1.5		52 / 50	61.6	8	34	32 - 50 S		38 x 44	38 x 44	10
55501950	50 x 1.5		57 / 57	68.6	9	41	40 - 60 S		45 x 51		5

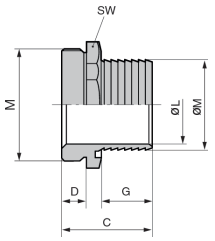
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

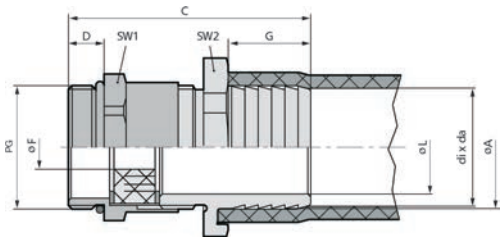
- SKINDICHT® SM-M refer to page 744

SILVYN® SSV / SILVYN® SSVZ

SILVYN® SSV



SILVYN® SSVZ



Benefits

SILVYN® SSV

- Conduit gland with high tensile strength for plastic conduits

SILVYN® SSVZ

- Conduit gland with high tensile strength for plastic conduits
- High-tensile cable protection

Application range

- In combination with protective conduit:
- SILVYN® SI
- SILVYN® SP
- SILVYN® SP-PU

Product features

SILVYN® SSV

- High-tensile
- Robust
- Compact design

SILVYN® SSVZ

- High-tensile
- Robust
- Compact design
- Cable strain relief
- Cable sealing

Product Make-up

SILVYN® SSV

- PG connection thread
- Conduit entry with special grip profile

SILVYN® SSVZ

- PG connection thread
- Integrated cable gland
- Conduit entry with special grip profile

Note

- Necessary conduit clamp SILVYN® SCH

Suitable conduits

- SILVYN® SI Page 822
- SILVYN® SP Page 823
- SILVYN® SP-PU Page 824

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
SILVYN® SSV
Body: nickel-plated brass
O-ring: NBR
SILVYN® SSVZ
Body: nickel-plated brass
Incised sealing ring: CR
O-ring: NBR

Temperature range
-20°C to +80°C

Article number	PG size	SW wrench size mm	SW 1/2 mm	Overall length mm	Thread length mm	Clear opening (mm)	Suitable for SILVYN® SCH	Suitable for SILVYN® SI	Suitable for SILVYN® SP	Suitable for SILVYN® SP-PU	Pieces / PU
SILVYN® SSV											
52003070	9	19		25	5.5	8	10 - 16 S		10 x 14	10 x 14	100
53800020	9	19		25	5.5	10	12 - 20 S		12 x 16	12 x 16	100
52003080	11	22		25	6	12	16 - 25 S		14 x 18	14 x 18	50
52024560	11	22		25	6	14	16 - 25 S		16 x 20	16 x 20	50
52003090	13.5	25		27.5	6.5	15.5	20 - 32 S	18 x 22			50
52003100	16	30		27.5	7.5	19	20 - 32 S		22 x 27	22 x 27	25
52003110	21	32		30	8	21	20 - 32 S	23 x 28			25
53800080	29	40		33	9.5	27	25 - 40 S		30 x 36	30 x 36	25
52024640	29	42		33	9.5	30	32 - 50 S	32 x 38			25
52002980	36	52		37	12	34	32 - 50 S		38 x 44	38 x 44	10
52002990	42	57		41	14	41	40 - 60 S		45 x 51		5
52013000	48	64		44	14	46	40 - 60 S		49 x 56		5
SILVYN® SSVZ											
52021070	9		19 / 17	39.1	6	8	10 - 16 S		10 x 14	10 x 14	50
52021080	9		19 / 17	39.1	6	10	12 - 20 S		12 x 16	12 x 16	50
52003020	11		22 / 20	39.6	6	12	16 - 25 S		14 x 18	14 x 18	50
52024670	11		22 / 20	39.6	6	14	16 - 25 S		16 x 20	16 x 20	50
52003030	13.5		25 / 22	43.1	6.5	15.5	20 - 32 S	18 x 22			50
52003040	16		30 / 24	44.1	6.5	19	20 - 32 S		22 x 27	22 x 27	25
52003050	21		32 / 30	48.1	7	21	20 - 32 S	23 x 28			25
52003060	29		40 / 40	53.6	8	27	25 - 40 S		30 x 36	30 x 36	25
52024680	29		42 / 40	53.6	8	30	32 - 50 S	32 x 38			25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800

SILVYN® SCH

Benefits
- Ensures the tensile strength
- Clamps various conduit sizes with one clamp

Application range
- In combination with:
- SILVYN® SSV-M/SSVZ-M
- SILVYN® SSV/SSV-Z

Product features
- Variable clamping range

Product Make-up
- Galvanized steel ring
- Worm gear drive

Suitable conduits
- SILVYN® SI Page 822
- SILVYN® SP Page 823
- SILVYN® SP-PU Page 824

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000127
ETIM 5.0/6.0 Class-Description: Saddle

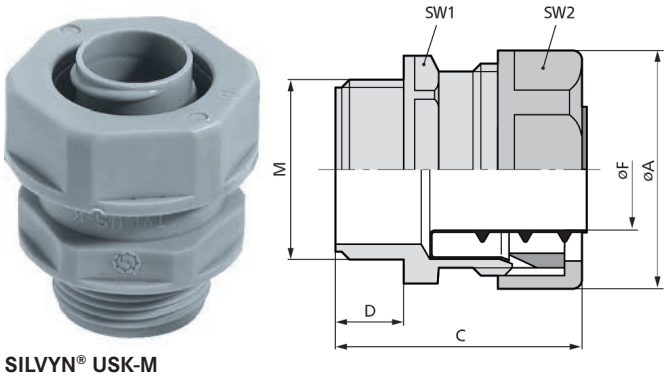
Material
Steel, galvanized

Article number	Article designation	Clamping range in mm	Suitable for SILVYN® SI/SP/SP-PU	Pieces / PU
SILVYN® SCH				
52003130	10 - 16 S	10.0 - 16.0	10 x 14 / 11 x 14	100
52003140	12 - 20 S	12.0 - 20.0	12 x 16 / 13 x 16 / 14 x 18	100
52003160	16 - 25 S	16.0 - 25.0	16 x 20 / 18 x 22 / 18 x 23	100
52003170	20 - 32 S	20.0 - 32.0	22 x 27	100
52009050	25 - 40 S	25.0 - 40.0	30 x 36 / 23 x 28	100
52009061	35 - 50 S	35.0 - 50.0	32 x 38 / 38 x 44	50
52009040	40 - 60 S	40.0 - 60.0	45 x 51 / 50 x 56	25

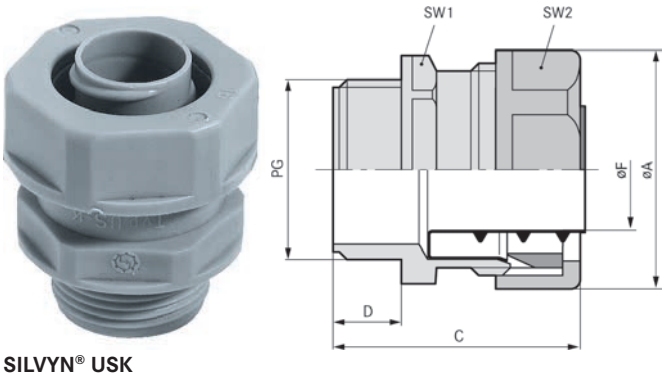
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® SSV-M refer to page 825
- SILVYN® SSVZ-M refer to page 825
- SILVYN® SSV refer to page 826
- SILVYN® SSVZ refer to page 826

SILVYN® USK-M / SILVYN® USK



SILVYN® USK-M



SILVYN® USK

Benefits
- Fast and easy assembly
- Vibration protection
- No extra parts necessary

Application range
- In combination with protective conduit:
- SILVYN® FPS/ FD-PU
- SILVYN® SP/SP-PU
- Indoor applications
- Light mechanical stress

Product features
- Large wrench sizes

Product Make-up
SILVYN® USK-M
- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

SILVYN® USK
- PG connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

Note
- Included: SILVYN® EE-K inner sleeve

Suitable conduits
- SILVYN® FPS Page 837
- SILVYN® FD-PU Page 839
- SILVYN® SP Page 823
- SILVYN® SP-PU Page 824

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001178
ETIM 5.0/6.0 Class-Description: Screw connection for protective plastic hose

Colour delivered
Silver grey (RAL 7001)

Material
PP

Protection rating
IP 54

Temperature range
-10°C to +110°C

Article number	Metric size	PG size	SW 1/2 mm	Overall length mm	Thread length mm	Clear opening (mm)	Suitable for SILVYN® FD-PU/FPS	Suitable for SILVYN® SP	Suitable for SILVYN® SP-PU	Pieces / PU
SILVYN® USK-M										
55501300	10 x 1.0		16 / 18	40	10	6	7 x 10			50
55501310	12 x 1.5		21 / 23	43	12	8	10 x 14	10 x 14	10 x 14	50
55501320	16 x 1.5		24 / 27	43	12	11	13 x 17	12 x 16	12 x 16	50
55501330	20 x 1.5		29 / 32	44	13	15	16 x 21	16 x 20	16 x 20	50
55501340	25 x 1.5		36 / 40	50	13	20	22 x 27	22 x 27	22 x 27	25
55501350	32 x 1.5		45 / 49	51	15	27	29 x 36	30 x 36	30 x 36	25
55501360	40 x 1.5		54 / 58	51	15	35	38 x 45	38 x 44	38 x 44	25
55501370	50 x 1.5		66 / 70	58	16	44.5	48 x 56	49 x 56		10
SILVYN® USK										
52005810		7	16 / 18	40	10	6	7 x 10			50
52005820		9	21 / 23	41	10	9	10 x 14	10 x 14		50
52005830		11	24 / 27	41	10	11	13 x 17	12 x 16		50
52005840		13.5	26 / 29	41	10	13	15 x 19	14 x 18		50
52005850		16	29 / 32	42	11	14.5	16 x 21	16 x 20		50
52005860		21	36 / 40	48	11	19.5	22 x 27	22 x 27		25
52005870		29	45 / 49	48	12	27	29 x 36	30 x 36		25
52005880		36	53 / 58	48	12	36	38 x 45	38 x 44		25
52005900		48	65 / 70	57	15	46	48 x 56	49 x 56		10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 716
- SKINTOP® GMP-GL refer to page 778

SILVYN® EL

Benefits
- Easy assembly of cables and wires due to smooth inner
- Bendable
- Crush-resistant
- A fully insulated system when used in combination with SILVYN® MPC/MPC-M

Application range
- Mechanical engineering
- Vehicle construction
- Vending machine construction
- Exporters

Product features
- Flexible
- Smooth inner wall
- Dimensionally stable

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Integrated hard PVC spiral
- Soft PVC outer sheath

Note
- Smooth version is not UL recognized

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Silver grey (RAL 7001)

Material
Special soft PVC sheath with hard PVC spiral

Temperature range
-20°C to +70°C
-5°C to +70°C (smooth version)

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MPC-M/MPC 90°M	Suitable for SILVYN® MPC	Suitable for SILVYN® MPC 90°	PU (m)
SILVYN® EL							
61747360	12	10.0 x 14.5	25	16/1	9	9	30
61747370	16	12.0 x 16.5	25	16/2 , 20/1	11 , 13,5/1	11 , 13,5/1	30
61747380	20	16.0 x 21.0	35	20/2	13,5/2 , 16	13,5/2 , 16	30
61747390	25	22.0 x 27.5	45	25 x 1,5	21	21	30
61747400	30	25.0 x 30.5	55	32/1	29/1	29/1	30
61747410	32	28.0 x 33.5	60	32/2	29/2	29/2	30
61747420	40	35.0 x 41.0	80	40 x 1,5	36	36	30
61747430	50	40.0 x 46.4	105	50 x 1,5	42		30
61747440	63	50.0 x 57.0	120	63 x 1,5	48		30
SILVYN® EL smooth							
61747361	12	10.0 x 14.2	50	16/1	9	9	30
61747371	16	12.0 x 17.8	50	16/2 , 20/1	11 , 13,5/1	11 , 13,5/1	30
61747381	20	16.0 x 21.1	70	20/2	13,5/2 , 16	13,5/2 , 16	30
61747391	25	21.0 x 26.4	90	25x1,5	21	21	30
61747411	32	26.5 x 33.1	140	32/2	29/2	29/2	30
61747421	40	35.4 x 41.8	190	40 x 1,5	36	36	30
61747431	50	40.0 x 47.9	240	50 x 1,5	42		30
61747441	63	51.3 x 59.7	270	63 x 1,5	48		30

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® ELU refer to page 830
- SILVYN® ELT refer to page 832
- SILVYN® ELR refer to page 833

Accessories
- SILVYN® MPC-M refer to page 834
- SILVYN® MPC 45° M refer to page 835
- SILVYN® MPC 90° M refer to page 834
- SILVYN® MPC refer to page 836
- SILVYN® MPC 90° refer to page 836

SILVYN® ELU

Benefits

- Easy assembly of cables and wires due to smooth inner
- Bendable
- Crush-resistant
- A fully insulated system when used in combination with SILVYN® MPC/MPC-M

Application range

- Mechanical engineering
- Vehicle construction
- Vending machine construction
- Exporters

Product features

- Flexible
- Smooth inner wall
- Dimensionally stable

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

- Integrated hard PVC spiral
- Modified soft PVC sheath

Note

- Smooth version is not UL recognized

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Black (RAL 9005), UV-resistant

Material
Special soft PVC sheath with hard PVC spiral

Temperature range
-20°C to +70°C
-5°C to +70°C (smooth version)

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MPC-M/MPC 90°M	Suitable for SILVYN® MPC	Suitable for SILVYN® MPC 90°	PU (m)
SILVYN® ELU							
61751790	12	10.0 x 14.5	25	16/1	9	9	30
61751791	16	12.0 x 16.5	25	16/2 , 20/1	11 , 13,5/1	11 , 13,5/1	30
61751792	20	16.0 x 21.0	35	20/2	13,5/2 , 16	13,5/2 , 16	30
61751793	25	22.0 x 27.5	45	25x1,5	21	21	30
61751794	30	25.0 x 30.5	55	32/1	29/1	29/1	30
61751795	32	28.0 x 33.5	60	32/2	29/2	29/2	30
61751796	40	35.0 x 41.0	80	40 x 1,5	36	36	30
61751797	50	40.0 x 46.4	105	50 x 1,5	42		30
61751798	63	50.0 x 57.0	120	63 x 1,5	48		30
SILVYN® ELU smooth							
61751590	12	10.0 x 14.2	50	16/1	9	9	30
61751591	16	12.0 x 17.8	50	16/2 , 20/1	11 , 13,5/1	11 , 13,5/1	30
61751592	20	16.0 x 21.1	70	20/2	13,5/2 , 16	13,5/2 , 16	30
61751593	25	21.0 x 26.4	90	25x1,5	21	21	30
61751595	32	26.5 x 33.1	140	32/2	29/2	29/2	30
61751596	40	35.4 x 41.8	190	40 x 1,5	36	36	30
61751597	50	40.0 x 47.9	240	50 x 1,5	42		30
61751598	63	51.3 x 59.7	270	63 x 1,5	48		30

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® MPC-M refer to page 834
- SILVYN® MPC 45° M refer to page 835
- SILVYN® MPC 90° M refer to page 834
- SILVYN® MPC refer to page 836
- SILVYN® MPC 90° refer to page 836

SILVYN® ELÖ

Benefits
- Resistant to grease, cooling agents and oils, especially ASTM2 testing oil
- Easy assembly of cables and wires due to smooth inner
- Bendable
- Crush-resistant
- A fully insulated system when used in combination with SILVYN® MPC/MPC-M

Application range
- Mechanical engineering
- Machine tools
- Vending machine construction
- Applications with strong chemical influences

Product features
- Oil-resistant
- Flexible
- Smooth inner wall
- Dimensionally stable

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Integrated hard PVC spiral
- Modified soft PVC sheath

Note
- Smooth version is not UL recognized

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Green (RAL 6001)

Material
Special soft PVC sheath with hard PVC spiral

Temperature range
-20°C to +70°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MPC-M/MPC 90°M	Suitable for SILVYN® MPC	Suitable for SILVYN® MPC 90°	PU (m)
SILVYN® ELÖ							
61751610	12	10.0 x 14.5	25	16/1	9	9	30
61751620	16	12.0 x 16.5	25	16/2 , 20/1	11 , 13,5/1	11 , 13,5/1	30
61751630	20	16.0 x 21.0	35	20/2	13,5/2 , 16	13,5/2 , 16	30
61751640	25	22.0 x 27.5	45	25 x 1,5	21	21	30
61751650	30	25.0 x 30.5	55	32/1	21	21	30
61751660	32	28.0 x 33.5	60	32/2	29/2	29/2	30
61751670	40	35.0 x 41.0	80	40 x 1,5	36	36	30
61751680	50	40.0 x 46.4	105	50 x 1,5	42		30
61751690	63	50.0 x 57.0	120	63 x 1,5	48		30
SILVYN® ELO smooth							
61751611	12	10.0 x 14.2	50	16/1	9	9	30
61751621	16	12.0 x 17.8	50	16/2 , 20/1	11 , 13,5/1	11 , 13,5/1	30
61751631	20	16.0 x 21.1	70	20/2	13,5/2 , 16	13,5/2 , 16	30
61751641	25	21.0 x 26.4	90	25x1,5	21	21	30
61751661	32	26.5 x 33.1	140	32/2	29/2	29/2	30
61751671	40	35.4 x 41.8	190	40 x 1,5	36	36	30
61751681	50	40.0 x 47.9	240	50 x 1,5	42		30
61751691	63	51.3 x 59.7	270	63 x 1,5	48		30

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® EL refer to page 829
- SILVYN® ELU refer to page 830
- SILVYN® ELT refer to page 832
- SILVYN® ELR refer to page 833

Accessories

- SILVYN® MPC-M refer to page 834
- SILVYN® MPC 45° M refer to page 835
- SILVYN® MPC 90° M refer to page 834
- SILVYN® MPC refer to page 836
- SILVYN® MPC 90° refer to page 836

SILVYN® ELT

Benefits
- High temperature resistance
- Easy assembly of cables and wires due to smooth inner
- Bendable
- Crush-resistant
- A fully insulated system when used in combination with SILVYN® MPC/MPC-M

Application range
- Mechanical engineering
- Machine tools
- Vending machine construction
- Applications with higher temperatures

Product features
- High temperature resistance
- Smooth inner wall
- Flexible
- Dimensionally stable

Norm references / Approvals
- UL FILENUMBER E308201
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry

Product Make-up
- Integrated hard PVC spiral
- Modified soft PVC sheath

Note
- Smooth version is not UL recognized

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Blue (RAL 5012)

Material
Special soft PVC sheath with hard PVC spiral

Temperature range
-20°C to +90°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MPC-M/MPC 90°M	Suitable for SILVYN® MPC	Suitable for SILVYN® MPC 90°	PU (m)
SILVYN® ELT							
61751700	12	10.0 x 14.5	25	16/1	9	9	30
61751710	16	12.0 x 16.5	25	16/2 , 20/1	11 , 13,5/1	11 , 13,5/1	30
61751720	20	16.0 x 21.0	35	20/2	13,5/2 , 16	13,5/2 , 16	30
61751730	25	22.0 x 27.5	45	25 x 1,5	21	21	30
61751740	30	25.0 x 30.5	55	32/1	29/1	29/1	30
61751750	32	28.0 x 33.5	60	32/2	29/2	29/2	30
61751760	40	35.0 x 41.0	80	40 x 1,5	36	36	30
61751770	50	40.0 x 46.4	105	50 x 1,5	42		30
61751780	63	50.0 x 57.0	120	63 x 1,5	48		30
SILVYN® ELT smooth							
61751701	12	10.0 x 14.2	50	16/1	9	9	30
61751711	16	12.0 x 17.8	50	16/2 , 20/1	11 , 13,5/1	11 , 13,5/1	30
61751721	20	16.0 x 21.1	70	20/2	13,5/2 , 16	13,5/2 , 16	30
61751731	25	21.0 x 26.4	90	25x1,5	21	21	30
61751751	32	26.5 x 33.1	140	32/2	29/2	29/2	30
61751761	40	35.4 x 41.8	190	40 x 1,5	36	36	30
61751771	50	40.0 x 47.9	240	50 x 1,5	42		30
61751781	63	51.3 x 59.7	270	63 x 1,5	48		30

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® EL refer to page 829
- SILVYN® ELU refer to page 830
- SILVYN® ELR refer to page 833

Accessories

- SILVYN® MPC-M refer to page 834
- SILVYN® MPC 45° M refer to page 835
- SILVYN® MPC 90° M refer to page 834
- SILVYN® MPC refer to page 836
- SILVYN® MPC 90° refer to page 836

SILVYN® ELR

Benefits
- Easy assembly of cables and wires due to smooth inner
- Bendable
- Crush-resistant
- A fully insulated system when used in combination with SILVYN® MPC/MPC-M

Application range
- Mechanical engineering
- Vehicle construction
- Vending machine construction

Product features
- Flexible
- Smooth inner wall
- Dimensionally stable

Product Make-up
- Integrated hard PVC spiral
- Modified soft PVC sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Orange (RAL 2008)

Material
Special soft PVC sheath with hard PVC spiral

Temperature range
-20°C to +70°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MPC-M/MPC 90°M	Suitable for SILVYN® MPC	Suitable for SILVYN® MPC 90°	PU (m)
SILVYN® ELR smooth							
61751600	12	10.0 x 14.2	50	16/1	9	9	30
61751601	16	12.0 x 17.8	50	16/2 , 20/1	11 , 13,5/1	11 , 13,5/1	30
61751602	20	16.0 x 21.1	70	20/2	13,5/2 , 16	13,5/2 , 16	30
61751603	25	21.0 x 26.4	90	25x1,5	21	21	30
61751604	32	26.5 x 33.1	140	32/2	29/2	29/2	30
61751605	40	35.4 x 41.8	190	40 x 1,5	36	36	30
61751606	50	40.0 x 47.9	240	50 x 1,5	42		30
61751607	63	51.3 x 59.7	270	63 x 1,5	48		30

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® MPC-M refer to page 834
- SILVYN® MPC 45° M refer to page 835
- SILVYN® MPC 90° M refer to page 834
- SILVYN® MPC refer to page 836
- SILVYN® MPC 90° refer to page 836

SILVYN® MPC-M / SILVYN® MPC 90° M

SILVYN® MPC-M

SILVYN® MPC 90° M

Benefits

SILVYN® MPC-M

- All-purpose
- Fast and easy assembly

SILVYN® MPC 90° M

- All-purpose
- Fast and easy assembly
- 90° elbow allows easy installation

Application range

- In combination with protective conduit:
- SILVYN® EL/ELU/ELO/ELT/ELR (helically formed and smooth conduits)

Product features

- Dust protection
- Moisture-protection
- Ensures high tensile strength and mechanical protection

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

SILVYN® MPC-M

- Metric connection thread
- Hexagonal collar with integrated conduit connection

SILVYN® MPC 90° M

- Metric connection thread
- 90° elbow with integrated conduit connection

Suitable conduits

- SILVYN® EL Page 829
- SILVYN® ELU Page 830
- SILVYN® ELÖ Page 831
- SILVYN® ELT Page 832
- SILVYN® ELR Page 833

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001178
ETIM 5.0/6.0 Class-Description: Screw connection for protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Black (RAL 9005), UV-resistant
Grey, RAL 7001

Material
PA66
Halogen-free

Protection rating
IP 65 with helically formed conduits
IP 67 + IP 68 (2bar) with smooth conduits

Temperature range
-40°C to +120°C

Article number	Metric size	Clear opening (mm)	Suitable for SILVYN® SI	Suitable for SILVYN® SP/SP-PU	Suitable for SILVYN® EL/ ELU/ELO/ELT/ELR	Pieces / PU
SILVYN® MPC-M black						
55502460	16 x 1.5/1	9	11 x 14		13	10
55502461	16 x 1.5/2	10.5	13 x 16	12 x 16	16	10
55502462	20 x 1.5/1	10.5	13 x 16	12 x 16	16	10
55502463	20 x 1.5/2	14.5		16 x 20	20	10
55502464	25 x 1.5	19		22 x 27	25	10
55502465	32 x 1.5/1	24.5			30	10
55502469	32 x 1.5/2	24.5			32	10
55502466	40 x 1.5	33			40	2
55502467	50 x 1.5	39			50	2
55502468	63 x 1.5	48		49 x 56	63	1
SILVYN® MPC-M grey						
55502441	16 x 1.5/1	9	11 x 14		13	10
55502442	16 x 1.5/2	10.5	13 x 16	12 x 16	16	10
55502443	20 x 1.5/1	10.5	13 x 16	12 x 16	16	10
55502444	20 x 1.5/2	14.5		16 x 20	20	10
55502445	25 x 1.5	19		22 x 27	25	10
55502446	32 x 1.5/1	24.5			30	10
55502447	32 x 1.5/2	24.5			32	10
55502448	40 x 1.5	33			40	2
55502449	50 x 1.5	39			50	2
55502439	63 x 1.5	48		49 x 56	63	1
SILVYN® MPC 90° M black						
55502480	16 x 1.5	10.5	13 x 16	12 x 16	16	10
55502481	20 x 1.5/1	10.5	13 x 16	12 x 16	16	10
55502482	20 x 1.5/2	14.5		16 x 20	20	10
55502483	25 x 1.5	19		22 x 27	25	10
55502484	32 x 1.5	24.5			32	10
55502485	40 x 1.5	33			40	2
SILVYN® MPC 90° M grey						
55502458	16 x 1.5	10.5	13 x 16	12 x 16	16	10
55502459	20 x 1.5/1	10.5	13 x 16	12 x 16	16	10
55502366	20 x 1.5/2	14.5		16 x 20	20	10
55502367	25 x 1.5	19		22 x 27	25	10
55502368	32 x 1.5	24.5			32	10
55502369	40 x 1.5	33			40	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® GMP-GL-M refer to page 716

SILVYN® MPC 45° M

Benefits
- All-purpose
- Fast and easy assembly
- 45° elbow enables best assembling

Application range
- In combination with protective conduit
- SILVYN® EL/ELU/ELO/ELT/ELR (helically formed and smooth conduits)

Product features
- Dust protection
- Moisture-protection
- Ensures high tensile strength and mechanical protection

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Metric connection thread
- 45° elbow with integrated conduit connection

Suitable conduits
- SILVYN® EL Page 829
- SILVYN® ELU Page 830
- SILVYN® ELÖ Page 831
- SILVYN® ELT Page 832
- SILVYN® ELR Page 833

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001178
ETIM 5.0/6.0 Class-Description: Screw connection for protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Black (RAL 9005), UV-resistant
Grey, RAL 7001

Material
PA66
Halogen-free

Protection rating
IP 65 with helically formed conduits
IP 67 + IP 68 (2bar) with smooth conduits

Temperature range
-40°C to +120°C

Article number	Metric size	Clear opening (mm)	Suitable for SILVYN® EL/ELU/ELO/ELT/ELR	Pieces / PU
SILVYN® MPC 45° M black				
55502431	20 x 1.5/1	10.5	16	10
55502432	20 x 1.5/2	14.5	20	10
55502433	25 x 1.5	19	25	10
55502434	32 x 1.5	24.5	32	10
SILVYN® MPC 45° M grey				
55502435	20 x 1.5/1	10.5	16	10
55502436	20 x 1.5/2	14.5	20	10
55502437	25 x 1.5	19	25	10
55502438	32 x 1.5	24.5	32	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 716

SILVYN® MPC / SILVYN® MPC 90°

SILVYN® MPC

SILVYN® MPC 90°

Benefits

SILVYN® MPC
- All-purpose
- Fast and easy assembly

SILVYN® MPC 90°
- All-purpose
- Fast and easy assembly
- 90° elbow allows easy installation

Application range

- In combination with protective conduit:
- SILVYN® EL/ELU/ELO/ELT/ELR (helically formed and smooth conduits)

Product features

- Dust protection
- Moisture-protection
- Ensures high tensile strength and mechanical protection

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

SILVYN® MPC
- PG connection thread
- Hexagonal collar with integrated conduit connection

SILVYN® MPC 90°
- PG connection thread
- 90° elbow with integrated conduit connection

Suitable conduits

- SILVYN® EL Page 829
- SILVYN® ELU Page 830
- SILVYN® ELÖ Page 831
- SILVYN® ELT Page 832
- SILVYN® ELR Page 833

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001178
ETIM 5.0/6.0 Class-Description: Screw connection for protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Black (RAL 9005), UV-resistant
Grey, RAL 7001

Material
PA66
Halogen-free

Protection rating
IP 65 with helically formed conduits
IP 67 + IP 68 (2bar) with smooth conduits

Temperature range
-40°C to +120°C

Article number	PG size	Clear opening (mm)	Suitable for SILVYN® SI	Suitable for SILVYN® SP/SP-PU	Suitable for SILVYN® EL/ ELU/ELO/ELT/ELR	Pieces / PU
SILVYN® MPC black						
55502470	9	9	11 x 14		13	10
55502471	11	10.5	13 x 16	12 x 16	16	10
55502472	13.5	10.5	13 x 16	12 x 16	16	10
55502494	13.5	14.5		16 x 20	20	10
55502473	16	14.5		16 x 20	20	10
55502474	21	19		22 x 27	25	10
55502476	29	24.5			30	10
55502495	29	24.5			32	10
55502477	36	33			40	2
55502478	42	39			50	2
55502479	48	48			63	1
SILVYN® MPC grey						
55502496	9	9	11 x 14		13	10
55502497	11	10.5	13 x 16	12 x 16	16	10
55502498	13.5	10.5	13 x 16	12 x 16	16	10
55502499	13.5	14.5		16 x 20	20	10
55502451	16	14.5		16 x 20	20	10
55502452	21	19		22 x 27	25	10
55502453	29	24.5			30	10
55502454	29	24.5			32	10
55502455	36	33			40	2
55502456	42	39			50	2
55502457	48	48			63	1
SILVYN® MPC 90° black						
55502486	11	10.5	13 x 16	12 x 16	16	10
55502487	13.5	10.5	13 x 16	12 x 16	16	10
55502488	16	14.5			20	10
55502489	21	19		16 x 20	25	10
55502490	29	24.5		16 x 20	32	10
55502493	36	33			40	2
SILVYN® MPC 90° grey						
55502370	11	10.5	13 x 16	12 x 16	16	10
55502371	13.5	10.5	13 x 16	12 x 16	16	10
55502372	16	14.5			20	10
55502373	21	19		16 x 20	25	10
55502374	29	24.5		16 x 20	32	10
55502375	36	33			40	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® GMP-GL refer to page 778

SILVYN® FPS

Benefits
- Dimensionally stable
- Crushable and extendable
- Highly oil and acid-resistant
- Liquidtight
- Corrosion-resistant

Application range
- Mechanical engineering
- In drag chains (SILVYN® CHAIN)
- Robot-building
- Moving applications
- Indoor applications

Product features
- Cadmium-free

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- PVC-insulated steel spring wire
- Soft PVC outer sheath

Note
- PU = 50 m (on request)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Grey

Material
Soft PVC with insulated spring steel wire

Temperature range
-25°C to +80°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® USK-M/US-M	Suitable for SILVYN® LKI-M/MSK-M	Suitable for SILVYN® USK/US/LKI/EE-K	PU ring (m)
SILVYN® FPS							
61711550	10	7.0 x 10.0	8	10 x 1,0	12 x 1,5	7	25
61711590	14	10.0 x 14.0	10	12 x 1,5	16 x 1,5	9	25
61711630	17	12.7 x 17.0	13	16 x 1,5	20 x 1,5	11	25
61711670	19	14.7 x 19.0	15			13,5	25
61711710	21	16.0 x 21.0	17	20 x 1,5	25 x 1,5	16	25
61711750	27	21.6 x 27.0	20	25 x 1,5	32 x 1,5	21	25
61711790	36	29.0 x 36.0	25	32 x 1,5	40 x 1,5	29	25
61711830	45	38.0 x 45.0	36	40 x 1,5	50 x 1,5	36	25
61711910	56	48.0 x 56.0	40	50 x 1,5	63 x 1,5	48	25
SILVYN® FPS 10M							
61721690	10	7.0 x 10.0	8	10 x 1,0	12 x 1,5	7	10
61721700	14	10.0 x 14.0	10	12 x 1,5	16 x 1,5	9	10
61721710	17	12.7 x 17.0	13	16 x 1,5	20 x 1,5	11	10
61721720	19	14.7 x 19.0	15			13,5	10
61721730	21	16.0 x 21.0	17	20 x 1,5	25 x 1,5	16	10
61721740	27	21.6 x 27.0	20	25 x 1,5	32 x 1,5	21	10
61721750	36	29.0 x 36.0	25	32 x 1,5	40 x 1,5	29	10
61721760	45	38.0 x 45.0	36	40 x 1,5	50 x 1,5	36	10
61721780	56	48.0 x 56.0	40	50 x 1,5	63 x 1,5	48	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® FD-PU refer to page 839

Accessories
- SILVYN® MSK-M EE refer to page 840
- SILVYN® US-M EE refer to page 842
- SILVYN® US EE refer to page 842
- SILVYN® LKI-M refer to page 844
- SILVYN® USK-M refer to page 828
- SILVYN® LKI refer to page 844
- SILVYN® EE-K refer to page 845

SILVYN® FPS-EDU

Info

- High flexible and mechanical protection at the same time

Benefits

- Protects against hot chips
- High-tensile
- Highly flexible
- Air-tight and impermeable
- Mechanical resistance

Application range

- Mechanical engineering
- Plant engineering
- Automation technology
- Used in areas where cables and wires could be damaged by welding sparks and hot chips
- Robotics industry

Product Make-up

- PVC-insulated steel spring wire
- Soft PVC outer sheath
- Galvanised steel wire braiding

Note

- PU = 10m (on request)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Material
insulated spring steel wire with Soft PVC and galvanized steel braid

Temperature range
-25°C to +90°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US	PU ring (m)
SILVYN® FPS-EDU							
61802330	14	9.0 x 14.0	16	16 x 1,5	16 x 1,5	9	50
61802331	17	12.0 x 17.0	19	20 x 1,5	20 x 1,5	11	50
61802332	19	14.0 x 19.0	22			13,5	50
61802333	21	15.0 x 21.0	24	25 x 1,5	20 x 1,5	16	50
61802334	27	20.0 x 27.0	30	32 x 1,5	25 x 1,5	21	50
61802335	36	28.0 x 36.0	40	40 x 1,5	32 x 1,5	29	25
61802336	45	37.0 x 45.0	48	50 x 1,5	40 x 1,5	36	25
61802337	56	48.0 x 56.0	60	63 x 1,5	50 x 1,5	48	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® FPS refer to page 837
- SILVYN® FD-PU refer to page 839
- SILVYN® EDU-AS refer to page 885

Accessories

- SILVYN® MSK-M FPS-EDU refer to page 841
- SILVYN® US-M FPS-EDU refer to page 843
- SILVYN® US FPS-EDU refer to page 843
- SILVYN® US-FPS-EDU-AS refer to page 846

SILVYN® FD-PU

Benefits
- Dimensionally stable
- Highly flexible at cold temperatures
- Crushable and extendable
- High resistance to oil, petrol, acids and greases
- Liquidtight

Application range
- For indoor and outdoor use
- Mechanical engineering
- In drag chains (SILVYN® CHAIN)
- Robot-building
- Moving applications

Product features
- Halogen and cadmium-free
- Abrasion and microbe-resistant
- Fire behaviour of outer sheath according to UL 94V-2

Product Make-up
- PVC-insulated steel spring wire
- PUR outer sheath

Note
- PU = 50 m (on request)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Metallic blue

Material
PUR with PVC-insulated spring steel wire
Fire behaviour according to UL94 V-2

Temperature range
-40°C to +80°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® USK-M/US-M	Suitable for SILVYN® LKI-M/MSK-M	Suitable for SILVYN® USK/US/LKI/EE-K	PU ring (m)
SILVYN® FD-PU							
64453660	10	7.0 x 10.0	8	10 x 1,0	12 x 1,5	7	10
64453670	14	10.0 x 14.0	10	12 x 1,5	16 x 1,5	9	10
64453680	17	12.7 x 17.0	13	16 x 1,5	20 x 1,5	11	10
64453690	19	14.7 x 19.0	15			13,5	10
64453700	21	16.0 x 21.0	17	20 x 1,5	25 x 1,5	16	10
64453710	27	21.6 x 27.0	20	25 x 1,5	32 x 1,5	21	10
64453720	36	29.0 x 36.0	25	32 x 1,5	40 x 1,5	29	10
64453730	45	38.0 x 45.0	36	40 x 1,5	50 x 1,5	36	10
64453750	56	48.0 x 56.0	40	50 x 1,5	63 x 1,5	48	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® MSK-M EE refer to page 840
- SILVYN® US-M EE refer to page 842
- SILVYN® US EE refer to page 842
- SILVYN® LKI-M refer to page 844
- SILVYN® USK-M refer to page 828
- SILVYN® LKI refer to page 844
- SILVYN® EE-K refer to page 845

SILVYN® MSK-M EE

Info

- Integrated SKINTOP® cable strain relief

Benefits

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-turn protection

Application range

- In combination with protective conduit:
- SILVYN® FPS
- SILVYN® FD-PU
- For indoor and outdoor use
- Used in areas where cables and wires need to be provided with strain relief and additional sealing

Product features

- Combination of SILVYN® and SKINTOP®

Product Make-up

- SKINTOP® MS-M cable gland or
- SKINTOP® MS-SC-M EMC connection
- SILVYN® conduit connection via inner sleeve and cap nut

Suitable conduits

- SILVYN® FPS Page 837
- SILVYN® FD-PU Page 839

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE

Protection rating
Cable: IP 68
Conduit:
IP 54 with SILVYN® FPS, FD-PU

Temperature range
-30°C to +100°C

Article number	Metric size	Clamping range in mm	Clear opening (mm)	Suitable for SILVYN® FPS/FD-PU	Pieces / PU
SILVYN® MSK-M for SILVYN® FPS/FD-PU					
55506070	12 x 1.5	3.0 - 7.0	6	7 x 10	5
55506071	16 x 1.5	4.5 - 10.0	9.3	10 x 14	5
55506072	20 x 1.5	7.0 - 13.0	11.5	13 x 17	5
55506073	25 x 1.5	9.0 - 17.0	13.4	16 x 21	5
55506074	32 x 1.5	11.0 - 21.0	19.5	22 x 27	5
55506075	40 x 1.5	19.0 - 28.0	27	29 x 36	1
55506076	50 x 1.5	27.0 - 35.0	36.4	38 x 45	1
55506077	63 x 1.5	34.0 - 45.0	46	48 x 56	1
SILVYN® MSK-SC-M for SILVYN® FPS/FD-PU					
55506101	16 x 1.5	4.5 - 10.0	9.3	10 x 14	5
55506102	20 x 1.5	7.0 - 13.0	11.5	13 x 17	5
55506103	25 x 1.5	9.0 - 17.0	13.4	16 x 21	5
55506104	32 x 1.5	11.0 - 21.0	19.5	22 x 27	5
55506105	40 x 1.5	19.0 - 28.0	27	29 x 36	1
55506106	50 x 1.5	27.0 - 35.0	36.4	38 x 45	1

Other variations with multiple SKINTOP® DIX-M sealing inserts are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINTOP® DIX-M refer to page 718
- SKINTOP® DIX-DV refer to page 720

NEW

SILVYN® MSK-M FPS-EDU

Info

- Integrated SKINTOP® cable strain relief

Benefits

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-turn protection

Application range

- In combination with protective conduit:
- SILVYN® FPS-EDU
- Plant engineering
- Mechanical engineering
- Used in areas where cables and wires need to be provided with strain relief and additional sealing

Product features

- Combination of SILVYN® and SKINTOP®

Product Make-up

- SKINTOP® MS-M cable gland or
- SKINTOP® MS-SC-M EMC connection
- SILVYN® conduit connection via inner sleeve and cap nut

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE

Protection rating
Cable: IP 68
Conduit: IP 54 with SILVYN® FPS-EDU

Temperature range
-30°C to +100°C

Article number	Metric size	Clamping range in mm	Clear opening (mm)	Suitable for SILVYN® FPS-EDU	Pieces / PU
SILVYN® MSK-M FPS-EDU					
55506146	16 x 1.5	4.5 - 10.0	8.5	14	5
55506147	20 x 1.5	7.0 - 13.0	11	17	5
55506148	25 x 1.5	9.0 - 17.0	14.5	21	5
55506149	32 x 1.5	11.0 - 21.0	19.5	27	5
55506150	40 x 1.5	19.0 - 28.0	27.5	36	1
55506151	50 x 1.5	27.0 - 35.0	35.5	45	1
55506152	63 x 1.5	34.0 - 45.0	47	56	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINTOP® DIX-M refer to page 718
- SKINTOP® DIX-DV refer to page 720

SILVYN® US-M EE / SILVYN® US EE

Benefits
- High tensile strength
- Space-saving
- Vibration protection
- All-purpose
- Fast and easy assembly

Application range
- In combination with protective conduit:
- SILVYN® FPS
- SILVYN® FD-PU
- Mechanical engineering
- Plant engineering

Product features
- Compact design

Product Make-up
SILVYN® US-M EE
- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

SILVYN® US EE
- PG connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

Suitable conduits
- SILVYN® FPS Page 837
- SILVYN® FD-PU Page 839

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
Body: nickel-plated brass
Sealing ring: TPE

Protection rating
IP 54 (with SILVYN® FPS, FD-PU)

Temperature range
-40°C to +125°C

Article number	Metric size	PG size	Clear opening (mm)	Suitable for SILVYN® FPS/FD-PU	Pieces / PU
SILVYN® US-M for SILVYN® FPS / FD-PU					
55502601	10 x 1.0		6	10	50
55502602	12 x 1.5		9	14	50
55502603	16 x 1.5		11.5	17	50
55502604	20 x 1.5		14.5	21	50
55502605	25 x 1.5		19.5	27	25
55502606	32 x 1.5		26.5	36	25
55502607	40 x 1.5		35	45	20
55502608	50 x 1.5		45.5	56	10
55502609	63 x 1.5		45.5	56	10
SILVYN® US for SILVYN® FPS / FD-PU					
55502651		7	6	10	50
55502652		9	9	14	50
55502653		11	11.5	17	50
55502654		13.5	13	19	50
55502655		16	14.5	21	50
55502656		21	19.5	27	25
55502657		29	26.5	36	20
55502658		36	36	45	20
55502659		48	45.5	56	10

Other variations with multiple SKINTOP® DIX-M sealing inserts are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
SILVYN® US-M EE
- SKINDICHT® SM-M refer to page 744

SILVYN® US EE
- SKINDICHT® SM refer to page 800

SILVYN® US-M FPS-EDU / SILVYN® US FPS-EDU

Benefits
- High tensile strength
- Space-saving
- Vibration protection
- All-purpose
- Fast and easy assembly

Application range
- In combination with protective conduit:
- SILVYN® FPS-EDU
- Mechanical engineering
- Plant engineering

Product features
- Compact design

Product Make-up
SILVYN® US-M FPS-EDU
- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

SILVYN® US FPS-EDU
- PG connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
Body: nickel-plated brass
Sealing ring: TPE

Protection rating
IP 54 (with SILVYN® FPS-EDU)

Temperature range
-40°C to +125°C

Article number	Metric size	PG size	Clear opening (mm)	Suitable for SILVYN® FPS/FD-PU	Pieces / PU
SILVYN® US-M for SILVYN® FPS-EDU					
55502642	12 x 1.5		8.5	14	50
55502643	16 x 1.5		11	17	50
55502644	20 x 1.5		14.5	21	50
55502645	25 x 1.5		19.5	27	25
55502646	32 x 1.5		27.5	36	25
55502647	40 x 1.5		35	45	20
55502648	50 x 1.5		45	56	10
55502649	63 x 1.5		45	56	10
SILVYN® US for SILVYN® FPS-EDU					
55502689		9	8.5	14	50
55502690		11	11	17	50
55502691		13.5	13	19	50
55502692		16	14.5	21	50
55502693		21	19.5	27	25
55502694		29	27.5	36	20
55502696		36	35.5	45	20
55502697		48	47	56	10

Other variations with multiple SKINTOP® DIX-M sealing inserts are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
SILVYN® US-M FPS-EDU
- SKINDICHT® SM-M refer to page 744

SILVYN® US FPS-EDU
- SKINDICHT® SM refer to page 800

SILVYN® LKI-M / SILVYN® LKI

Info

- Swivelling upper part with integrated inner sleeve

Benefits
- Fast and easy assembly
- Vibration protection
- High-tensile
- Can be rotated

Application range
- In combination with protective conduit:
- SILVYN® FPS
- SILVYN® FD-PU
- Robot-building
- For rotating applications

Product features
- Smooth inner surface
- Slim construction

Product Make-up
SILVYN® LKI-M
- Metric connection thread
- Swivelling upper part with integrated inner sleeve

SILVYN® LKI
- PG connection thread
- Swivelling upper part with integrated inner sleeve

Suitable conduits
- SILVYN® FPS Page 837
- SILVYN® FD-PU Page 839

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001178
ETIM 5.0/6.0 Class-Description: Screw connection for protective plastic hose

Colour delivered
Silver grey (RAL 7001)

Material
PP

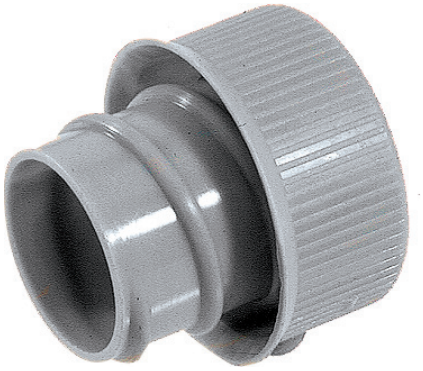
Protection rating
IP 54

Temperature range
-10°C to +110°C

Article number	Metric size	PG size	SW wrench size mm	Overall length mm	Thread length mm	Clear opening (mm)	Suitable for SILVYN® FPS/FD-PU	Pieces / PU
SILVYN® LKI-M								
55501400	12 x 1.5		16	38	10	5.5	7 x 10	50
55501410	16 x 1.5		19	39.5	10	9.5	10 x 14	50
55501420	20 x 1.5		22	42	10	11.5	13 x 17	50
55501430	25 x 1.5		27	48	11	14.5	16 x 21	50
55501440	32 x 1.5		35	58	12	19.5	22 x 27	25
55501450	40 x 1.5		45	59	12	27	29 x 36	25
55501460	50 x 1.5		54	62.5	12	35.5	38 x 45	25
55501470	63 x 1.5		65	68	15	46	48 x 56	10
SILVYN® LKI								
55000000		7	16	38	10	5.5	7 x 10	50
55000010		9	19	39.5	10	9.5	10 x 14	50
55000020		11	22	42	10	11.5	13 x 17	50
55000030		13.5	24	42	10	13	15 x 19	50
55000040		16	27	48	11	14.5	16 x 21	50
55000050		21	35	58	11	19.5	22 x 27	25
55000060		29	45	59	12	27	29 x 36	25
55000070		36	54	62.5	12	35.5	38 x 45	25
55000090		48	65	68	15	46	48 x 56	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® EE-K



Benefits
- Cable damage can be prevented

Application range
- In combination with protective conduit:
- SILVYN® FPS/ FD-PU
- Conduit end cover

Product features
- All-round collar completely covers the protective conduit end

Product Make-up
- Threaded sleeve

Suitable conduits
- SILVYN® FPS Page 837
- SILVYN® FD-PU Page 839

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description:
Terminal sleeve for protective hose

Colour delivered
Silver grey (RAL 7001)

Material
PP

Temperature range
-10°C to +110°C

Article number	Nominal size	Suitable for SILVYN® FPS/FD-PU	Pieces / PU
SILVYN® EE-K			
52023340	10	7 x 10	50
52023350	14	10 x 14	50
52023360	17	13 x 17	50
52023370	19	15 x 19	50
52023380	21	16 x 21	50
52023390	27	22 x 27	25
52023400	36	29 x 36	25
52023410	45	38 x 45	20
52023430	56	48 x 56	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® US-FPS-EDU-AS

Benefits
- Cable damage can be prevented

Application range
- In combination with protective conduit:
- SILVYN® FPS-EDU
- Conduit end cover

Product features
- All-round collar completely covers the protective conduit end

Product Make-up
- Threaded sleeve

Suitable conduits
- SILVYN® FPS-EDU Page 838

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description:
Terminal sleeve for protective hose

Material
Brass

Temperature range
-40 °C to +250 °C

Article number	Nominal size	Suitable conduit nominal size	Pieces / PU
SILVYN® US-FPS-EDU-AS			
61802581	14	14	50
61802582	17	17	50
61802583	19	19	50
61802584	21	21	50
61802585	27	27	25
61802586	36	36	25
61802587	45	45	20
61802588	56	56	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® RILL PA 6

Info

- Maximum safety in the event of a fire

Benefits

- Dimensionally stable
- Flexible
- High flame-retardance and self-extinguishing in accordance with UL 94V-0
- Crush-resistant
- Lightweight

Application range

- Mechanical engineering
- Public utilities
- Railway applications / vehicle construction
- Moving applications
- Outdoor application (in black)

Product features

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

- Fine-profile corrugated polyamide 6 conduit

Note

- UV and weather-resistant in black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

Certifications
IEC EN 61386-23
UL File No. E308201
DNV, Lloyd's Register
EN 45545-2 (HL-3)

Colour delivered
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

Material
PA 6
Silicone-free
Halogen-free
Fire behaviour according to UL 94V-0

Temperature range
-40°C to +115°C
short-term +150°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® KLICK-M/90°M	Suitable for SILVYN® KLICK PG/90°PG	Suitable for SILVYN® KLICK-GPZ-M/GPZ	PU (m)
SILVYN® RILL PA 6 grey							
61746939	10	6.5 x 10.0	13	10 x 1,0	7/-	12 x 1,5/7	50
61746940	13	10.0 x 13.0	20	12 x 1,5/16 x 1,5	9	16x1,5/9	50
61746950	16	12.0 x 15.8	35	16 x 1,5/20 x 1,5	11	20x1,5/11	50
61747010	18	14.3 x 18.5	40		13,5	-/13,5	50
61746960	21	16.5 x 21.2	45	20 x 1,5	16	25x1,5/16	50
61746970	28	23.0 x 28.5	55	25 x 1,5	21	32x1,5/21	50
61746980	34	29.0 x 34.5	65	32 x 1,5	29	40x1,5/29	25
61746990	42	36.0 x 42.5	90	40 x 1,5	36	50x1,5/36	25
61747000	54	48.0 x 54.5	100	50 x 1,5	48	63x1,5/48	25
SILVYN® RILL PA 6 black							
61746935	10	6.5 x 10.0	13	10 x 1,0	7/-	12 x 1,5/7	50
61746945	13	10.0 x 13.0	20	12 x 1,5/16 x 1,5	9	16x1,5/9	50
61746955	16	12.0 x 15.8	35	16 x 1,5/20 x 1,5	11	20x1,5/11	50
61747015	18	14.3 x 18.5	40		13,5	-/13,5	50
61746965	21	16.5 x 21.2	45	20 x 1,5	16	25x1,5/16	50
61746975	28	23.0 x 28.5	55	25 x 1,5	21	32x1,5/21	50
61746985	34	29.0 x 34.5	65	32 x 1,5	29	40x1,5/29	25
61746995	42	36.0 x 42.5	90	40 x 1,5	36	50x1,5/36	25
61747005	54	48.0 x 54.5	100	50 x 1,5	48	63x1,5/48	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® FPAS refer to page 861
- SILVYN® RILL PA 12 refer to page 848

Accessories

- SILVYN® KLICK-M refer to page 849
- SILVYN® KLICK 90° M refer to page 850
- SILVYN® KLICK GPZ-M refer to page 851
- SILVYN® KSE refer to page 855
- SILVYN® KLICK PG refer to page 852
- SILVYN® KLICK 90° PG refer to page 853
- SILVYN® KLICK-GPZ refer to page 854
- SILVYN® KLICK NPT refer to page 856
- SILVYN® KLICK-Y refer to page 857
- SILVYN® KLICK-RH refer to page 859
- SILVYN® K-EM refer to page 860

SILVYN® RILL PA 12

Info

- Designed for continous movement

Benefits

- Dimensionally stable
- Highly flexible at cold temperatures
- Flame-retardant and self-extinguishing according to UL 94V-2
- Crush-resistant
- Highly flexible

Application range

- Mechanical engineering
- In drag chains (SILVYN® CHAIN)
- Building Automation
- Robot-building
- Outdoor application (in black)

Product features

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

- Fine-profile corrugated polyamide 12 conduit

Note

- UV and weather-resistant in black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

Certifications
IEC EN 61386-23
UL File No. E308201
DNV, Lloyd's Register
EN 45545-2 (HL-3)

Colour delivered
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

Material
PA 12
Silicone-free
Halogen-free
Fire behaviour according to UL 94V-2

Temperature range
-50°C up to +100°C
short-term +150°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® KLICK-M/90°M	Suitable for SILVYN® KLICK PG/90°PG	Suitable for SILVYN® KLICK-GPZ-M/GPZ	PU (m)
SILVYN® RILL PA 12 grey							
61815100	10	6.5 x 10.0	13	10 x 1,5	7/-	12 x 1,5/7	50
61815110	13	10.0 x 13.0	15	12 x 1,5/16 x 1,5	9	16x1,5/9	50
61815120	16	12.0 x 15.8	22	16 x 1,5/20 x 1,5	11	20x1,5/11	50
61815180	18	14.3 x 18.5	27		13,5	-/13,5	50
61815130	21	16.5 x 21.2	35	20 x 1,5	16	25x1,5/16	50
61815140	28	23.0 x 28.5	45	25 x 1,5	21	32x1,5/21	50
61815150	34	29.0 x 34.5	50	32 x 1,5	29	40x1,5/29	25
61815160	42	36.0 x 42.5	80	40 x 1,5	36	50x1,5/36	25
61815170	54	48.0 x 54.5	100	50 x 1,5	48	63x1,5/48	25
SILVYN® RILL PA 12 black							
61815105	10	6.5 x 10.0	13	10 x 1,5	7/-	12 x 1,5/7	50
61815115	13	10.0 x 13.0	15	12 x 1,5/16 x 1,5	9	16x1,5/9	50
61815125	16	12.0 x 15.8	22	16 x 1,5/20 x 1,5	11	20x1,5/11	50
61815185	18	14.3 x 18.5	27		13,5	-/13,5	50
61815135	21	16.5 x 21.2	35	20 x 1,5	16	25x1,5/16	50
61815145	28	23.0 x 28.5	45	25 x 1,5	21	32x1,5/21	50
61815155	34	29.0 x 34.5	50	32 x 1,5	29	40x1,5/29	25
61815165	42	36.0 x 42.5	80	40 x 1,5	36	50x1,5/36	25
61815175	54	48.0 x 54.5	100	50 x 1,5	48	63x1,5/48	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® FPAS refer to page 861
- SILVYN® RILL PA 6 refer to page 847

Accessories

- SILVYN® KLICK-M refer to page 849
- SILVYN® KLICK 90° M refer to page 850
- SILVYN® KLICK GPZ-M refer to page 851
- SILVYN® KSE refer to page 855
- SILVYN® KLICK PG refer to page 852
- SILVYN® KLICK 90° PG refer to page 853
- SILVYN® KLICK-GPZ refer to page 854
- SILVYN® KLICK NPT refer to page 856
- SILVYN® KLICK-Y refer to page 857
- SILVYN® KLICK-RH refer to page 859
- SILVYN® K-EM refer to page 860

SILVYN® KLICK-M

Benefits
- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance
- Can be rotated

Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Robot-building
- Rotating applications

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Metric connection thread
- Body with inner sealing
- Upper part with snap-in sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69

Temperature range
-40 °C to +115 °C

Article number	Metric size	SW wrench size mm	Overall length mm	Thread length mm	Clear opening (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KLICK-M grey								
55501000	10 x 1.0	16	34.5	12	6	10.0	10	50
55501010	12 x 1.5	18	37	12	7	13.0	13	50
55501020	16 x 1.5/1	18	37	12	10	13.0	13	50
55501030	16 x 1.5/2	21	39	12	11	15.8	16	50
55501040	20 x 1.5/1	21	39	13	12	15.8	16	50
55501050	20 x 1.5/2	27	44.5	13	16	21.2	21	50
55501060	25 x 1.5	34	47	13	20.5	28.5	28	25
55501070	32 x 1.5	40	51	15	25.5	34.5	34	25
55501080	40 x 1.5	55	76	17	32	42.5	42	25
55501090	50 x 1.5	65	88	17	42.5	54.5	54	10
55500990	63 x 1.5	70	88	17	49	54.5	54	10
SILVYN® KLICK-M black								
55501005	10 x 1.0	16	34.5	12	6	10.0	10	50
55501015	12 x 1.5	18	37	12	7	13.0	13	50
55501025	16 x 1.5/1	18	37	12	10	13.0	13	50
55501035	16 x 1.5/2	21	39	12	11	15.8	16	50
55501045	20 x 1.5/1	21	39	13	12	15.8	16	50
55501055	20 x 1.5/2	27	44.5	13	16	21.2	21	50
55501065	25 x 1.5	34	47	13	20.5	28.5	28	25
55501075	32 x 1.5	40	51	15	25.5	34.5	34	25
55501085	40 x 1.5	55	76	17	32	42.5	42	25
55501095	50 x 1.5	65	88	17	42.5	54.5	54	10
55500995	63 x 1.5	70	88	17	49	54.5	54	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® KLICK GPZ-M refer to page 851

Accessories
- SKINTOP® GMP-GL-M refer to page 716

SILVYN® KLICK 90° M

Benefits
- 90° elbow allows easy installation
- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance

Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- For applications with limited space
- Rotating applications

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Metric connection thread
- 90° elbow
- Body with inner sealing
- Upper part with snap-in sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69

Temperature range
-40 °C to +115 °C

Article number	Metric size	Thread length mm	Clear opening (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KLICK 90° M grey						
55501110	10 x 1.0	12	6	10.0	10	50
55501120	12 x 1.5	12	8	13.0	13	50
55501130	16 x 1.5/1	12	12	13.0	13	50
55501140	16 x 1.5/2	12	12	15.8	16	50
55501150	20 x 1.5/1	13	15	15.8	16	50
55501160	20 x 1.5/2	13	15	21.2	21	50
55501170	25 x 1.5/1	13	18	21.2	21	50
55501180	25 x 1.5/2	13	18	28.5	28	25
55501190	32 x 1.5/1	15	24	28.5	28	25
55501200	32 x 1.5/2	15	24	34.5	34	10
55501210	40 x 1.5/1	15	32	34.5	34	10
55501220	40 x 1.5/2	15	32	42.5	42	10
55501230	50 x 1.5/1	16	39	42.5	42	10
55501240	50 x 1.5/2	16	39	54.5	54	5
55501250	63 x 1.5	16	53	54.5	54	5
SILVYN® KLICK 90° M black						
55501115	10 x 1.0	12	6	10.0	10	50
55501125	12 x 1.5	12	8	13.0	13	50
55501135	16 x 1.5/1	12	12	13.0	13	50
55501145	16 x 1.5/2	12	12	15.8	16	50
55501155	20 x 1.5/1	13	15	15.8	16	50
55501165	20 x 1.5/2	13	15	21.2	21	50
55501175	25 x 1.5/1	13	18	21.2	21	50
55501185	25 x 1.5/2	13	18	28.5	28	25
55501195	32 x 1.5/1	15	24	28.5	28	25
55501205	32 x 1.5/2	15	24	34.5	34	10
55501215	40 x 1.5/1	15	32	34.5	34	10
55501225	40 x 1.5/2	15	32	42.5	42	10
55501235	50 x 1.5/1	16	39	42.5	42	10
55501245	50 x 1.5/2	16	39	54.5	54	5
55501255	63 x 1.5	16	53	54.5	54	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 716

SILVYN® KLICK GPZ-M

Benefits
- Fast assembly
- Easy to disassemble
- Additional cable strain relief
- Additional cable sealing

Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Robot-building
- Used in areas where cables and wires need to be provided with strain relief and additional sealing

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Metric connection thread
- Cable gland
- Body with inner sealing
- Upper part with snap-in sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69

Temperature range
-40 °C to +115 °C

Article number	Metric size	Clamping range in mm	SW wrench size mm	Thread length mm	Clear opening (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KLICK, GPZ-M grey								
55500800	12 x 1.5	4.0 - 6.5	16	8	6.5	10	10	20
55500810	16 x 1.5	5.0 - 9.5	18	8	9.5	13	13	20
55500820	20 x 1.5	8.0 - 12.0	24	8	13	15.8	16	20
55500830	25 x 1.5	11.0 - 16.0	27	8	16	21.2	21	10
55500840	32 x 1.5	15.0 - 21.0	34	10	18	28.5	28	10
55500850	40 x 1.5	16.0 - 26.0	40	10	25	34.5	34	10
55500860	50 x 1.5	27.0 - 35.0	55	12	32	42.5	42	10
55500870	63 x 1.5	32.0 - 42.0	65	12	44	54.5	54	10
SILVYN® KLICK, GPZ-M black								
55500805	12 x 1.5	4.0 - 6.5	16	8	6.5	10	10	20
55500815	16 x 1.5	5.0 - 9.5	18	8	9.5	13	13	20
55500825	20 x 1.5	8.0 - 12.0	24	8	13	15.8	16	20
55500835	25 x 1.5	11.0 - 16.0	27	8	16	21.2	21	10
55500845	32 x 1.5	15.0 - 21.0	34	10	18	28.5	28	10
55500855	40 x 1.5	16.0 - 26.0	40	10	25	34.5	34	10
55500865	50 x 1.5	27.0 - 35.0	55	12	32	42.5	42	10
55500875	63 x 1.5	32.0 - 42.0	65	12	44	54.5	54	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 716

SILVYN® KLICK PG

Benefits
- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance
- Can be rotated

Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Robot-building
- Rotating applications

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- PG connection thread
- Body with inner sealing
- Upper part with snap-in sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69

Temperature range
-40 °C to +115 °C

Article number	PG size	SW wrench size mm	Overall length mm	Thread length mm	Clear opening (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KLICK PG grey								
61800860	7	16	32.5	10	7	10.0	10	50
61800870	9	18	35	10	10	13.0	13	50
61800880	11	21	37	10	12.5	15.8	16	50
61800850	13.5	24	43	13	13.5	18,5	18	50
61800890	16	27	46	13	17	21.2	21	50
61800900	21	34	48.5	13	23.5	28.5	28	25
61800910	29	40	53.5	14.5	30	34.5	34	25
61800920	36	60	76	17	36	42.5	42	25
61800930	48	70	88	17	47.5	54.5	54	10
SILVYN® KLICK PG black								
61800865	7	16	32.5	10	7	10.0	10	50
61800875	9	18	35	10	10	13.0	13	50
61800885	11	21	37	10	12.5	15.8	16	50
61800855	13.5	24	43	13	13.5	18,5	18	50
61800895	16	27	46	13	17	21.2	21	50
61800905	21	34	48.5	13	23.5	28.5	28	25
61800915	29	40	53.5	14.5	30	34.5	34	25
61800925	36	60	76	17	36	42.5	42	25
61800935	48	70	88	17	47.5	54.5	54	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL refer to page 778

SILVYN® KLICK 90° PG

Benefits
- 90° elbow allows easy installation
- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance

Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- For applications with limited space
- Rotating applications

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- PG connection thread
- 90° elbow
- Body with inner sealing
- Upper part with snap-in sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69

Temperature range
-40 °C to +115 °C

Article number	PG size	Thread length mm	Clear opening (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KLICK 90° PG grey						
61801020	9	10	12	13.0	13	50
61801030	11	10	15.5	15.8	16	50
56000100	13.5	13	15.5	18.5	18	50
61801040	16	13	18	21.2	21	50
61801050	21	13	24	28.5	28	25
61801060	29	15	32	34.5	34	10
61801061	36	15	36.5	42.5	42	10
61801062	48	16	48.5	54.5	54	5
SILVYN® KLICK 90° PG black						
61801025	9	10	12	13.0	13	50
61801035	11	10	15.5	15.8	16	50
56000105	13.5	13	15.5	18.5	18	50
61801045	16	13	18	21.2	21	50
61801055	21	13	24	28.5	28	25
61801065	29	15	32	34.5	34	10
61801075	36	15	36,5	42,5	42	10
61801085	48	16	48.5	54.5	54	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL refer to page 778

SILVYN® KLICK-GPZ

Benefits
- Fast assembly
- Easy to disassemble
- Additional cable strain relief
- Additional cable sealing

Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Robot-building
- Used in areas where cables and wires need to be provided with strain relief and additional sealing

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- PG connection thread
- Cable gland
- Body with inner sealing
- Upper part with snap-in sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69

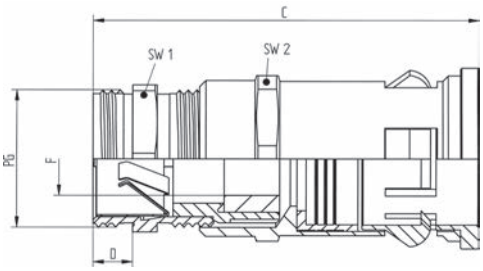
Temperature range
-40 °C to +115 °C

Article number	PG size	Clamping range in mm	SW wrench size mm	Thread length mm	Clear opening (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KLICK-GPZ grey								
61801120	7	3.0 - 6.5	16	8	7	10.0	10	20
61801130	9	4.0 - 8.0	18	8	8	13.0	13	20
61801140	11	5.0 - 10.0	21	8	10	15.8	16	20
61801200	13.5	6.0 - 11.0	21	9	11	15.8	16	20
61801202	13.5	6.0 - 12.0	24	9	12	18.5	18	20
61801150	16	10.0 - 14.0	27	10	14	21.2	21	10
61801160	21	13.0 - 18.0	34	11	20	28.5	28	10
61801170	29	18.0 - 25.0	40	11	25	34.5	34	10
61801180	36	22.0 - 32.0	55	13	32	42.5	42	10
61801190	48	34.0 - 44.0	65	14	44	54.5	54	10
SILVYN® KLICK-GPZ black								
61801125	7	3.0 - 6.5	16	8	7	10.0	10	20
61801135	9	4.0 - 8.0	18	8	8	13.0	13	20
61801145	11	5.0 - 10.0	21	8	10	15.8	16	20
61801205	13.5	6.0 - 11.0	21	9	11	15.8	16	20
61801215	13.5	6.0 - 12.0	24	9	12	18.5	18	20
61801155	16	10.0 - 14.0	27	10	14	21.2	21	10
61801165	21	13.0 - 18.0	34	11	20	28.5	28	10
61801175	29	18.0 - 25.0	40	11	25	34.5	34	10
61801185	36	22.0 - 32.0	55	13	32	42.5	42	10
61801195	48	34.0 - 44.0	65	14	44	54.5	54	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL refer to page 778

SILVYN® KSE



Benefits
- Fast assembly
- Additional cable strain relief
- Additional cable sealing
- Optimum screen connection (EMC)

Application range
- In combination with protective conduit
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Used in areas where screened cables and wires need to have additional protection

Product Make-up
- PG connection thread
- EMC cable gland
- Body with inner sealing
- Upper part with snap-in sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Black (RAL 9005), UV-resistant

Material
Polyamide
Nickel-plated brass

Protection rating
IP 68

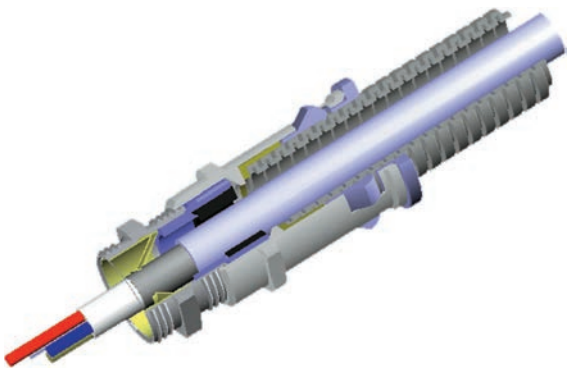
Temperature range
-40 °C to +115 °C

Article number	PG size	Clamping range in mm	SW 1/2 mm	Overall length mm	Thread length mm	For conduit with outer Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KSE								
55001200	9	4.0 - 8.0	17 / 22	57	12	13.0	13	20
55001230	16	10.0 - 14.0	24 / 31	70	12	21.2	21	10
55001240	21	14.0 - 17.5	30 / 39	75	12	28.5	28	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® MSK-M EE refer to page 840
- SILVYN® MSK-M US refer to page 887
- SILVYN® KSE-M refer to page 868

Accessories
- SKINDICHT® SM-PE refer to page 800



SILVYN® KLICK NPT

Benefits
- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance
- Can be rotated

Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Robot-building
- Rotating applications

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- NPT connection thread
- Body with inner sealing
- Upper part with snap-in sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69

Temperature range
-40 °C to +115 °C

Article number	Nominal size	Overall length mm	Thread length mm	Clear opening (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KLICK NPT							
61800705	NPT 1/4”	34	11.5	7	10.0	10	50
61800715	NPT 3/8”	37	12	10	13.0	13	50
61800725	NPT 3/8”	39	12	12.5	15.8	16	50
61800745	NPT 1/2”	43.5	13	17	21.2	21	50
61800755	NPT 3/4”	47.5	14	21	28.5	28	25
61800765	NPT 1”	52	16	27.5	34.5	34	25
61800775	NPT 1 1/4”	77	18	36.5	42.5	42	25
61800784	NPT 1 1/2”	89	18	42.5	54.5	54	10
61800785	NPT 2”	92	21	48.5	54.5	54	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® KLICK-Y / SILVYN® KLICK-Y (TPE)

SILVYN® KLICK-Y

SILVYN® KLICK-Y (TPE)

Benefits

SILVYN® KLICK-Y
- Fast assembly
- Easy to disassemble
- High-tensile
- Easy combination of different conduit sizes

SILVYN® KLICK-Y (TPE)
- Easy to assemble
- High temperature resistance

Application range

SILVYN® KLICK-Y
- In combination with protective conduit
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Y-distributor for SILVYN® RILL conduits

SILVYN® KLICK-Y (TPE)
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Y-distributor for SILVYN® RILL conduits

Norm references / Approvals

SILVYN® KLICK-Y
- UL FILENUMBER E308201

Product Make-up

SILVYN® KLICK-Y
- 3 x conduit connection
- 2 x bore hole for fixation with M5 screws

SILVYN® KLICK-Y (TPE)
- 3 x conduit connection
- 1 x bore hole for fixation with M4 screws

Suitable conduits

- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001172
ETIM 5.0/6.0 Class-Description:
Coupler for corrugated plastic hoses

On request
SILVYN® KLICK-Y
More sizes / combinations

RAL
Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
SILVYN® KLICK-Y
PA6
SILVYN® KLICK-Y (TPE)
TPE

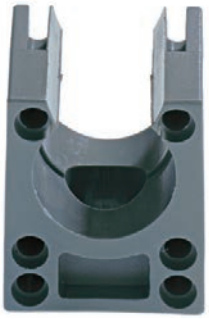
IP
Protection rating
SILVYN® KLICK-Y
IP 68
IP 69
SILVYN® KLICK-Y (TPE)
IP 66

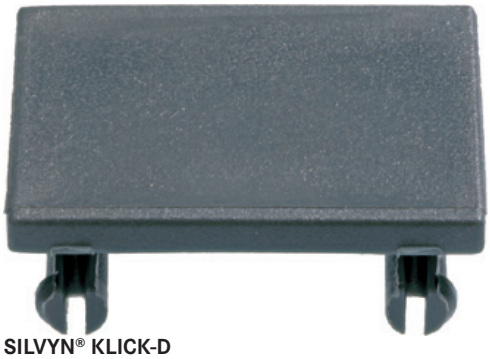
Temperature range
-40 °C to +115 °C

Article number	Nominal size	For conduit with outer Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KLICK-Y grey				
61801090	2 x 10/1 x 13	10.0 / 13.0	10/13	10
61801100	3 x 13	13.0	13	10
61801110	2 x 13/1 x 16	13.0 / 15.8	13/16	10
56000130	3 x 16	15.8	16	10
SILVYN® KLICK-Y black				
61801095	2 x 10/1 x 13	10.0 / 13.0	10/13	10
61801105	3 x 13	13.0	13	10
61801115	2 x 13/1 x 16	13.0 / 15.8	13/16	10
56000135	3 x 16	15.8	16	10
SILVYN® KLICK-Y (TPE) grey				
56000120	3 x 10	10.0	10	10
56000140	2 x 16/1 x 21	15.8 / 21.2	16/21	10
56000150	2 x 21/1 x 28	21.2 / 28.5	21/28	10
56000160	2 x 28/1 x 34	28.5 / 34.5	28/34	10
SILVYN® KLICK-Y (TPE) black				
56000125	3 x 10	10.0	10	10
56000145	2 x 16/1 x 21	15.8 / 21.2	16/21	10
56000155	2 x 21/1 x 28	21.2 / 28.5	21/28	10
56000165	2 x 28/1 x 34	28.5 / 34.5	28/34	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® KLICK-S / SILVYN® KLICK-D / SILVYN® KLICK-V


SILVYN® KLICK-S


SILVYN® KLICK-D

SILVYN® KLICK-V

Benefits

SILVYN® KLICK-S
- Fast assembly
- Easy to disassemble
- High tensile strength
- Conduit retained by rib

SILVYN® KLICK-D
- Ensures that the conduit is fixed to the conduit-holder

SILVYN® KLICK-V
- Connects several conduit holders with one another

Application range

SILVYN® KLICK-S
- In combination with protective conduit
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Fastening of conduits on machine walls for all applications

SILVYN® KLICK-D
- In combination with
- SILVYN® KLICK S
- Cover for conduit holder SILVYN® KLICK S

SILVYN® KLICK-V
- In combination with
- SILVYN® KLICK S

Product features

SILVYN® KLICK-S
- Impact-resistant polyamide

SILVYN® KLICK-D
- Fits tightly to SILVYN® KLICK S

SILVYN® KLICK-V
- Fits tightly to SILVYN® KLICK S

Product Make-up

SILVYN® KLICK-S
- Multi-part conduit holder with M5 borehole for fixation

SILVYN® KLICK-D
- Cover with connection pins

SILVYN® KLICK-V
- Connection pin

Suitable conduits

- SILVYN® RILL PA 6 Page 847

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

RAL **Colour delivered**
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Temperature range
-40°C to +105°C

Article number	Nominal size	For conduit with outer Ø (mm)	Pieces / PU
SILVYN® KLICK-S grey			
61811110	10	10	100
61811120	13	13	100
61811130	16	15.8	50
61811190	18	18.5	50
61811140	21	21.2	50
61811150	28	28.5	50
61811160	34	34.5	30
61811170	42	42.5	20
61811180	54	54.5	20
SILVYN® KLICK-S black			
61811115	10/13	10	100
61811125	13	13	100
61811135	16	15.8	50
61811195	18	18.5	50
61811145	21	21.2	50
61811155	28	28.5	50
61811165	34	34.5	30
61811175	42	42.5	20
61811185	54	54.5	20
SILVYN® KLICK-D grey			
61811200	10/13		100
61811260	16		50
61811210	18/21		50
61811220	28		50
61811230	34		30
61811240	42		20
61811250	54		20
SILVYN® KLICK-D black			
61811205	10/13		100
61811265	16		50
61811215	18/21		50
61811225	28		50
61811235	34		30
61811245	42		20
61811255	54		20
SILVYN® KLICK-V grey			
61811270			100
SILVYN® KLICK-V black			
61811275			100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® KLICK-RH

Info

- One-piece conduit holder

Benefits
- Fast assembly
- Easy to disassemble
- High tensile strength
- Conduit retained by rib
- No loose parts

Application range
- In combination with protective conduit
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Fastening of conduits on machine walls for all applications

Product features
- Impact-resistant polyamide
- One-piece conduit holder
- Suitable for mounting onto a C-profile rail
- Stackable

Product Make-up
- One-piece conduit holder with M5/M6 borehole for fixation

Suitable conduits
- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Temperature range
-40 °C to +115 °C

Article number	Nominal size	Hole Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KLICK-RH grey				
65500630	10	5	10	50
65500631	13	5	13	50
65500632	16	6	16	50
65500633	18	6	18	50
65500634	21	6	21	50
65500635	28	6	28	25
65500636	34	6	34	25
65500637	42	6	42	25
65500638	54	6	54	10
SILVYN® KLICK-RH black				
65500639	10	5	10	50
65500640	13	5	13	50
65500641	16	6	16	50
65500642	18	6	18	50
65500643	21	6	21	50
65500644	28	6	28	25
65500645	34	6	34	25
65500646	42	6	42	25
65500647	54	6	54	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® K-EM

Benefits
- Easy to assemble
- High temperature resistance
- Cable damage can be prevented
- Additional sealing

Application range
- In combination with protective conduit:
- SILVYN® RILL PA 6
- SILVYN® RILL PA 12
- Intersection or end sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 847
- SILVYN® RILL PA 12 Page 848

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description:
Terminal sleeve for protective hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
TPE-V

Temperature range
-40°C to +120°C

Article number	Nominal size	Overall length mm	For conduit with outer Ø (mm)	Pieces / PU
SILVYN® K-EM grey				
65500200	10	29	10	50
65500210	13	32.5	13	50
65500220	16	36.5	15.8	50
65500230	21	37.5	21.2	50
65500240	28	40.2	28.5	25
65500250	34	44.2	34.5	25
65500260	42	46	42.5	25
65500270	54	52	54.5	10
SILVYN® K-EM black				
65500205	10	29	10	50
65500215	13	32.5	13	50
65500225	16	36.5	15.8	50
65500235	21	37.5	21.2	50
65500245	28	40.2	28.5	25
65500255	34	44.2	34.5	25
65500265	42	46	42.5	25
65500275	54	52	54.5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® FPAS

Benefits
- Dimensionally stable
- Flexible
- Flame-retardant and self-extinguishing according to UL 94V-2
- High crush-resistance
- Impact-resistant

Application range
- Mechanical engineering
- Plant engineering
- Railway applications / vehicle construction
- Moving applications
- For indoor and outdoor use

Product features
- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals
- Inherent Low Fire Hazard

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Fine-profile corrugated polyamide 6 conduit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

Certifications
IEC EN 61386-23

On request
Available in PA 12

Colour delivered
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

Material
PA 6
Halogen-free
Fire behaviour according to UL94 V-2

Temperature range
-40°C to +120°C static
-20°C to +100°C dynamic

Article number	Nominal size	ID x OD mm	Bending radius (mm)	PU ring (m)
SILVYN® FPAS black				
61754005	10	6.3 x 10.0	15	50
61754015	13	9.8 x 13.0	25	50
61754025	16	11.8 x 15.8	35	50
61754275	18	14.2 x 18.5	40	50
61737162	20	14.8 x 20.0	45	50
61754035	21	16.7 x 21.2	45	50
61737164	25	19.1 x 25.0	50	50
61754045	28	22.8 x 28.5	50	50
61754055	34	28.1 x 34.5	60	25
61754065	42	35.5 x 42.5	70	25
61754075	54	47.2 x 54.5	80	25
61754305	67	56.3 x 67.2	130	10
SILVYN® FPAS grey				
61754000	10	6.3 x 10.0	15	50
61754010	13	9.8 x 13.0	25	50
61754020	16	11.8 x 15.8	35	50
61754270	18	14.2 x 18.5	40	50
61737253	20	14.8 x 20.0	45	50
61754030	21	16.7 x 21.2	45	50
61737163	25	19.1 x 25.0	50	50
61754040	28	22.8 x 28.5	50	50
61754050	34	28.1 x 34.5	60	25
61754060	42	35.5 x 42.5	70	25
61754070	54	47.2 x 54.5	80	25
61754300	67	56.3 x 67.2	130	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® FPAX-M refer to page 862
- SILVYN® FPAX 90° M refer to page 863
- SILVYN® FPAX NPT refer to page 864
- SILVYN® FPAG-M refer to page 866
- SILVYN® FPAG 45° M
- SILVYN® FPAG 90° M refer to page 867
- SILVYN® KSE-M refer to page 868
- SILVYN® FPAG PG refer to page 871
- SILVYN® FPAG 90° PG refer to page 871
- SILVYN® FLEXILOK M refer to page 869
- SILVYN® FLEXILOK 90° M refer to page 869
- SILVYN® FLEXILOK PG refer to page 870
- SILVYN® FLEXILOK 90° PG refer to page 870
- SILVYN® FCL refer to page 872
- SILVYN® FPAC refer to page 873

SILVYN® FPAX-M

Info

- IP66
  IP67
- IP68 (2bar)
  IP69

Benefits
- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations

Product features
- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Metric connection thread
- Body with inner sealing
- Upper part with integrated all-round toothing

Suitable conduits
- SILVYN® FPAS Page 861

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free

Protection rating
IP66
IP67
IP68 (2bar)
IP69

Temperature range
-50°C to +135°C

Article number	Metric size	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® FPAX-M black			
55506135	16 x 1.5/1	FPAS 13	10
55506145	16 x 1.5/2	FPAS 16	10
55506155	20 x 1.5/1	FPAS 16	10
55506165	20 x 1.5/2	FPAS 21	10
55506175	25 x 1.5	FPAS 28	10
55506185	32 x 1.5	FPAS 34	10
55506195	40 x 1.5	FPAS 42	2
55506205	50 x 1.5/1	FPAS 42	2
55506215	50 x 1.5/2	FPAS 54	2
55506225	63 x 1.5	FPAS 54	2
55506226	63 x 1.5	FPAS 67	1
SILVYN® FPAX-M grey			
55506235	16 x 1.5/1	FPAS 13	10
55506245	16 x 1.5/2	FPAS 16	10
55506255	20 x 1.5/1	FPAS 16	10
55506265	20 x 1.5/2	FPAS 21	10
55506275	25 x 1.5	FPAS 28	10
55506285	32 x 1.5	FPAS 34	10
55506295	40 x 1.5	FPAS 42	2
55507265	50 x 1.5/1	FPAS 42	2
55507275	50 x 1.5/2	FPAS 54	2
55507285	63 x 1.5	FPAS 54	2
55507286	63 x 1.5	FPAS 67	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 716

SILVYN® FPAX 90° M

Info

- IP66
  IP67
  IP68 (2 bar)
  IP69

Benefits

- 90° elbow allows easy installation
- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

Application range

- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations

Product features

- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

- Metric connection thread
- Body with inner sealing
- Upper part with integrated all-round toothing
- 90° elbow

Suitable conduits

- SILVYN® FPAS Page 861

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free

Protection rating
IP66
IP67
IP68 (2 bar)
IP69

Temperature range
-50°C to +135°C

Article number	Metric size	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® FPAX 90° M black			
55507300	16 x 1.5/1	FPAS 13	10
55507301	16 x 1.5/2	FPAS 16	10
55507302	20 x 1.5/1	FPAS 16	10
55507303	20 x 1.5/2	FPAS 21	10
55507304	25 x 1.5	FPAS 28	10
55507305	32 x 1.5	FPAS 34	10
55507306	40 x 1.5	FPAS 42	1
55507307	50 x 1.5/1	FPAS 42	1
55507308	50 x 1.5/2	FPAS 54	1
55507309	63 x 1.5	FPAS 54	1
SILVYN® FPAX 90° M grey			
55507310	16 x 1.5/1	FPAS 13	10
55507311	16 x 1.5/2	FPAS 16	10
55507312	20 x 1.5/1	FPAS 16	10
55507313	20 x 1.5/2	FPAS 21	10
55507314	25 x 1.5	FPAS 28	10
55507315	32 x 1.5	FPAS 34	10
55507316	40 x 1.5	FPAS 42	1
55507317	50 x 1.5/1	FPAS 42	1
55507318	50 x 1.5/2	FPAS 54	1
55507319	63 x 1.5	FPAS 54	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® GMP-GL-M refer to page 716

NEW

SILVYN® FPAX NPT

Info

- IP66
  IP67
- IP68 (2bar)
  IP69

Benefits

- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

Application range

- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations

Product features

- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

- NPT connection thread
- Body with inner sealing
- Upper part with integrated all-round toothing

Suitable conduits

- SILVYN® FPAS Page 861

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free

Protection rating
IP66
IP67
IP68 (2bar)
IP69

Temperature range
-50°C to +135°C

Article number	Nominal size	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® FPAX NPT black			
55507700	NPT 3/8”	16	10
55507710	NPT 1/2”	16	10
55507720	NPT 1/2”	21	10
55507730	NPT 3/4”	28	10
55507740	NPT 1”	34	10
55507750	NPT 1 1/4”	42	2
55507760	NPT 1 1/2”	42	2
55507770	NPT 1 1/2”	54	2
55507780	NPT 2”	54	2
55507790	NPT 2”	67	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® FPAX T / SILVYN® FPAX Y / SILVYN® FPAX R / SILVYN® FPAX P

SILVYN® FPAX T SILVYN® FPAX Y SILVYN® FPAX R SILVYN® FPAX P

Benefits

SILVYN® FPAX T
- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

SILVYN® FPAX Y
- Fast assembly
- High tensile strength
- Watertight
- Vibration protection

SILVYN® FPAX R
- Reducer for the SILVYN® FPAX T/Y system

SILVYN® FPAX P
- Stop Plug for the SILVYN® FPAX T/Y system

Application range

- In combination with protective conduit:
- SILVYN® FPAS

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001172
ETIM 5.0/6.0 Class-Description:
Coupler for corrugated plastic hoses

Colour delivered
SILVYN® FPAX T
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free
Polyester Elastomer

Protection rating
IP66
IP67
IP68 (2 bar)
IP69

Temperature range
-50°C to +135°C

Article number	Nominal size	Hole Ø (mm)	Suitable for SILVYN® FPAX T/Y	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® FPAX T					
55507340	16	6		16	3
55507341	21	6		21	3
55507342	28	6		28	3
55507343	34	7		34	3
55507344	42	7		42	3
SILVYN® FPAX Y					
55507350	16-13-13	4		1x16 / 2x13	3
55507351	21-16-16	5		1x21 / 2x16	3
55507352	28-21-21	6		1x28 / 2x21	3
55507353	34-28-28	6.5		1x34 / 2x28	3
SILVYN® FPAX R					
55507360	16-13		16	13	5
55507361	21-16		21	16	5
55507363	28-16		28	16	5
55507362	28-21		28	21	5
55507366	34-16		34	16	5
55507365	34-21		34	21	5
55507364	34-28		34	28	5
55507369	42-21		42	21	3
55507368	42-28		42	28	3
55507367	42-34		42	34	3
SILVYN® FPAX P					
55507370	16		16		5
55507371	21		21		5
55507372	28		28		5
55507373	34		34		3

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® FPAG-M

Benefits
- Fast assembly
- High-tensile
- Sealing
- Vibration protection

Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations

Product features
- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Metric connection thread
- Upper part with integrated all-round toothing

Suitable conduits
- SILVYN® FPAS Page 861

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free

Protection rating
IP 66

Temperature range
-50°C to +135°C

Article number	Metric size	For conduit with outer Ø (mm)	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® FPAG-M black				
55506305	12 x 1.5	10.0	10	10
55506315	16 x 1.5	13.0	13	10
55506325	16 x 1.5	15.8	16	10
55506335	20 x 1.5	15.8	16	10
55507055	20 x 1.5	18.5	18	10
55506346	20 x 1.5	20.0	20	10
55506345	20 x 1.5	21.2	21	10
55506357	25 x 1.5	25.0	25	10
55506355	25 x 1.5	28.5	28	10
55506365	32 x 1.5	34.5	34	10
55506375	40 x 1.5	42.5	42	2
55506385	50 x 1.5	42.5	42	2
55506395	50 x 1.5	54.5	54	2
55506405	63 x 1.5	54.5	54	2
55506475	63 x 1.5	67.2	67	2
SILVYN® FPAG-M grey				
55506300	12 x 1.5	10.0	10	10
55506310	16 x 1.5	13.0	13	10
55506320	16 x 1.5	15.8	16	10
55506330	20 x 1.5	15.8	16	10
55507050	20 x 1.5	18.5	18	10
55506341	20 x 1.5	20.0	20	10
55506340	20 x 1.5	21.2	21	10
55506351	25 x 1.5	25.0	25	10
55506350	25 x 1.5	28.5	28	10
55506360	32 x 1.5	34.5	34	10
55506370	40 x 1.5	42.5	42	2
55506380	50 x 1.5	42.5	42	2
55506390	50 x 1.5	54.5	54	2
55506400	63 x 1.5	54.5	54	2
55506470	63 x 1.5	67.2	67	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® FPAX-M refer to page 862
- SILVYN® KSE-M refer to page 868

Accessories
- SKINTOP® GMP-GL-M refer to page 716

SILVYN® FPAG 90° M

Benefits
- 90° elbow allows easy installation
- Fast assembly
- High-tensile
- Sealing
- Vibration protection

Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations
- For applications with limited space

Product features
- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Metric connection thread
- 90° elbow
- Body
- Upper part with integrated all-round toothing

Suitable conduits
- SILVYN® FPAS Page 861

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free

Protection rating
IP66

Temperature range
-50°C to +135°C

Article number	Metric size	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® FPAG 90° M black			
55506485	12 x 1.5	10	10
55506495	16 x 1.5	13	10
55506505	16 x 1.5	16	10
55506515	20 x 1.5	16	10
55507075	20 x 1.5	18	10
55506526	20 x 1.5	20	10
55506525	20 x 1.5	21	10
55506536	25 x 1.5	25	10
55506535	25 x 1.5	28	10
55506545	32 x 1.5	34	10
55507085	40 x 1.5	42	1
55506555	50 x 1.5	42	1
55506565	50 x 1.5	54	1
55506575	63 x 1.5	54	1
55507095	63 x 1.5	67	1
SILVYN® FPAG 90° M grey			
55506480	12 x 1.5	10	10
55506490	16 x 1.5	13	10
55506500	16 x 1.5	16	10
55506510	20 x 1.5	16	10
55507070	20 x 1.5	18	10
55506521	20 x 1.5	20	10
55506520	20 x 1.5	21	10
55506531	25 x 1.5	25	10
55506530	25 x 1.5	28	10
55506540	32 x 1.5	34	10
55507080	40 x 1.5	42	1
55506550	50 x 1.5	42	1
55506560	50 x 1.5	54	1
55506570	63 x 1.5	54	1
55507090	63 x 1.5	67	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 716

SILVYN® KSE-M

Benefits
- Fast assembly
- Vibration protection
- Additional cable strain relief
- Additional cable sealing
- Optimum screen connection (EMC)

Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Used in areas where screened cables and wires need to have additional protection

Product features
- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

Product Make-up
- Metric connection thread
- EMC cable gland
- Upper part with integrated all-round toothing

Suitable conduits
- SILVYN® FPAS Page 861

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Certifications
IEC EN 61386-23

On request
without EMC contacts

Colour delivered
Black (RAL 9005), UV-resistant

Material
Nickel-plated brass
PA66
Halogen-free

Protection rating
Conduit: IP66
Cable: IP68

Temperature range
-30°C to +100°C

Article number	Metric size	Clamping range in mm	Thread length mm	Suitable for SILVYN® FPAS	For conduit with outer Ø (mm)	Pieces / PU
SILVYN® KSE-M black						
55507105	16 x 1.5/1	4.5 - 9.0	12	13	13,0	10
55507115	16 x 1.5/2	4.5 - 9.0	12	16	15,8	10
55507125	20 x 1.5/1	7.0 - 12.5	12	16	15,8	10
55507135	20 x 1.5/2	7.0 - 12.5	12	21	21,2	10
55507145	25x1.5	9.0 - 16.5	12	28	28,5	10
55507155	32 x 1.5	11.0 - 21.0	15	34	34,5	10
55507165	40x1.5	19.0 - 28.0	15	42	42,5	1
55507175	50 x 1.5	27.0 - 35.0	15	54	54,5	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-PE-M refer to page 744

SILVYN® FLEXILOK M / SILVYN® FLEXILOK 90° M

Info

- Extremely economical
- Small purchasing unit

SILVYN® FLEXILOK M

SILVYN® FLEXILOK 90° M

Benefits
- Fast assembly
- Easy to assemble
- Cost-effective conduit gland
- No loose parts
- New space-saving design

Application range
- Mechanical engineering
- Control cabinet manufacturing
- Moving applications
- Applications with limited space
- Building Installation

Product features
- In black colour UV-resistant and weather-proofed
- One-piece slim design
- Halogen and cadmium-free

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
SILVYN® FLEXILOK M
- Metric connection thread
- One-piece body
- Special clamping system

SILVYN® FLEXILOK 90° M
- Metric connection thread
- 90° elbow
- Special clamping system

Note
- Removeable with a screwdriver

Suitable conduits
- SILVYN® FPAS Page 861

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Norm references / Approvals
IEC EN 61386-23

Colour delivered
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free

Protection rating
IP 66

Temperature range
-40°C to +120°C

Article number	Metric size	Thread length mm	Suitable for SILVYN® FPAS	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® FLEXILOK M black					
65500403	12 x 1.5	9	FPAS 10	10,0	10
65500405	16 x 1.5	12	FPAS 13	13,0	10
65500425	16 x 1.5	12	FPAS 16	15,8	10
65500415	20 x 1.5	14	FPAS 13	13,0	10
65500435	20 x 1.5	14	FPAS 16	15,8	10
65500436	20 x 1.5	14	FPAS 20	20	10
65500445	20 x 1.5	14	FPAS 21	21,2	10
65500456	25 x 1.5	15	FPAS 25	25	10
65500455	25 x 1.5	15	FPAS 28	28,5	10
65500464	32 x 1.5	16	FPAS 32	32	10
65500465	32 x 1.5	16	FPAS 34	34,5	10
65500458	40 x 1.5	16	FPAS 42	42,5	2
65500459	50 x 1.5	16	FPAS 54	54,5	1
65500468	63 x 1.5	16	FPAS 54	54,5	1
SILVYN® FLEXILOK M grey					
65500404	12 x 1.5	9	FPAS 10	10,0	10
65500600	16 x 1.5	12	FPAS 13	13,0	10
65500420	16 x 1.5	12	FPAS 16	15,8	10
65500410	20 x 1.5	14	FPAS 13	13,0	10
65500430	20 x 1.5	14	FPAS 16	15,8	10
65500431	20 x 1.5	14	FPAS 20	20	10
65500440	20 x 1.5	14	FPAS 21	21,2	10
65500454	25 x 1.5	15	FPAS 25	25	10
65500610	25 x 1.5	15	FPAS 28	28,5	10
65500451	32 x 1.5	16	FPAS 32	32	10
65500460	32 x 1.5	16	FPAS 34	34,5	10
65500466	40 x 1.5	16	FPAS 42	42,5	2
65500467	50 x 1.5	16	FPAS 54	54,5	1
65500469	63 x 1.5	16	FPAS 54	54,5	1
SILVYN® FLEXILOK 90° M black					
68100100	16 x 1.5	12	FPAS 16	15,8	10
68100105	20 x 1.5	13	FPAS 16	15,8	10
68100106	20 x 1.5	13	FPAS 20	20	10
68100110	20 x 1.5	13	FPAS 21	21,2	10
68100114	25 x 1.5	15	FPAS 25	25	10
68100115	25 x 1.5	15	FPAS 28	28,5	10
68100119	32 x 1.5	16	FPAS 32	32	10
68100120	32 x 1.5	16	FPAS 34	34,5	10
SILVYN® FLEXILOK 90° M grey					
68100125	16 x 1.5	12	FPAS 16	15,8	10
68100130	20 x 1.5	13	FPAS 16	15,8	10
68100131	20 x 1.5	13	FPAS 20	20	10
68100135	20 x 1.5	13	FPAS 21	21,2	10
68100139	25 x 1.5	15	FPAS 25	25	10
68100140	25 x 1.5	15	FPAS 28	28,5	10
68100144	32 x 1.5	16	FPAS 32	32	10
68100145	32 x 1.5	16	FPAS 34	34,5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 716

SILVYN® FLEXILOK PG / SILVYN® FLEXILOK 90° PG

SILVYN® FLEXILOK PG

SILVYN® FLEXILOK 90° PG

Benefits
- Fast assembly
- Easy to assemble
- Cost-effective conduit gland
- No loose parts
- New space-saving design

Application range
- Mechanical engineering
- Control cabinet manufacturing
- Moving applications
- Applications with limited space
- Building Installation

Product features
- In black colour UV-resistant and weather-proofed
- One-piece slim design
- Halogen and cadmium-free

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
SILVYN® FLEXILOK PG
- PG connection thread
- One-piece body
- Special clamping system

SILVYN® FLEXILOK 90° PG
- PG connection thread
- 90° elbow
- Special clamping system

Note
- Removeable with a screwdriver

Suitable conduits
- SILVYN® FPAS Page 861

Info
- Extremely economical
- Small purchasing unit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Norm references / Approvals
IEC EN 61386-23

On request
SILVYN® FLEXILOK PG
PG 7 for FPAS 10
PG 36 for FPAS 42
PG 48 for FPAS 54

Colour delivered
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free

Protection rating
IP 66

Temperature range
-40°C to +120°C

Article number	PG size	Thread length mm	Suitable for SILVYN® FPAS	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® FLEXILOK PG black					
65500475	9/1	10	FPAS 13	13,0	10
65500495	9/2	10	FPAS 16	15,8	10
65500485	11/1	10	FPAS 13	13,0	10
65500395	11/2	10	FPAS 16	15,8	10
68100055	13,5/1	10	FPAS 16	15,8	10
68100075	13,5/2	10	FPAS 21	21,2	10
68100065	16/1	11	FPAS 16	15,8	10
68100085	16/2	11	FPAS 21	21,2	10
68100095	21	12	FPAS 28	28,5	10
68880005	29	12	FPAS 34	34,5	10
SILVYN® FLEXILOK PG grey					
65500470	9/1	10	FPAS 13	13,0	10
65500490	9/2	10	FPAS 16	15,8	10
65500480	11/1	10	FPAS 13	13,0	10
65500390	11/2	10	FPAS 16	15,8	10
68100050	13,5/1	10	FPAS 16	15,8	10
68100060	16/1	11	FPAS 16	15,8	10
68100080	16/2	11	FPAS 21	21,2	10
68100090	21	12	FPAS 28	28,5	10
65500620	29	12	FPAS 34	34,5	10
SILVYN® FLEXILOK 90° PG black					
68100150	9	10	FPAS 16	15,8	10
68100155	11	10	FPAS 16	15,8	10
68100160	13,5/1	10	FPAS 16	15,8	10
68100170	13,5/2	10	FPAS 21	21,2	10
68100165	16/1	11	FPAS 16	15,8	10
68100175	16/2	11	FPAS 21	21,2	10
68100180	21	12	FPAS 28	28,5	10
68100185	29	12	FPAS 34	34,5	10
SILVYN® FLEXILOK 90° PG grey					
68100190	9	10	FPAS 16	15,8	10
68100195	11	10	FPAS 16	15,8	10
68100200	13,5/1	10	FPAS 16	15,8	10
68100210	13,5/2	10	FPAS 21	21,2	10
68100205	16/1	11	FPAS 16	15,8	10
68100215	16/2	11	FPAS 21	21,2	10
68100220	21	12	FPAS 28	28,5	10
68100225	29	12	FPAS 34	34,5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL refer to page 778

SILVYN® FPAG PG / SILVYN® FPAG 90° PG

SILVYN® FPAG PG SILVYN® FPAG 90° PG

Benefits

SILVYN® FPAG PG
- Fast assembly
- High-tensile
- Sealing
- Vibration protection

SILVYN® FPAG 90° PG
- 90° elbow allows easy installation
- Fast assembly
- High-tensile
- Sealing
- Vibration protection

Application range

- In combination with protective conduit:
- SILVYN® FPAS
- Applications with strong vibrations

Product features

- In black colour UV-resistant and weather-proofed
- Removeable with a screwdriver

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

SILVYN® FPAG PG
- PG connection thread
- Body
- Upper part with integrated all-round toothing

SILVYN® FPAG 90° PG
- PG connection thread
- 90° elbow
- Body
- Upper part with integrated all-round toothing

Suitable conduits

- SILVYN® FPAS Page 861

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Certifications
IEC EN 61386-23

Colour delivered
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free

Protection rating
IP 66

Temperature range
-50°C to +135°C

Article number	PG size	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® FPAG PG black			
55506585	7	10	10
55506595	9/1	10	10
55506605	9/2	13	10
55506615	9/3	16	10
55506625	11	16	10
55506635	13,5/1	16	10
55506645	13,5/2	18	10
55506995	13,5/3	21	10
55506655	16	21	10
55506665	21	28	10
55506675	29	34	10
55506685	36	42	2
55506695	48/1	54	2
55506705	48/2	67	2
SILVYN® FPAG PG grey			
55506580	7	10	10
55506590	9/1	10	10
55506600	9/2	13	10
55506610	9/3	16	10
55506620	11	16	10
55506630	13,5/1	16	10
55506640	13,5/2	18	10
55506990	13,5/3	21	10
55506650	16	21	10
55506660	21	28	10
55506670	29	34	10
55506680	36	42	2
55506690	48/1	54	2
55506700	48/2	67	2

Article number	PG size	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® FPAG 90° PG black			
55506715	7	10	10
55506725	9	13	10
55506735	11	16	10
55506745	13,5/1	16	10
55506755	13,5/2	18	10
55506815	13,5/3	21	10
55506765	16	21	10
55506775	21	28	10
55506785	29	34	10
55506795	36	42	1
55506805	48/1	54	1
55506825	48/2	67	1
SILVYN® FPAG 90° PG grey			
55506710	7	10	10
55506720	9	13	10
55506730	11	16	10
55506740	13,5/1	16	10
55506750	13,5/2	18	10
55506810	13,5/3	21	10
55506760	16	21	10
55506770	21	28	10
55506780	29	34	10
55506790	36	42	1
55506800	48/1	54	1
55506820	48/2	67	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® GMP-GL refer to page 778

SILVYN® FCL

Benefits
- Fast assembly
- Easy to disassemble
- High mechanical strength
- Conduit retained by rib
- No loose parts

Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Fastening of conduits on machine walls for all applications

Product features
- Removeable with a screwdriver
- One-piece conduit holder

Product Make-up
- One-piece conduit holder with borehole for fixation

Note
- UV-resistant and weather-resistant

Suitable conduits
- SILVYN® FPAS Page 861

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

Certifications
IEC EN 61386-23

Colour delivered
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free

Temperature range
-50°C to +135°C

Article number	Nominal size	Hole Ø (mm)	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® FCL black				
55506905	10	5	10	10
55506915	13	5	13	10
55506925	16	5	16	10
55506985	18	6	18	10
55507405	20	6	20	10
55506935	21	6	21	10
55507415	25	6	25	10
55506945	28	6	28	10
55506954	32	6	32	10
55506955	34	6	34	10
55506965	42	6	42	10
55506975	54	6	54	10
SILVYN® FCL grey				
55506900	10	5	10	10
55506910	13	5	13	10
55506920	16	5	16	10
55506980	18	6	18	10
55507400	20	6	20	10
55506930	21	6	21	10
55507410	25	6	25	10
55506940	28	6	28	10
55506949	32	6	32	10
55506950	34	6	34	10
55506960	42	6	42	10
55506970	54	6	54	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® FPAC

Benefits
- Fast assembly
- High tensile strength
- Optional extension of parallel corrugated conduits

Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Conduit coupler for extension

Product features
- Removeable with a screwdriver

Note
- UV-resistant and weather-resistant

Suitable conduits
- SILVYN® FPAS Page 861

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001172
ETIM 5.0/6.0 Class-Description:
Coupler for corrugated plastic hoses

Certifications
IEC EN 61386-23

On request
IP68 / IP69 version

Colour delivered
Grey (RAL 7031)
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free

Protection rating
IP 66

Temperature range
-50°C to +135°C

Article number	Nominal size	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® FPAC black			
55507005	16	16	10
55507006	20	20	10
55507015	21	21	10
55507016	25	25	10
55507025	28	28	10
55507035	34	34	10
55507036	42	42	2
55507037	54	54	2
SILVYN® FPAC grey			
55507000	16	16	10
55507001	20	20	10
55507010	21	21	10
55507011	25	25	10
55507020	28	28	10
55507030	34	34	10
55507031	42	42	2
55507032	54	54	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® EC

Benefits
- Cable damage can be prevented
- Additional sealing
- Easy to assemble

Application range
- In combination with protective conduit:
- SILVYN® FPAS
- Intersection or end sleeve

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description:
Terminal sleeve for protective hose

On request
SILVYN® REC for FPAS67

Colour delivered
Black (RAL 9005), UV-resistant

Material
NEC: PA66
REC: TPE

Temperature range
NEC: -50°C to +135°C
REC: -50°C to +120°C

Article number	Nominal size	Clamping range in mm	Clear opening (mm)	Suitable for SILVYN® FPAS	Pieces / PU
SILVYN® NEC					
55507097	16		10.5	16	10
55507098	21		15	21	10
55507099	28		20	28	10
55507100	34		25.5	34	10
55507101	42		32	42	10
55507102	54		43.5	54	10
SILVYN® REC					
55507040	10	3.0 - 7.0		10	10
55507041	13	3.0 - 7.0		13	10
55507042	16	3.0 - 11.0		16	10
55507043	21	3.0 - 15.0		21	10
55507044	28	3.0 - 21.0		28	10
55507045	34	3.0 - 25.0		34	10
55507046	42	5.0 - 34.0		42	10
55507047	54	5.0 - 46.0		54	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® HCC

Benefits
- Dimensionally stable
- Flexible
- Lightweight
- Crush-resistant

Application range
- Mechanical engineering
- Apparatus construction
- Building Automation
- Moving applications
- Outdoors

Product features
- Conduit with full metric design
- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

Product Make-up
- Fine-profile corrugated polyamide 6 conduit

Note
- UV-resistant and weather-resistant

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

Colour delivered
Black (RAL 9005), UV-resistant

Material
PA6
Halogen-free

Temperature range
-25°C to +100°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® FPAG-M / FLEXILOK-M	Suitable for SILVYN® HG-M	PU ring (m)
SILVYN® HCC						
61793970	13	9.8 x 13.0	25	16 + 20		50
61793980	16	11.8 x 16.0	30	16 + 20		50
61793990	20	14.8 x 20.0	40	20		50
61794000	25	19.1 x 25.0	50	25		50
61794010	32	24,3 x 32.0	65	32 (FLEXILOK-M)		25
61794020	40	30,2 x 40.0	85		40	25
61794030	50	40,1 x 50.0	110		50	25
61794035	63	52,5 x 63.0	130		63	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® FPAG-M refer to page 866
- SILVYN® HG-M refer to page 876
- SILVYN® HW-M
- SILVYN® FLEXILOK M refer to page 869
- SILVYN® FCL refer to page 872

SILVYN® HG-M

Benefits
- Easy to disassemble
- High-tensile
- Sealing

Application range
- In combination with protective conduit
- SILVYN® HCC

Product Make-up
- Metric connection thread
- Body with sealing and clamping ring
- Cap nut

Note
- UV-resistant and weather-resistant

Suitable conduits
- SILVYN® HCC Page 875

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 65

Temperature range
-25°C to +100°C

Article number	Article designation	Overall length mm	Thread length mm	Suitable for SILVYN® HCC	Pieces / PU
SILVYN® HG-M					
55501650	40 x 1,5	53	15	40	20
55501660	50 x 1,5	57.4	15	50	16
55501670	63 x 1,5	74	20	63	8

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® MAXI PA

Benefits
- Dimensionally stable
- Flexible
- Crush-resistant

Application range
- Mechanical engineering
- Public utilities
- Moving applications
- Outdoors

Product features
- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Thick-walled corrugated polyamide 6 conduit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

On request
Available in PA 12

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA 6
Halogen-free
Fire behaviour according to UL 94 HB

Temperature range
-40°C to +115°C
short-term +150°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® AFG-PA/AFW-PA	PU ring (m)
SILVYN® MAXI PA grey					
61791150	70	66.5 x 79.2	170	70	10
61791160	95	91.0 x 106.0	225	95	10
SILVYN® MAXI PA black					
61791155	70	66.5 x 79.2	170	70	10
61791165	95	91.0 x 106.0	225	95	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® AFG-PA refer to page 878
- SILVYN® AFW-PA refer to page 878

SILVYN® AFG-PA / SILVYN® gasket AFG-PA / AFW-PA / SILVYN® AFW-PA

SILVYN® AFG-PA

SILVYN® gasket AFG-PA / AFW-PA

SILVYN® AFW-PA

Benefits

SILVYN® AFG-PA
- Tear-resistant connection
- Secure conduit insertion

SILVYN® gasket AFG-PA / AFW-PA
- Increases the IP degree of protection of SILVYN® AFG-PA and SILVYN® AFW-PA

SILVYN® AFW-PA
- Tear-resistant connection
- Secure conduit insertion

Application range

- In combination with protective conduit
- SILVYN® MAXI PA
- Mechanical engineering
- Bundling and guiding of cables and wires

Product Make-up

SILVYN® AFG-PA
- One-piece connector with clap mechanism specifically designed for use with the SILVYN® MAXI PA. Thanks to the special design, the conduit can be pre-locked and mounted ready for connection

SILVYN® AFW-PA
- One-piece 90° elbow connector with clap mechanism specifically designed for use with the SILVYN® MAXI PA. Thanks to the special design, the conduit can be pre-locked and mounted ready for connection

Suitable conduits

- SILVYN® MAXI PA Page 877

Technical data

Classification ETIM 5/6
SILVYN® AFG-PA
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
SILVYN® gasket AFG-PA / AFW-PA
ETIM 5.0/6.0 Class-ID: EC000781
ETIM 5.0/6.0 Class-Description: Sealing for hose screw connection
SILVYN® AFW-PA
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6
Halogen-free

Protection rating
IP 54
IP 65 with AFG-PA/AFW-PA seal

Temperature range
-40 °C to +115 °C

Article number	Nominal size	Pieces / PU
SILVYN® AFG-PA grey		
55001080	70	1
55001081	95	1
SILVYN® AFG-PA black		
55001085	70	1
55001086	95	1
SILVYN® seal for AFG-PA, AFW-PA		
55001082	70	1
55001083	95	1
SILVYN® AFW-PA 90° grey		
55001090	70	1
55001091	95	1
SILVYN® AFW-PA 90° black		
55001093	70	1
55001092	95	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

SILVYN® AFG-PA
- SILVYN® gasket AFG-PA / AFW-PA refer to page 878

SILVYN® gasket AFG-PA / AFW-PA
- SILVYN® AFG-PA refer to page 878
- SILVYN® AFW-PA refer to page 878

SILVYN® AFW-PA
- SILVYN® gasket AFG-PA / AFW-PA refer to page 878

SILVYN® TC

Info

- No conduit gland required
- With counter nut usable
- Selected section length

Benefits

- Dimensionally stable
- Flexible
- Threaded
- Cost-saving due to quick and easy installation

Application range

- Control cabinet manufacturing
- Mechanical engineering
- Plant engineering
- For indoor and outdoor use

Product features

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

Product Make-up

- Fine-profile corrugated polyamide 6 conduit

Note

- We recommend to use an additional sealing to maximize the IP rating
- Section length 222 mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

Colour delivered
Black (RAL 9005), UV-resistant

Material
PA 6
Halogen-free
Fire behaviour according to UL 94 V-2

Temperature range
-40°C to +120°C

Article number	Nominal size	ID x OD mm	Metric size	PU ring (m)
SILVYN® TC				
64400823	7,5	6,6 x 10.0	10 x 1,5	50
64400824	8,5	9,8 x 12,8	12 x 1.5	50
64400825	12	12,3 x 15,7	16 x 1.5	50
61221035	17	16.6 x 21.2	20 x 1.5	50
64400650	22	23.1 x 28.4	25 x 1.5	50
64400651	26	28.9 x 34.5	32 x 1.5	50
64400826	37	34.0 x 42,2	40 x 1.5	50
64400827	50	45,6 x 52,8	50 x 1.5	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® FPAS refer to page 861
- SILVYN® RILL PA 6 refer to page 847

Accessories

- SKINTOP® GMP-GL-M refer to page 716
- SKINDICHT® JT PTFE metric refer to page 761
- SILVYN® Conduit scissor refer to page 924
- SILVYN® SPLIT COS refer to page 881
- SILVYN® SEALING WASHER refer to page 916

SILVYN® SPLIT

Benefits

- Dimensionally stable
- Flexible
- Crush-resistant
- Low rodent-protection
- Fast and easy assembly

Application range

- Vehicle construction
- Shipbuilding
- Mechanical engineering
- Electrical industry
- Used in areas where cables and wires need to be protected after assembly

Product features

- Halogen-free (PA6)
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals
- Very good UV- and Weathering performance (SILVYN® SPLIT PP UV)

Product Make-up

- Divisable corrugated conduit

Info

- Subsequent cable protection

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

On request
Polyamide 12 version (highly flexible)
ETFE version (high-temperature resistant up to +200°C)

Colour delivered
Black (RAL 9005), UV-resistant

Material
Polyamide 6 (PA6)
Polypropylene (PP)

Protection rating
IP 43 with SILVYN® SPLIT COV

Temperature range
PA6 : -40°C to +120°C
PP : -40°C to +135°C
PP UV: -40°C to +105°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® COV	PU (m)
SILVYN® SPLIT PA6					
61806621	6	6.3 x 10.0	15		50
61806620	10	8.8 x 13.5	15	M16/PG9	50
61806631	11	11.0 x 16.1	15		50
61806630	14	13.2 x 18.7	15	M20/PG13,5	50
61806641	16	16.0 x 21.5	20		50
61806640	20	20.2 x 25.7	25	M25/PG21	50
61806650	23	23.9 x 31.3	35	M32/PG29	50
61806651	29	27.3 x 35.5	35		50
61806660	37	32.5 x 43.2	40	M40/PG29	25
61806670	45	43.1 x 54.2	70	M50	25
61806671	70	67.0 x 79.8	95		10
61806672	100	87.5 x 102.5	100		10
SILVYN® SPLIT PP					
61806615	6	6.3 x 10.0	15		50
61806625	10	8.4 x 13.4	15	M16/PG9	50
61806616	11	11.0 x 16.1	15		50
61806635	14	12.5 x 18.5	15	M20/PG13,5	50
61806617	16	16.0 x 21.5	20		50
61806645	20	19.2 x 25.3	20	M25/PG21	50
61806655	23	23.4 x 30.8	45	M32/PG29	50
61806618	29	27.3 x 35.5	50		50
61806665	37	31.0 x 41.4	60	M40/PG29	25
61806675	45	42.7 x 54.0	75	M50	25
61806619	70	67.5 x 79.8	95		10
61806622	100	87.5 x 102.5	100		10
SILVYN® SPLIT PP UV					
61806100	6	6.3 x 10.0	15		50
61806110	10	8.4 x 13.4	15	M16/PG9	50
61806120	11	11.0 x 16.1	15		50
61806130	14	12.5 x 18.5	15	M20/PG13,5	50
61806140	16	16.0 x 21.5	20		50
61806150	20	19.2 x 25.3	20	M25/PG21	50
61806160	23	23.4 x 30.8	45	M32/PG29	50
61806170	29	27.3 x 35.5	50		50
61806180	37	31.0 x 41.4	60	M40/PG29	25
61806190	45	42.7 x 54.0	75	M50	25
61806200	70	67.5 x 79.8	95		10
61806210	100	87.5 x 102.5	100		10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Sinus-shaped slit

Accessories

- SILVYN® SPLIT COV-M refer to page 881
- SILVYN® SPLIT GMP-M refer to page 881
- SILVYN® SPLIT COS refer to page 881
- Spare tool Cable - Eater refer to page 1039

SILVYN® SPLIT COV-M / SILVYN® SPLIT GMP-M / SILVYN® SPLIT COS

SILVYN® SPLIT COV-M

SILVYN® SPLIT GMP-M

SILVYN® SPLIT COS

Benefits

SILVYN® SPLIT COV-M
- Fast and easy assembly
- Subsequent mountable conduit insertion

SILVYN® SPLIT GMP-M
- Fast assembly
- Easy to disassemble

SILVYN® SPLIT COS
- Fast assembly
- Easy to disassemble
- High tensile strength
- Conduit retained by rib
- No loose parts

Application range

SILVYN® SPLIT COV-M
- In combination with protective conduit:
- SILVYN® SPLIT
- Mechanical engineering
- Electrical industry
- Used in areas where cables and wires need to be protected after assembly

SILVYN® SPLIT COS
- In combination with protective conduit:
- SILVYN® SPLIT
- Fastening of conduits on machine walls for all applications

Product features

SILVYN® SPLIT COV-M
- Divisable counter nut with metric thread

SILVYN® SPLIT COS
- One-piece conduit holder

Note

- UV-resistant and weather-resistant

Suitable conduits

- SILVYN® SPLIT Page 880

Technical data

ETIM
Classification ETIM 5/6
SILVYN® SPLIT COV-M
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
SILVYN® SPLIT GMP-M
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
SILVYN® SPLIT COS
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

RAL
Colour delivered
Black (RAL 9005), UV-resistant

Material
Halogen-free PA

Temperature range
-40°C to +120°C

Article number	Nominal size	Metric size	Hole Ø (mm)	Suitable for SILVYN® SPLIT	Pieces / PU
SILVYN® SPLIT COV-M (counter nut not included)					
61806680		16 x 1.5		10	100
61806681		20 x 1.5		14	100
61806682		25 x 1.5		20	50
61806683		32 x 1.5		23	50
61806684		40 x 1.5		37	25
61806685		50 x 1.5		45	25
SILVYN® SPLIT GMP-M (metric counter nut)					
61806686		16 x 1.5			100
61806687		20 x 1.5			100
61806688		25 x 1.5			50
61806689		32 x 1.5			50
61806691		40 x 1.5			25
61806692		50 x 1.5			25
SILVYN® SPLIT COS					
61806693	6		M3	6	100
61806690	10		M3	10	100
61806676	10		M5	10	100
61806694	11		M3	11	100
61806700	14		M3	14	100
61806677	14		M5	14	50
61806695	16		M5	16	50
61806696	16		M6	16	50
61806710	20		M5	20	50
61806678	20		M6	20	50
61806720	23		M5	23	50
61806679	23		M6	23	50
61806697	29		M5	29	50
61806698	29		M6	29	50
61806730	37		M6	37	20
61806740	45		M6	45	20
61806699	70		M6	70	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® SINUS PA6

Info

- Sinusodial slit for subsequent assembly
- Made of special heat-resistant polyamide up to +140°C

Benefits

- Dimensionally stable
- Flexible
- Crush-resistant
- Subsequent cable protection
- Sinusoidal slit remains closed under torsion for the most part

Application range

- Mechanical engineering
- Electrical industry
- Shipbuilding
- Solar applications

Product features

- High resistance to oil, petrol, acids and other chemicals
- Halogen and cadmium-free
- Abrasion-resistant

Product Make-up

- Fine-profile corrugated polyamide 6 conduit with sinusodial slit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

Note
Elongation at tear in accordance with DIN 53 455: 50 - 200 %
Impact resistance in accordance with DIN 53 453: without rupture
Notched impact resistance in accordance with DIN 53 453: without rupture
Flammability rating: UL 94HB

Colour delivered
Black (RAL 9005), UV-resistant

Material
PA6 heat-modified
Cadmium-free
Halogen-free

Temperature range
-40°C to +140°C

Article number	ID x OD mm	Suitable for SILVYN® holder	PU ring (m)
SILVYN® RILL PA6 SINUS			
61806550	6,7 x 10.0	FCL 10 / 5550 6905	50
61806555	8,4 x 11,4		50
61806560	9,9 x 13.0	FCL 13 / 5550 6915	50
61806565	12,2 x 15,7	FCL 16 / 5550 6925	50
61806570	16,6 x 21,2	FCL 21 / 5550 6935	50
61806575	21,3 x 25,4	FCL 25 / 5550 7415	50
61806580	23,2 x 28,3	FCL 28 / 5550 6945	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® SPLIT refer to page 880

Accessories

- SILVYN® SPLIT GMP-M refer to page 881
- SILVYN® SPLIT COS refer to page 881
- SILVYN® FCL refer to page 872
- STKP tool of the cable eater serves as an insertion tool

SILVYN® AS

Benefits
- High-tensile
- High crush-resistance
- Flexible
- High mechanical resistance
- Heat-resistant

Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Applications with high mechanical stress

Norm references / Approvals
- VDE
- DIN 49012, complies with design G according to DIN EN IEC 61386-23
- In EX-area according to EN 1127-1

Product Make-up
- Helically-wound metal protective conduit with interlocked profile

Note
- PU = 10m (on request)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

Certifications
IEC EN 61386-23

Material
Galvanized steel

Temperature range
Up to +220°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US	PU ring (m)
SILVYN® AS							
61802080	10	8.0 x 10.0	28	12 x 1,5	10 x 1,0	7	50
61802090	14	11.0 x 14.0	34	16 x 1,5	12 x 1,5	9	50
61802100	17	14.0 x 17.0	40	20 x 1,5	16 x 1,5	11	50
61802110	19	16.0 x 19.0	45			13,5	50
61802120	21	18.0 x 21.0	50	25 x 1,5	20 x 1,5	16	50
61802130	27	23.0 x 27.0	63	32 x 1,5	25 x 1,5	21	50
61802140	36	31.0 x 36.0	85	40 x 1,5	32 x 1,5	29	25
61802150	45	40.0 x 45.0	100	50 x 1,5	40 x 1,5	36	25
61802170	56	51.0 x 56.0	125	63 x 1,5	50 x 1,5	48	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® EDU-AS refer to page 885

Accessories
- SILVYN® MSK-M US refer to page 887
- SILVYN® US-M refer to page 891
- SILVYN® US refer to page 892
- SILVYN® US-AS refer to page 893

SILVYN® AS-P

Benefits
- Protects against liquids
- High-tensile
- High crush-resistance
- Flexible
- High mechanical resistance

Application range
- Mechanical engineering
- Plant engineering
- Automation technology
- Used in areas where liquids are present
- Applications with high mechanical stress

Norm references / Approvals
- VDE
- DIN 49012, complies with design I according to DIN EN IEC 61386-23
- In EX-area according to EN 1127-1

Product Make-up
- Helically-wound metal protective conduit with interlocked profile
- PVC sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

Certifications
IEC EN 61386-23

Colour delivered
Grey

Material
Inner conduit: steel, galvanised
Outer sheath: PVC

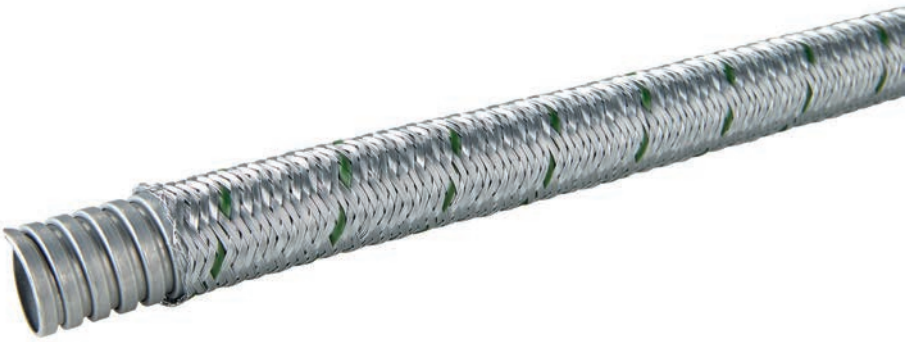
Temperature range
-25°C to +80°C
Short-term: up to +100°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US	PU ring (m)
SILVYN® AS-P							
64400010	10	7.0 x 10.0	32	12 x 1,5	10 x 1,0	7	50
64400020	14	10.0 x 14.0	40	16 x 1,5	12 x 1,5	9	50
64400030	17	13.0 x 17.0	45	20 x 1,5	16 x 1,5	11	50
64400040	19	15.0 x 19.0	52			13,5	50
64400050	21	17.0 x 21.0	58	25 x 1,5	20 x 1,5	16	50
64400060	27	22.0 x 27.0	72	32 x 1,5	25 x 1,5	21	50
64400070	36	29.0 x 36.0	98	40 x 1,5	32 x 1,5	29	25
64400080	45	38.0 x 45.0	118	50 x 1,5	40 x 1,5	36	25
64400090	56	49.0 x 56.0	140	63 x 1,5	50 x 1,5	48	25
SILVYN® AS-P 10 M							
64400100	10	7.0 x 10.0	32	12 x 1,5	10 x 1,0	7	10
64400110	14	10.0 x 14.0	40	16 x 1,5	12 x 1,5	9	10
64400120	17	13.0 x 17.0	45	20 x 1,5	16 x 1,5	11	10
64400130	19	15.0 x 19.0	52			13,5	10
64400140	21	17.0 x 21.0	58	25 x 1,5	20 x 1,5	16	10
64400150	27	22.0 x 27.0	72	32 x 1,5	25 x 1,5	21	10
64400160	36	29.0 x 36.0	98	40 x 1,5	32 x 1,5	29	10
64400170	45	38.0 x 45.0	118	50 x 1,5	40 x 1,5	36	10
64400180	56	49.0 x 56.0	140	63 x 1,5	50 x 1,5	48	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® MSK-M US refer to page 887
- SILVYN® US-M refer to page 891
- SILVYN® US refer to page 892
- SILVYN® US-AS refer to page 893
- SILVYN® US-EDU-AS refer to page 893

SILVYN® EDU-AS



Benefits
- Protects against hot chips
- High-tensile
- High crush-resistance
- Flexible
- For high mechanical stress

Application range
- Mechanical engineering
- Plant engineering
- Automation technology
- Used in areas where cables and wires could be damaged by welding sparks and hot chips
- Applications with high mechanical stress

Norm references / Approvals
- VDE
- DIN 49012, complies with design K according to DIN EN IEC 61386-23
- In EX-area according to EN 1127-1

Product Make-up
- Helically-wound metal protective conduit with interlocked profile
- Galvanised steel wire braiding

Note
- PU = 10m (on request)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

Certifications
IEC EN 61386-23

Material
Galvanized steel
Braiding: galvanized steel wire

Temperature range
Up to +220°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US	PU ring (m)
SILVYN® EDU-AS							
61802380	10	7.0 x 10.0	28	12 x 1,5	10 x 1,0	7	50
61802390	14	10.0 x 14.0	34	16 x 1,5	12 x 1,5	9	50
61802400	17	13.0 x 17.0	40	20 x 1,5	16 x 1,5	11	50
61802410	19	15.0 x 19.0	45			13,5	50
61802420	21	17.0 x 21.0	50	25 x 1,5	20 x 1,5	16	50
61802430	27	22.0 x 27.0	63	32 x 1,5	25 x 1,5	21	50
61802440	36	29.0 x 36.0	85	40 x 1,5	32 x 1,5	29	25
61802450	45	38.0 x 45.0	100	50 x 1,5	40 x 1,5	36	25
61802470	56	49.0 x 56.0	135	63 x 1,5	50 x 1,5	48	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® MSK-M US refer to page 887
- SILVYN® US-M refer to page 891
- SILVYN® US refer to page 892
- SILVYN® US-EDU-AS refer to page 893
- SILVYN® US-MS-DR refer to page 893

SILVYN® EMC AS-CU

Benefits
- Optimum EMC protection
- High-tensile
- High crush-resistance
- Flexible
- High mechanical resistance

Application range
- Mechanical engineering
- Automotive industry
- Conveyor technology
- Railway applications / vehicle construction
- Used in areas where electromagnetic interferences can occur

Product features
- According to EN 50289-1-6, a screening factor from 30 MHz up to 80 dB can be reached.

Product Make-up
- Helically-wound metal protective conduit with interlocked profile
- Tinned-copper braiding

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

Certifications
IEC EN 61386-23

Material
Inner conduit: galvanized steel
Braiding: tinned copper wire

Temperature range
-50°C to +250°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US	PU ring (m)
SILVYN® EMC AS-CU							
64400500	10	7.0 x 10.0	28	12 x 1,5	10 x 1,0	7	50
64400501	14	10.0 x 14.0	34	16 x 1,5	12 x 1,5	9	50
64400502	17	13.0 x 17.0	40	20 x 1,5	16 x 1,5	11	50
64400504	21	17.0 x 21.0	50	25 x 1,5	20 x 1,5	16	50
64400505	27	22.0 x 27.0	63	32 x 1,5	25 x 1,5	21	50
64400506	36	29.0 x 36.0	85	40 x 1,5	32 x 1,5	29	25
64400507	45	38.0 x 45.0	100	50 x 1,5	40 x 1,5	36	25
64400508	56	49.0 x 56.0	135	63 x 1,5	50 x 1,5	48	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- 3M Scotch™ 1183 screening tape refer to page 1030
- SILVYN® MSK-M US refer to page 887
- SILVYN® US-M refer to page 891
- SILVYN® US refer to page 892
- SILVYN® US-EDU-AS refer to page 893
- SILVYN® US-MS-DR refer to page 893

SILVYN® MSK-M US

Info

- Integrated SKINTOP® cable strain relief

Benefits

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-turn protection

Application range

- In combination with protective conduit:
- SILVYN® AS/AS-P/EDU-AS/EMC AS-CU
- Indoor / outdoor applications
- Used in areas where cables and wires need to be provided with strain relief and additional sealing

Product features

- Combination of SILVYN® and SKINTOP®

Product Make-up

- Optional:
- SKINTOP® MS-M cable gland or
- SKINTOP® MS-SC-M EMC connection
- SKINTOP® DIX multiple sealing insert
- SILVYN® conduit connection via inner sleeve and cap nut

Note

- For suitable accessories, refer to SKINTOP® metric accessories

Suitable conduits

- SILVYN® AS Page 883
- SILVYN® AS-P Page 884
- SILVYN® EDU-AS Page 885
- SILVYN® EMC AS-CU Page 886

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE

Protection rating
Cable: IP 68
Conduit:
IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU
IP 65 with SILVYN® AS-P

Temperature range
-30°C to +100°C

Article number	Metric size	Clamping range in mm	Clear opening (mm)	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® MSK-M for SILVYN® AS					
55506080	12 x 1.5	3.0 - 7.0	6.3	10	5
55506081	16 x 1.5	4.5 - 10.0	9	14	5
55506082	20 x 1.5	7.0 - 13.0	11.5	17	5
55506083	25 x 1.5	9.0 - 17.0	14.5	21	5
55506084	32 x 1.5	11.0 - 21.0	19.5	27	5
55506085	40 x 1.5	19.0 - 28.0	26.5	36	1
55506086	50 x 1.5	27.0 - 35.0	36	45	1
55506087	63 x 1.5	34.0 - 45.0	45.5	56	1
SILVYN® MSK-M for SILVYN® AS-P / EDU-AS / EMC AS-CU					
55506090	12 x 1.5	3.0 - 7.0	6.3	10	5
55506091	16 x 1.5	4.5 - 10.0	9	14	5
55506092	20 x 1.5	7.0 - 13.0	11.5	17	5
55506093	25 x 1.5	9.0 - 17.0	14.5	21	5
55506094	32 x 1.5	11.0 - 21.0	19.5	27	5
55506095	40 x 1.5	19.0 - 28.0	26.5	36	1
55506096	50 x 1.5	27.0 - 35.0	36	45	1
55506097	63 x 1.5	34.0 - 45.0	45.5	56	1
SILVYN® MSK-SC-M for SILVYN® AS					
55506110	12 x 1.5	3.0 - 7.0	6.3	10	5
55506111	16 x 1.5	4.5 - 10.0	9	14	5
55506112	20 x 1.5	7.0 - 13.0	11.5	17	5
55506113	25 x 1.5	9.0 - 17.0	14.5	21	5
55506114	32 x 1.5	11.0 - 21.0	19.5	27	5
55506115	40 x 1.5	19.0 - 28.0	26.5	36	1
55506116	50 x 1.5	27.0 - 35.0	36	45	1
SILVYN® MSK-SC-M for SILVYN® AS-P / EDU-AS / EMC AS-CU					
55506120	12 x 1.5	3.0 - 7.0	6.3	10	5
55506121	16 x 1.5	4.5 - 10.0	9	14	5
55506122	20 x 1.5	7.0 - 13.0	11.5	17	5
55506123	25 x 1.5	9.0 - 17.0	14.5	21	5
55506124	32 x 1.5	11.0 - 21.0	19.5	27	5
55506125	40 x 1.5	19.0 - 28.0	26.5	36	1
55506126	50 x 1.5	27.0 - 35.0	36	45	1

Other variations with multiple SKINTOP® DIX-M sealing inserts are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINTOP® DIX-M refer to page 718
- SKINTOP® DIX-M AUTOMATION refer to page 719
- SKINTOP® DIX-DV refer to page 720

SILVYN® MSK-M BRUSH

Info

- Conduit gland with the innovative BRUSH solution
- Optimum 360° screen contact

Benefits

- Easy installation
- Faster, easier screen contact
- Optimum cable and conduit strain relief
- Maximum cable sealing
- Wide clamping range

Application range

- Mechanical engineering
- Plant engineering
- Heavy industry
- In EMC-sensitive environments

Product features

- Combination of SILVYN® and SKINTOP®

Note

- For suitable accessories, refer to SKINTOP® metric accessories

Suitable conduits

- SILVYN® AS Page 883
- SILVYN® AS-P Page 884
- SILVYN® EDU-AS Page 885
- SILVYN® EMC AS-CU Page 886

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE
EMC brush: brass

Protection rating
Cable: IP 68
Conduit:
IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU
IP 65 with SILVYN® AS-P

Temperature range
-30°C to +100°C

Article number	Metric size	Clamping range in mm	Clear opening (mm)	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® MSK-M BRUSH for SILVYN® AS					
55506020	25 x 1.5	9.0 - 17.0	14.5	21	1
55506021	32 x 1.5	11.0 - 21.0	19.5	27	1
55506022	40 x 1.5	19.0 - 28.0	26.5	36	1
55506023	50 x 1.5	27.0 - 35.0	36	45	1
55506024	63 x 1.5	34.0 - 45.0	45.5	56	1
SILVYN® MSK-M BRUSH for SILVYN® AS-P / EDU-AS / EMC AS-CU					
55506025	25 x 1.5	9.0 - 17.0	14.5	21	1
55506026	32 x 1.5	11.0 - 21.0	19.5	27	1
55506027	40 x 1.5	19.0 - 28.0	26.5	36	1
55506028	50 x 1.5	27.0 - 35.0	36	45	1
55506029	63 x 1.5	34.0 - 45.0	45.5	56	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINTOP® DIX-M refer to page 718
- SKINTOP® DIX-M AUTOMATION refer to page 719
- SKINTOP® DIX-DV refer to page 720

SILVYN® MSK-M ATEX

Info

- IECEx approval worldwide

Benefits

- Optimum cable and conduit strain relief
- Maximum cable sealing
- Fast and easy assembly
- Wide clamping range
- Anti-turn protection

Application range

- Devices, machines and apparatus of enhanced safety protection type “e”
- Chemical and petrochemical industry
- Plant engineering
- Used in areas where cables and wires need additional mechanical protection

Product features

- Combination of SILVYN® and SKINTOP®

Product Make-up

- SILVYN® conduit connection via inner sleeve and cap nut
- Metric connection thread acc. to DIN EN 60423

Suitable conduits

- SILVYN® AS Page 883
- SILVYN® EDU-AS Page 885
- SILVYN® EMC AS-CU Page 886

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Certifications
SILVYN® MSK-M 16x1,5 AS ATEX
IBExU06ATEX1012X
II 2G EEx eII
II 1D EEx eII
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0033X

Material
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE

Tests
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

Protection rating
Cable: IP 68
Conduit:
IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU

Temperature range
-30°C to +90°C

Article number	Metric size	Clamping range in mm	Clear opening (mm)	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® MSK-M ATEX for SILVYN® AS					
55506010	12 x 1.5	3.0 - 7.0	6.3	10	5
55506011	16 x 1.5	4.5 - 10.0	9	14	5
55506012	20 x 1.5	7.0 - 13.0	11.5	17	5
55506013	25 x 1.5	9.0 - 17.0	14.5	21	5
55506014	32 x 1.5	11.0 - 21.0	19.5	27	5
55506015	40 x 1.5	19.0 - 28.0	26.5	36	1
55506016	50 x 1.5	27.0 - 35.0	36	45	1
55506017	63 x 1.5	34.0 - 45.0	45.5	56	1
SILVYN® MSK-M ATEX for SILVYN® EDU-AS / EMC AS-CU					
55506018	12 x 1.5	3.0 - 7.0	6.3	10	5
55506019	16 x 1.5	4.5 - 10.0	9	14	5
55506036	20 x 1.5	7.0 - 13.0	11.5	17	5
55506037	25 x 1.5	9.0 - 17.0	14.5	21	5
55506038	32 x 1.5	11.0 - 21.0	19.5	27	5
55506039	40 x 1.5	19.0 - 28.0	26.5	36	1
55506040	50 x 1.5	27.0 - 35.0	36	45	1
55506041	63 x 1.5	34.0 - 45.0	45.5	56	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINMATIC® MH Set refer to page 815

SILVYN® MSK-M ATEX BRUSH

Info

- IECEx approval worldwide
- Optimum 360° screen contact

Benefits

- Easy installation
- Faster, easier screen contact
- Optimum cable and conduit strain relief
- Maximum cable sealing
- Wide clamping range

Application range

- Devices, machines and apparatus of enhanced safety protection type “e”
- Chemical and petrochemical industry
- Plant engineering
- Used in areas where cables and wires need additional mechanical protection

Product features

- Combination of SILVYN® and SKINTOP®

Product Make-up

- SILVYN® conduit connection via inner sleeve and cap nut
- Metric connection thread acc. to DIN EN 60423

Suitable conduits

- SILVYN® AS Page 883
- SILVYN® EDU-AS Page 885
- SILVYN® EMC AS-CU Page 886

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Certifications
CE 0637 Ex II 2G
Ex eb IIC Ex II 1D
Ex ta IIIC
IECEx IBE 13.0033X

Material
Basis type:
Body: nickel-plated brass
Conduit connector seal: CR/NBR
Tube seal: TPE
EMC brush: brass

Tests
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

Protection rating
Cable: IP 68
Conduit:
IP 40 with SILVYN® AS, EDU-AS, EMC AS-CU

Temperature range
-30°C to +90°C

Article number	Metric size	Clamping range in mm	Clear opening (mm)	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® MSK-M ATEX BRUSH for SILVYN® AS					
55506042	25 x 1.5	9.0 - 17.0	14.5	21	1
55506043	32 x 1.5	11.0 - 21.0	19.5	27	1
55506044	40 x 1.5	19.0 - 28.0	26.5	36	1
55506045	50 x 1.5	27.0 - 35.0	36	45	1
55506030	63 x 1.5	34.0 - 45.0	45.5	56	1
SILVYN® MSK-M ATEX BRUSH for SILVYN® EDU-AS / EMC AS-CU					
55506031	25 x 1.5	9.0 - 17.0	14.5	21	1
55506032	32 x 1.5	11.0 - 21.0	19.5	27	1
55506033	40 x 1.5	19.0 - 28.0	26.5	36	1
55506034	50 x 1.5	27.0 - 35.0	36	45	1
55506035	63 x 1.5	34.0 - 45.0	45.5	56	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SKINMATIC® MH Set refer to page 815

SILVYN® US-M

Benefits
- High tensile strength
- Space-saving
- Vibration protection
- All-purpose
- Fast and easy assembly

Application range
- In combination with protective conduit:
- SILVYN® AS/AS-P/EDU-AS/EMC AS-CU
- Mechanical engineering
- Plant engineering

Product features
- Compact design

Product Make-up
- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

Suitable conduits
- SILVYN® AS Page 883
- SILVYN® AS-P Page 884
- SILVYN® EDU-AS Page 885
- SILVYN® EMC AS-CU Page 886

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
Body: nickel-plated brass
Sealing ring: TPE

Protection rating
IP 40 (with SILVYN® AS, EDU-AS and EMC AS-CU)
IP 65 (with SILVYN® AS-P)

Temperature range
-40°C to +125°C

Article number	Metric size	Clear opening (mm)	Suitable conduit nominal size	Pieces / PU
SILVYN® US-M for SILVYN® AS				
55502611	10 x 1.0	6.5	10	50
55502612	12 x 1.5	9	14	50
55502613	16 x 1.5	12.5	17	50
55502614	20 x 1.5	16	21	50
55502615	25 x 1.5	21	27	25
55502616	32 x 1.5	27.5	36	25
55502617	40 x 1.5	35	45	20
55502618	50 x 1.5	45	56	10
55502619	63 x 1.5	45	56	10
SILVYN® US-M for SILVYN® AS-P				
55502621	10 x 1.0	6	10	50
55502622	12 x 1.5	8.5	14	50
55502623	16 x 1.5	11.5	17	50
55502624	20 x 1.5	15.5	21	50
55502625	25 x 1.5	20.5	27	25
55502626	32 x 1.5	27.5	36	25
55502627	40 x 1.5	35	45	20
55502628	50 x 1.5	45	56	10
55502629	63 x 1.5	45	56	10
SILVYN® US-M for SILVYN® EDU-AS / EMC AS-CU				
55502631	10 x 1.0	6	10	50
55502642	12 x 1.5	8.5	14	50
55502633	16 x 1.5	11	17	50
55502634	20 x 1.5	15.5	21	50
55502636	25 x 1.5	20.5	27	25
55502646	32 x 1.5	27.5	36	25
55502638	40 x 1.5	35	45	20
55502639	50 x 1.5	45	56	10
55502641	63 x 1.5	45	56	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® MSK-M EE refer to page 840
- SILVYN® MSK-M FPS-EDU refer to page 841
- SILVYN® MSK-M US refer to page 887

Accessories
- SKINDICHT® SM-M refer to page 744

SILVYN® US

Benefits
- High tensile strength
- Space-saving
- Vibration protection
- All-purpose

Application range
- In combination with protective conduit:
- SILVYN® AS/AS-P/EDU-AS/EMC AS-CU
- Mechanical engineering
- Plant engineering

Product features
- Compact design

Product Make-up
- PG connection thread
- Hexagonal collar
- Threaded sleeve
- Sealing element
- Cap nut

Suitable conduits
- SILVYN® AS Page 883
- SILVYN® AS-P Page 884
- SILVYN® EDU-AS Page 885
- SILVYN® EMC AS-CU Page 886

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
Body: nickel-plated brass
Sealing ring: TPE

Protection rating
IP 40 (with SILVYN® AS, EDU-AS and EMC AS-CU)
IP 65 (with SILVYN® AS-P)

Temperature range
-40°C to +125°C

Article number	PG size	Clear opening (mm)	Suitable conduit nominal size	Pieces / PU
SILVYN® US for SILVYN® AS				
55502661	7	6.5	10	50
55502662	9	10	14	50
55502663	11	12.5	17	50
55502664	13.5	14.5	19	50
55502665	16	16	21	50
55502666	21	21.5	27	25
55502667	29	29	36	20
55502668	36	38	45	20
55502669	48	49	56	10
SILVYN® US for SILVYN® AS-P				
55502671	7	6	10	50
55502672	9	8.5	14	50
55502673	11	11.5	17	50
55502674	13.5	13.5	19	50
55502675	16	15.5	21	50
55502676	21	20.5	27	25
55502677	29	27.5	36	20
55502678	36	36.5	45	20
55502679	48	47.5	56	10
SILVYN® US for SILVYN® EDU-AS / EMC AS-CU				
55502680	7	6	10	50
55502689	9	8.5	14	50
55502682	11	11.5	17	50
55502683	13.5	13.5	19	50
55502684	16	15.5	21	50
55502685	21	20.5	27	25
55502694	29	27.5	36	20
55502687	36	36.5	45	20
55502688	48	47.5	56	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 800

SILVYN® US-AS / SILVYN® US-EDU-AS / SILVYN® US-MS-DR

SILVYN® US-AS

SILVYN® US-EDU-AS

SILVYN® US-MS-DR

Benefits

SILVYN® US-AS
- Cable damage can be prevented

SILVYN® US-EDU-AS
- Cable damage can be prevented

SILVYN® US-MS-DR
- Enables the discharge of interference currents through the connection with the SILVYN® US-M/US gland
- At temperatures over 100 °C , the clamping ring can be used as sealing alternative

Application range

SILVYN® US-AS
- In combination with protective conduit:
- SILVYN® AS
- Conduit end cover

SILVYN® US-EDU-AS
- In combination with protective conduit:
- SILVYN® EDU-AS/EMC AS-CU/AS-P
- Conduit end cover

SILVYN® US-MS-DR
- In combination with protective conduit:
- SILVYN® EDU-AS/EMC AS-CU
- As EMC connection

Product features

SILVYN® US-AS
- All-round collar completely covers the protective conduit end

SILVYN® US-EDU-AS
- All-round collar completely covers the protective conduit end

Product Make-up

SILVYN® US-AS
- Threaded sleeve

SILVYN® US-EDU-AS
- Threaded sleeve

Suitable conduits

SILVYN® US-AS
- SILVYN® AS Page 883

SILVYN® US-EDU-AS
- SILVYN® AS-P Page 884
- SILVYN® EDU-AS Page 885
- SILVYN® EMC AS-CU Page 886

SILVYN® US-MS-DR
- SILVYN® FPS-EDU Page 838
- SILVYN® EDU-AS Page 885
- SILVYN® EMC AS-CU Page 886

Technical data

ETIM

Classification ETIM 5/6
SILVYN® US-AS
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description:
Terminal sleeve for protective hose
SILVYN® US-EDU-AS
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description:
Terminal sleeve for protective hose

Material
SILVYN® US-AS
Nickel-plated brass
SILVYN® US-EDU-AS
Brass
SILVYN® US-MS-DR
Brass

Temperature range
-40 °C to +250 °CSILVYN® US-EDU-AS

Article number	Nominal size	Suitable conduit nominal size	Pieces / PU
SILVYN® US-AS for SILVYN® AS			
61802180	10	10	50
61802190	14	14	50
61802200	17	17	50
61802210	19	19	50
61802220	21	21	50
61802230	27	27	25
61802240	36	36	25
61802250	45	45	20
61802270	56	56	10
SILVYN® US-EDU-AS for SILVYN® AS-P / EDU-AS / EMC AS-CU			
61802480	10	10	50
61802490	14	14	50
61802500	17	17	50
61802510	19	19	50
61802520	21	21	50
61802530	27	27	25
61802540	36	36	25
61802550	45	45	20
61802570	56	56	10
SILVYN® US-MS-DR for SILVYN® US-AS/US-EDU-AS			
61808168	10	10	50
61808169	14	14	50
61808170	17	17	50
61808180	19	19	50
61808190	21	21	50
61808200	27	27	25
61808201	36	36	25
61808202	45	45	20
61808204	56	56	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

SILVYN® SSU / SILVYN® SSUE

SILVYN® SSU

SILVYN® SSUE

Benefits

SILVYN® SSU
- High-tensile
- Flexible
- For high mechanical stress
- Heat-resistant

SILVYN® SSUE
- High-tensile
- Corrosion-resistant
- Flexible
- For high mechanical stress
- Heat-resistant

Application range

SILVYN® SSU
- Measuring technology
- Plant engineering
- Applications with high mechanical stress

SILVYN® SSUE
- Offshore applications
- Measuring technology
- Plant engineering
- In damp interiors or outdoors
- Applications with high mechanical stress

Product features

- Inherent Low Fire Hazard

Product Make-up

- Helically-wound metal protective conduit with interlocked profile

Note

- SILVYN® SSU 10 with double-interlocked profile
  SILVYN® SSUE 10 + 12 with double-interlocked profile

Technical data

ETIM

SILVYN® SSUE
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

DIN VDE

Certifications
IEC EN 61386-23

Material
SILVYN® SSU
Galvanized steel
SILVYN® SSUE
Stainless steel AISI 316
DW Nr. 1.4404

Temperature range
SILVYN® SSU
-100°C to +300°C
SILVYN® SSUE
-100°C to +400°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® LGEF-M/LGES-M	PU ring (m)
SILVYN® SSU - Galvanized steel - 10 meter					
61804635	16	13.0 x 16.0	40	M16x1,5 + M20x1,5	10
61804636	20	16.9 x 20.5	45	M 20 x 1,5	10
61804637	25	21.1 x 25.0	55	M 25 x 1,5	10
61804638	32	28.1 x 32.0	60	M 32 x 1,5	10
61804639	40	37.6 x 42.5	80	M 40 x 1,5	10
61804640	50	48.4 x 53.0	90	M 50 x 1,5	10
61804629	63	57.5 x 62.5	115	M 63 x 1,5	10
61804630	75	70.0 x 77.0	150	M 75 x 1,5	10
SILVYN® SSU - Galvanized steel - 25 meter					
61804631	10	6.8 x 9.0	25	M 12 x 1,5	25
61804632	12	10.2 x 13.0	30	M 16 x 1,5	25
61804633	16	13.0 x 16.0	40	M16x1,5 + M20x1,5	25
61804634	20	16.9 x 20.5	45	M 20 x 1,5	25
61804614	25	21.1 x 25.0	55	M 25 x 1,5	25
61804626	32	28.1 x 32.0	60	M 32 x 1,5	25
61804627	40	37.6 x 42.5	80	M 40 x 1,5	25
61804628	50	48.4 x 53.0	90	M 50 x 1,5	25
SILVYN® SSU - Galvanized steel - 50 meter					
61804615	10	6.8 x 9.0	25	M 12 x 1,5	50
61804623	12	10.2 x 13.0	30	M 16 x 1,5	50
61804624	16	13.0 x 16.0	40	M16x1,5 + M20x1,5	50
61804625	20	16.9 x 20.5	45	M 20 x 1,5	50
SILVYN® SSUE - stainless steel					
61804600	10	6,8 x 9,1	25	M 12 x 1,5	25
61804601	12	10.0 x 12,3	30	M 16 x 1,5/1	25
61804602	16	12,9 x 16,4	40	M 16 x 1,5/2	25
61804603	20	16,9 x 20,4	45	M 20 x 1,5	25
61804604	25	20,9 x 24,3	55	M 25 x 1,5	25
61804605	32	27,8 x 31,7	70	M 32 x 1,5	25
61804612	40	37,3 x 42,1	80	M 40 x 1,5	10
61804613	50	48.0 x 52,8	90	M 50 x 1,5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

SILVYN® SSU
- SILVYN® AS refer to page 883

Accessories

- SILVYN® LGEF-M refer to page 895
- SILVYN® LGES-M refer to page 896
- SILVYN® LGEP refer to page 897

SILVYN® LGEF-M

Benefits
- For fixed applications
- High tensile strength
- Space-saving

Application range
- In combination with protective conduit:
- SILVYN® SSU / SSUE
- Applications with high mechanical stress

Product Make-up
- Metric connection thread
- Hexagonal collar
- Cap nut

Suitable conduits
- SILVYN® SSU Page 894
- SILVYN® SSUE Page 894

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Certifications
IEC EN 61386-23

Material
Nickel-plated brass
Stainless steel AISI 316

Protection rating
IP 40

Temperature range
-100°C to +400°C

Article number	Metric size	SW wrench size mm	Overall length mm	Thread length mm	Suitable for SILVYN® SSU / SSUE	Pieces / PU
SILVYN® LGEF-M (Nickel plated brass)						
55503168	12 x 1.5	13	21	7	10	10
55503169	16 x 1.5	17	23	10	12	10
55503170	16 x 1.5	20	25	10	16	10
55503171	20 x 1.5	22	25	10	16	10
55503172	20 x 1.5	24	26.3	10	20	10
55503173	25 x 1.5	29	29.5	10	25	10
55503174	32 x 1.5	36	36.8	13	32	2
55503175	40 x 1.5	48	39	14	40	2
55503176	50 x 1.5	58	42	15	50	1
55503177	63 x 1.5	70	50	18	63	1
55503178	75 x 1,5	84	60	20	75	1
SILVYN® LGEF-M (Stainless steel)						
55503200	12 x 1.5	14	21	7	10	1
55503201	16 x 1.5	19	23	10	12	1
55503202	16 x 1.5	19	25	10	16	1
55503203	20 x 1.5	24	26.3	10	20	1
55503204	25 x 1.5	29	29.5	10	25	1
55503205	32 x 1.5	38	36.8	13	32	1
55503206	40 x 1.5	48	39	14	40	1
55503207	50 x 1.5	58	42	15	50	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® LGES-M

Info

- Swivelling upper part with integrated inner sleeve

Benefits

- For rotating applications
- High tensile strength
- Space-saving

Application range

- In combination with protective conduit:
- SILVYN® SSU / SSUE
- Applications with high mechanical stress

Product Make-up

- Metric connection thread
- Hexagonal collar with torsion element
- Cap nut

Suitable conduits

- SILVYN® SSU Page 894
- SILVYN® SSUE Page 894

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Certifications
IEC EN 61386-23

Material
Nickel-plated brass
Stainless steel AISI 316

Protection rating
IP 40

Temperature range
-100°C to +400°C

Article number	Metric size	SW wrench size mm	Overall length mm	Thread length mm	Suitable for SILVYN® SSU / SSUE	Pieces / PU
SILVYN® LGES-M (Nickel plated brass)						
55503489	12 x 1.5	13	30	8	10	10
55503490	16 x 1.5	17	32.2	8	12	10
55503491	16 x 1.5	20	34.2	10	16	10
55503492	20 x 1.5	22	34.2	10	16	10
55503493	20 x 1.5	24	35.5	10	20	10
55503494	25 x 1.5	29	43.7	12	25	10
55503495	32 x 1.5	37	48	13	32	2
55503496	40 x 1.5	48	51.2	14	40	2
55503497	50 x 1.5	58	54.2	15	50	1
55503498	63 x 1.5	70	63.2	18	63	1
SILVYN® LGES-M (Stainless steel)						
55503210	12 x 1.5	14	30.2	8	10	1
55503211	16 x 1.5	19	35.5	8	12	1
55503212	16 x 1.5	19	35.5	10	16	1
55503213	20 x 1.5	24	38.5	10	20	1
55503214	25 x 1.5	29	41.5	10	25	1
55503215	32 x 1.5	38	49	13	32	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® LGEP

Info

- Ensuring cables do not get damaged

Benefits

- Cable damage can be prevented
- High tensile strength
- Space-saving

Application range

- In combination with protective conduit:
- SILVYN® SSU / SSUE
- Conduit end cover
- If no conduit fitting is used
- Applications with high mechanical stress

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Certifications
IEC EN 61386-23

Material
Nickel-plated brass

Protection rating
IP 40

Temperature range
-50°C to +300°C

Article number	Nominal size	Suitable for SILVYN® SSU / SSUE	Pieces / PU
SILVYN® LGEP			
55503179	10	10	10
55503180	12	13	10
55503181	16	16	10
55503182	20	20	10
55503183	25	25	10
55503184	32	32	10
55503185	40	40	4
55503186	50	50	4
55503187	63	63	1
55503188	75	75	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® UI 511

Info

- Double-interlocked Agraff profile
- For the most demanding mechanical requirements

Benefits

- Torsion-resistant and very flexible
- Corrosion-resistant
- For high mechanical stress
- Suitable for outdoor use and direct burial
- High-tensile

Application range

- Offshore applications
- Measuring technology
- Plant engineering
- Steel industry
- Applications with the highest mechanical stresses

Product features

- Stainless steel AISI 304

Product Make-up

- Spirally-wound stainless steel protective conduit with interlocked profile (AGRAFF)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

Note
Size 2” not stocked!

Material
Stainless steel AISI 304
DW no. 1.4301

Protection rating
IP40

Temperature range
-100 °C to +600 °C

Article number	Nominal size	ID x OD mm	Static/dynamic bending radius in mm	PU (m)
SILVYN® UI 511				
61799815	5/16”	9.5 x 12.5	50.0/60.0	30
61799816	3/8”	13.0 x 16.0	65.0/80.0	30
61799817	1/2”	17.0 x 21.0	75.0/100.0	30
61799818	3/4”	22.0 x 26.0	90.0/125.0	30
61799819	1”	26.0 x 30.0	120.0/160.0	30
61799820	1 1/4”	34.0 x 39.0	175.0/220.0	30
61799831	1 1/2”	40.3 x 44.4	230.0/280.0	15
61799822	2”	51.6 x 55.7	285.0/340.0	15

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® UI COMPACT M refer to page 899
- SILVYN® UI 511 Insert set refer to page 900

SILVYN® UI COMPACT M

Info

- Space-saving due to compact dimensions

Benefits

- High chemical-resistance
- For high mechanical stress
- High tensile strength
- Corrosion-resistant

Application range

- In combination with protective conduit:
- SILVYN® UI 511

Product Make-up

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
Stainless steel AISI 304
DW no. 1.4301
Nickel-plated brass

Protection rating
IP 40

Temperature range
-55 °C to +260 °C

Article number	Metric size	Clear opening (mm)	Suitable for SILVYN® UI 511	Pieces / PU
SILVYN® UI COMPACT M (stainless steel)				
61803880	16 x 1.5	9.8	3/8”	1
61803881	20 x 1.5/1	9.8	3/8”	1
61803882	20 x 1.5/2	13.9	1/2”	1
61803883	25 x 1.5	18.5	3/4”	1
61803884	32 x 1.5	22.8	1”	1
61803885	40 x 1.5	30.8	1 1/4”	1
61803886	50 x 1.5	36.8	1 1/2”	1
61803887	63 x 1.5	47.8	2”	1
SILVYN® UI COMPACT M (nickel-plated brass)				
61803870	16 x 1.5/1	6.8	5/16”	1
61803871	16 x 1.5/2	9.8	3/8”	1
61803872	20 x 1.5/1	6.8	5/16”	1
61803873	20 x 1.5/2	9.8	3/8”	1
61803874	20 x 1.5/3	13.9	1/2”	1
61803875	25 x 1.5	18.5	3/4”	1
61803876	32 x 1.5	22.8	1”	1
61803877	40 x 1.5	30.8	1 1/4”	1
61803878	50 x 1.5	36.9	1 1/2”	1
61803879	63 x 1.5	47.9	2”	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® UI 511 Insert set

Info

- Ensuring cables do not get damaged

Benefits

- Cable damage can be prevented

Application range

- Conduit end cover
- If no conduit fitting is used
- In combination with protective conduit:
- SILVYN® UI 511

Product features

- All-round collar completely covers the protective conduit end

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description:
Terminal sleeve for protective hose

Material
Nickel-plated brass

Temperature range
-55 °C to +260 °C

Article number	Nominal size	Suitable for SILVYN® UI 511	Pieces / PU
SILVYN® UI 511 Insert set			
61798091	5/16”	5/16”	10
61798096	3/8”	3/8”	10
61798097	1/2”	1/2”	10
61798092	3/4”	3/4”	5
61798093	1”	1”	5
61798094	1 1/4”	1 1/4”	2
61798090	1 1/2”	1 1/2”	2
61798095	2”	2”	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® LCC-2

Benefits
- Protects against liquids
- High-tensile
- High crush-resistance
- Suitable for outdoor use and direct burial
- High mechanical resistance

Application range
- Mechanical engineering
- Plant engineering
- Outdoors
- Used in areas where liquids are present
- Applications with high mechanical stress

Product Make-up
- Helically-wound metal protective conduit with interlocked profile
- PVC sheath

Note
- Upon request: Grey colour

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description: Protective metallic hose

Norm references / Approvals
IEC EN 61386-23

Colour delivered
Black (RAL 9005), UV-resistant

Material
Inner conduit: steel, galvanised
Outer sheath: PVC

Temperature range
-15°C to +70°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® LGF-2-M/LGS-2-M	PU ring (m)
SILVYN® LCC-2					
61804702	10	6.8 x 10.0	25	M12x1,5	30
61804712	12	10.2 x 14.0	30	M16x1,5/1	30
61804722	16	13.0 x 17.0	40	M16x1,5/2 + M20x1,5/1	30
61804732	20	16.9 x 21.5	45	M20x1,5/2	30
61804742	25	21.1 x 26.0	55	M25x1,5	30
61804752	32	28.1 x 34.0	60	M32x1,5	30
61804762	40	37.6 x 44.5	80	M40x1,5	10
61804772	50	48.4 x 55.0	90	M50x1,5	10
61804792	63	57.5 x 64.5	115	M63x1,5	10
61804787	75	70.0 x 79.0	150	M75x1,5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® LCCH-2 refer to page 902

Accessories
- SILVYN® LGF-2-M refer to page 903
- SILVYN® LGS-2-M refer to page 903
- SILVYN® LCG-M refer to page 904
- SILVYN® LCW-M refer to page 904
- SILVYN® LCS-M refer to page 904
- SILVYN® LCC-C refer to page 905
- SILVYN® LCC-E refer to page 906

SILVYN® LCCH-2

Info

- Halogen-free

Benefits

- High flame-retardance and self-extinguishing in accordance with UL 94V-0
- Protects against liquids
- High crush-resistance
- Suitable for outdoor use and direct burial
- High mechanical resistance

Application range

- Public utilities
- Mechanical engineering
- Used in areas where liquids are present
- Applications with high mechanical stress
- Outdoors

Product features

- Halogen-free
- Low smoke
- Low toxicity

Product Make-up

- Helically-wound metal protective conduit with interlocked profile
- Plastic outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

Norm references / Approvals
IEC EN 61386-23

Colour delivered
Black (RAL 9005), UV-resistant

Material
Inner conduit: steel, galvanised
Outer sheath: plastic, halogen-free
Fire behaviour according to UL 94V-0

Temperature range
-25°C to +90°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	PU ring (m)
SILVYN® LCCH-2				
61804793	12	10.2 x 14.0	30	25
61804794	16	13.0 x 17.0	40	25
61804795	20	16.9 x 21.5	45	25
61804796	25	21.1 x 26.0	55	25
61804797	32	28.1 x 34.0	60	25
61804798	40	37.6 x 44.5	80	10
61804799	50	48.4 x 55.0	90	10
61804788	63	57,5 x 64,5	115	10
61804789	75	70.0 x 79.0	150	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® LGF-2-M refer to page 903
- SILVYN® LGS-2-M refer to page 903
- SILVYN® LCG-M refer to page 904
- SILVYN® LCW-M refer to page 904
- SILVYN® LCS-M refer to page 904
- SILVYN® LCC-C refer to page 905
- SILVYN® LCC-E refer to page 906

SILVYN® LGF-2-M / SILVYN® LGS-2-M

SILVYN® LGF-2-M

SILVYN® LGS-2-M

Benefits

SILVYN® LGF-2-M
- For fixed applications
- High tensile strength
- Space-saving

SILVYN® LGS-2-M
- For rotating applications
- High tensile strength
- Space-saving

Application range

- In combination with protective conduit:
- SILVYN® LCC-2
- SILVYN® LCCH-2
- Applications with high mechanical stress
- Outdoors

Product Make-up

SILVYN® LGF-2-M
- Metric connection thread
- Hexagonal collar
- Cap nut

SILVYN® LGS-2-M
- Metric connection thread
- Hexagonal collar with torsion element
- Cap nut

Suitable conduits

- SILVYN® LCC-2 Page 901
- SILVYN® LCCH-2 Page 902

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Norm references / Approvals
IEC EN 61386-23

Material
Nickel-plated brass

Protection rating
IP 54

Temperature range
-50°C to +300°C

Article number	Metric size	SW wrench size mm	Overall length mm	Thread length mm	Suitable for SILVYN® LCC-2 / LCCH-2	Pieces / PU
SILVYN® LGF-2-M						
55501981	12 x 1.5	13	21	8	10	10
55502001	16 x 1.5/1	17	23	8	12	10
55502002	16 x 1.5/2	20	25	10	16	10
55502021	20 x 1.5/1	22	25	10	16	10
55502022	20 x 1.5/2	24	26.3	10	20	10
55502031	25 x 1.5	29	32.5	10	25	10
55502041	32 x 1.5	38	36.8	13	32	10
55502051	40 x 1.5	48	39	14	40	4
55502061	50 x 1.5	58	42	15	50	4
55502071	63 x 1.5	70	50	18	63	1
55502073	75 x 1,5	84	60	20	75	1
SILVYN® LGS-2-M						
55501982	12 x 1.5	13	30.2	8	10	10
55502003	16 x 1.5/1	17	32.2	8	12	10
55502004	16 x 1.5/2	20	34.2	10	16	10
55502023	20 x 1.5/1	22	34.2	10	16	10
55502024	20 x 1.5/2	24	35.5	10	20	10
55502032	25 x 1.5	29	43.7	10	25	10
55502042	32 x 1.5	38	48	13	32	10
55502052	40 x 1.5	48	51.2	14	40	4
55502062	50 x 1.5	58	54.2	15	50	4
55502072	63 x 1.5	70	63.2	18	63	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SILVYN® LCG-M / SILVYN® LCW-M / SILVYN® LCS-M

SILVYN® LCG-M

SILVYN® LCW-M

SILVYN® LCS-M

Benefits

- High tensile strength
- Vibration protection
- Enhanced sealing

Application range

- In combination with protective conduit:
- SILVYN® LCC-2 / LCCH-2
- Applications with high mechanical stress
- Used in areas where liquids are present

Product Make-up

SILVYN® LCG-M

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

SILVYN® LCW-M

- Metric connection thread
- 90° hexagonal collar
- Threaded sleeve
- Cap nut

SILVYN® LCS-M

- Metric connection thread
- Hexagonal collar with torsion element
- Threaded sleeve
- Cap nut

Suitable conduits

- SILVYN® LCC-2 Page 901
- SILVYN® LCCH-2 Page 902

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Norm references / Approvals
IEC EN 61386-23

Material
Body: nickel-plated brass
Seal: PA compression seal

Protection rating
IP 65

Temperature range
-50°C to +135°C

Article number	Metric size	SW 1/2 mm	Overall length mm	Thread length mm	Suitable for SILVYN® LCC-2/LCCH-2	Pieces / PU
SILVYN® LCG-M						
55503220	12 x 1.5	20 / 20	29.8	10	10	10
55503221	16 x 1.5/1	20 / 22	29.8	10	12	10
55503222	16 x 1.5/2	24 / 26	33	12	16	10
55503223	20 x 1.5/1	24 / 26	33	12	16	10
55503224	20 x 1.5/2	26 / 29	33.5	12	20	10
55503225	25 x 1.5	33 / 35	40.5	14	25	10
55503226	32 x 1.5	40 / 42	45.8	15	32	2
55503227	40 x 1.5	56 / 58	47.5	16	40	1
55503228	50 x 1.5	70 / 70	51	16	50	1
SILVYN® LCW-M						
55503234	16 x 1.5/1	20 / 24	31	10	12	10
55503235	16 x 1.5/2	20 / 26	31	10	16	10
55503230	20 x 1.5/1	24 / 26	36	13	16	10
55503231	20 x 1.5/2	24 / 29	37	13	20	10
55503232	25 x 1.5	30 / 35	44	14	25	10
55503233	32 x 1.5	36 / 42	53	15	32	2
SILVYN® LCS-M						
55503470	16 x 1.5/1	20 / 22	39	10	12	10
55503471	16 x 1.5/2	24 / 26	40.9	10	16	10
55503472	20 x 1.5/1	24 / 26	41	10	16	10
55503473	20 x 1.5/2	26 / 29	41.8	10	20	10
55503474	25 x 1.5	33 / 35	50.7	12	25	10
55503475	32 x 1.5	40 / 42	56.9	13	32	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

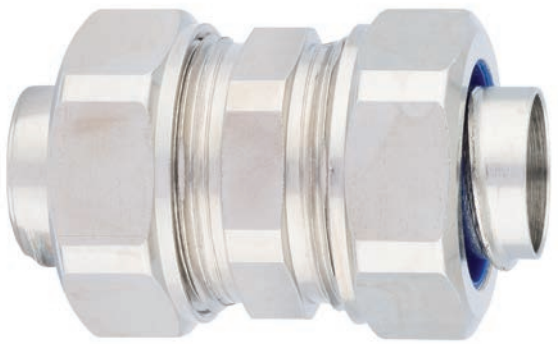
Accessories

- SKINDICHT® SM-M refer to page 744

SILVYN® LCC-C

Info

- Connection of two conduits



Benefits

- Optional extension of SILVYN® LCC-2 / LCCH-2
- Fast assembly
- High tensile strength

Application range

- In combination with protective conduit:
- SILVYN® LCC-2 / LCCH-2
- Conduit coupler for extension

Suitable conduits

- SILVYN® LCC-2 Page 901
- SILVYN® LCCH-2 Page 902

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Certifications
IEC EN 61386-23

Material
Nickel-plated brass

Protection rating
IP 65

Temperature range
-50°C to +135°C

Article number	Nominal size	Suitable for SILVYN® LCC-2/LCCH-2	Pieces / PU
SILVYN® LCC-C			
55503476	16	16	2
55503477	20	20	2
55503478	25	25	2
55503479	32	32	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® LCC-E

Info

- Ensuring cables do not get damaged

Benefits
- Cable damage can be prevented

Application range
- Conduit end cover
- If no conduit fitting is used

Product features
- All-round collar completely covers the protective conduit end

Product Make-up
- Threaded sleeve

Suitable conduits
- SILVYN® LCC-2 Page 901
- SILVYN® LCC-2H Page 902

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000519
ETIM 5.0/6.0 Class-Description:
Terminal sleeve for protective hose

Material
Nickel-plated brass

Temperature range
-50°C to +135°C

Article number	Nominal size	Suitable for SILVYN® LCC-2 / LCCH-2	Pieces / PU
SILVYN® LCC-E			
61805600	10	10	10
61805610	12	13	10
61805620	16	16	10
61805630	20	20	10
61805640	25	25	10
61805650	32	32	10
61805660	40	40	10
61805670	50	50	4
61805680	63	63	1
61805690	75	75	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® HTDL

Benefits
- Protects against liquids
- High-tensile
- Robust
- High crush-resistance

Application range
- Mechanical engineering
- Plant engineering
- Transformer construction
- Railway applications
- Exporters

Product Make-up
- Spirally-wound heavy metal protective conduit with roughened profile
- Plastic outer sheath

Note
- With continuous copper conductor for earthing in the case of the nominal sizes 3/8” up to and including 1 1/4”. Heavy metal core insert made of galvanised steel strip with special heat and sunlight-resistant plastic sheath. In the ex-range, usable according to NEC 501-4B.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

Norm references / Approvals
UL 360
NEC 501-4B

Colour delivered
Black

Material
Metal with PVC-compund sheath

Temperature range
-40°C to +105°C
Short-term: up to +120°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	PU ring (m)
SILVYN® HTDL				
61814190	3/8”	12.6 x 17.8	85	60
61814200	1/2”	16.1 x 21.1	110	60
61814210	3/4”	21.1 x 26.4	140	45
61814220	1”	26.8 x 33.1	170	30
61814230	1 1/4”	35.4 x 41.8	215	15
61814240	1 1/2”	40.3 x 47.8	250	15
61814250	2”	51.6 x 59.9	300	15

* Trade product, no Lapp product
Sizes 1 1/2” and 2” without copper conductors
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® COMPACT M refer to page 910
- SILVYN® COMPACT PG refer to page 911
- SILVYN® COMPACT NPT refer to page 912
- SILVYN® LTP-E refer to page 915

SILVYN® EF / SILVYN® OR

SILVYN® EF

SILVYN® OR

Benefits

SILVYN® EF
- Protects against liquids
- High-tensile
- Robust
- High crush-resistance
- Extra flexible

SILVYN® OR
- Protects against liquids
- High-tensile
- Robust
- High crush-resistance
- Highly oil and acid-resistant

Application range

- Mechanical engineering
- Plant engineering
- Transformer construction
- Railway applications
- Paper industry

Product Make-up

- Spirally-wound heavy metal protective conduit with roughened profile
- Plastic outer sheath

Note

- PU = 10m (on request)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

On request
Longer lengths on drums
10m coils are available upon request

Colour delivered
SILVYN® EF
Grey
SILVYN® OR
Black

Material
SILVYN® EF
Galvanized steel with PVC sheath
SILVYN® OR
Galvanized steel with special PVC sheath

Temperature range
SILVYN® EF
-25 °C to +70 °C Short-term:
up to +90 °C
SILVYN® OR
-20°C to +100°C
Short-term: up to +120°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	PU ring (m)
SILVYN® EF				
61722240	5/16”	10.1 x 14.4	65	50
61712470	3/8”	12.6 x 17.8	85	75
61712480	1/2”	16.0 x 21.1	110	60
61712490	3/4”	21.0 x 26.4	140	50
61712500	1”	26.5 x 33.1	170	30
61712510	1 1/4”	35.1 x 41.8	215	30
61712520	1 1/2”	40.3 x 47.8	250	15
61712530	2”	51.6 x 59.9	300	15
SILVYN® OR				
61712840	3/8”	12.6 x 17.8	85	75
61712850	1/2”	16.0 x 21.1	110	60
61712860	3/4”	21.0 x 26.4	140	50
61712870	1”	26.5 x 33.0	170	30
61712880	1 1/4”	35.1 x 41.8	215	30
61712890	1 1/2”	40.3 x 47.8	250	15
61712900	2”	51.6 x 59.9	300	15

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® COMPACT M refer to page 910
- SILVYN® COMPACT PG refer to page 911
- SILVYN® COMPACT NPT refer to page 912
- SILVYN® LTP-E refer to page 915

SILVYN® HCX / SILVYN® HFX

SILVYN® HCX

SILVYN® HFX

Benefits

SILVYN® HCX
- Protects against liquids
- High-tensile
- Robust
- High crush-resistance
- High temperature resistance

SILVYN® HFX
- Impact-resistant
- Robust
- Abrasion protection
- High resistance to oil, petrol, acids and greases
- Liquidtight

Application range

- Mechanical engineering
- Paper industry
- Measurement and control technology
- Railway applications
- Outdoors

Product features

SILVYN® HCX
- UV-resistant

SILVYN® HFX
- UV-resistant
- Halogen-free and flame-retardant
- High mechanical and chemical resistance

Product Make-up

SILVYN® HCX
- Spirally-wound heavy metal protective conduit with roughened profile
- Heat-stabilised plastic outer sheath

SILVYN® HFX
- Spirally-wound heavy metal protective conduit with roughened profile
- PUR outer sheath

Note

- PU = 10m (on request)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

On request
Longer lengths on drums
10m coils are available upon request

Colour delivered
Black

Material
SILVYN® HCX
Metal with thermoplastic elastomer sheath
SILVYN® HFX
Metal with PUR sheath

Temperature range
SILVYN® HCX
-55°C to +145°C
Short-term: up to +160°C
SILVYN® HFX
-55 °C to +105 °C
Short-term up to +125 °C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	PU ring (m)
SILVYN® HCX				
61744228	3/8”	12.6 x 17.8	85	30
61744229	1/2”	16.0 x 21.1	110	30
61744230	3/4”	21.0 x 26.4	140	30
61744231	1”	26.5 x 33.1	170	30
61744240	1 1/4”	35.1 x 41.8	215	15
61744242	1 1/2”	40.3 x 47.8	250	15
61744244	2”	51,6 x 59,9	300	15
SILVYN® HFX				
64400200	5/16”	10.1 x 14.4	65	30
64400210	3/8”	12.6 x 17.8	85	30
64400220	1/2”	16.0 x 21.1	110	30
64400230	3/4”	21.0 x 26.4	140	30
64400240	1”	26.5 x 33.1	170	30
64400250	1 1/4”	35.1 x 41.8	215	15
64400251	1 1/2”	40,3 x 47,8	250	15
64400252	2”	51,6 x 59,9	300	15

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® COMPACT M refer to page 910
- SILVYN® COMPACT PG refer to page 911
- SILVYN® COMPACT NPT refer to page 912
- SILVYN® LTP-E refer to page 915

SILVYN® COMPACT M

Info

- Space-saving due to compact dimensions

Benefits

- Space-saving application
- For high mechanical stress
- High tensile strength
- Corrosion-resistant

Application range

- In combination with protective conduit:
- Suitable for SILVYN® HTDL/EF/OR/HCX/HFX
- Mechanical engineering
- Railway applications

Product Make-up

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

Suitable conduits

- SILVYN® HTDL Page 907
- SILVYN® EF Page 908
- SILVYN® OR Page 908
- SILVYN® HCX Page 909
- SILVYN® HFX Page 909

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Norm references / Approvals
UL 514B

On request
Available in stainless steel

Material
Body: nickel-plated brass
Sealing: polyamide
O-ring: NBR

Protection rating
IP 66
IP 67

Temperature range
-45°C to +105°C

Article number	Metric size	Suitable for SILVYN® HTDL/EF/OR/HCX/HFX	Pieces / PU
SILVYN® COMPACT M			
61803846	16 x 1.5	5/16”	10
61803800	16 x 1.5	3/8”	10
61803847	20 x 1.5	5/16”	10
61803801	20 x 1.5	3/8”	10
61803802	20 x 1.5	1/2”	10
61803803	25 x 1.5	3/4”	5
61803804	32 x 1.5	1”	5
61803805	40 x 1.5	1 1/4”	5
61803806	50 x 1.5	1 1/2”	2
61803807	63 x 1.5	2”	2
SILVYN® COMPACT 45° M			
61803848	16 x 1.5	5/16”	10
61803850	16 x 1.5	3/8”	10
61803849	20 x 1.5	5/16”	10
61803851	20 x 1.5	3/8”	10
61803852	20 x 1.5	1/2”	10
61803853	25 x 1.5	3/4”	5
61803854	32 x 1.5	1”	5
SILVYN® COMPACT 90° M			
61803808	16 x 1.5	3/8”	10
61803809	20 x 1.5	3/8”	10
61803810	20 x 1.5	1/2”	10
61803811	25 x 1.5	3/4”	5
61803812	32 x 1.5	1”	5
61803813	40 x 1.5	1 1/4”	5
61803814	50 x 1.5	1 1/2”	2
61803815	63 x 1.5	2”	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744

SILVYN® COMPACT PG

Info

- Space-saving due to compact dimensions

Benefits

- Space-saving application
- For high mechanical stress
- High tensile strength
- Corrosion-resistant

Application range

- In combination with protective conduit:
- Suitable for SILVYN® HTDL/EF/OR/HCX/HFX
- Mechanical engineering
- Railway applications

Product Make-up

- PG connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

Suitable conduits

- SILVYN® HTDL Page 907
- SILVYN® EF Page 908
- SILVYN® OR Page 908
- SILVYN® HCX Page 909
- SILVYN® HFX Page 909

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Norm references / Approvals
UL 514B

Material
Body: nickel-plated brass
Sealing: polyamide
O-ring: NBR

Protection rating
IP 67

Temperature range
-45°C to +105°C

Article number	PG size	Suitable for SILVYN® HTDL/EF/OR/HCX/HFX	Pieces / PU
SILVYN® COMPACT PG			
61803816	11	3/8”	10
61803817	13.5	3/8”	10
61803818	16	1/2”	10
61803819	21	3/4”	5
61803820	29	1”	5
61803821	36	1 1/4”	5
61803822	42	1 1/2”	2
61803823	48	2”	2
SILVYN® COMPACT 90° PG			
61803824	11	3/8”	10
61803825	13.5	3/8”	10
61803826	16	1/2”	10
61803827	21	3/4”	5
61803828	29	1”	5
61803829	36	1 1/4”	5
61803830	42	1 1/2”	2
61803831	48	2”	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 800

SILVYN® COMPACT NPT

Info

- Space-saving due to compact dimensions

Benefits

- Space-saving application
- For high mechanical stress
- High tensile strength
- Corrosion-resistant

Application range

- In combination with protective conduit:
- Suitable for SILVYN® HTDL/EF/OR/HCX/HFX
- Mechanical engineering
- Railway applications

Product Make-up

- NPT connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

Suitable conduits

- SILVYN® HTDL Page 907
- SILVYN® EF Page 908
- SILVYN® OR Page 908
- SILVYN® HCX Page 909
- SILVYN® HFX Page 909

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Norm references / Approvals
UL 514B

Material
Body: nickel-plated brass
Sealing: polyamide
O-ring: NBR

Protection rating
IP 67

Temperature range
-45°C to +105°C

Article number	NPT size	Suitable for SILVYN® HTDL/EF/OR/HCX/HFX	Pieces / PU
SILVYN® COMPACT NPT			
61803832	1/2”	3/8”	10
61803833	1/2”	1/2”	10
61803834	3/4”	3/4”	5
61803835	1”	1”	5
61803836	1 1/4”	1 1/4”	2
61803837	1 1/2”	1 1/2”	2
61803838	2”	2”	2
SILVYN® COMPACT 90° NPT			
61803839	1/2”	3/8”	10
61803840	1/2”	1/2”	10
61803841	3/4”	3/4”	5
61803842	1”	1”	5
61803843	1 1/4”	1 1/4”	2
61803844	1 1/2”	1 1/2”	2
61803845	2”	2”	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-NPT refer to page 770

SILVYN® LTP

Benefits
- Protects against liquids
- High-tensile
- Robust
- High crush-resistance
- Largely resistant to oil and acids, UV-resistant

Application range
- Mechanical engineering
- Outdoors
- Transformer construction
- Railway applications
- Paper industry

Product Make-up
- Spirally-wound heavy metal protective conduit with roughened profile
- Plastic outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

Certifications
IEC EN 61386-23

Colour delivered
Black (RAL 9005), UV-resistant

Material
Steel, galvanised
PVC sheath

Temperature range
-20°C to +105°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	PU ring (m)
SILVYN® LTP				
61805400	10 - 1/4”	7.0 x 11.8	35	50
61805410	12 - 5/16”	10.0 x 14.2	40	50
61805420	16 - 3/8”	12.6 x 17.8	45	50
61805430	20 - 1/2”	16.0 x 21.1	65	50
61805440	25 - 3/4”	21.0 x 26.4	100	25
61805450	32 - 1”	26.5 x 33.1	135	25
61805460	40 - 1 1/4”	35.4 x 41.8	175	10
61805470	50 - 1 1/2”	40.4 x 47.9	230	10
61805480	63 - 2”	51.6 x 59.7	280	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® OR refer to page 908

Accessories
- SILVYN® LTPG-M refer to page 914
- SILVYN® LTPS-M refer to page 914
- SILVYN® LTP 45° M refer to page 914
- SILVYN® LTP 90° M refer to page 914

SILVYN® LTPG-M / SILVYN® LTPS-M / SILVYN® LTP 45° M / SILVYN® LTP 90° M

SILVYN® LTPG-M

SILVYN® LTPS-M

SILVYN® LTP 45° M

SILVYN® LTP 90° M

Benefits

- High tensile strength
- Vibration protection
- High sealing performance

Application range

- In combination with protective conduit:
- SILVYN® LTP
- Applications with high mechanical stress
- Used in areas where liquids are present

Product Make-up

SILVYN® LTPG-M

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

SILVYN® LTPS-M

- Metric connection thread
- Hexagonal collar with torsion element
- Threaded sleeve
- Cap nut

SILVYN® LTP 45° M

- Metric connection thread
- 45° elbow, hexagonal collar
- Threaded sleeve
- Cap nut

SILVYN® LTP 90° M

- Metric connection thread
- 90° hexagonal collar
- Threaded sleeve
- Cap nut

Suitable conduits

- SILVYN® LTP Page 913

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Certifications
IEC EN 61386-23

Material
Body: nickel-plated brass
Seal: PA compression seal

Protection rating
IP66
IP67
IP68 (5 bar)
IP69

Temperature range
-50°C to +135°C

Article number	Metric size	SW wrench size mm	Thread length mm	Suitable for SILVYN® LTP	Pieces / PU
SILVYN® LTPG-M					
55510200	12 x 1.5	20	10	10	10
55510210	16 x 1.5/1	20	10	12	10
55510220	16 x 1.5/2	24	10	16	10
55510230	20 x 1.5/1	24	12	16	10
55510240	20 x 1.5/2	26	12	20	10
55510250	25 x 1.5	33	14	25	10
55510260	32 x 1.5	40	15	32	2
55510270	40 x 1.5	50	16	40	1
55510280	50 x 1.5	58	16	50	1
55510290	63 x 1.5	70	20	63	1
SILVYN® LTPS-M					
55510600	16 x 1.5/1	20	10	12	10
55510610	16 x 1.5/2	24	10	16	10
55510620	20 x 1.5/1	24	10	16	10
55510630	20 x 1.5/2	26	10	20	10
55510640	25 x 1.5	33	12	25	10
55510650	32 x 1.5	40	13	32	2
SILVYN® LTP 45° M					
55510300	20 x 1.5/1	24	13	16	10
55510301	20 x 1.5/2	24	13	20	10
55510302	25 x 1.5	30	14	25	10
55510303	32 x 1.5	36	15	32	2
55510304	40 x 1.5	47	18	40	1
55510305	50 x 1.5	61	18	50	1
55510306	63 x 1.5	67	20	63	1
SILVYN® LTP 90° M					
55510400	16 x 1.5/1	20	10	12	10
55510410	16 x 1.5/2	20	10	16	10
55510420	20 x 1.5/1	24	13	16	10
55510430	20 x 1.5/2	24	13	20	10
55510440	25 x 1.5	30	14	25	10
55510450	32 x 1.5	36	15	32	2
55510460	40 x 1.5	46	18	40	1
55510470	50 x 1.5	57	18	50	1
55510480	63 x 1.5	72	20	63	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 744
- SILVYN® SEALING WASHER refer to page 916

SILVYN® LTP-C

Info
- Connection of two conduits

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Certifications
IEC EN 61386-23

Material
Nickel-plated brass

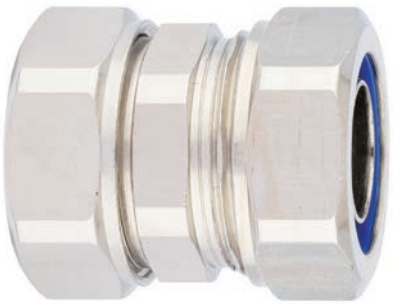
Protection rating
IP66
IP67
IP68 (5 bar)
IP69

Temperature range
-50°C to +135°C

Benefits
- Optional extension of SILVYN® LTP
- Fast assembly
- High tensile strength

Application range
- In combination with protective conduit:
- SILVYN® LTP
- Conduit coupler for extension

Suitable conduits
- SILVYN® LTP Page 913



Article number	Nominal size	Suitable for SILVYN® LTP	Pieces / PU
SILVYN® LTP-C			
55510310	16	16	2
55510311	20	20	2
55510312	25	25	2
55510313	32	32	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® LTP-E

Info
- Ensuring cables do not get damaged

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Material
Nickel-plated brass

Temperature range
-50°C to +135°C

Benefits
- Cable damage can be prevented

Application range
- Conduit end cover
- If no conduit fitting is used

Product features
- All-round collar completely covers the protective conduit end

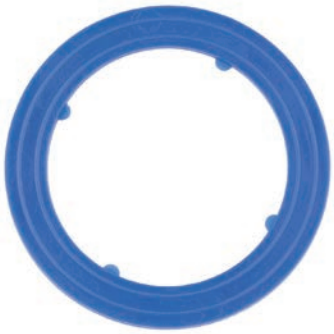
Product Make-up
- Threaded sleeve

Suitable conduits
- SILVYN® HTDL Page 907
- SILVYN® EF Page 908
- SILVYN® OR Page 908
- SILVYN® HCX Page 909
- SILVYN® HFX Page 909
- SILVYN® LTP Page 913

Article number	Nominal size	Suitable conduit nominal size	Pieces / PU
SILVYN® LTP-E			
61802300	10	1/4”	10
61802301	12	5/16”	10
61802302	16	3/8”	10
61802303	20	1/2”	10
61802305	25	3/4”	10
61802306	32	1”	10
61802307	40	1 1/4”	10
61802304	50	1 1/2”	4
61802308	63	2”	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® SEALING WASHER



Application range

- For sealing the housing reliably to protect against oils, dust, and water at the connection thread of a gland or other similar parts

Product features

- Ribs on both faces enhance sealing.
- Oil-resistant

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001181
ETIM 5.0/6.0 Class-Description: Sealing ring

Colour delivered
blue

Material
Polyester Elastomer

Protection rating
IP66
IP67
IP68 (5 bar)
IP69

Temperature range
-50°C to +135°C

Article number	ID x OD mm	Metric size	Pieces / PU
SILVYN® SEALING WASHER			
61809400	16.0 x 24.0	16 x 1.5	10
61809410	20.0 x 27.0	20 x 1.5	10
61809420	25.0 x 34.0	25 x 1.5	10
61809430	32.0 x 42.0	32 x 1.5	10
61809440	40.0 x 50.0	40 x 1.5	10
61809450	50.0 x 62.0	50 x 1.5	10
61809460	63.0 x 73.0	63 x 1.5	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® LTPG-M
- SILVYN® LTPS-M

SILVYN® HIPROJACKET / SILVYN® HIPROSILTAPE

Info

- Outstanding protection for extreme impact of heat
- Hazard Level: HL 3

SILVYN® HIPROJACKET

SILVYN® HIPROSILTAPE

Benefits

- Heat-resistant
- Flexible
- Temporarily reduces the temperature in the conduit by up to 30 %
- The protection rating increases to IP67 if SILVYN® HIPROSILTAPE is also used

Application range

- Heavy industry, iron and steel works, foundries, glass and ceramic processing, chemical industries
- Steel industry
- Railway applications / vehicle construction
- Mechanical engineering
- Used in areas where cables and wires are exposed to extreme heat

Product Make-up

SILVYN® HIPROJACKET

- Woven glass fibre conduit
- Iron oxide silicone coat

Suitable tools

- Multipurpose shears A and B

Technical data

Classification ETIM 5/6
SILVYN® HIPROJACKET
ETIM 5.0/6.0 Class-ID: EC002254
ETIM 5.0/6.0 Class-Description: Cable insulation hose
SILVYN® HIPROSILTAPE
ETIM 5.0/6.0 Class-ID: EC000128
ETIM 5.0/6.0 Class-Description: Adhesive tape

Certifications
SILVYN® HIPROJACKET
EN 45545-2 HL1 / HL2 / HL3
NF F 16-101 I2/F1
NF EN ISO 11925-2
DIN 5510-2 S4/SR2/ST2
SAE AS 1072 Type 2

On request
SILVYN® HIPROJACKET
30m PU

Colour delivered
Red

Material
SILVYN® HIPROJACKET
Glass fibre with iron oxide silicone coat
LOI 39,2
SILVYN® HIPROSILTAPE
Silicone-rubber compound, self-vulcanising, halogen-free

Protection rating
SILVYN® HIPROJACKET
IP 54 in combination with SILVYN® HIPROJACKET AMG fitting
IP 67 if SILVYN® HIPROSILTAPE is also used

Temperature range
SILVYN® HIPROJACKET
-55°C to +260 °C permanent temp.
+800°C for approx. 20 min (flame treatment)
+800°C for approx. 20 min (radiation heat)
+1640°C for approx. 15-30 sec (liquid-metal contact)
SILVYN® HIPROSILTAPE
-55°C to +260 °C permanent temp.

Article number	Nominal size	ID x OD mm	Suitable gland size	PU ring (m)
SILVYN® HIPROJACKET				
52021385	6	6.0 x 15.0		15
61713003	10	10.0 x 15.0	M16/2 + PG 9/2, 11/2, 13,5	15
61713005	13	13.0 x 18.0	M16/2, M20 PG 9/2, 11/2, 13,5, 16	15
61713007	16	16.0 x 22.0	M20 + PG 16	15
61713010	19	19.0 x 25.0	M25 + PG 21	15
61713011	22	22.0 x 28.0	M25 + PG 21	15
61713000	25	25.0 x 31.0	M32 + PG 29	15
61713014	29	29.0 x 35.0		15
61713015	32	32.0 x 38.0	M40 + PG 36	15
61713016	35	35.0 x 41.0	M40 + PG 36	15
61713017	38	38.0 x 44.0	M50 + PG 42	15
61713018	41	41.0 x 47.0		15
61713021	44	44.0 x 50.0		15
61713019	51	51.0 x 57.0	M63 + PG 48	15
61713022	57	57.0 x 63.0		15
61713025	64	64.0 x 70.0		15
61713027	70	70.0 x 76.0		15
61713028	76	76.0 x 82.0		15
61713029	83	83.0 x 89.0		15
61713037	89	89.0 x 95.0		15
61713038	95	95.0 x 101.0		15
61713039	102	102.0 x 108.0		15
SILVYN® HIPROSILTAPE				
61713040	25	25.0 x 0.5		11

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

SILVYN® HIPROJACKET

- Multipurpose shears A and B

SILVYN® HIPROJACKET AMG

Benefits
- High tensile strength
- For high mechanical stress
- 45° and 90° elbow enables optimal assembly

Application range
- In combination with protective conduit:
- SILVYN® HIPROJACKET

Product Make-up
- Connection thread metric/PG
- Hexagonal collar, straight/45° elbow/90° elbow
- Threaded sleeve
- Cap nut

Note
- It is possible to extend the temperature range by removing the plastic components

Info
- Suitable fitting for use with SILVYN® HIPROJACKET

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

On request
NPT connection thread

Material
Body: nickel-plated brass
Clamping ring: nickel-plated brass
O-ring: NBR

Protection rating
IP 54
IP 67 if SILVYN® HIPROSILTAPE is also used

Temperature range
-45°C to +105°C

Article number	Metric size	PG size	Pieces / PU
SILVYN® HIPROJACKET AMG M			
55503516	16 x 1.5		50
55503517	20 x 1.5		50
55503518	25 x 1.5		25
55503519	32 x 1.5		10
55503520	40 x 1.5		5
55503521	50 x 1.5		5
55503522	63 x 1.5		4
SILVYN® HIPROJACKET AMG 45° M			
55503523	16 x 1.5		50
55503524	20 x 1.5		50
55503525	25 x 1.5		25
55503526	32 x 1.5		10
55503527	40 x 1.5		5
55503528	50 x 1.5		5
55503529	63 x 1.5		4
SILVYN® HIPROJACKET AMG 90° M			
55503530	16 x 1.5		50
55503531	20 x 1.5		50
55503532	25 x 1.5		25
55503533	32 x 1.5		10
55503534	40 x 1.5		5
55503535	50 x 1.5		5
55503536	63 x 1.5		4
SILVYN® HIPROJACKET AMG PG			
55503537		9	50
55503538		11	50
55503539		13.5	50
55503540		16	50
55503541		21	25
55503542		29	10
55503543		36	5
55503544		42	5
55503499		48	4
SILVYN® HIPROJACKET AMG 45° PG			
55503500		11	50
55503501		13.5	50
55503502		16	50
55503503		21	25
55503504		29	10
55503505		36	5
55503506		42	5
55503507		48	4
SILVYN® HIPROJACKET AMG 90° PG			
55503508		11	50
55503509		13.5	50
55503510		16	50
55503511		21	25
55503512		29	10
55503513		36	5
55503514		42	5
55503515		48	4

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

SILVYN® FG

Info

- Specifically for the food and drinks industry

Benefits
- FDA-approved outer sheath
- Smooth, white surface makes it easy to clean
- Protects against liquids
- High-tensile
- High crush-resistance

Application range
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Food packaging machinery
- Pharmaceutical industry
- Mechanical engineering
- Plant engineering

Product features
- Flexible
- Crush-resistant
- Impact-resistant
- High-tensile

Norm references / Approvals
- Certified according to FDA CFR 21 and NSF 51 (standard for the USA)

Product Make-up
- Spirally-wound heavy metal protective conduit with roughened profile
- Special, FDA-approved plastic sheath

Technical data

ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001179
ETIM 5.0/6.0 Class-Description:
Protective metallic hose

RAL
Colour delivered
White
Blue

Material
Electro-galvanised, strip-wound inner hoop-steel hose with special plastic sheath

Temperature range
-20°C to +60°C
Short-term: +80 °C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	PU ring (m)
SILVYN® FG white				
55503279	3/8”	12.6 x 17.8	60	30
55503280	1/2”	16.0 x 21.1	75	30
55503281	3/4”	21.0 x 26.4	90	30
55503282	1”	26.5 x 33.1	120	30
55503283	1 1/4”	35.1 x 41.8	135	15
55503284	1 1/2”	40.3 x 47.8	165	15
55503285	2”	51.6 x 59.9	210	15
SILVYN® FG blue				
55503286	3/8”	12.6 x 17.8	60	30
55503287	1/2”	16.0 x 21.1	75	30
55503288	3/4”	21.0 x 26.4	90	30
55503289	1”	26.5 x 33.1	120	30
55503290	1 1/4”	35.1 x 41.8	135	15
55503291	1 1/2”	40.3 x 47.8	165	15
55503292	2”	51.6 x 59.9	210	15

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Detectable Cable ties refer to page 1042
- SILVYN® HYGIENIC refer to page 921
- SILVYN® LTP-E refer to page 915

SILVYN® FG NM

Info

- All-plastic conduit
- Specifically for the food and drinks industry

Benefits

- FDA-approved outer sheath
- Smooth, blue surface makes it easy to clean
- Protects against liquids

Application range

- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Food packaging machinery
- Pharmaceutical industry
- Mechanical engineering
- Plant engineering

Product features

- Flexible
- Dimensionally stable
- Flame-retardant

Norm references / Approvals

- Certified according to FDA CFR 21 and NSF 51 (standard for the USA)
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry

Product Make-up

- Hard PVC inner spiral
- Special, FDA-approved plastic sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description:
Protective plastic hose

Certifications
FDA CFR 21
NSF 51

On request
Also in grey and white colour

Colour delivered
Blue

Material
Special soft PVC sheath with hard PVC spiral

Temperature range
-20°C to +60°C
Short-term: +80 °C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	PU ring (m)
SILVYN® FG NM blue				
55503370	3/8”	12.6 x 17.8	70	30
55503371	1/2”	16.0 x 21.1	100	30
55503372	3/4”	21.0 x 26.4	130	30
55503373	1”	26.5 x 33.1	180	30
55503374	1 1/4”	35.1 x 41.8	225	15
55503375	1 1/2”	40.3 x 47.8	255	15
55503376	2”	51.6 x 59.9	310	15

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® FG refer to page 919

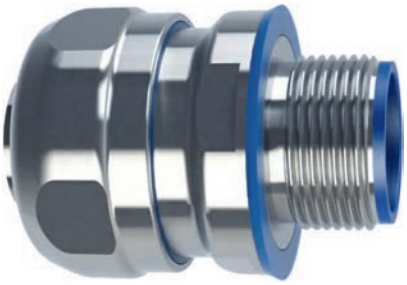
Accessories

- SILVYN® HYGIENIC refer to page 921

SILVYN® HYGIENIC

Info

- Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
- No gaps, voids or outer lying thread - so no risk of contamination of food machines, facilities or components.



Benefits

- Hygienic Design for ideal cleaning results
- Smooth surfaces and no edges prevent the accumulation of fluids and formation of micro-organisms

Application range

- Food machinery, equipment and components
- Pharmaceutical industry
- Mechanical engineering

Product features

- High chemical and thermal stability with very aggressive media such as Detergents and disinfectants, acids and alkalis during cleaning processes etc.

Norm references / Approvals

- DIN EN 1672-2
  Guideline for the design of machinery
- DIN EN ISO 14 159
  Security of machinery Hygienic requirements for the design of machinery

Product Make-up

- Material and shape provide an easy and safe cleaning
- By the blue coloring of the sealing material clearly distinguishable from foodstuffs
- Rounded key areas for mounting with standard tools

Suitable conduits

- SILVYN® FG Page 919
- SILVYN® FG NM Page 920

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

Norm references / Approvals
IEC EN 61386-23

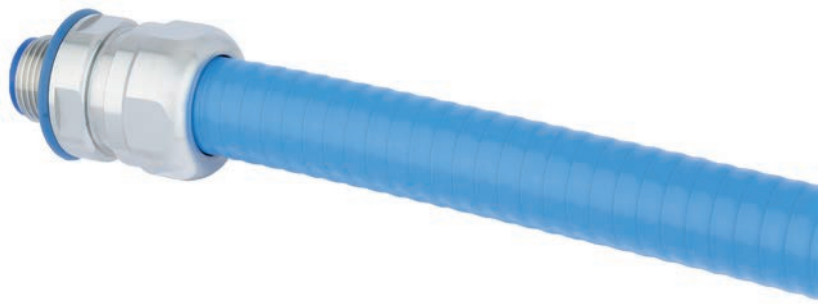
Material
Body: Stainless Steel (Grade 316)
Insert: Nickel Plated Brass
Inner seal: Polyamide 6
Sealing material: Special Elastomer

Protection rating
IP66
IP67
IP68 (2 bar)
IP69

Temperature range
-50°C to +135°C

Article number	Metric size	Clear opening (mm)	Suitable conduit nominal size	Pieces / PU
SILVYN® HYGIENIC				
55510700	16 x 1.5	10.7	3/8”	1
55510701	20 x 1.5	14.5	1/2”	1
55510702	25 x 1.5	18.7	3/4”	1
55510703	32 x 1.5	24.6	1”	1
55510704	40 x 1.5	32.7	1 1/4”	1
55510705	50 x 1.5	37.7	1 1/2”	1
55510706	63 x 1.5	49	2”	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



NEW

SILVYN® E-KIT

Info

- Orange coloured conduit kit with short lengths

Benefits

- Protection and bundling of cables, lines and wires
- Maintenance and retrofit
- Additional abrasion protection for critical areas
- Low rodent-protection

Application range

- E-Mobility

Product features

- Divisible and closed protection conduits
- High mechanical and chemical resistance

Norm references / Approvals

- Use acc. to the european regulation ECE/TRANS/WM.29/GRSP/2009/16 to mark high voltage systems and components (> 25V AC / > 60V DC) with the signal colour orange

Included

- Corrugated conduit, slit and closable
- Corrugated conduit, two-part and closable
- Knit woven fabric, closed and puncture-resistant
- Braided sleeve, slit and self-wrapping
- Cable ties (200x2.5mm) and installation tool

Technical data

Colour delivered
Orange

Material
Polyamide 6 (PA6)
Polypropylene (PP)
Polyester (PET)
Fire behaviour according to UL94 V-2

Temperature range
PP: -30 to +105°C
PA6: -55 to +125°C
PET: -40 to +160°C

Article number	Corrugated conduit (m)	Knit woven/Braided sleeve (m)	Cable ties (pcs)	Contents (m)	Contents (unit)	PU
SILVYN® E-KIT						
61737407	Polypropylene (PP)	Polyester (PET)	Polyamide 6 (PA6)	3	100	1

Other colours and sizes are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® CNP / SILVYN® CNP NPT

SILVYN® CNP

SILVYN® CNP NPT

Benefits

SILVYN® CNP
- Protection against mechanical stress
- Protects against liquids
- Bendable
- Highly oil and acid-resistant

SILVYN® CNP NPT
- Flame-retardant
- High tensile strength
- For high mechanical stress
- High chemical-resistance

Application range

- Mechanical engineering
- Robot-building
- Vending machine construction
- Exporters

Product Make-up

SILVYN® CNP
- PVC inner conduit
- Nylon braiding
- Plastic outer sheath

SILVYN® CNP NPT
- The basic body is made of cast steel with a galvanised surface. The inner sleeve is made of polyamide and accommodates the conduit. A special profile on the inner sleeve is pressed into the conduit by the union nut
- Including O-ring and counter nut

Technical data

ETIM
Classification ETIM 5/6
SILVYN® CNP
ETIM 5.0/6.0 Class-ID: EC001177
ETIM 5.0/6.0 Class-Description: Protective plastic hose
SILVYN® CNP NPT
ETIM 5.0/6.0 Class-ID: EC001180
ETIM 5.0/6.0 Class-Description: Screw connection for protective metallic hose

DIN VDE
Certifications
SILVYN® CNP
UL 1660

RAL
Colour delivered
SILVYN® CNP
Orange

Material
SILVYN® CNP
PVC compound with nylon fabric
SILVYN® CNP NPT
Body: cast steel with zinc-plated surface
Inner sleeve: PA

IP
Protection rating
IP 67

Temperature range
SILVYN® CNP
-20°C to +60°C
CSA: -18°C to +75°C
Short-term: up to +80°C
SILVYN® CNP NPT
-45°C to +105°C

Article number	Nominal size	ID x OD mm	Static/dynamic bending radius in mm	SW wrench size mm	Overall length mm	Suitable for SILVYN® CNP	PU ring (m)
SILVYN® CNP							
61712930	3/8”	12.6 x 19.4	70.0/100.0			1/2”	76
61722330	1/2”	16.1 x 23.4	90.0/125.0			1/2”	60
61722340	3/4”	21.0 x 29.5	115.0/160.0			3/4”	53
61712460	1”	26.5 x 36.3	170.0/200.0			1”	30
61712910	1 1/4”	31.5 x 46.0	200.0/240.0			1 1/4”	15
61722270	1 1/2”	40.4 x 52.4	230.0/290.0			1 1/2”	15
61722320	2”	52.4 x 66.6	260.0/350.0			2”	15
SILVYN® CNP NPT fitting							
55500400	1/2”			27	55	3/8”	1
55500410	1/2”			32	66	1/2”	1
55500420	3/4”			39	66	3/4”	1
55500430	1”			45	73	1”	1
55500440	1 1/4”			59	87	1 1/4”	1
55500450	1 1/2”			67	87	1 1/2”	1
55500460	2”			82	101	2”	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

SILVYN® CNP
- SILVYN® CNP NPT refer to page 923

SILVYN® Conduit scissor

Benefits
- Proper and safe cutting of plastic conduits

Application range
- Conduit shears for non-metallic conduit, e.g. parallel corrugated protective conduit.

Suitable conduits
- Flexible with PVC spiral
- SILVYN® HIPROJACKET Page 917
- SILVYN® FPAS Page 861
- SILVYN® HCC Page 875
- SILVYN® RILL PA 6 Page 847
- SILVYN® SI Page 822
- SILVYN® SINUS PA6 Page 882
- SILVYN® SPLIT Page 880
- SILVYN® RILL PA 12 Page 848
- SILVYN® SP Page 823
- SILVYN® SP-PU Page 824

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000160
ETIM 5.0/6.0 Class-Description: Shears

Article number	Article designation	Cutting range Ø (mm)	Pieces / PU
SILVYN® Conduit scissor			
61722285	CC01	0 - 34	1
61722286	CC02	0 - 67	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® vice

Application range
- For right-angled sawing of protective metal conduits.

Suitable conduits
- SILVYN® HTDL Page 907
- SILVYN® SSUE Page 894
- SILVYN® UI 511 Page 898
- SILVYN® FPS-EDU Page 838
- SILVYN® EF Page 908
- SILVYN® OR Page 908
- SILVYN® HCX Page 909
- SILVYN® HFX Page 909
- SILVYN® AS-P Page 884
- SILVYN® EDU-AS Page 885
- SILVYN® EMC AS-CU Page 886

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002199
ETIM 5.0/6.0 Class-Description: Bench-vice

Article number	Article designation	Saw range Ø (mm)	Pieces / PU
SILVYN® vice			
61722280	SAWING DEVICE WZ	18 - 45	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® coupler

Benefits
- Easy to assemble
- High tensile strength
- Optional extension of all conduits

Application range
- In combination with:
- All metric conduit glands

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000938
ETIM 5.0/6.0 Class-Description:
Enlargement/reducing ring

Material
Nickel-plated brass

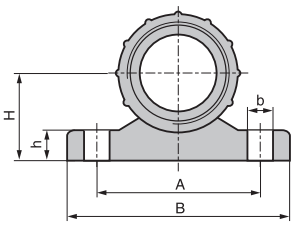
Temperature range
Dependent on the glands used

Article number	Article designation	Metric size	SW wrench size mm	Overall length mm	Outer Ø (mm)	Pieces / PU
SILVYN® coupler						
55510000	16	M16 x 1.5	20	22.5	22	10
55510010	20	M20 x 1.5	24	25	26	10
55510020	25	M25 x 1.5	29	30	32	10
55510030	32	M32 x 1.5	35	32.5	38	10
55510040	40	M40 x 1.5	48	34	53	2
55510050	50	M50 x 1.5	58	38	64	1
55510060	63	M63 x 1.5	70	45	77	1
55510070	75	75 x 1,5	84	45	93	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® BW-M

SILVYN® BW-K-M



Benefits
- Space-saving

Application range
- Mechanical engineering
- Plant engineering
- Control cabinet manufacturing
- Used in areas where SILVYN® protective conduits cannot be inserted into a machine or an appliance

Product Make-up
SILVYN® BW-K-M
- Plastic fixing bracket
- 2 x bore hole for fixation

SILVYN® BW-M
- Steel fixing bracket
- 2 x bore hole for fixation

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001458
ETIM 5.0/6.0 Class-Description:
Fastening angle for hose fitting

Colour delivered
SILVYN® BW-K-M
Grey, RAL 7001

Material
SILVYN® BW-K-M
PP
SILVYN® BW-M
Steel, passivated

Temperature range
SILVYN® BW-K-M
-40°C to +100°C

Article number	Article designation	Metric size	A mm	B in mm	Pieces / PU
SILVYN® BW-K-M					
55000911		20 x 1.5	37.5	50	50
55000921		25 x 1.5	43	57	50
55000931		32 x 1.5	53.5	67	50
55000941		40 x 1.5	65.5	79.5	50
55000951		50 x 1.5	69.5	86	50
SILVYN® BW-M					
55000531	16		20	50	25
55000541	20		20	50	25
55000551	25		20	60	25
55000561	32		20	70	25
55000571	40		20	80	25
55000572	50		20	90	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SILVYN® RKS

Benefits
- Fast and easy mounting
- Various applications

Application range
- Plant engineering
- Railway applications
- Automotive industry
- Fastening clamp for cables, conduits and pipes

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

Material
Steel, galvanised
Polychloroprene

Temperature range
-35 °C to +100 °C

Article number	Article designation	Metal width (mm)	Width x thickness of rubber profile (mm)	Diameter (mm)	Hole Ø (mm)	Pieces / PU
SILVYN® RKS 1						
61825170	6/12	12	15 x 1,2	6	5.3 (M5)	100
61825180	8/12	12	15 x 1,2	8	5.3 (M5)	100
61825190	10/12	12	15 x 1,2	10	5.3 (M5)	100
61825200	12/12	12	15 x 1,2	12	5.3 (M5)	100
61825210	13/15	15	18,5 x 1,5	13	6.4 (M6)	100
61825355	14/15	15	18,5 x 1,5	14	6.4 (M6)	100
61825365	15/15	15	18,5 x 1,5	15	6.4 (M6)	100
61825375	16/15	15	18,5 x 1,5	16	6.4 (M6)	100
61825040	18/15	15	18,5 x 1,5	18	6.4 (M6)	100
61825052	19/15	15	18,5 x 1,5	19	6.4 (M6)	100
61825380	20/15	15	18,5 x 1,5	20	6.4 (M6)	100
61825382	21/15	15	18,5 x 1,5	21	6.4 (M6)	100
61825050	22/15	15	18,5 x 1,5	22	6.4 (M6)	100
61825390	23/15	15	18,5 x 1,5	23	6.4 (M6)	100
61825400	25/15	15	18,5 x 1,5	25	6.4 (M6)	100
61825402	26/15	15	18,5 x 1,5	26	6.4 (M6)	100
61825250	28/15	15	18,5 x 1,5	28	6.4 (M6)	100
61825255	30/15	15	18,5 x 1,5	30	6.4 (M6)	100
61825257	32/15	15	18,5 x 1,5	32	6.4 (M6)	100
61825259	34/15	15	18,5 x 1,5	34	6.4 (M6)	100
61825260	35/15	15	18,5 x 1,5	35	6.4 (M6)	100
61825392	24/20	20	25 x 1,5	24	8.4 (M8)	100
61825262	36/20	20	25 x 1,5	36	8.4 (M8)	100
61825264	38/20	20	25 x 1,5	38	8.4 (M8)	100
61825295	40/20	20	25 x 1,5	40	8.4 (M8)	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

8

FLEXIMARK®

Marking systems

The requirement: permanent marking. The solution: FLEXIMARK®. These sophisticated systems mean that a clear overview inside a control cabinet is no longer just a pipe dream. From simple labels for manual marking through to electronic markings, the FLEXIMARK® range is guaranteed to be permanent.

Application range

- Control cabinet manufacturing
- Automation technology
- Industrial machinery and plant engineering
- Renewable energies
- Wherever cables are used

FLEXIMARK® Customized Marking

FLEXIMARK® FCC

FLEXIMARK® Stainless steel FCC 933
FLEXIMARK® Cablelabel PUR FCC 934
FLEXIMARK® Cablemarking FCC 935
FLEXIMARK® Organized shrink tube FCC 936
FLEXIMARK® Shrink mark FCC 937
FLEXIMARK® Flexiprint FCC 938

FLEXIMARK® Labels for laser printing

Cable and single core marking

FLEXIMARK® Wrapping label LCK 939
FLEXIMARK® Cablelabel LFL 940
FLEXIMARK® Flexilabel LFL 941
FLEXIMARK® Label LMB 942
FLEXIMARK® Flexiprint LF 943

component marking

FLEXIMARK® LA Labels 944

FLEXIMARK® Labels for thermal transfer printing

Cable and single core marking

FLEXIMARK® Wrapping labels TCK 945
FLEXIMARK® Cablelabel PUR 946
FLEXIMARK® Organized shrink tube 947
FLEXIMARK® Shrink mark 948
FLEXIMARK® Flexiprint TF 949

component marking

FLEXIMARK® TA Labels Component marking 950
FLEXIMARK® TA foam Component marking 951
FLEXIMARK® TA Foam Panel strip 951
FLEXIMARK® Software 10.0 952

FLEXIMARK® Software and Printer

Printing systems

FLEXIMARK® thermal printer SQUIX and EOS4* 953
FLEXIMARK® ribbons SQUIX and EOS4 954

Electronic label-printers

Electronic label-printers

DYMO® Industry Rhino Pro 4200 955
DYMO® XTL 300 / 500 956

FLEXIMARK® chracter holders and accessories

Character holders

FLEXIMARK® Character holders PTE 957
FLEXIMARK® Character holders PTEF / CAB 958
FLEXIMARK® Character holders PGS 959
FLEXIMARK® Collar Snap-on 960
FLEXIMARK® Collar closed 960
FLEXIMARK® Collar for cable tie 960
WM BW Blank cable marker 961
FLEXIMARK® Pliers FL52ERA 961

Cable bundling

KMK Label holders 962
ETB Label holders 962

FLEXIMARK® Numbers and letters

Stainless steel system

FLEXIMARK® Stainless steel kit 963
FLEXIMARK® Stainless steel characters MR 964
FLEXIMARK® Stainless steel character holders NM 965

Marking rings

Marking rings PA 966
Marking rings PC 968
Marking rings Pliosnap 970

Embossing machines

Manual embossing machines

M1011 Manual embossing machine 973
SP Metal print 974

FLEXIMARK®
FLEXIMARK®
1
2 3
4 5 6 7

Marking systems

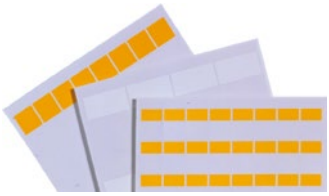
Marking Guide

What? / How?		Customized system	Basic system
		Your demand – we deliver	**Ready made to deliver for each environment**
Cable and Wires	**After mounting the wire**	Stainless steel FCC 933	Stainless steel MR and NM 964/965 M1011 Manual embossing machine 973
		Cablelabel PUR FCC 934	Marking rings PC 968 Marking rings Pliosnap 970
		Cablemarking FCC 935	DYMO® Mobile printer 955/956
	Before mounting the wire	Organized shrink tube FCC 936	Bezeichnungsringe PA 966
		Flexiprint FCC 938 Shrink mark FCC 937	
Component	**Device marking**	Engraved signs FCC Stainless steel component marking FCC 933	DYMO® Mobile printer 955/956
Accessories		Character holders and collars 957–960 Plier FL52ERA 961	LS steel cable ties 1047 Steel gun HT 338 1049

Photographs and graphics are not to scale and do not represent detailed images of the respective products. DYMO® is a registered trademark of SANFORD GmbH.

Data marking

Laser office printers



Wrapping label LCK 939

Cablelabel LFL 940

Flexilabel LFL 941

Label LMB 942

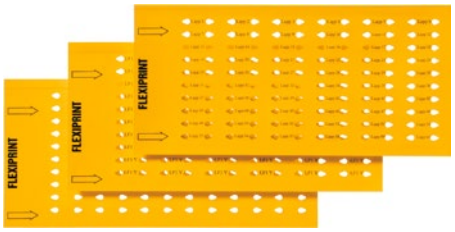
Thermal transfer printer

Wrapping label TCK 945

Cablelabel PUR 946

Flexilabel TFL

Label TMB



Flexiprint LF 943

Organized shrink tube 947

Flexiprint TF 949

Shrink mark 948

Label LA 944

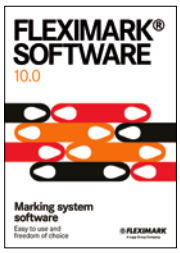
Label TA 950

Label TA Foam 951

FLEXIMARK® SOFTWARE 10.0

- Print your own labels & signs
- Work with Excel files
- Print barcodes & sequences

952

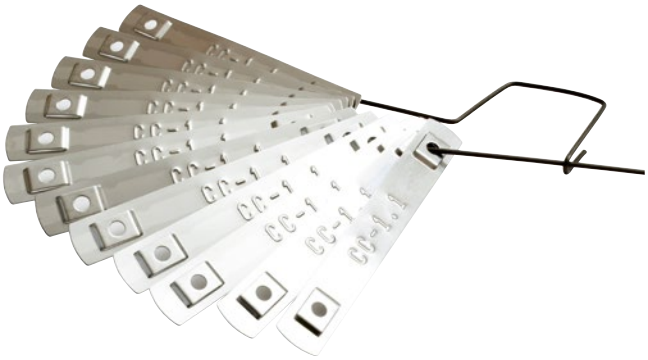


Thermal transfer printer 953

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

FLEXIMARK® FCC

Customized Markings



The customized markings will be delivered sorted and ready for mounting.

Benefit:

- The printing service is already included in the price
- Time-saving
- No minimum quantity
- One or two-line printing possible

ARTICLE NUMBER:		
LENGTH (in mm):		
TEXT ROW 1	TEXT ROW 2	AMOUNT

Ordering process:

1. Create an Excel file with text information and quantity for each sign (Template available at www.lappkabel.com/service/downloadcenter/markingsystem/fleximark-customized-markings.html)
2. Send the Excel file together with your order to the customer service

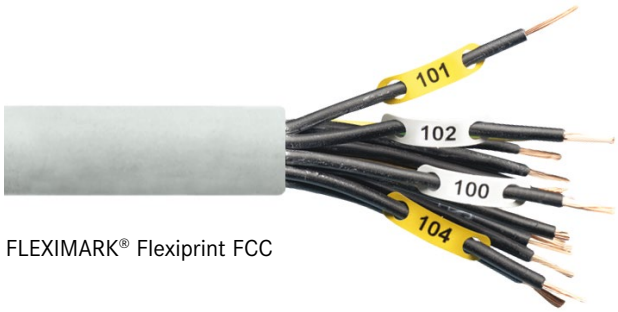
Available for the following labels:

FLEXIMARK® Stainless Steel FCC

FLEXIMARK® Cablelabel PUR FCC

FLEXIMARK® Shrink Mark FCC

FLEXIMARK® Cable marking FCC



FLEXIMARK® Flexiprint FCC

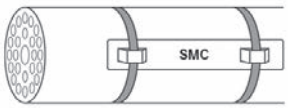
FLEXIMARK® Organized Shrink Tube FCC

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

FLEXIMARK® Stainless steel FCC

Info

- Included in FLEXIMARK® sample bag (article no. M3251010)



Benefits

- Acid-resistant
- Excellent chemical resistance
- High-temperature resistant
- Extremely durable

Application range

- Resists harsh environmental influences and extreme weather conditions
- Railway industry, food industry, wind industry, oil and gas industry

Norm references / Approvals

- Achilles JQS certified

Note

- Markers will be delivered with the desired text (printing service is included in the price)
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text
- Length of the markers is depending on the number of characters
- All characters are printed in capital letters
- The column "number of characters" refers to the quanity in one line (the maximum amount of characters for a two-line embossing is 30-max.15 per line)

Included

- 1 PU= 1 marker, there is no mimimum purchase quantity
- Markers are sorted prior to delivery
- Included cable ties in article no.83251406, 83251456, 83251426, 83251468: Stainless steel cable ties LS 4,6-200 (article no.61812950)

Suitable tools

- STEEL GUN HT-338 cable tie pliers refer to page 1049

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description:
Cable coding system

Dimensions
Character height: 4.2 mm
Gap between 2 characters: approx. 1 mm
Borehole diameter: 3.2 mm
Cable tie width: max. 7.9 mm

Note
Blanko version article no. 83251575 and 83251576

Info
Available characters:
A-Ü 0-9 ~ + - / . : , = Earth sign

Material
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)

Temperature range
-80°C to +500°C

Article number	Article designation	Height (mm)	Product Make-up	Number of characters	Markers / PU
One line embossing / with cable tie brackets					
83251406	FLEXIMARK® Stainless steel SMC FCC LS200 0-15	9.9	with cable tie	0-15	1
83251456	FLEXIMARK® Stainless steel SMC FCC LS 16-25	9.9	with cable tie	16-25	1
83251402	FLEXIMARK® Stainless steel SMC FCC 0-15	9.9	without cable tie	0-15	1
83251454	FLEXIMARK® Stainless steel SMC FCC 16-25	9.9	without cable tie	16-25	1
One line embossing / with srew hole					
83251450	FLEXIMARK® Stainless steel SM FCC 0-15	9.9	with screw hole	0-15	1
83251478	FLEXIMARK® Stainless steel SM FCC 16-25	9.9	with screw hole	16-25	1
Two-line embossing / with cable tie brackets					
83251426	FLEXIMARK® Stainless steel SMC2R FCC LS 0-15	13.9	with cable tie	0-15	1
83251468	FLEXIMARK® Stainless steel SMC2R FCC LS 16-25	13.9	with cable tie	16-25	1
83251422	FLEXIMARK® Stainless steel SMC2R FCC 0-15	13.9	without cable tie	0-15	1
83251466	FLEXIMARK® Stainless steel SMC2R FCC 16-25	13.9	without cable tie	16-25	1
Two-line embossing / with srew hole					
83251451	FLEXIMARK® Stainless steel SM2R FCC 0-15	13.9	with screw hole	0-15	1
83251479	FLEXIMARK® Stainless steel SM2R FCC 16-25	13.9	with screw hole	16-25	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Blank markers could be found on the product page "SP Metalprint" (article no. 83251575 and 83251576).

Similar products

- FLEXIMARK® Stainless steel kit refer to page 963
- M1011 Manual embossing machine refer to page 973
- SP Metal print refer to page 974

Accessories

- STEEL GUN HT-338 cable tie pliers refer to page 1049
- LS steel cable ties refer to page 1047

FLEXIMARK® Cablelabel PUR FCC

Info

- PUR 60x10 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Good UV-resistance
- Good chemical resistance
- Highly flexible material
- Hydrolysis and micro organism resistant

Application range

- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)
- Can be mounted directly on the cable together with plastic cable ties

Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0
- MIL 81531 and MIL-STD-202G

Note

- Markers will be delivered with the desired text (printing service is included in the price)
- One or two-line printing possible
- Text length is depending on the size of the label and the readability- in general there is no word limitation
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text

Included

- 1 PU= 1 marker, there is no mimimum purchase quantity

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Cable coding system

Colour delivered
Standard is black text (black labels: white text)

Material
Halogen-free polyurethane

Temperature range
-50°C to +100°C
Could also withstand +125°C in the short term

Article number	Article designation	Colour	Width x length (mm)	Markers / PU
Mounting centrally (with 1 cable tie)				
83255364	FLEXIMARK® Cablelabel PUR 23x30 YE Diamond FCC	yellow	20.0 x 30.0	1
83255369	FLEXIMARK® Cablelabel PUR 20x30 WH Diamond FCC	white	20.0 x 30.0	1
Mounting left (with 1 cable tie)				
83255366	FLEXIMARK® Cablelabel PUR 55x12 YE FCC	yellow	55.0 x 12.0	1
83255371	FLEXIMARK® Cablelabel PUR 55x12 WH FCC	white	55.0 x 12.0	1
Mounting two-sided (with 2 cable ties)				
83255365	FLEXIMARK® Cablelabel PUR 35x10 YE FCC	yellow	35.0 x 10.0	1
61800391	FLEXIMARK® Cablelabel PUR 60x10 YE FCC	yellow	60.0 x 10.0	1
61800392	FLEXIMARK® Cablelabel PUR 75x15 YE FCC	yellow	75.0 x 15.0	1
61800393	FLEXIMARK® Cablelabel PUR 75x25 YE FCC	yellow	75.0 x 25.0	1
83255368	FLEXIMARK® Cablelabel PUR 100x60 YE FCC	yellow	100.0 x 60.0	1
83255370	FLEXIMARK® Cablelabel PUR 35x10 WH FCC	white	35.0 x 10.0	1
61800394	FLEXIMARK® Cablelabel PUR 60x10 WH FCC	white	60.0 x 10.0	1
61800395	FLEXIMARK® Cablelabel PUR 75x15 WH FCC	white	75.0 x 15.0	1
61800396	FLEXIMARK® Cablelabel PUR 75x25 WH FCC	white	75.0 x 25.0	1
83255372	FLEXIMARK® Cablelabel PUR 100x60 WH FCC	white	100.0 x 60.0	1
61800397	FLEXIMARK® Cablelabel PUR 60x10 RD FCC	red	60.0 x 10.0	1
61800398	FLEXIMARK® Cablelabel PUR 75x15 RD FCC	red	75.0 x 15.0	1
61800399	FLEXIMARK® Cablelabel PUR 75x25 RD FCC	red	75.0 x 25.0	1
61800400	FLEXIMARK® Cablelabel PUR 60x10 OG FCC	orange	60.0 x 10.0	1
61800401	FLEXIMARK® Cablelabel PUR 75x15 OG FCC	orange	75.0 x 15.0	1
61800402	FLEXIMARK® Cablelabel PUR 75x25 OG FCC	orange	75.0 x 25.0	1
61800403	FLEXIMARK® Cablelabel PUR 60x10 BU FCC	blue	60.0 x 10.0	1
61800404	FLEXIMARK® Cablelabel PUR 75x15 BU FCC	blue	75.0 x 15.0	1
61800412	FLEXIMARK® Cablelabel PUR 75x25 BU FCC	blue	75.0 x 25.0	1
61800406	FLEXIMARK® Cablelabel PUR 60x10 BK FCC	black	60.0 x 10.0	1
61800407	FLEXIMARK® Cablelabel PUR 75x15 BK FCC	black	75.0 x 15.0	1
61800413	FLEXIMARK® Cablelabel PUR 75x25 BK FCC	black	75.0 x 25.0	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® Cablelabel PUR refer to page 946

Accessories

- Basic Tie cable tie refer to page 1040

FLEXIMARK® Cablemarking FCC

Benefits

- No time-consuming preparation and installation
- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)

Application range

- For cable marking

Note

- Markers will be delivered with the desired text (printing service is included in the price)
- One or two-line printing possible
- Text length is depending on the size of the label and the readability- in general there is no word limitation
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text

Included

- Marking consists of FLEXIMARK® Character holder PTEF, printed PVC label (not halogen-free) or FLEXIMARK® Flexilabel LFL (halogen-free) and two standard cable ties in PA 6.6 (black)
- Markers (including cable ties) are pre-assembled prior to delivery
- 1 PU= 1 marker, there is no mimimum purchase quantity

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Dimensions
Length text: 35 mmLength plate: 50 mm

Note
Standard cable tie: black (142, x 2.4 mm)

Colour delivered
Standard colour: black lettering against yellow or white background
also available in green, blue and red

Material
Character holder: halogen-free PE
Labels: Not halogen-free PVC or halogenfree polyester (LFL version)

Temperature range
-30°C to +70°C

Article number	Article designation	Colour	Height (mm)	Markers / PU
With yellow PVC markers (not halogenfree)				
83251300	FLEXIMARK® Cable marker FCC 6 YE	yellow	6.0	1
83251320	FLEXIMARK® Cable marker FCC 9,5 YE	yellow	9.5	1
83251350	FLEXIMARK® Cable marker FCC 19 YE	yellow	19.0	1
With yellow LFL labels made of polyester (halogenfree)				
83274670	FLEXIMARK® Cable marker LFL 9,5-35 YE FCC	yellow	9.5	1
With white PVC markers (not halogenfree)				
83251301	FLEXIMARK® Cable marker FCC 6 WH	white	6.0	1
83251321	FLEXIMARK® Cable marker FCC 9,5 WH	white	9.5	1
83251351	FLEXIMARK® Cable marker FCC 19 WH	white	19.0	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® PTEF/ CAB refer to page 958
- FLEXIMARK® Flexilabel LFL refer to page 941

FLEXIMARK® Organized shrink tube FCC

Benefits

- Halogen-free shrink tubes with customized text
- Benefit in comparison with marking rings: You do not have to mount every single character at a time, just order and mount whole series at once
- Already cut to the exact length

Application range

- For single core marking
- Marking before assembly

Note

- Markers will be delivered with the desired text (printing service is included in the price)
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text

Included

- 1 PU= 1 marker, there is no mimimum purchase quantity

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

On request
Also available as version with a 3:1 shrink ratio (not halogen-free, UL 224 approved)

Colour delivered
yellow

Material
Polyolefin (halogen-free)
Shrinking ratio: 2:1

Temperature range
-30°C to +105°C
Shrinking temperature: +90°C

Article number	Article designation	Colour	Shrinkage range (mm)	Length (mm)	Markers / PU
FLEXIMARK® Organized shrink tube FCC					
83280249	FLEXIMARK® O.shr FCC 2.4/1.2-12.5 YE	yellow	1,2 - 2,4	12	1
83280252	FLEXIMARK® O.shr FCC 2.4/0.8-16.6 YE	yellow	1,2 - 2,4	16	1
83255385	FLEXIMARK® O.shr FCC 2.4/1.2-25 YE	yellow	1,2 - 2,4	25	1
83280250	FLEXIMARK® O.shr FCC 3.2/1.6-12.5 YE	yellow	1,6 - 3,2	12	1
83280253	FLEXIMARK® O.shr FCC 3.2/1-16.6 YE	yellow	1,6 - 3,2	16	1
83255386	FLEXIMARK® O.shr FCC 3.2/1.6-25 YE	yellow	1,6 - 3,2	25	1
83280251	FLEXIMARK® O.shr FCC 4.8/1.6- 12.5 YE	yellow	2,4 - 4,8	12	1
83280254	FLEXIMARK® O.shr FCC 4.8/1.6-16.6 YE	yellow	2,4 - 4,8	16	1
83255387	FLEXIMARK® O.shr FCC 4.8/2.4-25 WH	white	2,4 - 4,8	25	1
83255388	FLEXIMARK® O.shr FCC 2.4/1.2-12.5 WH	white	1,2 - 2,4	12	1
83255389	FLEXIMARK® O.shr FCC 2.4/1.2-16.6 WH	white	1,2 - 2,4	16	1
83255390	FLEXIMARK® O.shr FCC 2.4/1.2-25 WH	white	1,2 - 2,4	25	1
83255391	FLEXIMARK® O.shr FCC 3.2/1.6-12.5 WH	white	1,6 - 3,2	12	1
83255392	FLEXIMARK® O.shr FCC 3.2/1.6-16.6 WH	white	1,6 - 3,2	16	1
83255393	FLEXIMARK® O.shr FCC 3.2/1.6-25 WH	white	1,6 - 3,2	25	1
83255394	FLEXIMARK® O.shr FCC 4.8/2.4-12.5 WH	white	2,4 - 4,8	12	1
83255395	FLEXIMARK® O.shr FCC 4.8/2.4-16.6 WH	white	2,4 - 4,8	16	1
83255396	FLEXIMARK® O.shr FCC 4.8/2.4-25 WH	white	2,4 - 4,8	25	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® Organized shrink tube refer to page 947
- FLEXIMARK® Shrink Mark FCC refer to page 937

FLEXIMARK® Shrink mark FCC

Info

- Shrink mark FK 12.7 RD 5-7 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Personalised printing of the shrinking tube segments according to customer specifications
- Protection of the cable insulation

Application range

- For cable marking
- For applications where space is tight
- E.g. for applications in the railway or wind industry

Norm references / Approvals

- Flame retardant according to ASTM D635-HB

Note

- Markers will be delivered with the desired text (printing service is included in the price)
- One or two-line printing possible
- Please specify the desired text colour, mode of delivery (perforation or cut,lengths) and other requirements (e.g. textalignments) with your order
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text

Included

- 1 PU= 1 marker, there is no mimimum purchase quantity
- Delivery either in cutted pieces or in one piece (already perforated)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description:
Labelling material

Colour delivered
Black
Also available in blue, red, yellow, white

Material
Polyolefin

Shrinking ratio
2:1

Temperature range
-55°C to +125°C

Article number	Article designation	Colour	Ø before shrinking (mm)	Ø after shrinking (mm)	Number of characters	Markers / PU
FLEXIMARK® Shrink mark FCC						
83280029	FLEXIMARK® Shrink mark FCC-FK 3,2 BK	black	3.2	1.6	1-7	1
83280030	FLEXIMARK® Shrink mark FCC-FK 3,2 BK	black	3.2	1.6	8-12	1
83280031	FLEXIMARK® Shrink mark FCC-FK 3,2 BK	black	3.2	1.6	13-17	1
83280032	FLEXIMARK® Shrink mark FCC-FK 4,8 BK	black	4.8	2.4	1-7	1
83280033	FLEXIMARK® Shrink mark FCC-FK 4,8 BK	black	4.8	2.4	8-12	1
83280034	FLEXIMARK® Shrink mark FCC-FK 4,8 BK	black	4.8	2.4	13-17	1
83280035	FLEXIMARK® Shrink mark FCC-FK 6,4 BK	black	6.4	3.2	1-7	1
83280036	FLEXIMARK® Shrink mark FCC-FK 6,4 BK	black	6.4	3.2	8-12	1
83280037	FLEXIMARK® Shrink mark FCC-FK 6,4 BK	black	6.4	3.2	13-17	1
83280038	FLEXIMARK® Shrink mark FCC-FK 9,5 BK	black	9.5	4.75	1-7	1
83280039	FLEXIMARK® Shrink mark FCC-FK 9,5 BK	black	9.5	4.75	8-12	1
83280040	FLEXIMARK® Shrink mark FCC-FK 9,5 BK	black	9.5	4.75	13-17	1
83280041	FLEXIMARK® Shrink mark FCC-FK 12,7 BK	black	12.7	6.35	1-7	1
83280042	FLEXIMARK® Shrink mark FCC-FK 12,7 BK	black	12.7	6.35	8-12	1
83280043	FLEXIMARK® Shrink mark FCC-FK 12,7 BK	black	12.7	6.35	13-17	1
83280044	FLEXIMARK® Shrink mark FCC-FK 19,1 BK	black	19.1	9.55	1-7	1
83280045	FLEXIMARK® Shrink mark FCC-FK 19,1 BK	black	19.1	9.55	8-12	1
83280046	FLEXIMARK® Shrink mark FCC-FK 19,1 BK	black	19.1	9.55	13-17	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

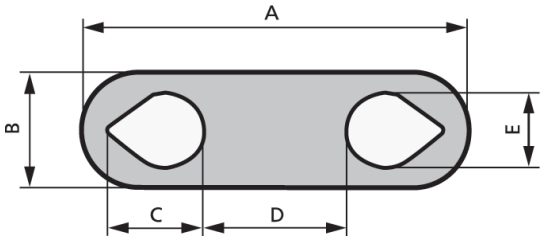
Similar products

- FLEXIMARK® Heat shrinkable tubing refer to page 948

Accessories

- HG 2320 hot-air pistol refer to page 1036

FLEXIMARK® Flexiprint FCC



Benefits

- Customised printed labels in various sizes
- Easy to install
- Good UV resistance

Application range

- For single core marking
- Marking before assembly
- Marking of optical fibre cables

Note

- Markers will be delivered with the desired text (printing service is included in the price)
- Normal version: Up to 7 characters
  L version (e.g. LF1L): Up to 15 characters
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text

Included

- 1 PU= 1 marker, there is no mimimum purchase quantity

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description:
Labelling material

Colour delivered
White
Also available in yellow, green, blue and red

Material
Halogen-free polyester
Thickness: 0.175 mm

Temperature range
-40°C to +125°C

Article number	Article designation	Colour	A mm	B (mm)	C (mm)	D (mm)	E (mm)	For mm²	Markers / PU
FLEXIMARK® Flexiprint FCC									
83251100	FLEXIMARK® Flexiprint F0 YE FCC	yellow	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	1
83251110	FLEXIMARK® Flexiprint F1 YE FCC	yellow	23	5.2	4.9	11.2	3.5	0.75 - 1.5	1
83251160	FLEXIMARK® Flexiprint F1L YE FCC	yellow	34	5.2	5	22	3.5	0.75 - 1.5	1
83251120	FLEXIMARK® Flexiprint F1B YE FCC	yellow	25	5.7	5.9	11.2	4.2	1.5 - 2.5	1
83251170	FLEXIMARK® Flexiprint F1BL YE FCC	yellow	36	5.7	6	22	4.2	1.5 - 2.5	1
83251130	FLEXIMARK® Flexiprint F2 YE FCC	yellow	26	7	6.5	11	5.5	2.5 - 6.0	1
83251140	FLEXIMARK® Flexiprint F3 YE FCC	yellow	41	11	10.5	17	8.4	6.0 - 16.0	1
83251101	FLEXIMARK® Flexiprint F0 WH FCC	white	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	1
83251111	FLEXIMARK® Flexiprint F1 WH FCC	white	23	5.2	4.9	11.2	3.5	0.75 - 1.5	1
83251161	FLEXIMARK® Flexiprint F1L WH FCC	white	34	5.2	5	22	3.5	0.75 - 1.5	1
83251121	FLEXIMARK® Flexiprint F1B WH FCC	white	25	5.7	5.9	11.2	4.2	1.5 - 2.5	1
83251171	FLEXIMARK® Flexiprint F1BL WH FCC	white	36	5.7	6	22	4.2	1.5 - 2.5	1
83251131	FLEXIMARK® Flexiprint F2 WH FCC	white	26	7	6.5	11	5.5	2.5 - 6.0	1
83251141	FLEXIMARK® Flexiprint F3 WH FCC	white	41	11	10.5	17	8.4	6.0 - 16.0	1
83251102	FLEXIMARK® Flexiprint F0 GN FCC	green	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	1
83251112	FLEXIMARK® Flexiprint F1 GN FCC	green	23	5.2	4.9	11.2	3.5	0.75 - 1.5	1
83251162	FLEXIMARK® Flexiprint F1L GN FCC	green	34	5.2	5	22	3.5	0.75 - 1.5	1
83251122	FLEXIMARK® Flexiprint F1B GN FCC	green	25	5.7	5.9	11.2	4.2	1.5 - 2.5	1
83251172	FLEXIMARK® Flexiprint F1BL GN FCC	green	36	5.7	6	22	4.2	1.5 - 2.5	1
83251132	FLEXIMARK® Flexiprint F2 GN FCC	green	26	7	6.5	11	5.5	2.5 - 6.0	1
83251142	FLEXIMARK® Flexiprint F3 GN FCC	green	41	11	10.5	17	8.4	6.0 - 16.0	1
83251103	FLEXIMARK® Flexiprint F0 BU FCC	blue	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	1
83251113	FLEXIMARK® Flexiprint F1 BU FCC	blue	23	5.2	4.9	11.2	3.5	0.75 - 1.5	1
83251163	FLEXIMARK® Flexiprint F1L BU FCC	blue	34	5.2	5	22	3.5	0.75 - 1.5	1
83251123	FLEXIMARK® Flexiprint F1B BU FCC	blue	25	5.7	5.9	11.2	4.2	1.5 - 2.5	1
83251173	FLEXIMARK® Flexiprint F1BL BU FCC	blue	36	5.7	6	22	4.2	1.5 - 2.5	1
83251133	FLEXIMARK® Flexiprint F2 BU FCC	blue	26	7	6.5	11	5.5	2.5 - 6.0	1
83251143	FLEXIMARK® Flexiprint F3 BU FCC	blue	41	11	10.5	17	8.4	6.0 - 16.0	1
83251104	FLEXIMARK® Flexiprint F0 RD FCC	red	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	1
83251114	FLEXIMARK® Flexiprint F1 RD FCC	red	23	5.2	4.9	11.2	3.5	0.75 - 1.5	1
83251164	FLEXIMARK® Flexiprint F1L RD FCC	red	34	5.2	5	22	3.5	0.75 - 1.5	1
83251124	FLEXIMARK® Flexiprint F1B RD FCC	red	25	5.7	5.9	11.2	4.2	1.5 - 2.5	1
83251174	FLEXIMARK® Flexiprint F1BL RD FCC	red	36	5.7	6	22	4.2	1.5 - 2.5	1
83251134	FLEXIMARK® Flexiprint F2 RD FCC	red	26	7	6.5	11	5.5	2.5 - 6.0	1
83251144	FLEXIMARK® Flexiprint F3 RD FCC	red	41	11	10.5	17	8.4	6.0 - 16.0	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® Flexiprint TF refer to page 949
- FLEXIMARK® Flexiprint LF refer to page 943

FLEXIMARK® Wrapping label LCK

Info

- LCK 32 YE included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- A transparent film is wrapped around the cable and pasted over the printed field so that the printing is protected against abrasion, pollution and solvents
- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Due to tight wrapping, space-saving

Application range

- For cable marking

Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in

Included

- 10 or 100 perforated DIN A4 label sheets (dependent on the chosen packaging size)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Cable coding system

Adhesive
Acrylic-based permanent adhesive

Colour delivered
Yellow, white

Material
Halogen-free polyester
Thickness: 0.025 mm

Temperature range
-40°C to +125°C
Minimum working temperature: +10°C

Article number	Article designation	Colour	Width x length (mm)	Labelling surface (mm)	For outer Ø (mm)	Markers / PU	PU
Small packaging (10 sheets)							
83256142	FLEXIMARK® Label LCK 32 YE	yellow	25.0 x 33.5	25 x 12	4 - 7	640	1
83256144	FLEXIMARK® Label LCK 35 YE	yellow	25.0 x 55.0	25 x 19	6 - 12	400	1
83256146	FLEXIMARK® Label LCK 40 YE	yellow	25.0 x 94.0	25 x 25	8 - 21	240	1
83256148	FLEXIMARK® Label LCK 45 YE	yellow	25.5 x 142.5	25 x 25	8 - 36	160	1
83256161	FLEXIMARK® Label LCK 48 YE	yellow	34.0 x 93.0	34 x 25	8 - 21	180	1
83256150	FLEXIMARK® Label LCK 60 YE	yellow	50.0 x 56.0	50 x 19	6 - 12	200	1
83256152	FLEXIMARK® Label LCK 65 YE	yellow	50.0 x 94.0	50 x 25	8 - 21	120	1
83256154	FLEXIMARK® Label LCK 70 YE	yellow	50.0 x 142.5	50 x 25	8 - 36	80	1
83256143	FLEXIMARK® Label LCK 32 WH	white	25.0 x 33.5	25 x 12	4 - 7	640	1
83256145	FLEXIMARK® Label LCK 35 WH	white	25.0 x 55.0	25 x 19	6 - 12	400	1
83256147	FLEXIMARK® Label LCK 40 WH	white	25.0 x 94.0	25 x 25	8 - 21	240	1
83256149	FLEXIMARK® Label LCK 45 WH	white	25.0 x 142.5	25 x 25	8 - 36	160	1
83256160	FLEXIMARK® Label LCK 48 WH	white	34.0 x 93.0	34 x 25	8 - 21	180	1
83256151	FLEXIMARK® Label LCK 60 WH	white	50.0 x 56.0	50 x 19	6 - 12	200	1
83256153	FLEXIMARK® Label LCK 65 WH	white	50.0 x 94.0	50 x 25	8 - 21	120	1
83256155	FLEXIMARK® Label LCK 70 WH	white	50.0 x 142.5	50 x 25	8 - 36	80	1
Large packaging (100 sheets)							
83256542	FLEXIMARK® Label LCK 32 YE-100	yellow	25.0 x 33.5	25 x 12	4 - 7	6400	1
83256544	FLEXIMARK® Label LCK 35 YE-100	yellow	25.0 x 55.0	25 x 19	6 - 12	4000	1
83256546	FLEXIMARK® Label LCK 40 YE-100	yellow	25.0 x 94.0	25 x 25	8 - 21	2400	1
83256548	FLEXIMARK® Label LCK 45 YE-100	yellow	25.0 x 142.5	25 x 25	8 - 36	1600	1
83256550	FLEXIMARK® Label LCK 60 YE-100	yellow	50.0 x 56.0	50 x 19	6 - 12	2000	1
83256552	FLEXIMARK® Label LCK 65 YE-100	yellow	50.0 x 95.0	50 x 25	8 - 21	1200	1
83256554	FLEXIMARK® Label LCK 70 YE-100	yellow	50.0 x 142.5	50 x 25	8 - 36	800	1
83256543	FLEXIMARK® Label LCK 32 WH-100	white	25.0 x 33.5	25 x 12	4 - 7	6400	1
83256545	FLEXIMARK® Label LCK 35 WH-100	white	25.0 x 55.0	25 x 19	6 - 12	4000	1
83256547	FLEXIMARK® Label LCK 40 WH-100	white	25.0 x 94.0	25 x 25	8 - 21	2400	1
83256549	FLEXIMARK® Label LCK 45 WH-100	white	25.0 x 142.5	25 x 25	8 - 36	1600	1
83256551	FLEXIMARK® Label LCK 60 WH-100	white	50.0 x 56.0	50 x 19	6 - 12	2000	1
83256553	FLEXIMARK® Label LCK 65 WH-100	white	50.0 x 94.0	50 x 25	8 - 21	1200	1
83256555	FLEXIMARK® Label LCK 70 WH-100	white	50.0 x 142.5	50 x 25	8 - 36	800	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® Wrapping labels TCK refer to page 945

Accessories

- FLEXIMARK® Software 10.0 refer to page 952

FLEXIMARK® Cablelabel LFL

Info

- LFL2H 9.9-26 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Printable on both sides

Application range

- For cable marking
- Can be mounted directly on the cable together with plastic cable ties
- No character holder necessary

Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in

Product Make-up

- One (LFL1H) or two-sided (LFL2H) fastening with cable ties (up to 4.5 mm in width)

Included

- Perforated DIN A4 / A5 sheets

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Cable coding system

Colour delivered
Yellow/White (can be printed on both sides)

Material
Halogen-free polyester
Thickness: 0.175 mm

Temperature range
-40°C to +125°C

Article number	Article designation	Colour	Width x length (mm)	Labelling surface (mm)	Markers / PU	PU
FLEXIMARK® Cablelabel LFL						
83254750	FLEXIMARK® Label LFL2H 9.9-26 YEWH	yellow/white	9.9 x 48.0	9 x 26	400	1
83254760	FLEXIMARK® Label LFL1H 9.9-35 YEWH	yellow/white	9.9 x 48.0	9 x 35	400	1
83254765	FLEXIMARK® Label LFL2H 66-9.9 YEWH	yellow/white	9.9 x 89.0	9 x 66	560	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® Cablelabel PUR refer to page 946

Accessories

- Basic Tie cable tie refer to page 1040
- FLEXIMARK® Software 10.0 refer to page 952

FLEXIMARK® Flexilabel LFL

Info

- LFL 9.5-35 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Printable on both sides

Application range

- For cable marking
- Suitable labels for PTE, PTEF and CAB character holders (see chapter “Character holders and accessories”)

Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in

Included

- Perforated DIN A4 sheets

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Colour delivered
Yellow/White (can be printed on both sides)

Material
Halogen-free polyester
Thickness: 0.175 mm

Temperature range
-40°C to +125°C

Article number	Article designation	Colour	Width x length (mm)	Markers / PU	PU
FLEXIMARK® Flexilabel LFL					
83254620	FLEXIMARK® Label LFL 6-35 YEWH	yellow/white	6.0 x 35.0	2350	1
83254650	FLEXIMARK® Label LFL 9.5-17.5 YEWH	yellow/white	9.5 x 17.5	3190	1
83254660	FLEXIMARK® Label LFL 9.5-28 YEWH	yellow/white	9.5 x 28.0	2030	1
83254670	FLEXIMARK® Label LFL 9.5-35 YEWH	yellow/white	9.5 x 35.0	1450	1
83254701	FLEXIMARK® Label LFL 9.9-66 YEWH	yellow/white	9.9 x 66.0	840	1
83254690	FLEXIMARK® Label LFL 9.5-196 YEWH	yellow/white	9.5 x 196.0	290	1
83254710	FLEXIMARK® Label LFL 12-38 YEWH	yellow/white	12.0 x 38.0	1150	1
83254714	FLEXIMARK® Label LFL 15-45 YEWH	yellow/white	15.0 x 45.0	720	1
83254718	FLEXIMARK® Label LFL 19-50 YEWH	yellow/white	19.0 x 50.0	560	1
83254719	FLEXIMARK® Label LFL 19-100 YEWH	yellow/white	19.0 x 100.0	280	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® Flexilabel TFL

Accessories

- FLEXIMARK® Character holders PTE refer to page 957
- FLEXIMARK® PTEF/ CAB refer to page 958
- FLEXIMARK® Character holders PGS refer to page 959
- Basic Tie cable tie refer to page 1040
- FLEXIMARK® Software 10.0 refer to page 952

FLEXIMARK® Label LMB

Info

- Included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Printable on both sides

Application range

- Suitable labels for snap-on collars, closed collars and collars for cable ties (see section “Character holders and accessories”)

Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in

Included

- Perforated DIN A5 sheets

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

On request
Also available as rolls for thermal transfer printers (TMB)

Colour delivered
Yellow/White (can be printed on both sides)

Material
Halogen-free polyester
Thickness: 0.175 mm

Temperature range
-40°C to +125°C

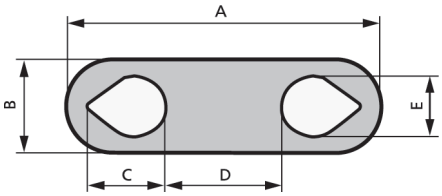
Article number	Article designation	Colour	Width x length (mm)	Markers / PU	PU
FLEXIMARK® Label LMB					
83254680	FLEXIMARK® Label LMB 30-4.6 YEWH	yellow/white	4.6 x 30.0	480	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- FLEXIMARK® Software 10.0 refer to page 952
- FLEXIMARK® Collar Snap-on refer to page 960
- FLEXIMARK® Collar closed refer to page 960
- FLEXIMARK® Collar for cable tie refer to page 960

FLEXIMARK® Flexiprint LF



Info

- LF1 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Easy to install

Application range

- For single core marking
- Marking of optical fibre cables
- Marking before assembly
- For cable cross-sections over 16.00 mm², cable ties can be used for installing single markers

Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in
- Normal version: Up to 7 characters
  L version (e.g. LF1L): Up to 15 characters

Included

- One label sheet consists of 20-60 perforated markers, depending on the size
- Sheetsize: 80-100mm x 210mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Colour delivered
Yellow, white
On request: green, blue and red

Material
Halogen-free polyester
Thickness: 0.175 mm

Temperature range
-40°C to +125°C

Article number	Article designation	Colour	A mm	B (mm)	C (mm)	D (mm)	E (mm)	For mm²	Markers / PU	PU
Small packaging (10 sheets)										
83254410	FLEXIMARK® Flexiprint LF0 YE	yellow	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	600	1
83254430	FLEXIMARK® Flexiprint LF1 YE	yellow	23	5.2	4.9	11.2	3.5	0.75 - 1.5	600	1
83254447	FLEXIMARK® Flexiprint LF1L YE	yellow	34	5.2	5	22	3.5	0.75 - 1.5	300	1
83254470	FLEXIMARK® Flexiprint LF1B YE	yellow	25	5.7	5.9	11.2	4.2	1.5 - 2.5	600	1
83254487	FLEXIMARK® Flexiprint LF1BL YE	yellow	36	5.7	6	22	4.2	1.5 - 2.5	300	1
83254510	FLEXIMARK® Flexiprint LF2 YE	yellow	26	7	6.5	11	5.5	2.5 - 6.0	300	1
83254530	FLEXIMARK® Flexiprint LF3 YE	yellow	41	11	10.5	17	8.4	6.0 - 16.0	200	1
83254416	FLEXIMARK® Flexiprint LF0 WH	white	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	600	1
83254436	FLEXIMARK® Flexiprint LF1 WH	white	23	5.2	4.9	11.2	3.5	0.75 - 1.5	600	1
83254448	FLEXIMARK® Flexiprint LF1L WH	white	34	5.2	5	22	3.5	0.75 - 1.5	300	1
83254476	FLEXIMARK® Flexiprint LF1B WH	white	25	5.7	5.9	11.2	4.2	1.5 - 2.5	600	1
83254488	FLEXIMARK® Flexiprint LF1BL WH	white	36	5.7	6	22	4.2	1.5 - 2.5	300	1
83254516	FLEXIMARK® Flexiprint LF2 WH	white	26	7	6.5	11	5.5	2.5 - 6.0	300	1
83254536	FLEXIMARK® Flexiprint LF3 WH	white	41	11	10.5	17	8.4	6.0 - 16.0	200	1
Large packaging (75 sheets)										
83280005	FLEXIMARK® Flexiprint LF0 YE-75	yellow	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	4500	1
83254420	FLEXIMARK® Flexiprint LF1 YE-75	yellow	23	5.2	4.9	11.2	3.5	0.75 - 1.5	4500	1
83254440	FLEXIMARK® Flexiprint LF1L YE-75	yellow	34	5.2	5	22	3.5	0.75 - 1.5	2250	1
83254460	FLEXIMARK® Flexiprint LF1B YE-75	yellow	25	5.7	5.9	11.2	4.2	1.5 - 2.5	4500	1
83254480	FLEXIMARK® Flexiprint LF1BL YE-75	yellow	36	5.7	6	22	4.2	1.5 - 2.5	2250	1
83254500	FLEXIMARK® Flexiprint LF2 YE-75	yellow	26	7	6.5	11	5.5	2.5 - 6.0	4500	1
83254520	FLEXIMARK® Flexiprint LF3 YE-75	yellow	41	11	10.5	17	8.4	6.0 - 16.0	1500	1
83254406	FLEXIMARK® Flexiprint LF0 WH-75	white	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	4500	1
83254426	FLEXIMARK® Flexiprint LF1 WH-75	white	23	5.2	4.9	11.2	3.5	0.75 - 1.5	4500	1
83254446	FLEXIMARK® Flexiprint LF1L WH-75	white	34	5.2	5	22	3.5	0.75 - 1.5	2250	1
83254466	FLEXIMARK® Flexiprint LF1B WH-75	white	25	5.7	5.9	11.2	4.2	1.5 - 2.5	4500	1
83254486	FLEXIMARK® Flexiprint LF1BL WH-75	white	36	5.7	6	22	4.2	1.5 - 2.5	2250	1
83254506	FLEXIMARK® Flexiprint LF2 WH-75	white	26	7	6.5	11	5.5	2.5 - 6.0	4500	1
83254526	FLEXIMARK® Flexiprint LF3 WH-75	white	41	11	10.5	17	8.4	6.0 - 16.0	1500	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® Flexiprint TF refer to page 949

Accessories

- FLEXIMARK® Software 10.0 refer to page 952

FLEXIMARK® LA Labels

Info

- LA 16.9-9 YE included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Self-adhesive labels made from polyester film for laser printers
- Better grip due to rounded-corners
- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)

Application range

- For component marking e.g. for marking cabinets

Product features

- Adhesive needs up to 24 hours to bond

Note

- Can be printed with the FLEXIMARK® Software and a commercial laser printer
- Insert sheet in manual paper feed compartment
- Optimum printing results from laser printers are achieved with straight sheet feed-in

Included

- Perforated DIN A4 sheets

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Adhesive
Acrylic-based permanent adhesive

Colour delivered
White or yellow
Also available in silver

Material
Halogen-free polyester
Thickness: 0.05 mm

Temperature range
-40°C to +125°C
Mounting temperature: min. +10 °C

Article number	Article designation	Colour	Width x height (mm)	Markers / PU	Labels per side	PU
FLEXIMARK® LA Labels						
83256199	FLEXIMARK® LA label 7-8 YE	yellow	7.0 x 8.0	5600	560	1
83256228	FLEXIMARK® LA label 11-8 YE	yellow	11.0 x 8.0	4200	420	1
83256231	FLEXIMARK® LA label 12-6 YE	yellow	12.0 x 6.0	6110	611	1
83256204	FLEXIMARK® LA label 15-6 YE	yellow	15.0 x 6.0	5170	517	1
83256234	FLEXIMARK® LA label 16-8 YE	yellow	16.0 x 8.0	3150	315	1
83256207	FLEXIMARK® LA label 16.9-7 YE	yellow	16.9 x 7.0	4000	400	1
83256210	FLEXIMARK® LA label 16.9-9 YE	yellow	16.9 x 9.0	3100	310	1
83256213	FLEXIMARK® LA label 20-8 YE	yellow	20.0 x 8.0	2800	280	1
83256216	FLEXIMARK® LA label 25-12 YE	yellow	25.0 x 12.0	1610	161	1
83256219	FLEXIMARK® LA label 25.6-10 YE	yellow	25.6 x 10.0	1960	196	1
83256240	FLEXIMARK® LA label 30.5-12.7 YE	yellow	30.5 x 12.7	1100	110	1
83256222	FLEXIMARK® LA label 46.9-9 YE	yellow	46.9 x 9.0	1240	124	1
83256225	FLEXIMARK® LA label 56-21.8 YE	yellow	56.0 x 21.8	390	39	1
83256243	FLEXIMARK® LA label 60-30 YE	yellow	60.0 x 30.0	270	27	1
83256237	FLEXIMARK® LA label 80-7.5 YE	yellow	80.0 x 7.5	740	74	1
83256198	FLEXIMARK® LA label 7-8 WH	white	7.0 x 8.0	5600	560	1
83256227	FLEXIMARK® LA label 11-8 WH	white	11.0 x 8.0	4200	420	1
83256230	FLEXIMARK® LA label 12-6 WH	white	12.0 x 6.0	6110	611	1
83256203	FLEXIMARK® LA label 15-6 WH	white	15.0 x 6.0	5170	517	1
83256233	FLEXIMARK® LA label 16-8 WH	white	16.0 x 8.0	3150	315	1
83256206	FLEXIMARK® LA label 16.9-7 WH	white	16.9 x 7.0	4000	400	1
83256209	FLEXIMARK® LA label 16.9-9 WH	white	16.9 x 9.0	3100	310	1
83256212	FLEXIMARK® LA label 20-8 WH	white	20.0 x 8.0	2800	280	1
83256215	FLEXIMARK® LA label 25-12 WH	white	25.0 x 12.0	1610	161	1
83256218	FLEXIMARK® LA label 25.6-10 WH	white	25.6 x 10.0	1960	196	1
83256239	FLEXIMARK® LA label 30.5-12.7 WH	white	30.5 x 12.7	1100	110	1
83256221	FLEXIMARK® LA label 46.9-9 WH	white	46.9 x 9.0	1240	124	1
83256224	FLEXIMARK® LA label 56-21.8 WH	white	56.0 x 21.8	390	39	1
83256242	FLEXIMARK® LA label 60-30 WH	white	60.0 x 30.0	270	27	1
83256236	FLEXIMARK® LA label 80-7.5 WH	white	80.0 x 7.5	740	74	1
83256200	FLEXIMARK® LA label 7-8 SR	silver	7.0 x 8.0	5600	560	1
83256229	FLEXIMARK® LA label 11-8 SR	silver	11.0 x 8.0	3850	385	1
83256232	FLEXIMARK® LA label 12-6 SR	silver	12.0 x 6.0	6110	611	1
83256235	FLEXIMARK® LA label 16-8 SR	silver	16.0 x 8.0	3150	315	1
83256241	FLEXIMARK® LA label 30.5-12.7 SR	silver	30.5 x 12.7	1100	110	1
83256244	FLEXIMARK® LA label 60-30 SR	silver	60.0 x 30.0	270	27	1
83256238	FLEXIMARK® LA label 80-7.5 SR	silver	80.0 x 7.5	740	74	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® TA Labels Component marking refer to page 950

Accessories

- FLEXIMARK® Software 10.0 refer to page 952

FLEXIMARK® Wrapping labels TCK

Benefits

- A transparent film is wrapped around the cable and pasted over the printed field so that the printing is protected against abrasion, pollution and solvents
- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Due to tight wrapping, space-saving

Application range

- For cable marking

Note

- Can be printed with the FLEXIMARK® Software and the FLEXIMARK® Thermal transfer printer SQUIX or EOS4
- Recommended ribbon: R71 110-360 resin BK (article no. 83259609)

Included

- Delivered as a roll of labels

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Adhesive
Acrylic-based permanent adhesive

Colour delivered
White or yellow

Material
Halogen-free polyester
Thickness: 0.025 mm

Temperature range
-40°C to +125°C
Minimum working temperature: +10°C

Article number	Article designation	Colour	Width x length (mm)	Printable surface (W x H mm)	For Ø (mm)	Markers / PU	PU
White version							
83259874	FLEXIMARK® Label TCK 32 WH	white	25.0 x 33.5	25.0 x 12.7	4.0 - 7.0	1200	1
83259875	FLEXIMARK® Label TCK 35 WH	white	25.0 x 55.0	25.0 x 19.0	6.0 - 12.0	1200	1
83259876	FLEXIMARK® Label TCK 40 WH	white	25.0 x 94.0	25.0 x 25.0	8.0 - 21.0	600	1
83259877	FLEXIMARK® Label TCK 45 WH	white	25.0 x 142.5	25.0 x 25.0	8.0 - 36.0	600	1
83259890	FLEXIMARK® Label TCK 48 WH	white	34.0 x 93.0	34.0 x 93.0	8.0 - 21.0	600	1
83259878	FLEXIMARK® Label TCK 60 WH	white	50.0 x 56.0	50.0 x 19.0	6.0 - 12.0	600	1
83259879	FLEXIMARK® Label TCK 65 WH	white	50.0 x 94.0	50.0 x 25.4	8.0 - 21.0	600	1
83259881	FLEXIMARK® Label TCK 70 WH	white	50.0 x 142.5	50.0 x 25.4	8.0 - 36.0	600	1
Yellow version							
83259882	FLEXIMARK® Label TCK 32 YE	yellow	25.0 x 33.5	25.0 x 12.7	4.0 - 7.0	1200	1
83259883	FLEXIMARK® Label TCK 35 YE	yellow	25.0 x 55.0	25.0 x 19.0	6.0 - 12.0	1200	1
83259884	FLEXIMARK® Label TCK 40 YE	yellow	25.0 x 94.0	25.0 x 25.0	8.0 - 21.0	600	1
83259885	FLEXIMARK® Label TCK 45 YE	yellow	25.0 x 142.5	25.0 x 25.0	8.0 - 36.0	600	1
83259889	FLEXIMARK® Label TCK 48 YE	yellow	34.0 x 93.0	34.0 x 93.0	8.0 - 21.0	600	1
83259886	FLEXIMARK® Label TCK 60 YE	yellow	50.0 x 56.0	50.0 x 19.0	6.0 - 12.0	600	1
83259887	FLEXIMARK® Label TCK 65 YE	yellow	50.0 x 94.0	50.0 x 25.4	8.0 - 21.0	600	1
83259888	FLEXIMARK® Label TCK 70 YE	yellow	50.0 x 142.5	50.0 x 25.4	8.0 - 36.0	600	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- FLEXIMARK® Software 10.0 refer to page 952
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 953

FLEXIMARK® Cablelabel PUR

Info

- PUR 60x10 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Good UV-resistance
- Good chemical resistance
- Highly flexible material
- Hydrolysis and micro organism resistant

Application range

- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)
- Can be mounted directly on the cable together with plastic cable ties

Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0
- MIL 81531 and MIL-STD-202G

Note

- Can be printed with the FLEXIMARK® Software and the FLEXIMARK® Thermal transfer printer SQUIX or EOS4
- Recommended ribbon:
  Text colour black: FTI-Y 60-360 BK (article no. 83260201),
  Text colour white: FTI-X 55-300 WH (article no. 83260260)
- With customized print: see product FLEXIMARK® Cablelabel PUR FCC

Included

- Delivered as a roll of labels

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Cable coding system

Colour delivered
Standard colour: yellow, white
Also available in red, orange, blue, green and black

Material
Halogen-free polyurethane

Temperature range
-50°C to +100°C
Could also withstand +125°C in the short term

Article number	Article designation	Colour	Width x length (mm)	Markers / PU	PU
Mounting centrally (with 1 cable tie)					
83280275	FLEXIMARK® Cablelabel PUR 20x30 YE Diamond	yellow	30.0 x 20.0	1000	1
83280276	FLEXIMARK® Cablelabel PUR 20x30 WH Diamond	white	30.0 x 20.0	1000	1
Mounting left (with 1 cable tie)					
83280277	FLEXIMARK® Cablelabel PUR 55x12 YE	yellow	12.0 x 55.0	1000	1
83280278	FLEXIMARK® Cablelabel PUR 55x12 WH	white	12.0 x 55.0	1000	1
Mounting two-sided (with 2 cable ties)					
83280279	FLEXIMARK® Cablelabel PUR 35x10 YE	yellow	10.0 x 35.0	1000	1
83260191	FLEXIMARK® Cablelabel PUR 60x10 YE	yellow	10.0 x 60.0	1000	1
83260192	FLEXIMARK® Cablelabel PUR 75x15 YE	yellow	15.0 x 75.0	1000	1
83260193	FLEXIMARK® Cablelabel PUR 75x25 YE	yellow	25.0 x 75.0	500	1
83255321	FLEXIMARK® Cablelabel PUR 100x60 YE	yellow	60.0 x 100.0	250	1
83280280	FLEXIMARK® Cablelabel PUR 35x10 WH	white	10.0 x 35.0	1000	1
83260194	FLEXIMARK® Cablelabel PUR 60x10 WH	white	10.0 x 60.0	1000	1
83260195	FLEXIMARK® Cablelabel PUR 75x15 WH	white	15.0 x 75.0	1000	1
83260196	FLEXIMARK® Cablelabel PUR 75x25 WH	white	25.0 x 75.0	500	1
83255322	FLEXIMARK® Cablelabel PUR 100x60 WH	white	60.0 x 100.0	250	1
83280260	FLEXIMARK® Cablelabel PUR 60x10 RD	red	10.0 x 60.0	1000	1
83280261	FLEXIMARK® Cablelabel PUR 75x15 RD	red	15.0 x 75.0	1000	1
83280262	FLEXIMARK® Cablelabel PUR 75x25 RD	red	25.0 x 75.0	500	1
83280263	FLEXIMARK® Cablelabel PUR 60x10 OG	orange	10.0 x 60.0	1000	1
83280264	FLEXIMARK® Cablelabel PUR 75x15 OG	orange	15.0 x 75.0	1000	1
83280265	FLEXIMARK® Cablelabel PUR 75x25 OG	orange	25.0 x 75.0	500	1
83280266	FLEXIMARK® Cablelabel PUR 60x10 BU	blue	10.0 x 60.0	1000	1
83280267	FLEXIMARK® Cablelabel PUR 75x15 BU	blue	15.0 x 75.0	1000	1
83280268	FLEXIMARK® Cablelabel PUR 75x25 BU	blue	25.0 x 75.0	500	1
83280269	FLEXIMARK® Cablelabel PUR 60x10 BK	black	10.0 x 60.0	1000	1
83280270	FLEXIMARK® Cablelabel PUR 75x15 BK	black	15.0 x 75.0	1000	1
83280271	FLEXIMARK® Cablelabel PUR 75x25 BK	black	25.0 x 75.0	500	1
83280272	FLEXIMARK® Cablelabel PUR 60x10 GN	green	10.0 x 60.0	1000	1
83280273	FLEXIMARK® Cablelabel PUR 75x15 GN	green	15.0 x 75.0	1000	1
83280274	FLEXIMARK® Cablelabel PUR 75x25 GN	green	25.0 x 75.0	500	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- Basic Tie cable tie refer to page 1040
- FLEXIMARK® Software 10.0 refer to page 952
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 953

FLEXIMARK® Organized shrink tube

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description:
Labelling material

On request
Also available as diesel-resistant version (with SNCF-NF F00-608 approval)

Colour delivered
Standard colour: Yellow
Also available in white

Material
Polyolefin
Shrink ratio:
Halogen-free version: 2:1
Not halogen-free version: 3:1

Temperature range
Halogen-free version:
-30°C to +105°C
Not halogen-free Version:
-55°C to +135°C
Shrinking temperature: +90°C

Benefits

- Reduced working time
- Already cut to the exact length

Application range

- Covers a wide range of cable diameters, even applicable for single core marking

Norm references / Approvals

- Not halogen-free version: UL 224 certified

Note

- Can be printed with the FLEXIMARK® Software and the FLEXIMARK® Thermal transfer printer SQUIX or EOS4
- Recommended ribbon: FTI-X 60-300 BK (article no. 83260206)

Included

- Delivered as a roll of labels

Article number	Article designation	Colour	Shrinkage range (mm)	Length (mm)	Markers / PU	PU
Halogen-free						
83260225	FLEXIMARK® O.shr 2.4/1.2-12.5 YE	yellow	1.20 - 2.40	12	4000	1
83260228	FLEXIMARK® O.shr 2.4/1.2-16.6 YE	yellow	1.20 - 2.40	16	3000	1
83260100	FLEXIMARK® O.shr 2.4/1.2-25 YE	yellow	1.20 - 2.40	25	2000	1
83260090	FLEXIMARK® O.shr 2.4/1.2-38 YE	yellow	1.20 - 2.40	38	1000	1
83260080	FLEXIMARK® O.shr 2.4/1.2-50 YE	yellow	1.20 - 2.40	50	1000	1
83260226	FLEXIMARK® O.shr 3.2/1.6-12.5 YE	yellow	1.60 - 3.20	12	4000	1
83260229	FLEXIMARK® O.shr 3.2/1.6-16.6 YE	yellow	1.60 - 3.20	16	3000	1
83260101	FLEXIMARK® O.shr 3.2/1.6-25 YE	yellow	1.60 - 3.20	25	2000	1
83260091	FLEXIMARK® O.shr 3.2/1.6-38 YE	yellow	1.60 - 3.20	38	1000	1
83260081	FLEXIMARK® O.shr 3.2/1.6-50 YE	yellow	1.60 - 3.20	50	1000	1
83260227	FLEXIMARK® O.shr 4.8/2.4-12.5 YE	yellow	2.40 - 4.80	12	4000	1
83260230	FLEXIMARK® O.shr 4.8/2.4-16.6 YE	yellow	2.40 - 4.80	16	3000	1
83260102	FLEXIMARK® O.shr 4.8/2.4-25 YE	yellow	2.40 - 4.80	25	2000	1
83260092	FLEXIMARK® O.shr 4.8/2.4-38 YE	yellow	2.40 - 4.80	38	1000	1
83260082	FLEXIMARK® O.shr 4.8/2.4-50 YE	yellow	2.40 - 4.80	50	1000	1
83260103	FLEXIMARK® O.shr 6.4/3.2-25 YE	yellow	3.20 - 6.40	25	2000	1
83260093	FLEXIMARK® O.shr 6.4/3.2-38 YE	yellow	3.20 - 6.40	38	1000	1
83260083	FLEXIMARK® O.shr 6.4/3.2-50 YE	yellow	3.20 - 6.40	50	1000	1
83260104	FLEXIMARK® O.shr 9.5/4.8-25 YE	yellow	4.80 - 9.50	25	1000	1
83260094	FLEXIMARK® O.shr 9.5/4.8-38 YE	yellow	4.80 - 9.50	38	500	1
83260084	FLEXIMARK® O.shr 9.5/4.8-50 YE	yellow	4.80 - 9.50	50	500	1
83260105	FLEXIMARK® O.shr 12.7/6.4-25 YE	yellow	6.40 - 12.70	25	1000	1
83260095	FLEXIMARK® O.shr 12.7/6.4-38 YE	yellow	6.40 - 12.70	38	500	1
83260085	FLEXIMARK® O.shr 12.7/6.4-50 YE	yellow	6.40 - 12.70	50	500	1
83260106	FLEXIMARK® O.shr 19.1/9.5-25 YE	yellow	9.50 - 19.10	25	1000	1
83260096	FLEXIMARK® O.shr 19.1/9.5-38 YE	yellow	9.50 - 19.10	38	500	1
83260086	FLEXIMARK® O.shr 19.1/9.5-50 YE	yellow	9.50 - 19.10	50	500	1
83260107	FLEXIMARK® O.shr 25.4/12.7-25 YE	yellow	12.70 - 25.40	25	600	1
83260097	FLEXIMARK® O.shr 25.4/12.7-38 YE	yellow	12.70 - 25.40	38	300	1
83260087	FLEXIMARK® O.shr 25.4/12.7-50 YE	yellow	12.70 - 25.40	50	300	1
83260098	FLEXIMARK® O.shr 38.1/19.1-38 YE	yellow	19.10 - 38.10	38	100	1
83260088	FLEXIMARK® O.shr 38.1/19.1-50 YE	yellow	19.10 - 38.10	50	100	1
83260099	FLEXIMARK® O.shr 50.8/25.4-38 YE	yellow	25.40 - 50.80	38	100	1
83260089	FLEXIMARK® O.shr 50.8/25.4-50 YE	yellow	25.40 - 50.80	50	100	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® Heat shrinkable tubing refer to page 948

Accessories

- FLEXIMARK® Software 10.0 refer to page 952
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 953
- HG 2320 hot-air pistol refer to page 1036

FLEXIMARK® Shrink mark

Benefits

- Flat shrink tube that can be cut individually to the required length

Application range

- For cable marking
- For applications where space is tight
- Protection of the cable insulation
- Especially suitable for repair purposes

Norm references / Approvals

- UL 224 certified

Note

- Can be printed with the FLEXIMARK® Software and the FLEXIMARK® Thermal transfer printer SQUIX or EOS4
- Recommended ribbon:
  Text colour black: FTI-X 60-300 BK (article no. 83260206),
  Text colour white: FTI-X 55-300 WH (article no. 83260260)
- Use the EOS4 printer with additional cutter for cutting, use the SQUIX printer with additional perforation cutter for perforating the shrink tubes
- With customized print: see product FLEXIMARK® Shrink tube FCC

Included

- Delivered as a roll of labels

Technical data

Colour delivered
Black, yellow and white

Material
Polyolefin
Shrinking ratio: 3:1

Temperature range
-55°C to +135°C

Article number	Article designation	Colour	Shrinkage range (mm)	PU (m)	PU
FLEXIMARK® Shrink mark					
83251670	FLEXIMARK® Shrinking tube 3/1 BK	black	1.0 - 3.0	30	1
83251671	FLEXIMARK® Shrinking tube 6/2 BK	black	2.0 - 6.0	25	1
83251672	FLEXIMARK® Shrinking tube 9/3 BK	black	3.0 - 9.0	20	1
83251673	FLEXIMARK® Shrinking tube 12/4 BK	black	4.0 - 12.0	20	1
83251674	FLEXIMARK® Shrinking tube 18/6 BK	black	6.0 - 18.0	20	1
83251680	FLEXIMARK® Shrinking tube 3/1 YE	yellow	1.0 - 3.0	30	1
83251681	FLEXIMARK® Shrinking tube 6/2 YE	yellow	2.0 - 6.0	25	1
83251682	FLEXIMARK® Shrinking tube 9/3 YE	yellow	3.0 - 9.0	20	1
83251683	FLEXIMARK® Shrinking tube 12/4 YE	yellow	4.0 - 12.0	20	1
83251684	FLEXIMARK® Shrinking tube 18/6 YE	yellow	6.0 - 18.0	20	1
83251690	FLEXIMARK® Shrinking tube 3/1 WH	white	1.0 - 3.0	30	1
83251691	FLEXIMARK® Shrinking tube 6/2 WH	white	2.0 - 6.0	25	1
83251692	FLEXIMARK® Shrinking tube 9/3 WH	white	3.0 - 9.0	20	1
83251693	FLEXIMARK® Shrinking tube 12/4 WH	white	4.0 - 12.0	20	1
83251694	FLEXIMARK® Shrinking tube 18/6 WH	white	6.0 - 18.0	20	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

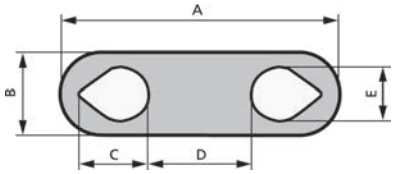
Accessories

- FLEXIMARK® Software 10.0 refer to page 952
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 953
- HG 2320 hot-air pistol refer to page 1036

FLEXIMARK® Flexiprint TF

Info

- TF1 included in FLEXIMARK® sample bag (article no. M3251010)



Benefits

- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)
- Easy to install

Application range

- For single core marking
- Marking of optical fibre cables
- Marking before assembly
- For cable cross-sections over 16.00 mm², cable ties can be used for installing single markers

Note

- Can be printed with the FLEXIMARK® Software and the FLEXIMARK® Thermal transfer printer SQUIX or EOS4
- Recommended ribbon: R71 110-360 resin BK (article no. 83259609)
- Normal version: Up to 7 characters
  L version (e.g. LF1L): Up to 15 characters

Included

- Delivered as a roll of labels

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Colour delivered
yellow
also available in green, blue and red

Material
Halogen-free polyester
Thickness: 0.175 mm

Temperature range
-40°C to +125°C

Article number	Article designation	Colour	For mm²	A mm	B (mm)	C (mm)	D (mm)	E (mm)	Markers / PU	PU
Small packaging										
83255011	FLEXIMARK® Flexiprint TF0 WH600	white	0.25 - 0.75	22.9	5.2	3.9	13.1	2.4	600	1
83255012	FLEXIMARK® Flexiprint TF1 WH600	white	0.75 - 1.5	23	5.2	4.9	11.2	3.5	600	1
83255013	FLEXIMARK® Flexiprint TF1B WH600	white	1.5 - 2.5	25	5.7	5.9	11.2	4.2	600	1
83255014	FLEXIMARK® Flexiprint TF2 WH600	white	2.5 - 6.0	26	7	6.5	11	5.5	600	1
83255015	FLEXIMARK® Flexiprint TF3 WH600	white	6.0 - 16.0	41	11	10.5	17	8.4	200	1
Large packaging										
83254372	FLEXIMARK® Flexiprint TF0 YE	yellow	0.25 - 0.75	22.9	5.2	3.9	13.1	2.4	2000	1
83254378	FLEXIMARK® Flexiprint TF1 YE	yellow	0.75 - 1.5	23	5.2	4.9	11.2	3.5	2000	1
83254354	FLEXIMARK® Flexiprint TF1L WH	yellow	0.75 - 1.5	34	5.2	5	22	3.5	2000	1
83254374	FLEXIMARK® Flexiprint TF1B YE	yellow	1.5 - 2.5	25	5.7	5.9	11.2	4.2	2000	1
83254359	FLEXIMARK® Flexiprint TF1BL YE	yellow	1.5 - 2.5	36	5.7	6	22	4.2	2000	1
83254375	FLEXIMARK® Flexiprint TF2 YE	yellow	2.5 - 6.0	26	7	6.5	11	5.5	2000	1
83254376	FLEXIMARK® Flexiprint TF3 YE	yellow	6.0 - 16.0	41	11	10.5	17	8.4	1000	1
83254365	FLEXIMARK® Flexiprint TF0 WH	white	0.25 - 0.75	22.9	5.2	3.9	13.1	2.4	2000	1
83254366	FLEXIMARK® Flexiprint TF1 WH	white	0.75 - 1.5	23	5.2	4.9	11.2	3.5	2000	1
83254355	FLEXIMARK® Flexiprint TF1L WH	white	0.75 - 1.5	34	5.2	5	22	3.5	2000	1
83254367	FLEXIMARK® Flexiprint TF1B WH	white	1.5 - 2.5	25	5.7	5.9	11.2	4.2	2000	1
83254360	FLEXIMARK® Flexiprint TF1BL WH	white	1.5 - 2.5	36	5.7	6	22	4.2	2000	1
83254368	FLEXIMARK® Flexiprint TF2 WH	white	2.5 - 6.0	26	7	6.5	11	5.5	2000	1
83254369	FLEXIMARK® Flexiprint TF3 WH	white	6.0 - 16.0	41	11	10.5	17	8.4	1000	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- FLEXIMARK® Software 10.0 refer to page 952
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 953

NEW

FLEXIMARK® TA Labels Component marking

Info

- Sample labels are available upon request

Benefits

- Good UV resistance
- Smudge and scratch resistant and reistant to oils and chemicals as well

Application range

- Identification of electrical components, panels, push buttons and information signs

Note

- Can be printed with the FLEXIMARK® Software and the FLEXIMARK® Thermal transfer printer SQUIX or EOS4
- Recommended ribbon: R71 110-360 resin BK (article no. 83259609)

Included

- Delivered as a roll of labels

Technical data

Adhesive
Acrylic-based permanent adhesion
Bonding strength: 15 N/mm

Colour delivered
Yellow, white
Silver on demand

Material
Halogen-free polyester

Temperature range
-40 °C to +125 °C
Processing: min. +10 °C

Article number	Article designation	Colour	Width x height (mm)	Markers / PU	PU
FLEXIMARK® TA Labels Component marking					
83259611	FLEXIMARK® TA label 15-6 YE	yellow	15.6 x 6.0	10000	1
83259628	FLEXIMARK® TA label 18-9 YE	yellow	18.0 x 9.0	10000	1
83259634	FLEXIMARK® TA label 20-8 YE	yellow	20.0 x 8.0	10000	1
83259641	FLEXIMARK® TA label 25.4-12.7 YE	yellow	25.4 x 12.7	10000	1
83259653	FLEXIMARK® TA label 26-10 YE	yellow	26.0 x 10.0	10000	1
83259664	FLEXIMARK® TA label 26.5-17.5 YE	yellow	26.5 x 17.5	5000	1
83259683	FLEXIMARK® TA label 32-9.5 YE	yellow	32.0 x 9.5	10000	1
83259594	FLEXIMARK® TA label 37-9 YE	yellow	37.0 x 9.0	2000	1
83259574	FLEXIMARK® TA label 38-13 YE	yellow	38.0 x 13.0	5000	1
83259694	FLEXIMARK® TA label 38-19 YE	yellow	38.0 x 19.0	2000	1
83259700	FLEXIMARK® TA label 45-23 YE	yellow	45.0 x 23.0	2000	1
83259706	FLEXIMARK® TA label 47-28 YE	yellow	47.0 x 28.0	1500	1
83259712	FLEXIMARK® TA label 50-23 YE	yellow	50.0 x 23.0	2000	1
83259718	FLEXIMARK® TA label 60-36 YE	yellow	60.0 x 36.0	1000	1
83259724	FLEXIMARK® TA label 65-35 YE	yellow	65.0 x 35.0	1000	1
83259736	FLEXIMARK® TA label 70-48 YE	yellow	70.0 x 48.0	1000	1
83259783	FLEXIMARK® TA label 75-28 YE	yellow	75.0 x 28.0	2000	1
83259755	FLEXIMARK® TA label 101.6-23 YE	yellow	101.6 x 23.0	2000	1
83259763	FLEXIMARK® TA label 101.6-36 YE	yellow	101.6 x 36.0	1000	1
83259610	FLEXIMARK® TA label 15-6 WH	white	15.6 x 6.0	10000	1
83259629	FLEXIMARK® TA label 18-9 WH	white	18.0 x 9.0	10000	1
83259635	FLEXIMARK® TA label 20-8 WH	white	20.0 x 8.0	10000	1
83259643	FLEXIMARK® TA label 25.4-12.7 WH	white	25.4 x 12.7	10000	1
83259655	FLEXIMARK® TA label 26-10 WH	white	26.0 x 10.0	10000	1
83259665	FLEXIMARK® TA label 26.5-17.5 WH	white	26.5 x 17.5	5000	1
83259685	FLEXIMARK® TA label 32-9.5 WH	white	32.0 x 9.5	10000	1
83259593	FLEXIMARK® TA label 37-9 WH	white	37.0 x 9.0	2000	1
83259573	FLEXIMARK® TA label 38-13 WH	white	38.0 x 13.0	5000	1
83259695	FLEXIMARK® TA label 38-19 WH	white	38.0 x 19.0	2000	1
83259701	FLEXIMARK® TA label 45-23 WH	white	45.0 x 23.0	2000	1
83259707	FLEXIMARK® TA label 47-28 WH	white	47.0 x 28.0	1500	1
83259713	FLEXIMARK® TA label 50-23 WH	white	50.0 x 23.0	2000	1
83259719	FLEXIMARK® TA label 60-36 WH	white	60.0 x 36.0	1000	1
83259725	FLEXIMARK® TA label 65-35 WH	white	65.0 x 35.0	1000	1
83259737	FLEXIMARK® TA label 70-48 WH	white	70.0 x 48.0	1000	1
83259782	FLEXIMARK® TA label 75-28 WH	white	75.0 x 28.0	2000	1
83259756	FLEXIMARK® TA label 101.6-23 WH	white	101.6 x 23.0	2000	1
83259764	FLEXIMARK® TA label 101.6-36 WH	white	101.6 x 36.0	1000	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® TA foam Component marking refer to page 951
- FLEXIMARK® TA Foam Panel refer to page 951

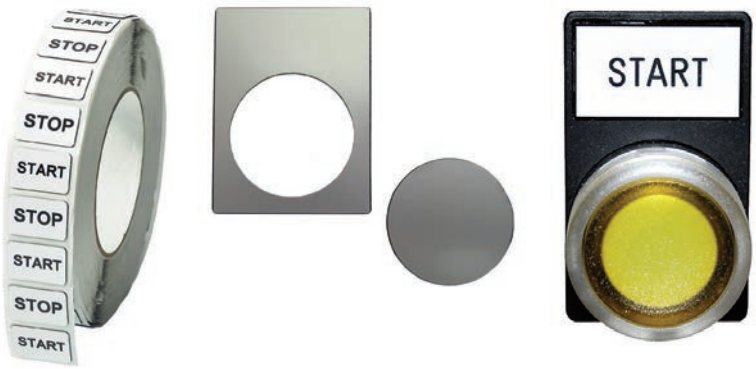
Accessories

- FLEXIMARK® Software 10.0 refer to page 952
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 953

FLEXIMARK® TA foam Component marking

Info

- Included in FLEXIMARK® sample bag (article no. M3251010)



NEW

FLEXIMARK® TA Foam Panel strip

Benefits

- Good UV-resistance
- Self-adhesive on many surfaces
- Cost-efficient alternative to traditionally used engraved plastic signs

Application range

- Identification of electrical components, panels, push buttons and information signs

Note

- Can be printed with the FLEXIMARK® Software and the FLEXIMARK® Thermal transfer printer SQUIX or EOS4
- Recommended ribbon: FTI-Y 60-360 BK (article no. 83260201)

Included

- Delivered as a roll of labels

Technical data

ETIM

Classification ETIM 5/6
FLEXIMARK® TA foam Component marking
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Adhesive
Acrylic-based permanent adhesive

RAL

Colour delivered
Silver
White in web catalogue

Material
Polyester foam

Temperature range
-40 °C to +90 °C

Article number	Article designation	Colour	Width (mm)	Length mm	Markers / PU	m / PU	PU
Rectangular shape							
83255338	FLEXIMARK® TA foam 13-7 SR	silver	7	13	1000		1
83255339	FLEXIMARK® TA foam 22-22 SR	silver	22	22	1000		1
83255340	FLEXIMARK® TA foam 27-8 SR	silver	8	27	1000		1
83260166	FLEXIMARK® TA foam 27-12.5 SR	silver	12.5	27	1000		1
83260167	FLEXIMARK® TA foam 27-15 SR	silver	15	27	1000		1
83260168	FLEXIMARK® TA foam 27-18 SR	silver	18	27	1000		1
83255341	FLEXIMARK® TA foam 27-27 SR	silver	27	27	1000		1
83260170	FLEXIMARK® TA foam 30-40 SR	silver	40	30	1000		1
83260171	FLEXIMARK® TA foam 35-15 SR	silver	15	35	1000		1
83260172	FLEXIMARK® TA foam 35-18 SR	silver	18	35	1000		1
83260173	FLEXIMARK® TA foam 45-15 SR	silver	15	45	1000		1
83255342	FLEXIMARK® TA foam 45-25 SR	silver	25	45	1000		1
83255343	FLEXIMARK® TA foam 48-19 SR	silver	19	48	1000		1

Marking systems

FLEXIMARK® Labels for thermal transfer printing • component marking

Article number	Article designation	Colour	Width (mm)	Length mm	Markers / PU	m / PU	PU
83260176	FLEXIMARK® TA foam 50-15 SR	silver	15	50	1000		1
83260177	FLEXIMARK® TA foam 50-25 SR	silver	25	50	750		1
83260179	FLEXIMARK® TA foam 60-30 SR	silver	30	60	500		1
83260180	FLEXIMARK® TA foam 70-18 SR	silver	18	70	1000		1
83255344	FLEXIMARK® TA foam 90-15 SR	silver	15	90	250		1
83260182	FLEXIMARK® TA foam 90-30 SR	silver	30	90	250		1
83260183	FLEXIMARK® TA foam 90-45 SR	silver	45	90	250		1
83260185	FLEXIMARK® TA foam 100-30 SR	silver	30	100	250		1
83260186	FLEXIMARK® TA foam 100-50 SR	silver	50	100	250		1
83255345	FLEXIMARK® TA foam 100-70 SR	silver	70	100	250		1
83260188	FLEXIMARK® TA foam 105-140 SR	silver	140	105	500		1
Round cut-out							
83260189	FLEXIMARK® TA foam 40-30 Ø 24mm SR	silver	30	40	1000		1
Panel strip							
83255355	FLEXIMARK® TA foam 13-20m SR	silver	13			20	1
83255356	FLEXIMARK® TA foam 15-20m SR	silver	15			20	1
83255357	FLEXIMARK® TA foam 18-20m SR	silver	18			20	1
83255358	FLEXIMARK® TA foam 25-20m SR	silver	25			20	1
83255359	FLEXIMARK® TA foam 30-20m SR	silver	30			20	1
83255360	FLEXIMARK® TA foam 35-20m SR	silver	35			20	1
83255361	FLEXIMARK® TA foam 50-20m SR	silver	50			20	1
83255362	FLEXIMARK® TA foam 80-20m SR	silver	80			20	1
83255363	FLEXIMARK® TA foam 100-20m SR	silver	100			20	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

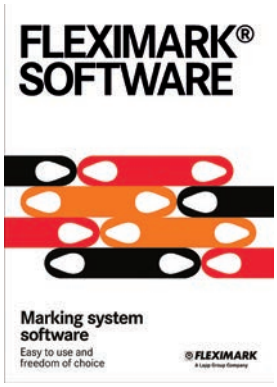
Accessories

- FLEXIMARK® Software 10.0 refer to page 952
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 953

Marking systems

FLEXIMARK® Software and Printer • Software

FLEXIMARK® Software 10.0



Info

- Technical support available in English free of charge (Phone: +4615577764, E-mail: support@fleximark.se)

Benefits

- For ease of use, the interface has been designed to be familiar to users of Microsoft® Office applications
- Enables printing of barcodes, logos, other pictures and serial codes
- Image library including symbols used in electrical engineering
- Online update service for new labels via Internet

Application range

- Marking software that enables you to print all kinds of FLEXIMARK® labels easily and quickly

Product features

- Printer: laser, thermal transfer
- Available languages: German, English, Swedish and French
- Available barcodes: EAN-8, EAN-13, EAN-128, Code-128, Code-39, interleaved 2/5, UPC-A
- System requirements:
  20 MB free hard disc space
  Printer and driver for Microsoft® Windows 2000 or higher

Note

- Download www.lappkabel.com/service/downloadcenter/markingsystem

Included

- Operating manual and help function in the program

Article number	Article designation	Language	PU
FLEXIMARK® Software 10.0			
83251080	FLEXIMARK® Software 10.0	DE / EN / SE / FR	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

FLEXIMARK® thermal printer SQUIX and EOS4*

Info

- Technical support available in English free of charge (Phone: +4615577764, E-mail: support@fleximark.se)

Benefits

- High print speed (up to 125 mm/sec)
- High print resolution: 300 dpi
- Simple communication with FLEXIMARK® Software
- Basic maintenance such as cleaning the label sensor, changing the print head or print roller, can be easily done by yourself

Application range

- Printing on a variety of different materials (among others FLEXIMARK® shrink tube, cablelabel PUR and TA foam component marking)
- The thermal transfer printing method increases the smudge and scratch resistance of the printed surface, and provides increased resistance to oils and chemicals as well

Note

- For cutting of e.g. shrink tubes us optional cutter for the EOS 4
- For perforating flat shrink tubes use thermal transfer printer SQUIX together with the optional perforation cutter

Included

- FLEXIMARK® Software
- FLEXIMARK® thermal printer SQUIX or EOS4 with operating manual and service manual
- Windows® driver
- FLEXIMARK® Ribbon R71 55/360 resin BK (article number 83259604)
- Power supply USB cable (length 1.8 m)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description:
Accessories for fax/printer/MFC

Dimensions
SQUIX: 274x242x446 mm (HxWxD)
EOS4: 245x264x412mm (HxWxT)

Label rolls
Material thickness:
0.055-1.2 mm (SQUIX)
0.055-0.7 mm (EOS4)
Carrier width:
10-120 mm (SQUIX)
10-116 mm (EOS4)
Max. core diameter Ø:
38.0-100.0mm (SQUIX)
38-76mm (EOS4)

Ribbons
Run length up to 500m (SQUIX) or 360m (EOS4)

Speed
Up to 125.00 mm/s

Weight
SQUIX: 9.0 kg
EOS4: 5 kg

Material
Labels or continuous material on coils

Article number	Article designation	PU
FLEXIMARK® thermal printer SQUIX and EOS4*		
83259598	FLEXIMARK® Thermoprinter EOS4/300	1
83259602	FLEXIMARK® Thermoprinter SQUIX 4/300M	1
83259584	FLEXIMARK® Cutter EOS4	1
83259603	FLEXIMARK® Perforation cutter PCU400 SQUIX	1

* Trade product, no Lapp product
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- FLEXIMARK® Ribbons Transfer Printer A4+M/300 and EOS4* refer to page 954

FLEXIMARK® ribbons SQUIX and EOS4

Benefits

- Resistant to scratching and abrasion

Application range

- Use the right ribbon for the particular application
- Resin ribbons R71: Solely for plastic labels with smooth and shiny surface (Flexiprint TF, TCK, TA, TFL)
- FTI-Y: For PUR, TA Foam, Flexiprint TF
- FTI-X: Particular recommended for shrink tubes, also for diesel resistant shrink tubes

Article number	Article designation	Colour	Width (mm) x length (m)	Material	PU
FLEXIMARK® ribbons SQUIX and EOS4					
83259604	Ribbon R71 55-360 resin BK	black	55.0 x 360.0	resin	1
83259609	Ribbon R71 110-360 resin BK	black	110.0 x 360.0	resin	1
83260201	Ribbon FTI-Y 60-360 BK	black	60.0 x 300.0	resin	1
83260200	Ribbon FTI-Y 110-360 BK	black	110.0 x 360.0	resin	1
83260206	Ribbon FTI-X 60-300 BK	black	60.0 x 300.0	resin	1
83260205	Ribbon FTI-X 100-300 BK	black	100.0 x 300.0	resin	1
83260262	Ribbon Y501P 30-450 WH	white	30.0 x 450.0	resin	1
83260260	Ribbon FTI-X 55-300 WH	white	55.0 x 300.0	resin	1
83260261	Ribbon FTI-X 110-300 WH	white	110.0 x 300.0	resin	1

* Trade product, no Lapp product
Other colours, sizes and materials are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

DYMO® Industry Rhino Pro 4200

Benefits

- Compact and mobile device
- Integrated rubber bumpers help prevent damage from accidental drops and falls
- Resistant to UV-light, oil, scratches and solvents
- Indoor and outdoor applications

Application range

- Marking of cables, wires and components
- Coloured self-adhesive vinyl strips
- Shrink tubes

Product features

- Thermal transfer printing technology
- QWERTY keyboard

Note

- Power cable is not included (art. no. 61800150)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Labelling tape

Material
Vinyl tapes: Vinyl
Shrink tube tapes: Polyolefin (flame retardant UL224), shrink ratio 3:1

Temperature range
Vinyl tapes: -18°C up to +90°C
Shrink tube tapes: -18° up to 135°C

Article number	Article designation	Width (mm)	Length (m)	For cable Ø (mm)	Colour of lettering	Colour of tape
DYMO® Industry Rhino Pro 4200						
61800337	DYMO RHINO PRO 4200					
Vinyl tapes						
61800274	RP/ID1 9mm VINYL SW/WS black	9	5.5		black	white
61800275	RP/ID1 12mm VINYL SW/YELLOW	12	5.5		black	yellow
61800276	RP/ID1 12mm VINYL SW/ORANGE	12	5.5		black	orange
61800277	RP/ID1 12mm VINYL WH/RED	12	5.5		white	red
61800278	RP/ID1 12mm VINYL SW/GREEN	12	5.5		black	green
61800279	RP/ID1 12mm VINYL SW/WHITE	12	5.5		black	white
61800280	RP/ID1 19mm VINYL SW/YELLOW	19	5.5		black	yellow
61800281	RP/ID1 19mm VINYL SW/ORANGE	19	5.5		black	orange
61800282	RP/ID1 19mm VINYL WH/RED	19	5.5		white	red
61800283	RP/ID1 19mm VINYL SW/GREEN	19	5.5		black	green
61800284	RP/ID1 19mm VINYL SW/WHITE	19	5.5		black	white
Shrink tube tapes						
61800290	RP/ID1 Shrink 1-6-1400	6	1.5	1.1 - 2.3	black	white
61800291	RP/ID1 Shrink 1-9-1400	9	1.5	1.7 - 3.7	black	white
61800295	RP/ID1 Shrink 1-9-1400YL	9	1.5	1.7 - 3.7	black	yellow
61800292	RP/ID1 Shrink 1-12-1400	12	1.5	2.9 - 5.1	black	white
61800296	RP/ID1 Shrink 1-12-1400YL	12	1.5	2.9 - 5.1	black	yellow
61800293	RP/ID1 Shrink 1-19-1400	19	1.5	4.6 - 8.7	black	white
61800297	RP/ID1 Shrink 1-19-1400YL	19	1.5	4.6 - 8.7	black	yellow

DYMO® is a registered trademark of Sanford GmbH,a Newell Rubbermaid Company
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- DYMO® XTL refer to page 956

Accessories

- FLEXIMARK® PTEF/ CAB refer to page 958

DYMO® XTL 300 / 500

Benefits

- Label printer recognizes automatically inserted label
- Intuitive handling through integrated labelling applications
- Time-saving by pre-sized labels
- Accurate print preview
- Integrated rubber bumpers help prevent damage from accidental drops and falls

Application range

- Marking of cables, wires and components
- Resistant to UV-light, oil, humidity and chemicals

Product features

- Thermal transfer printing technology
- XTL 300: max. label width 24mm, colour display, manual cutter
- XTL 500: max. label width 54mm, touchscreen, automatic cutter

Note

- Free DYMO ID software for PC connection (available at www.dymo.com) for easy tranfer of labels

Included

- Kit contains 1 DYMO XTL 300 (incl. labels VIN 24BK / WH and LAM 21x39 WH) or XTL 500 (incl. labels VIN 54BK / WH and LAM 38x39 WH), charging adapter, USB cable, Li-Ion battery, lanyard and instruction in a hard case

Technical data

Material
Vinyl tapes and wrapping labels: Vinyl
Shrink tube: Polyolefin (flame retardant UL224), shrink ratio 3:1

Temperature range
-40 °C to +60 °C

Article number	Article designation	Width (mm)	Length mm	For cable Ø (mm)	Colour of tape	Colour of lettering	Printer	Markers / PU	m / PU
DYMO XTL Kit									
83257106	DYMO XTL KIT 300								
83257107	DYMO XTL KIT 500								
Vinyl tapes									
83257146	DYMO XTL VIN 12BK/TR	12			transparent	black	XTL 300/500		7
83257147	DYMO XTL VIN 19BK/TR	19			transparent	black	XTL 300/500		7
83257150	DYMO XTL VIN 54BK/TR	54			transparent	black	XTL 500		7
83257156	DYMO XTL VIN 12BK/WH	12			white	black	XTL 300/500		7
83257157	DYMO XTL VIN 19BK/WH	19			white	black	XTL 300/500		7
83257160	DYMO XTL VIN 54BK/WH	54			white	black	XTL 500		7
83257166	DYMO XTL VIN 12WH/RD	12			red	white	XTL 300/500		7
83257167	DYMO XTL VIN 19WH/RD	19			red	white	XTL 300/500		7
83257170	DYMO XTL VIN 54WH/RD	54			red	white	XTL 500		7
83257176	DYMO XTL VIN 12BK/YE	12			yellow	black	XTL 300/500		7
83257177	DYMO XTL VIN 19BK/YE	19			yellow	black	XTL 300/500		7
83257180	DYMO XTL VIN 54BK/YE	54			yellow	black	XTL 500		7
Shrink tube tapes									
83257214	DYMO XTL SHRINK 6-2700BK/WH	6		2.0 - 6.0	white	black	XTL 300/500		2.7
83257215	DYMO XTL SHRINK 12-2700BK/WH	12		4.0 - 12.0	white	black	XTL 300/500		2.7
83257216	DYMO XTL SHRINK 24-2700BK/WH	24		8.0 - 24.0	white	black	XTL 300/500		2.7
83257217	DYMO XTL SHRINK 54-1800BK/WH	54		18.0 - 54.0	white	black	XTL 500		1.8
Pres-sized shrink tubes									
83257132	DYMO XTL SHRINK 6X34WH	6	34	2.0 - 6.0	white	black	XTL 500	81	
83257133	DYMO XTL SHRINK 12X34WH	12	34	4.0 - 12.0	white	black	XTL 500	65	
83257134	DYMO XTL SHRINK 24X34WH	24	34	8.0 - 24.0	white	black	XTL 500	60	
83257135	DYMO XTL SHRINK 54X34WH	54	34	18.0 - 54.0	white	black	XTL 500	25	
83257136	DYMO XTL SHRINK 6X47WH	6	47	2.0 - 6.0	white	black	XTL 500	81	
83257137	DYMO XTL SHRINK 12X47WH	12	47	4.0 - 12.0	white	black	XTL 500	65	
83257138	DYMO XTL SHRINK 24X47WH	24	47	8.0 - 24.0	white	black	XTL 500	60	
83257139	DYMO XTL SHRINK 54X47WH	54	47	18.0 - 54.0	white	black	XTL 500	25	
Laminated wrapping labels									
83257119	DYMO XTL LAM 21X21 WH	21	21		white	black	XTL 300/500	250	
83257120	DYMO XTL LAM 21X39 WH	21	39		white	black	XTL 300/500	150	
83257121	DYMO XTL LAM 21X102 WH	21	102		white	black	XTL 300/500	75	
83257122	DYMO XTL LAM 38X21 WH	38	21		white	black	XTL 500	250	
83257123	DYMO XTL LAM 38X39 WH	38	39		white	black	XTL 500	150	
83257124	DYMO XTL LAM 38X102 WH	38	102		white	black	XTL 500	75	
83257125	DYMO XTL LAM 51X21 WH	51	21		white	black	XTL 500	250	
83257126	DYMO XTL LAM 51X39 WH	51	39		white	black	XTL 500	100	
83257127	DYMO XTL LAM 51X102 WH	51	102		white	black	XTL 500	70	

DYMO® is a registered trademark of Sanford GmbH,a Newell Rubbermaid Company
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® PTEF/ CAB refer to page 958

FLEXIMARK® Character holders PTE

Benefits

- Additional protection against UV- radiation and diverse chemicals
- Ensure high flexibility: Character holders can be cut to the desired length

Application range

- Suitable for FLEXIMARK® Flexilabels LFL as well as for DYMO® industry tapes
- For cable/conduit marking
- Assembly with 2.6 mm cable ties or fasten with screws and rivets when using end caps

Included

- Delivery in a plastic bag or in a box (see picture): Character holders in plastic bag are already pre-cut to a particular size

Suitable tools

- FLEXIMARK® Pliers FL52ERA for character holders refer to page 961

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Mounting for labelling material

Material
Halogen-free polyethylene

Temperature range
-75°C up to +80°C

Article number	Article designation	Length (mm)	Max. height of holder (mm)	Markers / PU	PU
Character holders PTE					
83253012	FLEXIMARK® PTE 6-1000 mm TR (Plastic bag)	1,000	6	10	1
83259950	FLEXIMARK® PTE 6-10 m TR (Box)	10,000	6	1	1
83252081	FLEXIMARK® PTE 9,5-285 mm TR (Plastic bag)	285	9.5	10	1
83252084	FLEXIMARK® PTE 9,5-1000 mm TR (Plastic bag)	1,000	9.5	10	1
83259951	FLEXIMARK® PTE 9.5-10 m TR (Box)	10,000	9.5	1	1
83252028	FLEXIMARK® PTE 12-285 mm TR (Plastic bag)	285	12	10	1
83252027	FLEXIMARK® PTE 12-1000 mm TR (Plastic bag)	1,000	12	10	1
83259952	FLEXIMARK® PTE 12-10 m TR (Box)	10,000	12	1	1
83251060	FLEXIMARK® PTE 19-285 mm TR (Plastic bag)	285	19	10	1
83259953	FLEXIMARK® PTE 19-5 m TR (Box)	5,000	19	1	1
83251061	FLEXIMARK® PTE 19-1000 mm TR (Plastic bag)	1,000	19	10	1
83259954	FLEXIMARK® PTE 25-5 m TR (Box)	5,000	25	1	1
Accessories for character holder PTE 9.5mm					
83252005	FLEXIMARK® Lock Button Mini FLKA 5206 YE			500	1
83252020	FLEXIMARK® End clap Mini FLG 5242 YE			100	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

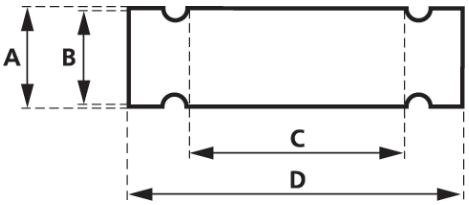
Similar products

- FLEXIMARK® PTEF/ CAB refer to page 958

Accessories

- Basic Tie cable tie refer to page 1040

FLEXIMARK® Character holders PTEF / CAB



Info

- PTEF 9,5-35 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Cost-saving, as you save the time for cutting
- PC labels LFL are adapted to be pushed into different sizes of character-holder
- Additional protection against UV- radiation and diverse chemicals

Application range

- Suitable for FLEXIMARK® Flexilabels LFL as well as for DYMO® industry tapes
- For cable/conduit marking
- Assembly with 2.6 mm cable ties or fasten with screws and rivets when using end caps

Included

- PTEF: without cable ties
  CAB: with cable ties (135x2,6mm)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Mounting for labelling material

Material
Halogen-free polyethylene

Temperature range
-75°C up to +80°C

Article number	Article designation	A mm	B (mm)	C (mm)	D (mm)	Markers / PU	PU
Without cable ties							
83254974	FLEXIMARK® PTEF 6-35 TR	8.7	6	35	47.0	50	1
83254960	FLEXIMARK® PTEF 9.5-18 TR	12.2	9.5	18	30.0	50	1
83254961	FLEXIMARK® PTEF 9.5-28 TR	12.2	9.5	28	40.0	50	1
83254963	FLEXIMARK® PTEF 9.5-35 TR	12.2	9.5	35	47.0	50	1
83254962	FLEXIMARK® PTEF 9.5-38 TR	12.2	9.5	38	50.0	50	1
83254964	FLEXIMARK® PTEF 9.5-58 TR	12.2	9.5	58	70.0	50	1
83254965	FLEXIMARK® PTEF 9.5-70 TR	12.2	9.5	70	82.0	50	1
83280006	FLEXIMARK® PTEF 12-18 TR	14.8	12	18	30.0	50	1
83254976	FLEXIMARK® PTEF 12-28 TR	14.8	12	28	40.0	50	1
83254977	FLEXIMARK® PTEF 12-38 TR	14.8	12	38	50.0	50	1
83254978	FLEXIMARK® PTEF 12-58 TR	14.8	12	58	70.0	50	1
83254982	FLEXIMARK® PTEF 19-50 TR	21.7	19	50	62.0	50	1
With cable ties							
83259091	FLEXIMARK® CAB 6-35 TR	8.7	6	35	47.0	50	1
83259087	FLEXIMARK® CAB 9.5-18 TR	12.2	9.5	18	30.0	50	1
83259084	FLEXIMARK® CAB 9.5-28 TR	12.2	9.5	28	40.0	50	1
83259088	FLEXIMARK® CAB 9.5-35 TR	12.2	9.5	35	47.0	50	1
83259086	FLEXIMARK® CAB 9.5-58 TR	12.2	9.5	58	70.0	50	1
83259078	FLEXIMARK® CAB 12-18 TR	14.8	12	18	30.0	50	1
83259079	FLEXIMARK® CAB 12-28 TR	14.8	12	28	40.0	50	1
83259080	FLEXIMARK® CAB 12-38 TR	14.8	12	38	50.0	50	1
83259081	FLEXIMARK® CAB 12-58 TR	14.8	12	58	70.0	50	1
83259070	FLEXIMARK® CAB 19-50 TR	21.7	19	50	62.0	50	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- Basic Tie cable tie refer to page 1040

FLEXIMARK® Character holders PGS

Info

- PGS 1-285 BK included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Self-adhesive on many surfaces
- Transparent cover ensures an additional protection of the label or the character strips

Application range

- Suitable for FLEXIMARK® Flexilabels LFL as well as for DYMO® industry tapes
- For marking component groups in the manufacturing of control cabinets
- Fastening: bonding, or at temperatures > +45 °C with screws or rivets

Product features

- Extremely flame-retardant according to UL 94 V0

Suitable tools

- FLEXIMARK® Pliers FL52ERA for character holders refer to page 961

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Mounting for labelling material

Colour delivered
Black, white, grey

Material
ABS plastic

Temperature range
-20 °C to +45 °C

Article number	Article designation	Colour	Length x height (mm)	Markers / PU	PU
FLEXIMARK® Character holders PGS					
83252011	FLEXIMARK® PGS 10-1000 WH	white	1,000.0 x 10.0	10	1
83250003	FLEXIMARK® PGS 10-1000 BK	black	1,000.0 x 10.0	10	1
83252014	FLEXIMARK® PGS 10-1000 GY	grey	1,000.0 x 10.0	10	1
83250043	FLEXIMARK® Label cover 10-100 PGS 10	transparent	1,000.0 x 10.0	10	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

FLEXIMARK® Collar Snap-on

Info

- Mounting after installtion possible by snap-on mechanism
- Snap-On 2-3,5/15 included in FLEXIMARK® sample bag (article no. M3251010)

FLEXIMARK® Collar closed

Info

- Mounting before installation, as marking collar is closed

FLEXIMARK® Collar for cable tie

Info

- By mounting with cable ties independent of the cable diameter

Benefits

- Enhanced scratch-protection
- Resistant and flexible protection
- Resistant to chemicals, UV-light, moisture and oils (diesel oil, basic cleaning agent, sea water, ethanol,...)

Product features

- Extremely flame-retardant according to UL 94 V0

Note

- Suitable marking collar for LMB labels

Included

- Marking collars without labels

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description:
Mounting for labelling material

Colour delivered
transparent

Material
FLEXIMARK® Collar Snap-on
Halogen-free polyethylene
FLEXIMARK® Collar closed
PVC
FLEXIMARK® Collar for cable tie
Halogen-free polyurethane

Temperature range
-40°C to +80°C

Article number	Article designation	Length (mm)	For cable Ø (mm)	Markers / PU	PU
FLEXIMARK® Collar Snap-on					
83252650	FLEXIMARK® collar SnapOn 2-3.5/10 TR	10	2.0 - 3.5	1000	1
83252651	FLEXIMARK® collar SnapOn 2-3.5/15 TR	15	2.0 - 3.5	1000	1
83252695	FLEXIMARK® collar SnapOn 2-3.5/23 TR	23	2.0 - 3.5	500	1
83252653	FLEXIMARK® collar SnapOn 2.8-5/10 TR	10	2.8 - 5.0	1000	1
83252654	FLEXIMARK® collar SnapOn 2.8-5/15 TR	15	2.5 - 5.0	1000	1
83252656	FLEXIMARK® collar SnapOn 5-8/10 TR	10	5.0 - 8.0	500	1
83252657	FLEXIMARK® collar SnapOn 5-8/15 TR	15	5.0 - 8.0	500	1
83252660	FLEXIMARK® collar SnapOn 8-10/15 TR	15	8.0 - 10.0	500	1
FLEXIMARK® Collar closed					
83252670	FLEXIMARK® collar halogen-free 1.4-5/10 TR	10	1.4 - 5.0	1000	1
83252671	FLEXIMARK® collar halogen-free 1.4-5/15 TR	15	1.4 - 5.0	1000	1
83252693	FLEXIMARK® collar halogenfree 1,4-5/23 TR	23	1.4 - 5.0	500	1
83252672	FLEXIMARK® collar halogen-free 1.4-5/30 TR	30	1.4 - 5.0	500	1
83252673	FLEXIMARK® collar halogen-free 5-11/10 TR	10	5.0 - 11.0	500	1
83252674	FLEXIMARK® collar halogen-free 5-11/15 TR	15	5.0 - 11.0	500	1
83252694	FLEXIMARK® collar halogen-free 5-11/23 TR	23	5.0 - 11.0	200	1
83252675	FLEXIMARK® collar halogen-free 5-11/30 TR	30	5.0 - 11.0	200	1
FLEXIMARK® collar for cable ties					
83252676	FLEXIMARK® collar for cable ties	30		200	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

FLEXIMARK® Collar for cable tie

- Basic Tie cable tie refer to page 1040

WM BW Blank cable marker

Info

- Marking pens available in the web catalogue

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description:
Labelling material

Material
Vinyl strips, silicone-treated lining, halogen-free

Temperature range
-35°C to +70°C

Benefits

- Wrapping label with protective foil
- When the cover is applied onto the cable, the transparent foil covers the writing area, thus protecting it against abrasion, humidity, oil and light solvents.
- Easy to label

Application range

- For cable marking
- The designations can be written with a pencil, a ballpoint, pen, or other marker on the white writing area
- Indoor applications

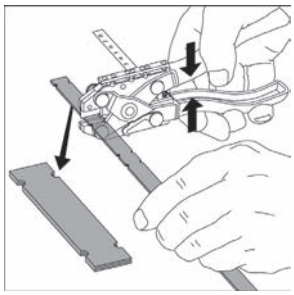
Article number	Article designation	Labelling surface (mm)	For cable Ø (mm)	Number of markers per brochure	PU
WM BW Blank cable marker					
61726150	WM brochure BW 3	25 x 25	8.0 - 40.0	30	1
61726160	WM brochure BW 5	20 x 25	6.0 - 18.1	50	1
61726170	WM brochure BW 12	15 x 12	5.0 - 5.4	200	1
61726180	WM brochure BW 14	15 x 6	5.0 - 5.4	400	1
61726190	WM brochure BW 34	14 x 18	5.0 - 10.0	140	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- MS Marker pens

FLEXIMARK® Pliers FL52ERA



Benefits

- Creating a centred hole
- Punching device creates accurate hole-punches for cable ties with 2.5mm width
- Can also be used as a knife for shortening character holders
- Lightweight model suitable for all hand sizes

Application range

- Special hole pliers for character-holders PTE and PGS with 6-12 mm width

Note

- Single parts (cutting and punching device) can be exchanged
- For characters with 19 mm width please use the tool FL 52 A (article no. 83250024)
- Further spare parts are available

Article number	Article designation	Character holder	Contents (unit)
FLEXIMARK® Pliers FL52ERA			
83252047	FLEXIMARK® Plier FL52ERA	6 / 9.5 / 12	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

KMK Label holders

Benefits
- Printed insert strips are placed inside the label-holder and enclosed by a dust-proof cap

Application range
- Suitable for both marking and bundling several conductors and cables in indoor areas
- For bundle diameters from 10 to 31 mm

Product features
- Labelling options: by hand or laser/ink-jet printer

Norm references / Approvals
- Smudge-proof: DIN 30646:1993-11, DIN VDE 0611-1:1977-11

Product Make-up
- Strap width of KMK1: 5 mm
- Bundling area of KMK1: 10-25 mm
- Strap width of KMK3: 10 mm
- Bundling area of KMK3: 16-31 mm
- Fastening loops KMK2/KMK4: 5 mm

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Colour delivered
transparent

Material
Label-holder: PE, halogen-free
Labels: cardboard, DIN A4 perforated, silicon free and halogen-free

Temperature range
-40°C to +80°C

Included
- Labels: 10 sheets with 150 (61742922) or 50 labels (61742926)
- Please order labels separately

Article number	Article designation	Width x height (mm)	Equipment per piece	Contents (unit)
KMK Label holders				
61742820	KMK 1 label-holder	29.0 x 8.0	with strap	100
61742822	KMK 2 label-holder	29.0 x 8.0	without strap	100
61742824	KMK 3 label-holder	40.0 x 17.0	with strap	50
61742826	KMK 4 label-holder	40.0 x 17.0	without strap	50
61742922	ES/LP-BW-GB labels	29.0 x 8.0	1500 labels	10
61742926	ES/KMK 3 GB labels	40.0 x 17.0	500 labels	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

ETB Label holders

Benefits
- Suitable for binding and bundling
- The label holder can be opened and closed easily to replace the label
- Good UV-resistance

Application range
- Marking cables, tubes, items, or as advertising media, baggage labels and any other kind of labelling

Product features
- The label is folded in a way that can be reduced to a quarter of its size, matchiing the visible part of the printing field in the label holder

Product Make-up
- Cable tie dimensions: 200 x 5 mm
- Perforated cardboard (colour: white)

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Material
Polypropylene (PP)

Temperature range
-18°C up to +90°C
Mounting temperature: min. +10 °C

Included
- 61742810: including marking labels (2 sheets with 14 labels each)

Article number	Article designation	Width x height (mm)	Labels per side	Contents (unit)
ETB Label holders				
61742810	ETB holder transparent	60.0 x 33.0		50
61742900	ETB labels	52.0 x 17.5	56	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

FLEXIMARK® Stainless steel kit

Benefits
- The basic equipment of the FLEXIMARK® stainless steel system in a handy box

Application range
- Cable and component marking system
- Quick and easy on-site assembly
- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)

Norm references / Approvals
- Achilles JQS certified

Note
- Single parts included in the box could be purchased separately (e.g. special pliers= article no. 61790180)

Included
- Characters A-Ö / 0-9: 40 pcs.
- Special characters +-/:.ü and symbol for earthing: 40 pcs.
- Blank characters: 40 pcs.
- Character holders (each 5 with boreholes and 5 with fastening loops for cable ties) with lengths of 286, 109, 83.1, 60.4, and 48.8 mm
- Steel cable ties LS 4.6x200: 10 pcs.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Dimensions
Character strips: 9.5 x 6 x 0.75 mm
Box: 440 x 380 x 100 mm

Material
Acid resistant stainless steel EN 1.4404 (SS2348, AISI 316L)

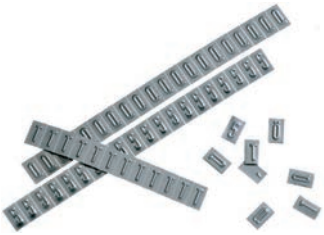
Temperature range
-80°C to +500°C

Article number	Article designation	Version	PU
FLEXIMARK® Stainless steel kit			
83254222	FLEXIMARK® Kit Stainless Steel without pliers	without pliers	1
83254223	FLEXIMARK® Kit Stainless Steel with special pliers	with special pliers for´preventing the signs falling off	1
83254224	FLEXIMARK® Kit Stainless Steel with cable tie pliers	With cable tie pliers	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Please request our data sheet for further clarification on the different types of kits.

Accessories
- FLEXIMARK® MR Stainless steel character refer to page 964
- FLEXIMARK® NM Stainless steel - character holders refer to page 965
- STEEL GUN HT-338 cable tie pliers refer to page 1049
- LS steel cable ties refer to page 1047

FLEXIMARK® Stainless steel characters MR



Info

- Included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Quick, simple and permanent marking on site

Application range

- Cable and component marking system
- For assembly, the character strips are pushed into the NM stainless steel character holders
- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)

Norm references / Approvals

- Achilles JQS certified

Note

- Cyrillic characters on request

Included

- Sets contain 200 markers of each character

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Dimensions
Height x width: approx. 9.5 x 6 mm
Character height: approx. 6.8 mm

Material
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)

Temperature range
-80°C to +500°C

Article number	Article designation	Markers / PU	PU
Sets			
83254122	FLEXIMARK® Character strip MR SET 0-9	2000	1
83254120	FLEXIMARK® Character strip MR SET A-Z	5200	1
Numbers			
83254179	FLEXIMARK® Character Strip MR 10-20 1	200	1
83254180	FLEXIMARK® Character Strip MR 10-20 2	200	1
83254181	FLEXIMARK® Character Strip MR 10-20 3	200	1
83254182	FLEXIMARK® Character Strip MR 10-20 4	200	1
83254183	FLEXIMARK® Character Strip MR 10-20 5	200	1
83254184	FLEXIMARK® Character Strip MR 10-20 6/9	200	1
83254185	FLEXIMARK® Character Strip MR 10-20 7	200	1
83254186	FLEXIMARK® Character Strip MR 10-20 8	200	1
Letters			
83254150	FLEXIMARK® Character Strip MR 10-20 A	200	1
83254151	FLEXIMARK® Character Strip MR 10-20 B	200	1
83254152	FLEXIMARK® Character Strip MR 10-20 C	200	1
83254153	FLEXIMARK® Character Strip MR 10-20 D	200	1
83254154	FLEXIMARK® Character Strip MR 10-20 E	200	1
83254155	FLEXIMARK® Character Strip MR 10-20 F	200	1
83254156	FLEXIMARK® Character Strip MR 10-20 G	200	1
83254157	FLEXIMARK® Character Strip MR 10-20 H	200	1
83254158	FLEXIMARK® Character Strip MR 10-20 I	200	1
83254159	FLEXIMARK® Character Strip MR 10-20 J	200	1
83254160	FLEXIMARK® Character Strip MR 10-20 K	200	1
83254161	FLEXIMARK® Character Strip MR 10-20 L	200	1
83254162	FLEXIMARK® Character Strip MR 10-20 M	200	1
83254163	FLEXIMARK® Character Strip MR 10-20 N	200	1
83254164	FLEXIMARK® Character Strip MR 10-20 O/0	200	1
83254165	FLEXIMARK® Character Strip MR 10-20 P	200	1
83254166	FLEXIMARK® Character Strip MR 10-20 Q	200	1
83254167	FLEXIMARK® Character Strip MR 10-20 R	200	1
83254168	FLEXIMARK® Character Strip MR 10-20 S	200	1
83254169	FLEXIMARK® Character Strip MR 10-20 T	200	1
83254170	FLEXIMARK® Character Strip MR 10-20 U	200	1
83254171	FLEXIMARK® Character Strip MR 10-20 V	200	1
83254172	FLEXIMARK® Character Strip MR 10-20 W	200	1
83254173	FLEXIMARK® Character Strip MR 10-20 X	200	1
83254174	FLEXIMARK® Character Strip MR 10-20 Y	200	1
83254175	FLEXIMARK® Character Strip MR 10-20 Z	200	1
83254177	FLEXIMARK® Character Strip MR 10-20 Ä	200	1
83254178	FLEXIMARK® Character Strip MR 10-20 Ö	200	1
83254201	FLEXIMARK® Character Strip MR 10-20 Ü	200	1
Symbols			
83254192	FLEXIMARK® Character Strip MR 10-20 +	200	1
83254191	FLEXIMARK® Character Strip MR 10-20 -	200	1
83254194	FLEXIMARK® Character Strip MR 10-20 /	200	1
83254195	FLEXIMARK® Character Strip MR 10-20 .	200	1
83254199	FLEXIMARK® Character Strip MR 10-20 :	200	1

Article number	Article designation	Markers / PU	PU
83254198	FLEXIMARK® Character Strip MR 10-20 ~	200	1
83254193	FLEXIMARK® Character Strip MR 10-20 =	200	1
83254200	FLEXIMARK® Character Strip MR 10-20 Earth	200	1
83254196	FLEXIMARK® Character Strip MR 10-20 ,	200	1
83254202	FLEXIMARK® Character Strip MR 10-20 (	200	1
83254189	FLEXIMARK® Character Strip MR 10-20P blank	200	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products

- FLEXIMARK® Stainless steel marking FCC refer to page 933

Accessories

- FLEXIMARK® NM Stainless steel - character holders refer to page 965
- STEEL GUN HT-338 cable tie pliers refer to page 1049
- LS steel cable ties refer to page 1047

FLEXIMARK® Stainless steel character holders NM

Info

- PR 1 NM 7 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Quick, simple and permanent marking on site

Application range

- Cable and component marking system
- For mounting MR stainless steel characters
- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)

Norm references / Approvals

- Achilles JQS certified

Note

- Mounted with cable ties (maximum 7.9 mm width) or screws (up to 3 mm Ø)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Dimensions
The tolerance of the dimensions is +/-1,5 mm.

Info
Height: approx. 11 mm
Screw hole Ø: 3 mm

Material
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)

Temperature range
-80°C to +500°C

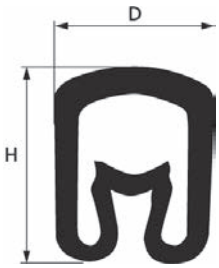
Article number	Article designation	Length (mm)	Max. Amount of Characters	Markers / PU	PU
FLEXIMARK® Stainless steel character holders NM					
83254214	FLEXIMARK® PR10 NM4	48	6	50	1
83254213	FLEXIMARK® PR10 NM5	60	8	50	1
83254212	FLEXIMARK® PR10 NM7	84	12	50	1
83254211	FLEXIMARK® PR10 NM9	108	16	50	1
83254215	FLEXIMARK® PR10 NM11	176	26	50	1
83254210	FLEXIMARK® PR10 NM24	288	46	50	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- STEEL GUN HT-338 cable tie pliers refer to page 1049
- LS steel cable ties refer to page 1047

Marking rings PA



Info

- Accessories (storage box, mounting tool) available in the web catalogue

Benefits

- Closed marking rings with pre-printed number or character
- Anti-rotation protection
- Due to its special profile with spring effects, the 4 different sizes can cover a range of cross-sections from 0.2 to 70 mm²
- Good UV resistance

Application range

- For single core marking
- Marking before assembly
- These closed collars are intended for cables that are not connected yet

Product features

- Cross-section in mm²:
  PA 02: 0.2-1.5
  PA 1: 1.5-4
  PA 2: 2.5-16
  PA 3: 16-70
- Diameter application area in mm:
  PA 02: 1.3-3
  PA 1: 2.5-5
  PA 2: 4.0-10.0
  PA 3: 8-16
- Width x heigt mm / sleeve length mm:
  PA 02: 3.5 x 3.6 / 3
  PA 1: 4.2 x 5.5 / 3
  PA 2: 6.6 x 9.5 / 4
  PA 3: 11 x 16.5 / 6

Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0

Note

- PA 02 also available as collector's box (article no. 61833050, contains 600 rings with inscription 0-9)
- PA 1 also available as collector's box (article no. 61833060, contains 500 rings with inscription 0-9)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Colour delivered
yellow

Material
Cadmium-free and silicon-free soft PVC

Temperature range
-30°C to +60°C

Article number	Article designation	Markers / PU	PU
PA 02			
61817800	PA 02 / 0	200	1
61817810	PA 02 / 1	200	1
61817820	PA 02 / 2	200	1
61817830	PA 02 / 3	200	1
61817840	PA 02 / 4	200	1
61817850	PA 02 / 5	200	1
61817860	PA 02 / 6	200	1
61817870	PA 02 / 7	200	1
61817880	PA 02 / 8	200	1
61817890	PA 02 / 9	200	1
61817900	PA 02/blank	200	1
61817910	PA 02 / A	200	1
61817920	PA 02 / B	200	1
61817930	PA 02 / C	200	1
61817940	PA 02 / D	200	1
61817950	PA 02 / E	200	1
61817960	PA 02 / F	200	1
61817970	PA 02 / G	200	1
61817980	PA 02 / H	200	1
61817990	PA 02 / I	200	1
61818000	PA 02 / J	200	1
61818011	PA 02 / K	200	1
61818020	PA 02 / L	200	1
61818030	PA 02 / M	200	1
61818040	PA 02 / N	200	1
61818050	PA 02 / O	200	1

Article number	Article designation	Markers / PU	PU
61818060	PA 02 / P	200	1
61818070	PA 02 / Q	200	1
61818080	PA 02 / R	200	1
61818090	PA 02 / S	200	1
61819100	PA 02 / T	200	1
61819110	PA 02 / U	200	1
61819120	PA 02 / V	200	1
61819130	PA 02 / W	200	1
61819140	PA 02 / X	200	1
61819150	PA 02 / Y	200	1
61819160	PA 02 / Z	200	1
61819170	PA 02 / /	200	1
61819180	PA 02 / .	200	1
61819190	PA 02 / ,	200	1
61819200	PA 02 / :	200	1
61819210	PA 02 / =	200	1
61819220	PA 02/earth	200	1
61819260	PA 02 / +	200	1
61819270	PA 02 / -	200	1
61819280	PA 02 / ~	200	1
PA 1			
61819300	PA 1 / 0	200	1
61819310	PA 1 / 1	200	1
61819320	PA 1 / 2	200	1
61819330	PA 1 / 3	200	1
61819360	PA 1 / 6	200	1
61819340	PA 1 / 4	200	1

Article number	Article designation	Markers / PU	PU
61819350	PA 1 / 5	200	1
61819370	PA 1 / 7	200	1
61819380	PA 1 / 8	200	1
61819390	PA 1 / 9	200	1
61819400	PA 1 /blank	200	1
61819410	PA 1 / A	200	1
61819420	PA 1 / B	200	1
61819430	PA 1 / C	200	1
61819440	PA 1 / D	200	1
61819450	PA 1 / E	200	1
61819460	PA 1 / F	200	1
61819470	PA 1 / G	200	1
61819480	PA 1 / H	200	1
61819490	PA 1 / I	200	1
61819500	PA 1 / J	200	1
61819510	PA 1 / K	200	1
61819520	PA 1 / L	200	1
61819530	PA 1 / M	200	1
61819540	PA 1 / N	200	1
61819550	PA 1 / O	200	1
61819560	PA 1 / P	200	1
61819570	PA 1 / Q	200	1
61819580	PA 1 / R	200	1
61819590	PA 1 / S	200	1
61819600	PA 1 / T	200	1
61819610	PA 1 / U	200	1
61819620	PA 1 / V	200	1
61819630	PA 1 / W	200	1
61819640	PA 1 / X	200	1
61819650	PA 1 / Y	200	1
61819660	PA 1 / Z	200	1
61819670	PA 1 / /	200	1
61819680	PA 1 / .	200	1
61819690	PA 1 / ,	200	1
61819700	PA 1 / :	200	1
61819710	PA 1 / =	200	1
61819720	PA 1/earth	200	1
61819760	PA 1 / +	200	1
61819770	PA 1 / -	200	1
61819780	PA 1 / ~	200	1
PA 2			
61819800	PA 2 / 0	100	1
61819810	PA 2 / 1	100	1
61819820	PA 2 / 2	100	1
61819830	PA 2 / 3	100	1
61819840	PA 2 / 4	100	1
61819850	PA 2 / 5	100	1
61819860	PA 2 / 6	100	1
61819870	PA 2 / 7	100	1
61819880	PA 2 / 8	100	1
61819890	PA 2 / 9	100	1
61819900	PA 2 /blank	100	1
61819910	PA 2 / A	100	1
61819920	PA 2 / B	100	1
61819930	PA 2 / C	100	1
61819940	PA 2 / D	100	1
61819950	PA 2 / E	100	1
61819960	PA 2 / F	100	1
61819970	PA 2 / G	100	1
61819980	PA 2 / H	100	1
61819990	PA 2 / I	100	1
61820000	PA 2 / J	100	1
61820010	PA 2 / K	100	1
61820020	PA 2 / L	100	1
61820030	PA 2 / M	100	1
61820040	PA 2 / N	100	1

Article number	Article designation	Markers / PU	PU
61820050	PA 2 / O	100	1
61820060	PA 2 / P	100	1
61820070	PA 2 / Q	100	1
61820080	PA 2 / R	100	1
61820090	PA 2 / S	100	1
61820100	PA 2 / T	100	1
61820110	PA 2 / U	100	1
61820120	PA 2 / V	100	1
61820130	PA 2 / W	100	1
61820140	PA 2 / X	100	1
61820150	PA 2 / Y	100	1
61820160	PA 2 / Z	100	1
61820170	PA 2 / /	200	1
61820180	PA 2 / .	100	1
61820190	PA 2 / ,	100	1
61820200	PA 2 / :	200	1
61820210	PA 2 / =	100	1
61820220	PA 2/earth	100	1
61820260	PA 2 / +	100	1
61820270	PA 2 / -	100	1
61820280	PA 2 / ~	100	1
PA 3			
61820300	PA 3 / 0	20	1
61820310	PA 3 / 1	20	1
61820320	PA 3 / 2	20	1
61820330	PA 3 / 3	20	1
61820340	PA 3 / 4	20	1
61820350	PA 3 / 5	20	1
61820360	PA 3 / 6	20	1
61820370	PA 3 / 7	20	1
61820380	PA 3 / 8	20	1
61820390	PA 3 / 9	20	1
61820400	PA3 / blank	20	1
61820410	PA 3 / A	20	1
61820420	PA 3 / B	20	1
61820430	PA 3 / C	20	1
61820440	PA 3 / D	20	1
61820450	PA 3 / E	20	1
61820460	PA 3 / F	20	1
61820470	PA 3 / G	20	1
61820480	PA 3 / H	20	1
61820490	PA 3 / I	20	1
61820500	PA 3 / J	20	1
61820510	PA 3 / K	20	1
61820520	PA 3 / L	20	1
61820530	PA 3 / M	20	1
61820540	PA 3 / N	20	1
61820550	PA 3 / O	20	1
61820560	PA 3 / P	20	1
61820570	PA 3 / Q	20	1
61820580	PA 3 / R	20	1
61820590	PA 3 / S	20	1
61820600	PA 3 / T	20	1
61820610	PA 3 / U	20	1
61820620	PA 3 / V	20	1
61820630	PA 3 / W	20	1
61820640	PA 3 / X	20	1
61820650	PA 3 / Y	20	1
61820660	PA 3 / Z	20	1
61820670	PA 3 / /	20	1
61820680	PA 3 / .	20	1
61820720	PA 3 /earth	20	1
61820760	PA 3 / +	20	1
61820770	PA 3 / -	20	1
61820780	PA 3 / ~	20	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

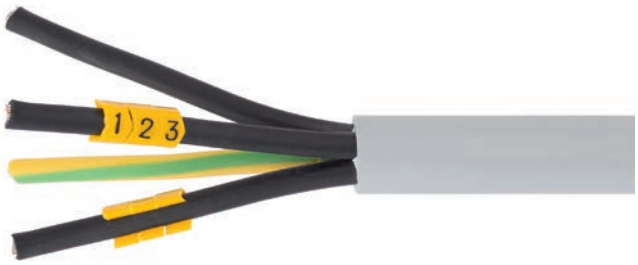
Similar products

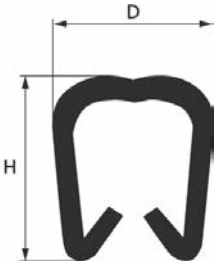
- Marking rings PC 10 refer to page 968
- Marking rings Pliosnap refer to page 970

Accessories

- PAD Mounting rod
- PAV Mounting tool
- Storage box

Marking rings PC





Info

- Accessories (storage box) available in the web catalogue

Benefits

- Open marking rings with pre-printed number or character
- The shape ensures secure fixation to the cable, while the anti-rotation feature allows for a secure combination marking.
- Good UV resistance
- Easy mounting through clipping

Application range

- For single core marking
- Marking after assembly
- Also possible to use for marking wires before assembly

Product features

- Cross-section in mm²:
  PC 10: 1
  PC 20: 2.5
  PC 30: 4
  PC 40: 6
- Diameter application area in mm:
  PC 10: 2.4-3
  PC 20: 3-4
  PC 30: 4-5
  PC 40: 5-6.2
- Width x heigt mm / sleeve length mm:
  PC 10: 3,7 x 3,6 / 3
  PC 20: 4,5 x 4,2 / 3
  PC 30: 5,7 x 5,5 / 3
  PC 40: 6,9 x 6,7 / 4

Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description: Labelling material

Colour delivered
yellow

Material
Cadmium-free and silicon-free hard PVC

Temperature range
-30°C to +60°C

Article number	Article designation	Markers / PU	PU
PC 10			
61820900	PC 10 / O	200	1
61820910	PC 10 / 1	200	1
61820920	PC 10 / 2	200	1
61820930	PC 10 / 3	200	1
61820940	PC 10 / 4	200	1
61820950	PC 10 / 5	200	1
61820960	PC 10 / 6	200	1
61820970	PC 10 / 7	200	1
61820980	PC 10 / 8	200	1
61820990	PC 10 / 9	200	1
61821000	PC 10 / blank	200	1
61821010	PC 10 / A	200	1
61821020	PC 10 / B	200	1
61821030	PC 10 / C	200	1
61821040	PC 10 / D	200	1
61821050	PC 10 / E	200	1
61821060	PC 10 / F	200	1
61821070	PC 10 / G	200	1
61821080	PC 10 / H	200	1
61821090	PC 10 / I	200	1
61821100	PC 10 / J	200	1
61821110	PC 10 / K	200	1
61821120	PC 10 / L	200	1
61821130	PC 10 / M	200	1
61821140	PC 10 / N	200	1
61821150	PC 10 / O	200	1
61821160	PC 10 / P	200	1
61821170	PC 10 / Q	200	1
61821180	PC 10 / R	200	1
61821190	PC 10 / S	200	1
61821200	PC 10 / T	200	1
61821210	PC 10 / U	200	1
61821220	PC 10 / V	200	1
61821230	PC 10 / W	200	1
61821240	PC 10 / X	200	1
61821250	PC 10 / Y	200	1
61821260	PC 10 / Z	200	1
61821270	PC 10 / /	200	1
61821280	PC 10 / .	200	1
61821290	PC 10 / ,	200	1

Article number	Article designation	Markers / PU	PU
61821300	PC 10 / :	200	1
61821310	PC 10 / =	200	1
61821320	PC 10 / earth	200	1
61821360	PC 10 / +	200	1
61821370	PC 10 / -	200	1
61821380	PC 10 / ~	200	1
PC 20			
61821400	PC 20 / 0	200	1
61821410	PC 20 / 1	200	1
61821420	PC 20 / 2	200	1
61821430	PC 20 / 3	200	1
61821440	PC 20 / 4	200	1
61821450	PC 20 / 5	200	1
61821460	PC 20 / 6	200	1
61821470	PC 20 / 7	200	1
61821480	PC 20 / 8	200	1
61821490	PC 20 / 9	200	1
61821500	PC 20 / blank	200	1
61821510	PC 20 / A	200	1
61821520	PC 20 / B	200	1
61821530	PC 20 / C	200	1
61821540	PC 20 / D	200	1
61821550	PC 20 / E	200	1
61821560	PC 20 / F	200	1
61821570	PC 20 / G	200	1
61821580	PC 20 / H	200	1
61821590	PC 20 / I	200	1
61821600	PC 20 / J	200	1
61821610	PC 20 / K	200	1
61821620	PC 20 / L	200	1
61821630	PC 20 / M	200	1
61821640	PC 20 / N	200	1
61821650	PC 20 / O	200	1
61821660	PC 20 / P	200	1
61821670	PC 20 / Q	200	1
61821680	PC 20 / R	200	1
61821690	PC 20 / S	200	1
61821700	PC 20 / T	200	1
61821710	PC 20 / U	200	1
61821720	PC 20 / V	200	1
61821730	PC 20 / W	200	1

Article number	Article designation	Markers / PU	PU
61821740	PC 20 / X	200	1
61821750	PC 20 / Y	200	1
61821760	PC 20 / Z	200	1
61821770	PC 20 / /	200	1
61821780	PC 20 / .	200	1
61821790	PC 20 / ,	200	1
61821800	PC 20 / :	200	1
61821810	PC 20 / =	200	1
61821820	PC 20 / earth	200	1
61821860	PC 20 / +	200	1
61821870	PC 20 / -	200	1
61821880	PC 20 / ~	200	1
PC 30			
61821900	PC 30 / 0	200	1
61821910	PC 30 / 1	200	1
61821920	PC 30 / 2	200	1
61821930	PC 30 / 3	200	1
61821940	PC 30 / 4	200	1
61821950	PC 30 / 5	200	1
61821960	PC 30 / 6	200	1
61821970	PC 30 / 7	200	1
61821980	PC 30 / 8	200	1
61821990	PC 30 / 9	200	1
61822000	PC 30 / blank	200	1
61822010	PC 30 / A	200	1
61822020	PC 30 / B	200	1
61822030	PC 30 / C	200	1
61822040	PC 30 / D	200	1
61822050	PC 30 / E	200	1
61822060	PC 30 / F	200	1
61822070	PC 30 / G	200	1
61822080	PC 30 / H	200	1
61822090	PC 30 / I	200	1
61822100	PC 30 / J	200	1
61822110	PC 30 / K	200	1
61822120	PC 30 / L	200	1
61822130	PC 30 / M	200	1
61822140	PC 30 / N	200	1
61822150	PC 30 / O	200	1
61822160	PC 30 / P	200	1
61822170	PC 30 / Q	200	1
61822180	PC 30 / R	200	1
61822190	PC 30 / S	200	1
61822200	PC 30 / T	200	1
61822210	PC 30 / U	200	1
61822220	PC 30 / V	200	1
61822230	PC 30 / W	200	1
61822240	PC 30 / X	200	1
61822250	PC 30 / Y	200	1
61822260	PC 30 / Z	200	1
61822270	PC 30 / /	200	1
61822280	PC 30 / .	200	1
61822290	PC 30 / ,	200	1

Article number	Article designation	Markers / PU	PU
61822300	PC 30 / :	200	1
61822310	PC 30 / =	200	1
61822320	PC 30 / earth	200	1
61822360	PC 30 / +	200	1
61822370	PC 30 / -	200	1
61822380	PC 30 / ~	200	1
PC 40			
61822400	PC 40 / 0	200	1
61822410	PC 40 / 1	200	1
61822420	PC 40 / 2	200	1
61822430	PC 40 / 3	200	1
61822440	PC 40 / 4	200	1
61822450	PC 40 / 5	200	1
61822460	PC 40 / 6	200	1
61822470	PC 40 / 7	200	1
61822480	PC 40 / 8	200	1
61822490	PC 40 / 9	200	1
61822500	PC 40 / blank	200	1
61822510	PC 40 / A	200	1
61822520	PC 40 / B	200	1
61822530	PC 40 / C	200	1
61822540	PC 40 / D	200	1
61822550	PC 40 / E	200	1
61822560	PC 40 / F	200	1
61822570	PC 40 / G	200	1
61822580	PC 40 / H	200	1
61822590	PC 40 / I	200	1
61822600	PC 40 / J	200	1
61822610	PC 40 / K	200	1
61822620	PC 40 / L	200	1
61822630	PC 40 / M	200	1
61822640	PC 40 / N	200	1
61822650	PC 40 / O	200	1
61822660	PC 40 / P	200	1
61822670	PC 40 / Q	200	1
61822680	PC 40 / R	200	1
61822690	PC 40 / S	200	1
61822700	PC 40 / T	200	1
61822710	PC 40 / U	200	1
61822720	PC 40 / V	200	1
61822730	PC 40 / W	200	1
61822740	PC 40 / X	200	1
61822750	PC 40 / Y	200	1
61822760	PC 40 / Z	200	1
61822770	PC 40 / /	200	1
61822780	PC 40 / .	200	1
61822790	PC 40 / ,	200	1
61822800	PC 40 / :	200	1
61822810	PC 40 / =	200	1
61822820	PC 40 / earth	200	1
61822860	PC 40 / +	200	1
61822870	PC 40 / -	200	1
61822880	PC 40 / ~	200	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Marking rings Pliosnap refer to page 970

Accessories

- Storage box

Marking rings Pliosnap

Info

- Accessories (storage box) available in the web catalogue

Benefits

- Fast and easy assembly
- Mounting wands have a foot for handle-ready position
- Rings grip the conductor tightly withou th risk of damaging the insulation
- Due to chevrons on both sides the markers take up correct orientation

Application range

- Marking of single cores and cables in terminal blocks, also with limited space
- Marking after assembly

Product features

- Cross-section in mm²:
  Pliosnap 0: optical fibre cables
  Pliosnap 1: 0.32
  Pliosnap 2: 0.50
  Pliosnap 3: 0.75
  Pliosnap 6: 1-1.5
  Pliosnap 9: 2.5
  Pliosnap 12: 4-6
- Diameter application area in mm:
  Pliosnap 0: 0.8-1
  Pliosnap 1: 1-1.4
  Pliosnap 2: 1.4-1.8
  Pliosnap 3: 1.9-2.6
  Pliosnap 6: 2.6-3.5
  Pliosnap 9: 3.2-4.5
  Pliosnap 12: 4.5-6

Norm references / Approvals

- Fire behaviour according to UL 94 HB

Included

- 1 PU = 300 markers on 10 (Pliosnap 0 - 6) or 12 (Pliosnap 9 + 12) carriers

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001288
ETIM 5.0/6.0 Class-Description:
Labelling material

Note
Dielectric strength: 28 kV/mm
Tensile strength at yield: 54 N/mm²
Elongation at break: 30 %
Elasticity: 2100 N/mm2

Colour delivered
White
Colour Carrier:
Pliosnap 0: black
Pliosnap 1: brown
Pliosnap 2: grey
Pliosnap 3: green
Pliosnap 6: red
Pliosnap 9: blue
Pliosnap 12: yellow

Material
Polyoxymethylen (POM)

Temperature range
-40 °C to +90 °C

Article number	Article designation	Markers / PU	PU
Pliosnap 0			
61919400	Pliosnap 0/0 WH	300	1
61919401	Pliosnap 0/1 WH	300	1
61919402	Pliosnap 0/2 WH	300	1
61919403	Pliosnap 0/3 WH	300	1
61919404	Pliosnap 0/4 WH	300	1
61919405	Pliosnap 0/5 WH	300	1
61919406	Pliosnap 0/6 WH	300	1
61919407	Pliosnap 0/7 WH	300	1
61919408	Pliosnap 0/8 WH	300	1
61919409	Pliosnap 0/9 WH	300	1
61919410	Pliosnap 0/A WH	300	1
61919411	Pliosnap 0/B WH	300	1
61919412	Pliosnap 0/C WH	300	1
61919413	Pliosnap 0/D WH	300	1
61919414	Pliosnap 0/E WH	300	1
61919415	Pliosnap 0/F WH	300	1
61919416	Pliosnap 0/G WH	300	1
61919417	Pliosnap 0/H WH	300	1
61919418	Pliosnap 0/I WH	300	1
61919419	Pliosnap 0/J WH	300	1
61919420	Pliosnap 0/K WH	300	1
61919421	Pliosnap 0/L WH	300	1
61919422	Pliosnap 0/M WH	300	1
61919423	Pliosnap 0/N WH	300	1
61919424	Pliosnap 0/O WH	300	1
61919425	Pliosnap 0/P WH	300	1
61919426	Pliosnap 0/Q WH	300	1
61919427	Pliosnap 0/R WH	300	1

Article number	Article designation	Markers / PU	PU
61919428	Pliosnap 0/S WH	300	1
61919429	Pliosnap 0/T WH	300	1
61919430	Pliosnap 0/U WH	300	1
61919431	Pliosnap 0/V WH	300	1
61919432	Pliosnap 0/W WH	300	1
61919433	Pliosnap 0/X WH	300	1
61919434	Pliosnap 0/Y WH	300	1
61919435	Pliosnap 0/Z WH	300	1
61919436	Pliosnap 0/+ WH	300	1
61919437	Pliosnap 0/- WH	300	1
61919438	Pliosnap 0/. WH	300	1
61919439	Pliosnap 0/: WH	300	1
Pliosnap 1			
61919440	Pliosnap 1/0 WH	300	1
61919441	Pliosnap 1/1 WH	300	1
61919442	Pliosnap 1/2 WH	300	1
61919443	Pliosnap 1/3 WH	300	1
61919444	Pliosnap 1/4 WH	300	1
61919445	Pliosnap 1/5 WH	300	1
61919446	Pliosnap 1/6 WH	300	1
61919447	Pliosnap 1/7 WH	300	1
61919448	Pliosnap 1/8 WH	300	1
61919449	Pliosnap 1/9 WH	300	1
61919450	Pliosnap 1/A WH	300	1
61919451	Pliosnap 1/B WH	300	1
61919452	Pliosnap 1/C WH	300	1
61919453	Pliosnap 1/D WH	300	1
61919454	Pliosnap 1/E WH	300	1
61919455	Pliosnap 1/F WH	300	1

Article number	Article designation	Markers / PU	PU
61919456	Pliosnap 1/G WH	300	1
61919457	Pliosnap 1/H WH	300	1
61919458	Pliosnap 1/I WH	300	1
61919459	Pliosnap 1/J WH	300	1
61919460	Pliosnap 1/K WH	300	1
61919461	Pliosnap 1/L WH	300	1
61919462	Pliosnap 1/M WH	300	1
61919463	Pliosnap 1/N WH	300	1
61919464	Pliosnap 1/O WH	300	1
61919465	Pliosnap 1/P WH	300	1
61919466	Pliosnap 1/Q WH	300	1
61919467	Pliosnap 1/R WH	300	1
61919468	Pliosnap 1/S WH	300	1
61919469	Pliosnap 1/T WH	300	1
61919470	Pliosnap 1/U WH	300	1
61919471	Pliosnap 1/V WH	300	1
61919472	Pliosnap 1/W WH	300	1
61919473	Pliosnap 1/X WH	300	1
61919474	Pliosnap 1/Y WH	300	1
61919475	Pliosnap 1/Z WH	300	1
61919476	Pliosnap 1/+ WH	300	1
61919477	Pliosnap 1/- WH	300	1
61919478	Pliosnap 1. WH	300	1
61919479	Pliosnap 1/ :	300	1
Pliosnap 2			
61919480	Pliosnap 2/0 WH	300	1
61919481	Pliosnap 2/1 WH	300	1
61919482	Pliosnap 2/2 WH	300	1
61919483	Pliosnap 2/3 WH	300	1
61919484	Pliosnap 2/4 WH	300	1
61919485	Pliosnap 2/5 WH	300	1
61919486	Pliosnap 2/6 WH	300	1
61919487	Pliosnap 2/7 WH	300	1
61919488	Pliosnap 2/8 WH	300	1
61919489	Pliosnap 2/9 WH	300	1
61919490	Pliosnap 2/A WH	100	1
61919491	Pliosnap 2/B WH	300	1
61919492	Pliosnap 2/C WH	300	1
61919493	Pliosnap 2/D WH	300	1
61919494	Pliosnap 2/E WH	300	1
61919495	Pliosnap 2/F WH	300	1
61919496	Pliosnap 2/G WH	300	1
61919497	Pliosnap 2/H WH	300	1
61919498	Pliosnap 2/I WH	300	1
61919499	Pliosnap 2/J WH	300	1
61919500	Pliosnap 2/K WH	300	1
61919501	Pliosnap 2/L WH	300	1
61919502	Pliosnap 2/M WH	300	1
61919503	Pliosnap 2/N WH	300	1
61919504	Pliosnap 2/O WH	300	1
61919505	Pliosnap 2/P WH	300	1
61919506	Pliosnap 2/Q WH	300	1
61919507	Pliosnap 2/R WH	300	1
61919508	Pliosnap 2/S WH	300	1
61919509	Pliosnap 2/T WH	300	1
61919510	Pliosnap 2/U WH	300	1
61919511	Pliosnap 2/V WH	300	1
61919512	Pliosnap 2/W WH	300	1
61919513	Pliosnap 2/X WH	300	1
61919514	Pliosnap 2/Y WH	300	1
61919515	Pliosnap 2/Z WH	300	1
61919516	Pliosnap 2/+ WH	300	1
61919517	Pliosnap 2/- WH	300	1
61919518	Pliosnap 2/. WH	300	1
61919519	Pliosnap 2/ : WH	300	1
Pliosnap 3			
61919520	Pliosnap 3/0 WH	300	1
61919521	Pliosnap 3/1 WH	300	1
61919522	Pliosnap 3/2 WH	300	1
61919523	Pliosnap 3/3 WH	300	1
61919524	Pliosnap 3/4 WH	300	1
61919525	Pliosnap 3/5 WH	300	1
61919526	Pliosnap 3/6 WH	300	1
61919527	Pliosnap 3/7 WH	300	1
61919528	Pliosnap 3/8 WH	300	1
61919529	Pliosnap 3/9 WH	300	1
61919530	Pliosnap 3/A WH	300	1
61919531	Pliosnap 3/B WH	300	1
61919532	Pliosnap 3/C WH	300	1
61919533	Pliosnap 3/D WH	300	1
61919534	Pliosnap 3/E WH	300	1
61919535	Pliosnap 3/F WH	300	1
61919536	Pliosnap 3/G WH	300	1
61919537	Pliosnap 3/H WH	300	1
61919538	Pliosnap 3/I WH	300	1

Article number	Article designation	Markers / PU	PU
61919539	Pliosnap 3/J WH	300	1
61919540	Pliosnap 3/K WH	300	1
61919541	Pliosnap 3/L WH	300	1
61919542	Pliosnap 3/M WH	300	1
61919543	Pliosnap 3/N WH	300	1
61919544	Pliosnap 3/O WH	300	1
61919545	Pliosnap 3/P WH	300	1
61919546	Pliosnap 3/Q WH	300	1
61919547	Pliosnap 3/R WH	300	1
61919548	Pliosnap 3/S WH	300	1
61919549	Pliosnap 3/T WH	300	1
61919550	Pliosnap 3/U WH	300	1
61919551	Pliosnap 3/V WH	300	1
61919552	Pliosnap 3/W WH	300	1
61919553	Pliosnap 3/X WH	300	1
61919554	Pliosnap 3/Y WH	300	1
61919555	Pliosnap 3/Z WH	300	1
61919556	Pliosnap 3/+ WH	300	1
61919557	Pliosnap 3/- WH	300	1
61919558	Pliosnap 3/. WH	300	1
61919559	Pliosnap 3/ : WH	300	1
Pliosnap 6			
61919560	Pliosnap 6/0 WH	300	1
61919561	Pliosnap 6/1 WH	300	1
61919562	Pliosnap 6/2 WH	300	1
61919563	Pliosnap 6/3 WH	300	1
61919564	Pliosnap 6/4 WH	300	1
61919565	Pliosnap 6/5 WH	300	1
61919566	Pliosnap 6/6 WH	300	1
61919567	Pliosnap 6/7 WH	300	1
61919568	Pliosnap 6/8 WH	300	1
61919569	Pliosnap 6/9 WH	300	1
61919570	Pliosnap 6/A WH	300	1
61919571	Pliosnap 6/B WH	300	1
61919572	Pliosnap 6/C WH	300	1
61919573	Pliosnap 6/D WH	300	1
61919574	Pliosnap 6/E WH	300	1
61919575	Pliosnap 6/F WH	300	1
61919576	Pliosnap 6/G WH	300	1
61919577	Pliosnap 6/H WH	300	1
61919578	Pliosnap 6/I WH	300	1
61919579	Pliosnap 6/J WH	300	1
61919580	Pliosnap 6/K WH	300	1
61919581	Pliosnap 6/L WH	300	1
61919582	Pliosnap 6/M WH	300	1
61919583	Pliosnap 6/N WH	300	1
61919584	Pliosnap 6/O WH	300	1
61919585	Pliosnap 6/P WH	300	1
61919586	Pliosnap 6/Q WH	300	1
61919587	Pliosnap 6/R WH	300	1
61919588	Pliosnap 6/S WH	300	1
61919589	Pliosnap 6/T WH	300	1
61919590	Pliosnap 6 U/WH	300	1
61919591	Pliosnap 6/V WH	300	1
61919592	Pliosnap 6/W WH	300	1
61919593	Pliosnap 6/X WH	300	1
61919594	Pliosnap 6/Y WH	300	1
61919595	Pliosnap 6/Z WH	300	1
61919596	Pliosnap 6/+ WH	300	1
61919597	Pliosnap 6/- WH	300	1
61919598	Pliosnap 6/. WH	300	1
61919599	Pliosnap 6/ : WH	300	1
Pliosnap 9			
61919600	Pliosnap 9/0 WH	300	1
61919601	Pliosnap 9/1 WH	300	1
61919602	Pliosnap 9/2 WH	300	1
61919603	Pliosnap 9/3 WH	300	1
61919604	Pliosnap 9/4 WH	300	1
61919605	Pliosnap 9/5 WH	300	1
61919606	Pliosnap 9/6 WH	300	1
61919607	Pliosnap 9/7 WH	300	1
61919608	Pliosnap 9/8 WH	300	1
61919609	Pliosnap 9/9 WH	300	1
61919610	Pliosnap 9/A WH	300	1
61919611	Pliosnap 9/B WH	300	1
61919612	Pliosnap 9/C WH	300	1
61919613	Pliosnap 9/D WH	300	1
61919614	Pliosnap 9/E WH	300	1
61919615	Pliosnap 9/F WH	300	1
61919616	Pliosnap 9/G WH	300	1
61919617	Pliosnap 9/H WH	300	1
61919618	Pliosnap 9/I WH	300	1
61919619	Pliosnap 9/J WH	300	1
61919620	Pliosnap 9/K WH	300	1
61919621	Pliosnap 9/L WH	300	1

Article number	Article designation	Markers / PU	PU
61919622	Pliosnap 9/M WH	300	1
61919623	Pliosnap 9/N WH	300	1
61919624	Pliosnap 9/O WH	300	1
61919625	Pliosnap 9/P WH	300	1
61919626	Pliosnap 9/Q WH	300	1
61919627	Pliosnap 9/R WH	300	1
61919628	Pliosnap 9/S WH	300	1
61919629	Pliosnap 9/T WH	300	1
61919630	Pliosnap 9/U WH	300	1
61919631	Pliosnap 9/V WH	300	1
61919632	Pliosnap 9/W WH	300	1
61919633	Pliosnap 9/X WH	300	1
61919634	Pliosnap 9/Y WH	300	1
61919635	Pliosnap 9/Z WH	300	1
61919636	Pliosnap 9/+ WH	300	1
61919637	Pliosnap 9/- WH	300	1
61919638	Pliosnap 9/. WH	300	1
61919639	Pliosnap 9/ : WH	300	1
Pliosnap 12			
61919640	Pliosnap 12/0 WH	300	1
61919641	Pliosnap 12/1 WH	300	1
61919642	Pliosnap 12/2 WH	300	1
61919643	Pliosnap 12/3 WH	300	1
61919644	Pliosnap 12/4 WH	300	1
61919645	Pliosnap 12/5 WH	300	1
61919646	Pliosnap 12/6 WH	300	1
61919647	Pliosnap 12/7 WH	300	1
61919648	Pliosnap 12/8 WH	300	1
61919649	Pliosnap 12/9 WH	300	1
61919650	Pliosnap 12/A WH	300	1

Article number	Article designation	Markers / PU	PU
61919651	Pliosnap 12/B WH	300	1
61919652	Pliosnap 12/C WH	300	1
61919653	Pliosnap 12/D WH	300	1
61919654	Pliosnap 12/E WH	300	1
61919655	Pliosnap 12/F WH	300	1
61919656	Pliosnap 12/G WH	300	1
61919657	Pliosnap 12/H WH	300	1
61919658	Pliosnap 12/I WH	300	1
61919659	Pliosnap 12/J WH	300	1
61919660	Pliosnap 12/K WH	300	1
61919661	Pliosnap 12/L WH	300	1
61919662	Pliosnap 12/M WH	300	1
61919663	Pliosnap 12/N WH	300	1
61919664	Pliosnap 12/O WH	300	1
61919665	Pliosnap 12/P WH	300	1
61919666	Pliosnap 12/Q WH	300	1
61919667	Pliosnap 12/R WH	300	1
61919668	Pliosnap 12/S WH	300	1
61919669	Pliosnap 12/T WH	300	1
61919670	Pliosnap 12/U WH	300	1
61919671	Pliosnap 12/V WH	300	1
61919672	Pliosnap 12/W WH	300	1
61919673	Pliosnap 12/X WH	300	1
61919674	Pliosnap 12/Y WH	300	1
61919675	Pliosnap 12/Z WH	300	1
61919676	Pliosnap 12/+ WH	300	1
61919677	Pliosnap 12/- WH	300	1
61919678	Pliosnap 12/. WH	300	1
61919679	Pliosnap 12/ : WH	300	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- Storage box

M 1011 Manual embossing machine

Benefits
- Integrated punch for cable tie holes or screw holes
- Temperature resistant
- Weather resistant
- Resistant to salt water

Application range
- Robust hand-held embossing machine for aluminium and stainless steel tapes
- Cable and component marking system
- Quick, simple and permanent marking on site
- For outdoor applications

Note
- Number 1 is not included on the embossing wheel - please use the character "I" instead

Included
- M 1011: Embossing machine, embossing wheel, embossing tape made of aluminium without adhesive layer, embossing tape made of steel without adhesive layer, carrying and protective case

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Label maker

General
Lettering height: 4.7 mm

Note
Punching hole diameter: 2 mm
Available characters: A-Z, 2-9, -, .

Material
Stainless steel: 14.301 (EN Standard), SAE Grade 304
Thickness of the tapes: 0,12 mm

Article number	Article designation	Lettering height (mm)	Width W (mm)	Length (m)	PU
61742670	M 1011 embosser	4.7			1
61742710	Aluminium embossing tape without adhesive coating		12	4.8	1
61742720	Aluminium embossing tape with adhesive layer		12	3.65	1
61742700	Stainless steel embossing tape		12	6.4	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Warranty period is 1 year but could be enlonged with the registration of your product on the DYMO® homepage

Similar products
- FLEXIMARK® MR Stainless steel character refer to page 964
- SP Metal print refer to page 974

Accessories
- STEEL GUN HT-338 cable tie pliers refer to page 1049
- LS steel cable ties refer to page 1047

SP Metal print

Benefits
- Small and space-saving for narrow available space
- One or two-hand operation

Application range
- Stand embossing machine for metal plates
- Cable and component marking system
- For outdoor applications

Product features
- Pressure limit for uniform embossing depth
- Adjustable stop through terminal strip
- The adjustable automatic feed of the work table ensures that the correct distances are maintained between the embossed characters

Included
- Blank markers: 50 markers/PU
- Embossing machine incl. embossing wheel for selected font size.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description:
Label maker

General
Max. label size: 140x90mm
Max. insertion depth: 90mm
Lettering heigth: 2, 3, 4 or 5mm
Available characters: A-Z, 0-9, +/-,

Note
Equipment dimensions: H = 303 mm; footprint 145 x 120 mm
Weight: 6.5 kg

Article number	Article designation	Width x length (mm)	Text height (mm)	Markers / PU	PU
SP Metal print					
61725991	SP 1 embosser 2mm		2		1
61725990	SP 1 embosser 3mm		3		1
61725992	SP 1 embosser 4mm		4		1
61725993	SP 1 embosser 5mm		5		1
61726000	PK Spare embossing wheel 2mm		2		1
61726001	PK Spare embossing wheel 3mm		3		1
61726002	PK Spare embossing wheel 4mm		4		1
61726003	PK Spare embossing wheel 5mm		5		1
Suitable blank markers					
83251576	FLEXIMARK® SMC blank 9,9-110	9.9 x 110.0		50	1
83251575	FLEXIMARK® SMC blank 9,9-75	9.9 x 75.0		50	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Similar products
- FLEXIMARK® MR Stainless steel character refer to page 964

Accessories
- STEEL GUN HT-338 cable tie pliers refer to page 1049
- LS steel cable ties refer to page 1047

9 Tools and cable accessories

Cutting, Holding, Stripping, Skinning

Cutting tools
KNIPEX Diagonal cutter 979
KNIPEX X-Cut® Compact diagonal cutter 979
KNIPEX High leverage diagonal cutter 979
KNIPEX Cable shear 980
KNIPEX Ratchet cutter 980
Pliers
KNIPEX High leverage combination plier 981
KNIPEX Flat nose pliers 981
KNIPEX Snipe nose side cutting pliers 981
KNIPEX Alligator® Water pump plier 982
Electronics pliers
KNIPEX Electronics pliers 983
KNIPEX Electronics diagonal cutter 983
KNIPEX Electronics Super Knips® 983
Stripping tools
KNIPEX Cable knive 984
KNIPEX Dismantling knive 984
STAR STRIP stripping tool 985
DATA STRIP stripping tool 986
FC STRIP stripping tool 986
AS-I STRIP special stripping tool 987
SENSOR STRIP stripping tool 987
EASY STRIP stripping and cutting tool 988
BASIC STRIP stripping and cutting tool 989
UNIVERSAL STRIP stripping tool 990

Connection and crimping

Conductor end sleeves
Conductor end sleeves insulated 991
Deciband AHIB 992
Conductor end sleeves AHK, insulated 992
DIN-Coil conductor end sleeves 993
DIN-strips for QUADRO 993
TWIN conductor end sleeves 994
DIN-assorted boxes conductor end sleeves / AHI assorted boxes / TWIN assorted boxes 995
Conductor end sleeves XL, insulated 996
Conductor end sleeves AH, not insulated 997
Crimping tools for conductor end sleeves
QUADRO multifunction tool 998
PEW 8.185 crimping pliers / PEW 8.186 crimping pliers 999
PEW 8.87 crimping pliers 1000
KEB 1025 crimping pliers / KEB 3550 crimping pliers 1000
CK 90 crimping pliers 1001
KEBS 0560 TWIN crimping pliers 1001
Cable Lugs
Insulated cable lugs 1002
Solderless cable lugs KB 1003
Panel Connectors
Panel connectors insulated 1005
Panel connectors non-insulated 1006
Panel connectors with latch 1007
Panel connector sockets Type M / Type F 1007
Crimping tools for insulated connections
DSA 0110 + DSA 0725 crimping pliers 1008
CSA 0760 + KSA 0760 crimping pliers 1008
Crimping tools for uninsulated connections
DRB 0505 + DRB 0115 crimping pliers 1009
KRB 0560 crimping pliers 1009
DKB 0325 + DKB 0360 crimping pliers 1010
KWB 4099 crimping pliers 1010
Tube cable lugs
Tube cable lugs KR/ KRT/ KRF 1011
Tube cable lugs KRFN 1013
Pressing pliers for CU connections
T 2288 pressing pliers 1014
V 1311-A pressing pliers, hydraulic 1014
PVL 1300 pressing pliers battery-operated 1015
Die holders for system 1311 1016
Dies for system 1311 and 1300 1016
Mobile crimp tool crimping pliers 1017
Universal crimping tools and appliances
Mobile crimp tool - crimping inserts 1018
PEW 12 universal tool 1019
EPEW 12 universal tool 1019
Crimping inserts for PEW 12 system 1020
Pneumatic crimping machine UP 35 1021
Crimping inserts for the UP 35 machine 1022
EMC protection
RSK one-piece screen connector 1023
RSK-FLAG connector 1023
SHIELD-KON® two-part screen connector 1024
PEW 12 Crimping inserts for SHIELD-KON screen connectors 1026

Insulating, protecting, shrinking

Insulating tapes and insulating sheaths
Temflex™ 1500 insulating tape 1027
TI insulating tape 1028
Insulating tube ISS 1028
Insulating tube ISY 1029
Copper braid 1029
Screening
3M Scotch™ 1183 screening tape 1030
Heat-shrinking product
HOTY heat-shrink tube 1031
Shrink tube PROTECT Box / Shrink tube PROTECT 1032
Shrink tube PROTECT-C 1033
Shrink tube PROTECT-M/PROTECT-T 1034
TEC sealing cap 1035
TEB branch muff 1035
HG 2320 hot-air pistol 1036

Binding, bundling, fastening

Ground straps
Ground Straps / Flat Ground Straps 1037
Cable bundling engineering
KW plastic coil 1038
Cable-Eater bunched cable conduit 1039
Spare tool Cable - Eater 1039
Standard Cable ties
Basic Tie cable tie 1040
Ty-Fast® Cable ties 1041
Detectable Cable ties
Detectable Cable ties 1042
Premium cable ties with steel nose
Ty-Rap® Cable ties with steel nose 1043
Ty-Rap® UV-stabilised cable ties with steel nose 1043
Ty-Rap® Heat-resistant cable ties with steel nose 1044
Ty-Rap® Cable tie with steel nose for srewing on 1044
Ty-Rap® Cable ties with steel nose with labelling area 1045
Releasable cable tie
Quick tie cable ties 1046
Ty-Grip® FOL / FO Cable tie 1046
Steel cable ties
LS steel cable ties 1047
Assembly tool for cable ties
Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers 1048
BASIC cable tie pliers 1049
Steel Gun HT-338 Cable tie pliers 1049
Fastening system
Tie socket self-adhesive 1050
Mounting socket with saddle 1050
Tie small socket 1051
Tie screw socket 1051
Aluminium screw socket 1052
Detectable cable tie sockets 1052
CC cord clips 1053

Cable guiding and fixing

Cable trolley systems
Cable trolley system for C-rails 1055
Cable trolley system for C-rails stainless steel 1056
Cable ducts
ST steel cable tunnel 1057
STY plastic cable tunnel 1057
Cable wedge clamps
RKK Round cable wedge clamps 1058
FKK Flat cable wedge clamps 1058
EKK single clamp / DKK Doppelklemme 1059

Installation, processing, maintenance

Processing and installation tools
Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set 1060

Cable guiding and fixing

Industry boxes
Terminal Box 1061
Economic Box 1062

Overview Table Connector technology	Pressing tools for end sleeves										Universal crimping tools*	
	QUADRO[1] 0.5 – 2.5 mm²	**PEW 8.186**[1] 0.08 – 10 mm²	**PEW 8.185**[1] 0.08 – 16 mm²	**PEW 8.87**[1] 0.08 – 10 mm²	**PEW 8.87**[1] **plus** 0.08 – 16 mm²	**KEB 1025**[1] 10 – 25 mm²	**KEB 3550**[1] 35 – 50 mm²	**CK 90**[1] 50 – 95 mm²	**KEBS 0560**[1] **Front pressing** 0.1 – 6 mm² + Twin 2 x 0.5 – 2 x 4 mm²	**KEBC 4010**[2] Twin 2 x 4 mm² – 2 x 10 mm²	**PEW 12**[1]**/EPEW 12**[1]	**MCT Mobile Crimp Tool**
Page	998	999	999	1000	1000	1000	1000	1001	1001	–	1019	1017
End sleeves												
0.25 mm²		●	●	●	●				●			●
0.34 mm²		●	●	●	●				●			●
0.50 mm²	●	●	●	●	●				●		●	●
0.75 mm²	●	●	●	●	●				●		●	●
1.00 mm²	●	●	●	●	●				●		●	●
1.50 mm²	●	●	●	●	●				●		●	●
2.50 mm²	●	●	●	●	●				●		●	●
4.00 mm²		●	●	●	●				●		●	●
6.00 mm²		●	●	●	●				●		●	●
10.00 mm²		●	●	●	●	●					●	●
16.00 mm²			●		●	●					●	●
25.00 mm²						●					●	●
35.00 mm²							●				●	●
50.00 mm²							●	●			●	●
70.00 mm²								●				
95.00 mm²								●				
120.00 mm²												
150.00 mm²												
Insulated TWIN end sleeves												
2 x 0.50 mm²									●			
2 x 0.75 mm²									●			
2 x 1.00 mm²									●			
2 x 1.50 mm²									●			
2 x 2.50 mm²									●			
2 x 4.00 mm²									●	●		
2 x 6.00 mm²										●		
2 x 10.00 mm²										●		

[1] insulated + not insulated [2] insulated
*with variable crimping inserts (also for flat plugs, cable lugs and other connectors)

Overview Table Connector technology	Tools for insulated connectors				Tools for non-insulated connectors						Tools for CU connectors			Universal crimping tools*	
	DSA 0110 0.1 – 1.5 mm²	**DSA 0725** 0.5 – 2.5 mm²	**CSA 0760** 0.5 – 6 mm²	**KSA 0760** 0.5 – 6 mm²	**DRB 0505** 0.05 – 0.5 mm²	**DRB 0115** 0.15 – 1.5 mm²	**KRB 0560** 0.50 – 6 mm²	**DKB 0325** 0.35 – 2.5 mm²	**DKB 0360** 0.25 – 6.0 mm²	**KWB 4099** 4 – 10 mm²	**T 2288** 10 – 25 mm²	**V 1311*** 10 – 400 mm²	**PVL 1300*** 10 – 400 mm²	**PEW 12/EPEW 12**	**MCT Mobile Crimp Tool**
Page	1008	1008	1008	1008	1009	1009	1009	1010	1010	1010	1014	1014	1015	1019	1017
Insulated connectors															
0.25 mm²	●													●	
0.50 mm²	●	●	●	●										●	●
0.75 mm²	●	●	●	●										●	●
1.00 mm²	●	●	●	●										●	●
1.50 mm²	●	●	●	●										●	●
2.50 mm²		●	●	●										●	●
4.00 mm²			●	●										●	●
6.00 mm²			●	●										●	●
Non-insulated connectors															
0.50 mm²					●	●	●	●						●	●
0.75 mm²						●	●	●	●					●	●
1.00 mm²						●	●	●	●					●	●
1.50 mm²						●	●	●	●					●	●
2.50 mm²							●	●	●					●	●
4.00 mm²							●		●	●				●	●
6.00 mm²							●		●	●				●	●
KB/KR tube cable lugs															
0.75 mm²								●	●						
1.00 mm²								●	●						
1.50 mm²								●	●						
2.50 mm²								●	●						
4.00 mm²									●	●					
6.00 mm²									●	●					
10.00 mm²										●	●	●	●		
KR/KRT/KRF tube cable lugs															
10.00 mm²											●	●	●		
16.00 mm²											●	●	●		
25.00 mm²											●	●	●		
35.00 mm²												●	●		
50.00 mm²												●	●		
70.00 mm²												●	●		
95.00 mm²												●	●		
120.00 mm²												●	●		
150.00 mm²												●	●		
185.00 mm²												●	●		
240.00 mm²												●	●		
300.00 mm²												●	●		
400.00 mm²												●	●		
Other connectors															
KOAX connector														●	
Single-piece RSK screen connector														●	
Two-piece Shield-Kon screen connector														●	
BNC-plug															●
Contacts for connectors														●	●

*with variable crimping inserts

NEW

KNIPEX Diagonal cutter

Info

- Narrow head style for use in confined areas

KNIPEX X-Cut® Compact diagonal cutter

Info

- Less force required due to optimum co-ordination of the cutting egde angle

KNIPEX High leverage diagonal cutter

Info

- High cutting performance with minimum effort

Benefits

- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

Application range

KNIPEX Diagonal cutter

- For soft and hard wire

KNIPEX X-Cut® Compact diagonal cutter

- For both thicker cables as well as for fine copper wires

KNIPEX High leverage diagonal cutter

- For all sorts of wire including piano wire

Product features

- Precision ground, hardened blades

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000142
ETIM 5.0/6.0 Class-Description: Cable shears

Certifications
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC
VDE-tested

Material
Vanadium steel, forged, multi stage oil-hardened

Article number	Article designation	Soft wire mm	Medium hard wire mm	Hard wire mm	Pianowire mm	Cable diameter mm	Weight (kg)	Length (mm)
KNIPEX Diagonal cutter								
62120520	Diagonal cutter SESI 16	4	3	2			0.216	160
KNIPEX X-Cut® Compact diagonal cutter								
62120521	X-Cut® Compact diagonal cutter SXSI 16	4.8	3.8	2.7	2.2	12	0.175	160
KNIPEX High leverage diagonal cutter								
62120522	High leverage diagonal cutter KSSI 18		3.8	2.7	2.2		0.28	180

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

KNIPEX Cable shear

Info

- Less power required due to favourable transmission ratio and new blade geometry

Benefits

- Special two-blade structure divides the cutting process into pre-cut and post-cut
- Easy and clean cut by using only one hand
- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

Application range

- Cuts copper and aluminium cables

Product features

- Precision ground, hardened blades

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000142
ETIM 5.0/6.0 Class-Description: Cable shears

Certifications
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC VDE-tested

Material
High-grade special tool steel, forged, chrome plated

Article number	Article designation	Cable diameter mm	Weight (kg)	Length (mm)
KNIPEX Cable shear				
62120523	Cable shear KASI 20	20	0.34	200

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

KNIPEX Ratchet cutter

Info

- Less power required due to very high transmission ratio

Benefits

- One-hand operation through ratchet principle
- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

Application range

- Cuts copper and aluminium cables
- Not suitable for steel wire and wire ropes

Product features

- Precision ground, hardened blades
- Swivel knife can be unlocked in any cutting position with a press of the thumb

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000142
ETIM 5.0/6.0 Class-Description: Cable shears

Certifications
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC VDE-tested

Material
High-grade special tool steel, forged, oil-hardened

Article number	Article designation	Cable diameter mm	Weight (kg)	Length (mm)
KNIPEX Ratchet cutter				
62120524	Ratchet shear KSRI 525	32	0.652	250
62120525	Ratchet shear KSRI 628	52	0.835	280

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

KNIPEX High leverage combination plier

Info

- 35 % less effort required than with conventional combination pliers

KNIPEX Flat nose pliers

Info

- With knurled gripping surfaces

KNIPEX Snipe nose side cutting pliers

Info

- With cutting edges

Technical data

ETIM **Classification ETIM 5/6**
KNIPEX High leverage combination plier
ETIM 5.0/6.0 Class-ID: EC000836
ETIM 5.0/6.0 Class-Description: Combination pliers
KNIPEX Flat nose pliers
ETIM 5.0/6.0 Class-ID: EC000833
ETIM 5.0/6.0 Class-Description: Flat nose pliers
KNIPEX Snipe nose side cutting pliers
ETIM 5.0/6.0 Class-ID: EC000833
ETIM 5.0/6.0 Class-Description: Flat nose pliers

DIN VDE **Certifications**
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC
VDE-tested

Material
KNIPEX High leverage combination plier
High-grade special tool steel, forged, multi stage oil-hardened
KNIPEX Flat nose pliers
Vanadium electric steel, forged, oil-hardened
KNIPEX Snipe nose side cutting pliers
Vanadium electric steel, forged, oil-hardened

Benefits

- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

Application range

KNIPEX High leverage combination plier
- With gripping zones for suitable forversatile use
- With cutting edges for heavy duty and thicker cables

KNIPEX Flat nose pliers
- Suitable for finer gripping work

KNIPEX Snipe nose side cutting pliers
- Suitable for finer gripping work

Product features

KNIPEX High leverage combination plier
- Long cutting edges for thicker cables

KNIPEX Flat nose pliers
- Flat, short, wide jaws, knurled gripping surfaces

KNIPEX Snipe nose side cutting pliers
- Pointed, half-rounded jaws, knurled gripping surfaces, with cutting edges

Article number	Article designation	Medium hard wire mm	Hard wire mm	Pianowire mm	Cable diameter mm	Weight (kg)	Length (mm)
KNIPEX High leverage combination plier							
62120504	High leverage combination plier KKZI 20		2.8	2.2	13	0.343	200
Flat nose plier							
62120502	Flat nose plier FLZI 16					0.176	160
Snipe nose side cutting plier							
62120503	Snipe nose plier FRZI 16	2.5	1.6			0.144	160

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

KNIPEX Alligator® Water pump plier

Info

- Good access to the workpiece due to slim size

Benefits

- Self-locking on pipes and nuts: no slipping on the workpiece and low handforce required
- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

Application range

- Insensitive to dirt due to robust construction, hence particularly suitable for outdoor work

Product features

- 9-notch adjustment positioning
- High wear resistance of the gripping surfaces

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000164
ETIM 5.0/6.0 Class-Description: Water pump pliers

Certifications
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC
VDE-tested

Material
Chrome vanadium electric steel, forged, multi stage oilhardened

Article number	Article designation	Clamping width mm	Jaw distance mm	Weight (kg)	Length (mm)
KNIPEX Alligator® Water pump plier					
62120505	Water pump plier WPZI 25	50	46	0.374	250

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

KNIPEX Electronics pliers

Info

- For gripping, holding and bending

KNIPEX Electronics diagonal cutter

Info

- Precise cutting through hardened cutting edges

KNIPEX Electronics Super Knips®

Info

- Also for cutting wires resting on a board

Benefits

- Smoothly movement for minimum operator fatigue
- Electrically discharging handles
- High ergonomics thanks to multi-component handles

Application range

- For fine assembly and cutting work, e.g. in electronics and fine mechanics

Product features

KNIPEX Electronics pliers

- Head mirror polished, hence good rust protection

KNIPEX Electronics diagonal cutter

- Head mirror polished, hence good rust protection

KNIPEX Electronics Super Knips®

- Head polished

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000836
ETIM 5.0/6.0 Class-Description: Combination pliers

Material
KNIPEX Electronics pliers
High-grade special tool steel, forged, oil-hardened
KNIPEX Electronics diagonal cutter
High-grade special tool steel, forged, oil-hardened
KNIPEX Electronics Super Knips®
INOX - stainless steel

Article number	Article designation	Soft wire mm	Medium hard wire mm	Hard wire mm	Weight (kg)	Length (mm)
Electronics plier ESD						
62120530	Electronics plier EGZE 12				0.074	115
Electronics diagonal cutter ESD						
62120531	Electronics diagonal cutter ESSE 12	1.6	1.2	0.6	0.082	115
Electronic Super Knips® ESD						
62120532	Electronic Super Knips® ESKE 13	1.6	1		0.055	125

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

KNIPEX Cable knive

Info

- Solid straight blade for insulation of large cables

KNIPEX Dismantling knive

Info

- Dismantling without damaging the conductor insulation

Benefits

- Particularly confident grip thanks to slip-proof soft components
- Thumb recess and “finger hook” at the end of the handle ensure a good transmission of force when the blade is pulled
- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000V

Product features

KNIPEX Cable knive

- Transparent protective cap

KNIPEX Dismantling knive

- Transparent protective cap
- With guide shoe at the blade point

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000155
ETIM 5.0/6.0 Class-Description: Knife

Certifications
Insulated according to IEC 60900, applicable up to 1000V AC / 1500V DC
VDE-tested

Material
KNIPEX Cable knive
Special tool steel, oil-hardened
KNIPEX Dismantling knive
Surgical steel, stainless, vacuum-hardened

Article number	Article designation	Blade length mm	Radius mm	Weight (kg)	Length (mm)
Cable knive					
62120510	Cable knive KAMI 19	50		0.067	190
Dismantling knive					
62120511	Dismantling knive ABMI 18	38	23.5	0.068	180

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

STAR STRIP stripping tool

Info

- Special polished stripping knife is suitable for problematical insulation materials such as PUR, fluoropolymers, glass fibre, TPE and rubber

Benefits

- Large application range thanks to the interchangeable hooks
- Suitable for circular, longitudinal and spiral cuts
- High quality of the blade ensures a good stripping result also for tough insulation materials
- Robust body, long durability- tested for more than 100.000 stripping operations
- High ergonomics and user-friendliness (inter alias due to a lightweight construction)

Application range

- Adjustable stripping tool for round cables made with various insulation materials (as PVC, PTFE, rubber or PUR)
- Through the interchangeable hooks, the tool can be used for cables with a diameter of 4.5 - 25 mm and 20 - 40 mm

Product features

- The depth of the blade is adjustable by rotating the upper part of the tool.
- Specific locking positions for circular, longitudinal or spiral cuts
- The blade automatically returns to its start position at the end of a stripping process, thus reducing the possibility of breaking the blade.
- No special tool is required to replace the hook (other hook is used for releasing the assembled hook)

Note

- Spare blades are available and can be stored in a compartment of the tool

Included

- 61735820: Tool with blade, small and large hook without spare blade

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

Weight
STAR STRIP with large hook: 116 g

Length
Dimensions LxHxB:
Small hook: 150x42x30.5 mm
Big hook: 167x52x30.5 mm

Colour delivered
Black

Article number	Article designation	For outer diameter (mm)	Length (mm)	Pieces / PU
STAR STRIP with one blade, small and big hook (but woithout replacement blade)				
61735820	STAR STRIP	4,5 - 40.0	150	1
Spare parts				
61735821	STAR STRIP spare blade			1
61735822	STAR STRIP spare hook, small	4,5 - 25.0		1
61735823	STAR STRIP spare hook, large	20.0 - 40.0		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DATA STRIP stripping tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

General
Insulation thickness: up to 1 mm

Diameter in
For outer diameter: 2.5 - 11 mm

Weight
28 g

Length
Dimensions: L 90.5 x W 39.5 x H 19 mm

Benefits

- Precise due to 9 adjustable positions on the setting wheel
- Easy handling-open the stripping shaft by simply pressing the tool together, insert the cable, turn the tool and open the tool again
- Lightweight and handy design- for your trouser pocket or belt
- Long durability-tested for 50.000 insulation processes
- High safety for the user due to rounded shape, no open blades, “X-position” for blade changes, replacement blade is embedded in plastic surrounding

Application range

- Precision stripping tool for stripping signal, telephone, AV, control and data transmission cables made up of copper and glass fibres.
- Dismantles most multi-core data cables and glass-fibre cables with a diameter of up to 11 mm (also power cable with PVC sheating could be dismantled)
- Not suitable for PUR materials

Product features

- The tool is adjustable up to 1.00 mm (0,04”) in steps of 0.1 mm:
  9=1.0 mm
  8= 0.9 mm
  7= 0.8 mm
  6= 0.7 mm
  5= 0.6 mm
  4= 0.5 mm
  3= 0.4 mm
  2= 0.3 mm
  1= 0.2 mm

Note

- The “x” position on the wheel enables the tool to close so that the attached blade catridge can be ejected and replaced with a new one quickly and safely

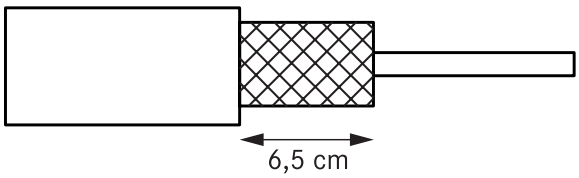
Suitable cables

- UNITRONIC® LiYY Page 278

Article number	Article designation	For outer diameter (mm)	Weight (kg)	Pieces / PU
DATA STRIP stripping tool				
61735810	DATA STRIP	2,5 - 11.0	0.028	1
61735811	DATA STRIP spare blade			1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

FC STRIP stripping tool



Benefits

- Ready-to-connect stripping - outer sheath and copper screening braid are stripped in one simple step
- Prevents cable damage
- Adjusting screws enable the tool to be adjusted for all Fast Connect cables

Application range

- Two-level dismantling tool for Fast Connect conductors with an outer diameter 2,5 - 8,0 mm
- Preset stripping length for copper screening braid 6.5mm (blade distance)
- Other blades on request

Suitable cables

- UNITRONIC® BUS PB FRNC FC Page 336

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

Article number	Article designation	Suitable for:	Pieces / PU
FC STRIP stripping tool			
21124030	FC STRIP incl. blade	Fast Connect cables	1
21124040	FC STRIP without blade		1
21124041	FC STRIP blade cartridge		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

AS-I STRIP special stripping tool

Benefits
- Automatic setting of blades
- No damage to single cores

Application range
- For AS-I cables with TPE, rubber and PUR sheating

Product features
- Robust tool body is made of glass fibre-reinforced polyamide
- Special shape of the cable is reflected in the blades

Suitable cables
- UNITRONIC® BUS ASI Page 328

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

Article number	Article designation	Suitable for:	For insulation	Length (mm)	Weight (kg)	Pieces / PU
AS-I STRIP special stripping tool						
61735831	AS-I STRIP special	AS-Interface	TPE, rubber, PUR	160	0.12	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SENSOR STRIP stripping tool

Benefits
- Focussed to the needs of stripping the sheathing of sensor / actuator cables
- With their new blade design the tools strip PVC / PUR cable sheathings precisely from cables without causing damage to the individual conductors or shielding inside
- Fully automated adjustments to the diverse cable diameters
- Push-through opening inside handles- to strip any lengths
- Ergonimic design- user friendly, ease of use, lightweight

Application range
- PUR halogen-free sensor/actuator cables
- Highly flexible TPE-U-cables
- PUR-cables
- PUR/PVC-cables
- Multi-stranded cables, shielded and non-shielded cables

Product features
- Exchangeable blades-longer lifetime, efficient

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

Diameter in
Sensor Mini: For outer diameter: 3,2-4,4 mm
Sensor Special: For outer diamater: 4,4-7 mm

Length
Dimensions LxHxB:16,6x2,8x10,2 mm

Article number	Article designation	For outer diameter (mm)	Length (mm)	Pieces / PU
SENSOR STRIP stripping tool				
61735833	SENSOR STRIP Mini stripping tool	3,2 - 4,4	165	1
61735993	SENSOR STRIP Special stripping tool	4,4 - 7.0	165	1
61718790	SENSOR STRIP Mini replacement blade set	3,2 - 4,4		1
61718800	SENSOR STRIP Special replacement blade set	4,4 - 7.0		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EASY STRIP stripping and cutting tool

Benefits

- Easy to handle due to the automatic adjustment for the different crimping cross-sections
- Broad application range thanks to changeable stripping cartridges
- Adjusting lever for fine-adjustments ensures that the insulation(particular small dimensions) can be removed without damaging the conductors
- Long durability- tested for more than 150.000 stripping operations
- Ergonomic design due to the soft handle, optimised grip-width, angled-head and light construction

Application range

- Sripping cassettes enable precise stripping of different insulation materials (e.g. PVC/ PTFE) and diameters with a single tool
- For standard cables and conductors (90 % of all applications can be stripped without setting the tool manually)

Product Make-up

- Two different designs available- pistol shaped (RA) or standard version

Note

- No MTW single wires 16 mm² can be machined

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

General
Stripping range: 0.02 - 16.0 mm²

Weight
136 g

Length
Overall dimensions: L x H x W:
Standard version: 191x123x20 mm
RA version: 144x186x23 mm

Info
Cutting capacity:
Solid cables - 1.5 mm²
Flexible conductors - up to 10 mm²

Article number	Article designation	For mm²	Colour	For insulation	Cartridge shape	Pieces / PU
Tool standard version with cartridge						
61735800	EASY STRIP incl.straight cartridge	0.02 - 10	black	PVC etc.	straight	1
61735805	EASY STRIP incl. V-cartridge	0.1 - 4	blue	PTFE etc.	V-form	1
61735807	EASY STRIP incl. O-cartridge	4 - 16	red	PVC etc.	round	1
Tool RA version with cartridge						
61735813	EASY STRIP RA incl.straight cartridge	0.02 - 10	black	PVC etc.	straight	1
61735814	EASY STRIP RA incl. V-cartridge	0.1 - 4	blue	PTFE etc.	V-form	1
61735815	EASY STRIP RA incl. O-cartridge	4 - 16	red	PVC etc.	round	1
Cartridges and replacement items						
61735801	Straight cartridge	0.02 - 10	black	PVC etc.	straight	1
61735803	V-cartridge	0.1 - 4	blue	PTFE etc.	V-form	1
61735802	O-cartridge	4 - 16	red	PVC etc.	round	1
61735806	EASY STRIP support jaws					1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

BASIC STRIP stripping and cutting tool

Benefits
- Easy to handle due to the automatic adjustment for the different crimping cross-sections
- Enables easy, quick and uniform stripping of solid and flexible conductors
- Ergonomic plastic handles
- Adjustable length gauge from 5-12 mm
- Removable blade head

Application range
- Self-adjusting stripping and cutting tool
- Stripping wires and strands from 0.2 - 6 mm²
- Cutting of wires up to a diameter of 2 mm
- For wires with PVC core insulation

Product features
- Made in Germany

Norm references / Approvals
- GS-logo for proven safety

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

Article number	Article designation	For mm²	For insulation	Length (mm)	Pieces / PU
BASIC STRIP stripping and cutting tool					
61725960	BASIC STRIP	0.2 - 6	PVC	165	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNIVERSAL STRIP stripping tool

Benefits

- No pinching or deforming of cable ends thanks to a special cutting mode
- Interchangeable blades for different cable cross sections
- For use with a great variety of insulation with differing hardness and dimension
- Automatic release after operation

Application range

- Universal stripping pliers with interchangeable stripping blades for special applications
- Suitable for fluoropolymer & PVC cores, AS-I, Solar, POF cables
- For stripping of sheath and insulation from all single wires and multi-wire cables from 0.03 to 16 mm²
  (Please check the application range of each blade)

Product features

- Design: chrome-plated with plastic handle cover

Included

- Tool and blades could be ordered separately or in a set, where the tool and one blade is included
- Tool is always delivered with a length stop

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

Colour delivered
Orange

Article number	Article designation	For mm²	For insulation	Length (mm)	Weight (kg)	Pieces / PU
Tool without blades						
21920005	Universal Strip without stripping knife			194	0.41	1
Interchangeable blade						
21920009	Blade DIN single cores	0.14 - 6	PVC			1
21920126	POF 1, 2, 4-wire stripping knife	2.2 - 6.7	PVC/PUR			1
21920006	Flurorpolymer stripping knife	0.03 - 2.08	PTFE			1
21920004	PTFE stripping knife 2,5-10	2.5 - 10	PTFE			1
21920008	PTFE stripping knife 0,5-16	0.5 - 16.0	PTFE			1
21920135	AS I stripping knife		rubber/TPE/PVC			1
21920122	Solar stripping knife	1.5 - 6.0	XLPO			1
Complete tool (incl. assembled blade)						
21920141	Universal Strip DIN single wires	0.14 - 6	PVC			1
21920125	Universal Strip POF 1, 2, 4-wire	2.2 - 6.7	PVC/PUR			1
21920129	Universal Strip PTFE 0,03-2,08	0.03 - 2.08	PTFE			1
21920130	Universal Strip PTFE 2,5-10	2.5 - 10	PTFE			1
21920131	Universal Strip PTFE 0,5-16	0.5 - 16.0	PTFE			1
21920140	Universal Strip AS-I		rubber/TPE/PVC			1
21920120	Universal Strip Solar	1.5 - 6	XLPO			1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Additional blades are available upon request

Conductor end sleeves insulated

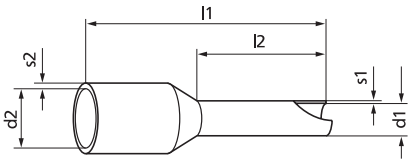
Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

Note
Halogen-free

Material
Copper/PP
Surface: tin-plated

Temperature range
-5°C to +105°C*



Benefits

- Funnel-shaped opening makes it easy to slip them onto the strands
- The conductor is permanently connected to the collar by crimping

Application range

- Control cabinets and equipment wiring
- For cables with category 2,5 and 6 conductors
- Not suitable for solid conductors

Norm references / Approvals

- All DIN conductor end-sleeves are in accordance with DIN 46228 Part 4
- CSA approved, File-Number: LR 105629-1

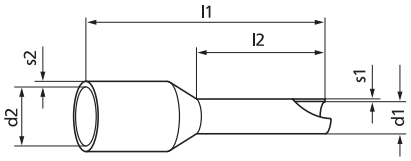
Suitable tools

- PEW 8.185 crimping pliers refer to page 999
- PEW 8.186 crimping pliers refer to page 999
- PEW 8.87 crimping pliers refer to page 1000
- CK 90 crimping pliers refer to page 1001

Article number	Article designation	For mm²	AWG	Colour	l1 mm	l2 mm	d1 mm	s1 mm	d2 mm	s2 mm	Pieces / PU
Conductor end sleeves insulated											
61721866	AHI N 0,25/6	0.25	24	light blue	10.5	6	0.8	0.25	1.8	0.25	500
61721867	AHI L 0,25/8	0.25	24	light blue	12.5	8	0.8	0.25	1.8	0.25	500
61721868	AHI N 0,34/6	0.34	24	turquoise	10.5	6	0.8	0.25	2	0.25	500
61721869	AHI L 0,34/8	0.34	24	turquoise	12.5	8	0.8	0.25	2	0.25	500
61801580	AHI DIN K 0,5/6	0.50	20	white	11.5	6	1.1	0.15	2.5	0.25	500
61801590	AHI DIN N 0,5/8	0.50	20	white	13.5	8	1.1	0.15	2.5	0.25	500
61801600	AHI DIN HL 0,5/10	0.50	20	white	15.5	10	1.1	0.15	2.5	0.25	500
61721871	AHI N 0,5/8	0.50	20	orange	13.5	8	1.1	0.15	2.5	0.25	500
61801620	AHI DIN K 0,75/6	0.75	20	grey	12	6	1.3	0.15	2.8	0.25	500
61801630	AHI DIN N 0,75/8	0.75	20	grey	14	8	1.3	0.15	2.8	0.25	500
61801640	AHI DIN HL 0,75/10	0.75	20	grey	16	10	1.3	0.15	2.8	0.25	500
61801650	AHI DIN L 0,75/12	0.75	20	grey	18	12	1.3	0.15	2.8	0.25	500
61721880	AHI N 0,75/8	0.75	20	white	14	8	1.3	0.15	2.8	0.25	500
61801660	AHI DIN K 1/6	1.00	18	red	12.5	6	1.5	0.15	3	0.3	500
61801670	AHI DIN N 1/8	1.00	18	red	14.5	8	1.5	0.15	3	0.3	500
61801680	AHI DIN HL 1/10	1.00	18	red	16.5	10	1.5	0.15	3	0.3	500
61801690	AHI DIN L 1/12	1.00	18	red	18.5	12	1.5	0.15	3	0.3	500
61721890	AHI N 1/8	1.00	18	yellow	14.5	8	1.5	0.15	3	0.3	500
61801700	AHI K 1,5/6	1.50	16	black	12.5	6	1.8	0.15	3.4	0.3	500
61801710	AHI DIN N 1,5/8	1.50	16	black	14.5	8	1.8	0.15	3.4	0.3	500
61801720	AHI DIN HL 1,5/10	1.50	16	black	16.5	10	1.8	0.15	3.4	0.3	500
61801730	AHI DIN L 1,5/18	1.50	16	black	24.5	18	1.8	0.15	3.4	0.3	500
61721900	AHI N 1,5/8	1.50	16	red	14.5	8	1.8	0.15	3.4	0.3	500
61721910	AHI HL 1,5/10	1.50	16	red	16.5	10	1.8	0.15	3.4	0.3	500
61746720	AHI L 1,5/18	1.50	16	red	24.5	18	1.8	0.15	3.4	0.3	500
61801750	AHI DIN N 2,5/8	2.50	14	blue	15	8	2.3	0.15	4.2	0.3	500
61801760	AHI DIN HL 2,5/12	2.50	14	blue	19	12	2.3	0.15	4.2	0.3	500
61801770	AHI DIN L 2,5/18	2.50	14	blue	25	18	2.3	0.15	4.2	0.3	500
61801780	AHI DIN N 4/10	4.00	12	grey	17.5	10	2.9	0.2	4.8	0.3	500
61801790	AHI DIN HL 4/12	4.00	12	grey	20	12	2.9	0.2	4.8	0.3	500
61801800	AHI DIN L 4/18	4.00	12	grey	26	18	2.9	0.2	4.8	0.3	100
61801810	AHI DIN N 6/12	6.00	10	yellow	20	12	3.6	0.2	6.2	0.3	100
61801820	AHI DIN L 6/18	6.00	10	yellow	25	18	3.6	0.2	6.2	0.3	100
61721940	AHI N 6/12	6.00	10	black	20	12	3.6	0.2	6.2	0.3	100
61721950	AHI L 6/18	6.00	10	black	26	18	3.6	0.2	6.2	0.3	100
61801830	AHI DIN N 10/12	10.00	8	red	21	12	4.6	0.2	7.5	0.3	100
61801840	AHI DIN L 10/18	10.00	8	red	27	18	4.6	0.2	7.5	0.3	100
61721960	AHI N 10/12	10.00	8	ivory	21	12	4.6	0.2	7.5	0.3	100
61721970	AHI L 10/18	10.00	8	ivory	27	18	4.6	0.2	7.5	0.3	100
61801850	AHI DIN N 16/12	16.00	6	blue	23	12	6	0.2	8.8	0.4	100
61801860	AHI DIN L 16/18	16.00	6	blue	29	18	6	0.2	8.8	0.4	100
61721980	AHI N 16/12	16.00	6	green	23	12	6	0.2	8.8	0.4	100
61721990	AHI L 16/18	16.00	6	green	29	18	6	0.2	8.8	0.4	100
61801870	AHI DIN N 25/16	25.00	4	yellow	29	16	7.5	0.2	11	0.5	50
61801890	AHI DIN L 25/22	25.00	4	yellow	35	22	7.5	0.2	11	0.5	50
61746770	AHI N 25/16	25.00	4	brown	29	16	7.5	0.2	11	0.5	50
61746780	AHI L 25/22	25.00	4	brown	35	22	7.5	0.2	11	0.5	50
61801900	AHI DIN N 35/16	35.00	2	red	30	16	8.5	0.2	12.5	0.5	50
61801920	AHI DIN L 35/25	35.00	2	red	39	25	8.5	0.2	12.5	0.5	50
61746790	AHI N 35/16	35.00	2	beige	30	16	8.5	0.2	12.5	0.5	50
61746800	AHI L 35/25	35.00	2	beige	39	25	8.5	0.2	12.5	0.5	50
61801930	AHI DIN N 50/20	50.00	1	blue	36	20	10.5	0.3	15	0.6	50
61801940	AHI DIN L 50/25	50.00	1	blue	41	25	10.5	0.3	15	0.6	50
61801950	AHI N 70/20	70.00	2/0	yellow	37	20	13.5	0.4	16	0.6	25
61801960	AHI L 70/27	70.00	2/0	yellow	44	27	12.7	0.4	16	0.6	25
61801970	AHI N 95/25	95.00	3/0	red	44	25	14.7	0.4	18	0.6	25
61801980	AHI N 120/27	120.00	4/0	blue	48	27	16.7	0.5	21	0.7	25
61801990	AHI N 150/32	150.00	300	yellow	58	32	19.5	0.5	23	1	25

K = short; N = medium; HL = large; L = extra large; Other sizes and colours are available upon request / Photographs and graphics are not to scale and do not represent detailed images of the respective products. / *Under some circumstances the end sleeves withstand temperatures under -5°C. Please contact Lapp Kabel to clarify the specific application area.
The manufacturing tolerance is +/- 0,4 mm.

Deciband AHIB



Application range
- Packs of insulated conductor end sleeves with mini-crimp seal

Note
- For processing tools see the keyword index “crimping pliers for conductor end sleeves”

Included
- Insulated conductor end sleeves in standard length in strips with 10 linked mini-crimp bags of 100 conductor end sleeves
- Mini crimp lock for individual separation of bags

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

General
Halogen-free

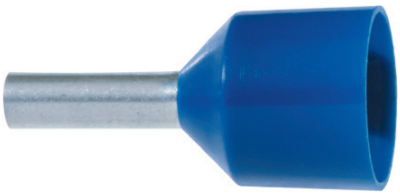
Material
Copper/PP
Surface: tin-plated

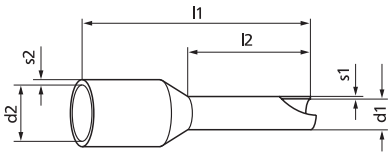
Temperature range
-5°C to +105°C

Article number	Article designation	For mm²	Colour	l1 mm	l2 mm	d1 mm	s1 mm	d2 mm	s2 mm	Content	Pieces / PU
Deciband AHIB											
61794760	Deciband AHIB	0.34	turquoise	10.5	6	0.8	0.25	2	0.25	10 x 100	1
61794770	Deciband AHIB	0.50	orange	13.5	8	1.1	0.15	2.5	0.25	10 x 100	1
61794780	Deciband AHIB	0.75	white	14	8	1.3	0.15	2.8	0.25	10 x 100	1
61794790	Deciband AHIB	1.00	yellow	14.5	8	1.5	0.15	3	0.3	10 x 100	1
61794800	Deciband AHIB	1.50	red	14.5	8	1.8	0.15	3.4	0.3	10 x 100	1
61794810	Deciband AHIB	2.50	blue	15	8	2.3	0.15	4.2	0.3	10 x 100	1

Other sizes and colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Conductor end sleeves AHK, insulated





Benefits
- Thicker insulation and greater wall thickness for higher loads
- Suitable for all short circuit and earth fault-resistant cables up to 3 kV due to enlarged insulation sleeves

Application range
- For cables with thick insulation
- Special conductor end sleeve model with large plastic collar for thick insulation cables (e.g. NSGAFÖU).
- Suitable for unprotected connections on control and distribution panels, rail vehicles, solar systems, ignition cables etc.

Note
- For processing tools see the keyword index “crimping pliers for conductor end sleeves”

Suitable cables
- NSGAFÖU 1,8/3 kV Page 93

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

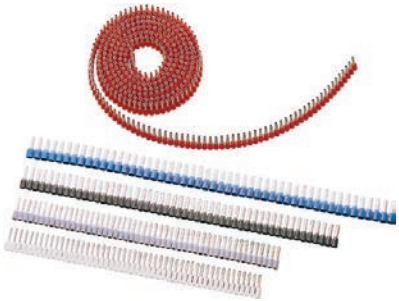
Material
Copper/PP
Surface: tin-plated

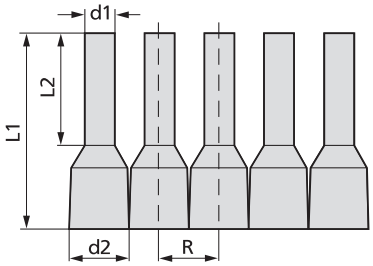
Temperature range
-5°C to +105°C

Article number	Article designation	For mm²	AWG	Colour	l1 mm	l2 mm	d1 mm	s1 mm	d2 mm	s2 mm	Pieces / PU
Conductor end sleeves AHK, insulated											
61746500	AHK 1,5/8	1.50	16	black	17.5	8	1.8	0.15	7.5	0.3	100
61746501	AHK 1,5/10	1.50	16	black	19.5	10	1.8	0.15	7.5	0.3	100
61746502	AHK 2,5/8	2.50	14	blue	17.5	8	2.3	0.15	8	0.3	100
61746503	AHK 2,5/12	2.50	14	blue	21.5	12	2.3	0.15	8	0.3	100
61746504	AHK 4/10	4.00	12	grey	19.5	10	2.9	0.2	9.5	0.3	100
61746505	AHK 6/ 12	6.00	10	yellow	23	12	3.6	0.2	10	0.3	100
61746506	AHK 10/12	10.00	8	red	24	12	4.6	0.2	11.5	0.3	100
61746507	AHK 16/12	16.00	6	blue	25.5	12	6	0.2	13.5	0.3	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DIN-Coil conductor end sleeves





Application range

- Insulated conductor end sleeves in strips, DIN 46228, Part 4
- DIN strips, available in coils of up to 3000 items for working with automatic crimping machines

Included

- Coil diameter: approx. 25 cm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

Material
Copper/PP
Surface: tin-plated

Temperature range
Permanent load -5°C up to +105°C, temporary load +120°C

Article number	Article designation	For mm²	Colour	l1 mm	l2 mm	d1 mm	d2 mm	R mm	Contents (unit)
DIN-Coil conductor end sleeves									
61802052	DIN coil 0.5	0.50	white	14.5	8	1.1	2.6	3.5	3,000 x 1
61802054	DIN coil 0.75	0.75	grey	14.5	8	1.3	2.8	3.6	3,000 x 1
61802056	DIN coil 1.0	1.00	red	14.5	8	1.5	3	3.9	3,000 x 1
61802058	DIN coil 1.5	1.50	black	14.5	8	1.8	3.4	4.2	2,500 x 1
61802060	DIN coil 2.5	2.50	blue	14.5	8	2.3	4.2	5	1,500 x 1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DIN-strips for QUADRO

Benefits

- Insulated conductor end sleeves in strips, DIN 46228, Part 4 for QUADRO

Suitable tools

- QUADRO multifunction tool refer to page 998

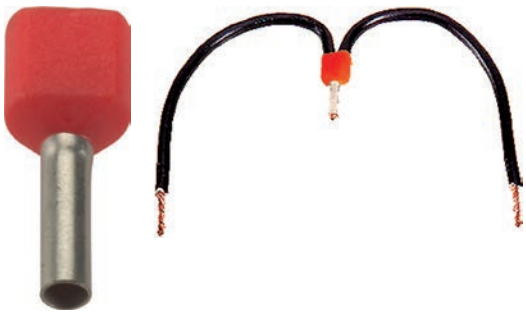
Technical data

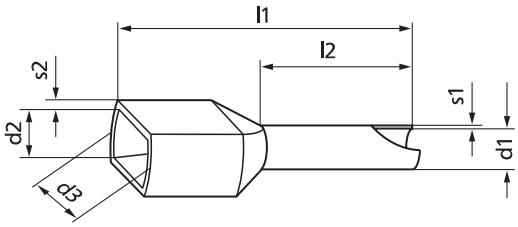
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

Article number	Article designation	For mm²	AWG	Colour	l1 mm	l2 mm	d1 mm	d2 mm	R mm	Pieces / PU
DIN-strips for QUADRO										
61805170	DIN Strips 0,50	0.50	20	white	14	8	1.1	2.6	3.5	500
61805180	DIN Strips 0,75	0.75	20	grey	14	8	1.3	2.8	3.6	500
61805190	DIN Strips 1,00	1.00	18	red	14	8	1.5	3	3.9	500
61805200	DIN Strips 1,50	1.50	16	black	14	8	1.8	3.4	4.2	500
61805210	DIN Strips 2,50	2.50	14	blue	14	8	2.3	4.2	5	500

Other sizes and colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

TWIN conductor end sleeves





Benefits

- Special shape of plastic collar enables simultaneous holding of two strand conductors
- Correct crimping of two conductors in a TWIN conductor end sleeve achieves a proper electrical and mechanical connection

Note

- For processing tools see the keyword index “crimping pliers for conductor end sleeves”

Suitable tools

- KEBS 0560 TWIN crimping pliers refer to page 1001

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

Info
Halogen-free

Material
Copper/PP
Surface: tin-plated

Temperature range
Permanent load -5°C up to +105°C, temporary load +120°C

Article number	Article designation	For mm²	AWG	Colour	l1 mm	l2 mm	d1 mm	s1 mm	d2 mm	d3 mm	s2 mm	Pieces / PU
TWIN conductor end sleeves												
61801999	AHI-TWIN	2.00 x 0.50	2 x 20	white	15	8	1.5	0.15	2.3	4.5	0.25	500
61802000	AHI-TWIN	2.00 x 0.75	2 x 20	grey	15	8	1.8	0.15	2.6	5.1	0.25	500
61802010	AHI-TWIN	2.00 x 1.00	2 x 18	red	15	8	2.05	0.15	3	5.1	0.3	500
61802020	AHI-TWIN	2.00 x 1.50	2 x 16	black	16	8	2.3	0.15	3.5	6.4	0.3	500
61802030	AHI-TWIN	2.00 x 2.50	2 x 14	blue	18.5	10	2.9	0.2	4	7.5	0.3	500
61802032	AHI-TWIN	2.00 x 4.00	2 x 12	grey	23	12	3.8	0.2	4.9	8.6	0.3	100
61802033	AHI-TWIN	2.00 x 6.00	2 x 10	yellow	25	14	4.6	0.2	5.8	9.6	0.4	100
61802034	AHI-TWIN	2.00 x 10.00	2 x 8	red	26	14	6.5	0.2	7	12.6	0.4	100
61802035	AHI-TWIN	2.00 x 16.00	2 x 6	blue	30	14	8.2	0.2	9.6	18.4	0.4	50

Other sizes and colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DIN-assorted boxes conductor end sleeves / AHI assorted boxes / TWIN assorted boxes

DIN-assorted boxes conductor end sleeves

AHI assorted boxes

Benefits

- Convenient assortment boxes - several diameters always at your fingertips

Application range

DIN-assorted boxes conductor end sleeves

- DIN conductor end sleeves
- Manufacturing of control cabinets and equipment

AHI assorted boxes

- AHI assortment box
- Manufacturing of control cabinets and equipment

TWIN assorted boxes

- TWIN assortment box
- Manufacturing of control cabinets and equipment

Norm references / Approvals

- The insulated conductor end sleeves are in accordance with DIN 46228, part 4 (0.25 mm² and 0.34 mm² not standardised) in assortment boxes

Note

- For processing tools see the keyword index “crimping pliers for conductor end sleeves”

Product Make-up

DIN-assorted boxes conductor end sleeves

- DIN assortment box I
  30 x 0.25 - 6 mm BU, 30 x 0.34 - 6 mm YE, 30 x 0.5 - 8 mm WH, 30 x 0.75 - 8 mm GY, 30 x 1.00 - 8 mm RD
- DIN assortment box II:
  50 x 0.5 - 8 mm WH, 100 x 0.75 - 8 mm GY, 100 x 1.00 - 8 mm RD, 100 x 1.5 - 8 mm BK, 50 x 2.5 - 8 mm BU
- DIN assortment box III:
  40 x 4.00 - 10 mm GY, 20 x 6.0 - 12 mm YE, 20 x 10.00 - 12 mm RD, 10 x 16.00 - 12 mm BU

AHI assorted boxes

- AHI assortment box I (yellow):
  30 x 0.25 - 6 mm LBU, 30 x 0.34 - 6 mm TQ, 30 x 0.5 - 8 mm ON, 30 x 0.75 - 8 mm WH, 30 x 1.00 - 8 mm YE
- AHI assortment box II (orange):
  50 x 0.5 - 8 mm OG, 100 x 0.75 - 8 mm WH, 100 x 1.00 - 8 mm YE, 100 x 1.5 - 8 mm RD, 50 x 2.5 - 8 mm BU
- AHI assortment box III (blue):
  50 x 4.00 - 10 mm GY, 20 x 6.0 - 12 mm BK, 20 x 10.00 - 12 mm WH, 10 x 16.00 - 12 mm GN

TWIN assorted boxes

- 2x0,75 - 8mm, 2x1,00 - 8mm, 2x1,5 - 8mm, 2x2,50 - 10mm

Technical data

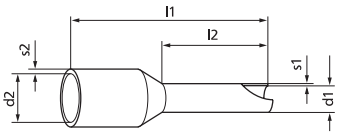
ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000524
ETIM 5.0/6.0 Class-Description: Assortment box for installation- and connection material

Article number	Article designation	For mm²	Contents (unit)	PU
DIN assortment box				
61802040	DIN assortment box I	0.25 - 1.00	150 x 1	1
61802041	DIN assortment box II	0.50 - 2.50	400 x 1	1
61802042	DIN assortment box III	4.00 - 16.00	100 x 1	1
Black, grey, orange, yellow, white				
61794720	AHI assortment box I	0.25 - 1.00	150 x 1	1
61794730	AHI assortment box II	0.50 - 2.50	400 x 1	1
61794740	AHI assortment box III	4.00 - 16.00	100 x 1	1
TWIN assortment box				
61802046	TWIN assortment box	2 x 0,75 - 2 x 2,5	200 x 1	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Conductor end sleeves XL, insulated



Info

- Suitable conductor end sleeves for UL(MTW)-CSA-HAR multi-standard single cores

Benefits

- The specially produced conductor end sleeves with funnel-shaped insulation sleeve opening make it significantly easier to slip on the strands.

Application range

- Suitable conductor end sleeves for UL(MTW)-CSA-HAR multi-standard single cores
- Because of their certifications for numerous markets, special conductor end sleeves with the cross sections listed below are needed for our multi-standard single cores.
- The conductor is permanently connected to the collar by crimping

Norm references / Approvals

- All DIN conductor end-sleeves are in accordance with DIN 46228 Part 4
- CSA approved, File-Number: 2110332
- A CSA mark with the indication “C” and “US” means that the product is certified both for the U.S. and Canadian markets, to the applicable U.S. and Canadian standards.

Note

- For 2,5 mm², 4 mm², 6 mm² and 10 mm² the standard AHI end sleeves could be used as the insulation thickness does only vary slightly from “standard cables”.

Suitable cables

- MULTI-STANDARD SC 1 Page 217
- MULTI-STANDARD SC 2.2
- MULTI-STANDARD SC 2.1

Suitable tools

- PEW 8.186 crimping pliers refer to page 999
- MULTICRIMP 6 crimping pliers
- PEW 8.87 crimping pliers refer to page 1000

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

Certifications
In accordance with DIN 46228

Note
For processing tools see the keyword index “crimping pliers for conductor end sleeves”

Info
Halogen-free and silicone-free

Material
Sleeve made of tin-plated electrolytic copper
Polypropylene plastic collar

Temperature range
Permanent load -5°C up to +105°C, temporary load +120°C

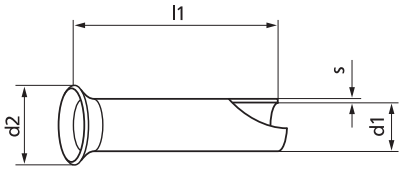
Article number	Article designation	For mm²	AWG	Colour	l1 mm	l2 mm	d1 mm	s1 mm	d2 mm	s2 mm	Pieces / PU
Conductor end sleeves XL, insulated											
61802061	Conductor end sleeves XL 0.5 WH 8	0.50	20	white	13.5	8	1.1	0.15	3	0.25	500
61802062	Conductor end sleeves XL 0.5 WH 10	0.50	20	white	15.5	10	1.1	0.15	3	0.25	500
61802063	Conductor end sleeves XL 0.75 GY 8	0.75	18	grey	14	8	1.3	0.15	3.4	0.3	500
61802064	Conductor end sleeves XL 0.75 GY 10	0.75	18	grey	16	10	1.3	0.15	3.4	0.3	500
61802065	Conductor end sleeves XL 1.0 RD 8	1.00	18	red	14	8	1.5	0.15	3.4	0.3	500
61802066	Conductor end sleeves XL 1.0 RD 10	1.00	18	red	16	10	1.5	0.15	3.4	0.3	500
61802067	Conductor end sleeves XL 1.5 BK 8	1.50	16	black	14	8	1.8	0.15	3.8	0.3	500
61802068	Conductor end sleeves XL 1.5 BK 10	1.50	16	black	16	10	1.8	0.15	3.8	0.3	500
61802069	Conductor end sleeves XL 16.0 BU 12	16.00	6	blue	23	12	6	0.2	9.5	0.4	100

Sleeves are available in 8 and 10 mm lengths, depending on the type of application.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Conductor end sleeves insulated refer to page 991

Conductor end sleeves AH, not insulated



Benefits
- Slightly funnel-shaped opening makes it easy to slip it onto the core

Application range
- Control cabinet wiring

Norm references / Approvals
- In accordance with DIN 46228

Note
- For processing tools see the keyword index “crimping pliers for conductor end sleeves”
- Other sizes are available upon request
- Assortment box 0,5-2,5 mm² (article no.61802048) available upon request

Suitable tools
- PEW 8.185 crimping pliers refer to page 999
- PEW 8.186 crimping pliers refer to page 999
- PEW 8.87 crimping pliers refer to page 1000
- KEB 1025 crimping pliers refer to page 1000
- KEB 3550 crimping pliers refer to page 1000
- CK 90 crimping pliers refer to page 1001

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000005
ETIM 5.0/6.0 Class-Description: Cable end sleeve

Material
Tinned electrolyte copper

Temperature range
- 55°C up to +200 °C

Article number	Article designation	For mm²	AWG	l1 mm	d1 mm	d2 mm	s mm	Pieces / PU
Conductor end sleeves AH, not insulated								
62120200	AH DIN 0,5/6	0.50	20	6	1	2.1	0.15	500
62120210	AH DIN 0,75/6	0.75	20	6	1.2	2.3	0.15	500
61721530	AH DIN 0,75/10	0.75	20	10	1.2	2.3	0.15	500
62120220	AH DIN 1/6	1.00	18	6	1.4	2.5	0.15	500
61721540	AH DIN 1/10	1.00	18	10	1.4	2.5	0.15	500
62120230	AH DIN 1,5/7	1.50	16	7	1.7	2.8	0.15	500
61721550	AH DIN 1,5/10	1.50	16	10	1.7	2.8	0.15	500
62120240	AH DIN 2,5/7	2.50	14	7	2.2	3.4	0.15	500
61721560	AH DIN 2,5/12	2.50	14	12	2.2	3.4	0.15	500
62120250	AH DIN 4/9	4.00	12	9	2.8	4	0.2	500
62120260	AH DIN 6/10	6.00	10	10	3.5	4.7	0.2	500
62120270	AH DIN 10/12	10.00	8	12	4.5	5.8	0.2	500
62120280	AH DIN 16/12	16.00	6	12	5.8	7.5	0.2	500

Other sizes are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

QUADRO multifunction tool

Benefits
- Integration of four key functions: cutting - insulation stripping - twisting - crimping- in one tool
- Perfect synthesis of ergonomics and functionality
- High mechanical advantage assures easy crimping.
- Changing the magazine for another cross-section takes only seconds
- No adjustment necessary for different cross-sections

Application range
- Multi-function tool
- Twisting
- Crimping
- Cutting
- Connection and crimping of insulated end sleeves

Product features
- Cutting of wires up to 2.5 mm diameter
- Fanning out of strands is prevented by the integrated twist device

Norm references / Approvals
- Trapezoidal pressing in accordance with VDE 0609 Part I
- GS-logo for proven safety

Note
- Only use the end sleeves which are particular meant for the QUADRO tool

Included
- Article no. 61805300: Case with tool and three magazines
- Article no. 61805301: Tool without case and magazine
- Article no. 61805302:Storage box for conductor end sleeves

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002778
ETIM 5.0/6.0 Class-Description: Stripping and crimping machine

Article number	Article designation	For mm²	Crimping profile	Weight (kg)	Pieces / PU
QUADRO multifunction tool					
61805300	QUADRO Set	0.50 - 2.50	Similar to trapezoid	-	1
61805301	QUADRO pliers	0.50 - 2.50	Similar to trapezoid	0.22	1
61805302	QUADRO magazine	0.50 - 2.50	Similar to trapezoid	-	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- DIN-strips for QUADRO refer to page 993

PEW 8.185 crimping pliers / PEW 8.186 crimping pliers

PEW 8.185 crimping pliers

PEW 8.186 crimping pliers

Benefits

- Improved versions of the predecessors PEW 8.84/MULTICIRMP 6:
  - Expanded capacity
  - Average hand force reduced by approx. 20 % compared to previous model
  - Reduced opening width and improved ergonomics
  - High-precision die geometry leads to a clearly defined crimp shape of the ferrule
- Uniform feed on the crimp die guarantees exact crimping profiles
- DIN compliant crimping quality due to integral lock (self-releasing mechanism)
- Automatic self-adjustment to requested wire size

Application range

PEW 8.185 crimping pliers

- For pressing insulated and non-insulated conductor end sleeves
- Cross-section range from 0.08 - 16 mm² with square pressing
- Could be used up to a sleeve length of 20 mm (for sleeves longer than 12 mm at least 2 crimps are necessary)

PEW 8.186 crimping pliers

- For pressing insulated and non-insulated conductor end sleeves
- Cross-section range from 0.08 -10 mm² with hexagonal pressing
- Could be used up to a sleeve length of 20 mm (for sleeves longer than 12 mm at least 2 crimps are necessary)

Product features

- Made of chromium-plated tool steel
- Made in Germany

Note

- End sleeves up to 12 mm only needs to be pressed once, longer end sleeves (up to a 20 mm lengths) needs to be pressed at least twice

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article designation	For mm²	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
PEW 8.185 crimping pliers						
61813736	PEW 8.185	0.08 - 16.00	square	0.38	180	1
PEW 8.186 crimping pliers						
61813737	PEW.8.186	0.08 - 10.00	hexagon	0.38	180	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- PEW 8.87 crimping pliers refer to page 1000

Accessories

- Conductor end sleeves insulated refer to page 991
- Conductor end sleeves AH, not insulated refer to page 997

PEW 8.87 crimping pliers

Benefits
- For the simplest handling where space is limited (control cabinets, machinery/ internal wiring)
- Covers a wide range of diameters: 0,08 -10 mm² (PEW 8.87) 0,08-16 mm² (PEW 8.87 Plus)
- Made in Germany
- Leverage grip boosts crimp power for tireless working

Application range
- Crimping tool for end sleeves (square form)
- Self-adjusts to the desired ferrule size
- Square crimping profile with four profiled crimping surfaces

Product features
- Burnished

Product Make-up
- PEW 8.87: With front and side feed (up to 2,5 mm²)
  PEW 8.87 Plus: With front feed

Note
- Recommended for end sleeves up to 16 mm length- for longer end sleeves we recommend the use of the PEW 8.185/8.186 (several crimps necessary) or the use of the PEW 12 tool with the suitable insert
  End sleeves up to 12 mm only needs to be pressed once, longer end sleeves (up to a 20 mm lengths) needs to be pressed at least twice

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Pressing length: up to 16 mm
Crimping profile: Square

Article number	Article designation	For mm²	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
PEW 8.87 crimping pliers						
61813742	PEW 8.87	0.08 - 10.00	square	0.475	190	1
61813744	PEW 8.87 Plus	0.08 - 16.00	square	0.475	190	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Conductor end sleeves insulated refer to page 991

KEB 1025 crimping pliers / KEB 3550 crimping pliers

KEB 1025 crimping pliers

KEB 3550 crimping pliers

Benefits
- Unique mechanism reduces the manual force from 450 N to 250 N
- Handles suit both large and small hands
- Locking function that is released only after completion of the pressing operation
- Tested for a minimum of 80,000 pressings

Application range
KEB 1025 crimping pliers
- Mini-force tools for pressing insulated and non-insulated conductor end sleeves from 10 - 25 mm²

KEB 3550 crimping pliers
- Mini-force tools for pressing insulated and non-insulated conductor end sleeves from 35 - 50 mm²

Product features
- Emergency release, if the pressing operation needs to be interrupted

Norm references / Approvals
KEB 1025 crimping pliers
- Tested in accordance with DIN standard EN 60352-2

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Note
Crimping profile: Particular developed form in the style of a W-crimp

Article number	Article designation	For mm²	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
KEB 1025 crimping pliers						
61791065	KEB 1025	10.00 - 25.00	trapezoid	0.5	220	1
KEB 3550 crimping pliers						
61791095	KEB 3550	35.00 - 50.00	trapezoid	0.5	220	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
KEB 1025 crimping pliers
- Conductor end sleeves insulated refer to page 991

CK 90 crimping pliers

Benefits
- Forced locking guarantees complete pressing

Application range
- Crimping tool for very large conductor end sleeves from 50 - 95 mm²
- For pressing insulated and non-insulated conductor end sleeves

Product features
- 3 pressing matrices with side insertion: 50/ 70/ 95 mm²

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Width: 90 mm

Note
Crimping profile: Trapezoid

Article number	Article designation	For mm²	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
CK 90 crimping pliers						
62120189	CK 90	50.00 - 90.00	trapezoid	0.18	300	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Conductor end sleeves insulated refer to page 991

KEBS 0560 TWIN crimping pliers

Benefits
- Locking function that is released only after completion of the pressing operation
- Unique mechanism reduces the manual force from 450 N to 250 N
- Handles suit both large and small hands
- Tested for a minimum of 80,000 pressings

Application range
- Pliers with front pressing for insulated/ non-insulated conductor end sleeves and TWIN conductor end sleeves

Product features
- Pressing length: up to 16 mm
- Front feed

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Adjustable crimping pressure

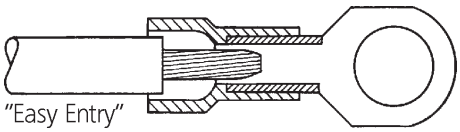
Note
Crimping profile: Trapezoid

Article number	Article designation	For mm²	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
KEBS 0560 TWIN crimping pliers						
61791055	KEBS 0560 TWIN	2x0,5 - 2x4 (0,1 - 6)	trapezoid	0.5	220	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- TWIN conductor end sleeves refer to page 994

Insulated cable lugs



Benefits
- EASY-ENTRY funnel shape of the plastic sleeve enables simple, fast and safe insertion of the conductor
- No risk of bent and crushed cables
- For good strength and improved current conduction

Application range
- Manufacturing of control cabinets and equipment

Product features
- Hard-soldered cable lug that can be pressed in any position
- For first-class connection with simple operating principle
- Electrolytic tinning for max. corrosion protection
- Flat receptacle material in contact pressing is double-folded and hard-soldered
- Metal sleeves with internal corrugation

Norm references / Approvals
- Tested in accordance with DIN IEC 60352
- File Number E334109, see table

Note
- Butt connector: Solid conductors and fine stranded wires and diverse cross-sections can be crimped together

Design
- 1 = ring cable lugs
  2 = forked cable lugs
  3 = pin cable lugs
  4 = circular connector
  5 = connector sleeve
  6 = butt connector
  7 = end connector
  (see pictures- from left to right)

Suitable tools
- DSA 0110 + DSA 0725 crimping pliers refer to page 1008
- CSA 0760 + KSA 0760 crimping pliers refer to page 1008

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001052
ETIM 5.0/6.0 Class-Description:
Solderless copper terminals for copper conductors

General
Other sizes and colours (also DIN) are available upon request
Halogen-free

Note
For processing tools see the keyword index "crimping pliers for other connections"

Material
High-quality electrolytic copper for good conductivity
Polyamide insulation

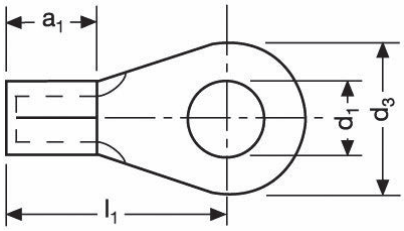
Temperature range
-20°C to +105°C
Short-term: up to +120°C

Article number	Article designation	For mm²	UL certification	Connection bolt	Core colour	Pieces / PU
Ring cable lugs						
63104010	L-RZ 3	0.25 - 0.75	no	M 3	green	100
63104020	L-RZ 4	0.25 - 0.75	no	M 4	green	100
63104030	L-RZ 5	0.25 - 0.75	no	M 5	green	100
63104040	L-RA 3	0.5 - 1.5	yes	M 3	red	100
63104050	L-RA 35	0.5 - 1.5	yes	M 3.5	red	100
63104060	L-RA 4	0.5 - 1.5	yes	M 4	red	100
63104070	L-RA 5	0.5 - 1.5	yes	M 5	red	100
63104080	L-RA 6	0.5 - 1.5	yes	M 6	red	100
63104160	L-RB 3	1.5 - 2.5	yes	M 3	blue	100
63104170	L-RB 4	1.5 - 2.5	yes	M 4	blue	100
63104180	L-RB 5	1.5 - 2.5	yes	M 5	blue	100
63104190	L-RB 6	1.5 - 2.5	yes	M 6	blue	100
63104200	L-RB 8	1.5 - 2.5	yes	M 8	blue	100
63104340	L-RC 4	4 - 6	yes	M 4	yellow	100
63104350	L-RC 5	4 - 6	yes	M 5	yellow	50
63104360	L-RC 6	4 - 6	yes	M 6	yellow	50
63104370	L-RC 8	4 - 6	yes	M 8	yellow	100
63104380	L-RC 10	4 - 6	yes	M 10	yellow	50
Fork cable lugs						
63105010	L-RZ 3 F	0.25 - 0.75	no	M 3	green	100
63105020	L-RZ 4 F	0.25 - 0.75	no	M 4	green	100
63105050	L-RA 4 F	0.5 - 1.5	yes	M 4	red	100
63105060	L-RA 5 F	0.5 - 1.5	yes	M 5	red	100
63105070	L-RA 6 F	0.5 - 1.5	yes	M 6	red	100
63105130	L-RB 4 F	1.5 - 2.5	yes	M 4	blue	100
63105140	L-RB 5 F	1.5 - 2.5	yes	M 5	blue	100
63105150	L-RB 6 F	1.5 - 2.5	yes	M 6	blue	100
63105210	L-RC 4 F	4 - 6	yes	M 4	yellow	100
63105220	L-RC 5 F	4 - 6	yes	M 5	yellow	100
63105230	L-RC 6 F	4 - 6	yes	M 6	yellow	50
63105040	L-RA 35 F	0.5 - 1.5	yes	M 3.5	red	100
63105110	L-RB 3 F	1.5 - 2.5	yes	M 3	blue	100
63105120	L-RB 35 F	1.5 - 2.5	yes	M 3.5	blue	100
Flange fork cable lugs						
63108010	L-RA 35 FF	0.5 - 1.5	no	M 3.5	red	100
63108040	L-RB 4 FF	1.5 - 2.5	no	M 4	blue	100
63108050	L-RB 5 FF	1.5 - 2.5	no	M 5	blue	100

Article number	Article designation	For mm²	UL certification	Connection bolt	Core colour	Pieces / PU
Pin cable lugs						
63107010	L-RZP	0.25 - 0.75	no		green	100
63107020	L-RAP	0.5 - 1.5	yes		red	100
63107040	L-RBP	1.5 - 2.5	yes		blue	100
63107070	L-RCP	4 - 6	yes		yellow	100
Circular connector						
63110010	L-RABM	0.5 - 1.5	no		red	100
63110020	L-RB 5 BM	1.5 - 2.5	no		blue	100
Connector sleeve						
63111010	L-RAB	0.5 - 1.5	no		red	100
63111020	L-RB 5 B	1.5 - 2.5	no		blue	100
Butt connector						
63106020	L-RAA 15	0.5 - 1.5	yes		red	100
63106040	L-RBB 25	1.5 - 2.5	yes		blue	100
63106080	L-RCC 6	4 - 6	yes		yellow	50
End joint						
63112010	L-RBJ	1.5 - 2.5	no		transparent	100
63112020	L-RCJ	4 - 6	no		transparent	50

Other sizes and colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Production tolerance ± 0,5 mm

Solderless cable lugs KB



Benefits
- For first-class connection with simple operating principle
- Thus providing the best electrical conductivity (least resistance)

Application range
- For cables with category 2,5 and 6 conductors
- Manufacturing of control cabinets and equipment
- Trains and buses

Norm references / Approvals
- In accordance with VG 88710
- Coil form DIN 46234, non-insulated

Note
- For processing tools see the keyword index “crimping pliers for other connections”

Suitable tools
- PEW 12 universal tool refer to page 1019
- V 1311-A pressing pliers, hydraulic refer to page 1014
- DKB 0325 + DKB 0360 crimping pliers refer to page 1010

Technical data

ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001052
ETIM 5.0/6.0 Class-Description:
Solderless copper terminals for copper conductors

Note
s = thickness of material

Material
High-quality electrolytic copper for good conductivity

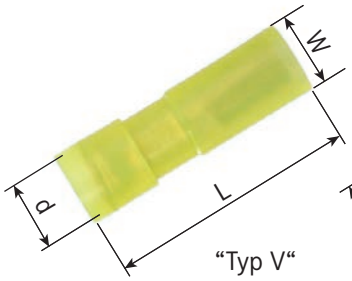
Temperature range
Max. temperature: +120°C (short-term)
Temperature range up to +90°C

Article number	Article designation	For mm²	UL certification	AWG	Nominal size	d1	d3	l1	a1	s	Pieces / PU
Solderless cable lugs KB											
63204015	KB1-2,5R DIN 46234	0.5 - 1.5	no	22-16	2.5-1.0	2.8	6	11	5		100
63204025	KB1-3R DIN 46234	0.5 - 1.5	no	22-16	3.2-1.0	3.2	6	11	5	0.8	100
63204035	KB1-3,5R DIN 46234	0.5 - 1.5	no	22-16	3.5-1.0	3.7	6	11	5	0.8	100
63204045	KB1-4R DIN 46234	0.5 - 1.5	no	22-16	4.0-1.0	4.3	8	12	5	0.8	100
63204055	KB1-5R DIN 46234	0.5 - 1.5	no	22-16	5.0-1.0	5.3	10	13	5	0.8	100
63204065	KB1-6R DIN 46234	0.5 - 1.5	no	22-16	6.0-1.0	6.5	10	13	5	0.8	100
63204075	KB1-8R DIN 46234	0.5 - 1.5	no	22-16	8.0-1.0	8.4	14	17	5	0.8	100
63204085	KB1-10R DIN 46234	0.5 - 1.5	no	22-16	10.0-1.0	10.5	14	17	5	0.8	100
63204095	KB2,5-3R DIN 46234	1.5 - 2.5	no	16-14	3.0-2.5	3.2	6	11	5	0.8	100
63204105	KB2,5-3,5R DIN 46234	1.5 - 2.5	no	16-14	3.5-2.5	3.7	6	11	5	0.8	100
63204115	KB2,5-4R DIN 46234	1.5 - 2.5	no	16-14	4.0-2.5	4.3	8	12	5	0.8	100
63204125	KB2,5-5R DIN 46234	1.5 - 2.5	no	16-14	5.0-2.5	5.3	10	14	5	0.8	100
63204135	KB2,5-6R DIN 46234	1.5 - 2.5	no	16-14	6.0-2.5	6.5	11	16	5	0.8	100

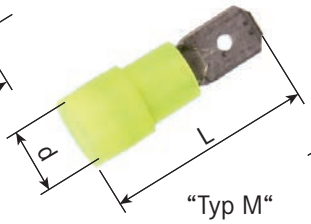
Article number	Article designation	For mm²	UL certification	AWG	Nominal size	d1	d3	l1	a1	s	Pieces / PU
63204145	KB2,5-8R DIN 46234	1.5 - 2.5	no	16-14	8.0-2.5	8.4	14	17	5	0.8	100
63204155	KB2,5-10R DIN 46234	1.5 - 2.5	no	16-14	10.0-2.5	10.5	14	17	5	0.8	100
63204165	KB2,5-12R DIN 46234	1.5 - 2.5	no	16-14	12.0-2.5	13	18	20	5	0.8	100
63204175	KB6-4R DIN 46234	2.5 - 6	no	12-10	4.0-6.0	4.3	8	14	6	1	100
63204185	KB6-5R DIN 46234	2.5 - 6	no	12-10	5.0-6.0	5.3	10	15	6	1	100
63204195	KB6-6R DIN 46234	2.5 - 6	no	12-10	6.0-6.0	6.5	11	16	6	1	100
63204205	KB6-8R DIN 46234	2.5 - 6	no	12-10	8.0-6.0	8.4	14	19	6	1	100
63204215	KB6-10R DIN 46234	2.5 - 6	no	12-10	10.0-6.0	10.5	18	21	6	1	100
63204225	KB6-12R DIN 46234	2.5 - 6	no	12-10	12.0-6.0	13	18	21	6	1	100
63204235	KB10-5R DIN 46234	10	no	8	5.0-10.0	5.3	10	16	8	1.1	100
63204245	KB10-6R DIN 46234	10	no	8	6.0-10.0	6.5	11	17	8	1.1	100
63204255	KB10-8R DIN 46234	10	no	8	8.0-10.0	8.4	14	20	8	1.1	100
63204265	KB10-10R DIN 46234	10	no	8	10.0-10.0	10.5	18	21	8	1.1	100
63204275	KB10-12R DIN 46234	10	no	8	12.0-10.0	13	22	23	8	1.1	100
63204285	KB16-5R DIN 46234	16	no	6	5.0-16.0	5.3	11	20	10	1.2	100
63204295	KB16-6R DIN 46234	16	no	6	6.0-16.0	6.5	11	20	10	1.2	100
63204305	KB16-8R DIN 46234	16	no	6	8.0-16.0	8.4	14	22	10	1.2	100
63204315	KB16-10R DIN 46234	16	no	6	10.0-16.0	10.5	18	24	10	1.2	100
63204325	KB16-12R DIN 46234	16	no	6	12.0-16.0	13	22	26	10	1.2	100
63204335	KB25-5R DIN 46234	25	no	4	5.0-25.0	5.3	12	25	11	1.5	100
63204345	KB25-6R DIN 46234	25	no	4	6.0-25.0	6.5	12	25	11	1.5	100
63204355	KB25-8R DIN 46234	25	no	4	8.0-25.0	8.4	16	25	11	1.5	100
63204365	KB25-10R DIN 46234	25	no	4	10.0-25.0	10.5	18	26	11	1.5	100
63204375	KB25-12R DIN 46234	25	no	4	12.0-25.0	13	22	31	11	1.5	100
63204385	KB25-16R DIN 46234	25	no	4	16.0-25.0	17	35	36	11	1.5	100
63204395	KB35-6R DIN 46234	35	no	2	6.0-35.0	6.5	15	26	12	1.6	100
63204405	KB35-8R DIN 46234	35	no	2	8.0-35.0	8.4	16	26	12	1.6	100
63204415	KB35-10R DIN 46234	35	no	2	10.0-35.0	10.5	18	27	12	1.6	100
63204425	KB35-12R DIN 46234	35	no	2	12.0-35.0	13	22	31	12	1.6	100
63204435	KB35-16R DIN 46234	35	no	2	16.0-35.0	17	28	36	12	1.6	100
63204445	KB50-6R DIN 46234	50	no	1/0	6.0-50.0	6.5	18	34	16	1.8	100
63204455	KB50-8R DIN 46234	50	no	1/0	8.0-50.0	8.4	18	34	16	1.8	100
63204465	KB50-10R DIN 46234	50	no	1/0	10.0-50.0	10.5	18	34	16	1.8	100
63204475	KB50-12R DIN 46234	50	no	1/0	12.0-50.0	13	22	36	16	1.8	100
63204485	KB50-16R DIN 46234	50	no	1/0	16.0-50.0	17	28	40	16	1.8	100
63204495	KB70-6R DIN 46234	70	no	2/0	6.0-70.0	6.5	22	38	18	2	100
63204505	KB70-8R DIN 46234	70	no	2/0	8.0-70.0	8.4	22	38	18	2	100
63204515	KB70-10R DIN 46234	70	no	2/0	10.0-70.0	10.5	22	38	18	2	100
63204525	KB70-12R DIN 46234	70	no	2/0	12.0-70.0	13	22	38	18	2	100
63204535	KB70-16R DIN 46234	70	no	2/0	16.0-70.0	17	28	42	18	2	100
63204545	KB95-8R DIN 46234	95	no	3/0	8.0-95.0	8.4	24	42	20	2.5	50
63204555	KB95-10R DIN 46234	95	no	3/0	10.0-95.0	10.5	24	42	20	2.5	50
63204565	KB95-12R DIN 46234	95	no	3/0	12.0-95.0	13	24	42	20	2.5	50
63204575	KB95-16R DIN 46234	95	no	3/0	16.0-95.0	17	28	44	20	2.5	50
63204585	KB120-8R DIN 46234	120	no	4/0	8.0-120.0	8.4	24	44	22	3	25
63204595	KB120-10R DIN 46234	120	no	4/0	10.0-120.0	10.5	24	44	22	3	25
63204605	KB120-12R DIN 46234	120	no	4/0	12.0-120.0	13	24	44	22	3	25
63204615	KB120-16R DIN 46234	120	no	4/0	16.0-120.0	17	28	48	22	3	25
63204625	KB150-10R DIN 46234	150	no	5/0	10.0-150.0	10.5	30	50	24	3.2	25
63204635	KB150-12R DIN 46234	150	no	5/0	12.0-150.0	13	30	50	24	3.2	25
63204645	KB150-16R DIN 46234	150	no	5/0	16.0-150.0	17	30	50	24	3.2	25
63204655	KB185-10R DIN 46234	185	no	6/0	10.0-185.0	10.5	36	50	28	3.5	20
63204665	KB185-12R DIN 46234	185	no	6/0	12.0-185.0	13	36	50	28	3.5	20
63204675	KB185-16R DIN 46234	185	no	6/0	16.0-185.0	17	36	50	28	3.5	20
63204685	KB240-10R DIN 46234	240	no	7/0	10.0-240.0	10.5	38	56	32	4	10
63204695	KB240-12R DIN 46234	240	no	7/0	12.0-240.0	13	38	56	32	4	10
63204705	KB240-16R DIN 46234	240	no	7/0	16.0-240.0	17	38	56	32	4	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

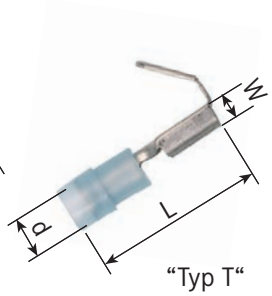
Panel connectors insulated



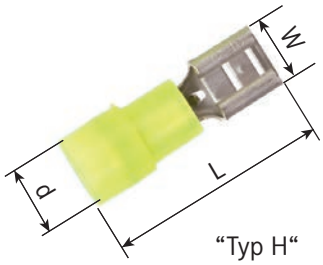
"Typ V"



"Typ M"



"Typ T"



"Typ H"

Benefits

- For first-class connection with simple operating principle
- Hard-soldered cable lug that can be pressed in any position
- Thus providing the best electrical conductivity (least resistance)
- No risk of bent and crushed cables

Application range

- Control cabinet manufacturing
- Cable assembly

Norm references / Approvals

- File Number E334111, see table

Design

- For higher tensile strength
- For good strength and improved current conduction
- Flat receptacle material in contact pressing is double-folded and hard-soldered
- EASY-ENTRY funnel shape of the plastic sleeve enables simple, fast and safe insertion of the conductor
- 1 = push-on female terminal, type H
  2 = push-on piggyback terminal, type T
  3 = push-on male terminal, type M
  4 = push-on female terminal (fully insulated), type V

Suitable tools

- DSA 0110 + DSA 0725 crimping pliers refer to page 1008
- CSA 0760 + KSA 0760 crimping pliers refer to page 1008

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000516
ETIM 5.0/6.0 Class-Description: Round or flat plug/receptacle

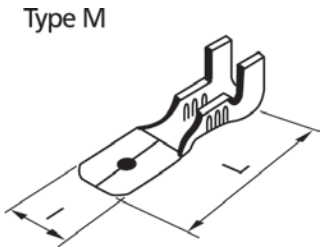
Material
Brass tin-plated
Polycarbonate insulation

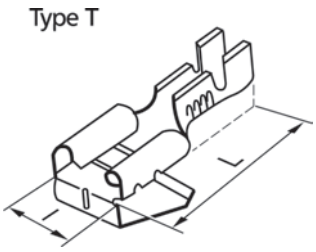
Temperature range
-20°C to +105°C
Short-term: up to +120°C

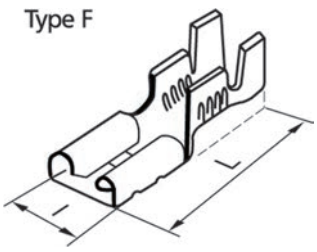
Article number	Article designation	For mm²	UL certification	Footnote	Colour	Blade connection	d mm	L	W mm	Pieces / PU
Blade receptacle according to DIN 46245 and similar (type H)										
63101020	L-RA 29 H	0.50 - 1.50	yes		red	2.8 x 0.5	3.3	18.5	3.5	100
63101010	L-RA 28 H	0.50 - 1.50	yes		red	2.8 x 0.8	3.3	18.5	3.5	100
63101030	L-RA 49 H	0.50 - 1.50	yes	1.3	red	4.8 x 0.5	3.7	19	5.7	100
63101040	L-RA 48 H	0.50 - 1.50	yes	1.3	red	4.8 x 0.8	3.7	19	5.7	100
63101050	L-RA 63 H	0.50 - 1.50	yes		red	6.3 x 0.8	4	20	7.6	100
63101060	L-RB 48 H	1.50 - 2.50	yes	1.3	blue	4.8 x 0.5	4.4	19	5.7	100
63101070	L-RB 49 H	1.50 - 2.50	yes	1.3	blue	4.8 x 0.8	4.4	19	5.7	100
63101080	L-RB 63 H	1.50 - 2.50	yes		blue	6.3 x 0.8	4.5	20	7.6	100
63101110	L-RC 63 H	4.00 - 6.00	yes		yellow	6.3 x 0.8	6.4	24	7.6	100
63101120	L-RC 95 H	4.00 - 6.00	no		yellow	9.5 x 1.2	6.2	31	11	100
Blade connector (type M)										
63103010	L-RA 63 M	0.50 - 1.50	yes		red	6.3 x 0.8	4	22		100
63103020	L-RB 63 M	1.50 - 2.50	yes		blue	6.3 x 0.8	4.5	22		100
63103040	L-RC 63 M	4.00 - 6.00	yes	1.3	yellow	6.3 x 0.8	6.3	25		100
Blade receptacle branch (type T)										
63102010	L-RA 63 T	0.50 - 1.50	no	1.3	red	6.3 x 0.8	3.7	22	7.4	100
63102020	L-RB 63 T	1.50 - 2.50	no	1.3	blue	6.3 x 0.8	4.3	22	7.5	50
Fully insulated blade receptacle (type V)										
61794951	L-RA 29 V	0.50 - 1.50	yes	2.3	red	2.8 x 0.5	3.8	19.3	5	100
61794952	L-RA 28 V	0.50 - 1.50	yes	2.3	red	2.8 x 0.8	3.8	19.3	5	100
61794953	L-RA 49 V	0.50 - 1.50	yes	2.3	red	4.8 x 0.5	3.6	20.2	7.4	100
61794955	L-RA 48 V	0.50 - 1.50	yes	2.3	red	4.8 x 0.8	3.6	20.2	7.4	100
61794960	L-RA 63 V	0.50 - 1.50	yes		red	6.3 x 0.8	4.4	21	8.8	100
61794969	L-RB 48 V	1.50 - 2.50	yes	2.3	blue	4.8 x 0.8	4.3	20	7.4	100
61794970	L-RB 63 V	1.50 - 2.50	yes		blue	6.3 x 0.8	4.5	21	8.8	100
61794971	L-RC 63 V	4.00 - 6.00	yes	2.3	yellow	6.3 x 0.8	5.3	26	9	100

1 = PVC insulation, not easy-entry; 2 = polyamide (nylon) insulation, not easy-entry; 3 = unsoldered, with additional brass sleeve
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Panel connectors non-insulated







Benefits

- For electrical connection of different components
- Maximum corrosion protection due to electrolytically tinned brass

Note

- The choice of the correct tool is depending on the cross-section of the conductor and on the blade connection

Suitable tools

- DRB 0505 + DRB 0115 crimping pliers refer to page 1009
- KRB 0560 crimping pliers refer to page 1009

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000516
ETIM 5.0/6.0 Class-Description: Round or flat plug/receptacle

Material
Brass tin-plated

Temperature range
Temperature range up to +90°C

Article number	Article designation	For mm²	UL certification	Tool	Blade connection	l	L	Pieces / PU
Blade receptacle according to DIN 46247								
63501060	L-BA 285 F	0.50 - 1.00	no	DRB 0155	2.8 x 0.5	5	12.7	100
63501070	L-BA 288 F	0.50 - 1.00	no	DRB 0155	2.8 x 0.8	5	12.7	100
63501080	L-BA 485 F	0.75 - 1.50	no	KRB 0560	4.8 x 0.5	6.4	16	100
63501090	L-BA 488 F	0.75 - 1.50	no	KRB 0560	4.8 x 0.8	6.4	16	100
63501120	L-BA 638 F	0.75 - 1.50	no	KRB 0560	6.3 x 0.8	7.6	19	100
63501130	L-BB 638 F	1.50 - 2.50	no	KRB 0560	6.3 x 0.8	7.6	19	100
63501140	L-BC 638 F	4.00 - 6.00	no	KRB 0560	6.3 x 0.8	7.6	19	100
Blade receptacle with branching								
63501150	L-BA 638 T	0.50 - 1.50	no	KRB 0560	6.3 x 0.8	7.5	19	100
Panel connectors (Plugs)								
63501071	L-BA 288 M	0.50 - 1.00	no	DRB 0155	2.8 x 0.8	5.5	13	100
63501520	L-BA 638 M	0.50 - 1.00	no	KRB 0560	6.3 x 0.8	8	19	100
63501530	L-BB 638 M	1.50 - 2.50	no	KRB 0560	6.3 x 0.8	8	19	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Panel connectors with latch refer to page 1007

Accessories

- ISO sleeve

Panel connectors with latch

Benefits
- For first-class connection with simple operating principle

Suitable tools
- KRB 0560 crimping pliers refer to page 1009

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000516
ETIM 5.0/6.0 Class-Description: Round or flat plug/receptacle

Material
Brass tin-plated

Temperature range
Typ M: max. +90 °C
Typ F: max. +110 °C

Article number	Article designation	For mm²	UL certification	Blade connection	l	L	Pieces / PU
Blade connector with locking notch (type M)							
63501020	BM 638 M	1.00 - 2.50	no	6.3 x 0.8	16	28	100
63501022	BM-C 638 M	4.00 - 6.00	no	6.3 x 0.8	16	28	100
Blade receptacle (type F)							
63501010	B 638 F	1.50 - 2.50	no	6.3 x 0.8	7.5	19	100
63501012	B-C 638 F	4.00 - 6.00	no	6.3 x 0.8	7.5	19	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- Panel connectors, non-insulated

Panel connector sockets Type M / Type F

Benefits
- Quick and easy separation of connection
- Together with blade connectors, these blade connector strips enable secure and easy assembly
- New connections can be made easily without any confusion

Application range
- Replace terminal blocks or connectors in some occassions

Note
- Only holding function

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000516
ETIM 5.0/6.0 Class-Description: Round or flat plug/receptacle

Material
Polyamide

Temperature range
max. +105 °C

Article number	Article designation	UL certification	Number of pins	Width W (mm)	Height (mm)	Depth (mm)	Pieces / PU
Blade connector strips (type M)							
63300100	408-2 M	no	2	15.3	13.2	32.2	100
63300110	408-4 M	no	4	27.5	16.8	32.6	100
63300120	408-6 M	no	6	31.2	18.8	32.9	100
63300130	408-8 M	no	8	40.4	18.8	33.1	100
Panel connector-sockets (type F)							
63300140	408-2 F	no	2	12.6	10	23.2	100
63300150	408-4 F	no	4	24.5	14.1	24	100
63300160	408-6 F	no	6	28.2	14.9	24.3	100
63300170	408-8 F	no	8	37.4	15.4	24.4	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Panel connectors non-insulated refer to page 1006

DSA 0110 + DSA 0725 crimping pliers

Benefits
- Suitable for left and right-handed users
- Less force required for perfect pressing
- Clearly marked press moulds
- Cross-section of press matrix is embossed in the cable lugs for checking
- Pressing according to the forced finish system

Application range
- Safety pressing pliers for insulated connections
- For insulated cable lugs, blade connectors and other connectors

Product features
- Emergency release, if the pressing operation needs to be interrupted

Norm references / Approvals
- Tested in accordance with DIN standards

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Adjustable crimping pressure

Note
Crimping profile: Oval

Article number	Article designation	For mm²	Weight (kg)	Length (mm)	Pieces / PU
DSA 0110 + DSA 0725 crimping pliers					
61722050	DSA 0110	0,1 - 1,5	0.35	225	1
61722060	DSA 0725	0,5 - 2,5	0.35	192	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Panel connectors insulated refer to page 1005
- Insulated cable lugs refer to page 1002

CSA 0760 + KSA 0760 crimping pliers

Benefits
- Clearly marked press moulds
- Less power required due to special mechanism
- Tested for a minimum of 80,000 pressings
- Pressing according to the forced finish system
- Cross-section of press matrix is embossed in the cable lugs for checking

Application range
- The Miniforce tool for insulated connections of 0.5 - 6 mm²

Product features
- Emergency release, if the pressing operation needs to be interrupted

Norm references / Approvals
- Tested in accordance with DIN standard EN 60352-2

Product Make-up
- CSA 0760: With C-frame, old design
- KSA 0760: With K-fame- extremely long handles for two-handed operation, improved ergonomics

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Note
Crimping profile: Oval

Article number	Article designation	For mm²	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
CSA 0760 + KSA 0760 crimping pliers						
61722070	CSA 0760	0,5 - 6.00	oval	0.5	220	1
61790910	KSA 0760	0,5 - 6.00	oval	0.54	255	1
61751950	Spare spring CSA/KSA/DSA 0760	-				1
61722071	Crimping insert for CSA + KSA 0760	-				1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Panel connectors insulated refer to page 1005
- Insulated cable lugs refer to page 1002

DRB 0505 + DRB 0115 crimping pliers

Benefits
- Less force required for perfect pressing
- Locking function for faultless pressing
- Clearly marked press moulds
- Tested for a minimum of 50,000 pressings

Application range
- Roll pressing pliers for non-insulated flat connectors with 2.8 connection
- Also suitable for blade receptacles with latch

Product features
- Emergency release, if the pressing operation needs to be interrupted

Norm references / Approvals
- Tested in accordance with DIN standard EN 60352-2

Product Make-up
- DRB 0505: Cross-section range: 0.05 - 0.5 mm²
- DRB 0115: Cross-section range: 0.1 - 1.5 mm²

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Adjustable crimping pressure

Note
Crimping profile: Roller pressing

Article number	Article designation	For mm²	Crimping profile	For blade connectors	Weight (kg)	Length (mm)	Pieces / PU
DRB 0505 + DRB 0115 crimping pliers							
61790930	DRB 0505	0,05 - 0,5	roller pressing	2.8	0.35	192	1
61790940	DRB 0115	0,1 - 1,5	roller pressing	2.8	0.35	192	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Panel connectors non-insulated refer to page 1006

KRB 0560 crimping pliers

Benefits
- Clearly marked press moulds
- Locking function for faultless pressing
- Handles suit both large and small hands
- Unique mechanism reduces the manual force from 450 N to 250 N
- Tested for a minimum of 80,000 pressings

Application range
- The convenient roll pressing pliers for non-insulated blade connectors of 0.5 - 6 mm² with connection 4.8 and 6.3

Product features
- Emergency release, if the pressing operation needs to be interrupted

Norm references / Approvals
- Tested in accordance with DIN standard EN 60352-2

Note
- The locator ensures the right positioning of the insulation and wire crimp which is particular important for the crimp quality of blade connectors.

Included
- Article number 61790950 is delivered without locator
- Article number 61791100 contains locator

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Adjustable crimping pressure

Note
Crimping profile: Roller pressing

Article number	Article designation	For mm²	Crimping profile	For blade connectors	Weight (kg)	Length (mm)	Pieces / PU
KRB 0560 crimping pliers							
61790950	KRB 0560 without locator	0,5 - 6.00	roller pressing	4.8 + 6.3	0.54	255	1
61791100	KRB 0560 with locator	0,5 - 6.00	roller pressing	4.8 + 6.3	0.54	255	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Panel connectors non-insulated refer to page 1006

DKB 0325 + DKB 0360 crimping pliers

Benefits
- Locking function for faultless pressing
- Clearly marked press moulds
- Less force required for perfect pressing
- Tested for a minimum of 80,000 pressings

Application range
- Safety pressing pliers for non-insulated connections
- For non-insulated cable lugs, other connectors and tubular cable lugs KR

Product features
- Emergency release, if the pressing operation needs to be interrupted

Norm references / Approvals
- Tested in accordance with DIN standard EN 60352-2

Product Make-up
- DKB 0325: Cross-section range: 0.25 - 2.5 mm²
- DKB 0360: Cross-section range: 0.25 - 6.0 mm²

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Adjustable crimping pressure

Note
Crimping profile: Mandrel pressing

Article number	Article designation	For mm²	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
DKB 0325 + DKB 0360 crimping pliers						
61722110	DKB 0325	0,25 - 2,5	mandrel pressing	0.35	192	1
61790920	DKB 0360	0,25 - 6.00	mandrel pressing	0.35	192	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Solderless cable lugs KB refer to page 1003

KWB 4099 crimping pliers

Benefits
- Clearly marked press moulds
- Locking function for faultless pressing
- Handles suit both large and small hands
- Unique mechanism reduces the manual force from 450 N to 250 N
- Tested for a minimum of 80,000 pressings

Application range
- The Miniforce tool for non-insulated connections of 4 - 10 mm²
- For non-insulated cable lugs, other connectors and tubular cable lugs KR

Product features
- Emergency release, if the pressing operation needs to be interrupted

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Adjustable crimping pressure

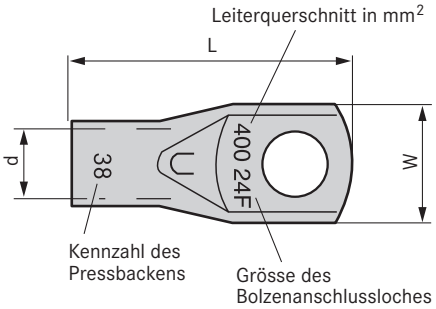
Note
Crimping profile: W-pressing

Article number	Article designation	For mm²	Weight (kg)	Length (mm)	Pieces / PU
KWB 4099 crimping pliers					
61722130	KWB 4099	4.00 - 10.00	0.5	220	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Tube cable lugs KR/ KRT/ KRF refer to page 1011
- Solderless cable lugs KB refer to page 1003

Tube cable lugs KR/ KRT/ KRF



Benefits

- With inspection hole (starting from 4 mm²)
- High-quality electrolytic copper ensures a good crimping quality

Application range

- KR: For fine and multi-wire copper conductors (class 2 an 5) with a cross-sectional range of 0.75 -10.00 mm²
- KRT: For multi-wire copper conductors (class 2)with a cross-sectional range of 10 - 1000 mm²
- KRF: For fine wire copper conductors (class 2 and 5) with a cross-sectional range of 16 - 800 mm²
- Mainly for connection to rails and to copper connectors
- Max. 48 kV

Norm references / Approvals

- In combination with recommended crimp tool fulfill requirments of SS-EN 61238-1, BS 4579:1, VDE 0220:1, EN-IEC 61238:1
- UL file number: E205350 (see table)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001051
ETIM 5.0/6.0 Class-Description: Tube cable lug for copper conductors

Material
Tinned electrolyte copper (Cu/Sn4 , tin surface of 4µ)

Temperature range
Temperature range up to +90°C
Working temperature: 110°C, max. +140°C

Article number	Article designation	Screw hole Ø (mm)	UL certification	Length (mm)	Pressing dies	d mm	W mm	Pieces / PU
KR								
61796480	KR 0,75/3	3	no	16		1.3	6	100
61796490	KR 0,75/4	4	no	17		1.3	6	100
61796500	KR 1,5/3	3	yes	16		1.8	6.5	100
61796510	KR 1,5/4	4	yes	17		1.8	6.5	100
61796520	KR 1,5/5	5	yes	18		1.8	7.5	100
61796530	KR 2,5/3	3	yes	17		2.3	7.5	100
61796540	KR 2,5/4	4	yes	18		2.3	7.5	100
61796550	KR 2,5/5	5	yes	19		2.3	8.5	100
61796560	KR 2,5/6	6	yes	19		2.3	8.5	100
61796570	KR 4/4	4	yes	21		3	8.5	100
61796580	KR 4/5	5	yes	22		3	9	100
61796590	KR 4/6	6	yes	23		3	10	100
61796600	KR 6/4	4	yes	22		4	9.5	100
61796610	KR 6/5	5	yes	22		4	9.5	100
61796620	KR 6/6	6	yes	23		4	10	100
61796630	KR 6/8	8	yes	30		4	13.5	100
61796631	KR 10/5	5	yes	29	B 7/ B 8	5	11.5	100
61796632	KR 10/6	6	yes	29	B 7/ B 8	5	11.5	100
61796633	KR 10/8	8	yes	33	B 7/ B 8	5	13.5	100
KRT								
61796640	KRT 10/5	5	yes	29	B 7	4.5	10	100
61796650	KRT 10/6	6	yes	29	B 7	4.5	10	100
61796660	KRT 10/8	8	yes	34	B 7	4.5	13	100
61796670	KRT 10/10	10	yes	34	B 7	4.5	16	100
61796680	KRT 10/12	12	yes	41	B 7	4.5	19	100
61796690	KRT 16/5	5	yes	34	B 8.5	5.5	12	100
61796700	KRT 16/6	6	yes	34	B 8.5	5.5	12	100
61796710	KRT 16/8	8	yes	39	B 8.5	5.5	15	100
61796720	KRT 16/10	10	yes	39	B 8.5	5.5	16	100
61796730	KRT 16/12	12	yes	47	B 8.5	5.5	19	100
61796740	KRT 25/6	6	yes	43	B 10	7	14	100
61796750	KRT 25/8	8	yes	43	B 10	7	15	100
61796760	KRT 25/10	10	yes	43	B 10	7	16	100
61796770	KRT 25/12	12	yes	48	B 10	7	19	100
61796780	KRT 35/6	6	yes	49	B 12	8.5	17	100
61796790	KRT 35/8	8	yes	49	B 12	8.5	17	100
61796800	KRT 35/10	10	yes	49	B 12	8.5	19	100
61796810	KRT 35/12	12	yes	53	B 12	8.5	22	100
61796820	KRT 50/6	6	yes	53	B 14	10	20	50
61796830	KRT 50/8	8	yes	53	B 14	10	20	50
61796840	KRT 50/10	10	yes	53	B 14	10	20	50
61796850	KRT 50/12	12	yes	56	B 14	10	22	50
61796860	KRT 70/8	8	yes	55	B 16	12	23	50

Article number	Article designation	Screw hole Ø (mm)	UL certification	Length (mm)	Pressing dies	d mm	W mm	Pieces / PU
61796870	KRT 70/10	10	yes	55	B 16	12	23	50
61796880	KRT 70/12	12	yes	58	B 16	12	23	50
61796890	KRT 95/8	8	yes	60	B 18	13.5	26	50
61796900	KRT 95/10	10	yes	60	B 18	13.5	26	50
61796910	KRT 95/12	12	yes	63	B 18	13.5	26	50
61796920	KRT 95/16	16	yes	69	B 18	13.5	28	50
61796930	KRT 120/10	10	yes	64	B 19	15	28	50
61796940	KRT 120/12	12	yes	64	B 19	15	28	50
61796950	KRT 120/16	16	yes	70	B 19	15	28	50
61796960	KRT 150/12	12	no	76	B 22	17	32	25
61796970	KRT 150/16	16	no	76	B 22	17	32	25
61796990	KRT 185/12	12	no	79	13 B 24	19	35	25
61797000	KRT 185/16	16	no	79	13 B 24	19	35	25
61797020	KRT 240/12	12	no	86	13 B 26	21	38	25
61797030	KRT 240/16	16	no	86	13 B 26	21	38	25
61797050	KRT 300/16	16	no	100	13 B 30	24	44	10
61797080	KRT 400/20	20	no	114	13 B 32	26	48	10
KRF								
61803020	KRF 16/6	6	yes	34	B 9	6	13	100
61803030	KRF 16/8	8	yes	34	B 9	6	13	100
61803040	KRF 16/10	10	yes	38	B 9	6	16	100
61803050	KRF 16/12	12	yes	47	B 9	6	22	100
61803060	KRF 25/6	6	yes	39	B 11	8	16	100
61803070	KRF 25/8	8	yes	39	B 11	8	16	100
61803080	KRF 25/10	10	yes	42	B 11	8	17	100
61803090	KRF 25/12	12	yes	47	B 11	8	22	100
61803110	KRF 35/6	6	yes	47	B 13	9	18	100
61803120	KRF 35/8	8	yes	47	B 13	9	18	100
61803130	KRF 35/10	10	yes	47	B 13	9	18	100
61803140	KRF 35/12	12	yes	52	B 13	9	22	100
61803160	KRF 50/8	8	yes	50	B 14.4	11	21	100
61803170	KRF 50/10	10	yes	50	B 14.5	11	21	100
61803180	KRF 50/12	12	yes	53	B 14.5	11	21	100
61803190	KRF 50/16	16	yes	59	B 14.5	11	27	100
61803200	KRF 70/8	8	yes	55	B 17	13	25	50
61803210	KRF 70/10	10	yes	55	B 17	13	25	50
61803220	KRF 70/12	12	yes	58	B 17	13	25	50
61803230	KRF 70/16	16	yes	64	B 17	13	28	50
61803240	KRF 95/10	10	yes	69	B 20	15	29	50
61803250	KRF 95/12	12	yes	69	B 20	15	29	50
61803260	KRF 95/16	16	yes	69	B 20	15	29	50
61803270	KRF 120/10	10	yes	73	B 22	17	32	25
61803280	KRF 120/12	12	yes	73	B 22	17	32	25
61803290	KRF 120/16	16	yes	73	B 22	17	32	25
61803300	KRF 150/12	12	yes	80	B 25/13 B 25	19	36	25
61803310	KRF 150/16	16	yes	80	B 25/13 B 25	19	36	25
61803330	KRF 185/12	12	yes	86	13 B 27	21	39	20
61803340	KRF 185/16	16	yes	86	13 B 27	21	39	20
61803350	KRF 185/20	20	yes	93	13 B 27	21	39	20
61803360	KRF 240/12	12	yes	96	13 B 30	22.5	42	10
61803370	KRF 240/16	16	yes	96	13 B 30	22.5	42	10
61803380	KRF 240/20	20	yes	95	13 B 30	22.5	42	10
61803390	KRF 300/16	16	yes	99	13 B 32	24.5	46	10
61803400	KRF 300/20	20	yes	99	13 B 32	24.5	46	10
61803420	KRF 400/16	16	yes	111	13 B 38	30	56	10
61803430	KRF 400/20	20	yes	126	13 B 38	30	56	10
61803440	KRF 400/24	24	yes	118	13 B 38	30	56	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

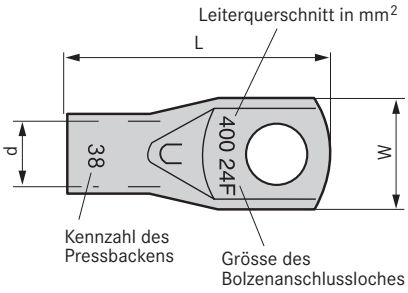
Similar products

- Solderless cable lugs KB refer to page 1003

Accessories

- T 2288 pressing pliers refer to page 1014
- V 1311-A pressing pliers, hydraulic refer to page 1014
- DKB 0325 + DKB 0360 crimping pliers refer to page 1010
- PVL 1300 pressing pliers battery-operated refer to page 1015

Tube cable lugs KRFN



Benefits

- Can be installed via cable glands, allowing pre-assembly
- High-quality electrolytic copper ensures a good crimping quality
- With inspection hole

Application range

- Narrow tube cable lugs for stranded and flexible CU-conductors 50-240 mm², suitable for class 2 and class 5
- Adapted for narrow spaces

Norm references / Approvals

- In combination with recommended crimp tool fulfill requirments of SS-EN 61238-1, BS 4579:1, VDE 0220:1, EN-IEC 61238:1

Suitable tools

- V 1311-A pressing pliers, hydraulic

Technical data

Material
Tinned electrolyte copper

Temperature range
Temperature range up to +90°C
Working temperature: 110°C, max. +140°C

Article number	Article designation	Screw hole Ø (mm)	UL certification	Length (mm)	Pressing dies	d mm	W mm	Pieces / PU
Tube cable lugs KRFN								
61797400	KRFN 50/6	6	no	51	B 14.5	11	18	100
61797401	KRFN 50/8	8	no	51	B 14.5	11	18	100
61797402	KRFN 50/10	10	no	51	B 14.5	11	18	100
61797403	KRFN 70/6	6	no	56	B 14.5	13	20	50
61797404	KRFN 70/8	8	no	56	B 17	13	20	50
61797405	KRFN 70/10	10	no	56	B 17	13	20	50
61797406	KRFN 95/8	8	no	61	B 20	15	24	50
61797407	KRFN 95/10	10	no	62	B 20	15	24	50
61797408	KRFN 95/12	12	no	64	B 20	15	24	50
61797409	KRFN 120/8	8	no	65	B 22	17	26	50
61797410	KRFN 120/10	10	no	66	B 22	17	26	50
61797411	KRFN 120/12	12	no	68	B 22	17	26	50
61797412	KRFN 150/10	10	no	73	B 25/13 B 25	19	30	50
61797413	KRFN 150/12	12	no	75	B 25/13 B 25	19	30	50
61797414	KRFN 185/10	10	no	80	13 B 27	21	32	25
61797415	KRFN 185/12	12	no	82	13 B 27	21	32	25
61797416	KRFN 185/16	16	no	86	13 B 27	21	32	25
61797417	KRFN 240/10	10	no	84	13 B 30	22.5	38	50
61797418	KRFN 240/12	12	no	84	13 B 30	22.5	38	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Tube cable lugs KR/ KRT/ KRF refer to page 1011
- Solderless cable lugs KB refer to page 1003

Accessories

- T 2288 pressing pliers refer to page 1014
- V 1311-A pressing pliers, hydraulic refer to page 1014
- DKB 0325 + DKB 0360 crimping pliers refer to page 1010
- PVL 1300 pressing pliers battery-operated refer to page 1015

T 2288 pressing pliers

Benefits
- Forced locking guarantees complete pressing
- Handy for on-site electric fitters
- Small size

Application range
- For pressing copper connections of 10 - 25 mm²
- For pressing tube cable lugs (KRT) and butt connectors

Norm references / Approvals
- Tested in accordance with standard SS-EN61238-1

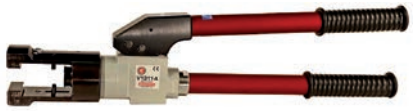
Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Note
Crimping profile: Hexagonal

Article number	Article designation	For mm²	Crimping profile	Weight (kg)	Length (mm)	Pieces / PU
T 2288 pressing pliers						
61790961	T 2288	10.0 - 25.0	hexagon	0.6	300	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

V 1311-A pressing pliers, hydraulic



Benefits
- Automatic quick feed of pressing dies and mandrels
- Requires low hand force, about 245 N at max. force
- Ergonomic handles
- Pressing head rotates by 180 degrees
- Few tool parts, easy to change

Application range
- System 1311 for pressing copper connections of 10 - 400 mm²

Included
- Complete unit, no external pump required
- Supplied with wooden carry box
- Pressing dies and die holders need to be ordered seperately

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

On request
Battery powered tool on request

Note
Crimping profile: Hexagonal and mandrel
Pressing force: 130 kN (13 t)

Article number	Article designation	For mm²	Inner die holders	Outer die holders	Weight (kg)	Length (mm)	Pieces / PU
V 1311-A pressing pliers, hydraulic							
61795925	V 1311-A	10.0 - 400.0	V 1316	V 1318	4.9	590	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- PVL 1300 pressing pliers battery-operated refer to page 1015

Accessories
- Die holders for system 1311 refer to page 1016
- Dies for system 1311 and 1300 refer to page 1016

PVL 1300 pressing pliers battery-operated

Benefits

- Ergonomic design that optimizes the balance of the tool in the users hand
- Buzzing signal and flashing light if right pressure is not achieved
- LED lightning for the work in dark environments
- Possibility to document each crimp for service control

Application range

- Battery powered crimp tool for crimping of CU terminals KRF/KSF, KRD/KSD, KRT/KST 10-400 mm² and C-sleeves up to 120 mm²
- Same accessories as V1311-A pliers

Product features

- Crimps/charge: 60-120 depending on size and temperature
- Crimp time: 4-12 sec, depending on the size
- Environmental friendly battery, Li-Ion Makita 3.0 Ah 18 V
- 230 VAC battery charger Li-ion Makita, charging time: 22 min
- LED indication of the charge status

Included

- Supplied with robust plastic case, battery charger and instruction manual
- Pressing dies and die holders need to be ordered seperately

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Dimensions: 412 x 319 x 75 mm
Weight: 5.4 kg

On request
DUAL Crimping tool (ensures a good crimping quality also for compacted conductors) is available upon request

Note
Crimping profile: Hexagonal and mandrel
Pressing force: 124 kN (13 t)

Temperature range
-20°C to +40°C

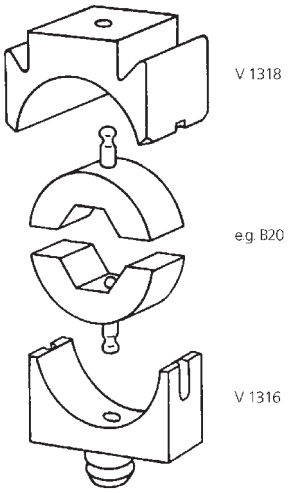
Article number	Article designation	Weight (kg)	Pieces / PU
PVL 1300 pressing pliers battery-operated			
61813821	Crimping tool PVL 1300	5.4	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Die holders for system 1311 refer to page 1016
- Dies for system 1311 and 1300 refer to page 1016

Die holders for system 1311



Benefits
- For the V1311 pliers, both the inner die holder V1316 and the outer die holder V1318 is needed

Application range
- Systems 1311 for pressing copper connections of 10 - 400 mm²

Note
- Only needed for dies which have no “13” in article designation

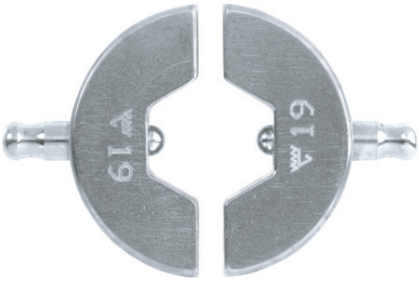
Suitable tools
- V 1311-A pressing pliers, hydraulic refer to page 1014
- PVL 1300 pressing pliers battery-operated refer to page 1015

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article designation	For crimping tools	Dies per PU	PU
Die holders for system 1311				
61795941	V 1316 inner die-holder	V 1311	1	1
61795942	V 1318 outer die-holder	V 1311	1	1

Component composition: First specify the pressing dies. Note that die holders are not needed for all pressing dies (depending on the cross section of the tube cable lugs to be pressed)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Dies for system 1311 and 1300



Application range
- Pressing dies for V 1311 and PVL 1300 for crimping cable lugs (KR/KRT/KRF) and butt connectors (KS/KST/KSF)

Note
- Pressing dies for copper branch terminals are available upon request

Included
- Press inserts are delivered in pairs
- For pressing dies where the article designation begins with “13B” no extra die holders are neededsd, for all other dies you need to order the die holders separately.

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection

Suitable tools
- V 1311-A pressing pliers, hydraulic refer to page 1014
- PVL 1300 pressing pliers battery-operated refer to page 1015

Article number	Article designation	For KR/KS mm²	For KRT/KST mm²	For KRF/KSF mm²	PU
Pressing dies - in pairs					
61795950	B7	10	10		1
61795951	B8	10		10	1
61795960	B8,5		16		1
61795970	B9			16	1
61795971	B10		25		1
61795972	B11			25	1
61795980	B12		35		1
61795981	B13			35	1
61795990	B14		50		1
61795991	B14,5			50	1
61796000	B16		70		1
61796001	B17			70	1
61796010	B18		95		1
61796021	B20			95	1
61796020	B19		120		1
61796030	B22		150	120	1
61796032	B25			150	1
61796031	B24		185		1
61796042	13B25			150	1
61796043	13B26		240		1
61796044	13B30		300	240	1
61796045	13B32		400	300	1
61796046	13B38			400	1

Component composition: First specify the pressing dies. Note that die holders are not needed for all pressing dies (depending on the cross section of the tube cable lugs to be pressed)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Mobile crimp tool crimping pliers

Benefits
- Reliable crimping performance is consistent and accurate with a parallel action stroke
- Diverse crimping inserts can be changed easily and quick
- Lightweight
- Ergonomic plastic grips

Application range
- Ideal service tool

Note
- Please close tool while inserting new dies

Included
- Article no. 62000100: Mobile Crimp Tool with 1 insert for end sleeves 0,25-102 (62000100)
- Article no. 62000105: Only Service tool (without case or insert)
- Article no.62000102: Convenient plastic case for storaging the service tool and various inserts

Info
- Inserts can be quickly changed

Technical data
ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article designation	Crimping insert	PU
Mobile crimp tool crimping pliers			
62000100	MCT incl. insert for end sleeves	Conductor end sleeves 0.25 - 10 mm²	1
62000105	MCT without insert		1
62000102	MCT case, empty		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Mobile crimp tool - crimping inserts refer to page 1018

Mobile crimp tool - crimping inserts

Benefits

- Crimping inserts are clearly labelled which minimises the risk of confusion
- Stored in the practical module boxes which can be joined together
- Particular durable: Tested for over 20.000 crimping operations

Note

- MCT crimping insert RJ45 can only be used for unscreened connectors

Suitable tools

- Mobile crimp tool crimping pliers refer to page 1017

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article designation	Suitable for:	Specification	Specification GB	Crimping profile	PU
Insulated cable lugs						
62000110	MCT insert cable lugs insul. 4300-3129	insulated cable lugs	0.5 - 1.5/1.5 - 2.5 mm²	AWG 22-16 / 16-14	oval	1
62000111	MCT insert cable lugs insul. 4300-3128	insulated cable lugs	0.1 - 0.4/4 - 6 mm²	AWG 26-22 / 12-10	oval	1
Cable Lugs						
62000112	MCT insert cable lugs non-insul. 4300-3142	uninsulated cable lugs	0.5 - 2.5/4 - 6 mm²	AWG 12-10 / 22-14	mandrel	1
62000113	MCT insert cable lugs non-insul. 4300-3137	uninsulated cable lugs	0.75/1.5/2.5 mm²	AWG 20-14	mandrel	1
62000114	MCT insert cable lugs non-insul. 4300-3139	uninsulated cable lugs	4 / 6 / 10 mm²	AWG 12-8	mandrel	1
Conductor end sleeves						
62000115	MCT insert AEH 4300-3127	insul. + non-insul. conductor end sleeves	0.25 - 10 mm²	AWG 24-8	trapezoid	1
62000116	MCT insert AEH 4300-3153	insul. + non-insul. conductor end sleeves	16 - 25 mm²	AWG 6-4	hexagon	1
62000117	MCT insert AEH 4300-3154	Conductor end sleeves, insulated + non-insulated	35-50 mm²	AWG 2-0	hexagon	1
Panel connectors (Plugs)						
62000118	MCT insert blade connectors 4300-3150	uninsulated panel connectors	0.1 - 0.25/0.25 - 0.5/ 0.5 - 1.0 mm²	AWG 26-24 / 24-22 / 22-18	roller pressing	1
62000120	MCT insert blade connectors 4300-3146	uninsulated panel connectors 6.3	0.5 - 1.0/1.5 - 2.5/ 4 - 6 mm²	AWG 22-18 / 16-14 / 12-10	roller pressing	1
62000121	MCT insert LWL 4300-3141	Optic fibre (POF) F-SMA/ B-FOC (ST)	4.52/5.41/3.84/ 3.25 mm	.178/.213/.151/.128 inch	hexagon	1
BNC connectors						
62000122	MCT insert BNC 4300-3140 RG 174/179	BNC plug	4.52/3.25/1.69/0.7 mm	.178/.128/.067/.028 inch	hexagon	1
62000123	MCT insert BNC 4300-3136 RG 58/59/62/71	BNC plug	1.69/5.41/6.48 mm	.067/.213/.255 inch	hexagon	1
62000124	MCT insert BNC 4300-3138 RG 6/59	BNC plug	9.14/8.23 mm	.360/.324 inch	hexagon	1
RJ45						
62000125	MCT insert RJ45 4300-3144	RJ 45	RJ-45 8/8			1
RJ 11						
62000126	MCT insert RJ11 4300-3132	RJ11	RJ-11 6/6, 6/4, 6/2			1
Turned pin connectors						
62000127	MCT insert turned connectors 4300-3147	turned pin connectors	0.14 - 4 mm²	AWG 26-12	square	1
62000128	MCT insert turned connectors 4300-3148	turned pin connectors	6 - 10 mm²	AWG 10-8	square	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

PEW 12 universal tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Benefits
- Ensures exact, solder-free electrical connections
- Parallel jaw closing
- Good handling through ergonomic centre of gravity
- One or two-hand operation
- Many different combination possibilities

Application range
- Compatible with all crimp dies for the PEW 12 hand crimping tool
- For crimping virtually all crimped connections with conductor cross-sections 0,08-95 mm²

Product features
- Burnished
- Chrome-plated pressing pliers available upon request (article no. 61813800)
- Suitcase is made out of polyethylene
- Each item is packed separately in a plastic bag

Included
- 61813807: Crimping tool PEW 12 without case and without inserts
  61813819: Case for 15 crimping dies, 4 locators

Article number	Article designation	Pieces / PU
Pliers		
61813807	PEW 12 burnished without inserts	1
61813819	Case for PEW 12	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Crimping inserts for PEW 12 system refer to page 1020

EPEW 12 universal tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Colour delivered
Black

Benefits
- Electromechanical tool with Li-Ion battery
- Dependable, reliable, low maintenance
- Precise tap positioning of contacts
- Quickstop, no overcrimping
- Process monitoring on multifunction display:
  - Battery charge level
  - Service interval display- Overheating/ overload warning

Application range
- Compatible with all crimp dies for the PEW 12 hand crimping tool
- Crimping of ferrules up to 50 mm²
- Manifold applications in the cable assembly

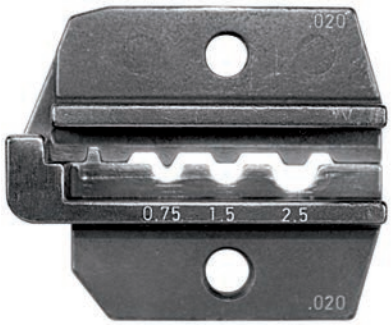
Included
- Supplied in plastic case (500 x 420 x 125 mm)
- Tool without crimping dies and locators
- Battery and battery recharger
- Socket wrench

Article number	Article designation	Weight (kg)
EPEW 12 universal tool		
61813817	E-PEW 12	4.7

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Crimping inserts for PEW 12 system refer to page 1020

Crimping inserts for PEW 12 system



Benefits

- Ensure high flexibility: All inserts can be used in PEW 12 (article number 61813807) as well as in E-PEW 12 (article number 61813817) and in criming máchine CM 25 (article number: 11147001)
- Comply with DIN 46237, DIN 46234/46235/46267 and DIN 46 247, 46 345, 46 346

Note

- On request: other inserts available

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article designation	Suitable for:	Pressing range (mm²)	Crimp dimensions (mm)	Crimp sleeve Ø (mm)	Crimping profile	Pieces / PU
Conductor end sleeves							
61813802	PEW 12.090	insul. + non-insul. conductor end sleeves	0.5 - 6.0			trapezoid	1
61813803	PEW 12.091	insul. + non-insul. conductor end sleeves	10.0 - 25.0			square	1
61813804	PEW 12.092	insul. + non-insul. conductor end sleeves	35.0 - 50.0			square	1
Cable Lugs							
61813823	PEW 12.020	uninsulated cable lugs	0,5 - 2,5			mandrel pressing	1
61813824	PEW 12.030	uninsulated cable lugs	4.0 - 10.0			w-pressing	1
61813825	PEW 12.031	Uninsulated joint connector	1.5 - 10.0			Hexagonal pressing	1
61813811	PEW 12.032	uninsulated cable lugs	0.5 - 10			mandrel pressing	1
61813862	PEW 12.033	uninsulated cable lugs	16 - 25			mandrel pressing	1
61814605	PEW 12.691	insulated cable lugs	0.5 - 6.0			conical ISO crimp	
61813812	PEW 12.060	insulated cable lugs	0.5 - 6.0			conical ISO crimp	1
61813826	PEW 12.063	insulated cable lugs	10.0 - 16.0			mandrel pressing	1
Panel connectors (Plugs)							
61814600	PEW 12.045	uninsulated panel connectors 2.8 + 4.8	0.1 - 2.5			roller pressing	1
61814601	PEW 12.045 Locator	uninsulated panel connectors 2.8 + 4.8	0.1 - 2.5			roller pressing	1
61814606	PEW 12.742	uninsulated panel connectors	0,5 - 2,5			roller pressing	1
61813808	PEW 12.050	uninsulated panel connectors 4.8 + 6.3	0.5 - 6.0			roller pressing	1
61813809	PEW 12.050 Locator	uninsulated panel connectors 4.8 + 6.3	0.5 - 6.0			roller pressing	1
61814607	PEW 12.745	uninsulated panel connectors	1.25-6			roller pressing	1
Coax connectors							
61813813	PEW 12.100	COAX connector		5.4/6.48/1.72	6.4/7.6/2.1	Hexagonal pressing	1
61813814	PEW 12.11	COAX connector	RG 174, 58	5.4/4.52/1.72	6.4/5.4/2.1	Hexagonal pressing	1
61813827	PEW 12.111	COAX connector		8.23/6.48/1.72/1.07	9.4/7.6/2.1/1.3	Hexagonal pressing	1
61813816	PEW 12.114	COAX connector		10.9/2.54	12.0/3.0	Hexagonal pressing	1
61813818	PEW 12.119	COAX connector		1.75/9.73	2.1/10.7	Hexagonal pressing	1
61813852	PEW 12.158	COAX connector		7.0/8.4/8.1	7.7/9.5/9.5	Hexagonal pressing	1
61813853	PEW 12.159	COAX connector		3.25/4.52/5.4/ 1.72/1.07/0.72	3.9/5.4/6.4/ 2.1/1.3/0.95	Hexagonal pressing	1
61813861	PEW 12.772	COAX connector		2.67/3.25/3.83	3.1/3.8/4.2	Hexagonal pressing	1
Other connectors							
61813849	PEW 12.155	Optic fibre (POF) F-SMA/B-FOC (ST)		4.20/3.65/5.0	5.4/4.3/6.0	Hexagonal pressing	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Pneumatic crimping machine UP 35

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Operating pressure: 6 bar/87 psi
Dimensions: 390 x 175 x 440 mm

On request
Safety machine available upon request (can be operated without finger guards thanks to the double-foot pedal)
Further sizes and designs could be offered upon request.

Note
Crimp force: Maximum 35 kN

Info
Weight: 20 kg

Benefits

- New space-saving design
- High ergonomics and user-friendliness thanks to the ergonomic inclination of about 10° on the machine and an integrated LED light source for illuminating the work place
- The machine can be transported easily using the supplied T-handle thanks to its easy-to-handle design and low weight of 20 kg.
- High flexibility: The adapters can be exchanged easily, quickly and without the need for additional tools, which offers the operator a wide range of processing options for loose contacts
- Easy assembly of the adapter thanks to slide in-slide out mechanism

Application range

- Pneumatic crimp machine with parallel closing mechanism
- Offers maximum user-friendliness with optimal safety and crimp quality for small to medium-sized cross-sections
- For insulated cable lugs up to 6 mm², non-insulated tubular and compression cable lugs up to 16 mm², conductor end sleeves up to 50 mm²

Product features

- Rapid change system due to adapter system
- Forced operation control guarantees highest pressing quality

Norm references / Approvals

- Corresponds to EC Directive 2011/65/EC (RoHS 2) and is CE compliant

Product Make-up

- Adapter/die-carriers are not included in the scope of delivery of the UP 35 and must be ordered separately- here you have 3 different options depending on the used die type
- Inserts must be ordered separately.

Included

- Pneumatic parallel crimping machine
- Pneumatic safety foot pedal
- Air hoses and power supply for 12 Volt illumination
- Electronic piece part counter
- Tool kit

Article number	Article designation	Pieces / PU
Crimping machine (without adapter)		
11148003	Pneumatic crimp machine UP 35	1
Adapter / die-block carrier for different types of inserts		
61743951	Adapter UP 35 for WZ crimping dies	1
61743953	Adapter UP 35 for PEW 12 crimping dies	1
61743952	Adapter UP 35 for W(D)T crimping dies	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Crimping inserts for PEW 12 system refer to page 1020
- Crimping inserts for the UP 35 machine refer to page 1022

Crimping inserts for the UP 35 machine

Benefits
- Easy and accurate exchange and positioning of the crimp die sets

Application range
- Inserts for the pneumatic crimping machine UP 35 (article no. 11148003)
- Crimping die series is called WZ- series- please use following adapter for the UP 35:Article no. 61743951

Product features
- Burnished

Note
- On request: other inserts available

Suitable tools
- Pneumatic crimp machine UP 35

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article designation	Suitable for:	Pressing range (mm²)	Crimping profile	Pieces / PU
Conductor end sleeves					
61743941	WZ / Set AE 21	insul. + non-insul. conductor end sleeves	0.14 - 10.0	trapezoid	1
61743942	WZ / AE 51	insul. + non-insul. conductor end sleeves	10.0 - 25.0	Similar to trapezoid	1
61743943	WZ / Set AE 5	insul. + non-insul. conductor end sleeves	25.0- 35.0	Similar to trapezoid	1
61743944	WZ / Set AE 61	insul. + non-insul. conductor end sleeves	35.0 - 50.0	Similar to trapezoid	1
Insulated cable lugs					
61743934	WZ /Set 440	insulated cable lugs	0.1 - 2.5	oval	1
61743933	WZ / Set 441	insulated cable lugs	0.5 - 6.0	oval	1
61743948	WZ / Set 44	insulated cable lugs	0.5 - 6.0	oval	1
Cable Lugs					
61743935	WZ / Set 66 (D)	uninsulated cable lugs	0.1 - 6.0	mandrel pressing	1
61743936	WZ / Set 66 (W)	uninsulated cable lugs	0,25-6	w-pressing	1
61743939	WZ / Set RKS 2	Tubular cable lugs	4.0 - 10.0	w-pressing	1
61743937	WZ / Set RKS 3/10 mm²	Tubular cable lugs	10	w-pressing	1
61743938	WZ / Set RKS 3-16 mm²	Tubular cable lugs	16	w-pressing	1
Panel connectors (Plugs)					
61743945	WZ / Set F2,8	uninsulated panel connectors 2.8	0.1 - 1.0	roller pressing	1
61743946	WZ / Set F4,8	uninsulated panel connectors 4.8	0,5 - 2,5	roller pressing	1
61743947	WZ / Set F 6,3	uninsulated panel connectors 6.3	0.5 - 6.0	roller pressing	
61743949	Crimping dies WZ f. UP 35- Set FAHN	uninsulated panel connectors 6.3	0,5 - 2,5	roller pressing	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

RSK one-piece screen connector

Benefits

- The four sizes can be identified by the different colours of the connectors
- Gauge helps to find out the appropriate connector and crimping insert (stripped cable with screen is placed in the hole)
- Reduced installation time

Application range

- One-part SHIELD-KON® screen connector allows screened cables to be connected quickly and permanently

Product Make-up

- To process, insert the connector into the tool, then insert and crimp the screen cable and leads or the earthing clamp
- When crimped, the connector assumes a round shape and both ends are pushed above each other
- When inserting the screened cable to a connector, ensure that the cable insulation overlaps with the connector's MYLAR® insulation
- Inside the connector, there is a suspended cover plate for the leads and an insertion for the screened cable.

Suitable tools

- PEW 12 Crimping inserts for SHIELD-KON refer to page 1026

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002650
ETIM 5.0/6.0 Class-Description:
Connection for screened wires

Material
Tinned electrolyte copper
Insulation: laminated polyester

Temperature range
-65°C to +125°C

Article number	Article designation	Colour	Shield Ø (mm)	Suitable crimp insert	Pieces / PU
RSK one-piece screen connector					
61721340	RSK 5101	red	1.27-2.28	101 A/B	100
61721350	RSK 5201	blue	2.29-3.65	201 C/D/E/F	100
61721360	RSK 5301	yellow	3.66-5.12	301 G/H/J	100
61743200	RSK 5401	green	5.13-7.62	401 K/L/M/N	100
RSK gauge					
61753760	RSK gauge				1

MYLAR® is a registered trademark of DuPont de Nemours. SHIELD-KON® is a registered trademark of Thomas & Betts.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SHIELD-KON® two-part screen connector refer to page 1024

Accessories

- RSK-FLAG connector refer to page 1023

RSK-FLAG connector

Benefits

- RSK earth clamps are the quick and inexpensive alternative to conventional installation of conductors
- Easy & direct connection of the RSK-FLAG to a piece oearthed equipment thanks to the installation hole

Application range

- For the one-piece SHIELD-KON® connectors RSK
- Appliance for fixing a shielded cable onto a surface e.g. onto an earthing bar

Technical data

ETIM

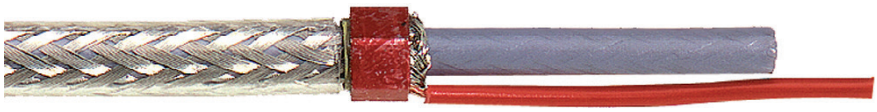
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000490
ETIM 5.0/6.0 Class-Description:
Accessories for earthing and lightning

Material
Tinned electrolyte copper

Article number	Article designation	Used for	Hole diameter (mm)	Pieces / PU
RSK-FLAG connector				
61753762	RSK-Flag-B3	RSK 5301/ 5401	M3	100
61753763	RSK-Flag-B4	RSK 5301/ 5401	M4	100
61753764	RSK-Flag-B5	RSK 5301/ 5401	M5	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

SHIELD-KON® two-part screen connector



Info

- Consists of inner and outer sleeve

Benefits

- A hard, stable inner sleeve absorbs the pressure and protects the conductor on the inside from mechanical stress
- Hexagonal shaped crimpimg of the soft outer sleeve guarantees a perfect electrical and mechanical connection

Application range

- For screen cables with a dielectric diameter from 1.1 to 9,4 mm (diameter after removing the screen)
- Telecommunication
- Railway applications

Norm references / Approvals

- Corrosion test in compliance with IEC 68-2-42
- Test samples were stored for 10 days in a damp SO2 industrial atmosphere at 25 °C
- This test showed only negligible increases in the contact resistance, which means that the crimped connections can be considered gas-proof

Suitable tools

- PEW 12 Crimping inserts for SHIELD-KON refer to page 1026

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002650
ETIM 5.0/6.0 Class-Description:
Connection for screened wires

Material
Bronze
Electrogalvanized

Temperature range
Temperature shock test
100 cycles of temperature changes between -40°C and +155°C produced a negligible change in the contact resistance.

Article number	Article designation	Colour	Inner x outer sleeve Ø (mm)	Suitable crimp insert	Nest	Pieces / PU
Inner sleeves						
61749430	GSB 046	silver	1.17 x 1.90			100
61749440	GSB 058	yellow	1.47 x 2.10			100
61749450	GSB 063	red	1.60 x 2.23			100
61749460	GSB 071	green	1.87 x 2.44			100
61749470	GSB 080	blue	2.00 x 2.63			100
61749480	GSB 090	orange	2.20 x 2.90			100
61749490	GSB 096	purple	2.44 x 3.02			100
61749500	GSB 101	yellow	2.56 x 3.16			100
61749510	GSB 109	red	2.76 x 3.36			100
61749520	GSB 115	silver	2.92 x 3.70			100
61749530	GSB 124	green	3.14 x 3.68			100
61749540	GSB 128	silver	3.25 x 3.86			100
61749550	GSB 134	orange	3.40 x 4.00			100
61749560	GSB 149	blue	3.78 x 4.54			100
61749570	GSB 156	red	3.96 x 4.90			100
61749580	GSB 165	silver	4.20 x 4.92			100
61749590	GSB 175	green	4.44 x 5.46			100
61749600	GSB 187	yellow	4.75 x 5.76			100
61749610	GSB 194	blue	4.93 x 5.76			100
61749620	GSB 205	orange	5.20 x 6.22			100
61749630	GSB 219	silver	5.56 x 6.35			100
61749640	GSB 225	yellow	5.71 x 6.50			100
61749650	GSB 232	red	5.90 x 6.70			100
61749660	GSB 250	green	6.35 x 7.14			100
61749670	GSB 261	blue	6.63 x 7.54			100
61749680	GSB 266	silver	6.75 x 7.54			100
61749690	GSB 275	orange	6.98 x 7.77			100
61749700	GSB 281	yellow	7.14 x 8.40			100
61749710	GSB 287	silver	7.29 x 8.30			100
61749720	GSB 297	red	7.54 x 8.50			100
61749730	GSB 312	purple	7.92 x 9.20			100
61749740	GSB 348	orange	8.84 x 10.20			100
61749750	GSB 375	blue	9.52 x 10.30			100
Outer sleeves						
61749810	GSC 101	silver	2.56 x 3.16	PEW 12.1425 SK	19	100
61749820	GSC 128	blue	3.25 x 3.86	PEW 12.1425 SK	00	100
61749830	GSC 149	purple	3.78 x 4.54	PEW 12.1425 SK	01	100
61749840	GSC 156	yellow	3.96 x 4.90	PEW 12.1425 SK	02	100
61749850	GSC 175	blue	4.40 x 5.46	PEW 12.1425 SK	03	100
61749860	GSC 187	orange	4.75 x 5.76	PEW 12.1426 SK	6	100
61749870	GSC 194	red	4.93 x 5.79	PEW 12.1426 SK	6	100
61749880	GSC 199	silver	5.05 x 5.97	PEW 12.1426 SK	6	100
61749890	GSC 205	yellow	5.20 x 6.22	PEW 12.1426 SK	8	100
61749900	GSC 219	green	5.56 x 6.35	PEW 12.1426 SK	8	100
61749910	GSC 225	purple	5.71 x 6.50	PEW 12.1426 SK	9	100
61749920	GSC 232	orange	5.90 x 6.70	PEW 12.1426 SK	10	100
61749930	GSC 261	yellow	6.63 x 7.54	PEW 12.1427 SK	11	100
61749940	GSC 275	silver	6.98 x 7.77	PEW 12.1427 SK	12	100
61749950	GSC 281	purple	7.14 x 8.40	PEW 12.1427 SK	14	100
61749960	GSC 287	blue	7.29 x 8.30	PEW 12.1427 SK	14	100

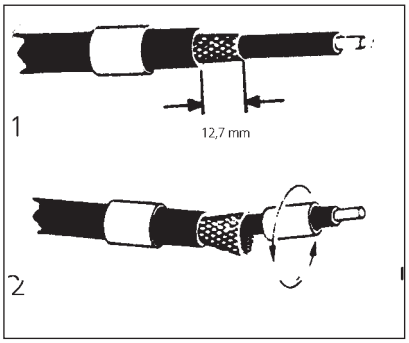
Article number	Article designation	Colour	Inner x outer sleeve Ø (mm)	Suitable crimp insert	Nest	Pieces / PU
61749970	GSC 297	green	7.54 x 8.50	PEW 12.1427 SK	14	100
61749980	GSC 312	yellow	7.95 x 9.20	PEW 12.1428 SK	15	100
61749990	GSC 327	silver	8.30 x 9.45	PEW 12.1428 SK	16	100
61750000	GSC 348	orange	8.84 x 9.98	PEW 12.1428 SK	17	100
61750010	GSC 359	purple	9.12 x 10.13	PEW 12.1429 SK	50	100
61750020	GSC 375	yellow	9.52 x 10.30	PEW 12.1429 SK	51	100
61750030	GSC 405	red	10.28 x 11.50	PEW 12.1430 SK	52	100
61750040	GSC 415	blue	10.54 x 11.76	PEW 12.1430 SK	52	100
61750050	GSC 425	silver	10.80 x 12.06	PEW 12.1430 SK	54	100
61750060	GSC 460	silver	11.68 x 12.95	PEW 12S.1431 SK incl. PEW 12S crimping plier	56	100
61750070	GSC 500	green	12.70 x 14.60	PEW 12S.1431 SK incl. PEW 12S crimping plier	57	100

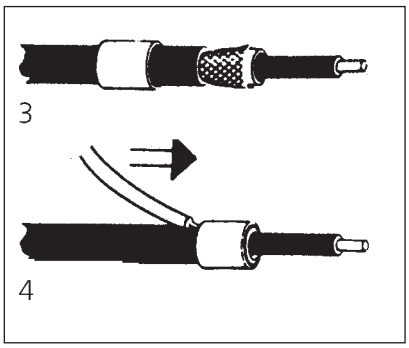
SHIELD-KON® is a registered trademark of ABB.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

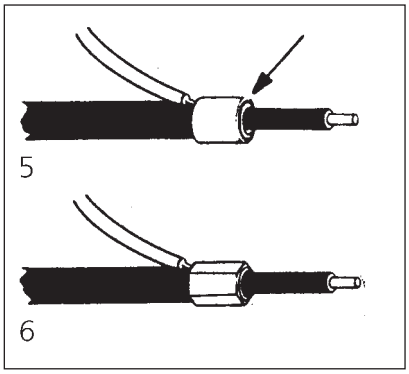
SHIELD-KON® two-part screen connector

Installation:

1. After stripping the screen (approx. 12.7 m length), push the outer sleeve onto the outer insulation. If this is too thick, push on the outer sleeve from front after step 3.
2. Extend the screen braiding by rotating the inside conductor slightly and pushing the inner sleeve under the screen braiding.
3. Position the inner sleeve in such a way that about 1.6 mm is still protruding from the end of the screen, and press on the braiding.
4. Push the conductor under the outer sleeve and push the outer sleeve over the braiding.
5. Position outer sleeve and make sure that ends of all wires in the screen braiding and the outer conductor are hidden.
6. Crimp both sleeves.







Which inner sleeve to which outer sleeve?

Inner sleeve GSB:

Define the maximum outer diameter of the inner sheath under the braid/screen. Select from the chart the matching inner sleeve (outer diameter inner sheath = inner diameter inner sleeve). In case of in-between values, please select the next size.

Outer sleeve GSC:

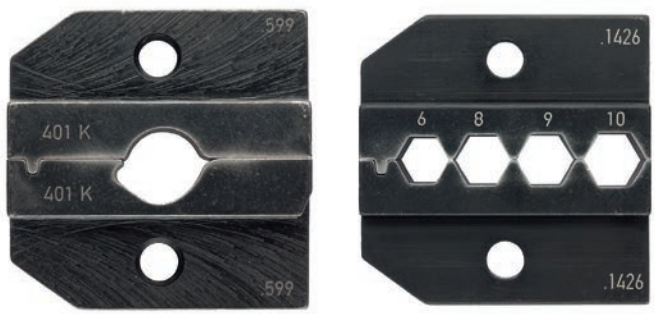
Add 1.5-2 mm to the outer diameter of the selected inner sleeve and then select the outer sleeve (resulting diameter after addition = inner diameter of outer sleeve).

Press insert:

By means of the selected outer sleeve, you can now determine the appropriate press insert.

NEW

PEW 12 Crimping inserts for SHIELD-KON screen connectors



Info

- Replace the previous ERG and WT inserts

Benefits

- Product Ref. is engraved on the upper part and on the lower part of the die set
- Inserts are easily changeable
- Parallel jaw closing
- One or two-hand operation

Application range

- Crimping of RSK One-piece screen connectors and SHIELD-KON Two-part screen connectors

Note

- For use in combination with the universal tool PEW 12 (art. no. 61813807), inserts are delivered without tool
- Crimping insert PEW 12S.1431 SK already mounted in crimping tool PEW 12S, as it has a larger opening angle

Suitable tools

- PEW 12 universal tool refer to page 1019

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001282
ETIM 5.0/6.0 Class-Description: Insert for crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article designation	Shield Ø (mm)	Suitable connectors	Pieces / PU
One piece screen connectors RSK				
61815635	PEW 12.1448/101 A	1.27-1.79	RSK 5101	1
61815636	PEW 12.1449/101 B	1.80-2.28	RSK 5101	1
61815637	PEW 12.1450/201 C	2.29-2.55	RSK 5201	1
61815638	PEW 12.1341/201 D	2.56-3.00	RSK 5201	1
61815639	PEW 12.1451/201 E	3.01-3.34	RSK 5201	1
61815640	PEW 12.1452/201 F	3.35-3.65	RSK 5201	1
61815641	PEW 12.1453/301 G	3.66-4.13	RSK 5301	1
61813869	PEW 12.374/301 H	4.14-4.71	RSK 5301	1
61813868	PEW 12.373/301 J	4.72-5.12	RSK 5301	1
61813864	PEW 12.599/401 K	5.13-5.86	RSK 5401	1
61813865	PEW 12.375/401 L	5.87-6.36	RSK 5401	1
61813866	PEW 12.354/401 M	6.37-7.00	RSK 5401	1
61813867	PEW 12.619/401 N	7.01-7.62	RSK 5401	1
Two-part connector screen connectors SHIELD-KON				
61813881	PEW 12.1425 SK		GSC 101 / 128 / 149 / 156 / 175	1
61813882	PEW 12.1426 SK		GSC 187 / 194 / 199 / 205 / 219 / 225 / 232	1
61813883	PEW 12.1427 SK		GSC 261 / 275 / 281 / 287 / 297	1
61813884	PEW 12.1428 SK		GSC 312 / 327 / 348	1
61813885	PEW 12.1429 SK		GSC 359 / 375	1
61813886	PEW 12.1430 SK		GSC 405 / 415 / 425	1
61813887	PEW 12S.1431 SK incl. PEW 12S crimping plier		GSC 460 / 500	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Temflex™ 1500 insulating tape

Benefits
- Waterproof
- Adhesive on one side
- Resistant to most solvents
- Self-extinguishing

Application range
- Multipurpose insulating tape made from PVC
- Universal electrical insulating tape for insulating, bundling, marking

Norm references / Approvals
- Type acc. to VDE: type 5

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000128
ETIM 5.0/6.0 Class-Description:
Adhesive tape

Note
Ultimate elongation: 170 %
Tear strength: 20 N / 10 mm

Info
Thickness: 0.15 mm

Material
PVC

Test voltage
Dielectric strength: 40 kV/mm

Temperature range
-10 °C to +90 °C

Article number	Article designation	Colour	Length (m) x tape width (mm) x thickness (mm)	Material	Pieces / PU
Temflex™ 1500 insulating tape					
61721040	Temflex 1015	white	10 x 15 x 0.15	PVC	10
61721030	Temflex 1015	black	10 x 15 x 0.15	PVC	10
61721050	Temflex 1015	green	10 x 15 x 0.15	PVC	10
61721060	Temflex 1015	blue	10 x 15 x 0.15	PVC	10
61721070	Temflex 1015	red	10 x 15 x 0.15	PVC	10
61721080	Temflex 1015	GN-YE	10 x 15 x 0.15	PVC	10
61721045	Temflex 1015	yellow	10 x 15 x 0.15	PVC	10
61721090	Temflex 2515	black	25 x 15 x 0.15	PVC	10
61721100	Temflex 2515	white	25 x 15 x 0.15	PVC	10
61721110	Temflex 2515	blue	25 x 15 x 0.15	PVC	10
61721120	Temflex 2515	red	25 x 15 x 0.15	PVC	10
61721130	Temflex 2515	green	25 x 15 x 0.15	PVC	10
61721140	Temflex 2525	black	25 x 25 x 0.15	PVC	10

Temflex™ 1183 is a registered trademark of 3M
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

TI insulating tape

Benefits
- Protects against corrosion
- Non-aging
- Chemical resistance
- Not self-adhesive, no residues
- Wide temperature range for applications in harsh climatic environments

Application range
- Insulating tapes and self-amalgamating tape
- For sealing of transition points where water shouldn't enter
- For bundling several wire harnessings (e.g. automotive industry)
- Problem-free and assured sealing of fine screens up to 3/8" for nearly all materials

Technical data
Colour delivered
White

Material
Non-adhesive fluoropolymer tape

Temperature range
-240°C to +250°C

Article number	Article designation	Colour	Length (m) x tape width (mm) x thickness (mm)	Material	Pieces / PU
TI insulating tape					
61713080	TI 1212 insulating tape	white	12.0 x 12.0 x 0.1	PTFE	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Insulating tube ISS

Benefits
- Provides good insulation against heat, cold or temperature fluctuations
- Resistant to most chemicals
- Good weather and UV-resistance

Application range
- Insulating tube

Note
- Not suitable for shrinking

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002254
ETIM 5.0/6.0 Class-Description: Cable insulation hose

Note
Dielectric strength: 18 kV/mm

Material
Silicone
UV-resistant

Temperature range
-60°C up to +220°C

Article number	Article designation	Colour	Internal Ø x wall thickness (mm)	Material	PU (m)
Insulating tube ISS					
61760060	ISS 2	natural	2.00 x 0.40	Silicone	100
61760070	ISS 3	natural	3.00 x 0.40	Silicone	100
61760080	ISS 4	natural	4.00 x 0.75	Silicone	100
61760090	ISS 5	natural	5.00 x 0.90	Silicone	100
61760100	ISS 6	natural	6.00 x 0.90	Silicone	100
61760110	ISS 7	natural	7.00 x 0.90	Silicone	100
61760120	ISS 8	natural	8.00 x 1.00	Silicone	50
61760130	ISS 9	natural	9.00 x 1.05	Silicone	50
61760140	ISS 10	natural	10.00 x 1.05	Silicone	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Insulating tube ISY

Application range
- Insulating tube
- For insulation of connections

Product features
- Smooth surface

Norm references / Approvals
- IEC 60684-3-100

Note
- Not suitable for shrinking

Design
- Colours: black RAL 9005, white similar to RAL 9003

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002254
ETIM 5.0/6.0 Class-Description: Cable insulation hose

Note
Dielectric strength: 14 kV/mm

Info
Without fabric

Colour delivered
Black and white

Material
Soft PVC

Temperature range
-20 °C ... +85 °C

Article number	Article designation	Colour	Internal Ø x wall thickness (mm)	Material	PU (m)
Insulating tube ISY					
61793030	ISY 2	black	2.00 x 0.40	PVC	1000
61793040	ISY 3	black	3.00 x 0.40	PVC	750
61793050	ISY 4	black	4.00 x 0.50	PVC	500
61793060	ISY 5	black	5.00 x 0.60	PVC	500
61793070	ISY 6	black	6.00 x 0.60	PVC	400
61793080	ISY 7	black	7.00 x 0.70	PVC	500
61793090	ISY 8	black	8.00 x 0.70	PVC	500
61793100	ISY 9	black	9.00 x 0.70	PVC	400
61793110	ISY 10	black	10.00 x 0.70	PVC	300
61793116	ISY 10	white	10.00 x 0.70	PVC	300
61793119	ISY 16	black	16.00 x 1.00	PVC	150

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Copper braid

Application range
- EMC-compliant screening
- Can be used as earthing tape
- Automotive industry

Norm references / Approvals
- ISO-TS approved

Design
- Variable diameter by tightening the braid

Included
- Are delivered in 2 pieces with 50 m each

Suitable conduits
- SILVYN® EMC AS-CU Page 886

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001182
ETIM 5.0/6.0 Class-Description: Braided hose

General
Minor differences are possible depending on the production batch

Note
Degree of coverage: 85 % at maximum opening

Material
Tinned-copper

Temperature range
-30°C to +105°C
Max. temperature: +120°C (short-term)

Article number	Article designation	mm^2	Diameter in mm	Number of wires x Ø (mm)	Copper index (kg/km)	PU (m)
Copper braid						
61721370	CU 14	1.32	1 - 4	24 x 7 x 0,1	13.2	100
61721380	CU 410	4.14	4 - 10	24 x 22 x 0,1	41.4	100
61721390	CU 1020	8.29	10 - 20	48 x 22 x 0,1	81.9	100
61721395	CU 2050	18.1	20 - 50	48 x 12 x 0,2	183	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

3M Scotch™ 1183 screening tape

Benefits
- Electrically-conductive strip provides exceptional screening of electromagnetic fields
- Uniform foil composition and its good conductivity to the substrate ensures low contact resistance, which is crucial for the degree of screening
- Solderable and corrosion-resistant
- Acrylic adhesive that is resistant to solvents

Application range
- Electromagnetic field screening
- Electrostatic discharge

Product features
- Copper foil is plated with a thin layer of tin
- Tin-plating is compatible with a wide range of base materials such as aluminium, lead and tin alloys, and galvanised steels

Norm references / Approvals
- UL 510 approved
- UL File Number: E17385

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000128
ETIM 5.0/6.0 Class-Description:
Adhesive tape

Caution
Adhesion (stripping force) :
3.8 N/10 mm
Tear strength: 44 N/10 mm

Note
Contact resistance (in acc. with MIL-STD-202): 0.005 ohms

Info
Storage: good stability when stored in a cool and dry location (room temperature and approx. 50% relative humidity)

Colour delivered
Silver grey (RAL 7001)

Material
Smooth tin-plated copper film as a lining with a conductive acrylic adhesive

Temperature range
-10 °C to +80 °C

Article number	Article designation	Width (mm)	PU (m)
3M Scotch™ 1183 screening tape			
61721420	3M Scotch 1183 / 9x16,5	9	16.5
61721421	3M Scotch 1183 / 12x16,5	12	16.5
61721422	3M Scotch 1183 / 19x16,5	19	16.5
61721423	3M Scotch 1183 / 25x16,5	25	16.5

Scotch™ 1183 is a registered trademark of 3M
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® MS-HF-M SC refer to page 707
- SKINTOP® MS-SC-M refer to page 701
- SKINTOP® MS-SC refer to page 777

HOTY heat-shrink tube

Info

- Thin walled

Benefits
- Well-priced
- Good weather and UV-resistance
- Flame-retardant
- Safe transport is secured via light pressure

Application range
- Insulation, protection and cable bundling

Norm references / Approvals
- Flame-retardant according to UL94 VO

Note
- Storage temperature: max. +18°C

Suitable tools
- HG 2320 hot-air pistol refer to page 1036

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000217
ETIM 5.0/6.0 Class-Description: Shrink tubing

Note
Thin walled
Dielectric strength: 20 kV/mm

Info
Shrinking ratio: 2:1

Colour delivered
Black (UV-resistant)

Material
PVC

Temperature range
-20°C to +90°C
Shrinking temperature: +120°C

Article number	Article description	Internal Ø before contraction (mm)	Shrinkage range (mm)	Panel thickness, shrunk +- 0.1 mm	PU (m)
HOTY heat-shrink tube					
61716700	HOTY 1	2.5	2.5 - 1.2	0.45	100
61716720	HOTY 2	4	4.0 - 2.0	0.5	100
61716740	HOTY 3	6	6.0 - 3.0	0.5	100
61716760	HOTY 4	7	7.0 - 4.0	0.5	100
61716780	HOTY 6	11	11.0 - 6.0	0.6	100
61716800	HOTY 8	14	14.0 - 8.0	0.6	100
61716820	HOTY 10	17	17.0 - 10.0	0.8	100
61716840	HOTY 13	20	20.0 - 13.0	1	100
61716860	HOTY 16	25	25.0 - 16.0	1	50
61716880	HOTY 20	31	31.0 - 20.0	1	50

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Shrink tube PROTECT Box / Shrink tube PROTECT

Shrink tube PROTECT Box

Shrink tube PROTECT

Info

- Thin walled

Benefits

- Flexible
- Excellent physical and mechanical properties
- Approved for the use in North America and Canada

Application range

- Insulation, protection and cable bundling
- Green-yellow shrink tube: for identifying and marking earthing connectors and cables

Product features

- Flame-retardant (except colour: clear)
- Silicone-free
- UV-resistant (only colour: black)

Norm references / Approvals

- UL 224 approval (except colour: transparent)
- UL file no.: E476215 (except colour: transparent)

Note

- Not resistant against engine oils

Included

Shrink tube PROTECT Box

- Stackable boxes for easy storage

Shrink tube PROTECT

- Plastic bag with 1.22 m units

Suitable tools

- HG 2320 hot-air pistol refer to page 1036

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000217
ETIM 5.0/6.0 Class-Description: Shrink tubing

On request
Other colours are available upon request

Note
Thin walled
Dielectric strength: 20 kV/mm

Info
Shrinking ratio: 2:1

Colour delivered
Black
Transparent
Green-yellow

Material
Cross-linked polyolefin

Temperature range
-55°C to +135°C
Shrinking temperature: +90°C

Article number	Article description	Colour	Shrinkage range (mm)	Panel thickness, shrunk +- 0.1 mm	PU (m)	PU
Shrink tube PROTECT Box						
61742423	PROTECT Box 1,2/0,6 BK	black	1.2 - 0.6	0.41	12	1
61742424	PROTECT Box 1,6/0,8 BK	black	1.6 - 0.8	0.43	12	1
61742425	PROTECT Box 2,4/1,2 BK	black	2.4 - 1.2	0.51	12	1
61742426	PROTECT Box 3,2/1,6 BK	black	3.2 - 1.6	0.51	12	1
61742427	PROTECT Box 4,8/2,4 BK	black	4.8 - 2.4	0.51	10	1
61742428	PROTECT Box 6,4/3,2 BK	black	6.4 - 3.2	0.64	8	1
61742429	PROTECT Box 9,5/4,7 BK	black	9.5 - 4.7	0.64	7	1
61742430	PROTECT Box 12,7/6,4 BK	black	12.7 - 6.4	0.64	6	1
61742431	PROTECT Box 19,1/9,5 BK	black	19.1 - 9.5	0.7	5	1
61742433	PROTECT Box 25,4/12,7 BK	black	25.4 - 12.7	0.89	3	1
61742434	PROTECT Box 1,2/0,6 TR	transparent	1.2 - 0.6	0.41	12	1
61742435	PROTECT Box 1,6/0,8 TR	transparent	1.6 - 0.8	0.43	12	1
61742436	PROTECT Box 2,4/1,2 TR	transparent	2.4 - 1.2	0.51	12	1
61742437	PROTECT Box 3,2/1,6 TR	transparent	3.2 - 1.6	0.51	12	1
61742438	PROTECT Box 4,8/2,4 TR	transparent	4.8 - 2.4	0.51	10	1
61742439	PROTECT Box 6,4/3,2 TR	transparent	6.4 - 3.2	0.64	8	1
61742440	PROTECT Box 9,5/4,7 TR	transparent	9.5 - 4.7	0.64	7	1
61742441	PROTECT Box 12,7/6,4 TR	transparent	12.7 - 6.4	0.64	6	1
61742442	PROTECT Box 19,1/9,5 TR	transparent	19.1 - 9.5	0.77	5	1
61742443	PROTECT Box 25,4/12,7 TR	transparent	25.4 - 12.7	0.89	3	1
Shrink tube PROTECT						
61742400	PROTECT 1,2/0,6 BK	black	1.2 - 0.6	0.41	61	1
61742401	PROTECT 1,6/0,8 BK	black	1.6 - 0.8	0.43	61	1
61742402	PROTECT 2,4/1,2 BK	black	2.4 - 1.2	0.51	61	1
61742403	PROTECT 3,2/1,6 BK	black	3.2 - 1.6	0.51	61	1
61742404	PROTECT 4,8/2,4 BK	black	4.8 - 2.4	0.51	61	1
61742405	PROTECT 6,4/3,2 BK	black	6.4 - 3.2	0.64	30.5	1
61742406	PROTECT 9,5/4,7 BK	black	9.5 - 4.7	0.64	30.5	1
61742407	PROTECT 12,7/6,4 BK	black	12.7 - 6.4	0.64	30.5	1
61742408	PROTECT 19,1/9,5 BK	black	19.1 - 9.5	0.77	30.5	1
61742409	PROTECT 25,4/12,7 BK	black	25.4 - 12.7	0.89	18.3	1
61742416	PROTECT 3,2/1,6 GN/YE	green-yellow	3.2 - 1.6	0.51	61	1
61742417	PROTECT 4,8/2,4 GN/YE	green-yellow	4.8 - 2.4	0.51	61	1
61742418	PROTECT 6,4/3,2 GN/YE	green-yellow	6.4 - 3.2	0.64	30.5	1
61742419	PROTECT 9,5/4,7 GN/YE	green-yellow	9.5 - 4.7	0.64	30.5	1
61742420	PROTECT 12,7/6,4GN/YE	green-yellow	12.7 - 6.4	0.64	30.5	1
61742421	PROTECT 19,1/9,5 GN/YE	green-yellow	19.1 - 9.5	0.77	30.5	1
61742422	PROTECT 25,4/12,7 GN/YE	green-yellow	25.4 - 12.7	0.89	18.3	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Shrink tube PROTECT-C

Info

- Double walled

Benefits

- Good chemical resistance
- High mechanical stability
- Good weather-resistance
- High shrink ratio and adhesive coating

Application range

- Particularly suitable for corrosion and damp protected casings as well as highly contoured components

Product features

- Adhesive lining bonds to plastic, rubber, neoprene,steel and polyethylene
- Silicone-free
- UV-resistant

Included

- Plastic bag with 0.6 m units

Suitable tools

- HG 2320 hot-air pistol refer to page 1036

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000217
ETIM 5.0/6.0 Class-Description: Shrink tubing

Note
Double-walled
Dielectric strength: 15 kV/mm

Info
Shrinking ratio: 3:1

Colour delivered
Black

Material
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside
Silicone, Cadmium and Lead free

Temperature range
-55°C to +110°C
Shrinking temperature: > 100°C

Article number	Article description	Shrinkage range (mm)	Panel thickness, shrunk +- 0.1 mm	PU (m)	PU
Shrink tube PROTECT-C					
61742449	PROTECT-C 3,0/1,0 BK	3.0 - 1.0	1	12	1
61742450	PROTECT-C 6,0/2,0 BK	6.0 - 2.0	1.1	9	1
61742451	PROTECT-C 9,0/3,0 BK	9.0 - 3.0	1.3	6	1
61742452	PROTECT-C 12,0/4,0 BK	12.0 - 4.0	1.7	5.4	1
61742453	PROTECT-C 18,0/6,0 BK	18.0 - 6.0	2	3.6	1
61742454	PROTECT-C 24,0/8,0 BK	24.0 - 8.0	2.5	3	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Shrink tube PROTECT-M/PROTECT-T

Info

- Medium / thick walled

Benefits

- Is designed to withstand the severe mechanical requirements of submersible and direct-buried installations
- High resistance to abrasion, corrosion and chemicals
- Good weather-resistance

Application range

- Thick and medium-wall shrink tubes for 600 V, 90°C low voltage applications in continuous use
- Ideal for the protection of cable joints and terminations in low voltage power applications

Product features

- Halogen-free
- Silicone-free
- UV-resistant

Included

- Plastic bags with 1.0 m units

Suitable tools

- HG 2320 hot-air pistol refer to page 1036

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000217
ETIM 5.0/6.0 Class-Description: Shrink tubing

Note
PROTECT-M: medium wall
PROTECT-T: heavy wall
Dielectric strength: 15 kV/mm

Info
Shrinking ratio: 3:1

Colour delivered
Black

Material
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside

Temperature range
-40°C to +120°C
Shrinking temperature: +110°C

Article number	Article description	Shrinkage range (mm)	Panel thickness, shrunk +- 0.1 mm	PU (m)	PU
Medium wall					
61742460	PROTECT- M 12/3 BK	12.0 - 3.0	2.2	15	1
61742461	PROTECT- M 33/8 BK	33.0 - 8.0	2.6	10	1
61742462	PROTECT- M 40/12 BK	40.0 - 12.0	2.6	5	1
61742463	PROTECT- M 56/17 BK	56.0 - 17.0	3	3	1
61742464	PROTECT- M 92/26 BK	92.0 - 26.0	3.15	1	1
Thick wall					
61742455	PROTECT- T 13,0/4,0 BK	13.0 - 4.0	2.65	25	1
61742456	PROTECT-T 19/6 BK	19.0 - 6.0	2.65	15	1
61742457	PROTECT- T 45/12 BK	45.0 - 13.0	3.7	5	1
61742458	PROTECT- T 52/16 BK	52.0 - 16.0	4.1	3	1
61742459	PROTECT- T 130/45 BK	130.0 - 45.0	4.2	1	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

TEC sealing cap

Benefits
- Secure sealing through thermoplastic adhesive coating on the inside
- Good resistance to chemicals and solvents
- Ensures high tensile strength and mechanical protection

Application range
- For sealing cable ends against the seepage of moisture and contaminants

Technical data

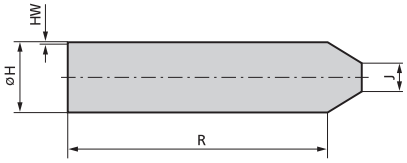
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000218
ETIM 5.0/6.0 Class-Description: Heat-shrink end cap

General
UV-resistant
Double-walled

Colour delivered
Black

Material
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside
Halogen-free and silicone-free

Temperature range
-55°C to +100 °C
Shrink temperature: 135°C



Article number	Article description	H max. mm	H min. mm	J max. mm	Cable Ø (mm)	R* after shrinking (mm)	Panel thickness HW* (mm)	Pieces / PU
TEC sealing cap								
61830000	TEC 15/4,5	15	4.5	4	5.0 - 12.0	30	2	10
61830010	TEC 25/9	25	9	6.5	10.0 - 22.0	50	2.3	10
61830020	TEC 36/15	36	15	10.5	17.0 - 30.0	80	3	10
61830040	TEC 55/25	55	25	16	28.0 - 47.0	130	3.3	10
61830050	TEC 80/40	80	40	17	45.0 - 70.0	150	4	10
61830060	TEC 102/60	102	60	26	68.0 - 90.0	140	4	10
61830070	TEC 148/57	148	57	27	80.0 - 133.0	105	3.3	10

1. after shrinking +/- 10%; 2. after shrinking +/- 20%
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

TEB branch muff

Benefits
- Secure sealing through thermoplastic adhesive coating on the inside
- Good resistance to chemicals and solvents
- Ensures high tensile strength and mechanical protection

Application range
- Insulation and sealing of cable splices

Design
- Double-walled

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001170
ETIM 5.0/6.0 Class-Description: Branch-splice joint (set)

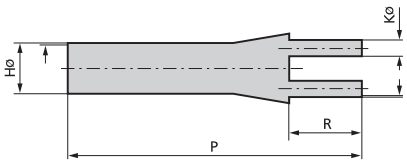
General
UV-resistant

Info
Shrinking ratio: > 2:1

Colour delivered
Black

Material
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside
Halogen-free and silicone-free

Temperature range
-55°C to +100 °C
Shrinking temperature: +120°C



Article number	Article description	Number of cores	H max. mm	H min. mm	K max. mm	K min. mm	P* mm	R* mm	Pieces / PU
TEB branch muff									
61830110	TEB 2-30/12	2	30	12	14	4	93	23	10
61830120	TEB2-60/23	2	60	23	25	7.5	118	29	10
61830130	TEB3-60/24	3	60	24	27	7	165	50	10
61830140	TEB4-40/15	4	40	15	13	3	105	26	10
61830150	TEB4-55/21	4	55	21	20	5.5	150	40	10
61830160	TEB4-75/26	4	75	26	28	7.5	175	45	10
61830170	TEB4-90/32	4	90	34	32	10	198	58	1

1. after shrinking +/- 10%; 2. after shrinking +/- 20%
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

HG 2320 hot-air pistol

Benefits
- One hand operation is possible
- Four memo programs
- Optical LCD temperature and speed display
- High-performance, electronically regulated professional hot-air blower with continuous air flow and temperature regulation and LCD display
- Display of the heat remainders prevents burns

Application range
- Robust housing for manual and stationary operation.
- Control cabinets and equipment wiring

Product features
- Adjustable temperature setting
- Double protection against overheating - thermostat and thermal fuse
- Air inlet with mesh to protect against coarse impurities
- Adjustable speed setting

Note
- Lifetime of the motor: 1.000 h

Included
- Hot-air pistol, plastic case, reduction nozzle 9 mm, reflector nozzle, variety of different shrink tube piecese (100 pc, Ø 1,6 9,5 mm)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001383
ETIM 5.0/6.0 Class-Description: Hot air gun (electric)

General
Dimensions:
Without case: 253 x 86,5 x 200 mm
With case: 395 x 100 x 320 mm
Weight incl. packaging: 2195 g

Note
Length power cord: 3 m
230 V, 50/60 Hz

Info
Air volume: 150 - 500 l/min, stepless adjustable
2 levels

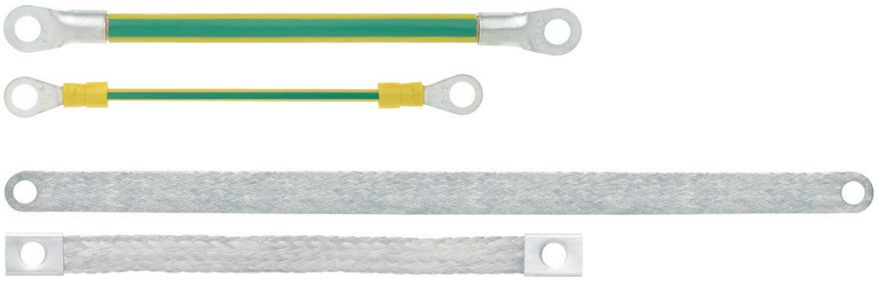
Temperature range
80 - 650 °C, stepless adjustable

Article number	Article description	Max. heating capacity	Attainable air temperature	Pieces / PU
HG 2320 hot-air pistol				
61801246	Ho air pistol HG 2320 E	2300	650	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Guarantee is limited to 500 working hours or 1 year

Accessories
- Shrink tube PROTECT Box refer to page 1032
- Shrink tube PROTECT-C refer to page 1033
- Shrink tube PROTECT-M/PROTECT-T refer to page 1034

Ground Straps / Flat Ground Straps



Application range

- Control cabinet manufacturing
- The protective earth safety measure is prescribed by standard
- Fixed and moving metal parts, such as doors in switch cabinet construction, must be earthed

Product features

- Fixed lengths for M6 and M8 screws

Product Make-up

- Ground straps:
  - Strands of bare copper wires
  - PVC-based core insulation
  - Assembled with ring cable lugs
- Pressure-welded flat ground straps:
  - Strand made of tinned-copper wires
  - Welded ends
- Flat ground straps with sleeves:
  - Strands made of tinned-copper wires
  - Assembled with pressed contact sleeves

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000490
ETIM 5.0/6.0 Class-Description:
Accessories for earthing and lightning

Core identification code
Assembled ground straps
green/yellow

Conductor stranding
Assembled ground straps
IEC 60 228 Class 6
Assembled flat ground straps
IEC 60 228 Class 6, tin-plated
Extra-fine wire

Minimum bending radius
Assembled ground straps
7 x outer diameter
Assembled flat ground straps
5 x outer diameter

Test voltage
Assembled ground straps
2500 V

Temperature range
Assembled ground straps
-30°C to +70°C
Assembled flat ground straps
-5°C to +70°C

Article number	Article designation	Cross-section (mm²)	For	Length (mm)	Copper index kg/1.000 pieces	PU
Ground straps						
4571120	Ground strap 1 x 4/M6/170 mm GN/YE	4	M6	170	6.5	25
4571123	Ground strap 1x4/M8/300mm GN/YE	4	M8	300	11.4	25
4571121	Ground straps 1x16/M6/170mm GN/YE	16	M6	170	26.2	25
4571198	Ground strap 1x16/M6/500mm GN/YE	16	M6	500	76.8	25
4571124	Ground strap 1x16/M8/300mm GN/YE	16	M8	300	46.2	25
4571122	Ground strap 1x25/M6/170mm GN/YE	25	M6	170	40.8	25
4571125	Ground strap 1x25/M8/300mm GN/YE	25	M8	300	72	25
Pressure-welded flat ground straps						
4571132	Flat ground strap/press. 1X10/M6/200mm	10	M6	200	18	25
4571135	Flat ground strap/press. 1x10/M6/300mm	10	M6	300	27	25
70399965	Flat ground strap/press. 1X16/M6/200mm	16	M6	200	30.72	25
70399966	Flat ground strap/press. 1X16/M6/300mm	16	M6	300	46.08	25
4571133	Flat ground strap/press. 1x16/M8/200mm	16	M8	200	29	25
4571136	Flat ground strap/press. 1x16/M8/300mm	16	M8	300	43.5	25
4571134	Flat ground strap/press. 1X25/M8/200mm	25	M8	200	45	25
4571137	Flat ground strap/press. 1x25/M8/300mm	25	M8	300	67.5	25
70399969	Flat ground strap/press. 1X25/M8/500mm	25	M8	500	120	25
Flat ground straps with terminals						
4571196	Flat ground strap/terminals 1x6/M6/200mm	6	M6	200	15	25
4571197	Flat Ground Strap/Press. 1x6/M6/300mm	6	M6	300	20	25
4571126	Flat ground straps/terminals 1x10/M6/200mm	10	M6	200	25	25
4571129	Flat ground strap/terminals 1x10/M6/300mm	10	M6	300	32	25
4571127	Flat ground strap/terminals 1x16/M8/200mm	16	M8	200	35	25
4571130	Flat ground strap/terminals 1x16/M8/300mm	16	M8	300	51	25
4571128	Flat ground strap/terminals 1x25/M8/200mm	25	M8	200	55	25
4571131	Flat ground strap/terminals 1x25/M8/300mm	25	M8	300	80	25

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Details of the clamping force are available upon request, halogen-free.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

KW plastic coil

Benefits
- Flexibility of the cables is largely preserved
- Spiral-shaped cut tube
- For time-saving cable and wire bundling

Application range
- For the manufacturing of cable harnesses with branch-offs
- For protection against mechanical stress

Product features
- Black version: Fire behaviour according to UL 94 HB

Included
- In each PU one coiling tool for spirals is included to avoid time-consuming preparation and installation.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002604
ETIM 5.0/6.0 Class-Description: Cable bundle hose

General
Black version: UV-resistant

Material
Black version: polyamide (silikone free and halogene free)
Nature and coloured version: polyethylene

Temperature range
Black version: -40°C to +120°C
Natural and coloured version -50°C to 85°C

Article number	Article description	Colour	Bundling area (mm²)	PU (m)
KW plastic coil				
61600010	Plastic spiral KW 2	natural	2.0 - 7.0	50
61600015	Plastic spiral KW 2	black	2.0 - 7.0	50
61722850	Plastic spiral KW 2	blue	2.0 - 7.0	50
61722856	Plastic spiral KW 2	yellow	2.0 - 7.0	50
61600040	Plastic spiral KW 5	natural	5.0 - 20.0	30
61600045	Plastic spiral KW 5	black	5.0 - 20.0	25
61722851	Plastic spiral KW 5	blue	5.0 - 20.0	25
61600050	Plastic spiral KW 5	yellow	5.0 - 20.0	25
61600070	Plastic spiral KW 10	natural	10.0 - 40.0	30
61722840	Plastic spiral KW 10	black	10.0 - 40.0	25
61722852	Plastic spiral KW 10	blue	10.0 - 40.0	25
61600080	Plastic spiral KW 10	yellow	10.0 - 40.0	25

Other sizes and colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- Cable-Eater bunched cable conduit refer to page 1039

Cable-Eater bunched cable conduit

Info

- Now also available as small PUs (2m)

Benefits
- Reusable
- Very flexible without material fatigue
- Fast and easy assembly through using the cable insertion tools

Application range
- Bundling and protection for fixed and mobile electrical installations
- Machines
- Robot-building
- Control cabinets
- Office machines and systems for data processing

Product features
- Good UV-resistance
- Good resistance to: alcohols, fats, mineral oils, heating oil and petrol

Included
- Suitable insertion tool
- Bunches cable conduit large PUS on a roll, small PUs in bags with Euro-standard holes

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002604
ETIM 5.0/6.0 Class-Description: Cable bundle hose

Note
Halogen-free
Flame-retardant according to UL 94 HB

Colour delivered
White, black, light grey

Material
Polypropylene (PP)

Temperature range
-30°C to +85°C

Article number	Article description	Colour	Bundling area (mm²)	Inner Ø (mm)	Panel thickness (mm)	Tool	PU (m)
Cable-Eater bunched cable conduit							
61830302	SHR-08-PPW	white	6.0 - 9.0	8	0.8	STKP 8	100
61830312	SHR-15-PPW	white	10.0 - 16.0	15	0.8	STKP 15	50
61830322	SHR-20-PPW	white	17.0 - 21.0	20	0.9	STKP 20/25	30
61830332	SHR-25-PPW	white	21.0 - 28.0	25	1	STKP 20/25	20
61830333	SHR-32-PPW	white	29.0 - 32.0	32	1.3	STKP 32	15
61830300	SHR-08-PPB	black	6.0 - 9.0	8	0.8	STKP 8	100
61830310	SHR-15-PPB	black	10.0 - 16.0	15	0.8	STKP 15	50
61830320	SHR-20-PPB	black	17.0 - 21.0	20	0.9	STKP 20/25	30
61830330	SHR-25-PPB	black	21.0 - 28.0	25	1	STKP 20/25	20
61830335	SHR-32-PPB	black	29.0 - 32.0	32	1.3	STKP 32	15
61830390	SHR-08-PPG	light grey	6.0 - 9.0	8	0.8	STKP 8	100
61830391	SHR-15-PPG	light grey	10.0 - 16.0	15	0.8	STKP 15	50
61830392	SHR-20-PPG	light grey	17.0 - 21.0	20	0.9	STKP 20/25	30
61830393	SHR-25-PPG	light grey	21.0 - 28.0	25	1	STKP 20/25	20
61830394	SHR-32-PPG	light grey	29.0 - 32.0	32	1.3	STKP 32	15
Small PU							
61830401	SHR-15-PPW 2m	white	10.0 - 16.0	15	0.8	STKP 15	2
61830402	SHR-20-PPW 2m	white	17.0 - 21.0	20	0.9	STKP 20/25	2
61830403	SHR-25-PPW 2m	white	21.0 - 28.0	25	1	STKP 20/25	2
61830396	SHR-15-PPB 2m	black	10.0 - 16.0	15	0.8	STKP 15	2
61830397	SHR-20-PPB 2m	black	17.0 - 21.0	20	0.9	STKP 20/25	2
61830398	SHR-25-PPB 2m	black	21.0 - 28.0	25	1	STKP 20/25	2
61830406	SHR-15-PPG 2m	light grey	10.0 - 16.0	15	0.8	STKP 15	2
61830407	SHR-20-PPG 2m	light grey	17.0 - 21.0	20	0.9	STKP 20/25	2
61830408	SHR-25-PPG 2m	light grey	21.0 - 28.0	25	1	STKP 20/25	2

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- Spare tool Cable - Eater refer to page 1039

Spare tool Cable - Eater

Application range
- Cable pull-in tool for SILVYN® RILL PA6 SINUS and for the Cable-Eater

Suitable conduits
- SILVYN® SINUS PA6 Page 882

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002604
ETIM 5.0/6.0 Class-Description: Cable bundle hose

Article number	Article description	Bundling area (mm²)	Pieces / PU
Cable Eater tool			
61830340	STKP 8	6.0 - 9.0	1
61830350	STKP 15	10.0 - 16.0	1
61830360	STKP 20 / 25	17.0 - 25.0	1
61830370	STKP 25	21.0 - 28.0	1
61830380	STKP 32	29.0 - 32.0	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Basic Tie cable tie

Benefits

- High resistance to bases, oils, greases, oil derivates and aromatic solvents
- UV-resistant (black version)

Application range

- Multipurpose cable tie for many applications

Norm references / Approvals

- Fire behaviour according to UL94 V-2

Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1048
- BASIC cable tie pliers refer to page 1049

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Material
Polyamide 6.6
Halogen-free

Temperature range
-40°C up to +85°C
Installation temperature:
-10°C up to +60°C

Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Tensile strength in N	Pieces / PU
Natural						
61831001	Basic Tie 98x2.5 NAT	yes	98.0 x 2.5	1.0 - 21.0	80.0	1000
61831003	Basic Tie 160x2.6 NAT	yes	160.0 x 2.6	1.0 - 40.0	80.0	1000
61831004	Basic Tie 200x2.6 NAT	yes	200.0 x 2.6	2.0 - 51.0	80.0	1000
61831005	Basic Tie 140x3.5 NAT	yes	140.0 x 3,5	2.5 - 32.0	180.0	1000
61831006	Basic Tie 200x3.5 NAT	yes	200.0 x 3,5	3.0 - 50.0	180.0	1000
61831007	Basic Tie 290x3.5 NAT	yes	290.0 x 3.5	3.0 - 79.0	180.0	100
61831013	Basic Tie 370x3.5 NAT	yes	370.0 x 3.5	2.0 - 103.0	180.0	100
61831009	Basic Tie 160x4.5 NAT	yes	160.0 x 4.5	2.5 - 38.0	220.0	1000
61831011	Basic Tie 200x4.8 NAT	yes	200.0 x 4.8	3.0 - 50.0	220.0	1000
61831014	Basic Tie 290x4.5 NAT	yes	290.0 x 4.5	3.5 - 78.0	220.0	100
61831016	Basic Tie 360x4.5 NAT	yes	360.0 x 4,5	3.5 - 100.0	220.0	100
61831020	Basic Tie 240x7.8 NAT	yes	240.0 x 7.8	3.5 - 63.0	540.0	100
61831021	Basic Tie 300x7.8 NAT	yes	300.0 x 7.8	4.0 - 80.0	540.0	100
61831022	Basic Tie 365x7.5 NAT	yes	365.0 x 7.5	8.0 - 100.0	540.0	100
61831023	Basic Tie 450x7.5 NAT	yes	450.0 x 7,5	35.0 - 130.0	540.0	100
61831024	Basic Tie 540x7.5 NAT	yes	540.0 x 7,5	35.0 - 158.0	540.0	100
61831025	Basic Tie 750x7.5 NAT	yes	750.0 x 7,5	35.0 - 220.0	540.0	100
61831026	Basic Tie 780x9.0 NAT	yes	780.0 x 9.0	34.0 - 233.0	700.0	100
Black (UV-resistant)						
61831041	Basic Tie 98x2.5 BK	yes	98.0 x 2.5	1.0 - 21.0	80.0	1000
61831043	Basic Tie 160x2.6 BK	yes	160.0 x 2.6	1.0 - 40.0	80.0	1000
61831044	Basic Tie 200x2.6 BK	yes	200.0 x 2.6	2.0 - 51.0	80.0	1000
61831045	Basic Tie 140x3.5 BK	yes	140.0 x 3,5	2.5 - 32.0	180.0	1000
61831046	Basic Tie 200x3.5 BK	yes	200.0 x 3,5	3.0 - 50.0	180.0	1000
61831047	Basic Tie 290x3.5 BK	yes	290.0 x 3.5	3.0 - 79.0	180.0	100
61831053	Basic Tie 370x3.5 BK	yes	370.0 x 3.5	2.0 - 103.0	180.0	100
61831049	Basic Tie 160x4.5 BK	yes	160.0 x 4.5	2.5 - 38.0	220.0	1000
61831051	Basic Tie 200x4.8 BK	yes	200.0 x 4.8	3.0 - 50.0	220.0	1000
61831054	Basic Tie 290x4.5 BK	yes	290.0 x 4.5	3.5 - 78.0	220.0	100
61831056	Basic Tie 360x4.5 BK	yes	360.0 x 4,5	3.5 - 100.0	220.0	100
61831060	Basic Tie 240x7.8 BK	yes	240.0 x 7.8	3.5 - 63.0	540.0	100
61831061	Basic Tie 300x7.8 BK	yes	300.0 x 7.8	4.0 - 80.0	540.0	100
61831062	Basic Tie 365x7,5 BK	yes	365.0 x 7.5	8.0 - 100.0	540.0	100
61831063	Basic Tie 450x7.5 BK	yes	450.0 x 7,5	35.0 - 130.0	540.0	100
61831064	Basic Tie 540x7.5 BK	yes	540.0 x 7,5	35.0 - 158.0	540.0	100
61831065	Basic Tie 750x7.5 BK	yes	750.0 x 7,5	35.0 - 220.0	540.0	100
61831066	Basic Tie 780x9.0 BK	yes	780.0 x 9.0	34.0 - 233.0	700.0	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Standard cable ties with steel nose refer to page 1043
- UV-stabilised cable ties with steel nose refer to page 1043
- TY - FAST® cable ties refer to page 1041

Ty-Fast® Cable ties

Benefits

- The integrally formed Polyamide pawl combines low insertion and high locking strength
- Sure Grip tab keeps the tail from popping out while being threaded, then holds it securely for final tightening by hand or tool

Application range

- Multipurpose cable tie for many applications

Norm references / Approvals

- File number: E49405, see table
- Fire behaviour according to UL94 V-2

Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1048

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40°C to +85°C

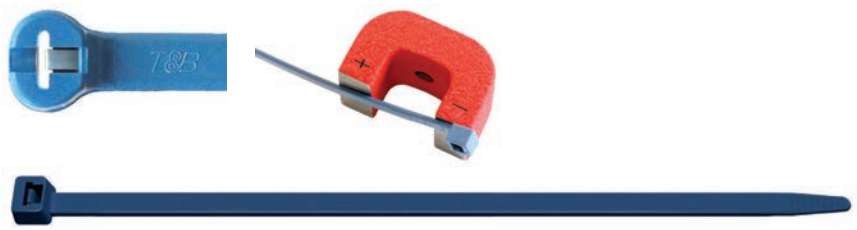
Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
Natural						
61810350	TY100-18	yes	112.0 x 2.4	25.0	80	1000
61810360	TY125-18	yes	136.0 x 2.4	32.0	80	1000
61810380	TY125-40	yes	141.0 x 3.6	32.0	180	1000
61810390	TY200-40	yes	205.0 x 3.6	50.0	180	1000
61810400	TY300-40	yes	290.0 x 3.6	76.0	180	1000
61810410	TY175-50	yes	186.0 x 4.6	44.0	220	1000
61810420	TY300-50	yes	291.0 x 4.6	76.0	220	1000
61810430	TY400-50	yes	366.0 x 4.6	102.0	220	1000
61810440	TY200-120	yes	219.0 x 7.6	50.0	540	500
61810450	TY400-120	yes	375.0 x 7.6	102.0	540	500
Black (UV-resistant)						
61810460	TY100-18x	yes	112.0 x 2.4	25.0	80	1000
61810470	TY125-18x	yes	136.0 x 2.4	32.0	80	1000
61810490	TY125-40x	yes	141.0 x 3.6	32.0	180	1000
61810500	TY200-40x	yes	205.0 x 3.6	50.0	180	1000
61810510	TY300-40x	yes	290.0 x 3.6	76.0	180	1000
61810520	TY175-50x	yes	186.0 x 4.6	44.0	220	1000
61810530	TY300-50x	yes	291.0 x 4.6	76.0	220	1000
61810540	TY400-50x	yes	366.0 x 4.6	102.0	220	1000
61810550	TY200-120x	yes	219.0 x 7.6	50.0	540	500
61810560	TY400-120x	yes	375.0 x 7.6	102.0	540	500

TY-FAST® is a registered trademark of ABB.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Standard cable ties with steel nose refer to page 1043
- UV-stabilised cable ties with steel nose refer to page 1043

Detectable Cable ties



Info

- NEW: Detectable cable tie sockets

Benefits

- Detectable cable ties with an unique compound that can be detected by X-Ray equipment, metal detectors and visual inspection equipment
- Minimize the risk of product contamination
- The colour blue facilitates visual detection
- Help achieve the HACCP EU-Directive
- Polyamid version: resistant to conventional solvents such as alcohol and ketone, aliphatic and aromatic hydrocarbons such as oil, grease, gasoline and weak alkalis; not resistant to acids (weak or strong) and metallic salts
  Polypropylene version: especially resistant against chemical detergents

Application range

- Are particularly recommended for applications using detection systems, where cable tie installation residuals (cut tails) are not allowed in the finished product
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Pharmaceutical production

Norm references / Approvals

- Flammability class: UL 94 V-2 / TY-RAP® polyamide 6.6 and cable ties without steel nose
- Flammability class: UL 94 HB / TY-RAP® polypropylene
- Only the cable ties with steel nose are ECOLAB certified

Note

- Storage requirements: nylon (polyamide) is, by its nature, susceptible to external influences. Cable ties are mechanically moistened in order to ensure optimal use. As such, they must be stored in a cool, dry location and must not be exposed to direct sunlight. Cable ties are packed in plastic bags to retain moisture; these should remain closed until the cable ties are used.

Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1048

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Colour delivered
Blue

Material
Polyamide 6.6 or polypropylene with metal parts
Halogen-free and silicone-free

Temperature range
-40°C up to +85°C
Installation temperature:
-5°C up to +60°C

Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
Without steel nose/ PA 6.6						
61723360	Cable Tie Detect 98x2.5 BU	no	98.0 x 2.5	1.0 - 21.0	80.0	100
61723364	Cable Tie Detect 140x3.5 BU	no	140.0 x 3.5	2.0 - 32.0	180.0	100
61723365	Cable Tie Detect 200x3.5 BU	no	200.0 x 3.5	3.0 - 50.0	180.0	100
61723361	Cable Tie Detect 200x4.5 BU	no	200.0 x 4.5	3.0 - 50.0	220.0	100
61723366	Cable Tie Detect 290x4.5 BU	no	290.0 x 4.5	3.5 - 78.0	220.0	100
61723362	Cable Tie Detect 360x4.5 BU	no	360.0 x 4.5	3.5 - 100.0	220.0	100
61723363	Cable Tie Detect 365x7.5 BU	no	365.0 x 7.5	8.0 - 100.0	540.0	100
With steel nose (brand TY-RAP®) / PA 6.6						
61723351	Cable tie TY-RAP TY523M-NDT	no	92.0 x 2.4	2.0 - 6.0	80	100
61723359	Cable tie TY-RAP TY524M-NDT	no	140.0 x 3.6	2.0 - 29.0	180.0	100
61723352	Cable tie TY-RAP TY525M-NDT	no	186.0 x 4.8	3.5 - 45.0	220	100
61723353	Cable tie TY-RAP TY528M-NDT	no	360.0 x 4.8	3.5 - 102.0	220	100
61723354	Cable tie TY-RAP TY527M-NDT	no	340.0 x 7.0	6.0 - 90.0	540	100
With steel nose (brand TY-RAP®) / polypropylene						
61723355	Cable tie TY-RAP TY523M-PDT	no	92.0 x 2.4	2.0 - 16.0	50	100
61723356	Cable tie TY-RAP TY525M-PDT	no	186.0 x 4.8	3.5 - 45.0	130	100
61723357	Cable tie TY-RAP TY528M-PDT	no	360.0 x 4.8	3.5 - 102.0	130	100
61723358	Cable tie TY-RAP TY527M-PDT	no	340.0 x 7.0	6.0 - 90.0	270	100

TY-RAP® is a registered trademark of ABB.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Detectable cable tie mounts refer to page 1052

Ty-Rap® Cable ties with steel nose

Ty-Rap® UV-stabilised cable ties with steel nose

Benefits

- High strength is constant even under harsh conditions: extreme temperature ranges, humidity and extreme cold
- Lock is also resistant to shocks and vibrations
- The steel blade is fixed to the tie head and is made from corrosion-resistant, anti-magnetic steel (type 316)

Application range

Ty-Rap® Cable ties with steel nose

- Good quality cable ties with steel nose for demanding environments

Ty-Rap® UV-stabilised cable ties with steel nose

- Used for outdoor installation and maintenance of power plants

Product features

Ty-Rap® UV-stabilised cable ties with steel nose

- Contain 2 % Carbon to meet military specifications

Norm references / Approvals

- File numberTY-RAP® : E49405, see table
- Fire behaviour according to UL94 V-2

Included

- Items provided with the add-in “B” (e.g. TYB 24 M) are supplied in a handy workbox, where the cable ties are arranged properly

Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1048

Technical data

ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

RAL
Colour delivered
Ty-Rap® Cable ties with steel nose
Natural colour
Ty-Rap® UV-stabilised cable ties with steel nose
RAL 9005 black/UV-resistant

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40°C to +85°C

Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
Natural						
61715000	TYB* 23 M	yes	92.0 x 2.3	2.0 - 16.0	80	1000
61716250	TY 232 M	yes	203.0 x 2.3	2.0 - 50.0	80	1000
61716310	TY 234 M	yes	356.0 x 2.3	2.0 - 102.0	80	1000
61715060	TYB* 24 M	yes	140.0 x 3.6	2.0 - 29.0	180	1000
61716370	TY 242 M	yes	208.0 x 3.6	2.0 - 50.0	180	1000
61715180	TY 26 M	yes	284.0 x 3.6	2.0 - 76.0	180	1000
61716430	TY 244 M	yes	368.0 x 3.6	2.0 - 103.0	180	1000
61715120	TYB* 25 M	yes	186.0 x 4.8	3.5 - 45.0	220	1000
61716490	TY 253 M	yes	290.0 x 4.8	3.5 - 78.0	220	1000
61715300	TY 28 M	yes	361.0 x 4.8	3.5 - 102.0	220	1000
61716550	TY 272 M	yes	223.0 x 6.9	6.0 - 50.0	540	500
61715240	TY 27 M	yes	340.0 x 7.0	6.0 - 90.0	540	500
61715360	TY 29 M	yes	771.0 x 6.9	6.0 - 229.0	540	500
Black (UV-resistant)						
61723010	TYB* 23 MX	yes	92.0 x 2.3	2.0 - 16.0	80	1000
61723110	TY 232 MX	yes	203.0 x 2.3	2.0 - 50.0	80	1000
61723120	TY 234 MX	yes	356.0 x 2.3	2.0 - 102.0	80	1000
61723020	TYB* 24 MX	yes	140.0 x 3.6	2.0 - 29.0	180	1000
61723130	TY 242 MX	yes	208.0 x 3.6	2.0 - 50.0	180	1000
61723040	TY 26 MX	yes	284.0 x 3.6	2.0 - 76.0	180	1000
61723140	TY 244 MX	yes	368.0 x 3.6	2.0 - 103.0	180	1000
61723030	TYB* 25 MX	yes	186.0 x 4.8	3.5 - 45.0	220	1000
61723150	TY 253 MX	yes	290.0 x 4.8	3.5 - 78.0	220	1000
61723060	TY 28 MX	yes	361.0 x 4.8	3.5 - 102.0	220	1000
61723160	TY 272 MX	yes	223.0 x 6.9	6.0 - 50.0	540	500
61723050	TY 27 MX	yes	340.0 x 7.0	6.0 - 90.0	540	500
61723070	TY 29 MX	yes	771.0 x 6.9	6.0 - 229.0	540	500

B = box, otherwise plastic bag
TY-RAP® is a registered trademark of ABB.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Ty-Rap® Heat-resistant cable ties with steel nose

Benefits
- Contains all the advantages of TY-RAP®, with higher heat-resistance

Application range
- Can be used in areas exposed to high temperatures such as electrical heating devices or heating installations

Norm references / Approvals
- File number: E49405, see table
- Fire behaviour according to UL94 V-2

Design
- Heat-resistant cable ties have the extension “M”

Suitable tools
- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1048

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Colour delivered
Light green- transparent

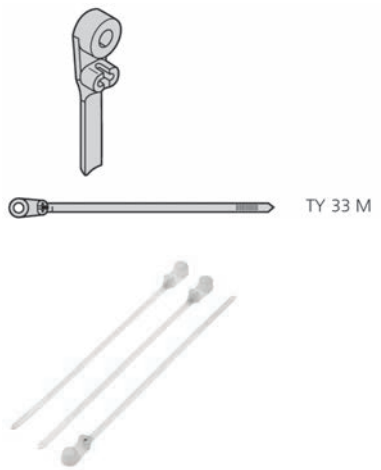
Material
Heat-resistant polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40 °C to +105 °C

Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
Ty-Rap® Heat-resistant cable ties with steel nose						
61723470	TYH 23 M	yes	92.0 x 2.4	2.0 - 16.0	80	1000
61723460	TYH 232 M	yes	203.0 x 2.4	2.0 - 50.0	80	1000
61723440	TYH 24 M	yes	140.0 x 3.6	2.0 - 29.0	130	1000
61723430	TYH 242 M	no	208.0 x 3.6	2.0 - 50.0	130	1000
61723410	TYH 26 M	yes	284.0 x 3.6	2.0 - 76.0	130	1000
61723420	TYH 25 M	yes	186.0 x 4.8	3.5 - 45.0	220	1000
61723380	TYH 28 M	yes	360.0 x 4.8	3.5 - 102.0	220	1000
61723390	TYH 272 M	yes	222.0 x 7.6	6.0 - 50.0	540	500
61723400	TYH 27 M	yes	340.0 x 7.0	6.0 - 90.0	540	500
61723350	TYH 29 M	yes	771.0 x 6.9	6.0 - 229.0	530	500

TY-RAP® is a registered trademark of ABB.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Ty-Rap® Cable tie with steel nose for srewing on



Benefits
- Cable ties with fasteners
- Allow installation and bundling in one step
- Steel nose ensures secure and durable binding

Application range
- For assembly with screws, bolts and rivets
- Simultaneous installation and bundling
- Possible application areas: Cable assemblies, pre- and final installation of parts and bundles, and for maintenance-free installation of cables and ducts

Norm references / Approvals
- File number: E49405, see table
- Fire behaviour according to UL94 V-2

Design
- Also deliverable in black and UV-resistant

Suitable tools
- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1048

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Colour delivered
Natural colour

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40°C to +85°C

Article number	Article description	UL certification	Hole Ø (mm)	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
Ty-Rap® Cable tie with steel nose for srewing on							
61715420	TY 33 M	yes	2.8	102.0 x 2.3	2.0 - 16.0	80	1000
61715480	TY 34 M	yes	4.2	151.0 x 3.5	2.0 - 29.0	180	1000
61720000	TY 635 M	yes	3.5	198.0 x 4.7	3.5 - 45.0	220	1000
61715540	TY 35 M	yes	4.8	199.0 x 4.7	3.5 - 45.0	220	1000
61720070	TY 1435 M	yes	6.3	198.0 x 4.7	3.5 - 45.0	220	1000
61715600	TY 37 M	yes	6.3	356.0 x 7.7	6.0 - 90.0	540	500

TY-RAP® is a registered trademark of ABB.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Ty-Rap® Cable ties with steel nose with labelling area

TY 53 M / TY 532 M

TY 51 M

Benefits

- Cable ties with marking area
- Allow binding and marking in one step
- Easy assembly as all edges are rounded
- The patented stainless steel locking hook guarantees a secure hold under harsh conditions

Application range

- For bundling and marking of cables, cable bundles, hydraulic and pneumatic supply lines

Norm references / Approvals

- File number: E49405, see table
- Fire behaviour according to UL94 V-2

Design

- TY 51 M: Area positioned at right angle to the cable tie
- TY 53 M/TY 532 M: Area positioned above the lock at right angle to the cable tie

Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1048

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Colour delivered
Natural colour

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40°C to +85°C

Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Labelling surface (mm)	Tensile strength (N)	Pieces / PU
Right-angled surface							
61716020	TY 51 M	yes	92.0 x 2.4	10.0 - 16.0	25 x 8	80	500
Parallel surface							
61715840	TY 46 MD	yes	184.0 x 4.8	9.5 - 45.0	30 x 24	220 Double	500
61715880	TY 46 MT	yes	184.0 x 4.8	9.5 - 45.0	46 x 24	220 Triple	500
61715920	TY 46 MF	yes	184.0 x 4.8	9.5 - 45.0	63 x 24	220 Quadruple	250
61715780	TY 546 M	yes	184.0 x 4.8	9.5 - 45.0	13 x 24	220	100
61715950	TY 548 M	yes	360.0 x 4.8	19.0 - 102.0	13 x 54	220	100
Right-angled area above							
61716080	TY 53 M	yes	102.0 x 2.4	2.0 - 16.0	21 x 9	80	500
61716560	TY 532 M	yes	212.0 x 2.4	2.0 - 51.0	21 x 9	80	1000

TY-RAP® is a registered trademark of ABB.
Smaller packing units are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- KMK Label holders refer to page 962

Accessories

- MS Marker pens

Quick tie cable ties

Benefits

- Low-cost, reopenable and reusable cable ties suitable for lightweight loads
- Round profile guarantees high mechanical strength and a firm seal
- Dual-closure design makes it possible to create a hanging loop

Application range

- When something has to be bundled or fixed quickly at short notice
- For sealing of bags and sacks

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Colour delivered
Black (UV-resistant)
Red

Material
Polyethylene

Temperature range
-40°C to +70°C

Article number	Article description	Colour	UL certification	Length x width (mm)	Tensile strength (N)	Pieces / PU
Red						
61710040	Quick Tie 120x3.5 RD	red	no	120.0 x 3.5	130.0	100
61710041	Quick Tie 240x3.9 RD	red	no	240.0 x 3.9	180.0	100
61710042	Quick Tie 320x4.4 RD	red	no	320.0 x 4.4	230.0	100
61710180	Quick Tie 500x5.7 RD	red	no	500.0 x 5.7	250.0	100
61710043	Quick Tie 665x6.6 RD	red	no	665.0 x 6.6	370.0	100
Black						
61721101	Quick Tie 120x3.5 BK	black	no	120.0 x 3.5	130.0	100
61721102	Quick Tie 240x3.9 BK	black	no	240.0 x 3.9	180.0	100
61721103	Quick Tie 320x4.4 BK	black	no	320.0 x 4.4	230.0	100
61710190	Quick Tie 500x5.7 BK	black	no	500.0 x 5.7	250.0	100
61721104	Quick Tie 665x6.6 BK	black	no	665.0 x 6.6	370.0	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- TY-GRIP® FOL/ FO cable tie refer to page 1046
- Kabelbinder Kable-Fix R

Ty-Grip® FOL / FO Cable tie

Benefits

- For easy and quick bundling
- Cable friendly: Prevent injuries of cable outer sheating
- Could be reused again

Application range

- Ideal for applications where they frequently need to be changed or constant access is required
- For bundling of sensitive cables as fiber optic cables and network cables
- Light and sound applications

Norm references / Approvals

- Flame-retardant according to UL 94 HB

Design

- FOL with strap: Strap made of high-quality polymer provides additional stability and safety
- FO with loop: Slitted head makes quick and easy fastening possible

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Colour delivered
Black

Material
Polyamide
Halogen-free and silicone-free

Temperature range
-20°C to +104°C (FO) / 93°C (FOL)

Article number	Article description	UL certification	Length x width (mm)	Pieces / PU
FO with loop				
61823720	FO 200-40-0	no	228.0 x 12.7	10
61823730	FO 350-40-0	no	330.0 x 12.7	10
FOL with strap				
61823740	FOL 300-50-0	no	304.0 x 19.0	10
61823750	FOL 500-50-0	no	457.0 x 19.0	10

TY-GRIP® is a registered trademark of ABB
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- HITRONIC® POF SIMPLEX CABLE refer to page 481
- HITRONIC® POF DUPLEX CABLE refer to page 483

LS steel cable ties

Info

- LS 4.6x100 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Acid-resistant
- Excellent chemical resistance
- High-temperature resistant
- Secure ball lock, self-locking
- Minimum space required due to the flat binder heads

Application range

- For fixing FLEXIMARK® stainless steel marking
- Could be used in any industry with a demanding environment (e.g. oil & gas, railways, F&B)
- Outdoor applications and usage under the most extreme conditions, as corrosion and weathering resistant

Norm references / Approvals

- DNV 2397
- UL File number: E193947
- Tested according to IEC 62275: 2006
- Achilles JQS certified

Suitable tools

- STEEL GUN HT-338 cable tie pliers refer to page 1049

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

On request
Other sizes are available upon request

Material
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)
Material thickness: 0,26 mm

Temperature range
-80°C to +500°C

Article number	Article description	Length x width (mm)	Bundling Ø (mm)	Minimum tensile strength (N/mm²)	Pieces / PU
Without polyester coating					
61812947	LS 4.6x100	100.0 x 4.6	21.0	45.3	100
61812948	LS 4.6x125	125.0 x 4.6	32.0	45.3	100
61812949	LS 4.6x150	150.0 x 4.6	40.0	45.3	100
61812950	LS 4.6x200	200.0 x 4.6	51.0	45.3	100
61812960	LS 4.6x360	360.0 x 4.6	102.0	45.3	100
61812970	LS 4.6x520	520.0 x 4.6	152.0	45.3	100
61812980	LS 4.6x680	680.0 x 4.6	203.0	45.3	100
61812990	LS 4.6x840	840.0 x 4.6	254.0	45.3	100
61813000	LS 7.9x200	200.0 x 7.9	51.0	113.3	100
61813010	LS 7.9x360	360.0 x 7.9	102.0	113.3	100
61813020	LS 7.9x520	520.0 x 7.9	152.0	113.3	100
61813030	LS 7.9x680	680.0 x 7.9	203.0	113.3	100
61813040	LS 7.9x840	840.0 x 7.9	254.0	113.3	100
61813050	LS 7.9x1010	1,016.0 x 7.9	305.0	113.3	100
With polyester coating					
61813085	LSC 4.6x100	100.0 x 4.6	21.0	45.3	100
61813086	LSC 4.6x125	125.0 x 4.6	32.0	45.3	100
61813087	LSC 4.6x150	150.0 x 4.6	40.0	45.3	100
61813088	LSC 4.6x200	200.0 x 4.6	51.0	45.3	100
61813089	LSC 4.6x360	360.0 x 4.6	102.0	45.3	100
61813090	LSC 4.6x520	520.0 x 4.6	152.0	45.3	100
61813091	LSC 4.6x680	680.0 x 4.6	203.0	45.3	100
61813092	LSC 4.6x840	840.0 x 4.6	254.0	45.3	100
61813093	LSC 7.9x200	200.0 x 7.9	51.0	113.3	100
61813094	LSC 7.9x360	360.0 x 7.9	102.0	113.3	100
61813096	LSC 7.9x520	520.0 x 7.9	152.0	113.3	100
61813097	LSC 7.9x680	680.0 x 7.9	203.0	113.3	100
61813098	LSC 7.9x840	840.0 x 7.9	254.0	113.3	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Stainless steel marking FCC refer to page 933

Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers

Info

- Improved push ring and optimized blade and drawbar suspension

Benefits

- Tip can be rotated 360° for easy assembly
- Adjustable tension-setting and automatic cutting mechanism
- Large feed-opening (25,4 mm width) facilitates inserting of the cable ties
- Ergonomic design (rounded design) and user-friendliness
- Reduced user stress and strain

Application range

- Cable tie gun for plastic cable ties
- Allows quick and economical binding, fixing and mounting of plastic cable ties
- Increased service life due to the optimal tension setting for each cable tie
- Waste prevention on the floor- cable tie rests were prevented from falling down

Product features

- Adjustable grip diameter enables adaption to the hand size of the user
- Anti-recoil mechanism prevents shaking
- Easy and practical storage of the replacement blades inside the tool (one replacemet blade is included inside the tool)
- Lightweight
- Nose made of stainless steel guarantees a longer lifetime of the tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000453
ETIM 5.0/6.0 Class-Description: Cable tie tool

Caution
Tension is manually adjustable

Note
Length x width x height: 178 x 127 x 38 mm
ERG 50: 65-83 N for setting 1, 175-220 N for setting 8
ERG 120: 175-250 N for setting 1, 450-580 N for setting 8

Colour delivered
ERG 50: Black head
ERG 120: Orange head

Material
Shock-resistant polymer
Soft rubber grip

Article number	Article description	For cable ties	Cable tie width (mm)	Weight (kg)	Pieces / PU
Ty-Gun ERG 50					
62120120	Ty-Gun ERG 50	Plastic	2.4 - 4.8	0.26	1
62120121	Ty-Gun ERG 50 spare blades	Plastic	2.4 - 4.8		2
Ty-Gun ERG 120					
62120125	Ty-Gun ERG 120	Plastic	4.8 - 7.6	0.278	1
62120126	Ty-Gun ERG 120B spare blades	Plastic	4.8 - 7.6		1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

BASIC cable tie pliers

Benefits
- The tightening force can be adapted gradually:
  Setting 0: 29,4N
  Setting 1: 58,9N
  Setting 2: 98,1N
  Setting 3: 127,5N
- Low-cost starter product

Application range
- Cable tie gun for plastic cable ties
- For tightening and cutting cable ties

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000453
ETIM 5.0/6.0 Class-Description: Cable tie tool

Article number	Article description	For cable ties	Cable tie width (mm)	PU
BASIC cable tie pliers				
62120321	BASIC Cable tie tool	Plastic	2.2 - 4.8	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Steel Gun HT-338 Cable tie pliers

Benefits
- Handy processing tool for stainless steel ties (up to 0,3 mm thick)
- Cable tie is automatically cut at its end once the required tension is achieved
- Sharp edges are avoided
- Stripping force can be adjusted in increments

Application range
- For stainless steel cable ties

Note
- Guaranteed up to 2.000 pulls
- Use the adjusting screw to receive a clean cut - the right tension is depending on the type of cable used
- Further spare parts are available

Technical data
ETIM
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000453
ETIM 5.0/6.0 Class-Description: Cable tie tool

Article number	Article description	For cable ties	Max. cable tie width (mm)	D x V mm	Weight (kg)	Pieces / PU
Steel Gun HT-338 Cable tie pliers						
83250022	FLEXIMARK® HT-338	Stainless steel	7.9	178 x 140	0.56	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Tie socket self-adhesive

Benefits

- Option for cross-mounting / double-mounting on the crossover points of the cable harness
- Easy to handle

Application range

- The cable ties are slotted through the eyelets for fixing cables or other items to the wall
- Wiring of switch cabinets, motor vehicles and office machines, etc.

Norm references / Approvals

- Self-extinguishing in accordance with UL 94 V-2 (without adhesive tape)

Note

- Walls must be smooth and grease-free
- Minimum adhesive application time: 10 sec, recommended adhesive curing time: 24 h

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000449
ETIM 5.0/6.0 Class-Description: Mounting base and -element for cable ties

Colour delivered
Black
Natural colour

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-15 °C to +50 °C
Minimum working temperature: +10°C

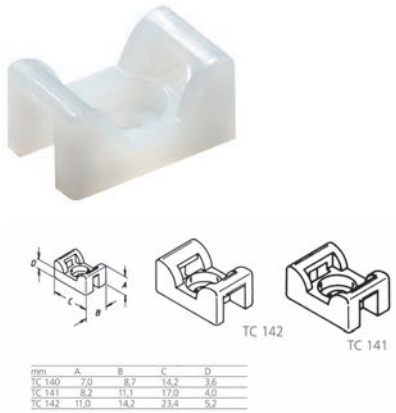
Article number	Article description	Colour	Diameter (mm)	Tie width (mm)	Length x width (mm)	Pieces / PU
Tie socket self-adhesive						
61718612	Adhesive socket 19 x 19 NA	natural	3.2	3.6	19.0 x 19.0	100
61718611	Adhesive socket 19 x 19 BK	black	3.2	3.6	19.0 x 19.0	100
61718614	Adhesive socket 28 x 28 NA	natural	5.2	5.3	28.0 x 28.0	100
61718613	Adhesive socket 28 x 28 BK	black	5.2	5.3	28.0 x 28.0	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- Mounting socket with saddle refer to page 1050
- Tie small socket refer to page 1051
- Tie screw socket refer to page 1051

Mounting socket with saddle



Benefits

- Compact construction ensures high stability
- Prism-shaped saddle of this mounting socket enables torsion-safe fastening and bundling of cables

Application range

- Fastening elements for cable ties
- For fastening with screws or rivets
- Typical areas of application: Process control systems, control cabinet manufacturing and mechanical engineering

Norm references / Approvals

- UL 94 V-2

Included

- Without screws, rivets, etc.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000449
ETIM 5.0/6.0 Class-Description: Mounting base and -element for cable ties

Colour delivered
White

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40°C to +85°C

Article number	Article description	Fastening type	Material	Diameter (mm)	Tie width (mm)	Weight (g/100 pieces)	Pieces / PU
Mounting socket with saddle							
61724920	TC 140	screwing	PA 6.6	2.8	2.4	47	500
61724510	TC 141	screwing	PA 6.6	3.5	4.8	77	500
61724910	TC 142	screwing	PA 6.6	5.2	7.6	120	500

This is a product of the company ABB/Thomas & Betts.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Tie small socket

Benefits
- Particular small and low design
- Easy to handle

Application range
- Fastening elements for cable ties
- Fastening with counter-sunk screws or rivets
- Typical areas of application: Control cabinet manufacture, motor vehicles, office machines

Norm references / Approvals
- File number: E49405
- UL 94 V-2

Included
- Without screws, rivets, etc.

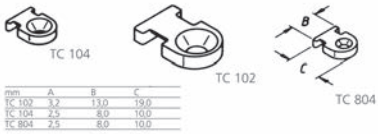
Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000449
ETIM 5.0/6.0 Class-Description: Mounting base and -element for cable ties

Colour delivered
Natural colour

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40°C to +85°C



mm	A	B	C
TC 102	3,2	13,0	19,0
TC 104	2,5	8,0	10,0
TC 804	2,5	8,0	10,0

Article number	Article description	Fastening type	Material	Diameter (mm)	Tie width (mm)	Weight (g/100 pieces)	Pieces / PU
Tie small socket							
61724400	TC 102	screwing	PA 6.6	4,4	4.8	50	1000
61724420	TC 104	screwing	PA 6.6	3,4	2.4	11	1000
61724720	TC 804	screwing	PA 6.6	2.4	2.4	11	1000

This is a product of the company ABB/Thomas & Betts.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Tie screw socket

Benefits
- Low overall height
- Possibility for cross mounting

Application range
- Fastening elements for cable ties
- For fastening with screws or rivets
- Typical areas of application: Control cabinet manufacture, motor vehicles, office machines

Norm references / Approvals
- File number: E49405
- UL 94 V-2

Included
- Delivered without screws

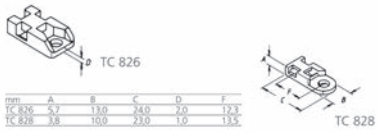
Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000449
ETIM 5.0/6.0 Class-Description: Mounting base and -element for cable ties

Colour delivered
Natural colour

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40°C to +85°C

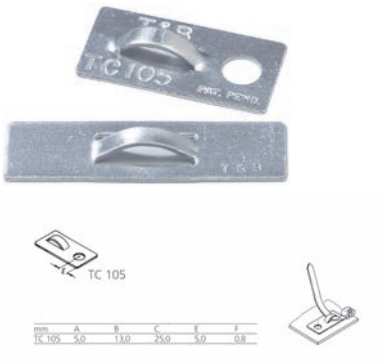


mm	A	B	C	D	F
TC 826	5,7	13,0	24,0	2,0	12,3
TC 828	3,8	10,0	23,0	1,0	13,5

Article number	Article description	Fastening type	Material	Diameter (mm)	Tie width (mm)	Weight (g/100 pieces)	Pieces / PU
Tie screw socket							
61724810	TC 826	screwing	PA 6.6	4.2	4.8	197	1000
61724820	TC 828	screwing	PA 6.6	4.2	4.8	40	1000

This is a product of the company ABB/Thomas & Betts.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Aluminium screw socket



Benefits
- Excellent in matching contours
- Low height and low weight
- Heat-resistant
- Non-aging

Application range
- Fastening elements for cable ties

Included
- Delivered without screws

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000449
ETIM 5.0/6.0 Class-Description:
Mounting base and -element for cable ties

Material
Aluminium (3003, ASTMB-209)

Temperature range
-100°C to +450°C

Article number	Article description	Fastening type	Material	Tie width (mm)	Weight (g/100 pieces)	Pieces / PU
Aluminium screw socket						
61724430	TC 105	screwing	aluminium	4.8	67	1000

This is a product of the company ABB/Thomas & Betts.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

Detectable cable tie sockets

Benefits
- Retrievable cable tie sockets with a special polymer compound that activates metal detectors, X-ray equipment and visual detection systems
- Minimize the risk of product contamination
- The colour blue facilitates visual detection
- Polyamid version: resistant to conventional solvents such as alcohol and ketone, aliphatic and aromatic hydrocarbons such as oil, grease, gasoline and weak alkalis; not resistant to acids (weak or strong) and metallic salts
  Polypropylene version: especially resistant against chemical detergents
- Help achieve the HACCP EU-Directive

Application range
- Are recommended for applications using detection systems to detect foreign objects where plastic residuals are not allowed in the finished product
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Pharmaceutical production

Norm references / Approvals
- UL 94 V-2

Included
- Delivered without screws

Technical data

Colour delivered
Blue

Material
Polyamide 6.6 or polypropylene with metal parts
Halogen-free

Temperature range
-40°C to +85°C

Article number	Article description	Fastening type	Material	Diameter (mm)	Tie width (mm)	Length x width (mm)	Pieces / PU
Socket with 4 entries (Picture 1)							
61724100	Socket Detect XS PA	screwing	PA 6.6 with metal parts	3	3.6	13.0 x 13.0	100
61724101	Socket Detect S PA	screwing	PA 6.6 with metal parts	3	3.6	20.0 x 20.0	100
61724102	Socket Detect M PA	screwing	PA 6.6 with metal parts	4,5	4.8	28.0 x 28.0	100
61724103	Socket Detect L PA	screwing	PA 6.6 with metal parts	4,5	7.6	38.0 x 38.0	100
61724107	Socket Detect S PP	screwing	PP with metal parts	3	3.6	19.1 x 19.1	100
61724108	Socket Detect M PP	screwing	PP with metal parts	3	7.6	29.0 x 29.0	100
Small Socket (Picture 2)							
61724104	Small Socket Detect PA	screwing	PA 6.6 with metal parts	3	4.8	21.2 x 10.0	100
61724109	Small Socket Detect PP	screwing	PP with metal parts	4,4	4.8	19.1 x 12.7	1000
Socket with saddle (Picture 3)							
61724105	Saddle Socket Detect XS PA	screwing	PA 6.6 with metal parts	4,3	4.7	14.9 x 9.5	100
61724106	Saddle Socket Detect S PA	screwing	PA 6.6 with metal parts	4,5	9	22.2 x 15.9	100
61724110	Saddle Socket Detect XS PP	screwing	PP with metal parts	3,8	4.8	17.0 x 11.1	100
61724111	Saddle Socket Detect S PP	screwing	PP with metal parts	5.2	7.6	23.4 x 14.2	100

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

CC cord clips

Benefits

- The special support is designed for the quick insertion and removal of one or more cables without compromising the cable insulation
- Special mounting preparations are no longer necessary

Application range

- Fastening elements for cables and conductors
- Nylon dual-adhesive clips
- Excellent for laying several cables in parallel
- Suitable for cables up to an outer diameter of 14,5 mm

Norm references / Approvals

- Self-extinguishing in accordance with UL 94 V-2 (without adhesive tape)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000127
ETIM 5.0/6.0 Class-Description: Saddle

General
Self-adhesive on many surfaces

On request
Upon request: Black colour

Colour delivered
Natural colour

Material
Polyamide 6.6

Temperature range
-40°C to +85°C

Article number	Article description	Max. bundle Ø (mm)	Socket area x height (mm)	Pieces / PU
CC cord clips				
61723810	CC 5	4.5	19 / 19 x 10	100
61723820	CC 11	8.5	26 / 26 x 12	100
61723840	CC 21	14.5	26 / 26 x 16	100

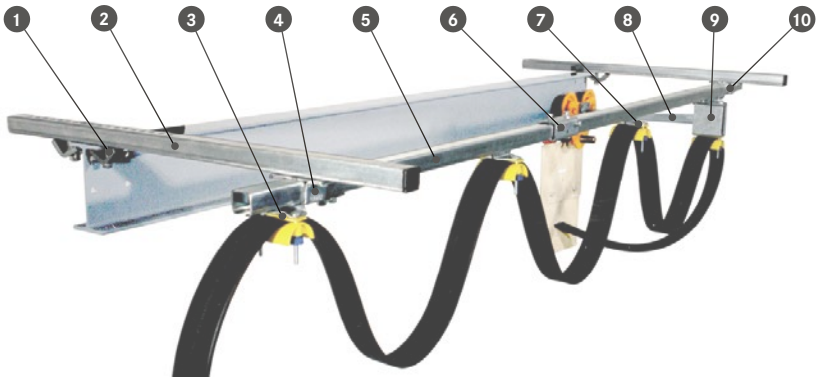
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Cable Trolley Systems Overview

All cable trolley systems are available as flat cable system or round cable system. Various mounting options are available:
- C-profile rails with wall brackets or direclty on beams / ceilings,
- with a steel wire
- or on an I-beam.

Mounting	Picture	Characteristics	Application areas
C30		• Suitable for C profiles 30 x 32mm • Max. cable diameter round: 36mm • Max. cable dimensions flat: 30 x 54mm • Max. cable load: 20kg • Material: Galvanized steel	• Mounting offset to the beam, thus more flexible • Wall mounting also possibel • Crane and conveying machinery, hoisting equipment • E.g. indoor cranes, sawmills, ...
C40		• Suitable for C profiles 40 x 40mm • Max. cable diameter round: 36mm • Max. cable dimensions flat: 35 x 132mm • Max. cable load: 32kg • Material: Galvanized steel	• For higher weights and wider cable dimensions
C30 Stainless Steel		• Suitable for C profiles 30 x 32mm • Max. cable diameter round: 36mm • Max. cable dimensions flat: 30 x 54mm • Max. cable load: 20kg • Material: Stainless steel	• For demanding surroundings • E.g. washing plants, food and beverage industry, harbours
Steel Wire		• Suitable for steel wire • Max. cable diameter round: 36mm • Max. cable dimensions flat: 15 x 44mm • Max. cable load: 6kg • Material: Galvanized steel	• For cables with lower weight • E.g. pendant stations
I-Beam		• Suitable for I-Beam • Max. cable diameter round: 36mm • Max. cable dimensions flat: 15 x 54mm • Max. cable load: 20kg • Material: Galvanized steel	• Mounting space saving, since no side offset to the beam

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



1. Girder clips
2. Support arm
3. End clamp
4. Support brackets flexible mounting
5. C-Profile rail
6. Track coupler
7. Cable trolley
8. Towing arm
9. Towing trolley
10. End stop

NEW

Cable trolley system for C-rails

Info

- Steel wire and I-Beam system in the web catalogue
- Configuration tool on our homepage (Knowledge center-cable accessories)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002935
ETIM 5.0/6.0 Class-Description:
Accessories for cable carrying system

General
Max. cable load:
C30 System: 20 kg
C40 System: 32 kg

Material
Metal parts: Galvanized steel
Clamps: Polyamide 6

Temperature range
-40°C to +120°C

Benefits

- Gentle cable clamps prevent the cables from sharp bends
- Dustproof ball bearing (wheels) guarantee smooth running in the rails

Application range

- Crane and conveying machinery
- For hoisting equipment and conveyor systems
- Mechanical engineering
- Washing plants
- Nut suitable for applications for Ex-Areas

Note

- Round- and flat cables are not allowed to combine a sight below and above
- Don't assemble more than three clamps for round cables below each other
- Bending radius on the bracket corresponds to a fixed installation
- Cable trolleys with suffix "b" are suitable for cables with a larger bending radius (see data sheet)

Product Make-up

- The installation of a system depends on various criteria, e.g. maximum cable slack (cable weight) and working length.

Suitable conduits

- Even air-pressure lines can be installed

Suitable cables

- See selection tabel A 3-2

Article number	Article designation	System	Max. flat cable dimensions mm	max. round cable diameter mm	Pieces / PU
Cable trolley flat cables					
62200421	Cable trolley flat C30 15x54	C30	15 x 54		1
62200442	Cable trolley flat C30 30x54	C30	30 x 54		1
62200477	Cable trolley flat C30 22x54 b	C30	22 x 54		1
62200420	Towing trolley flat C30 30x54	C30	30 x 54		1
62200482	Towing trolley flat C30 22x54 b	C30	22 x 54		1
62200422	End clamp flat C30 30x54	C30	30 x 54		1
62200483	End clamp flat C30 22x54 b	C30	22 x 54		1
62200464	Cable trolley flat C40 22x52	C40	22 x 52		1
62200479	Cable trolley flat C40 22x72	C40	22 x 72		1
62200419	Cable trolley flat C40 22x97	C40	22 x 97		1
62200480	Cable trolley flat C40 22x132	C40	22 x 132		1
62200446	Cable trolley flat C40 35x72	C40	35 x 72		1
62200457	Cable trolley flat C40 35x97	C40	35 x 97		1
62204505	Cable trolley flat C40 35x132	C40	35 x 132		1
62200465	Towing trolley flat C40 22x52	C40	22 x 52		1
62200488	Towing trolley flat C40 22x72	C40	22 x 72		1
62200418	Towing trolley flat C40 22x97	C40	22 x 97		1
62200489	Towing trolley flat C40 22x132	C40	22 x 132		1
62200447	Towing trolley flat C40 35x72	C40	35 x 72		1
62200458	Towing trolley flat C40 35x97	C40	35 x 97		
62200466	Towing trolley flat C40 35x132	C40	35 x 132		1
62200484	End clamp flat C40 22x52	C40	22 x 52		1
62200485	End clamp flat C40 22x72	C40	22 x 72		1
62200417	End clamp flat C40 22x97	C40	22 x 97		1
62200486	End clamp flat C40 22x132	C40	22 x 132		1
62200448	End clamp flat C40 35x72	C40	35 x 72		1
62200459	End clamp flat C40 35x97	C40	35 x 97		1
62204504	End clamp flat C40 35x132	C40	35 x 132		1
Cable trolley round cable					
62200434	Cable trolley round C30	C30			1
62200435	Towing trolley round C30	C30			1
62200478	Cable trolley round C40	C40			1
62200481	Towing trolley round C40	C40			1
62200437	Clamp round 10-16mm	C30, C40		10 - 16	1
62200438	Clamp round 17-25mm	C30, C40		17 - 25	1
62200439	Clamp round 26-36mm	C30, C40		26 - 36	1
62200436	End clamp round	C30, C40			1
Fastening components					
62200440	C Profile rail 6m C30	C30			1
62200424	Track coupler C30	C30			1
62200427	Support brackets flex. C30	C30			1
62200429	Support brackets wall C30	C30			1
62200425	End stop C30	C30			1
62200432	Support arm 800mm C30	C30			1
62200444	C Profile rail 6m C40	C40			1
62200445	Track coupler C40	C40			1
62200456	Support brackets flex. C40	C40			1
62200461	Support brackets wall C40	C40			1
62200449	End stop C40	C40			1
62200467	Support arm 800mm C40	C40			1
62200460	Wall bracket	C30, C40			1
62200430	Towing arm 400mm	C30, C40			1
62200431	Towing arm 630mm	C30, C40			1
62200433	Girder clips	C30, C40			1

CIBES® is a registered trade mark of INOMEC AB
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

Cable trolley system for C-rails stainless steel

Benefits

- Gentle cable clamps prevent the cables from sharp bends
- Dustproof ball bearing (wheels) guarantee smooth running in the rails

Application range

- Crane and conveying machinery
- For hoisting equipment and conveyor systems
- Mechanical engineering
- Washing plants
- Nut suitable for applications for Ex-Areas

Note

- Round- and flat cables are not allowed to combine a sight below and above
- Don't assemble more than three clamps for round cables below each other
- Bending radius on the bracket corresponds to a fixed installation

Product Make-up

- The installation of a system depends on various criteria, e.g. maximum cable slack (cable weight) and working length.

Suitable conduits

- Even air-pressure lines can be installed

Suitable cables

- See selection tabel A 3-2

Technical data

General
Max. cable load: 20 kg

Material
Metal parts: Acid proof steel SS 2343
Nuts and bolts: Acid proof steel A4
Clamps: Polyamide 6

Temperature range
-40°C to +120°C

Article number	Article designation	System	Max. flat cable dimensions mm	max. round cable diameter mm	Pieces / PU
Cable trolley flat cables					
62200453	Cable trolley flat C30 15x54 stainless	C30 stainless steel	15 x 54		1
62200462	Cable trolley flat C30 30x54 stainless	C30 stainless steel	30 x 54		1
62200630	Towing trolley flat C30 30x54 stainless	C30 stainless steel	30 x 54		1
62200640	End clamp flat C30 30x54 stainless	C30 stainless steel	30 x 54		1
Cable trolley round cable					
62200120	Cable trolley round C30 stainless	C30 stainless steel			1
62200680	Towing trolley round C30 stainless	C30 stainless steel			1
62200130	Clamp round 10-16mm stainless	C30 stainless steel		10 - 16	1
62200463	Clamp round 17-25mm stainless	C30 stainless steel		17 - 25	1
62200700	Clamp round 26-36mm stainless	C30 stainless steel		26 - 36	1
62200690	End clamp round stainless	C30 stainless steel			1
Fastening components					
62200454	C Profile rail 6m C30 stainless	C30 stainless steel			1
62200600	Track coupler C30 stainless	C30 stainless steel			1
62200610	Support brackets flex. C30 stainless	C30 stainless steel			1
62200487	Support brackets wall C30 stainless	C30 stainless steel			1
62200620	End stop C30 stainless	C30 stainless steel			1
62200660	Support arm 800mm C30 stainless	C30 stainless steel			1
62200650	Towing arm 400mm stainless	C30 stainless steel			1
62200670	Girder clips stainless	C30 stainless steel			1

CIBES® is a registered trade mark of INOMEC AB
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® CHAIN cable protection and guiding systems

ST steel cable tunnel

Benefits
- A central strength element strengthens and stiffens the design
- Point loads are thus distributed onto the floor
- The ST cable tunnel offers additional advantages in the area of building safety as it is flame-retardant and halogen-free.

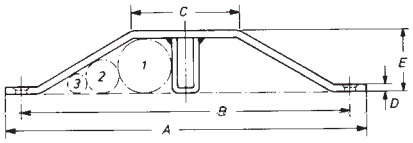
Application range
- Protects cables laid on the ground against mechanical influences
- Can be fixed onto the floor by using countersunk screws

Product Make-up
- ST 1: A = 250, B = 230, C = 70, D = 5, E = 45
- Material thickness: 5 mm
- ST 2: A = 200, B = 182, C = 60, D = 4, E = 34,
- ST 3: A = 150, B = 134, C = 60, D = 4, E = 24, hole diameter = 6.6 mm

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000047
ETIM 5.0/6.0 Class-Description: Cable tray/wide span cable tray

Note
Max. loading capacity: 7 t

Material
Steel, galvanized
Fireproof



Article number	Article description	Length (mm)	Ø combinations (mm)	Weight (kg/piece)	Pieces / PU
ST steel cable tunnel					
61717000	ST 1	1000	36/25/15 or 40/24	14	1
61717040	ST 2	1000	25/20 or 30/18	9	1
61717070	ST 3	1000	17/14 or 20/13	7	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- STY plastic cable tunnel refer to page 1057

STY plastic cable tunnel

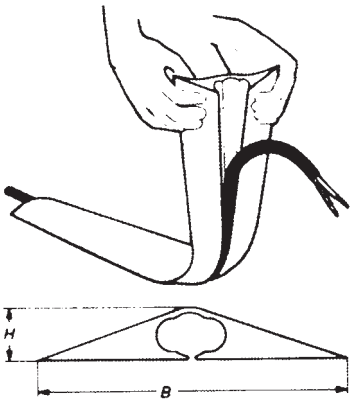
Benefits
- High flexibility of the material enables easy installation of cables

Application range
- Reliable anti-tripping guard used to cover cables that are laid on the ground

Technical data
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000059
ETIM 5.0/6.0 Class-Description: Installation duct

Colour delivered
Grey

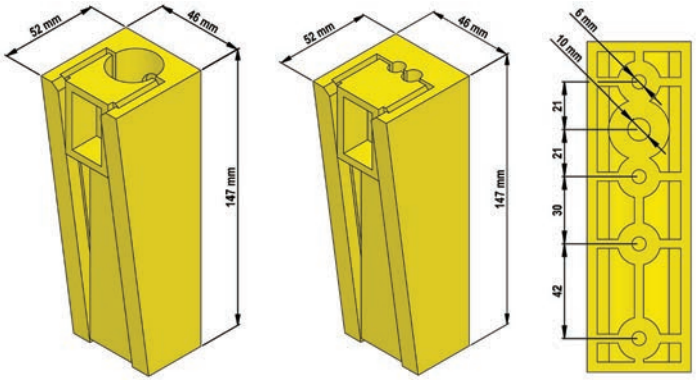
Material
PVC



Article number	Article description	Width x height (mm)	Number of cables x outer Ø	PU (m)
STY plastic cable tunnel				
61746870	STY 5	48 x 8	1 x 5 - 2 x 4	10
61746880	STY 9	69 x 12	1 x 9 - 2 x 7	10
61746890	STY 12	87 x 15	1 x 12 - 2 x 9	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

RKK Round cable wedge clamps



Benefits
- The wedged clamps hold the cable without damaging it and without restricting the necessary movement of the cable

Application range
- Mounting of round control cables

Product Make-up
- RKK 01 for 2 cables (7-10mm and 8-11mm)

Info
- Suitable installation sheets in the web catalog

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000127
ETIM 5.0/6.0 Class-Description: Saddle

Note
Clamping force: 343N

Material
Polyamide 6.6

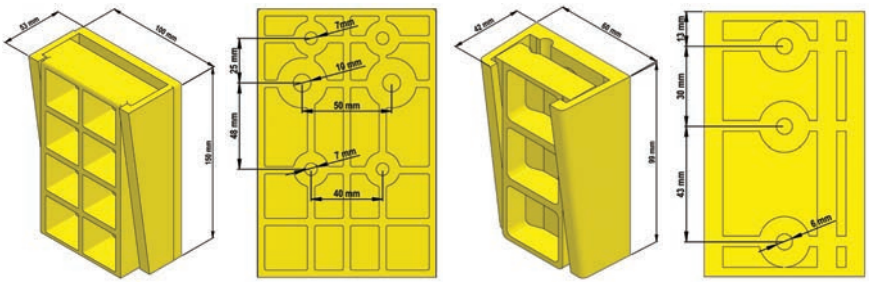
Temperature range
-20°C to +50°C

Article number	Article designation	Number of cables	For cable outer Ø (mm)	Weight (g)	Pieces / PU
RKK Round cable wedge clamps					
52026020	RKK 01	2	7.0-11.0	200	1
52026024	RKK 02	1	18.0-21.5	180	1
52026028	RKK 04	1	24.5-26.0	150	1
52026030	RKK 05	1	19.0-24.0	170	1
52026022	RKK 06	1	11.5-14.0	184	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- MP 11/13/12/14 installation sheets

FKK Flat cable wedge clamps



Benefits
- On the shaft side, the mounting plate can be screwed onto the wall or bolted or welded to the rail bracket
- The mounting plate can be bolted or welded to the lift cage

Application range
- Mounting flat control cables

Product Make-up
- The small wedge-shaped cable clamp can hold up to 2 flat cables, the big one up to 3 flat cables

Suitable cables
- ÖLFLEX® LIFT F Page 178

Info
- Suitable installation sheets in the web catalog

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002407
ETIM 5.0/6.0 Class-Description: Accessories for installation rail current/data cable

Info
Clamping force (at overall cable thickness):
FKK 08: 2-10mm = 600-800N
FKK 07: 2-9mm / 16-17mm = 800N
Minimum insert depth for wedge:
FKK 08: 60% = 60mm
FKK 07: 60% = 90mm

Material
Polyamide 6.6 - halogen-free

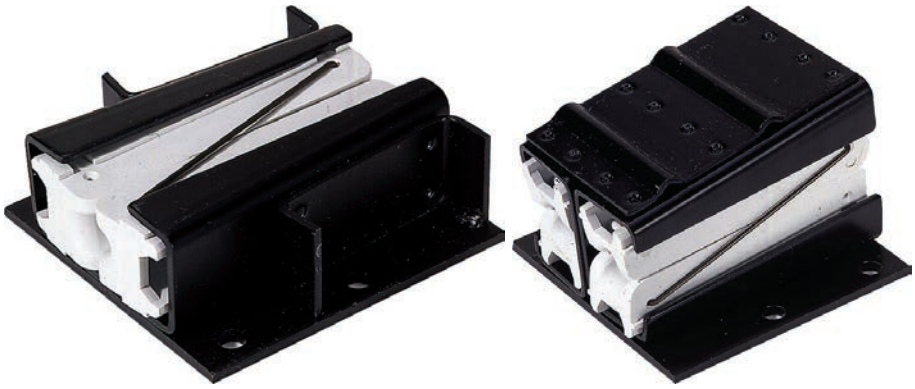
Temperature range
Operating temperature:
-20°C to +50°C

Article number	Article designation	Number of cables	Max. total cable length (mm)	Weight (g)	Pieces / PU
FKK Flat cable wedge clamps					
52026051	FKK 08	1-2	50 x 10	103	1
52026050	FKK 07	1-3	90x17	349	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories
- MP 11/13/12/14 installation sheets

EKK single clamp / DKK Doppelklemme



EKK single clamp DKK double clamp

Benefits

- Secure protection without restricting the mobility of the cable cores
- Wide clamping range

Application range

- Simple and reliable mounting clamps for lift control cables

Note

- Installation guidelines for ÖLFLEX® -LIFT RH and RS lift control cables can be found in the appendix T5
- Maximum load for each clamp: 800 N (80 kg)
- Only for vertical assembly

Included

- Impact anchor, screws and safety discs are supplied as installation accessories

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000127
ETIM 5.0/6.0 Class-Description: Saddle

Temperature range
high mechanical load: +65°C
low mechaniical load: +100°C

Article number	Article designation	For cable Ø (mm)	Length x width x height (mm)	Weight (kg/piece)	Pieces / PU
Single clamp					
52026000	EKK 18	15-18	125 x 45 x 120	1.4	1
52026011	EKK 26	19-26	125 x 45 x 120	1.4	1
DKK					
52026010	DKK 18	15-18	125 x 85 x 120	2	1
52026012	DKK 26	19-26	125 x 85 x 120	2	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set

Benefits

- Mounting tool for EPIC® connector systems, SKINTOP® CUBE and sensor-actuator cables
- Fatigue-free due to ergonomic grip design
- Simple, free assembly in any position
- Safety close at hand
- Quick and easy change of tools due to quick-change chuck

Application range

- Prevents misjudgements of the user which often lead to significantly higher extracting values. The consequences are ripped-off screw heads and over-twisted screw threads.

Included

- Article number 61813958: Kraftform® torque screwdriver for 0.3 - 1.2 Nm
- Article number 61813990: Kraftform Kompakt®
  - 10-piece screwdriver set
  - Bits: 1xR, 1xTZ, 1xTZ PH, 1xTZ PZ, 1xTZ TORX®
  - 1x hand screwdriver without torque system
- Traceable calibration certificate contained in the scope of delivery

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002132
ETIM 5.0/6.0 Class-Description: Momentum wrench

Caution
Can be used in areas requiring ESD protection
ESD version in acc. with EN 100-015 Part 1

General
Philips screwdriver PH (Phillips recess)

Certifications
Robust industrial design with excellent accuracy in accordance with ISO 6789/EN 26789

Info
Controlled torque of 0.3-1.2 Nm is possible

Colour delivered
Black

Article number	Article designation	Measuring range	Length (mm)	Pieces / PU
Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set				
61813958	Kraftform® torque screwdriver	0.3 - 1.2	180	1
61813990	Kraftform Kompakt® 10			1

Kraftform® is a registered trademark of Wera (Hermann Werner GmbH & Co.KG)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

Terminal Box

Benefits
- Tidy storage
- Dust and moisture protection
- Few operation steps, easy to assemble
- Transparent case lid supports good overview
- Diversity of variants

Product features
- Open-close screw type enclosure
- Grey or transparent covers
- 3,5mm screw diameter for mounting plate
- 50mm extension frame for altitudal changes

Note
- Aluminium swingout panel available on request
- Perforated plastic plate deliverable for all sizes
- Including mounting material

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000058
ETIM 5.0/6.0 Class-Description: Empty cabinet

Certifications
cULus listed acc. to File No. E178096

On request
More sizes and colours available

Info
Shock resistance: IK 08 PC (see data sheet for further information)

Colour delivered
Enclosure: RAL 7035 light grey
Cover: transparent or RAL 7035 light grey

Material
Enclosure: Polycarbonate
Cover: Polycarbonate
Mounting panel: ABS

Protection rating
IP 67

Temperature range
-40°C to +85°C

Article number	Article description	Dimensions W x H x D (mm)	Pieces / PU
Mounting panel TB			
53110140	TB 160 x 160 x 4,0	160.0 x 160.0 x 4.0	1
53110141	TB 252 x 161 x 3,4	252.0 x 161.0 x 3.4	1
53110142	TB 267 x 267 x 3,3	267.0 x 267.0 x 3.3	1
53110143	TB 240 x 300 x 4,0	240.0 x 300.0 x 4.0	1
53110144	TB 155 x 335 x 4,0	155.0 x 335.0 x 4.0	1
53110145	TB 351 x 251 x 4,3	351.0 x 251.0 x 4.3	1
Terminal Box with grey cover			
53110100	Terminal Box 190 x 190 x 130 GY	190.0 x 190.0 x 130.0	1
53110102	Terminal Box 280 x 190 x 130 GY	280.0 x 190.0 x 130.0	1
53110104	Terminal Box 280 x 190 x 180 GY	280.0 x 190.0 x 180.0	1
53110106	Terminal Box 280 x 190 x 230 GY	280.0 x 190.0 x 230.0	1
53110108	Terminal Box 280 x 280 x 130 GY	280.0 x 280.0 x 130.0	1
53110110	Terminal Box 340 x 280 x 130 GY	340.0 x 280.0 x 130.0	1
53110112	Terminal Box 380 x 190 x 130 GY	380.0 x 190.0 x 130.0	1
53110114	Terminal Box 380 x 190 x 180 GY	380.0 x 190.0 x 180.0	1
53110116	Terminal Box 380 x 190 x 230 GY	380.0 x 190.0 x 230.0	1
53110118	Terminal Box 380 x 280 x 130 GY	380.0 x 280.0 x 130.0	1
53110120	Terminal Box 380 x 280 x 180 GY	380.0 x 280.0 x 180.0	1
53110122	Terminal Box 380 x 280 x 230 GR	380.0 x 280.0 x 230.0	1
53110124	Terminal Box 560 x 280 x 130 GR	560.0 x 280.0 x 130.0	1
53110126	Terminal Box 560 x 380 x 180 GR	560.0 x 380.0 x 180.0	1
Terminal Box with transparent cover			
53110101	Terminal Box 190 x 190 x 130 TR	190.0 x 190.0 x 130.0	1
53110103	Terminal Box 280 x 190 x 130 TR	280.0 x 190.0 x 130.0	1
53110105	Terminal Box 280 x 190 x 180 TR	280.0 x 190.0 x 180.0	1
53110107	Terminal Box 280 x 190 x 230 TR	280.0 x 190.0 x 230.0	1
53110109	Terminal Box 280 x 280 x 130 TR	280.0 x 280.0 x 130.0	1
53110111	Terminal Box 340 x 280 x 130 TR	340.0 x 280.0 x 130.0	1
53110113	Terminal Box 380 x 190 x 130 TR	380.0 x 190.0 x 130.0	1
53110115	Terminal Box 380 x 190 x 180 TR	380.0 x 190.0 x 180.0	1
53110117	Terminal Box 380 x 190 x 230 TR	380.0 x 190.0 x 230.0	1
53110119	Terminal Box 380 x 280 x 130 TR	380.0 x 280.0 x 130.0	1
53110121	Terminal Box 380 x 280 x 180 TR	380.0 x 280.0 x 180.0	1
53110123	Terminal Box 380 x 280 x 230 TR	380.0 x 280.0 x 230.0	1
53110125	Terminal Box 560 x 280 x 130 TR	560.0 x 280.0 x 130.0	1
53110127	Terminal Box 560 x 380 x 180 TR	560.0 x 380.0 x 180.0	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Similar products
- Economic Box refer to page 1062

Accessories
- Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set refer to page 1060

Economic Box

Benefits

- Tidy storage
- Dust and moisture protection
- Few work steps, free assembly in any position
- Fast-snap-lock for easy handling
- Good combination of quality and price

Product features

- Enclousure with hinges and quick release fasteners
- Unique dovetail guide for frame or front panel (no standoff)
- Integrated mounting panel (included in the enclosure price)
- 3,5mm screw diameter for mounting plate

Note

- Wall mount (sold separately) - p/n upon request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000058
ETIM 5.0/6.0 Class-Description: Empty cabinet

Certifications
cULus listed acc. to File No. E178096

Info
Shock resistance: IK 08 PC (see data sheet for further information)

Colour delivered
Light grey (RAL 7035)

Material
ABS plastic

Protection rating
IP 67

Temperature range
-40°C to +85°C

Article number	Article description	Dimensions W x H x D (mm)	Pieces / PU
Economic Box			
53110130	Economic Box 150x150x90	150.0 x 150.0 x 90.0	1
53110131	Economic Box 150x200x100	150.0 x 200.0 x 100.0	1
53110132	Economic Box 180x180x150	180.0 x 180.0 x 150.0	1
53110133	Economic Box 200x300x160	200.0 x 300.0 x 160.0	1
53110134	Economic Box 300x400x160	300.0 x 400.0 x 160.0	1
53110135	Economic Box 400x500x160	400.0 x 500.0 x 160.0	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories

- Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set
refer to page 1060

Appendix

10 Appendix

Selection tables

A1	Flexible connecting and control cables	1065
A2	Cables for use in power chains or robot applications	1068
A3	Cables for conveyor technology	1070
A4	Halogen-free cables	1072
A5	Data network cables for low-frequency analogue/digital signal transmission	1075
A6	UNITRONIC® COAXIAL/BUS/LAN cables ETHERLINE® cables – Industrial Ethernet cable interfaces	1076
A7	UNITRONIC® BUS and ETHERLINE®	1078
A8	Cable entries at a glance	1082
A9	DESINA®-compliant cables	1083
A10	Technical data for EPIC® rectangular connectors	1084
A11	Applications of HITRONIC® fibre-optic cable components	1086
A12	Applications of servo cables in electrical power drive systems (PDS)	1087
A13	Cables for expanded ambient temperature ranges	1088
A15	FLEXIMARK® Marking systems	1089

Technical tables

T0	Safe use of our products	1090
T1	Chemical resistance of cables	1094
T2	Assembly guidelines – PROFIBUS (UNITRONIC® BUS PB) and Industrial Ethernet cables (ETHERLINE®)	1096
T3	Assembly guidelines – ÖLFLEX® FD/CHAIN, UNITRONIC® FD, ETHERLINE® FD and HITRONIC® FD cables in power chains	1097
T4	Assembly guidelines – ÖLFLEX® CRANE NSHTÖU, ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR	1098
T5	Assembly guidelines – Lift/elevator control cables – ÖLFLEX® LIFT, ÖLFLEX® LIFT T, ÖLFLEX® LIFT S	1099
T6	Type designations	1100
T7	Core ID code for ÖLFLEX® cables	1103
T7	Core ID code for UNITRONIC® cables	1104
T8	Extension and compensating cables - colour codes and background information	1105
T9	Core ID code as per VDE colour code	1107
T9	Core ID code as per DIN colour code	1108
T10	Core ID code as per VDE colour code for telephone cables	1109
T11	Conductor resistances and strand structure (metric)	1110
T12	Current ratings – basic table	1111
T12	Current ratings – reduction tables	1112
T13	Current rating as per National Electrical Code of the USA	1119
T14	European Construction Product Regulation	1120
T15	Properties of cable insulation and sheathing	1121
T16	Anglo-American dimensions	1123
T17	Calculating metal surcharges	1125
T19	Laying guidelines for cables and wires	1127
T19	Drum holding capacity for plastic-insulated cables in m DIN 46391	1128
T20	Cable drums – transport damage, losses, rental and handling	1129
T21	Thread dimensions for cable glands	1130
T21	Tightening torques and installation dimensions for cable glands	1131
T21	Installation dimensions for multi-cable entry systems	1132
T22	Protection ratings to EN 60529	1133
T23	Cable glands	1134
T24	Chemical resistance of plastics	1138
T25	Registered trademarks	1140
T26	Products with certification for Russia	1141
T27	Fire load calculations for cables	1143
T28	Radiation resistance	1144
T29	Using UL-approved cables	1146
T30	Environmental information	1151
T31	EPIC® housings and inserts	1152
T31	EPIC® industrial connectors – definitions and instructions for use	1153

Index of products 1155

LAPP worldwide 1182

Usage criteria	Cable designation (fixed installation and/or occasional flexing)																												
Page	27	29	30	31	32	33	34	35	38	39	40	41	42	43	44	45	47	48	49	50	51	52	53	54	55	56	57	58	59
	ÖLFLEX® CLASSIC 100 300/500 V	ÖLFLEX® CLASSIC 100 450/750 V	ÖLFLEX® CLASSIC 100 YELLOW	ÖLFLEX® CLASSIC 100 CY	ÖLFLEX® CLASSIC 100 SY	ÖLFLEX® CLASSIC 100 BK 0,6/1 KV	ÖLFLEX® SMART 108	ÖLFLEX® CLASSIC 110	ÖLFLEX® CLASSIC 110... BK	ÖLFLEX® CLASSIC 110 LT	ÖLFLEX® CLASSIC 110 ORANGE	ÖLFLEX® CLASSIC 110 CY	ÖLFLEX® CLASSIC 110 SY	ÖLFLEX® CLASSIC 110 BLACK 0,6/1 KV	ÖLFLEX® CLASSIC 110 CY BLACK 0,6/1 KV	ÖLFLEX® CLASSIC 115 CY	ÖLFLEX® EB	ÖLFLEX® EB CY	ÖLFLEX® 140*	ÖLFLEX® 140 CY*	ÖLFLEX® 150	ÖLFLEX® 150 CY	ÖLFLEX® 191	ÖLFLEX® 191 CY	ÖLFLEX® CONTROL TM	ÖLFLEX® CONTROL TM CY	ÖLFLEX® TRAY II	ÖLFLEX® TRAY II CY	ÖLFLEX® SF
Use																													
For non-deactivatable circuits: EN 60204											✔																		
For intrinsically safe circuits in hazardous areas/VDE 0165																	✔	✔											
Handheld devices and lights on building sites																													
Oil-resistant to UL + CSA specification																					✔	✔	✔	✔	✔	✔	✔	✔	
Enhanced oil resistance to VDE																			✔	✔	✔	✔	✔	✔					
Bio-oil-resistant																													
Chemical-resistant cables	See technical table T1																												
UV-resistant cables						✔			✔	✔				✔	✔		✔	✔							✔	✔	✔	✔	
Servomotors/drive systems				✔								✔			✔					✔		✔		✔		✔		✔	
For torsion in wind turbine generators (see catalogue page)	✔	✔	✔			✔		✔	✔	✔	✔			✔											✔	✔	✔	✔	
Standards																													
Based on standards, such as VDE, HAR or DIN, ...	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					✔	✔	✔	✔	✔	✔	
According to standard with VDE certification																			✔	✔	✔	✔							✔
With VDE registration							✔	✔	✔			✔	✔																
With HAR certification																			✔	✔	✔	✔							
With UL certification																					✔	✔	✔	✔	✔	✔	✔	✔	
With CSA certification																					✔	✔	✔	✔	✔	✔	✔	✔	
Temperature range*																													
+105 °C																									□	□	□	□	
+90 °C																									▲	▲	▲	▲	
+80 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲											
+70 °C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	□	□	□	□	□	□					
+60 °C																													●
-5 °C	●	●	●	●	●		●				●	●	●	●	●	●	●	●	●	●	●	●	●	●					
-10 °C																													
-15 °C								●	●																				●
-25 °C																									●	●	●	●	
-30 °C						●				●																			
-40 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
-50 °C																													
-55 °C																													
Installation																													
Outdoor use, unprotected, fixed installation						✔			✔	✔				✔	✔										✓	✓	✔	✔	
Outdoor use, UV light protection, fixed installation	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✓
Outdoor use, unprotected, occasional flexing						✔			✓	✔				✔	✔										✓	✓	✓	✓	✓
Inside, on plaster, in pipe/conduit, in partitions, fixed installation	✓	✓	✓	✓	✓	✔	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓											✓
Inside, occasional flexing	✔	✔	✔	✔	✓	✔	✔	✔	✔	✔	✔	✔	✓	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✓	✓	✓	✓	✔
Bending radius (occasional flexing)																													
5 x D																													
10 x D								✔	✔																				✔
12.5 x D																			✔		✔								
15 x D	✔	✔	✔			✔	✔			✔	✔			✔			✔						✔		✔		✔		
20 x D				✔	✔							✔	✔		✔	✔		✔		✔		✔		✔		✔		✔	
Nominal voltage																													
300/500 V	✔			✔	✔		✔	✔	✔	✔	✔	✔	✔			✔			✔	✔	✔	✔	✔	✔					✔
600 V acc. to UL or CSA																					✔	✔	✔	✔	✔	✔	✔	✔	
450/750 V		✔	✔	✔	✔																								
600/1000 V		✓		✓	✓	✔								✔	✔										✔	✔	✔	✔	
Design																													
Fine wire, VDE class 5, stranded copper conductor	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✓	✓	
Extra-fine wire, VDE class 6, stranded copper conductor																													
Ultra-fine wire, VDE class 6, stranded copper conductor																													✔
PUR core insulation																													
Rubber core insulation																													
PVC/special PVC core insulation	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
PE/PP core insulation																													
Halogen-free core insulation																													
Number printing							✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✓
Colour code acc. to VDE 0293	✔	✔	✔	✔	✔	✔																							✔
ÖLFLEX® colour code	✔	✔		✔	✔																								
Screening Cu braid/cover				✔								✔			✔	✔		✔		✔		✔		✔		✔		✔	
Shared inner sheath under overall screening/braid				✔	✔							✔	✔		✔					✔		✔		✔					
Steel wire braiding					✔								✔																
PVC sheath	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
PUR sheath, abrasion-resistant, cut-resistant																													
Halogen-free outer sheath																													
Bio-oil-resistant outer sheath P4/11																													
Rubber compound sheath acc. to standard																													

✔ Main application/design
✓ Possible application

● Flexible use
□ Fixed and flexible use
▲ Fixed installation

*fixed or occ. bended

A1 Selection tables

LAPP

Flexible connecting and control cables

Usage criteria	Cable designation (fixed installation and/or occasional flexing)																								
Page	60	61	62	63	64	66	67	69	70	71	72	73	74 75	76	77	78 79	80	81	82	83	84	85	86	87	88
	ÖLFLEX® CLASSIC 100 H	ÖLFLEX® CLASSIC 110 H	ÖLFLEX® CLASSIC 110 CH	ÖLFLEX® CLASSIC 130 H	ÖLFLEX® CLASSIC 135 CH	ÖLFLEX® CLASSIC 130 H BK 0,6/1KV	ÖLFLEX® CLASSIC 135 CH BK 0,6/1 KV	ÖLFLEX® PETRO C HFFR	ÖLFLEX® ROBUST 200	ÖLFLEX® ROBUST 210	ÖLFLEX® ROBUST 215C	ÖLFLEX® CLASSIC 400 P	ÖLFLEX® CLASSIC 400 CP/415 CP	ÖLFLEX® CLASSIC 408 P	ÖLFLEX® CLASSIC 409 P	ÖLFLEX® 440 P/CP	ÖLFLEX® 450 P	ÖLFLEX® 500 P	ÖLFLEX® 540 P	ÖLFLEX® 540 CP	ÖLFLEX® 550 P*	H05RR-F***	H05RN-F***	H07RNF***	H07RNF, enhanced version
Use																									
For non-deactivatable circuits: EN 60204																			✔	✔					
For intrinsically safe circuits in hazardous areas/VDE 0165																									
Handheld devices and lights on building sites																	✔	✔		✔		✔	✔	✔	✔
Oil-resistant to UL + CSA specification	✔	✔	✔												✔										
Enhanced oil resistance to VDE	✔	✔	✔					✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔		✔	✔	✔
Bio-oil-resistant									✔	✔	✔														
Chemical-resistant cables	See selection tables for chem. resistance T1 and T2																								
UV-resistant cables		✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔
Servomotors/drive systems			✔		✔		✔	✔					✔			✔				✔					
For torsion in wind turbine generators (see catalogue page)	✔																								✔
Long-time water submersion (AD 8)																									✔
Standards																									
Based on standards, such as VDE, HAR or DIN, ...	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔			✔				
According to standard with VDE certification																									
With VDE registration														✔		✔			✔	✔					
With HAR certification																					✔	✔	✔	✔	✔
With UL certification		✔	✔	✔	✔	✔	✔	✔	✔	✔					✔										
With CSA certification															✔										
With GL certification		✔	✔	✔	✔			✔																	
Temperature range																									
+105 °C																									
+90 °C								□								●			●	●	●				□
+80 °C	▲	▲	▲	▲	▲	▲	▲		□	□	□	▲	▲	▲	□		▲	●							
+70 °C	●	●	●	●	●	●	●					●	●	●			●								
+60 °C																						●	●	●	
-5 °C												●	●		●		●				●				
-10 °C																									
-15 °C														●											
-25 °C				●	●	●	●															●	●	●	
-30 °C	●	●	●														▲								
-40 °C	▲	▲	▲	▲	▲	▲	▲	●	●	●	●	▲	▲	▲	▲	●		●	●	●	●	▲	▲	▲	●
-50 °C								▲	▲	▲	▲					▲		▲	▲	▲	▲				▲
-55 °C																									
Installation																									
Outdoor use, unprotected, fixed installation		✓	✓			✓	✓	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✓	✔	✔
Outdoor use, UV light protection, fixed installation	✔	✔	✔	✔	✔	✔	✔	✔	✓	✓	✓	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✓	✔	✔
Outdoor use, unprotected, occasional flexing		✓	✓			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔
Inside, on plaster, in pipe/conduit, in partitions, fixed installation								✔	✔	✔	✔					✔	✓	✔	✔	✔	✔		✔	✔	✔
Inside, occasional flexing	✔	✔	✔	✔	✔	✓	✓	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Bending radius (occasional flexing)																									
4 x D																							✔		
5 x D																						✔			
6 x D																							✔	✔	✔
10 x D		✔							✔							✔		✔	✔						
12.5 x D												✔		✔		✔				✔	✔				
15 x D	✔		✔	✔		✔				✔					✔		✔								
20 x D					✔		✔	✔			✔		✔												
Nominal voltage																									
300/500 V		✔	✔	✔	✔					✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
600 V acc. to UL or CSA		✔	✔	✔	✔										✓										
450/750 V	✔								✔										✔	✔	✔			✔	✔
600/1000 V	✓					✔	✔	✔																	
1000 V acc. to UL or CSA						✔	✔																		
Design																									
Fine wire, VDE class 5, stranded copper conductor	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔
Extra-fine wire, VDE class 6, stranded copper conductor																									
Ultra-fine wire, VDE class 6, stranded copper conductor																		✔							
PUR core insulation																		✔							
Rubber core insulation																					✔	✔	✔	✔	✔
PVC/special PVC core insulation												✔	✔	✔	✔		✔								
PE/PP core insulation																									
Halogen-free core insulation	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					✔		✔	✔	✔					✔
Number printing		✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔			✔	✔				✔	✔
Colour code acc. to VDE 0293	✔					✔	✔	✔									✔	✔	✔	✔	✔	✔	✔	✔	✔
ÖLFLEX® colour code																									
Screening Cu braid/cover			✔		✔		✔	✔			✔		✔			✔				✔					
Shared inner sheath under overall screening/braid			✔					✔					✔			✔				✔					
Steel wire braiding																									
PVC sheath																									
PUR sheath, abrasion-resistant, cut-resistant												✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				
Halogen-free outer sheath	✔	✔	✔	✔	✔	✔	✔	✔					✔			✔		✔	✔	✔					✔
Bio-oil-resistant outer sheath P4/11									✔	✔	✔														
Rubber compound sheath acc. to standard																						✔	✔	✔	✔

✔ Main application/design
✓ Possible application

● Flexible use
□ Fixed and flexible use
▲ Fixed installation

***Acc. to DIN EN 50565-1 (VDE 0298-565-1); with other applications, partially different bending radii acc. to DIN EN 50565-1 (VDE 0298-565-1), in some cases up to 8 x D

Usage criteria	Cable designation (fixed installation and/or occasional flexing)																		
Page	90	92	95	99	101	97	100	102	98		160	160	169	170	171	172	174	175	
	H07Z2-F***	NSSHÖU	H07RN8-F***	ÖLFLEX® SERVO 719	ÖLFLEX® SERVO 728 CY	ÖLFLEX® SERVO 2YSLCY-JB	ÖLFLEX® SERVO 719 CY	ÖLFLEX® SERVO 7DSL	ÖLFLEX® SERVO 9YSLCY-JB	SERVO cable acc. to LENZE® standard	ÖLFLEX® TORSION FRNC	ÖLFLEX® TORSION D FRNC	ÖLFLEX® CRANE NSHTÖU	ÖLFLEX® CRANE VS (N)SHTÖU	ÖLFLEX® CRANE PUR	ÖLFLEX® CRANE	ÖLFLEX® LIFT	ÖLFLEX® LIFT T	ÖLFLEX® LIFT S
Use																			
For non-deactivatable circuits: EN 60204																			
For intrinsically safe circuits in hazardous areas/VDE 0165																			
Handheld devices and lights on building sites	✔	✔	✔										✓	✓	✓				
Oil-resistant to UL + CSA specification				✔	✔		✔	✔			✔	✔							
Enhanced oil resistance to VDE	✔	✔	✔	✔	✔		✔	✔					✔	✔	✔	✔			
Bio-oil-resistant																			
Chemical-resistant cables																			
UV-resistant cable						✓			✓		✔	✔	✔	✔	✔	✔	✔	✔	✔
Servomotors/drive systems				✔	✔	✔	✔	✔	✔	✔	✓	✓							
For torsion in wind turbine generators (see catalogue page)											✔	✔							
Long-time water submersion (AD 8)			✔																
Standards																			
Based on standards, such as VDE, HAR or DIN, ...				✔	✔	✔	✔	✔	✔		✔	✔		✔		✔			
According to standard with VDE certification		✔											✔						
With VDE registration																			
With HAR certification	✔		✔																
With UL certification				✔	✔		✔	✔	✔	✔	✔	✔							
With CSA certification				✔	✔		✔	✔	✔	✔	✔	✔							
Temperature range																			
+105 °C																			
+90 °C	□	□									□	□							
+80 °C				●	▲				▲	▲			□	□	□	□			
+70 °C				□	□	▲	□	□									□	□	□
+60 °C			●																
-5 °C	●			●	●		●	●											
-10 °C																			
-15 °C																	□	□	□
-25 °C		●	●										●	●		●			
-30 °C																			
-40 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	□	□			□	▲			
-45 °C													▲	▲					
-50 °C																			
-55 °C																			
Installation																			
Outdoor use, unprotected, fixed installation		✔	✔			✓			✓		✔	✔	✔	✔	✔	✔	✔	✔	✔
Outdoor use, UV light protection, fixed installation		✓	✔	✔	✔	✔	✓	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔
Outdoor use, unprotected, occasional flexing		✔	✔								✔	✔	✔	✔	✔	✔	✔	✔	✔
Inside, on plaster, in pipe/conduit, in partitions, fixed installation		✔	✔			✓			✓		✔	✔	✔	✔	✔	✔	✔	✔	✔
Inside, occasional flexing	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Bending radius (occasional flexing)																			
5 x D	✔		✔																
6 x D	✔		✔																
7.5 x D													✔	✔	✔				
10 x D		✔								✔	✔	✔							
12.5 x D																✔			
15 x D				✔	✔		✔	✔											
20 x D						✔			✔								✔	✔	✔
Nominal voltage																			
300/500 V																✔	✔	✔	✔
600 V acc. to UL or CSA										✔									
450/750 V	✔		✔																
600/1000 V		✔		✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				
1000 V acc. to UL or CSA				✔			✔				✔	✔							
Design																			
Fine wire, VDE class 5, stranded copper conductor	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔		✔			
Extra-fine wire, VDE class 6, stranded copper conductor											✔	✔			✔	✔	✔	✔	✔
Ultra-fine wire, VDE class 6, stranded copper conductor																			
PUR core insulation																			
Rubber core insulation	✔	✔	✔										✔	✔		✔			
PVC/special PVC core insulation																	✔	✔	✔
PE/PP core insulation				✔	✔	✔	✔	✔	✔										
Halogen-free core insulation	✔										✔	✔			✔				
Number printing	✔	✔	✔				✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔
Colour code acc. to VDE 0293	✔	✔	✔			✔			✔		✔	✔	✔	✔	✔	✔			
ÖLFLEX® colour code																			
Tensile strain relief element (ZEE)														✔	✔		✔	✔	✔
Screening Cu braid/cover				✔	✔	✔	✔	✔	✔			✔							
Shared inner sheath under overall screening/braid																			
Steel wire braiding																			
Jacket-integrated support brain against torsion + ovalisation													✔	✔	✔				
PVC sheath				✔	✔	✔	✔	✔	✔	✔							✔	✔	✔
PUR sheath, abrasion-resistant, cut-resistant															✔				
Halogen-free outer sheath	✔										✔	✔			✔				
Bio-oil-resistant outer sheath P4/11																			
Rubber compound sheath acc. to standard	✔	✔	✔										✔	✔		✔			

✔ Main application/design
✓ Possible application
● Flexible use
□ Fixed and flexible use
▲ Fixed installation

***Acc. to DIN EN 50565-1 (VDE 0298-565-1); with other applications, partially different bending radii acc. to DIN EN 50565-1 (VDE 0298-565-1), in some cases up to 8 x D

A2 Selection tables

LAPP

Cables for use in power chains or robot applications

Usage criteria	Cable designation																																
Page	107	108	109	111	112	113	115	116	117		118	119	131	132	133	134	142	140	141	120	121	122	123	124	125	127	128	139	143	135	136	137	138	129	130
	ÖLFLEX® SERVO FD 781 CY	ÖLFLEX® SERVO FD 796 P	ÖLFLEX® SERVO FD 796 CP	ÖLFLEX® SERVO FD 798 CP	ÖLFLEX® SERVO FD 7DSL	SERVO cable acc. to SIEMENS® standard 6FX 8PLUS-	SERVO cable acc. to INDRAMAT® standard INK	SERVO cable acc. to LENZE® standard	Special Encoder & Resolver cables	ÖLFLEX® CHAIN 808 P	ÖLFLEX® CHAIN 808 CP	ÖLFLEX® CLASSIC FD 810	ÖLFLEX® CLASSIC FD 810 CY	ÖLFLEX® CLASSIC FD 810 P	ÖLFLEX® CLASSIC FD 810 CP	ÖLFLEX® ROBUST FD	ÖLFLEX® ROBUST FD C	ÖLFLEX® PETRO FD 865 CP	ÖLFLEX® FD 855 P	ÖLFLEX® FD 855 CP	ÖLFLEX® CHAIN 809 SC	ÖLFLEX® CHAIN 809 SC CY	ÖLFLEX® FD 90	ÖLFLEX® FD 90 CY	ÖLFLEX® CHAIN 809	ÖLFLEX® CHAIN 809 CY	ÖLFLEX® FD 891	ÖLFLEX® FD 891 CY	ÖLFLEX® FD 891 P	ÖLFLEX® CHAIN 896 P	ÖLFLEX® CHAIN 90 P	ÖLFLEX® CHAIN 90 CP	ÖLFLEX® CHAIN 819 P	ÖLFLEX® CHAIN 819 CP	ÖLFLEX® CHAIN TM	ÖLFLEX® CHAIN TM CY
Use																																			
For industrial mach. acc. to EN 60204 Part 1/VDE 0113	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
For servo drives powered by frequency converters	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔		✔	✔	✔	✓		✓		✓		✔				✓	✓	✓	✔	✔				
For servo drives, low capacitance	✔		✔	✔	✔	✔		✔							✔	✔	✔	✔	✔											✔	✔				
For encoders, feedback systems, sensors		✔			✓	✔	✔	✔	✔								✓	✓	✓																
For free-arm robots/torsional load																																			
For indoor application, flexing	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
For outdoor application, flexing		✔	✔	✔	✔	✔	✔	✔	✔						✔	✔	✔	✔	✔	✔	✔	✔							✔	✔	✔	✔	✔	✔	✔
For fieldbus systems																																			
For video transmission: RGB signal transmission																																			
For North America with UL+CSA approval		✔	✔	✔	✔		✔	✔	✔									✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
For use in oily environments, enhanced oil resistance	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔		✔	✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
For use in areas with drilling fluids acc. to NEK 606																	✓																		
For use in areas with bio-oils															✔	✔																			
For torsion in wind turbine generators (see catalogue page)																				✔				✔	✔					✔		✔		✔	
Temperature range																																			
+105 °C															□	□																			
+90 °C					□				□													□	□			□	□					□	□	□	□
+80 °C	▲		□				▲	□		▲	▲	▲	▲	▲			□	□	□					▲	▲			●	□	□	□				
+70 °C	●	□		□			●	●		●	●	●	●	●	●					□	□			●	●										
+60 °C						□																													
+5 °C												●	●											●	●										
-5 °C	●							●		●	●			●	●					●	●	●	●			●	●	●				●	●		
-10 °C																																			
-20 °C						●		□						●																				●	●
-30 °C							●		●																					●	●				
-40 °C	▲	●	●	●	●					▲	▲	▲	▲	▲	●	●	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	●			▲	▲	▲	▲
-50 °C		▲	▲	▲	▲	▲	▲		▲						▲	▲	▲	▲	▲										▲	▲	▲				
Minimum bending radius*																																			
5 x D																		✔																	
6.5 x D																																			
7.5 x D	✔	✔	✔	✔	✔	✔					✔	✔	✔	✔	✔	✔	✔		✔			✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	
10 x D			✔				✔	✔	✔	✓	✓									✔	✔			✓	✓										✔
12.5 x D										✓	✓													✓	✓										
15 x D																																			
Installation																																			
For chains with low radii	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	
For chains with minimal space	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
For lower power/weight ratio in chain	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
For 24-hour operation with high cycle numbers	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔			✔	✔	✔	✔	✔	✔			✔	✔
For high acceleration > 10 m/s²	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔			✔	✔	✔	✔	✔	✔			✔	✔
For very high acceleration up to 50 m/s²		✔	✔	✔	✔	✔									✔	✔	✔	✔	✔										✔	✔	✔				
For travel speeds up to 5 m/s, travel lengths up to 10 m	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
For travel speeds up to 10 m/s, travel lengths up to 10 m	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔			✔	✔	✔	✔	✔	✔			✔	✔
For travel speeds up to 5 m/s, travel lengths up to 100 m		✔	✔	✔		✔	✔	✔	✔						✔	✔	✔	✔	✔										✔	✔	✔				
Nominal voltage																																			
350 Vss						✔	✔	✔	✔																										
30/300 V AC									✔																										
300/500 V AC										✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					✔	✔	✔	✔	✔				✔	✔	✔	✔
600/1000 V AC	✔		✔	✔	✔	✔	✔	✔												✔	✔	✔	✔						✔	✔	✔				
600 V acc. to UL/CSA			✔	✔		✔	✔	✔												✔	✔	✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Design																																			
Fine wire, VDE class 5, stranded copper conductor								✓	✓	✔	✔									✔	✔			✔	✔							✔	✔		
Extra-fine wire, VDE class 6, stranded copper conductor	✔	✔	✔	✔	✔		✔	✓	✓		✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔			✔	✔	✔	✔	✔	✔			✔	✔
Ultra-fine wire, VDE class 6, stranded copper conductor																																			
PVC/special PVC core insulation										✔	✔	✔	✔	✔								✔		✔	✔	✔	✔	✔				✔	✔	✔	✔
Elastomer core insulation																																			
PE/cellular PE/cellular PE foam skin core insulation								✓																											
Polyethylene/polypropylene core insulation	✔	✔	✔	✔	✔	✔	✓																						✔						
TPE core insulation							✓	✓	✔								✔	✔	✔											✔	✔				
Special TPE (P4/11) core insulation															✔	✔																			
Halogen-free core insulation						✔																													
Number printing	✔	✔	✔	✔	✔		✔	✓		✔	✔	✔	✔	✔	✔	✔		✔	✔					✔	✔	✔	✔	✔	✔			✔	✔	✔	✔
VDE colour code																	✔																		
DIN 47100 colour code/special colour code		✔				✔	✔	✓	✓											✔	✔		✔							✔	✔				
Pair screening PiCY/PiMF/STP		✔	✓	✔	✔	✓	✔	✓	✓																										
Overall screening	✔	✔	✔		✔	✔	✔	✓	✓		✔		✔			✔	✔		✔		✔				✔		✔				✔		✔		✔
Special PVC sheath	✔							✓				✔	✔							✔	✔	✔	✔			✔	✔							✔	✔
PUR sheath, abrasion-resistant, cut-resistant		✔	✔	✔	✔	✔	✔	✓	✔	✔	✔			✔	✔			✔	✔									✔	✔	✔	✔	✔	✔		
Rubber sheath																																			
Special TPE (P4/11) sheath, bio-oil-resistant															✔	✔																			
Halogen-free sheath		✔	✔	✔		✔																							✔						

✔ Main application/design
✓ Possible application

● Flexible use
□ Fixed and flexible use
▲ Fixed installation

*for continuous flexing

Usage criteria	Cable designation																														
Page	144	145	146	169	171	305	306	310	311	312	329	329	381	327	343		385	325	421	422	435	425	444	445	436	445	444	449	481 483	484	494	494	501
	ÖLFLEX® ROBOT 900 P	ÖLFLEX® ROBOT 900 DP	ÖLFLEX® ROBOT F1	ÖLFLEX® CRANE NSHTÖU	ÖLFLEX® CRANE PUR	UNITRONIC® FD	UNITRONIC® FD CY	UNITRONIC® FD P plus	UNITRONIC® FD CP plus	UNITRONIC® FD CP (TP) plus	UNITRONIC® BUS ASI FD (TPE) A	UNITRONIC® BUS ASI FD P FRNC	UNITRONIC® BUS IBS FD P	UNITRONIC® BUS LD FD P	UNITRONIC® BUS PB FD P A	UNITRONIC® BUS DN FD P	UNITRONIC® SENSOR FD	KOAXIAL-KABEL RGB	ETHERLINE® Cat.5 FD + BK	ETHERLINE® EC FD Cat.5e	ETHERLINE® PN Cat.5 FD	ETHERLINE® Cat.6 FD	ETHERLINE® FD Cat.6$_A$	ETHERLINE® TORSION Y Cat.6$_A$	ETHERLINE® TORSION Cat.5	ETHERLINE® TORSION P Cat.6$_A$	ETHERLINE® FD P Cat.6$_A$	ETHERLINE® TORSION Cat.7	HITRONIC® POF SIMPLEX/DUPLEX FD PE-PUR	HITRONIC® POF DUPLEX FD PNC PA-PUR	HITRONIC® PCF DUPLEX FD PNC PVC-PUR	HITRONIC® PCF DUPLEX FD PNC PVC-PVC	HITRONIC® GOF HRM-FD
Use																																	
For industrial mach. acc. to EN 60204 Part 1/VDE 0113	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
For servo drives powered by frequency converters	✔̸		✔̸															✔															
For servo drives, low capacitance																																	
For encoders, feedback systems, sensors	✔	✔	✔			✔̸	✔	✔̸	✔	✔			✔	✔	✔		✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
For free-arm robots/torsional load	✔	✔	✔																					✔	✔	✔	✔	✔		✔	✔	✔	✔
For indoor application, flexing	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
For outdoor application, flexing	✔		✔̸	✔	✔			✔	✔	✔			✔	✔				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					
For fieldbus systems/Ethernet application	✔̸	✔̸	✔̸							✔̸	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔̸	✔	✔	✔	
For video transmission: RGB signal transmission																		✔											✔̸				
For North America with UL+CSA approval			✔					✔	✔	✔	✔	✔	✔		✔	✔				✔	✔	✔	✔	✔	✔	✔	✔	✔					
For use in oily environments, enhanced oil resistance	✔	✔	✔	✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔												✔	✔	✔	✔	✔
For use in areas with bio-oils																																	
For torsion in wind turbine generators (see catalogue page)	✔	✔	✔						✔	✔					✔										✔								
Temperature range																																	
+105 °C											●																						
+90 °C																																	
+80 °C	▲	▲		□	□	▲	▲	□	□	□		▲	▲	▲	□	▲	●	□	▲	▲		□	▲	▲	□	▲	▲	▲					
+75 °C (CMX)									▲	▲																							
+70 °C	●	●				●	●					●	●	●	●			●	●		▲		●	●		●	●	●	●	●	●	●	
+60 °C																					●												●
+50 °C																				●													
+5 °C																																	
-5 °C						●	●									●		●															
-10 °C																	●	▲					●	●									
-20 °C				●												▲					●								●	●	●	●	●
-30 °C											●	●	●	●	●				●	●	▲	●				●	●	●					
-40 °C	●	●	●	▲	□	▲	▲	□	□	□	▲	▲	▲	▲	▲		▲		▲	▲		▲	▲	▲	□	▲	▲	▲					
-50 °C	▲	▲	▲																														
Minimum bending radius*																																	
5 x D				✔		✔		✔										✔				✔̸			✔								
6.5 x D				✔							✔	✔																					
7.5 x D					✔		✔		✔	✔					✔							✔											
8 x D																					✔												
10 x D			✔												✔														✔	✔	✔	✔	
12.5 x D																																	
15 x D	✔	✔	✔										✔	✔	✔	✔			✔	✔			✔	✔		✔	✔	✔					✔
Installation																																	
For chains with low radii					✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔		✔	✔	✔	✔						✔	✔	✔	✔	✔
For chains with minimal space	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔				✔		✔	✔	✔	✔	✔
For lower power/weight ratio in chain	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔											✔	✔	✔	✔	✔
For 24-hour operation with high cycle numbers	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔											✔	✔	✔	✔	✔
For high acceleration > 10 m/s²	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔															
For very high acceleration up to 50 m/s²																																	
For travel speeds up to 5 m/s, travel lengths up to 10 m	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔				✔		✔̸	✔	✔	✔	✔
For travel speeds up to 10 m/s, travel lengths up to 10 m	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔̸										✔̸	✔	✔	✔	✔
For travel speeds up to 5 m/s, travel lengths up to 100 m				✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔		✔															
Nominal voltage																																	
350 Vss	✔	✔																															
30/300 V AC															✔																		
300/500 V AC	✔	✔	✔																														
600/1000 V AC				✔	✔																												
600 V acc. to UL/CSA			✔																														
1000 V acc. to UL/CSA (internal wiring)								✔	✔	✔									✔						✔	✔	✔	✔					
Design																																	
Fine wire, VDE class 5, stranded copper conductor	✔	✔	✔	✔														✔			✔												
Extra-fine wire, VDE class 6, stranded copper conductor	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔		✔	✔										
Ultra-fine wire, VDE class 6, stranded copper conductor																																	
PVC/special PVC core insulation						✔	✔																								✔	✔	
Elastomer core insulation																													✔	✔			
PE/cellular PE/cellular PE foam skin core insulation															✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					
Polyethylene/polypropylene core insulation								✔	✔	✔		✔					✔																
TPE core insulation	✔	✔	✔		✔						✔		✔	✔																			
Special TPE (P4/11) core insulation																																	
Halogen-free core insulation			✔		✔			✔	✔	✔									✔	✔	✔	✔	✔	✔	✔	✔	✔		✔				
Number printing	✔	✔		✔	✔																												
VDE colour code				✔	✔																												
DIN 47100 colour code/special colour code		✔	✔			✔	✔	✔	✔	✔			✔	✔	✔	✔		✔															
Pair screening PiCY/PiMF/STP																✔							✔	✔		✔	✔	✔					
Overall screening		✔	✔̸				✔		✔	✔			✔	✔	✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					
Special PVC sheath						✔	✔																✔	✔								✔	
PUR sheath, abrasion-resistant, cut-resistant	✔	✔	✔		✔			✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔	✔	✔	✔		✔
Rubber sheath				✔																													
Special TPE (P4/11) sheath, bio-oil-resistant																																	
Halogen-free sheath					✔			✔	✔	✔		✔					✔			✔	✔	✔			✔	✔	✔	✔	✔	✔	✔		✔

✔ Main application/design
✔̸ Possible application

● Flexible use
□ Fixed and flexible use
▲ Fixed installation

*for continuous flexing

A3-1 Selection tables

LAPP

Cables for conveyor technology

Usage criteria	Cable designation													
Page	172	178	176	177	174	175		173	169	170	171	131	312	349
	ÖLFLEX® CRANE	ÖLFLEX® LIFT F*	ÖLFLEX® CRANE F	ÖLFLEX® CRANE CF	ÖLFLEX® LIFT	ÖLFLEX® LIFT T	ÖLFLEX® LIFT S	ÖLFLEX® CRANE 2S	ÖLFLEX® CRANE NSHTÖU**	ÖLFLEX® CRANE VS (N)SHTÖU	ÖLFLEX® CRANE PUR	ÖLFLEX® CLASSIC FD 810 P	UNITRONIC® FD CP plus/(TP) plus	UNITRONIC® BUS PB FESTOON
Use														
For cable trailer guide systems	See separate selection table "Applications" A3-2													
Fixing via rollers, drum motors	See separate selection table "Applications" A3-2													
Reeling/re-routing under tensile load	See separate selection table "Applications" A3-2													
For free-hanging use in lifting/conveying systems	✔	✓	✓	✓	✔	✔	✔			✔	✔			
For free-hanging use with additional load	✔							✔		✔	✔			
For outdoor use	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	
For short travel distances, inside	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔		✔	
For short travel distances, outside	✔		✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	
For use in power chains	See separate selection table "FD" A3-2													
Standards														
In accordance with VDE/HAR/DIN	✔	✔	✔	✔			✔	✔		✔	✔		✔	
With VDE approval									✔					
With VDE registration														
Flame-retardant acc. to IEC 60332-1-2	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	
Temperature range														
+90 °C			□	□										
+80 °C	□								□	□	□	▲	□	□
+70 °C		□			□	□	□	□				●		●
+60 °C														
+5 °C														
0 °C		●												
-5 °C												●		●
-10 °C														
-15 °C		●			●	●	●	●						
-20 °C														
-25 °C	●		●	●					●	●				
-30 °C														
-40 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	□	▲	□	□
Bending radius														
7.5 x D									✔	✔	✔	✔	✔	
10 x D		✔	✔	✔										✔
12.5 x D	✔													
20 x D					✔	✔	✔	✔						
Nominal voltage														
300/500 V	✔	✔	✔	✔	✔	✔	✔	✔				✔		
450/750 V		✔												
600/1000 V									✔	✔	✔			
Design														
PVC core insulation		✔			✔	✔	✔	✔				✔		
TPE core insulation											✔			
Poly-olefine based core insulation													✔	
Rubber core insulation	✔		✔	✔					✔	✔				
Supporting element: hemp/textile rope	✔				✔	✔					✔			
Supporting element: steel rope, internal							✔							
Supporting element: steel rope, external								✔						
Supporting element: Kevlar rope					✔	✔				✔	✔			
Outer sheath with supporting braid									✔	✔	✔			
PVC sheath		✔			✔	✔	✔	✔						✔
PUR sheath											✔	✔	✔	
Rubber sheath	✔		✔	✔					✔	✔				

✔ Main application/design
✓ Possible application

● Flexible use
□ Fixed and flexible use
▲ Fixed installation

*Min. conductor temperature -15 °C with flexible application and nominal voltage U_0/U = 450/750 V_{ac}, only from nominal conductor cross-section of 1.5 mm²
**Min. bending radius 5 x D only if outer diameter < 21.5 mm

Usage criteria	Cable designation																				
Page	169	170	171	172	177	173	174	175		176	178	131	312	349							
	ÖLFLEX® CRANE NSHTÖU	ÖLFLEX® CRANE VS (N)SHTÖU	ÖLFLEX® CRANE PUR	ÖLFLEX® CRANE	ÖLFLEX® CRANE CF	ÖLFLEX® CRANE 2S	ÖLFLEX® LIFT	ÖLFLEX® LIFT T	ÖLFLEX® LIFT S	ÖLFLEX® CRANE F	ÖLFLEX® LIFT F	ÖLFLEX® CLASSIC FD 810 P	UNITRONIC® FD CP plus/(TP) plus	UNITRONIC® BUS PB FESTOON							
Application																					
Cable trailer systems				✔	✔					✔	✔	✔	✔	✔							
Reeling, light stress (monospiral configuration – stacked)	✔	✔	✔																		
Reeling, moderate stress (multispiral configuration – single layer)	✔	✔	✔																		
Reeling, moderate stress (multispiral configuration – multilayer)	✔	✔	✔																		
Vertical reeling		✔	✔																		
Reel storage (horizontal)		✔	✔																		
Reel storage (vertical)			✔																		
Re-routing under tensile load		✔	✔																		
Push-button control unit		✔	✔			✔															
Drag chain	✔	✔	✔	✔						✔	✔	✔	✔								
Lift							✔	✔	✔	✔	✔										

✔ Main application
✔ Possible application

A4 Selection tables

LAPP

Halogen-free cables

Usage criteria	Cable designation																										
Page	60	61	62	63	64	66	67	69	78	79	82	83	88	90	94	113	140	141	109	142	108	111	112	143	135	136	159
	ÖLFLEX® CLASSIC 100 H	ÖLFLEX® CLASSIC 110 H	ÖLFLEX® CLASSIC 110 CH	ÖLFLEX® CLASSIC 130 H	ÖLFLEX® CLASSIC 135 CH	ÖLFLEX® CLASSIC 130 H BK 0,6/1 KV	ÖLFLEX® CLASSIC 135 CH BK 0,6/1 KV	ÖLFLEX® PETRO C HFFR	ÖLFLEX® 440 P	ÖLFLEX® 440 CP	ÖLFLEX® 540 P	ÖLFLEX® 540 CP	H07RN-F, enhanced version	H07ZZ-F	NSHXAFö 1,8/3 KV*	SERVO cable acc. to SIEMENS® standard 6FX 8Plus	ÖLFLEX® FD 855 P	ÖLFLEX® FD 855 CP	ÖLFLEX® SERVO FD 796 CP	ÖLFLEX® PETRO FD 865 CP	ÖLFLEX® SERVO FD 796 P	ÖLFLEX® SERVO FD 798 CP	ÖLFLEX® SERVO FD 7DSL	ÖLFLEX® CHAIN 896 P	ÖLFLEX® CHAIN 90 P	ÖLFLEX® CHAIN 90 CP	ÖLFLEX® SOLAR XLWP
Use																											
Machines and systems:																											
External wiring of machinery	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Internal wiring of control cabinets						✓	✓								✔												
Other circuits in buildings:	✔					✔	✔																				
Lighting circuits	✓												✓														
Power circuits	✓					✔	✔	✔					✔	✔	✔										✔	✔	
Network cables																											
Standards																											
Low smoke density	✔	✔	✔	✔	✔	✔	✔						✔	✔	✔												✔
Low toxicity of flue gas	✔	✔	✔	✔	✔	✔	✔							✔	✔												✔
Flame-retardant to IEC 60332-1-2	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Highly flame-retardant to IEC 60332-3	✔	✔	✔	✔	✔	✔	✔	✔						✔											✔	✔	
Based on e. g. VDE, HAR, DIN or UL,...	✔	✔	✔	✔	✔	✔	✔										✔	✔		✔							
Certification, e. g. VDE, HAR, UL, TÜV or DNV,...		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔
Temperature range																											
+180 °C																											
+145 °C																											
+120 °C																											▲
+110 °C																											
+90 °C								□	●	●	●	●	□	□	□												
+80 °C	▲	▲	▲	▲	▲	▲	▲									□	□	□	□	□	□	□	□	□	□	□	
+70 °C	●	●	●	●	●	●	●																				
+50 °C																											
0 °C																											
-5 °C														●													
-15 °C																											
-25 °C				●	●	●	●								●	●											
-30 °C	●	●	●														●	●							●	●	
-40 °C	▲	▲	▲	▲	▲	▲	▲	●	●	●	●	●	●	▲	▲		▲	▲	●		●	●	●	●			□
-50 °C								▲					▲			▲			▲	●	▲	▲	▲	▲	▲	▲	
-60 °C																				▲							
Nominal voltage																											
250 Vss																✔											
300/500 V		✔	✔	✔	✔				✔	✔	✔	✔					✔	✔		✔							
450/750 V	✔										✔	✔	✔	✔													
600/1000 V	✓					✔	✔	✔								✔			✔		✔		✔	✔	✔	✔	✔
1.8/3 KV															✔												
Design																											
Solid wire VDE 0295 class 1																											
Multi-wire VDE 0295 class 2																											
Fine wire VDE 0295 class 5	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔							✔					✔
Extra-fine wire VDE 0295 class 6																✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	
Number printing VDE 0293		✔	✔	✔	✔	✔	✔		✔	✔			✔	✔			✔	✔		✔							
Colour code to VDE 0293-308; HD 308-S2	✔					✔	✔	✔			✔	✔	✔	✔										✔			
Colour code to DIN 47100																											
Special core ident. code																✔			✔		✔	✔	✔				
Single colours								✔							✔										✔	✔	✔

Halogen-free accessories:	Cable protection hoses		Cable entries	Marking	Accessories
	SILVYN® RILL PA6	SILVYN® EMC AS-CU	SKINTOP® ST-HF-M	FLEXIMARK® single core marking	Embossed metal plates, insulated conductor end sleeves
	SILVYN® RILL PA12	SILVYN® SSUE	SKINTOP® GMP-HF-M	Flexipart, marking sleeves, Flexiprint	Insulated cable lugs, TBTA insulating tape
	SILVYN® FPAS	SILVYN® UI 511	SKINTOP® BLK-GL-M	FLEXIMARK® cable labelling	Shrink hoses CMP/PKG/HSB/PLG
	SILVYN® HCC	SILVYN® HFX	SKINTOP® GMP-GL-M	MINI system, shrink tube labelling	TEC end caps
	SILVYN® LCCH-2	SILVYN® CHAIN	SKINDICHT® KW-M	FLEXIMARK® component labelling	TEB branch joints
	SILVYN® AS	SILVYN® CHAIN STEEL	SKINDICHT® KU-M	LB LA labels	KW plastic coil
	SILVYN® EDU-AS	SILVYN® HIPROJACKET	SKINDICHT® EKU-M	DYMO® label strips	Cable ties Basic Tie/TY-RAP®/TY-FAST®
	SILVYN® TC				

✔ Main application/design
✓ Possible application

● Flexible use
□ Fixed and flexible use
▲ Fixed installation

Other halogen-free cables on request.

*Use of NSHXAFö – all standard nominal voltage classes: no lagged cables, just "outer sheath" acc. to design standard VDE 0250-606.

Usage criteria	Cable designation																														
Page	171	181	182	183	184	185	186	187	188	189	196	198	199	160	160	162	225 226	231	234	236	255	332	297	298	302	310	311	312	382	381	381	327
	ÖLFLEX® CRANE PUR	ÖLFLEX® HEAT 125 MC	ÖLFLEX® HEAT 125 C MC	ÖLFLEX® HEAT 180 SiHF	ÖLFLEX® HEAT 180 HO5SS-F EWKF	ÖLFLEX® HEAT 180 MS	ÖLFLEX® HEAT 180 C MS	ÖLFLEX® HEAT 180 EWKF	ÖLFLEX® HEAT 180 EWKF C	ÖLFLEX® HEAT 180 GLS	ÖLFLEX® HEAT 125 SC	ÖLFLEX® HEAT 180 SiF	ÖLFLEX® HEAT 180 SiF A	ÖLFLEX® TORSION FRNC	ÖLFLEX® TORSION D FRNC	ÖLFLEX® CHARGE	H05Z-K, H07Z-K 90 °C*	(N)HXMH	N2XH	N2XCH	ÖLFLEX® SPIRAL 540 P	UNITRONIC® BUS PB H FC	UNITRONIC® LiHH	UNITRONIC® LiHCH	UNITRONIC® LiHCH (TP)	UNITRONIC® FD P plus	UNITRONIC® FD CP plus	UNITRONIC® FD CP (TP) plus	UNITRONIC® BUS EiB	UNITRONIC® BUS IBS P COMBI	UNITRONIC® BUS IBS FD P	UNITRONIC® BUS LD FD P
Use																																
Machines and systems:																																
External wiring of machinery	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔	✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Internal wiring of control cabinets											✔	✔	✔	✔	✔	✔	✔						✔	✔	✔	✔	✔	✔				
Other circuits in buildings:																		✔														
Lighting circuits	✔													✔	✔	✔	✔	✔			✔											
Power circuits	✔						✔							✔	✔	✔	✔	✔	✔	✔	✔											
Network cables																																
Standards																																
Low smoke density		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔		✔	✔	✔				✔	✔	✔	
Low toxicity of flue gas		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔	✔	✔	✔				✔			
Flame-retardant to IEC 60332-1-2	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Highly flame-retardant to IEC 60332-3		✔	✔								✔			✔	✔			✔														
Based on e. g. VDE, HAR, DIN or UL,...	✔			✔				✔	✔	✔		✔						✔					✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Certification, e. g. VDE, HAR, UL, TÜV or DNV,...		✔	✔		✔	✔	✔				✔		✔	✔	✔	✔	✔		✔	✔		✔				✔	✔	✔		✔	✔	✔
Temperature range																																
+180 °C				□	□	□	□	□	□	□		▲	▲																			
+145 °C		◆	◆								◆																					
+120 °C		●	●								▲																					
+110 °C																																
+90 °C														□	□	▲	▲		□	□												
+80 °C	□															●							▲	▲	▲	□	□	□				
+70 °C																		▲				□	●	●	●				▲	●	●	●
+50 °C																					●											
0 °C																																
-5 °C																			●	●			●	●	●				▲			
-15 °C																																
-25 °C																●						□										
-30 °C																		▲			●		▲	▲	▲							▲
-40 °C	●	●	●											□	□	▲	▲		▲	▲						□	□	□	●	●	●	
-50 °C	▲	▲	▲	□	□	□	□	□	□	□	▲	▲	▲																			
-60 °C																																
Nominal voltage																																
250 Vss																						✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
300/500 V		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					✔	✔			✔											
450/750 V		✔	✔								✔					✔	✔				✔											
600/1000 V	✔	✔	✔								✔		✔	✔	✔				✔	✔												
1.8/3 KV																																
Design																																
Solid wire VDE 0295 class 1																		✔	✔	✔		✔							✔			
Multi-wire VDE 0295 class 2																		✔	✔	✔												
Fine wire VDE 0295 class 5		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔				✔		✔	✔	✔					✔		
Extra-fine wire VDE 0295 class 6	✔													✔	✔											✔	✔	✔			✔	✔
Number printing VDE 0293	✔	✔	✔	✔		✔	✔	✔	✔	✔				✔	✔			✔			✔											
Colour code to VDE 0293-308; HD 308-S2	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔	✔	✔		✔	✔	✔	✔											
Colour code to DIN 47100															✔								✔	✔	✔	✔	✔	✔		✔	✔	✔
Special core ident. code																✔						✔							✔	✔		
Single colours											✔	✔	✔				✔															

	Cable protection hoses		Cable entries	Marking	Accessories
Halogen-free accessories:	SILVYN® RILL PA6	SILVYN® EMC AS-CU	SKINTOP® ST-HF-M	FLEXIMARK® single core marking	Embossed metal plates, insulated conductor end sleeves
	SILVYN® RILL PA12	SILVYN® SSUE	SKINTOP® GMP-HF-M	Flexipart, marking sleeves, Flexiprint	Insulated cable lugs, TBTA insulating tape
	SILVYN® FPAS	SILVYN® UI 511	SKINTOP® BLK-GL-M	FLEXIMARK® cable labelling	Shrink hoses CMP/PKG/HSB/PLG
	SILVYN® HCC	SILVYN® HFX	SKINTOP® GMP-GL-M	MINI system, shrink tube labelling	TEC end caps
	SILVYN® LCCH-2	SILVYN® CHAIN	SKINDICHT® KW-M	FLEXIMARK® component labelling	TEB branch joints
	SILVYN® AS	SILVYN® CHAIN STEEL	SKINDICHT® KU-M	LB LA labels	KW plastic coil
	SILVYN® EDU-AS	SILVYN® HIPROJACKET	SKINDICHT® EKU-M	DYMO® label strips	Cable ties Basic Tie/TY-RAP®/TY-FAST®
	SILVYN® TC				

✔ Main application/design
✓ Possible application

● Flexible use
□ Fixed and flexible use

▲ Fixed installation
◆ Fixed installation (briefly)

Other halogen-free cables on request.

*Nominal voltage U_0/U: for 05Z-K = 300/500 V_{ac}
for 07Z-K = 450/750 V_{ac}

A4 Selection tables

LAPP

Halogen-free cables

Usage criteria	Cable designation																									
Page	329	417	434	425	464		466	467	467	468	417	418	420	430	435	436	452				444	445	454	451	336	345	348	361
	UNITRONIC® BUS ASI FD P FRNC	ETHERLINE® H Cat.5e	ETHERLINE® Cat.5 FRNC HYBRID	ETHERLINE® FD P Cat.6	ETHERLINE® LAN 200 Cat.5e LSZH	ETHERLINE® LAN 350 Cat.6 LSZH	ETHERLINE® LAN 500 Cat.6$_A$ LSZH	ETHERLINE® LAN 1000 Cat.7$_A$ LSZH	ETHERLINE® LAN 1200 Cat.7$_A$ LSZH	ETHERLINE® LAN 1600 Cat.7$_A$ LSZH	ETHERLINE® P Cat.5e	ETHERLINE® H/P FLEX Cat.5e	ETHERLINE® Cat.5e FD	ETHERLINE® PN FLEX FRNC	ETHERLINE® PN Cat.5 FD	ETHERLINE® TORSION Cat.5	ETHERLINE® FIRE Cat.5e PH120	ETHERLINE® Cat.6$_A$ H/7 H	ETHERLINE® Cat.6$_A$ P/7 P	ETHERLINE® PN Cat.6$_A$ FRNC FLEX	ETHERLINE® Cat.6$_A$ FD P	ETHERLINE® Cat.6$_A$ TORSION P	ETHERLINE® ROBUST	ETHERLINE® HEAT 6722	UNITRONIC® BUS PB FRNC FC	UNITRONIC® BUS PB FD FRNC FC	UNITRONIC® BUS PB TORSION	UNITRONIC® DeviceNet FRNC
Use																												
Machines and systems:																												
External wiring of machinery	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Internal wiring of control cabinets												✔	✔	✔	✔	✔				✔	✔		✔	✔	✔	✔		✔
Other circuits in buildings:																												
Lighting circuits																												
Power circuits																												
Network cables			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Standards																												
Low smoke density		✔	✔		✔	✔	✔	✔	✔	✔				✔	✔		✔						✔	✔	✔	✔		✔
Low toxicity of flue gas		✔	✔		✔	✔	✔	✔	✔	✔				✔	✔	✔	✔			✔			✔	✔	✔	✔	✔	✔
Flame-retardant to IEC 60332-1-2	✔	✔	✔	✔	✔	✔	✔				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					✔	
Highly flame-retardant to IEC 60332-3								✔	✔	✔				✔			✔	✔	✔						✔	✔		
Based on e. g. VDE, HAR, DIN or UL,...	✔	✔	✔																		✔	✔						
Certification, e. g. VDE, HAR, UL, TÜV or DNV,...				✔										✔	✔	✔				✔	✔	✔						
Temperature range																												
+180 °C																												
+145 °C																												
+120 °C																												
+110 °C																												
+105 °C																								□				
+90 °C																												
+80 °C	▲	▲		□							□	□	□			□	▲	▲	▲	▲	▲	▲	□		▲	▲		▲
+70 °C	●		□											▲	▲						●	●				●	●	
+60 °C		●			▲	▲	▲	▲	▲	▲					●					●								
+50 °C														●														
0 °C														●														
-5 °C		●									●	●	●															
-15 °C																												
-20 °C					▲	▲	▲	▲	▲	▲					●					●								
-25 °C			□											▲			▲										●	▲
-30 °C	●	▲		●							▲	▲	▲		▲						●	●		●	▲	●		
-40 °C	▲			▲												□		▲	▲	▲	▲	▲	●	▲		▲		
-50 °C																							▲					
-60 °C																												
Nominal voltage																												
250 Vss	✔																											
300/500 V																												
450/750 V																												
600/1000 V																												
1.8/3 KV																												
Design																												
Solid wire VDE 0295 class 1		✔			✔	✔	✔	✔	✔	✔																		
Multi-wire VDE 0295 class 2																												
Fine wire VDE 0295 class 5			✔																									
Extra-fine wire VDE 0295 class 6	✔																											
Number printing VDE 0293																												
Colour code to VDE 0293-308; HD 308-S2																												
Colour code to DIN 47100																												
Special core ident. code	✔	✔	✔	✔							✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔						
Single colours																												

Halogen-free accessories:	Cable protection hoses		Cable entries	Marking	Accessories
	SILVYN® RILL PA6	SILVYN® EMC AS-CU	SKINTOP® ST-HF-M	FLEXIMARK® single core marking	Embossed metal plates, insulated conductor end sleeves
	SILVYN® RILL PA12	SILVYN® SSUE	SKINTOP® GMP-HF-M	Flexipart, marking sleeves, Flexiprint	Insulated cable lugs, TBTA insulating tape
	SILVYN® FPAS	SILVYN® UI 511	SKINTOP® BLK-GL-M	FLEXIMARK® cable labelling	Shrink hoses CMP/PKG/HSB/PLG
	SILVYN® HCC	SILVYN® HFX	SKINTOP® GMP-GL-M	MINI system, shrink tube labelling	TEC end caps
	SILVYN® LCCH-2	SILVYN® CHAIN	SKINDICHT® KW-M	FLEXIMARK® component labelling	TEB branch joints
	SILVYN® AS	SILVYN® CHAIN STEEL	SKINDICHT® KU-M	LB LA labels	KW plastic coil
	SILVYN® EDU-AS	SILVYN® HIPROJACKET	SKINDICHT® EKU-M	DYMO® label strips	Cable ties Basic Tie/TY-RAP®/TY-FAST®
	SILVYN® TC				

✔ Main application/design
✓ Possible application

● Flexible use
□ Fixed and flexible use
▲ Fixed installation

Other halogen-free cables on request.
PLEASE NOTE: halogen-free fibre optics you can find at appendix A11.

Usage criteria	Cable designation																												
Page	276	278-280	281	282	303	304	284	285	286	287	288	289	290	291	293	294 295	296	297 298	299	305 306	310	311	312	317	318	319	320	321	323
	UNITRONIC® 100, 100 CY	UNITRONIC® LiYY, LiYCY	UNITRONIC® LiYY (TP)	UNITRONIC® LiYCY (TP)	UNITRONIC® 300, 300 S	UNITRONIC® 300 STP	UNITRONIC® LiYCY-CY	UNITRONIC® LiFYCY (TP)	UNITRONIC® CY PiDY (TP)	UNITRONIC® ST	UNITRONIC® LiYD11Y	UNITRONIC® PUR CP	UNITRONIC® PUR CP (TP)	UNITRONIC® Li2YCY(TP)-Li2YCYv (TP)	UNITRONIC® Li2YCY PiMF	UNITRONIC® ROBUST, ROBUST C	UNITRONIC® ROBUST C (TP)	UNITRONIC® LiHH, LiHCH	UNITRONIC® LiHCH (TP)	UNITRONIC® FD, FD CY	UNITRONIC® FD P plus	UNITRONIC® FD CP plus*	UNITRONIC® FD CP (TP) plus*	JE-Y(ST)Y...BD	JE-LiYCY...BD	Indoor telephone cable J-Y(ST)Y	Fire alarm cable J-Y(ST)Y red	J-2Y(ST)Y...ST III BD	Outdoor telephone cable
Use																													
Food and beverage industry**																✔	✔												
Access control/time recording system				✓		✔				✔	✔		✔				✓		✔					✔	✔	✔		✔	✓
Medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works																✔	✔												
Production data acquisition systems		✔		✓		✔				✔			✔				✓		✔					✔	✔	✔		✔	✓
Clock systems		✔										✓	✔											✔	✔	✔		✔	✓
Versions with UL and <16AWG/<1.5 mm² ***		✔		✔	✔	✔															✔	✔	✔						
Intrusion detection systems		✓		✓	✓	✓	✓				✔			✔	✔	✔	✓	✔	✔					✓	✓	✓		✔	✓
Fire alarm systems														✓	✓											✓	✔		
Class I, Div. 2 (PLTC, 18&16 AWG)					✔	✔																							
Telephone private branch exchanges											✓			✓	✓									✔	✔	✔		✔	✔
Intercom systems		✓		✓	✓	✓	✓	✓			✓	✓	✓	✔	✔	✔	✔	✓	✓					✓	✓	✔		✔	✔
Electro-acoustic systems											✓			✔	✔		✔		✓					✓		✔		✔	✔
Recording studio cables/microphone cables	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✔	✔	✔	✔	✓	✓										
Printers/plotters				✓		✓		✔			✓		✓	✔	✔		✔		✓	✓	✔	✓	✓						
DC stepper motors				✔		✔							✔	✔	✔		✔		✔				✔		✓				
Encoders (position or angle)				✔		✔			✓				✔	✔	✔		✔		✔				✔		✓				
Industrial sensors, U < 50 V_{eff}	✔	✔	✔	✔	✔	✔	✔	✓	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✓	✓				
Industrial actuators, U < 50 V_{eff}	✔	✔	✔	✔	✔	✔	✔		✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✓				
Measurement and control purposes, analogue	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✓	✓			✓	✓
MSR, digital	✓	✔	✔	✓	✓	✓			✔		✓	✓	✓	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✓			✓	✓
In electronic devices	✔	✔	✔	✔	✔	✔	✔	✔	✔		✓	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔						
For cutting/clamping technology (0.34 mm²/AWG 22)	✔	✔										✔		✔	✓	✔	✔	✔							✔				
Temperature range																													
+105 °C					□	□																							
+90 °C																□	□												
+80 °C (UL) for UL AWM versions		□	□																		□	□	□						
+80 °C	▲	▲	▲	▲			▲	▲	▲	▲	▲	▲	▲	▲	▲			▲	▲	▲	□	□	□						
+75 °C (UL/CSA CMX – stationary)																						▲	▲						
+70 °C	●	●	●	●			●	●	●		●	●	●	●	●			●	●	●				▲	▲	▲	▲	▲	▲
+50 °C																								●	●				
-5 °C	●	●	●	●			●	●	●		●	●	●	●	●			●	●	●				●	●				
-25 °C					●	●																							
-30 °C	▲						▲	▲	▲	▲	▲	▲	▲	▲	▲			▲	▲					▲	▲	▲	▲	▲	
-40 °C		▲	▲	▲	▲	▲										●	●			▲	□	□	□						
-50 °C																▲	▲												
Installation																													
Fixed installation indoors	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✓	✔	✔	✔	✔	✔	✔	✔	✔	✓	✓	✓	✓	✔	✔	✔	✔	✔	
Flexing applications (indoors), occasional	✔	✔	✓	✓	✔	✔	✓	✔	✓		✔	✔	✓	✔	✔	✔	✔	✔	✓	✔	✔	✔	✔		✓				
Outdoors					✔	✔					✔	✔	✔			✔	✔				✔	✔	✔						✔
Permanent flexing (indoors/outdoors)																					✔	✔	✔						
As tray cable in North-America					✔	✔																							
Design																													
Halogen-free																✔	✔	✔	✔		✔	✔	✔						✔
Flame-retardant, self-extinguishing	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✓	✓
Symmetrical transmission, twisted pair (TP)			✔	✔		✔		✔	✔				✔	✔	✔		✔						✔	✔	✔	✔		✔	✔
High pair decoupling, pair screening									✔						✔														
El. screening effect, overall screening	✓	✓		✔	✓	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✓	✔	✓	✔	✓		✔	✔	✔	✔	✔	✔	✔	✔
Low-attenuation transmission, low-capacitance														✔	✔	✔	✔				✔	✔	✔					✔	
Individually screened cores							✔																						
Colour code DIN 47100		✔	✔	✔			✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔						
UNITRONIC® colour code	✔																												
Industrial electronics colour code per VDE 0815																								✔	✔				
Star quad colour code "BD" per VDE 0815/0816																									✓			✔	✔
Pair colour code "LG" per VDE 0815																										✔	✔		
Special colour code					✓	✓				✔																			
PVC/special PVC outer sheath	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔	✔					✔				✔	✔	✔	✔	✔	
PUR sheath, abrasion-resistant, cut-resistant											✔	✔	✔								✔	✔	✔						
PE outer sheath (not flame-retardant)																													✔
Special TPE sheath, chem. resistant																✔	✔												

Halogen-free accessories	Cable protection hoses		Cable entries	Marking	Accessories
	SILVYN® RILL PA6	SILVYN® EMC AS-CU	SKINTOP® ST-HF-M	FLEXIMARK® single core marking	Embossed metal plates, insulated conductor end sleeves
	SILVYN® RILL PA12	SILVYN® SSUE	SKINTOP® GMP-HF-M	Flexipart, marking sleeves, Flexiprint	Insulated cable lugs, TBTA insulating tape
	SILVYN® FPAS	SILVYN® UI 511	SKINTOP® BLK-GL-M	FLEXIMARK® cable labelling	Shrink hoses CMP/PKG/HSB/PLG
	SILVYN® HCC	SILVYN® HFX	SKINTOP® GMP-GL-M	MINI system, shrink tube labelling	TEC end caps
	SILVYN® LCCH-2	SILVYN® CHAIN	SKINDICHT® KW-M	FLEXIMARK® component labelling	TEB branch joints
	SILVYN® AS	SILVYN® CHAIN STEEL	SKINDICHT® KU-M	LB LA labels	KW plastic coil
	SILVYN® EDU-AS	SILVYN® HIPROJACKET	SKINDICHT® EKU-M	DYMO® label strips	Cable ties Basic Tie/TY-RAP®/TY-FAST®
	SILVYN® TC				

✔ Main application/design
✓ Possible application

● Flexible use
□ Fixed and flexible use
▲ Fixed installation

*NFPA 79, 2015 Edition, 12.9.2, Exemption 3 not applicable before May 2016
**especially for production and processing equipment of milk and meat products
***for internal wiring in industrial machinery in the USA

A6 Selection tables

LAPP

UNITRONIC® COAXIAL/BUS/LAN cables – COAXIAL/BUS/LAN cable interfaces
ETHERLINE® cables – Industrial Ethernet cable interfaces

Usage criteria	Cable designation																																				
Page	324	324	324	324	324	324	324	324	324	324	324	324	325	325	325	379	381	380	379	381	380	326	327	332	342	338	341	346	332	345	348	349	347	329	382	331	334	334	364	363	363	365	366
	COAXIAL CABLE RG 6 A/U	COAXIAL CABLE RG 58 C/U	COAXIAL CABLE RG 174 A/U	COAXIAL CABLE RG 178 B/U	COAXIAL CABLE RG 188 A/U	COAXIAL CABLE RG 213 /U	COAXIAL CABLE RG 214 /U	COAXIAL CABLE RG 223 /U	COAXIAL CABLE RG 11 A/U	COAXIAL CABLE RG 11 A/U outdoor	COAXIAL CABLE RG 59 B/U	COAXIAL CABLE RG 187 A/U	MULTI COAXIAL CABLE RG 59 B/U	COAXIAL CABLE RGB	COAXIAL CABLE RGB-FD	UNITRONIC® BUS IBS	UNITRONIC® BUS IBS FD P	UNITRONIC® BUS IBS Yv	UNITRONIC® BUS IBS P COMBI	UNITRONIC® BUS IBS FD P COMBI	UNITRONIC® BUS IBS Yv COMBI	UNITRONIC® BUS LD	UNITRONIC® BUS LD FD P	UNITRONIC® BUS PB	UNITRONIC® BUS PB FD P	UNITRONIC® BUS PB Yv	UNITRONIC® BUS PB 7-W FC BK	UNITRONIC® BUS PB FD P COMBI	UNITRONIC® BUS PB PE	UNITRONIC® BUS PB FD P FRNC FC	UNITRONIC® BUS PB TORSION	UNITRONIC® BUS PB FESTOON	UNITRONIC® BUS PB FD Y HYBRID	UNITRONIC® BUS ASI FD P	UNITRONIC® BUS EIB/KNX	UNITRONIC® BUS PB TRAY	UNITRONIC® BUS PB 105	UNITRONIC® BUS PB 105 Plus	UNITRONIC® BUS CAN TRAY	UNITRONIC® BUS CAN	UNITRONIC® BUS CAN FD P	UNITRONIC® BUS CAN BURIAL	UNITRONIC® BUS HEAT 6722
Use																																											
Suitable for network type as per:																																											
IEEE 802.3 (Ethernet)		✔																																									
IEEE 802.4 (MAP)											✓																																
IEEE 802.5 (IBM)																																											
ISDN 64 K Bit																																											
IBM 3270, 3600, 4300												✔																															
IBM AS 400, 36, 38																																											
IBM PC Network									✔																																		
10 base 5 Ethernet																																											
10 base 2 Cheapernet		✓					✓																																				
10 base T (UTP) 100 ohms																																											
Token Ring (STP) 150 ohms																																											
Token Bus									✔		✓																																
Radio/TV									✔		✔	✔																															
Video BAS/FBAS									✓		✓	✓		✔	✔																												
Video RGB monitors															✔																												
EIA RS 232/V.24																						✓	✓																				
EIA RS 422/V.11																						✓	✓																				
EIA RS 485																						✔	✔															✓	✓	✓	✓		
EIA RS 232/20 mA (TTY)																																											
Standards																																											
PROFIBUS																								✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔					
INTERBUS (Phoenix Contact)																✔	✔	✔	✔	✔	✔																						
ISO 11898 CAN																																							✔	✔	✔	✔	
BITBUS (Intel)																						✔	✔																				
For LAN installations (IBM, Ethernet etc.)		✔				✔	✔	✔			✔	✔	✔																														
PROFINET																																											
Temperature range																																											
+205 °C				▲	▲							▲																															
+105 °C																																				▲	▲						●
+90 °C		▲	▲			▲	▲	▲	▲		▲		▲	▲																													
+80 °C																			▲		▲	▲	▲		▲			▲	▲	▲	▲	▲	▲	▲		▲			▲	▲	▲		
+70 °C															●	▲	●	▲		●			●	▲	●	▲	▲			●	●	●	●	●	▲	●			●	●	●		
+60 °C																												●															
-5 °C																												●		●		●	●							●			
-10 °C																																				●			●				
-20 °C														▲	●		●			●			●								●												
-30 °C																▲		▲	▲		▲	▲	▲		●		▲							●	▲		▲			▲	●		●
-40 °C		▲	▲			▲	▲	▲	▲		▲		▲	▲										▲	▲			▲	▲	▲	▲	▲	▲		▲			▲	▲		▲		
-90 °C				▲	▲							▲																															
Installation																																											
Installation outdoors in open air		✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔			✔			✔					✔		✔	✓					✓										✔
Indirect routing underground	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔			✔			✔					✔																		
Indoor use														✔	✔	✔		✔	✔		✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔
Direct routing underground										✔								✔			✔					✔																	
Mean characteristic Impedance																																											
150 ohms																								✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔					
120 ohms																																							✔	✔	✔		✔
100 ohms																✔	✔	✔	✔	✔	✔	✔	✔																	✔	✔		
93 ohms												✔																															
75 ohms	✔						✔	✔		✔	✔		✔	✔	✔																												
50 ohms		✔	✔	✔	✔	✔	✔	✔																																			
Output category																																											
CAT.5 ≤ 100 MHz																																								✓			
CAT.6 ≤ 250 MHz																																											
CAT.6$_A$ ≤ 500 MHz																																											
CAT.7 ≤ 600 MHz																																											
CAT.7$_A$ ≤ 1200 MHz																																											
Design																																											
PVC sheath	✔	✔	✔			✔	✔	✔	✔		✔		✔	✔	✔				✔			✔	✔		✔		✔	✔					✔	✔		✔	✔	✔		✔	✔		
Halogen-free sheath																																			✔								
PE sheath														✔															✔													✔	
PUR sheath, abrasion-resistant, cut-resistant																✔	✔		✔	✔			✔		✔			✔		✔	✔			✔							✔		✔
FEP outer sheath				✔	✔							✔																															

✔ Main application/design
✓ Possible application
● Flexible use
□ Fixed and flexible use
▲ Fixed installation

Usage criteria	Cable designation																																				
Page	335	291	293	464	464	464	465	465	470	468	466	467	469	417	418	420	421	438	434	429	430	435	431	436		444	445	419	422	425	428	452	429	433	432		454	455	451	449
	UNITRONIC® BUS PB HEAT 180	UNITRONIC® Li2YCY(TP)-Li2YCYv(TP)	UNITRONIC® Li2YCY PiMF	ETHERLINE® LAN 200 U/UTP Cat.5e	ETHERLINE® LAN 200 F/UTP Cat.5e	ETHERLINE® LAN 200 SF/UTP Cat.5e	ETHERLINE® LAN 350 U/UTP Cat.6	ETHERLINE® LAN 350 F/UTP Cat.6	ETHERLINE® LAN Flex, Cat.5e, Cat.7	ETHERLINE® LAN 1600 Cat.7$_A$	ETHERLINE® LAN 500 Cat.6$_A$ F/UTP, F/FTP, S/FTP	ETHERLINE® LAN 1000/1200 Cat.7$_A$	ETHERLINE® LAN Outdoor Cat.7	ETHERLINE® Cat.5e, fixed	ETHERLINE® Cat.5e, flex.	ETHERLINE® Cat.5e FD	ETHERLINE® Cat.5e FD BK	ETHERLINE® Cat.5 ARM	ETHERLINE® Cat.5 FRNC HYBRID	ETHERLINE® PN Cat.5	ETHERLINE® PN Flex	ETHERLINE® PN Cat.5 FD	ETHERLINE® Y Cat.5e BK	ETHERLINE® TORSION Cat.5	ETHERLINE® Cat.6$_A$	ETHERLINE® PN Cat.6$_A$ Flex	ETHERLINE® FD Cat.6$_A$	ETHERLINE® TORSION Cat.6$_A$	ETHERLINE® EC Flex Cat.5e	ETHERLINE® EC FD Cat.5e	ETHERLINE® Cat.6 FD	ETHERLINE® Cat.7	ETHERLINE® FIRE PH 120	ETHERLINE® TRAY ER PN	ETHERLINE® MARINE FRNC FC	ETHERLINE® Cat.5e plus	ETHERLINE® PN Cat.6$_A$ FRNC FLEX	ETHERLINE® ROBUST	ETHERLINE® ROBUST FR	ETHERLINE® HEAT 6722	ETHERLINE® TORSION Cat.7
Use																																								
Suitable for network type as per:																																								
IEEE 802.3 (Ethernet)		✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
IEEE 802.4 (MAP)																																								
IEEE 802.5 (IBM)																																								
IEEE 802.3 at POE		✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
ISDN 64 K Bit		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔																											
IBM 3270, 3600, 4300																																								
IBM AS 400, 36, 38																																								
IBM PC Network																																								
10 Base 5 Ethernet																																								
10 Base 2 Cheapernet																																								
10 Base-T 100 ohms		✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
100 Base-T 100 ohms				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
1000 Base-T				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔									✔	✔	✔			✔	✔	✔				✕	✕	✕	✕	✔
10 G Base-T									✔	✔	✔	✔	✔												✔	✔	✔	✔			✔					✕	✕	✕	✕	✔
Token Ring (STP) 150 ohms																																								
Token Bus																																								
Radio/TV										✓̸																														
Video BAS/FBAS																																								
Video RGB monitors																																								
EIA RS 232/V.24		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔																												
EIA RS 422/V.11		✓̸	✓̸	✓̸	✓̸	✓̸	✓̸	✓̸	✓̸	✓̸	✓̸	✓̸																												
EIA RS 485		✓̸	✓̸	✔	✔	✔	✔	✔	✔	✔	✔	✔																												
EIA RS 232/20 mA (TTY)		✓̸	✓̸	✓̸	✓̸	✓̸	✓̸	✓̸	✓̸	✔	✔																													
Standards																																								
PROFIBUS	✔																																							
INTERBUS (Phoenix Contact)																																								
CAN ISO 11898																																								
BITBUS (Intel)																																								
For LAN installations (IBM, Ethernet etc.)			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
PROFINET																		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔		✔	✔	✔	✔	✔	✔	✔	✔
Temperature range																																								
+180 °C	▲																																							
+105 °C																																			□				□	
+90 °C																																								
+80 °C		▲	▲											▲	▲	▲	▲	▲	▲		▲	▲	▲		▲	▲	▲	▲	▲	▲	▲		▲			▲	□	□		▲
+70 °C		●	●										▲		□	□		●	●	▲	▲		●	●		●	●	●	●	●	●	▲		□						●
+60 °C				▲	▲	▲	▲	▲	▲	▲	□	▲	▲							▲	●	●											●			●				
-5 °C		●	●												□	□																									
-20 °C				▲	▲	▲	▲	▲	▲	▲	□	▲	▲			●					●	●	●	●	●	●	●	●	●	●	▲	●			●					
-25 °C																																		□						
-30 °C				▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		▲	▲	▲	●	●																	●			●	●
-40 °C		▲	▲										▲	▲				▲	▲	▲	▲	▲	▲		▲	▲	▲	▲	▲	▲	▲		▲			▲	▲	●	●	▲	▲
-50 °C																																					▲	▲		
Installation																																								
Installation outdoors in open air		✓̸											✔				✔																							
Indirect routing underground		✓̸											✔					✔																						
Indoor use	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔
Direct routing underground													✔					✔																						
Mean characteristic Impedance																																								
150 ohms	✔																																							
120 ohms																																								
100 ohms		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
93 ohms																																								
75 ohms																																								
50 ohms																																								
Output category																																								
CAT.5 ≤ 100 MHz				✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
CAT.6 ≤ 350 MHz							✔	✔	✔	✔	✔	✔													✔	✔	✔			✔	✔				✕	✕	✕	✕		
CAT.6$_A$ ≤ 500 MHz									✔		✔														✔	✔	✔	✔		✔					✕	✕	✕	✕		
CAT.7 ≤ 600 MHz										✔		✔	✔																		✔									✔
CAT.7$_A$ ≤ 1000/1200 MHz										✔		✔																												
CAT.7$_A$ ≤ 1600 MHz										✔																														
Design																																								
PVC sheath		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔					✔	✔		✔		✔	✔	✔	✔			✔		✔							
Halogen-free sheath – 25ZH, FRNC				✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✓̸		✔		✔				✔						✔	✔		✔		✔	✔		✔	
PE sheath													✔					✔																							
PUR sheath, abrasion-resistant, cut-resistant														✔	✔	✔	✔		✔			✔		✔	✔		✔	✔	✔	✔	✔	✔				✔				✔	✔
FEP outer sheath	✔																																							
TPE sheath																																			✔			✔		

✔ Main application/design
✓̸ Possible application
● Flexible use
□ Fixed and flexible use
▲ Fixed installation
✕ 4-pair cables
✕ Cat.6$_A$ cables and higher categories

A7 Selection tables

LAPP

UNITRONIC® BUS and ETHERLINE® – which cable suits which fieldbus system?

Usage criteria	Cable designation																									
Page	379	381	381	381	380	326 327	332	332	332	360	342	348	349	346	338 339	332	332	332	360	344	340	363	363	365	335	375	331	364
	UNITRONIC® BUS IBS A	UNITRONIC® BUS IBS P COMBI A	UNITRONIC® BUS IBS FD P	UNITRONIC® BUS IBS FD P COMBI	UNITRONIC® BUS IBS Yv COMBI	UNITRONIC® BUS LD A + BUS LD FD P A	UNITRONIC® BUS PB A	UNITRONIC® BUS PB PE	UNITRONIC® BUS PB 7-W A	UNITRONIC® BUS PA	UNITRONIC® BUS PB FD P	UNITRONIC® BUS PB TORSION	UNITRONIC® BUS PB FESTOON	UNITRONIC® BUS PB FD P HYBRID	UNITRONIC® BUS PB Yv, PB YY	UNITRONIC® BUS PB PE FC	UNITRONIC® BUS PB H FC	UNITRONIC® BUS PB P FC	UNITRONIC® BUS PA FC	UNITRONIC® BUS PB FD P FC	UNITRONIC® BUS PB BURIAL FC	UNITRONIC® BUS CAN	UNITRONIC® BUS CAN FD P	UNITRONIC® BUS CAN BURIAL	UNITRONIC® BUS PB HEAT 180	UNITRONIC® BUS IS	UNITRONIC® BUS PB TRAY	UNITRONIC® BUS CAN TRAY
Standards																												
UL/CSA-approved	✔	✔	✔	✔	✔	✔	✔		✔			✔	✔	✔			✔	✔	✔	✔		✔	✔				✔	✔
Installation																												
Fixed installation	✔	✔				✔	✔	✔	✔	✔					✔	✔	✔	✔	✔			✔		✔	✔		✔	✔
Flexible									✔													✔		✔		✔		
Highly flexible (drag chains etc.)			✔	✔		✔					✔	✔	✔	✔						✔			✔					
Suitable for outdoor use/direct burial, UV-resistant					✔										✔	✔					✔			✔		✔		
Mean characteristic Impedance																												
100–120 ohms	✔	✔	✔	✔	✔	✔				✔									✔			✔	✔	✔			✔	✔
150 ohms							✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔		✔	✔				✔			
Dimensions																												
In mm², or diameter in mm, or AWG size																												
3 x 2 x 0.22	✔																											
3 x 2 x 0.25			✔																									
3 x 2 x 0.25 + 3 x 1.0		✔		✔																								
3 x 2 x 0.22 + 3 x 1.0					✔																							
1 x 2 x 0.22/2 x 2 x 0.22/3 x 2 x 0.22						✔																						
1 x 2 x 0.64							✔	✔	✔		✔		✔		✔	✔	✔	✔		✔	✔				✔		✔	
1 x 2 x 1.0										✔																		
1 x 2 x 0.8												✔							✔									
1 x 2 x 0.64 + 4 x 1.5														✔														
1 x 2 x 0.25/2 x 2 x 0.25																						✔	✔					
1 x 2 x 0.34/2 x 2 x 0.34																						✔	✔					✔
1 x 2 x 0.5/2 x 2 x 0.5																						✔	✔	✔				
1 x 2 x 0.75/2 x 2 x 0.75																						✔						
2 x 6 + 2 x 2.5 + 1 x 4 x 0.5																										✔		
Bus systems																												
INTERBUS® DIN 19258 EN 50251 sensor/actuator bus	✔																											
INTERBUS® (Phoenix Contact)	✔	✔	✔	✔	✔																							
SUCOnet p® (Klöckner-Möller), Modulink® P (Weidmüller) MODBUS VariNet®-P (Pepperl + Fuchs)						✔																						
PROFIBUS-DP, -FMS, FIP							✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔		✔	✔				✔		✔	
PROFIBUS-PA, Foundation™ Fieldbus										✔									✔									
CAN ISO 11898, CAN open																						✔	✔	✔				✔
AS-INTERFACE																												
EIB																												
CC-Link®																												
Device Net™ (Allen-Bradley/Rockwell Automation)																												
Industrial Ethernet/Fast Ethernet																												
ISOBUS (ISO 11783-2)																										✔		

Legend

7-W	= 7-wire braided conductor	LD	= Long distance
AS-I	= AS-INTERFACE	P	= Polyurethane outer sheath
COMBI IBS	= Installation bus cable for INTERBUS	PB	= **P**ROFI **B**US
DN	= **D**evice **N**et	PE	= Polyethylene outer sheath
EIB	= European Installation Bus	PROFIBUS-DP	= **D**ecentralised **P**eriphery
FD	= Cable suitable for drag chains	PROFIBUS-FMS	= **F**ieldbus **M**essage **S**pecification
FRNC	= **F**lame **R**etardant **N**on **C**orrosive	PROFIBUS-PA	= **P**rocess **A**utomation
G	= Rubber outer sheath (EPDM)	TPE	= Thermoplastic elastomer
H	= Halogen-free material	Yv	= Cable for routing outdoors/underground with reinforced PVC outer sheath
IBS	= Remote bus cable for INTERBUS		
L2	= Abbr. for SINEC L2-DP	YY	= Twin PVC outer sheath

Trademarks

CC-Link®	= is a registered trademark of CLPA, Japan
DeviceNet™	= is a registered trademark of Open Device Vendors Association (ODVA)
Foundation™	= is a registered trademark of Foundation Fieldbus
INTERBUS®	= is a registered trademark of Phoenix Contact GmbH & Co.
Modulink® P	= is a registered trademark of Weidmüller GmbH & Co.
SIMATIC®	= is a registered trademark of SIEMENS AG
SINEC®	= is a registered trademark of SIEMENS AG
SUCOnet P®	= is a registered trademark of Klöckner + Moeller GmbH
VariNet®-P	= is a registered trademark of Pepperl + Fuchs GmbH

UNITRONIC® BUS and ETHERLINE® – which cable suits which fieldbus system?

Usage criteria	Cable designation																																	
Page	328	329	329	329	328	361	361	361	361	362	362	362	362	382	382	376	376	377	377	417	417	418	429	420	435	430	438	434		436	425	445	444	419 420	417	429	449
	UNITRONIC® BUS ASI (G)	UNITRONIC® BUS ASI LD FD P	UNITRONIC® BUS ASI FD (TPE) A	UNITRONIC® BUS ASI FD P FRNC	UNITRONIC® BUS ASI (PVC) A	UNITRONIC® BUS DN THICK FRNC	UNITRONIC® BUS DN THIN FRNC	UNITRONIC® BUS DN THICK Y	UNITRONIC® BUS DN THIN Y	UNITRONIC® BUS DN THICK FD P	UNITRONIC® BUS DN THIN FD P	UNITRONIC® BUS DN THICK FD Y	UNITRONIC® BUS DN THIN FD Y	UNITRONIC® BUS EIB, BUS EIB H	UNITRONIC® BUS EIB COMBI	UNITRONIC® BUS FF 3, FF 3 ARM	UNITRONIC® BUS FF 2	UNITRONIC® BUS CC	UNITRONIC® BUS CC FD P FRNC	ETHERLINE® H, P	ETHERLINE® H-H	ETHERLINE® H FLEX, P-FLEX	ETHERLINE® PN Cat.5	ETHERLINE® FD Cat.5	ETHERLINE® PN Cat.5 FD	ETHERLINE® PN FLEX Cat.5	ETHERLINE® Cat.5 ARM	ETHERLINE® Cat.5 FRNC HYBRID	ETHERLINE® Cat.6$_A$	ETHERLINE® Cat.7	ETHERLINE® TORSION Cat.5	ETHERLINE® FD P Cat.6	ETHERLINE® TORSION Cat.6$_A$	ETHERLINE® FD Cat.6$_A$	ETHERLINE® PN Cat.6$_A$ FLEX	ETHERLINE® EC FLEX/FD Cat.5e	ETHERLINE® Y FLEX Cat.5e	ETHERLINE® TRAY ER PN Y FC	ETHERLINE® TORSION Cat.7
Standards																																					
UL/CSA-approved		✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔						✔	✔		✔			✔	✔	✔	✔	✔	✔	✔	✔
Installation																																					
Fixed installation	✔	✔	✔	✔	✔	✔	✔	✔	✔					✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Flexible	✔	✔	✔		✔	✔	✔	✔	✔									✔				✔		✔	✔	✔		✔		✔	✔	✔	✔	✔	✔	✔		✔
Highly flexible (drag chains, torsional stress etc.)		✔	✔							✔	✔	✔	✔						✔					✔	✔					✔	✔	✔	✔		✔			✔
Suitable for outdoor use/direct burial, UV-resistant																																					
Mean characteristic Impedance																																					
100–120 ohms						✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Dimensions																																					
In mm², or diameter in mm, or AWG size																																					
1 x 2 x 0.5, 2 x 2 x 0.5																																					
2 x 1.5	✔		✔	✔	✔																																
2 x 2.5		✔																																			
AWG 18 + 15						✔		✔		✔		✔																									
AWG 24 + 22							✔		✔		✔		✔																								
2 x 2 x 0.8														✔																							
2 x 2 x 0.8 + 3 x 1.5															✔																						
2 x 2 x AWG 24/1 and 4 x 2 x AWG 24/1																				✔																	
4 x 2 x AWG 24/1																					✔																
4 x 2 x AWG 24/7																																✔	✔				✔
2 x 2 x AWG 26/7 and 4 x 2 x AWG 26/7																						✔															
4 x 2 x AWG 26/7																																		✔	✔		
2 x 2 x AWG 22/1																							✔				✔									✔	
2 x 2 x AWG 26/19, 4 x 2 x AWG 26/19																								✔													
2 x 2 x AWG 22/7																									✔	✔											
2 x 2 x AWG 22/19																														✔							
1 x 2 x 1.1 + 1 x 1.1																✔																					
1 x 2 x 1.1																	✔																				
3 x 1 x AWG 20																		✔	✔																		
4 x 2 x AWG 22/1																													✔	✔							
4 x 2 x AWG 22/7																																					
4 x 2 x AWG 23/7																																	✔				
2 x 2 x AWG 22/7 + 4 x 1.5																												✔									
4 x 2 x AWG 26/19																															✔						
Bus systems																																					
INTERBUS® DIN 19258 EN 50251 sensor/actuator bus																																					
INTERBUS® (Phoenix Contact)																																					
SUCOnet p® (Klöckner-Möller), Modulink® P (Weidmüller) MODBUS VariNet®-P (Pepperl + Fuchs)																																					
PROFIBUS DIN 19245 EN 50170																																					
PROFIBUS-DP, -FMS, FIP																																					
PROFIBUS-PA, Foundation™ Fieldbus																✔	✔																				
CAN ISO 11898, CAN open						✔	✔	✔	✔	✔	✔	✔	✔																								
AS-INTERFACE	✔	✔	✔	✔	✔																																
EIB														✔	✔																						
CC-Link®																		✔	✔																		
Device Net™ (Allen-Bradley/Rockwell Automation)						✔	✔	✔	✔	✔	✔	✔	✔																								
Industrial Ethernet/Fast Ethernet																				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔
PROFINET																							✔		✔	✔	✔	✔		✔		✔	✔	✔			✔	✔
EtherCAT																				✔	✔	✔	✔						✔	✔	✔	✔	✔	✔	✔		✔	✔

Legend

7-W	= 7-wire braided conductor	LD	= Long distance
AS-I	= AS-INTERFACE	P	= Polyurethane outer sheath
COMBI IBS	= Installation bus cable for INTERBUS	PB	= **P**ROFI **B**US
DN	= **D**evice **N**et	PE	= Polyethylene outer sheath
EIB	= European Installation Bus	PROFIBUS-DP	= **D**ecentralised **P**eriphery
FD	= Cable suitable for drag chains	PROFIBUS-FMS	= **F**ieldbus **M**essage **S**pecification
FRNC	= **F**lame **R**etardant **N**on **C**orrosive	PROFIBUS-PA	= **P**rocess **A**utomation
G	= Rubber outer sheath (EPDM)	TPE	= Thermoplastic elastomer
H	= Halogen-free material	Yv	= Cable for routing outdoors/underground with reinforced PVC outer sheath
IBS	= Remote bus cable for INTERBUS		
L2	= Abbr. for SINEC L2-DP	YY	= Twin PVC outer sheath

Trademarks

CC-Link®	= is a registered trademark of CLPA, Japan
DeviceNet™	= is a registered trademark of Open Device Vendors Association (ODVA)
Foundation™	= is a registered trademark of Foundation Fieldbus
INTERBUS®	= is a registered trademark of Phoenix Contact GmbH & Co.
Modulink® P	= is a registered trademark of Weidmüller GmbH & Co.
SIMATIC®	= is a registered trademark of SIEMENS AG
SINEC®	= is a registered trademark of SIEMENS AG
SUCOnet P®	= is a registered trademark of Klöckner + Moeller GmbH
VariNet®-P	= is a registered trademark of Pepperl + Fuchs GmbH

A7 Selection tables

LAPP

UNITRONIC® BUS and ETHERLINE® – technical data

Usage criteria	Cable designation														
Page	379	381	380	326	327	332	342 344	338	360	363	363	376	376	364	331
	UNITRONIC® BUS IBS fixed installation	UNITRONIC® BUS IBS FD P highly flexible application	UNITRONIC® BUS IBS Yv suitable for outdoor use/direct burial	UNITRONIC® BUS LD fixed installation	UNITRONIC® BUS LD FD P highly flexible application	UNITRONIC® BUS PB fixed installation	UNITRONIC® BUS PB FD P + PB FD P FC highly flexible application	UNITRONIC® BUS PB Yv suitable for outdoor use/direct burial	UNITRONIC® BUS PA (BU + BK) fixed installation	UNITRONIC® BUS CAN fixed installation (0.22 mm²)	UNITRONIC® BUS FD P CAN FD P highly flexible application (0.25 mm²)	UNITRONIC® BUS FF 3 ARM fixed installation	UNITRONIC® BUS FF 2 fixed installation	UNITRONIC® BUS CAN TRAY	UNITRONIC® BUS PB TRAY
Parameter															
Characteristic impedance Ω	100	100	100	100–120	100–120	150 +/-15	150 +/-15	150 +/-15	100 +/-20	120	120	100	100	120	150 +/-15
Mutual capacitance (800 Hz) max. nF/km	60	60	60	60	60	30	30	30	52	40	40	56	65	40	30
Peak operating voltage V (not for power applications)	250	250	250	250	250	250	250	250	250	250	250	300	300	250	250
Test voltage, core/core, U_{eff} V	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000	2000
Conductor resistance (loop) Data network cable pair max. Ω/km	186	159.8	186	186	159.8	110	145, 133	115	44	186	159.8	≤ 24	≤ 24	110.8	110
Minimum bending radius, fixed installation	8 x D	–	8 x D	8 x D	–	75 mm	–	75 mm	65 mm	8 x D	–	15 x D	15 x D	8 x D	8 x D
Minimum bending radius, flexing	–	15 x D	–	–	15 x D	–	**	–	–	–	15 x D	–	–	–	–
Temperature range fixed installation from °C	- 30	- 40	- 40	- 40	- 40	- 40	- 40	- 40	- 30	- 30	- 40	- 25	- 25	- 40	- 40
Temperature range fixed installation to °C	+ 80	+ 80	+ 70	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 105	+ 80	+ 80
Temperature range flexing from °C	–	- 30	–	- 5	- 30	–	- 30	–	–	- 5	- 30	–	–	- 10	- 10
Temperature range flexing to °C		+ 70		+ 70	+ 70		+ 70			+ 70	+ 70			+ 70	+ 70

Usage criteria	Cable designation													
Page	377	377	417	417	417	418	418	418	419	419	422	430	430	436
	UNITRONIC® BUS CC	UNITRONIC® BUS CC FD P FRNC	ETHERLINE® H Cat.5e	ETHERLINE® P Cat.5e	ETHERLINE® H-H Cat.5e	ETHERLINE® H FLEX Cat.5e	ETHERLINE® P FLEX Cat.5e	ETHERLINE® Y FLEX Cat.5e	ETHERLINE® Y EC FLEX Cat.5e	ETHERLINE® P EC FLEX Cat.5e	ETHERLINE® P EC FD Cat.5e	ETHERLINE® PN Cat.5 Y FLEX FC	ETHERLINE® PN Cat.5 FRNC FLEX FC	ETHERLINE® TORSION Cat.5
Parameter														
Characteristic impedance Ω	110	110	100	100	100	100	100	100	100	100	100	100	100	100
Mutual capacitance (800 Hz) max. nF/km	60	60	48	46	46	48	48	–	–	–	–	–	–	–
Peak operating voltage V (not for power applications)	300	300	125	125	125	125	125	125	100	100	100	125	125	100
Test voltage, core/core, U_{eff} V	2000	2000	1000	1000	1000	1000	1000	1000	1000	1000	1000	2000	2000	700
Conductor resistance (loop) Data network cable pair max. Ω/km	37.8	37.8	192	186.6	186.6	284	284	–	–	–	–	–	–	–
Minimum bending radius, fixed installation	15 x D	4 x D	7.5-8 x D	7.5-8 x D	8 x D	8 x D	8 x D	8 x D	4 x D	4 x D	4 x D	10 x D	4 x D	5 x D
Minimum bending radius, flexing	–	8 x D	–	–	–	15 x D	15 x D	15 x D	8 x D	8 x D	8 x D	15 x D	8 x D	5 x D
Temperature range fixed installation from °C	- 40	- 40	- 30	- 30	- 30	- 30	- 30	- 40	- 30	- 40	- 40	- 40	- 25	- 40
Temperature range fixed installation to °C	+ 70	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80	+ 80
Temperature range flexing from °C	–	- 40	- 5	- 5	- 5	- 5	- 5	- 10	- 5	- 30	- 30	- 20	- 25	- 40
Temperature range flexing to °C		+ 80	+ 60	+ 60	+ 60	+ 60	+ 60	+ 70	+ 50	+ 50	+ 50	+ 60	+ 80	+ 80

**without FC = 65 mm/FC = 120 mm

Usage criteria	Cable designation													
Page	429	429	429	429	420	435						444	444	449
	ETHERLINE® PN Cat.5e Y	ETHERLINE® TRAY ER PN Y FC	ETHERLINE® Y FC Cat.5	ETHERLINE® Cat.5e YY	ETHERLINE® FD P Cat.5e	ETHERLINE® FD P FC Cat.5 highly flexible application	ETHERLINE® PN Cat.6$_A$ FRNC FC + ETHERLINE® PN Cat.7 FRNC	ETHERLINE® PN Cat.6$_A$ P FC + ETHERLINE® PN Cat.7 P	ETHERLINE® PN Cat.6$_A$ Y FC + ETHERLINE® PN + Cat.7 Y	ETHERLINE® PN Cat.6$_A$ Y FLEX FC	ETHERLINE® PN Cat.6$_A$ FRNC FLEX FC	ETHERLINE® FD Cat.6$_A$ + TORSION Y Cat.6$_A$	ETHERLINE® FD P Cat.6$_A$ + TORSION P Cat.6$_A$	ETHERLINE® TORSION Cat.7
Parameter														
Characteristic impedance Ω	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Mutual capacitance (800 Hz) max. nF/km	48	48	48	48	50	52	–	–	–	–	–	–	–	50
Peak operating voltage V (not for power applications)	125	125	125	125	125	125	125	125	125	125	125	125	125	125
Test voltage, core/core, U_{eff} V	1000	2000	1000	1000	1000	700	1000	1000	1000	1000	1000	1000	1000	750
Conductor resistance (loop) Data network cable pair max. Ω/km	118	115	115	118	290	120	118	118	118	143	143	175	175	175
Minimum bending radius, fixed installation	7.5 x D	10 x D	10 x D	4 x D	8 x D	5 x D	4 x D	4 x D	4 x D	8 x D	8 x D	8 x D	8 x D	8 x D
Minimum bending radius, flexing	15 x D	15 x D	15 x D	8 x D	15 x D	8 x D	8 x D	8 x D	8 x D	15 x D	15 x D	15 x D	15 x D	15 x D
Temperature range fixed installation from °C	- 40	- 40	- 40	- 25	- 30	- 30	- 25	- 40	- 30	- 10	- 25	- 40	- 40	- 40
Temperature range fixed installation to °C	+ 70	+ 80	+ 80	+ 80	+ 80	+ 70	+ 80	+ 80	+ 80	+ 70	+ 80	+ 80	+ 80	+ 80
Temperature range flexing from °C	- 5	- 20	- 20	- 5	- 5	- 20	–	–	–	- 10	- 25	- 10	- 30	- 30
Temperature range flexing to °C	+ 50	+ 60	+ 60	+ 70	+ 70	+ 60				+ 70	+ 80	+ 70	+ 70	+ 70

Usage criteria	Cable designation												
Page	328	328	329	329	329	328	361	361	361	361	378	378	378
	UNITRONIC® BUS ASI (G) yellow + black fixed installation/flexible	UNITRONIC® BUS ASI (TPE) yellow + black fixed installation/flexible	UNITRONIC® BUS ASI LD FD P yellow + black highly flexible application	UNITRONIC® BUS ASI FD (TPE) A yellow + black highly flexible application	UNITRONIC® BUS ASI FD P FRNC yellow + black fixed installation	UNITRONIC® BUS ASI (PVC) A yellow + black fixed installation	UNITRONIC® DeviceNet THICK + THIN (halogen-free) fixed installation	UNITRONIC® DeviceNet THICK + THIN (PVC) fixed installation	UNITRONIC® DeviceNet THICK + THIN (PUR) highly flexible	UNITRONIC® DeviceNet THICK + THIN (PVC) highly flexible	UNITRONIC® BUS SAFTEY fixed installation/highly flexible	UNITRONIC® BUS EIB fixed installation	UNITRONIC® BUS EIB COMBI fixed installation
Parameter													
Characteristic impedance Ω	–	–	–	–	–	–	120	120	120	120	100-200	–	–
Mutual capacitance (800 Hz) max. nF/km	–	–	–	–	–	–	39.8	39.8	39.8	39.8	45	max. 100	max. 100
Peak operating voltage V (not for power applications)	300	300	300	300	300	300	300	300	300	300	250	250	250
Test voltage, core/core, U_{eff} V	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	3000	4000	4000
Conductor resistance (loop) Data network cable pair max. Ω/km	27.4	27.4	16.5	27.4	27.4	27.4	THICK 45 THIN 180	THICK 45 THIN 180	THICK 45 THIN 180	THICK 45 THIN 180	52	max. 130	max. 130
Minimum bending radius, fixed installation	3 x D	3 x D	3 x D	3 x D	3 x D	3 x D	10 x D	10 x D	–	–	8 x D	10 x D	10 x D
Minimum bending radius, flexing	–	–	6 x D	6 x D	–	–	–	–	10 x D	10 x D	–	–	–
Temperature range fixed installation from °C	- 40	- 40	- 40	- 40	- 40	- 30	- 25	- 20	–	–	- 40	- 30	- 30
Temperature range fixed installation to °C	+ 85	+ 85	+ 80	+ 105	+ 80	+ 90	+ 80	+ 80			+ 80	+ 70	+ 70
Temperature range flexing from °C	–	–	- 30	- 30	- 30	–	–	–	- 40	- 10	- 30	–	–
Temperature range flexing to °C			+ 70	+ 105	+ 70				+ 80	+ 80	+ 80		

A8 Selection tables

LAPP

Cable entries at a glance

Usage criteria	Cable entries																											
Page	773	763	689	698	690 774	687	691	703	722	724	714	712	694 695	775	764	709	697	710	702	704	767	777	701	766	721	692	771	763	684	693
	SKINTOP® BS	SKINTOP® BS NPT	SKINTOP® BS-M/ISO	SKINTOP® BS(R)-M METAL	SKINTOP® BT/BT-M	SKINTOP® CLICK/CLICK-R	SKINTOP® CLICK BS	SKINTOP® COLD/COLD-R	SKINTOP® CUBE	SKINTOP® CUBE MULTI	SKINTOP® HYGIENIC/HYGIENIC-R	SKINTOP® INOX/INOX-R	SKINTOP® K(R)-M ATEX PLUS/PLUS BLUE	SKINTOP® MS(R)	SKINTOP® MS(R) NPT	SKINTOP® MS(R)-M ATEX/XL	SKINTOP® MS(R)-M/XL	SKINTOP® MS-M BRUSH ATEX	SKINTOP® MS-M BRUSH/BRUSH plus	SKINTOP® MS-IS-M	SKINTOP® MS-NPT BRUSH	SKINTOP® MS-SC	SKINTOP® MS-SC-M	SKINTOP® MS-SC NPT	SKINTOP® MULTI	SKINTOP® SOLAR/SOLAR plus	SKINTOP® ST(R)	SKINTOP® ST(R) NPT	SKINTOP® ST(R)-M/ISO	SKINTOP® ST-HF-M
Properties																														
IP protection rating	68	68	68	68	68	68	68	68	64	66	68/69	68	68	68	68	68	68/69	68	68/69	68	68	68	68	68	68	68	68	68	68/69	68
NEMA protection rating*			✔			✔	✔	✔	✔	✔	✔	✔			✔		✔						✔	✔					✔	
Metric connection thread			✔	✔	✔			✔			✔	✔	✔			✔	✔	✔	✔	✔			✔			✔			✔	✔
PG connection thread	✔				✔									✔								✔					✔			
NPT connection thread		✔													✔						✔			✔	✔			✔		
For round cables	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
For flat cables																														
Metal				✔							✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					
Plastic	✔	✔	✔		✔	✔	✔	✔	✔	✔			✔				✔									✔	✔	✔	✔	✔
Angled																									✔					
Strain relief	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Vibration protection	✔	✔	✔		✔	✔	✔		✔	✔	✔		✔													✔	✔	✔	✔	✔
Anti-kink protection	✔	✔	✔	✔	✔		✔																							
Screening connection																		✔	✔		✔	✔	✔	✔						
Suitable for Ex safety area													✔			✔		✔												
Halogen-free																														✔
Approval																														
ATEX													✔			✔		✔												
CSA	✔														✔											✔	✔	✔		
cULus			✔			✔	✔									✔	✔		✔		✔		✔						✔	
cURus			✔			✔	✔		✔	✔						✔	✔						✔		✔				✔	
DNV			✔			✔	✔						✔			✔	✔	✔	✔				✔						✔	
ECOLAB											✔																			
EHEDG											✔																			
TÜV																											✔		✔	
UL	✔														✔											✔	✔	✔		
UR	✔														✔											✔	✔	✔		
VDE			✔			✔	✔	✔									✔		✔										✔	✔

*covered sizes and cord diameters on request

Usage criteria	Cable entries																													
Page	739 796	785	740	738	797	740	742 798	786	794	792	734		737	736	737	787	731	788	789	730	790	793	735	732	791	733	783	729 784	782	726
	SKINDICHT® CN/CN-M	SKINDICHT® FL	SKINDICHT® KW-M	SKINDICHT® MINI	SKINDICHT® RWV	SKINDICHT® RWV-M	SKINDICHT® SE/SE-M	SKINDICHT® SH	SKINDICHT® SHV	SKINDICHT® SHVE	SKINDICHT® SHVE-M	SKINDICHT® SHVE-M ATEX	SKINDICHT® SHV-FKM	SKINDICHT® SHV-M	SKINDICHT® SHV-M-FKM	SKINDICHT® SHZ	SKINDICHT® SHZ-M	SKINDICHT® SK	SKINDICHT® SKZ	SKINDICHT® SKZ-M	SKINDICHT® SR	SKINDICHT® SRE	SKINDICHT® SRE-M	SKINDICHT® SR-M	SKINDICHT® SR-SV	SKINDICHT® SR-SV-M	SKINDICHT® SVFK	SKINDICHT® SVF/SVF-M	SKINDICHT® SVRE	SKINDICHT® SVRE-M
Properties																														
IP protection rating	68	65	55	68	55	55	55	20	68	68	68	68	68	68	68	55	55	20	55	55	65	65	65	65	65	65	54	54	54	54
Metric connection thread	✔		✔	✔		✔	✔				✔	✔		✔	✔		✔			✔			✔	✔		✔		✔		✔
PG connection thread	✔				✔		✔	✔	✔	✔			✔			✔		✔	✔		✔	✔			✔		✔	✔	✔	
NPT connection thread																														
For round cables	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔
For flat cables		✔																									✔	✔		
Metal	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔
Plastic			✔																								✔			
Angled			✔		✔	✔	✔																							
Strain relief	✔			✔				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Vibration protection																														
Anti-kink protection																					✔	✔	✔	✔	✔	✔				
Screening connection										✔	✔	✔										✔	✔							
Suitable for Ex safety area												✔																		
Halogen-free																														

Usage criteria	Cable entries																													
Page	782	726	782	726	727	727	750 751																							
	SKINDICHT® SVRN	SKINDICHT® SVRN-M	SKINDICHT® SVRX-W	SKINDICHT® SVRX-Z	SKINDICHT® VENT																									
Properties																														
IP protection rating	54	54	54	54	68																									
Metric connection thread		✔		✔	✔	✔	✔																							
PG connection thread	✔		✔																											
NPT connection thread																														
For round cables		✔	✔	✔	✔																									
For flat cables	✔																													
Metal		✔	✔	✔	✔	✔	✔																							
Plastic																														
Angled																														
Strain relief	✔	✔	✔	✔	✔																									
Vibration protection																														
Anti-kink protection																														
Screening connection					✔																									
Suitable for Ex safety area																														
Halogen-free																														

Increase efficiency through standardisation and decentralisation

The Verein Deutscher Werkzeugmaschinenfabriken e.V. (VDW) [German Machine Tool Manufacturing Federation] developed **DESINA®** (**DE**centralised and **S**tandardised **IN**st**A**llation technology), a comprehensive overall concept for the standardisation of electrical installation of equipment and machinery. State-of-the-art technologies are employed with the aim of simplifying installation work, speeding up assembly and repair work and improving quality. Decentralisation means that control components and their related functions are moved from the central control cabinet to field level.

LAPP and DESINA®-compliant products

The VDW used existing fieldbus systems as a basis for defining new standards for connectors and for increasing efficiency when cabling, working in partnership with the mechanical engineering, automotive and supplier sectors. As the leading supplier to machine tool manufacturers, LAPP is fully committed to the **DESINA®** concept. We can quickly and easily develop solutions for you that comply with **DESINA®** requirements, from the individual components right through to assembled cables that are ready for connection/installation.

Usage criteria	Cable designation																																		
Page	43	99	100	101	108	109	111	73	49	76	77	78	51	53	60	61	107	131	140	120	122	123	126	126	127 128	139	143	310-312	384	57 58	160	115	116		113	347
	ÖLFLEX® CLASSIC 0,6/1 kV unscreened	ÖLFLEX® SERVO 719	ÖLFLEX® SERVO 719 CY	ÖLFLEX® SERVO 728 CY	ÖLFLEX® SERVO FD 796 P	ÖLFLEX® SERVO FD 796 CP	ÖLFLEX® SERVO FD 798 CP	ÖLFLEX® CLASSIC 400 P	ÖLFLEX® 140	ÖLFLEX® 408 P	ÖLFLEX® 409 P	ÖLFLEX® 440 P	ÖLFLEX® 150	ÖLFLEX® 191	ÖLFLEX® 100 H	ÖLFLEX® 110 H	ÖLFLEX® SERVO FD 781 CY	ÖLFLEX® CLASSIC FD 810 P	ÖLFLEX® FD 855 P	ÖLFLEX® CHAIN 809 SC	ÖLFLEX® FD 90	ÖLFLEX® FD 90 CY	ÖLFLEX® CHAIN PN black	ÖLFLEX® CHAIN PN silver gray	ÖLFLEX® FD 891/891 CY	ÖLFLEX® FD 891 P	ÖLFLEX® CHAIN 896 P	UNITRONIC® FD P plus, FD CP (TP) plus	UNITRONIC® SENSOR **DESINA®**	ÖLFLEX® TRAY II, TRAY II CY	ÖLFLEX® TORSION (D) FRNC	SERVO cable as per INDRAMAT® standard	SERVO cable as per LENZE® standard	SERVO cable as per FANUC® standard	SERVO cable as per SIEMENS® standard 6FX 8 PLUS	UNITRONIC® BUS PB FD Y HYBRID
Properties																																			
Servo cable Screened Orange sheath RAL 2003			✔			✔											✔					✔										✔	✔		✔	
Cable for measurement systems Screened Green sheath RAL 6018				✔			✔																										✔	✔	✔	
Power cable Unscreened Black sheath RAL 9005	✔	✔			✔			✓			✓									✔	✔		✔		✔	✔	✔			✔	✔					
24-volt control cable Unscreened Grey sheath RAL 7040 (similar to 7001)								✓	✔	✓		✔	✔	✔	✔	✔		✔	✔					✔				✔								
Fieldbus hybrid cable Cu and fibre-optic cable Violet sheath RAL 4001																																			
PROFIBUS DP Hybrid cable																																			✔
Sensor/actuator cable Unscreened Yellow sheath RAL 1021																													✔						
DESINA® marking on the sheath		✔	✔	✔	✔	✔	✔	✔														✔					✔		✔							
Suitable for power chains					✔	✔	✔										✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔	✔	✔	✔	
Sheath compound with enhanced oil resistance		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	
UL and/or CSA approval		✔	✔	✔	✔	✔	✔				✔		✔	✔		✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	

✔ Main application/design
✓ Possible application

A10 Selection tables

LAPP

Technical data for EPIC® rectangular connectors

Usage criteria	EPIC® rectangular connectors/inserts																			
Page	526	526	527	527			528	528	529	529	530	530	531	532	532	533	534	534	535	535	536
	EPIC® H-A 3	EPIC® H-A 4	EPIC® H-A 10	EPIC® H-A 16	EPIC® H-A 32	EPIC® H-A 48	EPIC® STA 6	EPIC® STA 6	EPIC® STA 14	EPIC® STA 14	EPIC® STA 20	EPIC® STA 20	EPIC® H-Q 5	EPIC® H-D 7	EPIC® H-D 7	EPIC® H-D 8	EPIC® H-D 15	EPIC® H-D 15	EPIC® H-D 25	EPIC® H-D 25	EPIC® H-D 40
Parameter																					
Number of contacts	3 + PE	4 + PE	10 + PE	16 + PE	32 + PE	48 + PE	6	6	14	14	20	20	5 + PE	7 + PE	7 + PE	8	15 + PE	15 + PE	25 + PE	25 + PE	40 + PE
Connection system: screw	✔	✔	✔	✔	✔	✔	✔		✔		✔										
solder								✔		✔		✔									
crimp													✔	✔	✔	✔	✔	✔	✔	✔	✔
cage clamp																					
Suitable contacts: H-BE 2.5, machined													✔								
H-D 1.6, machined														✔		✔	✔		✔		✔
H-D 1.6, stamped															✔			✔		✔	
Cross-section [mm²]	0.5 – 2.5	0.5 – 2.5	0.5 – 2.5	0.5 – 2.5	0.5 – 2.5	0.5 – 2.5	0.5 – 1.5	max. 1.5	0.5 – 1.5	max. 1.5	0.5 – 1.5	max. 1.5	0.5 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5
IEC: rated voltage [V] 400	✔	✔																			
250			✔	✔	✔	✔											✔	✔	✔	✔	✔
24 AC/60 DC							✔	✔	✔	✔	✔	✔									
230/400													✔								
24 AC/60 DC/250														✔	✔	✔					
500																					
IEC: rated current [A]	23	23	16	16	16	16	10	10	10	10	10	10	16	10	10	10	10	10	10	10	10
UL: rated voltage [V]	600	600	600	600	600	600	48	48	48	48	48	48	600	250	250	250	250	250	250	250	250
UL: rated current [A]	10	10	14	14	14	14	10	10	10	10	10	10	16	10	10	10	10	10	10	10	10
CSA: rated voltage [V]	400	400	600	600	600	600	48	48	48	48	48	48	600	-	-	-	-	-	-	-	-
CSA: rated current [A]	10	10	16	16	16	16	10	10	10	10	10	10	16	-	-	-	-	-	-	-	-
Suitable housing	H-A 3	H-A 3	H-A 10	H-A 16	H-A 32	H-A 48	H-A 3	H-A 3	H-A 10	H-A 10	H-A 16	H-A 16	H-A 3	H-A 3	H-A 3	H-A 3	H-A 10	H-A 10	H-A 16	H-A 16	H-B 16

Usage criteria	EPIC® rectangular connectors/inserts																			
Page	536	537	537	538	538	539	539			540	540	540	542	542	542	544	544	544	546	546	546
	EPIC® H-D 40	EPIC® H-D 64	EPIC® H-D 64	EPIC® H-DD 24	EPIC® H-DD 42	EPIC® H-DD 72	EPIC® H-DD 108	EPIC® H-DD 144	EPIC® H-DD 216	EPIC® H-BE 6	EPIC® H-BE 6	EPIC® H-BE 6	EPIC® H-BE 10	EPIC® H-BE 10	EPIC® H-BE 10	EPIC® H-BE 16	EPIC® H-BE 16	EPIC® H-BE 16	EPIC® H-BE 24	EPIC® H-BE 24	EPIC® H-BE 24
Parameter																					
Number of contacts	40 + PE	64 + PE	64 + PE	24 + PE	42 + PE	72 + PE	108 + PE	144 + PE	216 + PE	6 + PE	6 + PE	6 + PE	10 + PE	10 + PE	10 + PE	16 + PE	16 + PE	16 + PE	24 + PE	24 + PE	24 + PE
Connection system: screw										✔			✔			✔			✔		
solder																					
crimp	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔			✔			✔			✔	
cage clamp												✔			✔			✔			✔
Suitable contacts: H-BE 2.5, machined											✔			✔			✔			✔	
H-D 1.6, machined		✔		✔	✔	✔	✔	✔	✔												
H-D 1.6, stamped	✔		✔																		
Cross-section [mm²]	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.14 – 2.5	0.5 – 2.5	0.5 – 4.0	0.5 – 2.5	0.5 – 2.5	0.5 – 4.0	0.5 – 2.5	0.5 – 2.5	0.5 – 4.0	0.5 – 2.5	0.5 – 2.5	0.5 – 4.0	0.5 – 2.5
IEC: rated voltage [V] 400																					
250	✔	✔	✔	✔	✔	✔	✔	✔	✔												
24 AC/60 DC																					
230/400																					
24 AC/60 DC/250																					
500										✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
IEC: rated current [A]	10	10	10	10	10	10	10	10	10	16	16	16	16	16	16	16	16	16	16	16	16
UL: rated voltage [V]	250	250	250	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
UL: rated current [A]	10	10	10	8.5	8.5	8.5	8.5	8.5	8.5	16	16	16	16	16	16	16	16	16	16	16	16
CSA: rated voltage [V]	-	-	-	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
CSA: rated current [A]	-	-	-	10	10	10	10	10	10	16	16	16	16	16	16	16	16	16	16	16	16
Suitable housing	H-B 16	H-B 24	H-B 24	H-B 6	H-B 10	H-B 16	H-B 24	H-B 32	H-B 48	H-B 6	H-B 6	H-B 6	H-B 10	H-B 10	H-B 10	H-B 16	H-B 16	H-B 16	H-B 24	H-B 24	H-B 24

Usage criteria		EPIC® rectangular connectors/inserts																				
Page								548	548	549	549			550	550	551	551	551			554	554
		EPIC® H-BE 32	EPIC® H-BE 32	EPIC® H-BE 32	EPIC® H-BE 48	EPIC® H-BE 48	EPIC® H-BE 48	EPIC® H-EE 10	EPIC® H-EE 18	EPIC® H-EE 32	EPIC® H-EE 46	EPIC® H-EE 64	EPIC® H-EE 92	EPIC® H-BS 6	EPIC® H-BS 12	EPIC® H-BVE 3	EPIC® H-BVE 6	EPIC® H-BVE 10	EPIC® Terminal adapter TB-H-BE 6	EPIC® Terminal adapter TB-H-BE 10	EPIC® Terminal adapter TB-H-BE 16	EPIC® Terminal adapter TB-H-BE 24
Parameter																						
Number of contacts		32 + PE	32 + PE	32 + PE	48 + PE	48 + PE	48 + PE	10 + PE	18 + PE	32 + PE	46 + PE	64 + PE	92 + PE	6 + PE	12 + PE	3+2 + PE	6+2 + PE	10+2 + PE	6 + PE	10 + PE	16 + PE	24 + PE
Connection system:	screw	✔			✔									✔	✔	✔	✔	✔	✔	✔	✔	✔
	solder																					
	crimp		✔			✔		✔	✔	✔	✔	✔	✔									
	cage clamp			✔			✔															
Suitable contacts:	H-BE 2.5, machined		✔			✔		✔	✔	✔	✔	✔	✔									
Cross-section [mm²]		0.5 – 2.5	0.5 – 4.0	0.5 – 2.5	0.5 – 2.5	0.5 – 4.0	0.5 – 2.5	0.5 – 4.0	0.5 – 4.0	0.5 – 4.0	0.5 – 4.0	0.5 – 4.0	0.5 – 4.0	0.5 – 6.0	0.5 – 6.0	0.5 – 2.5	0.5 – 2.5	0.5 – 2.5	0.5 – 4.0	0.5 – 4.0	0.5 – 4.0	0.5 – 4.0
IEC: rated voltage [V]		500	500	500	500	500	500	500	500	500	500	500	500	500	500	630	630	630	500	500	500	500
IEC: rated current [A]		16	16	16	16	16	16	16	16	16	16	16	16	35	35	16	16	16	16	16	16	16
UL: rated voltage [V]		600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
UL: rated current [A]		16	16	16	16	16	16	16	16	16	16	16	16	35	35	16	16	16	16	16	16	16
CSA: rated voltage [V]		600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
CSA: rated current [A]		16	16	16	16	16	16	16	16	16	16	16	16	35	35	16	16	16	16	16	16	16
Suitable housing:		H-B 32	H-B 32	H-B 32	H-B 48	H-B 48	H-B 48	H-B 6	H-B 10	H-B 16	H-B 24	H-B 32	H-B 48	H-B 16	H-B 32	H-B 10	H-B 16	H-B 24	H-B 6	H-B 10	H-B 16	H-B 24

Usage criteria		EPIC® rectangular connectors/inserts																	
Page		572	575	574	575	573	575	576	576	576	576	577	578	578	578	579	583	583	583	583
		EPIC® MC module HC1 + PE	EPIC® HE 4-pin module	EPIC® MC module HC3	EPIC® MC module HC4 + PE	EPIC® MC module HC2	EPIC® 3-pin module	EPIC® 4-pin module, cage clamp	EPIC® 5-pin module	EPIC® 10-pin module, machined	EPIC® 10-pin module, stamped	EPIC® 20-pin module	EPIC® 3-pin module coaxial	EPIC® Profibus DP module	EPIC® Universal Bus module	EPIC® RJ45 module	EPIC® MCR 6 module frame	EPIC® MCR 10 module frame	EPIC® MCR 16 module frame	EPIC® MCR 24 module frame
Parameter																				
Number of contacts		1 + PE	4	3	4 + PE	2	3	4	5	10	10	20	3	2 + screen	4 + screen	8+4	–	–	–	–
Connection system:	screw	✔				✔								✔	✔					
	solder												✔							
	crimp		✔	✔	✔		✔		✔	✔	✔	✔				✔				
	cage clamp							✔												
Suitable contacts:	MC 3.6, machined			✔			✔													
	MC 2.5, stamped				✔															
	H-BE 2.5, machined		✔																	
	MC 2.5, machined								✔											
	H-D 1.6, machined									✔						✔				
	H-D 1.6, stamped										✔									
	MD 1.0, stamped											✔								
	MC coaxial												✔							
	for 2 modules																✔			
	for 3 modules																	✔		
	for 5 modules																		✔	
	for 7 modules																			✔
Cross-section [mm²]		10.0 – 25.0	0.5 – 4.0	1.5 – 10.0	0.5 – 2.5	10.0 – 25.0	1.5 – 10.0	0.5 – 2.5	0.5 – 4.0	0.14 – 2.5	0.14 – 2.5	0.08 – 0.52	–	max. 1.5	max. 1.5	Cat.5 0.14 – 2.5	–	–	–	–
IEC: rated voltage [V]		1000	630	1000	1000	1000	630	400	400	250	250	100	250	30	30	125/ 600	–	–	–	–
IEC: rated current [A]		82	25	50	16	82	40	14	20	10	10	4	-	1	1	1.5/ 10	–	–	–	–
UL: rated voltage [V]		600	–	–	–	600	600	600	400	250	–	100	–	–	–	–	–	–	–	–
UL: rated current [A]		82	–	–	–	82	40	14	20	10	–	4	–	–	–	–	–	–	–	–
CSA: rated voltage [V]		–	–	–	–	–	600	600	400	240	–	100	–	–	–	–	–	–	–	–
CSA: rated current [A]		–	–	–	–	–	35	14	16	10	–	4	–	–	–	–	–	–	–	–
Suitable housing:		**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	H-B 6	H-B 10	H-B 16	H-B 24

**Module frame

A11 Selection tables

LAPP

Applications of HITRONIC® fibre-optic cable components at a glance

Usage criteria	LAPP plastic fibre-optic cables (POF) – range														PCF fibre optic cable range							
Page	480	481	482	483	483	481 482	484	484	484						491	492	492	493	494	494	494	494
	HITRONIC® POF SIMPLEX PE	HITRONIC® POF SIMPLEX PE-PUR	HITRONIC® POF DUPLEX PE	HITRONIC® POF DUPLEX PE-PUR	HITRONIC® POF DUPLEX HEAVY PE-PUR	HITRONIC® POF SIMPLEX/DUPLEX FD PE-PUR	HITRONIC® POF DUPLEX PNB PA-PUR	HITRONIC® POF DUPLEX PNB PA-PVC	HITRONIC® POF DUPLEX FD PNC PA-PUR						HITRONIC® PCF SIMPLEX Outdoor	HITRONIC® PCF DUPLEX FRNC-PUR Indoor	HITRONIC® PCF DUPLEX FRNC-PE Outdoor	HITRONIC® PCF DUPLEX FD	HITRONIC® PCF DUPLEX PNB PVC-PVC A	HITRONIC® PCF DUPLEX PNB PVC-PVC	HITRONIC® PCF DUPLEX FD PNC PVC-PUR	HITRONIC® PCF DUPLEX FD PNC PVC-PVC
Properties																						
For indoor use	✔	✔	✔	✔	✔	✔	✔	✔	✔							✔		✔	✔	✔	✔	✔
For outdoor use															✔		✔					
For aerial use																						
Installation by blowing/compressed air																						
Direct burial																						
Armoured																	✔					
Rodent protection																						
Flame-retardant (IEC 60332)		✔		✔	✔	✔	✔	✔	✔							✔		✔	✔	✔	✔	✔
Fire-resistant (IEC 60331-25)																						
Water-tight																	✔					
UV-resistant	✔		✔												✔		✔		✔	✔	✔	✔
Power/drag chain						✔			✔									✔			✔	✔
Flexible						✔			✔									✔			✔	✔
Torsion -resistant									✔												✔	✔
Reelable																						
Halogen-free	✔	✔	✔	✔	✔	✔	✔		✔						✔	✔	✔	✔				
Low-smoke emission	✔		✔												✔		✔				✔	
PROFINET compliant							✔	✔	✔										✔	✔	✔	✔

Usage criteria	GOF fibre optic cable range															
Page	498	499	501	500	503	504	502	505	506	507	508	509	510	511	512	513
	HITRONIC® FIRE	HITRONIC® TORSION, A/J-V(ZN)H11Y	HITRONIC® HRM-FD, A/J-V(ZN)H(ZN)11Y	HITRONIC® HDM, A/J-V(ZN)11Y	HITRONIC® HQN Outdoor Cable, A-DQ(ZN)B2Y	HITRONIC® HVN Outdoor Cable, A-DQ(ZN)B2Y	HITRONIC® HVN-Mini Outdoor Cable, A-DQ(ZN)2Y	HITRONIC® HQW Armoured Outdoor Cable, A-DQ(ZN)(SR)2Y	HITRONIC® HVW Armoured Outdoor Cable, A-DQ(ZN)(SR)2Y	HITRONIC® HQW-Plus Armoured Outdoor Cable, A-DQ(ZN)2Y(SR)2Y	HITRONIC® HQA Aerial Cable, A-DQ(ZN)B2Y	HITRONIC® HQA-Plus Aerial Cable, A-DQ2Y(ZN)B2Y	HITRONIC® HUN Universal Cable, A/J-DQ(ZN)BH	HITRONIC® HUW Armoured Outdoor Cable, A/J-DQ(ZN)(SR)H	HITRONIC® HRH Breakout Cable, J-V(ZN)HH	HITRONIC® HDH Mini Breakout Cable, J-V(ZN)H
Properties																
For indoor use	✔	✔	✔	✔									✔	✔	✔	✔
For outdoor use	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
For aerial use											✔	✔				
Installation by blowing/compressed air							✔									
Direct burial					✔	✔		✔	✔	✔						
Armoured	✔							✔	✔	✔				✔		
Rodent protection	✔				✔	✔	✔	✔	✔	✔			✔	✔		
Flame-retardant (IEC 60332)	✔	✔	✔	✔									✔	✔	✔	✔
Fire-resistant (IEC 60331-25)	✔															
Water-tight	✔				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
UV-resistant	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				
Power/drag chain			✔													
Flexible		✔	✔	✔												✔
Torsion -resistant		✔														
Reelable				✔												
Halogen-free	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Low-smoke emission	✔				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

PLEASE NOTE: the standard lengths for fibre-optic cables are 100 m and 500 m; any other lengths will incur a surcharge.
O. r. = on request

Usage criteria		Cable designation (fixed installation or occasional flexing)							
	Page	99	100	101	43	44	97	98	102
		ÖLFLEX® SERVO 719	ÖLFLEX® SERVO 719 CY	ÖLFLEX® SERVO 728 CY	ÖLFLEX® CLASSIC 110 BLACK 0,6/1 KV	ÖLFLEX® CLASSIC 110 CY BLACK 0,6/1 KV	ÖLFLEX® SERVO 2YSLCY low capacitance	ÖLFLEX® SERVO 9YSLCY low capacitance	ÖLFLEX® SERVO 7DSL
Use									
Power drive systems	Mains	✔			✔				
	Motor	✔	✔			✔	✔	✔	
SEW®	Power		✔						
	Signal			✔					
SIEMENS®	Power		✔						
	Signal			✔					
INDRAMAT®	Power		✔						
	Signal			✔					
LENZE®	Power		✔				✓	✓	
	Signal			✔					
Heidenhain®	Power								
	Signal			✓					
One cable technology Hiperface DSL®, SCS open link	Power								✔
	Signal								✔

Usage criteria		Cable designation (permanent flexing, e.g. in power chains)															
	Page	107	108	109	111	112	113	115	116	117	117	117	117	117	117	117	312
		ÖLFLEX® SERVO FD 781 CY	ÖLFLEX® SERVO FD 796 P	ÖLFLEX® SERVO FD 796 CP	ÖLFLEX® SERVO FD 798 CP	ÖLFLEX® SERVO FD 7DSL	Servo cable as per SIEMENS® FX8PLUS series	Servo cable as per INDRAMAT® standard INK	Servo cable as per LENZE® standard	Servo cable as per Heidenhain® standard	Servo cable as per ELAU® standard	Servo cable as per KEB® standard	Servo cable as per Controles Techniques® standard	Servo cable as per Berger Lahr® standard	Servo cable as per B & R® standard	Servo cable as per FANUC® standard	UNITRONIC® FD CP (TP) plus
Use																	
Power drive systems	Mains																
	Motor	✔	✔	✔	✔												
SEW®	Power																
	Signal																✓
SIEMENS®	Power		✔	✔			✔										
	Signal				✔		✔										
INDRAMAT®	Power		✔	✔				✔									
	Signal				✔			✔									
LENZE®	Power			✓					✔								
	Signal								✔								
Heidenhain®	Power		✔														
	Signal									✔							
ELAU®	Power			✓													
	Signal										✔						
KEB®	Power																
	Signal											✔					
Controles Techniques®	Power																
	Signal												✔				
Berger Lahr®	Power																
	Signal													✔			
B & R®	Power																
	Signal														✔		
FANUC®	Power																
	Signal															✔	
One cable technology Hiperface DSL®, SCS open link	Power					✔											
	Signal					✔											

✔ Main application/design
✓ Possible application

SIEMENS® article designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of SIEMENS AG, and are listed for comparison purposes only. INDRAMAT® article designations (IKG, IKS, INK, INS, RKL and RKG) are registered trademarks of Bosch Rexroth AG, and are listed for comparison purposes only. LENZE® article designations (EWLM_, EWLR_, EWLE_, EWLL_, EYL and EYP) are registered trademarks of LENZE AG, and are listed for comparison purposes only. SEW® and SEW® Eurodrive are registered trademarks of SEW Eurodrive GmbH & Co KG. Heidenhain®, ELAU®, KEB®, Controles Techniques®, Berger Lahr®, B & R® and FANUC® are registered trademarks of the respective companies, and are listed here for comparison purposes only. HIPERFACE DSL® is a registered trademark of SICK AG.

A13 Selection tables

LAPP

Cables for expanded ambient temperature ranges

Usage criteria	Cable designation																										
Page	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	198	199	200	201	201	201	202	203	204	205	206
	ÖLFLEX® HEAT 105 MC	ÖLFLEX® HEAT 125 MC*	ÖLFLEX® HEAT 125 C MC*	ÖLFLEX® HEAT 180 SiHF	ÖLFLEX® HEAT 180 H05SS-F EWKF	ÖLFLEX® HEAT 180 MS	ÖLFLEX® HEAT 180 C MS	ÖLFLEX® HEAT 180 EWKF	ÖLFLEX® HEAT 180 EWKF C	ÖLFLEX® HEAT 180 GLS	ÖLFLEX® HEAT 205 MC	ÖLFLEX® HEAT 260 MC	ÖLFLEX® HEAT 260 C MC	ÖLFLEX® HEAT 260 GLS	ÖLFLEX® HEAT 350 MC	ÖLFLEX® HEAT 1565 MC	ÖLFLEX® HEAT 125 SC	ÖLFLEX® HEAT 180 SiF	ÖLFLEX® HEAT 180 SiF A	ÖLFLEX® HEAT 180 SiD	ÖLFLEX® HEAT 180 SiF/GL	ÖLFLEX® HEAT 180 SiZ	ÖLFLEX® HEAT 180 FZLSi	ÖLFLEX® HEAT 205 SC	ÖLFLEX® HEAT 260 SC	ÖLFLEX® HEAT 350 SC	ÖLFLEX® HEAT 1565 SC	ÖLFLEX® HEAT 650 SC
Use																												
Internal and external machine cabling	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔												
Internal wiring of control units/machinery																	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
In dry rooms	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
In dry and damp rooms	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔				✔	✔	✔	✔	✔	✔	✔	✔	✔			
Outdoors, fixed installation (mech. protection)	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔															
Chemical resistance	Please see technical table T1																											
In EMC-sensitive environments			✔				✔		✔				✔															
Suitable for extreme applications in paint shops											✔̸	✔	✔	✔										✔̸	✔			
Standards																												
Halogen-free according to IEC 60754-1		✔	✔	✔	✔	✔	✔	✔	✔	✔							✔	✔	✔	✔	✔	✔	✔					
Low smoke density according to IEC 61034		✔	✔														✔		✔									
Low smoke toxicity according to NES 02-713		✔	✔														✔		✔									
Flame-retardant according to IEC 60332-1-2	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔̸	✔̸	✔̸	✔̸	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔̸	✔̸	✔	✔	✔
Flame-retardant according to IEC 60332-3		✔	✔														✔											
Based on VDE/HAR/DIN	✔	✔	✔	✔				✔	✔	✔	✔	✔	✔		✔	✔		✔		✔	✔	✔	✔	✔	✔	✔	✔	
With VDE/HAR certification					✔												✔											
With UL/CSA certification						✔	✔												✔									
With GL/DNV certification		✔	✔											✔			✔											
Temperature range																												
+1565 °C																◆											◆	
+650 °C																												▲
+400 °C																▲											▲	
+350 °C															▲											▲		
+300 °C												◆	◆	◆											◆			
+260 °C												□	□	□											▲			
+200 °C				◆	◆	◆	◆	◆	◆	◆	□							◆	◆	◆	◆	◆	◆	▲				
+180 °C				□	□	□	□	□	□	□								▲	▲	▲	▲	▲	▲					
+145 °C		◆	◆														◆											
+125 °C		●	●														▲											
+105 °C	◆																											
+90 °C	▲																											
-20 °C	▲																											
-35 °C		●	●																									
-50 °C		▲	▲	□	□	□	□	□	□	□					▲		▲	▲	▲	▲	▲	▲	▲			▲		▲
-80 °C											●																	
-100 °C											▲													▲				
-140 °C												●	●	●														
-190 °C												▲	▲	▲		▲									▲		▲	
Nominal voltage																												
300/500 V	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔		✔	✔	✔	✔	
450/750 V		✔	✔														✔											
600/1000 V		✔̸	✔̸														✔̸		✔									
10 kV																							✔					
600 V as per UL/CSA						✔	✔																					
1000 V as per UL/CSA																			✔									
Design																												
Solid wire as per VDE 0295, class 1																				✔								
Fine-wire according to VDE 0295, class 5	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	
PVC core insulation/sheath, heat-resistant	✔																											
Halogen-free special core insulation/sheath		✔	✔														✔											
Silicone core insulation/sheath				✔	✔	✔	✔	✔	✔	✔								✔	✔	✔	✔	✔	✔					
Silicone, notch-resistant (EWKF) sheath					✔			✔	✔																			
Fluoropolymer core insulation/sheath (FEP/PTFE)											✔	✔	✔	✔										✔	✔			
Glass fibre core insulation/sheath															✔	✔					✔					✔	✔	✔
Printed numbers according to VDE 0293		✔	✔	✔		✔	✔	✔	✔	✔																		
Colour code according to VDE 0293-308	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔												
Individual colours																	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Overall screening			✔				✔		✔				✔															
Steel wire armouring										✔				✔														

✔ Main application/design
✔̸ Possible application
● Flexible use
□ Fixed and flexible use
▲ Fixed installation
◆ Fixed installation (briefly)

	Page	933	935	939	940	943	944		950	957	958	960
		Stainless steel FCC	Cable marketing FCC	Wrapping labels LCK	Cable label LFL	Flexiprint LF	LA Labels	Cable label TFL	TA Labels	Character holders PTE	Character holders PTEF/CAB	Collars
Temperature Range												
max +500 °C		✔										
-20 °C – +65 °C												
-20 °C – +45 °C										✔		
-75 °C – +80 °C											✔	
-40 °C – +80 °C												✔
-40 °C – +125 °C				✔	✔	✔	✔	✔				
-40 °C – +150 °C									✔			
-30 °C – +70 °C			✔									
Resistance test												
UV-light		●	●	●	●	●	●	●	●	●	●	●
Ageing		●	●	●	●	●	●	●	●	●	●	●
Abrasion of the marketing text		▲	▲	●	●	●	●	●	●	●	▲	▲
Chemical resistance test												
Diesel		●	●	□	□	◆	□	◆	□	□	●	●
Acid (H_2SO_4), 25 %		●	●	□	□	◆	□	□	□	□	●	●
Alkali (Detergent solution, 10 %)		●	●	□	□	□	□	◆	◆	□	●	●
Distilled water		●	●	□	□	□	□	□	□	□	●	●
Salt water (5 % NaCl)		●	●	□	□	□	□	□	□	□	●	●
Transformer oil (Nytro 10X)		●	●	□	□	□	□	□	□	□	●	●
Ethanol		●	●	□	□	◆	□	□	□	□	●	●
Chemical resistance test with abrasion												
Diesel		▲	▲	●	●	◆	●	◆	●	●	▲	▲
Acid (H_2SO_4), 25 %		▲	▲	●	●	◆	●	●	●	●	▲	▲
Alkali (Detergent solution, 10 %)		▲	▲	●	●	●	●	◆	◆	●	▲	▲
Distilled water		▲	▲	●	●	●	●	●	●	●	▲	▲
Salt water (5 % NaCl)		▲	▲	●	●	●	●	●	●	●	▲	▲
Transformer oil (Nytro 10X)		▲	▲	●	●	●	●	●	●	●	▲	▲
Ethanol		▲	▲	●	●	◆	●	●	●	●	▲	▲

● Tested and recommended.
□ Not tested. A Chemical resistance test with abrasion has been performed instead.
▲ Not tested. Marking text has an automatic protection in form of a holder or similar.
◆ Not recommended.

To meet the high requirements of our products and to ensure our quality standard all FLEXIMARK® products are subjected to a series of strict tests. These are made by the independent SP Technical Research Institute of Sweden using the SP 2171 Test Method which is used especially for collars and plastic information carrier which mark electric wires, cables, components and clamps. For receiving an impression, some of the tests are listed below:

Test	Method and criteria
Ageing resistance	Accelerated ageing in heat oven (2000 days at 90 °C (194 °F)) corresponding to use at 20 °C (+68 °F) for 30 years. Check for cracks, breaks or similar damage. (Max 50 % reduction in elongation before breakage.) Also check for mountability and dismountability.
UV-resistance	Accelerating test corresponding to ISO 4892-2 exposure 1 year outdoors in southern Sweden. Check for brittleness and change in colour and readability.
Abrasion resistance of marking text	According to SP Method 2172 (rubbing machine). Load 75 g per mm mandrel diameter. 200 + 200 cycles.
Chemical resistance	Mounted sleeves kept for 24 hours at +23 °C & -2 °C (+73.4 °F & 28.4 °F) immersed in the chemical. Drying for 2 hours then check for functionality, colour fastness and print legibility. **Chemicals used:** Synthetic diesel oil, Sulphuric acid 25 %, basic cleaning agent (Berol 226, 10 %), Distilled water, Sea water (5 % NaCl), Transformer oil (Nytro 10x), Ethanol, other chemicals on request.
Chemical resistance with abrasion test	Combination of abrasion-test and chemical resistance-test.

NOTE: actual version and further information are available on our homepage.

1. General

The **resistance** of the product materials in the application environment, correct product assembly and subjected load in the context of permitted limit values (technical data) have a significant impact on the safety and durability of our products. Notes on product usage and technical data can primarily be found on the catalogue product pages, both in the text sections and the tables provided.

Selection tables A1–A15 provide an overview of similar products and enable comparisons on the basis of important product properties (e.g. "permitted temperature range", "permitted bending radius") and main application parameters (e.g. "outdoor use, unprotected"), thus facilitating the selection process.

The "**technical tables**" (T1–T31) focus on the following:

- Chemical resistance (T1, T24), radiation resistance (T28), weather and oil resistance (T15)
- Assembly of Profibus and Industrial Ethernet cables (T2), assembly of cables for power chains (T3), assembly of cables for conveyor technology (T4, T5)
- Assembly/installation/fastening of cables in special cases (T19)
- Assembly, thread dimensions and tightening torques of cable glands (T21)
- Electrical load capacity, conversion factors, installation type according to VDE, Germany (T12)
- Electrical load capacity, installation type according to NEC, USA (T13)
- Load capacity with regard to thermal stress and tensile strain (T19)
- Conductor cross-sections with different measurement systems (T16)

This and the following information on special product groups/topics represent guidelines on the use and application of our products, but do not cover the competent project planning of electrical equipment in all its aspects.

Cables might contain talc which as with most dusts or particulate materials can cause temporary discomfort and skin irritation due to allergic reaction.

Questions?

Contact us; we are happy to help: **info@lappkabel.de**

2. Cables and wires

The applications of cables and wires are extremely diverse and thus governed by a whole range of application standards in the various standard groups (IEC, EN, NEC, ...).
One example is the international standard IEC 60204-1:2009, Electrical equipment of machines – Part 1: General requirements) with reference to the requirements of cables and wires as well as their application conditions.

In all cases, meeting these **general** specifications requires the user to perform a professional examination as to the existence of **specific** product standards with other/extended requirements that may take precedence.

In this case, support is provided by the catalogue product pages in the form of product and application standards – e.g. "Oil resistance according to VDE 0473-811" or "Railway applications: DIN EN 50306-2". In the area of low voltage harmonised cables (e.g. H05VV5-F/ÖLFLEX® 140), DIN EN 50565-2 (VDE 0298-565-2) in table 1A provides a list of requirements and criteria that are largely applicable to other low voltage cables as well as notes on recommended applications.

In addition, the application information provided in IEC publication 62440:2008-02 Ed. 1.0 must be observed for electrical cables with nominal voltages up to 450/750 V.

A summary of the most important information on cable and wire applications contained in the aforementioned documents is provided below.

General

Conductors, cables and wires must be selected such that they are suitable for the relevant operating conditions (e.g. voltage, current, protection against electric shock, bundling of cables and wires) and external influences (e.g. ambient temperature, presence of water or corrosive materials, mechanical stress, incl. stress experienced during installation, fire risks).

Electrical voltage

The control and connecting cables listed in the catalogue are subject to the "**low voltage directive" 2014/35/EU for electrical equipment with a nominal voltage between 50 and 1000 V (alternating current) and between 75 and 1500 V (direct current)**.

The nominal voltage is the reference voltage for which cables and wires are constructed and tested. The nominal voltage of cables and wires used with AC supplies must be greater than or equal to the nominal supply voltage. More information for DC supply or operating voltage in Europe can be found in EN 50565-1 for harmonized cable types and in VDE 0298-3 for cable types without harmonization, for example.

The nominal voltage of cables and wires is expressed by the ratio U_0/U in volts, whereby:

- **U_0** is the effective voltage between a phase conductor and the earth (metal sheath/screening of the cable/surrounding medium/protective grounding conductor)
- **U** is the effective voltage between two phase conductors of a multi-core cable or a system of single core cables

For cables and wires subjected to voltages over 50 V AC or 120 V DC, the test voltage is a minimum of 2000 V AC for a duration of 5 minutes. For alternating currents with a maximum of 50 V and direct currents with a maximum of 120 V (typical values for SELV or PELV systems), the test voltage must be a minimum of 500 V AC for a duration of 5 minutes.

2. Cables and wires – continued

Explosive atmospheres

The family of standards IEC 60079-14 →DIN EN 60079-14 →VDE 0165-1, Oct 2014 is also applicable in the development and selection of cables and wires for explosive atmospheres.

1. **Quotation from standard VDE 0165-1, 1. Scope**
   "This part of the IEC 60079 series contains the specific requirements for the design, selection, erection and the initial inspection of electrical installations in, or associated with, explosive atmospheres."
2. **Quotation from standard VDE 0165-1, 4.5 Qualifications of personnel**
   "The design of the installation, the selection of equipment and the erection covered by this standard shall be carried out only by persons whose training has included instruction on the various types of protection and installation practices, relevant rules and regulations and on the general principles of area classification. The competency of the person shall be relevant to the type of work to be undertaken. (see Annex A)."
3. **The normative Annex A** describes the necessary knowledge/competencies for the persons responsible. (This includes, for example, considerations of the equipment design and its impact on the protection concept.) LAPP is pleased to provide details about its range of catalogue items and their properties. In terms of the required competencies for the development, selection and erection of explosion-protected equipment and installations, the responsibility for the correct use of the item shall lie with the ordering party.
4. **VDE 0165-1, 9.3.2 Cables and wires for fixed installation**
   These are generally cables and wires which are equipped with a solid conductor and with an extruded filler material that occupies the intermediate spaces of the core. Examples include the types NYY, NAYY, NYM, (N)HXMH.
   If there is a possibility of longitudinal expansion of a liquid or a gas medium inside a cable or wire where this is not permitted, then the use of suitable Ex "d" cable entries on the equipment is an approved alternative. See also VDE 0165-1, Annex E.
5. **VDE 0165-1, 9.3.3 Flexible cables and wires for fixed installation**
   These cables and wires normally do not contain any extruded filler material. Examples include rubber cables such as H07RN-F and NSSHÖU or plastic-insulated cables with resistant (VDE 0165-1, 9.3.3 e) designs such as ÖLFLEX® 540P (or similar). Connecting cables with a comparably robust structure are also used with mobile and portable equipment. See also DIN VDE 0165-1, 9.3.4.

DIN VDE 0298-3:2006-06, tables 4 and 5 display further standard-compliant cables and cable designs which are suitable for use in explosive atmospheres.

Conductor cross-sections with different measurement systems

IEC 60228 is an important international standard that describes cables with metric cross-sections. North America and other regions currently employ conductor cross-sections according to the AWG (American Wire Gauge) system with kcmil" used for larger cross-sections. A table is provided under T16 to support safe, alternative usage of cables from both these measurement systems.

Tensile strain

The following applies to **all** conductors up to maximum tensile strain of 1000 N: Max. 15 N per mm² conductor cross-section (excl. screening, concentric conductors and divided protective conductors) for static tensile strain when **using** moving/flexible cables and cables for/in fixed installation. Max. 50 N per mm² conductor cross-section (excl. screening, concentric conductors and divided protective conductors) for static tensile strain when **assembling** cables for/in fixed installation.

Flexible use – stationary use/Definitions

- **Continuous Flexing**
  Cables are in constant linear motion in automated applications. They are subjected to continuous forces applied during bending motions.
  Typical application:
  Horizontal and vertical c-tracks power chains, automated assemblies, etc.
- **Flexible/occasional flexing**
  Cables are moved randomly in a non-automated application.They are susceptible to occasional uncontrolled conditions of movement.
  Typical application:
  Flexible cable tray routings, machine tools, residential electronics, portable power equipment, etc.
- **Stationary use/fixed installation**
  Cables are installed and left in their original position. They are only moved for purposes of maintenance, repair or retrofitting.
  Typical application:
  Cable trays, conduits, wire ways installed in buildings, machines, manufacturing facilities, etc.

Cables for use in power/drag chains

These cables are indicated by the code "FD" or "CHAIN" in their product names. In addition to the generally applicable information on assembly and project planning contained in technical table T3, particular attention must be paid to the specifications relating to individual cables that are provided on the relevant product pages in the catalogue.

These are specifically:

- Restrictions of the traversing path length (e. g.: "... up to 10 m").
- Restrictions of the minimum bending radius for flexible applications. The radius implemented with the power/drag chain must not be lower than the minimum bending radius! The minimum bending radius is defined as the inner radius relative to the surface of the curved cable.
- Restrictions at operating temperature. The specified temperature range shall be observed and must not be undershot or exceeded. Flexible cable operation at lower and upper temperature range limit can lead to reduced service life.

Torsion movement in wind turbine generators

The torsional motion of wind turbines is very different from those in robotic applications. In comparison to the quick, highly dynamic movements of robots, the motion in the loop between the nacelle and tower of a wind turbine is slow. Moreover, the rotation of the cable on its axis about 150° per 1 m cable and the rotational speed with 1 revolution per minute is less than usual robotic applications. To confirm these requirements, our cables are tested in our in-house testing facility. To take the different materials into account, different tests are performed in order to achieve meaningful results even at the temperature resistance of the cables.

Based on the test results the cables are classified to the LAPP-internal rating for torsion in wind turbine generators which is adapted to the requirements of leading manufacturers of wind turbines:

	Number of cycles	Temperature range	Torsion angle
TW-0	5.000	≥ + 5 °C	± 150 °/1 m
TW-1	2.000	≥ - 20 °C	± 150 °/1 m
TW-2	2.000	≥ - 40 °C	± 150 °/1 m

2. Cables and wires – continued

Transport and storage

Cables and wires that are **not** designated for outdoor use must be stored indoors, in dry conditions and protected from direct sunlight. If stored outside, all cable and wire ends must be sealed to prevent the ingress of water.

The ambient temperature for transport and storage must be between -25 °C and +55 °C (max. +70 °C for no longer than 24 hours).

Particularly in the lower temperature ranges, mechanical stress through vibration, shock, bending and twisting must be avoided. This is especially important for PVC-insulated cables and wires. The following guidelines apply for the maximum storage of cables and wires before use and without prior testing:

- One year if stored outdoors
- Two years if stored indoors

3. Industrial connectors

For Industrial Connectors please see (NEW) Technical Table T31.

4. Cable glands and cable bushings

SKINTOP® and SKINDICHT® cable glands and cable entries represent highest quality levels and over 30-years of expertise in the relevant areas of application.

Along with quality, the correct usage of these products with regard to operational safety is the most important factor. For this reason, we would like to remind you to observe all relevant standards for your intended application. In addition to the technical data on the product pages, please also refer to the technical tables in our main catalogue (T21 – thread dimensions for cable glands, tightening torques and installation dimensions for cable glands/T22 – protection ratings according to EN 60529), as well as the supplied package leaflets describing product usage (e.g. package leaflet for products acc. to DIN EN 60079-0, DIN EN 60079-7).

5. Cable protection and guiding systems

SILVYN® cable protection systems offer additional protection for cables and wires. If used in a specified system and professionally fitted by a certified electrician, SILVYN® products will meet the properties detailed on the catalogue pages.

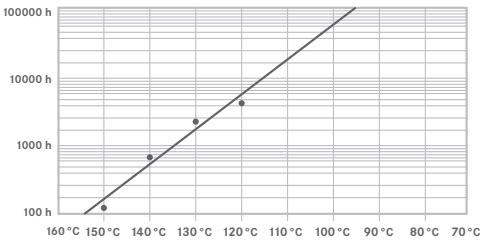
When configuring and assembling the SILVYN® CHAIN energy supply systems, the assembly instructions detailed in table T3 “Assembly guidelines for ÖLFLEX® FD and UNITRONIC® FD cables in power chains” must be followed. With regards to the correct installation of a SILVYN® CHAIN energy supply system, please refer to the information in our current special SILVYN® CHAIN catalogue.

6. Ready-to-use parts, tools and printers

Products in the area of cable accessories are system-tested to ensure optimal assembly. The commissioning and processing of these products must only be performed by authorised electricians and following the supplied information.

7. Service life

The average service life of cables is dictated not just by the mechanical and chemical stress, but also by the operating or ambient temperature. As is customary in mechanical engineering, the continuous temperature range of a cable, as specified in our technical data, refers almost exclusively to a period of at least 20,000 h. The adjacent example of an ageing curve according to Arrhenius illustrates the behaviour of an insulating material on the basis of time and temperature. The material tested here has a temperature index of approx. +110 °C at 20,000 h. The material can also be specified with an index of +135 °C, but in this case only for a duration of approx. 3000 h.



8. Connection technology

The quality of an electrical connection greatly depends on the choice of suitable components in the relevant nominal cross-sections and the use of recommended tools for processing.

Size differences between the cable and the tubular cable lug/conductor end sleeve are attributable to the fact that class 5 and 6 conductors can be pressed with just one crimp contact – even if the conductors have different structures (bunched, stranded or compressed conductors). Despite the sleeves appearing to be too large for the relevant cross-sections, the correct combination of conductor, contact and tool will ensure gas-tight crimping. The dimensional accuracy at the aforementioned connection points is governed by standards, incl.:

- DIN EN 60228 (VDE 0295), September 2005 – "Conductors for cables and insulated leads"
- DIN 46228 – 4, September 1990 – "Tubular end-sleeves with plastic sleeve"
- Crimping quality according to DIN 46228-1 and DIN EN 50027

9. Testing and inspection

The operator must ensure that the correct functioning and condition of electrical systems and equipment is checked by or under the supervision of a certified electrician. This must occur prior to initial commissioning and before reactivation following any modifications or maintenance work.

Inspection intervals must be set such that any problems that can reasonably be expected are identified in good time. In many cases, the service life of LAPP products can only be established empirically in the relevant applications. Indicators for inspection intervals can be based, for example, on the temperature load (see "Service life") or the number of permitted alternating bending cycles for drag chains (see information on relevant product pages in the catalogue).

As a rule, cables and wires in fixed installations will have a longer service life and will thus also be suitable for longer inspection intervals.

Shorter intervals are recommended for cables and wires used at the limit of their permitted parameters. This applies to the following in particular (see also "Technical data" and "Application" on the relevant product pages in the catalogue):

- Minimum bending radius
- Temperature range
- Presence of radiation (e.g. sunlight)
- Existence of tensile strain
- Influence of surrounding chemical substances and unverified resistance
- In the case of water accumulation or condensation in the area of the connection points. Cables and wires should be subjected to a visual inspection to identify any changes to their appearance. This should be done no later than when the cables or wires are likely to have been exposed to excessive loads (be they electrical, thermal, mechanical or chemical).

10. Fire properties

The behaviour of products in the case of a fire (reaction to fire) is of great importance to building installation. The EU has converted the various national regulations throughout Europe into a uniform rating system. The Construction Products Regulation (directive (EU) no. 305/2011) of 09/03/2011 came into force on 01/07/2013 and is binding for all member states.

Please find more details in this catalogues appendix under Technical tables T14.

11. Copyright and updated standards

We aim to observe the copyright of the images/graphics and texts used in this catalogue, and to primarily utilise our own or licence-free images/graphics and texts.

By specifying standards and using extracts from standards, we aim to support our customers with important information on safe use of our products.

Please note that as the catalogue gets increasingly old, the specified standards/standard extracts may no longer be fully up to date.

To preserve copyright and ensure that standards are up to date, we recommend that our customers and users of this catalogue refer to the latest applicable standards from an authorised source.

Example: Technical table T12 – Load capacity

Extracts from DIN VDE 0298-4 (issued 2013-06) are used in the pending catalogue edition, with approval 162.013 from DIN (Deutsches Institut for Normung e. V.) and the VDE (Verband der Elektrotechnik Elektronik Informationstechnik e. V.). Application of the standards is based on the versions with the most recent issue date.

These are available from VDE VERLAG GmbH, Bismarckstraße 33, 10625 Berlin, www.vde-verlag.de and
Beuth Verlag GmbH, Burggrafenstraße 6, 10787 Berlin.

T1 Technical Tables

LAPP

Chemical resistance of cables

All data is for a temperature of + 20 °C	Cable designations								
	ÖLFLEX® SMART 108, ÖLFLEX® CLASSIC 100, 110, 115 CY, 100 BK, 110 BK, 110 CY BK, ÖLFLEX® 2YSLCY, 9YSLCY, ÖLFLEX® EB, EB CY, SF, UNITRONIC® 100, 100 CY	ÖLFLEX® FD 90, FD 90 CY, ÖLFLEX® 140, 140 CY, TRAY II CY, ÖLFLEX® CHAIN 809, 809 CY, 809 SC, 809 SC CY, ÖLFLEX® CHAIN TM, ÖLFLEX® CHAIN TM CY, ÖLFLEX® 150, 150 CY, 191, 191 CY, ÖLFLEX® FD 891 / 891 CY, TRAY II, ÖLFLEX® SERVO 719 CY, ÖLFLEX® SERVO 719, ÖLFLEX® SERVO 728 CY, ÖLFLEX® SERVO 7DSL, ÖLFLEX® SERVO FD 781 CY, ÖLFLEX® CONTROL TM / TM CY	ÖLFLEX® CLASSIC 100 SY, ÖLFLEX® CLASSIC 100 CY, ÖLFLEX® CLASSIC 110 SY, 110 CY, ÖLFLEX® FD CLASSIC 810, 810 CY	ÖLFLEX® CLASSIC 400 P, 400 CP, 415 CP, 440 P, 440 CP, 408 P, 409 P, 450 P, 500 P, 540 CP, 540 P, 550 P, ÖLFLEX® PETRO C HFFR, ÖLFLEX® SERVO FD 796 P, 796 CP, 798 CP, FD 7DSL, CLASSIC 810 P, 810 CP, 855 P, 855 CP, 865 CP, ÖLFLEX® FD 891 P, ÖLFLEX® CHAIN 808 P, 808 CP, ÖLFLEX® CHAIN 896 P, ÖLFLEX® CHAIN 90 P, ÖLFLEX® CHAIN 90 CP, ÖLFLEX® Robot 900, F1, ÖLFLEX® CRANE PUR, UNITRONIC® LiYD11Y, UNITRONIC® FD P, UNITRONIC® FD CP, UNITRONIC® FD CP (TP), HITRONIC® with PUR sheath, UNITRONIC® PUR, SERVO cable as per SIEMENS® FX8 PLUS Standard	ÖLFLEX® CRANE round and flat	ÖLFLEX® LIFT T, LIFT S, ÖLFLEX® CRANE 2S, ÖLFLEX® LIFT F, ÖLFLEX® SF, Single-core products LIFY, LIFY 1 kV	ÖLFLEX® HEAT 105, ÖLFLEX® CHAIN PN	ÖLFLEX® HEAT 180	ÖLFLEX® HEAT 205/260
Inorganic chemicals									
Alums, cold-saturated concentration	✓	✓	✓		✓	✓	✓	✓	✓
Aluminium salts, any concentration	✓	✓	✓		✓	✓	✓	✓	✓
Ammonia, aqueous, 10 % concentration	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonium acetate, aqueous, any concentration	✓	✓	✓			✓	✓	✓	✓
Ammonium carbonate, aqueous, any concentration	✓	✓	✓	✗	✓	✓	✓		✓
Ammonium chloride, aqueous, any concentration	✓	✓	✓	✓	✓	✓	✓		✓
Barium salts, any concentration	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boric acid, aqueous	✓	✓	✓	✗	✓	✓	✓	✓	✓
Calcium chloride, aqueous, cold-saturated concentration	✓	✓	✓	✗	✓	✓	✓	✓	✓
Calcium nitrate, aqueous, cold-saturated concentration	✓	✓	✓		✓	✓	✓	✗	✓
Chromium salts, aqueous, cold-saturated concentration	✓	✓	✓	✓	✓	✓	✓		✓
Potassium carbonate, aqueous (potash)	✓	✓	✓		✗	✓	✓	✓	✓
Potassium chlorate, aqueous, cold-saturated concentration	✓	✓	✓		✓	✓	✓		✓
Potassium chloride, aqueous, cold-saturated concentration	✓	✓	✓	✗	✓	✓	✓	✓	✓
Potassium dichromate, aqueous	✓	✓	✓	✗	✓	✓	✓	✓	✓
Potassium iodide, aqueous	✓	✓	✓		✓	✓	✓	✓	✓
Potassium nitrate, aqueous, cold-saturated concentration	✓	✓							
Potassium permanganate, aqueous	✗	✗	✗	✗	✓	✗	✓	✓	✓
Potassium sulphate, aqueous	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper salts, aqueous, cold-saturated concentration	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium salts, aqueous, cold-saturated concentration	✓	✓	✓	✗	✓	✓	✓	✓	✓
Sodium bicarbonate, aqueous (natron)	✓	✓	✓	✗	✓	✓	✓	✓	✓
Sodium bisulphite, aqueous	✓	✓	✓	✓	✗	✓	✓	✓	✓
Sodium chloride, aqueous (table salt)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sodium thiosulphate, aqueous (fixing salt)	✓	✓	✓	✗	✓	✓	✓	✓	✓
Nickel salts, aqueous, cold-saturated concentration	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphoric acid, 50 % concentration	✓	✓	✓	✗	✓	✓	✓	✗	✓
Mercury, 100 % concentration	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mercury salts, aqueous, cold-saturated concentration	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitric acid, 30 % concentration	✗	✗	✗	✗	✗	✗	✗	✗	✓
Hydrochloric acid, concentrated	✗	✗	✗	✗	✗	✗	✗	✗	✓
Sulphur, 100 % concentration	✓	✓	✓	✓	✓	✓	✓	✗	✓
Sulphur dioxide, gaseous	✓	✓	✓		✓	✓	✓	✗	✓
Carbon disulphide	✗	✗	✗	✗	✗	✗	✗	✗	✓
Hydrogen sulphide	✓	✓	✓	✓	✓	✓	✓	✗	✓
Sea water	✓	✓	✓	✓	✓	✓	✓	✓	✓
Silver salts, aqueous	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hydrogen peroxide, 3 % concentration	✓	✓	✓	✓	✓	✓	✓	✓	✓
Zinc salts, aqueous	✓	✓	✓	✗	✓	✓	✓	✗	✓
Tin(II) chloride	✓	✓	✓		✓	✓	✓	✓	✓
Organic chemicals									
Ethanol, 100 % concentration	✗	✗	✗	✗	✓	✗	✗	✓	✓
Formic acid, 30 % concentration	✗	✗	✗	✗	✓	✗	✗		✓
Petrol	✗	✗	✗	✓	✗	✗	✗	✗	✓
Succinic acid, aqueous, cold-saturated concentration	✓	✓	✓	✓	✓	✓	✓		✓
Acetic acid, 20 % concentration	✗	✗	✗	✗	✓	✗	✗	✓	✓
Hydraulic oil	✗	✗	✗	✗	✗	✗	✗		✓
Isopropanol, 100 % concentration	✗	✗	✗	✗	✓	✗	✗	✗	✓
Machinery oil	✗	✓	✗	✓	✗	✗	✗	✗	✓
Methanol, 100 % concentration	✗	✗	✗	✗	✓	✗	✗	✓	✓
Oxalic acid, aqueous, cold-saturated concentration	✓	✓	✓		✗	✓	✓	✗	✓
Cutting oil	✗	✓	✗	✓	✗	✗	✗		✓
Plant-based oils + fats	✗	✓	✗	✓	✗	✗	✗	✗	✓
Tartaric acids, aqueous	✓	✓	✓		✓	✓	✓	✓	✓
Citric acid	✓	✓	✓	✗	✓	✓	✓	✓	✓

✓ no or slight reaction = good resistance
✗ slight to moderate reaction = moderate resistance
✗ moderate to strong reaction = low/no resistance

Whilst this information is accurate to the best of our knowledge and experience, it must be treated as a non-binding guideline only. In many cases, tests must be carried out under working conditions to reach a definitive conclusion.

All data is for a temperature of + 20 °C	Cable designations									
	Halogen-free cables, NHXMH, J-H(ST)H, ÖLFLEX® 130 H, 135 CH, 130 H BK 0,6/1 KV, 135 CH BK 0,6/1 KV, UNITRONIC® LiHH, LiHCH, LiHCH(TP)	HITRONIC® fibre-optic cables	UNITRONIC® FD, FD CY, UNITRONIC® LiYY, LiYCY, LiYCY(TP), UNITRONIC® Li2YCY(TP), Li2YCY PiMF, ETHERLINE® LAN	J-Y(ST)Y, JE-Y(ST)Y, JE-LiYCY, J-2Y(ST)Y, J-YY, JE-YY	Coaxial cables (PE), A-2Y(L)2Y, A-2YF(L)2Y, HITRONIC® with PE sheath	ESUY copper earthing cable, X00V3-D	ÖLFLEX® CRANE NSHTÖU, NSGAFÖU; H01N2-D, ÖLFLEX® CRANE VS (N)SHTÖU, H05RN-F, H07RN-F, 07RN8-F	LIY single cores, H05V-K, H07V-K, LIFY, LIFY 1 kV, Multi-Standard SC 1, Multi-Standard SC 2.1, Multi-Standard SC 2.2	H05RR-F	ÖLFLEX® ROBUST 200, 210, 215 C, ÖLFLEX® ROBUST FD, ROBUST FD C, UNITRONIC® ROBUST, ROBUST C ETHERLINE® ROBUST
Inorganic chemicals										
Alums, cold-saturated concentration	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Aluminium salts, any concentration	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Ammonia, aqueous, 10 % concentration	✖	⊠	⊠	⊠	⊠	⊠		⊠		⊠
Ammonium acetate, aqueous, any concentration		⊠	⊠	⊠	⊠	⊠	✖	⊠	✖	⊠
Ammonium carbonate, aqueous, any concentration		⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Ammonium chloride, aqueous, any concentration		⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Barium salts, any concentration	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Boric acid, aqueous	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Calcium chloride, aqueous, cold-saturated concentration	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Calcium nitrate, aqueous, cold-saturated concentration	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Chromium salts, aqueous, cold-saturated concentration		⊠	⊠	⊠		⊠	⊠	⊠	⊠	✖
Potassium carbonate, aqueous (potash)		⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Potassium chlorate, aqueous, cold-saturated concentration		⊠	⊠	⊠	⊠	⊠	✖	⊠	⊠	⊠
Potassium chloride, aqueous, cold-saturated concentration	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Potassium dichromate, aqueous		⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Potassium iodide, aqueous	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	
Potassium nitrate, aqueous, cold-saturated concentration	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Potassium permanganate, aqueous		✖	✖	✖	⊠	✖	⊠	✖	⊠	⊠
Potassium sulphate, aqueous	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Copper salts, aqueous, cold-saturated concentration	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Magnesium salts, aqueous, cold-saturated concentration	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Sodium bicarbonate, aqueous (natron)		⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Sodium bisulphite, aqueous		⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Sodium chloride, aqueous (table salt)	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Sodium thiosulphate, aqueous (fixing salt)		⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Nickel salts, aqueous, cold-saturated concentration	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Phosphoric acid, 50 % concentration		⊠	⊠	⊠	⊠	⊠	⊠	⊠	✖	⊠
Mercury, 100 % concentration	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Mercury salts, aqueous, cold-saturated concentration	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Nitric acid, 30 % concentration	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Hydrochloric acid, concentrated	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Sulphur, 100 % concentration	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	✖	✖
Sulphur dioxide, gaseous		⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Carbon disulphide	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Hydrogen sulphide		⊠	⊠	⊠	✖	⊠	⊠	⊠	⊠	✖
Sea water	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Silver salts, aqueous	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Hydrogen peroxide, 3 % concentration		⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	✖
Zinc salts, aqueous	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Tin(II) chloride	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Organic chemicals										
Ethanol, 100 % concentration	✖	✖	✖	✖	⊠	✖	⊠	✖	⊠	⊠
Formic acid, 30 % concentration	✖	✖	✖	✖	⊠	✖	⊠	✖	⊠	
Petrol	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Succinic acid, aqueous, cold-saturated concentration		⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Acetic acid, 20 % concentration	✖	✖	✖	✖	⊠	✖	⊠	✖	✖	⊠
Hydraulic oil	✖	✖	✖	✖		✖	✖	✖	✖	✖
Isopropanol, 100 % concentration		✖	✖	✖	⊠	✖	⊠	✖	⊠	⊠
Machinery oil	✖	✖	✖	✖		✖	✖	✖	✖	✖
Methanol, 100 % concentration	✖	✖	✖	✖	⊠	✖	⊠	✖	⊠	⊠
Oxalic acid, aqueous, cold-saturated concentration	✖	⊠	⊠	⊠	⊠	⊠	✖	⊠	⊠	⊠
Cutting oil	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Plant-based oils + fats	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Tartaric acids, aqueous	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Citric acid	✖	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠

⊠ no or slight reaction = good resistance
✖ slight to moderate reaction = moderate resistance
✖ moderate to strong reaction = low/no resistance

Whilst this information is accurate to the best of our knowledge and experience, it must be treated as a non-binding guideline only. In many cases, tests must be carried out under working conditions to reach a definitive conclusion.

PROFIBUS (UNITRONIC® BUS PB) and Industrial Ethernet cables (ETHERLINE®)

- Only use cables that have been designed for the relevant type of application (fixed installation, flexible or highly flexible application, torsional load, cable trailer systems, routing outdoors/underground). These cables have a specific design and have undergone the corresponding testing.

- Please note the electrical properties listed in the data sheet when selecting cables. Depending on the design, higher damping values can occur or a limitation of the transmission length.

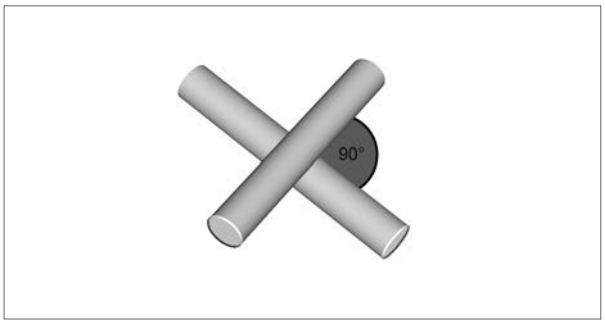
- PROFINET has the following conductor types:
  Type A: fixed installation
  Type B: flexible application, occasional flexing
  Type C: highly flexible application, torsion, drag chain, etc.

Pairs/Type	Type A	Type B	Type C
2-pair (2x2)	AWG22/1	AWG22/7	AWG22/1-19
4-pair (4x2)	min. AWG23/1	min. AWG23/1	min. AWG24/1-19

- In a system with different PROFINET categories and power cables, all of the cables should be separate bundles and run along separate ducts.

- The minimum clearances between power cables and data network cables are listed in IEC 61918. For unshielded power cables next to data network cables without separating strips or for non-metallic separating strips, the minimum clearance is 200 mm. The clearance is reduced if metallic separating strips are used. Shielded power cables can be installed directly next to bus systems. As a general rule, the greater the clearance is, the less interference there will be.

- Cables of different categories must always cross one another at an angle of 90°.



- Use the appropriate cable entries when introducing the cable into the control cabinet.
  We recommend using suitable fibre-optic cables when installing cables outdoors. Observe the relevant installation regulations.

- Always route backup cables along separate paths to ensure they remain undamaged, should damage occur to the main cable.

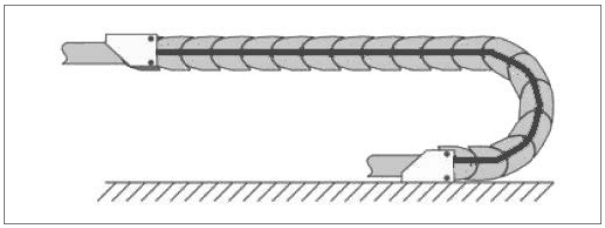
- Protect copper conductors and fibre-optic cables outside of cable carrier systems using plastic pipes or, in the case of a heavy mechanical load, using metal pipes.

- Data network cables can only be subjected to a defined tension load because otherwise the transmission characteristics could change. Replace any cables that have been mechanically overloaded or damaged.

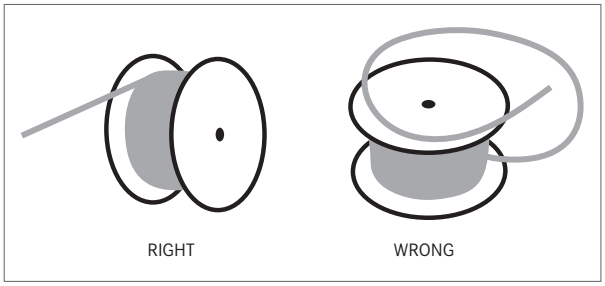
- Observe the temperature range for the cables. Deviations from these temperatures will result in a lower mechanical and electrical cable rating and will damage the cables.

- Applications involving torsion require a special cable design, as do cables for drag chains and cable trolley systems. These cables cannot be swapped.

- For drag chain cables, it is imperative that the minimum bending radius is observed, otherwise there may be cable damage or a risk of system failure.
  Make sure that cables in the bending radius run along the neutral zone, i.e. there must be no forced guidance through the chain the inner or outer radius, so that the cables can still move relative to one another and to the chain.



- The cables must be unreeled from the ring or drum free of any twists (at a tangent). Additionally, the cables should not be pulled over sharp corners and edges.



- "Electromagnetic compatibility" (EMC) is now a basic requirement to be fulfilled during installation. As such, include all metal system parts in the equipotential bonding concept and use only screened cables and connectors, or alternatively use fibre-optic cables and fibre-optic connectors that are resistant to electromagnetic interference.

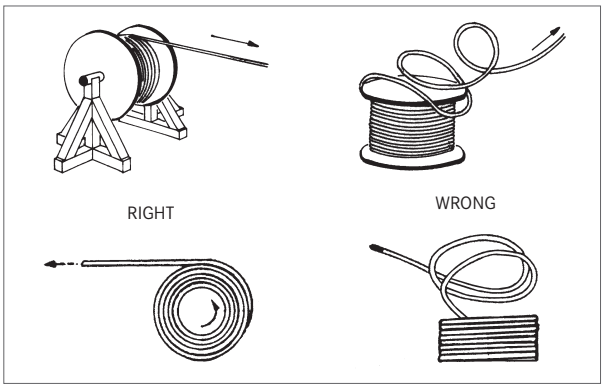
RECOMMENDATION: a detailed "Planning and Installation Guide" for PROFIBUS and/or PROFINET is available from the PROFIBUS User Organisation (PNO) in Karlsruhe, Germany.

Internet: www.profibus.com
www.profinet.com

ÖLFLEX® FD/CHAIN, UNITRONIC® FD, ETHERLINE® FD and HITRONIC® FD cables in power chains

1. Power chains must be selected in accordance with the relevant project documentation of the chain manufacturers. The bending radius must comply with the minimum bending radius of the cables. If possible, we recommend avoiding a multi-layer cable configuration, i.e. > 25 cores, and instead distributing the required quantity amongst several cables.

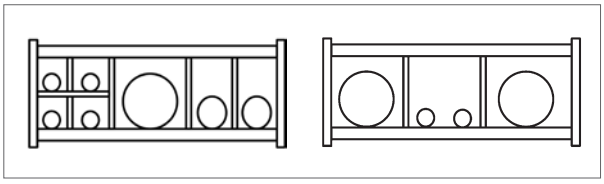
2. The cables must be unreeled from the ring or drum free of any twists (at a tangent) and must be laid out straight. This work should be carried out before starting the installation works so that the cables can relax in this time.
Due to the manufacturing process, the markings on the cable jacket run round in a gentle spiral. Therefore this cannot be used to ensure that the cables have been straightened out without any twists.



3. The cable temperature should not drop below +5 °C at any point during installation.

4. The cables also need to be installed without any twisting when inserted into the chambers. If a cable is twisted during installation, it can lead to premature damage to the core stranding. This effect can be reinforced during operation and result in so-called cork-screwing. This leads to core breaks, which ultimately cause malfunctions.

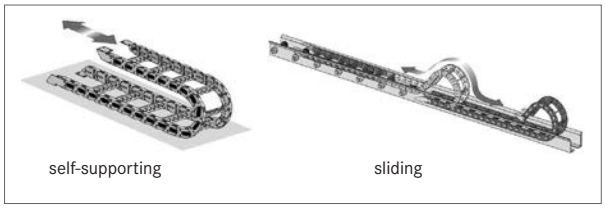
5. The cables must lie loosely next to each other in the chain chambers. They should be separated as much as possible using separators. The clearance between the cables and the cross bar, the separators or the neighbouring cables should be at least 10% of the cable diameter.



6. The cables should be installed symmetrically in terms of their weight and size; those with greater diameters and weights on the outside, those with smaller diameters and weights on the inside. They can also be placed in descending size order from inside to outside. Avoid arranging the cables above one another without the use of a shelf.

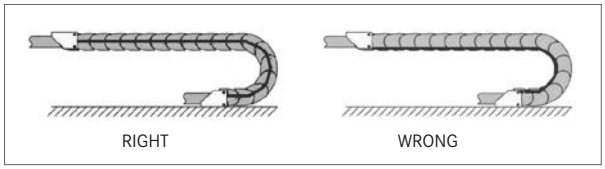
7. If the chain configurations are suspended vertically, additional free space must be provided in terms of the stay height, as the cables are lengthened during operation. After a short period of operation time, it is important to check whether the cables are still running along the neutral zone. It may be necessary to readjust them.

8. With self-supporting chain configurations, a cable is fastened both to the moving point and to the fixed point. Suitable cable supports of the chain manufacturer should be used here. With high accelerations, cable ties only have limited suitability. Avoid tying multiple cables together. The cables must not be secured or in any way bound together in the moving part of the chain. The clearance between the fixed point and the bending movements should be sufficiently wide.



9. With sliding chains, we recommend that the cable only be fastened to the moving point. A small cable reserve should be factored in at the fixed point.
(Note the assembly instructions of the chain manufacturer).

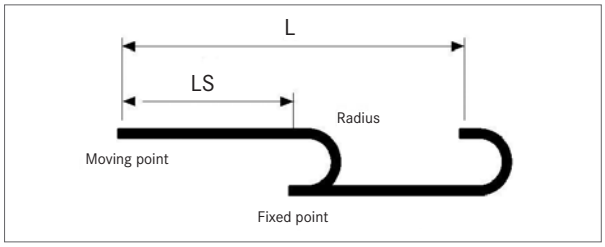
10. Make sure that the cables in the bending radius run in the neutral zone, i.e. there must be no forced guidance through the chain in the inner or outer radius, so that the cables can still move relative to one another and to the chain.



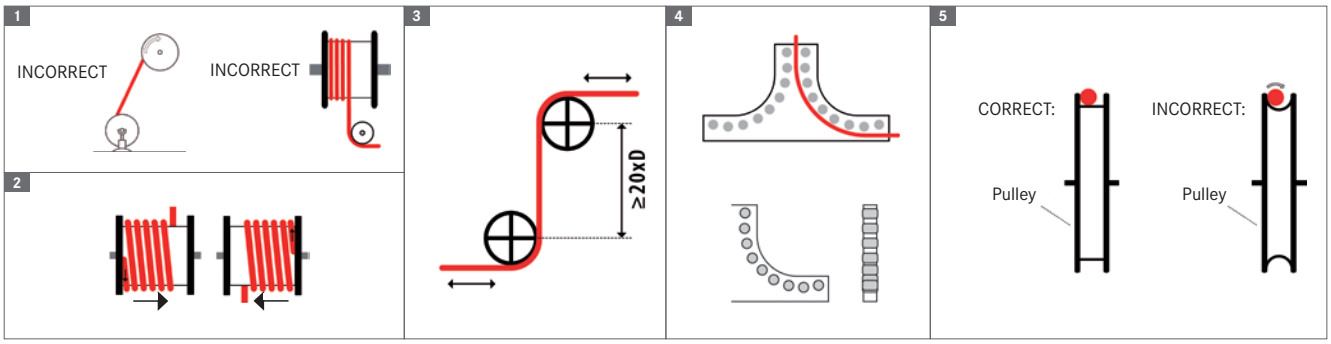
11. If a cable does not run smoothly, i.e. if it becomes twisted along the longitudinal axis during operation, the cable should be rotated gradually at one of the fastening points until it runs smoothly again.

12. The length-changing characteristics of a cable and a chain differ considerably from one another in terms of their absolute sizes. In the first few hours of operation, cables undergo natural lengthening. With chains, it takes many hours of operation for this effect to take place. This oppositional behaviour should be addressed by regularly checking the installation position of the cables. We recommend carrying out the inspections regularly, every three months, in the first year of operation – after they should be carried out whenever a maintenance interval is due. This involves checking that the cables in the bending radius can move completely freely.
It may be necessary to make readjustments.
We recommend incorporating the maintenance instructions into the inspection plan of the system.

13. The travel distance (L) results from 2 x chain length (LS)



ÖLFLEX® CRANE NSHTÖU, ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR



1. The delivery drum must be transported as close as possible to the installation location. Avoid rolling the cable drum unnecessarily. If it is not possible to transport the drum directly to the system, we recommend unreeling the cable from the drum using guide pulleys. A drag rope and a cable grip should also be used.

2. The cable can only be unreeled using cable stands or unwinders and only from above. When doing so, the cable must also be stretched out straight, and must not be deflected or pulled over any sharp edges. The cable temperature should not fall below +5 °C during this process (LAPP's recommendation).

3. The entire length of cable must be laid out prior to installation. Avoid rewinding the cable from the delivery drum directly onto the unit drum. When laying the cable, avoid "S"-shaped bends or other similar deflections. The cable must be free of twists when wound on the unit drum. Likewise, it must be possible to connect and fasten the cable to the feed-in point without any twisting (fig. 1).

4. The core layer structure of windable ÖLFLEX® CRANE cables has an "S"-shaped core stranding design. We therefore strongly recommend that you ensure the first layer of the cable is wound onto the drum in the correct direction, depending on the feed-in position of the cable alongside the drum body, as shown in the figure 2. Otherwise the cores could become damaged.

5. If a feed-in point is passed over during operation, a pulling protection drum with the correct diameter should be used underneath the travel path. At least 1-2 cable windings should be placed on this drum in order to evenly distribute the tensile forces. A deflection funnel with a defined radius should be applied above the drum.

6. To fasten the cable to the feed-in point, it is absolutely necessary to use sufficiently large clamps or cable support grips in order to ensure cable-friendly strain relief. The clearance between the fastening and the drum should be at least 40 x D.

7. With a fully unreeled cable, at least 2 cable windings should remain on the unit drum to provide strain relief.

8. The bending diameter for ÖLFLEX® CRANE NSHTÖU, on cables with an outer diameter of up to 21.5 mm, must not be less than 10 times the cable diameter, and 12.5 times for cables with larger outer diameters.
With ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR, the bending diameter must be at least 15 times greater than the cable diameter. The relevant minimum bending radius is listed both on the corresponding catalogue page and the product data sheet.

9. "S"-shaped bends in the cable should be avoided during operation. However, if this is not possible, the space between the deflection pulley axes must be at least 20 times the cable diameter for cables with an outer diameter of less than 21.5 mm, and at least 25 times for cables with larger outer diameters.
Cables which are suitable for this application are listed in selection table A3-2 (fig. 3).

10. For the installation and operation of the cables ÖLFLEX® CRANE VS (N)SHTÖU and ÖLFLEX® CRANE PUR, the maximum tension load of the cable should be observed for each dimension based on the integrated supporting elements (see product page in catalogue).
For cables with large outer diameters (approximately 21.5 mm and above), we recommend using guide pulleys to minimise friction on the outer sheath when changing direction (fig. 4).

11. In order to prevent the cable from twisting, the inner contact surface of the pulley must not have a concave shape. To ensure that the cable runs smoothly, the inner width of the guiding groove must be at least 10% greater than the outer diameter of the cable (fig. 5).

12. These cables fulfil the requirements stipulated by VDE 0250 and VDE 0298-3 (use/installation). Any loads exceeding those specified will reduce the service life of the cable.

Lift/elevator control cables – ÖLFLEX® LIFT, ÖLFLEX® LIFT T, ÖLFLEX® LIFT S

A General information

1. The cables must be free of twists when being installed, and this should be done at temperatures of at least +5 °C. VDE 0298-4/ LAPP table T12, column C applies for the current rating values.

2. The inner bending radius of the cable must not be less than 20 times the outer cable diameter.

3. The maximum suspension length depends on the supporting element in the cable in each case (see the products catalogue pages).

4. The delivery drum must be transported to (or as close as possible to) the installation location. If possible, avoid rolling the drum. If the drum must be rolled, only move the drum in the specified direction (see fig. 1).

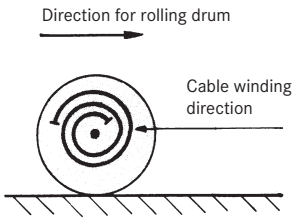
B Suspending the cables

1. When pulling the cables into the shaft, unreel them tangentially from the drum. Unreeling the cable axially from the drum will result in the cable twisting and will affect the core stranding, which may in turn cause malfunctions (see fig. 2).

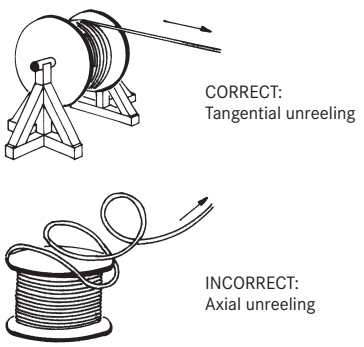
2. To ensure the cable is fitted without twists, allow the cable to briefly hang freely in the shaft. The best way to do this is to pull the control cable into the lift shaft from the bottom of the shaft.

3. The gap between the lift cabin and bottom of the shaft must be sufficiently large, and must be used in full for the cable loop height (see fig. 3).

1



2



C Further information

1. It is essential that sufficiently large clamps are used to secure the cables (e. g. LAPP cable wedge clamps type EKK or DKK). For suspension lengths greater than 50 m, the supporting element must also be damped separately.

2. The fastening point on the shaft wall must be at least 2 m above the centre of the travel distance (see fig. 3).

3. If the cable does not run smoothly, i.e. if the cable leaves the max. gradient line during operation, rotate the control cable slightly at one of the fastening points until the cable runs smoothly again.

4. If several control cables need to be installed for the lift unit, for technical reasons we recommend suspending the individual cables such that the height of the various loops differs by approx. 15 cm (stepped suspension).

3

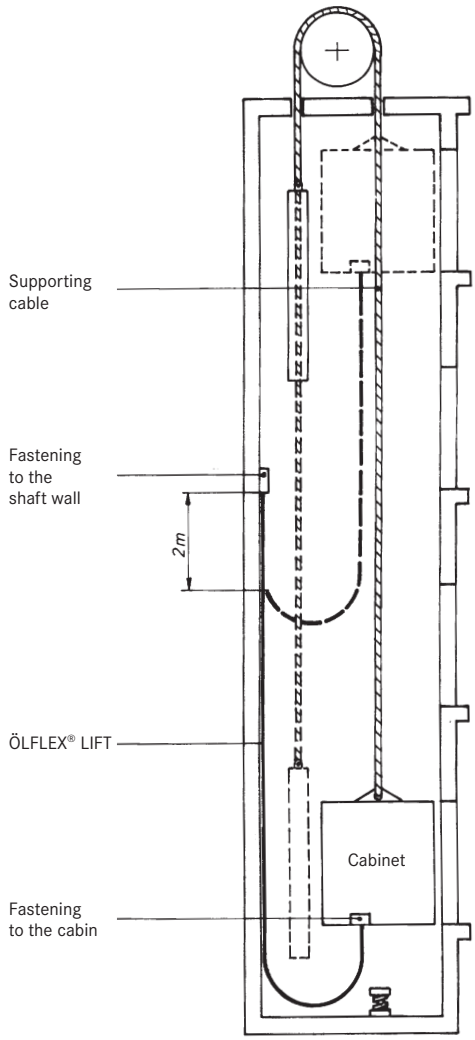


Table 6-1: Type designations for control cables and harmonised cables (excerpts)

Control cables

□□□□□ □□ x □
1 2 3 4 5 6 7 8

1. Basic type

N	VDE standard (N) in line with VDE

2. Insulating material

Y	Thermoplastic resins
X	Cross-linked thermoplastic resins
G	Elastomers
HX	Halogen-free materials

3. Cable designation

A	Core cable
D	Solid wire
AF	Fine-wire core cable
F	Socket core
L	Fluorescent tube cable
LH	Connecting cable, light mechanical loads
MH	Connecting cable, moderate mechanical loads
SH	Connecting cable, heavy mechanical loads
SSH	Connecting cable for special loads
SL	Control cable/welding cable
S	Control cable
LS	Light control cable
FL	Flat cable
Si	Silicone cable
Z	Twin cable
GL	Glass fibre
Li	Braided conductor as per VDE 0812
LiF	Braided conductor as per VDE 0812, extra-fine wire

4. Special features

T	Supporting element
Ö	Enhanced oil resistance
U	Flame-retardant
w	Heat-resistant, weather-resistant
FE	Insulation retained for a limited time
C	Screening braid
D	Screening as Cu wire wrapping
S	Steel wire braiding as mech. protection

5. Sheaths

As point 2.
"Insulating material" P/PUR polyurethane

6. Protective conductor

-O	Without protective conductor
-J	With protective conductor

7. Number of cores

... number of cores

8. Conductor cross-section

Figures in mm²

EXAMPLE: NSHTÖU 24G 1.5
ÖLFLEX® CRANE NSHTÖU cable, 24-core,
with protective cond., cross-section: 1.5 mm²

Harmonised cables

□□ □□□ – □ □□□
1 2 3 4 5 6 7 8 9

1. Basic type

H	Harmonised type
A	National type
X or S	in the style of a harmonized type

2. Nominal voltage

01	100/100 volts
03	300/300 volts
05	300/500 volts
07	450/750 volts

3. Insulating material

V	PVC
V2	PVC +90 °C
V3	PVC flexible at cold temperatures
B	Ethylene propylene rubber
E	PE polyethylene
X	XPE, cross-linked PE
R	Rubber
S	Silicone rubber

4. Outer/inner sheath material

V	PVC
V2	PVC +90 °C
V3	PVC flexible at cold temperatures
V5	PVC with enhanced oil resistance
R	Rubber
N	Chloroprene based rubber
Q	Polyurethane
J	Glass fibre braiding
T	Textile braiding
S	Silicone rubber

5. Special features

C4	Copper wire screen braiding
H	Flat cable, divisible
H2	Flat cable, not divisible
H6	Flat cable, not divisible, for lifts
H8	Helical/spiral cable

6. Conductor type

U	Single-wire
R	Multi-wire
K	Fine-wire (fixed installation)
F	Fine-wire (flexible installation)
H	Extra-fine wire
Y	Tinsel wire
D	Fine-wire conductor for welding cable
E	Extra-fine wire conductor for welding cable

7. Number of cores

... number of cores

8. Protective conductor

X	Without protective conductor
G	With protective conductor

9. Conductor cross-section

Figures in mm²

EXAMPLE: H05 VV-F 3G 1.5
Medium PVC hose, 3-core,
with protective cond., cross-section: 1.5 mm²

Telecommunications cables

□□ – □□□ □ x □ x □ □□
1 2 3 4 5 6 7 8 9 10

1. Basic type

A-	Outdoor cable
G-	Mining cable
J-	Installation cable
Li	Stranded conductor, flexible cable
S-	Jumper cable

2. Additional designation

J	Induction protection
E	Electronics

3. Insulating material

Y	PVC
11Y	PUR
2Y	Polyethylene
O2Y	Cellular PE
9Y	PP
5Y	PTFE
6Y	FEP
7Y	ETFE
H	Halogen-free compound

4. Special features

C	Copper screen braiding
D	Copper wrapping
(ST)	Metal foil screening
(L)	Aluminium strip
F	Petroleum jelly filling
LD	Corrugated aluminium sheath
(K)	Copper strip screening
(Z)	Steel wire braiding
W	Corrugated steel sheath
b	Armouring

5. Sheathing

(see point 3. "Insulating material")

6. Number of elements

... number of stranding elements

7. Stranding element

1	Single core
2	Pair
3	Triple

8. Conductor diameter or cross section

... in mm or mm²

9. Stranding element

St	Star quad (phantom)
StI	Star quad (trunk cable)
StIII	Star quad (local cable)
TF	Star quad for TF
S	Signal cable (railway)
PiMF	Screened pair
(TP)	Twisted Pair
PiD	Pairs in copper wrapping

10. Stranding type

Lg	Twisted into layers
Bd	Twisted into bundles

EXAMPLE: A2Y(L)2Y 6 x 2 x 0.8 Bd
Telephone cable for local network
with PE insulation and layered sheath

Table 6-2: Type designations for telecommunications cables and fibre-optic cables

Fibre-optic cables

□ – □□□□□ □□ □ □
1 2 3 4 5 6 7 8 9 10

1. Product application area

A	Outdoor cable
AT	Outdoor cable, divisible
J	Indoor cable
J/A or U	Indoor/outdoor cable, universal cable

2. Buffered fibre type

B	Loose tube, unfilled
D	Loose tube, filled
V	Tight-buffered fibres

3. Design elements

F	Petroleum jelly filling
Q	Swelling tape

4. Further design elements

S	Metal element in cable core

5. Sheath materials

2Y	PE sheath
11Y	PUR sheath
H	Halogen-free sheath
(ZM)	With metallic strain relief elements
(ZN)	With non-metallic strain relief elements
(ZN)2Y	PE sheath with non-metallic strain relief elements

6. Armouring

B	Armouring
B2Y	Armouring with PE casing
(BN)	Glass yarn armouring
(SG)	Steel sheath
(SR)	Corrugated steel sheath
(SR)2Y	Corrugated steel sheath with PE Sheath

7. Number of fibres

Number of fibres

8. Fibre type

E	Single-mode fibre glass/glass (SM GOF)
G	Gradient fibre glass/glass (MM GOF)
K	Step index fibre glass/plastic (PCF)
P	Polymer optical fibre/plastic (POF)

9. Core diameter/fibre sheath diameter

50/125	Multimode glass fibre
62.5/125	Multimode glass fibre
9/125	Single-mode glass fibre
200/230	Plastic-coated glass fibre
980/1000	Polymer optical fibre

10. Category: fibre quality

OM4	For 50/125 OM4 multimode fibres
OM3	For 50/125 OM3 multimode fibres
OM2	For 50/125 OM2 multimode fibres
OM1	For 62.5/125 OM1 multimode fibres
OS2	For 9/125 OS2 Single-mode fibres (G 652D)

EXAMPLE 1: A-DQ(ZN)(SR)2Y 12G 50/125 OM3
Outdoor cable with corrugated steel sheath, central loose tube, non-metallic strain relief made of glass yarn, 12 fibres, 50/125 µm OM3 multimode fibres

EXAMPLE 2: J-V2Y(ZN)11Y 2P 980/1000
Plastic fibre-optic cable, two-fibre (duplex), indoor cable with PE inner sheath, non-metallic strain relief, PUR outer sheath

Type designations for UNITRONIC® SENSOR

S/A cables
e.g. item no. 22260339

Connection on left	Cable	Connection on right

AB- C4- M12MS- 2.0PUR- M12FA-2L

- Automation Bus
- Cordset
- Number of pins (**4**)
- Connector/thread (**M12**)
- Connector/design (**straight connector**)
- Cable length in m (**2.0 m**)
- Cable material – outer sheath (**PUR**)
- Connector/thread (**M12**)
- Connector/design (**angled socket**)
- Status display/number of LEDs (**2L**)

MS – straight connector
MA – angled connector
FS – straight socket
FA – angled socket
M8, M12, M16, M23 – thread
L – status display/LEDs
SH – screened version
HD – Hygienic Design
VA – stainless steel knurl
M12Y – M12 Y connector
B – bridged
3-, 4-, 5-, 8-, .. number of pins
A, AD, B, BI, C, CI – valve connector type
S – valve connector with Z diode
SV – valve connector with varistor
SVC – valve connector with varistor and commutator
SUP – valve connector with suppressor diode

mountable connector e.g. item no. 22260127

AB- C5- M12FS-PG7-SH

- Automation Bus
- Connector
- Number of pins (**5**)
- Connector/thread (**M12**)
- Connector/design (**straight connector**)
- Cable connection/screw connection (**PG7**)
- Screened version (**SH**)

MS – straight connector
MA – angled connector
FS – straight socket
FA – angled socket
P – piercing connection
SH – screened version
M8, M12, M16, M23 – thread
3-, 4-, 5-, 8-, .. number of pins
PG7, PG9, PG11, PG13 – cable connection
F0.34 (fast connection, max. 0.34 mm² cond. cross-sec.)
F0.75 (fast connection, max. 0.75 mm² cond. cross-sec.)
M16-0.5 (M16 flush-type conn. with 0.5 m PUR strand)
PG9-0.5 (PG9 flush-type conn. with 0.5 m PUR strand)
DSI – flush-type connector (rear wall mounting)
PO – flush-type connector (can be positioned)

S/A passive distributor box e.g. item no. 22260025

AB- B8-M12L-16-10.0PUR

- Automation Bus
- Box
- Number of slots (**8**)
- S/A connection/thread (**M12**)
- Status display/LED signals (**L**)
- Number of inputs/outputs (**16**)
- Length of master cable in m (**10.0**)
- Cable material – outer sheath (**PUR**)

INFO: S/A box with **double** assignment → $\frac{\text{(number of inputs/outputs)}}{\text{(number of slots)}} = 2$

PUR - distributor box with perm. connected master cable (PUR)
C - distributor box with master cable conn. (pluggable screw connection)
M8L - distributor box with M8 slots and LED signals
M16 - distributor box with M16 master cable conn.
M12 - distributor box with M12 master cable conn.

Further abbreviations:

AB-PC – Automation Bus Power Cable
AB-PB – Automation Bus PROFIBUS
AB-DN – Automation Bus DeviceNet
AB-ASI – Automation Bus AS-Interface
AB-ASI-J – AS-Interface distributor

Table 6-3: Data communication systems for ETHERNET technology

Industrial ethernet articlecode for patchcords

Connector, left side — Connector, right side

IE - PNC - 5 - M12D - S - 1 - P - 2 - 22 - FD - RJ45 - S

- Type
- Bussystem
- Category
- Connector, left side
- Connector design, left side
- Cable length
- Outer sheath material
- Pairs
- AWG (cross section)
- Type of application
- Connector, right side
- Connector design, right side

1. Type

IE	Industrial Ethernet

2. Bussystem

N/A	Default Ethernet
PNA	PROFINET® Type A
PNB	PROFINET® Type B
PNC	PROFINET® Type C
EC	EtherCAT®

3. Category

5	Cat.5/Cat.5e
6	Cat.6
6 A	Cat.6_A

4. Connector, left side

M8	M8 A-coded, male
M8F	M8 A-coded, female
M12D	M12 D-coded, male
M12DF	M12 D-coded, female
M12X	M12 X-coded, male
M12XF	M12 X-coded, female
RJ45	RJ45 male

5. Connector design, left side

S	Straight (180°)
A	Angled (90°)

6. Cable length

0,5	0,5 m
1	1 m
2	2 m
5	5 m
10	10 m
15	15 m
20	20 m

7. Outer sheath material

H	Halogen free
P	PUR
Y	PVC

8. Pairs

2	2 x 2 cores
4	4 x 2 cores

9. AWG (cross section)

22	AWG22
23	AWG23
24	AWG24
26	AWG26
27	AWG27

10. Type of application

1	Fixed installation
7	Flexible application
FD	Drag chain application
T	Torsion stressed application

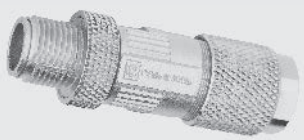
11. Connector, right side

M8	M8 A-coded, male
M8F	M8 A-coded, female
M12D	M12 D-coded male
M12DF	M12 D-coded female
M12X	M12 X-coded male
M12XF	M12 X-coded female
RJ45	RJ45 male
OE	Open conductor end

12. Connector design, right side

S	Straight (180°)
A	Angled (90°)

EPIC® DATA Code for Ethernet applications



ED - IE - 90 - M12 - X - RM - 6A - A - 54 - FD - FC - AC

- Type
- Bussystem
- Cable outlet
- Type of connection
- Coding
- Mounting version
- Category
- Standard for pin assignment
- Protection class
- Special requirements
- Cable connection
- Additional

1. Type

ED	EPIC® DATA

2. Bussystem

IE	Indutrial Ethernet

3. Cable outlet

90	90°
AX	Straight (0°)

4. Type of connection

N/A/RJ45	RJ45 male
RJ45F	RJ45 female
M12	M12 male
M12F	M12 female
M8	M8 male
HY	Hybrid
H	H3A

5. Coding

N/A	D-coded
A	A-coded
D	D-coded
X	X-coded

6. Mounting version

RM	Rear-mounting
FM	Front-mounting

7. Category

5	Cat.5/Cat.5e
6	Cat.6
6 A	Cat.6_A

8. Standard for pin assignment

A	T568A
B	T568B
PN	PROFINET®

9. Protection class

N/A	IP20 (= Standard)
54	IP54
65	IP65
67	IP67
68	IP68

10. Special requirements

FD	Especially for 19 wire stranded cores

11. Cable connection

N/A	Screw (= Standard)
FC	Fastconnect
FZ	Spring type

12. Additional

AC-DC	Accessory Dust Cap

Colour code for ÖLFLEX® cables

The colour code applies to the following cables starting from 6 cores: ÖLFLEX® CLASSIC 100 300/500 V, ÖLFLEX® CLASSIC 100 450/750 V, ÖLFLEX® CLASSIC 100 CY, ÖLFLEX® CLASSIC 100 SY and ÖLFLEX® CLASSIC 100 BK 0,6/1 KV. It contains colours and colour combinations for up to 102 cores, and consists of 11 basic colours. The different variations of the basic colours are achieved by using one or two coloured stripes, meaning each core can be easily distinguished from the rest. The VDE colour code applies for cables with up to 5 cores (inclusive). Please also see T9.
The cores are counted from the inside to the outside, and the green/yellow core is always the last core in the outer layer.

Basic colours

0	green/yellow
1	white
2	black
3	blue
4	brown
5	grey
6	red
7	violet
8	pink
9	orange
10	transparent
11	beige

Basic colours with white stripe

12	black/white
13	blue/white
14	brown/white
15	grey/white
16	red/white
17	violet/white
18	pink/white
19	orange/white
20	transparent/white
21	beige/white

Basic colours with black stripe

22	blue/black
23	brown/black
24	grey/black
25	red/black
26	violet/black
27	pink/black
28	orange/black
29	transparent/black
30	beige/black

Basic colours with blue stripe

31	brown/blue
32	grey/blue
33	red/blue
34	pink/blue
35	orange/blue
36	transparent/blue
37	beige/blue

Basic colours with brown stripe

38	grey/brown
39	red/brown
40	violet/brown
41	pink/brown
42	orange/brown
43	transparent/brown
44	beige/brown

Basic colours with grey stripe

45	red/grey
46	violet/grey
47	pink/grey
48	orange/grey
49	transparent/grey
50	beige/grey

Basic colours with red stripe

51	orange/red
52	transparent/red
53	beige/red

Basic colours with violet stripe

54	pink/violet
55	orange/violet
56	transparent/violet
57	beige/violet

Basic colours with pink stripe

58	transparent/pink
59	beige/pink

Basic colours with orange stripe

60	transparent/orange
61	beige/orange

Basic colours with white/black stripes

62	blue/white/black
63	brown/white/black
64	grey/white/black
65	red/white/black
66	violet/white/black
67	pink/white/black
68	orange/white/black
69	transp./white/black
70	beige/white/black

Basic colours with white/blue stripes

71	brown/white/blue
72	grey/white/blue
73	red/white/blue
74	violet/white/blue
75	pink/white/blue
76	orange/white/blue
77	transp./white/blue
78	beige/white/blue

Basic colours with white/brown stripes

79	grey/white/brown
80	red/white/brown
81	violet/white/brown
82	pink/white/brown
83	orange/white/brown
84	transp./white/brown
85	beige/white/brown

Basic colours with white/grey stripes

86	red/white/grey
87	violet/white/grey
88	pink/white/grey
89	orange/white/grey
90	transp./white/grey
91	beige/white/grey

Basic colours with white/red stripes

92	blue/white/red
93	brown/white/red
94	violet/white/red
95	pink/white/red
96	orange/white/red

Basic colours with white/violet stripes

97	brown/white/violet
98	orange/white/violet

Basic colours with black/blue stripes

99	brown/black/blue
100	grey/black/blue
101	red/black/blue

Colour code for UNITRONIC® 100 cables

It contains colours and colour combinations for up to 102 cores, and consists of 10 basic colours. The different variations of the basic colours are achieved by using one or two coloured stripes, or by ring marking, meaning each core can be easily distinguished from the rest. The cores are counted from the inside to the outside, and the green/yellow core is always the last core in the outer layer.

Basic colours

0	green/yellow
1	black
2	blue
3	brown
4	beige
5	yellow
6	green
7	violet
8	pink
9	orange
10	transparent

Basic colours with white stripe

11	red/white
12	blue/white
13	yellow/white
14	green/white
15	violet/white
16	orange/white
17	brown/white

Basic colours with red stripe

18	blue/red
19	yellow/red
20	green/red
21	white/red
22	orange/red
23	brown/red

Basic colours with black stripe

24	red/black
25	blue/black
26	yellow/black
27	green/black
28	violet/black
29	white/black
30	orange/black
31	brown/black

Basic colours with green stripe

32	red/green
33	grey/green
34	violet/green
35	white/green
36	orange/green
37	brown/green

Basic colours with yellow stripe

38	red/yellow
39	blue/yellow
40	violet/yellow
41	white/yellow
42	brown/yellow

Basic colours with blue stripe

43	red/blue
44	white/blue
45	orange/blue
46	brown/blue

Basic colours with violet stripe

47	yellow/violet
48	green/violet
49	white/violet
50	orange/violet
51	brown/violet

Basic colour: black, coloured stripe

52	black/white
53	black/yellow
54	black/red
55	black/green
56	black/blue
57	black/violet

Basic colour: grey, coloured stripe

58	grey/white
59	grey/black
60	grey/yellow
61	grey/red
62	grey/blue
63	grey/violet

Basic colours with grey stripe

64	red/grey
65	blue/grey
66	yellow/grey
67	green/grey
68	violet/grey
69	white/grey
70	orange/grey

Basic colours with white/red stripes

71	blue/white/red
72	yellow/white/red
73	green/white/red
74	brown/white/red

Basic colours with white/black stripes

75	red/white/black
76	blue/white/black
77	yellow/white/black
78	green/white/black
79	violet/white/black
80	orange/white/black
81	brown/white/black

Basic colours with white/green stripes

82	red/white/green
83	yellow/white/green
84	violet/white/green
85	orange/white/green
86	brown/white/green

Basic colours with white/blue stripes

87	red/white/blue
88	yellow/white/blue
89	orange/white/blue
90	brown/white/blue

Basic colours with white/violet stripes

91	yellow/white/violet
92	green/white/violet
93	orange/white/violet
94	brown/white/violet

Basic colours with red/black stripes

95	blue/red/black
96	yellow/red/black
97	green/red/black
98	white/red/black
99	brown/red/black

Basic colours with red/green stripes

100	yellow/red/green
101	white/red/green
102	orange/red/green

Table 8-1: international colour codes for extension and compensating cables

Thermo couple		IEC 60584-3	DIN 43710*	ANSI MC 96.1	BS 4937	NF C 42-324
Material ⊕ ⊖		Designation XC / CC	Designation XC / CC	Designation XC / CC	Designation XC / CC	Designation XC / CC
T	Cu – CuNi	TX -25 °C up to +100 °C		TX 0 °C up to +100 °C	TX 0 °C up to +100 °C	TX -25 °C up to +100 °C
U	Cu – CuNi		UX 0 °C up to +200 °C			
J	Fe – CuNi	JX -25 °C up to +200 °C		JX 0 °C up to +200 °C	JX 0 °C up to +200 °C	JX -25 °C up to +200 °C
L	Fe – CuNi		LX 0 °C up to +200 °C			
E	NiCr – CuNi	EX -25 °C up to +200 °C		EX 0 °C up to +200 °C	EX 0 °C up to +200 °C	EX -25 °C up to +200 °C
K	NiCr – Ni	KX -25 °C up to +200 °C	KX 0 °C up to +200 °C	KX 0 °C up to +200 °C	KX 0 °C up to +200 °C	KX -25 °C up to +200 °C
	NiCr – Ni	KCA 0 °C up to +150 °C	KCA 0 °C up to +150 °C			WC 0 °C up to +150 °C
	NiCr – Ni	KCB 0 °C up to +100 °C			VX 0 °C up to +100 °C	VC 0 °C up to +100 °C
N	NiCrSi – NiSi	NX / NC -25 °C up to +200 °C / 0 °C up to +150 °C				
R S	PtRh13 – Pt PtRh10 – Pt	RCB SCB 0 °C up to +200 °C	RCB SCB 0 °C up to +200 °C	SX 0 °C up to +200 °C	SX 0 °C up to +200 °C	SC 0 °C up to +200 °C
B	PtRh30 – PtRh6			BX 0 °C up to +100 °C		BC 0 °C up to +100 °C

The stated temperature specifies the application temperature range for each type.
The application temperature range must be reduced if it is required by the insulation material used for the cable.
*DIN 43710 was withdrawn in April 1994.

XC = extension cables
CC = compensating cables

Table 8-2: temperature measurement with thermo couples

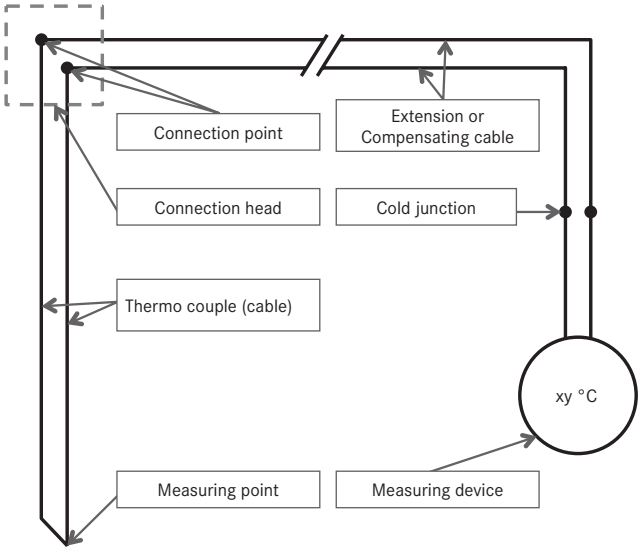
The measurement principle:

The thermoelectric effect describes a thermal voltage that arises between two different electrical conductors with a temperature difference between both ends.

This effect can be used by thermocouples, which consist of two metals or alloys that produce a specific thermal voltage as thermocouple.

By means of this thermal voltage, the temperature difference between the contact points, which are usually the measuring point and the cold junction, are determined as being associated with a temperature value for each thermocouple voltage. The cold junction must have a known and constant temperature in order to determine the temperature difference to the measurement point exactly.

For the caballing between measuring point and connection point thermo couple cables are typically used. Between connection point and cold junction extension or compensating cables are typically used to transmit the voltage signal.



Three types of cables:

Thermo couple cables:

- Type code of the thermo couple (K, R ...)
- Approved for the temperature range of the thermo couple (Type K → up to +1200 °C)
- Same alloy as thermo couple (NiCr/Ni contains NiCr/Ni)
- Used as thermo couple, between measuring point and connection point or cold junction

Extension cables (XC):

- Type code of the thermo couple + "X" (KX, LX ...)
- Approved for the application temperature range (Type KX → up to +200 °C)
- Same alloy as thermo couple (NiCr/Ni contains NiCr/Ni)
- Generally used as connecting cable between connection point and cold junction

Compensating cables (CC):

- Type code of the thermo couple + "C" and sometimes supplemented with code a for different compensating alloys (KCA, RCB/SCB ...)
- Approved for the application temperature range (Type KCA → up to +150 °C)
- Compensating alloys (KCA (NiCr/Ni) contains special Fe/CuNi)
- Generally used as connecting cable between connection point and cold junction

These alloys are used for the cables:

Type	Positive conductor	Negative conductor
TX	Cu	CuNi
JX	Fe	CuNi
LX	Fe	CuNi
EX	NiCr	CuNi
K	NiCr	Ni
KX	NiCr	Ni
KCA	Fe	CuNi
NX	NiCrSi	NiSi
NC	Cu	CuNi
RCB/SCB	Cu	CuNi

Criteria for the selection of cable:

The thermo couple type:

Each thermo couple has its own specific thermo electric properties. If different thermocouples are mixed, measurement errors arise.

The ambient temperature to which the cable is exposed:

The ambient temperature is the decisive factor for the selection of the insulation and jacket material for the cable. The application temperature range must be reduced if it is required by the insulation material used for the cable.

Insulation and jacket material	temperature range fixed installed
PVC	-25 °C up to +80 °C
Silicone	-50 °C up to +180 °C
Glass fibre	-50 °C up to +200 °C
FEP	-100 °C up to +205 °C
E-Glass	-90 °C up to +400 °C
Ceramic yarn	up to +1200 °C

The ambient temperature at the connection point:

Each extension and compensating cable is suitable for a specific application temperature range. That means the cable has the same thermo electric properties as the thermo couple within this application temperature range. Please find the application temperature range on table T8-1.

Specialities of the cables:

- The iron conductor is often copper-coated. This should protect the conductor from corrosion. The iron conductor is magnetic and can easily be identified by this characteristic.
- For the thermo couples R and S the thermo electric properties are the same within the application temperature up to +200 °C, therefore only one compensating cable (RCB/SCB) is used for both types.

VDE 0293-308/HD 308 S2
Core ID code for colour-coded low-voltage cables

For marking cores in multi- and several-core cables for use in electrical systems and distribution systems.
For the supply of permanently secured or portable supplies and for portable equipment cables. 3a and 4a: only suitable for specific applications.

Number of cores	Cables with protective conductor (code J or G)	Cables without protective conductor (code O or X)	Cables with concentric conductor
2	–	BU/BN	BU/BN
3	GNYE/BN/BU	BN/BK/GY	BN/BK/GY
3a	–	BU/BN/BK	BU/BN/BK
4	GNYE/BN/BK/GY	BU/BN/BK/GY	BU/BN/BK/GY
4a	GNYE/BU/BN/BK	–	–
5	GNYE/BU/BN/BK/GY	BU/BN/BK/GY/BK	BU/BN/BK/GY/BK
6 and above	GNYE/BK with printed numbers	BK with printed numbers	BK with printed numbers

Colour code for power cables as per VDE 0293 (old) – (colour codes are listed in IEC 60757)

For marking cores in multi- and several-core cables for connecting portable power consumers.

Number of cores	Cables with green/yellow core (currently not yet harmonised)	Cables with green/yellow core (currently not yet harmonised)	Cables with concentric conductor
2	–	BU/BN	–
3	GNYE/BN/BU	BU/BN/BK	–
3	–	BU/BN/BK	–
4	GNYE/BK/BU/BN	BU/BN/BK/GY	–
5	GNYE/BK/BU/BN/BK	BU/BN/BK/GY/BK	–
6 and above	GNYE/further cores in BK with printed numbers, starting from the inside with 1, GNYE in the outer layer	BK with printed numbers	–

For marking cores in multi- and several-core cables and in multi-core cables for fixed installation.

Number of cores	Cables with green/yellow core (code -J-)	Cables without green/yellow core (code -O-)	Cables with concentric conductor
2	–	BK/BU	BK/BU
3	GNYE/BK/BU	BN/BU/BK	BK/BU/BN
3	–	BN/BK/BU	–
4	GNYE/BK/BU/BN	BK/BN/BU/BK	BK/BU/BN/BK
5	GNYE/BK/BU/BN/BK	BK/BN/BU/BK/BK	–
6 and above	GNYE/further cores in BK with printed numbers, starting from the inside with 1, GNYE in the outer layer	Cores in BK with printed numbers, starting from the inside with 1	Cores in BK with printed numbers, starting from the inside with 1

DIN 47100/January 1988 – colour code for UNITRONIC® twisted pair

Each pair has an a-core and a b-core. The marking is repeated for the first time as from 23 pairs, and for the second time as from 45 pairs. The first colour is always the basic colour of the core, and the second colour is printed in rings.

Pair no.	Colour of a-core	Colour of b-core	Pair no.	Colour of a-core	Colour of b-core
1	white	brown	13	white/black	brown/black
2	green	yellow	14	grey/green	yellow/grey
3	grey	pink	15	pink/green	yellow/pink
4	blue	red	16	green/blue	yellow/blue
5	black	violet	17	green/red	yellow/red
6	grey/pink	red/blue	18	green/black	yellow/black
7	white/green	brown/green	19	grey/blue	pink/blue
8	white/yellow	yellow/brown	20	grey/red	pink/red
9	white/grey	grey/brown	21	grey/black	pink/black
10	white/pink	pink/brown	22	blue/black	red/black
11	white/blue	brown/blue	23-44	see 1 – 22	see 1 – 22
12	white/red	brown/red	45-66	see 1 – 22	see 1 – 22

DIN 47100 colour code (but differs from DIN as the colours are not repeated after the 44th core)

Exception: 4-core line, which has a sequence of white, yellow, brown, green.

Core no.	Colour	Core no.	Colour	Core no.	Colour	Core no.	Colour	Core no.	Colour
1	white	14	brown/green	27	grey/green	40	pink/red	53	white/grey/black
2	brown	15	white/yellow	28	yellow/grey	41	grey/black	54	grey/brown/black
3	green	16	yellow/brown	29	pink/green	42	pink/black	55	white/pink/black
4	yellow	17	white/grey	30	yellow/pink	43	blue/black	56	pink/brown/black
5	grey	18	grey/brown	31	green/blue	44	red/black	57	white/blue/black
6	pink	19	white/pink	32	yellow/blue	45	white/brown/black	58	brown/blue/black
7	blue	20	pink/brown	33	green/red	46	yellow/green/black	59	white/red/black
8	red	21	white/blue	34	yellow/red	47	grey/pink/black	60	brown/red/black
9	black	22	brown/blue	35	green/black	48	red/blue/black	61	black/white
10	violet	23	white/red	36	yellow/black	49	white/green/black		
11	grey/pink	24	brown/red	37	grey/blue	50	brown/green/black		
12	red/blue	25	white/black	38	pink/blue	51	white/yellow/black		
13	white/green	26	brown/black	39	grey/red	52	yellow/brown/black		

Colour code for UNITRONIC® 300 & 300 S (20 – 16 AWG)

Core no.	Colour	Core no.	Colour	Core no.	Colour	Core no.	Colour	Core no.	Colour
1	black	11	pink	21	white/brown	31	white/black/grey	41	white/green/red
2	red	12	light brown	22	white/orange	32	white/black/violet	42	white/green/green
3	white	13	red/green	23	white/grey	33	white/black/black	43	white/green/blue
4	green	14	red/yellow	24	white/violet	34	white/red/black	44	white/green/brown
5	orange	15	red/black	25	white/black/red	35	white/red/red	45	white/green/violet
6	blue	16	white/black	26	white/black/green	36	white/red/green	46	white/blue/black
7	brown	17	white/red	27	white/black/yellow	37	white/red/blue	47	white/blue/red
8	yellow	18	white/green	28	white/black/blue	38	white/red/brown	48	white/blue/green
9	violet	19	white/yellow	29	white/black/brown	39	white/red/violet	49	white/blue/blue
10	grey	20	white/blue	30	white/black/orange	40	white/green/black	50	white/blue/brown

Colour code for UNITRONIC® 300 & 300 S (24 – 22 AWG)

Core no.	Colour	Core no.	Colour	Core no.	Colour	Core no.	Colour	Core no.	Colour
1	black	11	white/black	21	white/black/red	31	white/brown/green	41	white/orange/yellow
2	brown	12	white/brown	22	white/black/orange	32	white/brown/blue	42	white/orange/green
3	red	13	white/red	23	white/black/yellow	33	white/brown/violet	43	white/orange/blue
4	orange	14	white/orange	24	white/black/green	34	white/brown/grey	44	white/orange/violet
5	yellow	15	white/yellow	25	white/black/blue	35	white/red/orange	45	white/orange/grey
6	green	16	white/green	26	white/black/violet	36	white/red/yellow	46	white/yellow/green
7	blue	17	white/blue	27	white/black/grey	37	white/red/green	47	white/yellow/blue
8	violet	18	white/violet	28	white/brown/red	38	white/red/blue	48	white/yellow/violet
9	grey	19	white/grey	29	white/brown/orange	39	white/red/violet	49	white/yellow/grey
10	white	20	white/black/brown	30	white/brown/yellow	40	white/red/grey	50	white/green/blue

Core ID code as per VDE colour code for telephone cables

Colour code for J-Y(ST)Y... LG as per DIN VDE 0815

The colour of the a-core of each first pair in a layer is red (counting pair), for all other pairs the a-core is white. The colour of the b-core is blue, yellow, green, brown, black, repeating continuously as follows:

Colour of the b-core	Number of pair									
blue	1	6	11	16	21	26	31	36	41	46
yellow	2	7	12	17	22	27	32	37	42	47
green	3	8	13	18	23	28	33	38	43	48
brown	4	9	14	19	24	29	34	39	44	49
black	5	10	15	20	25	30	35	40	45	50
blue	51	56	61	66	71	76	81	86	91	96
yellow	52	57	62	67	72	77	82	87	92	97
green	53	58	63	68	73	78	83	88	93	98
brown	54	59	64	69	74	79	84	89	94	99
black	55	60	65	70	75	80	85	90	95	100

Beginning with the outer layer, the pairs are numbered consecutively in the same direction through all layers. The count begins with the counting element (the pair with the red a-core).

Example: J-Y(ST)Y 10 x 2 x 0.8 LG

Outer layer 8 pairs: rd-bu, wh-ye, wh-gn, wh-bn, wh-bk, wh-bu, wh-ye, wh-gn

Inner Layer 2 pairs: rd-bn, wh-bk

Exemption:
The twin-pair installation cable is twisted into a star quad:

Side 1: a-core: red,
b-core: black,

Side 2: a-core: white,
b-core: yellow.

Colour code for A-2Y(L)2Y... ST III BD and A-2YF(L)2Y... ST III BD as per DIN VDE 0816 and for J-H(ST)H ... BD and J-2Y(ST)Y... ST III BD as per DIN VDE 0815

The cores are marked by black rings. One star quad is:

Side 1:

a-core: without ring

b-core:

Side 2:

a-core:

b-core:

The cores of a star quad for each bundle are identified by the base colours of the insulation sheath, which are repeated in the same sequence in each bundle:

Quad 1: base colour red

Quad 2: base colour green

Quad 3: base colour grey

Quad 4: base colour yellow

Quad 5: base colour white

5 Star quads (10 pairs) are stranded to a base bundle. The bundles to be counted are marked by red helices. The other bundles are marked by white helices.

Colour code for JE-Y(ST)Y... BD and JE-LiYCY... BD as per DIN VDE 0815

The pair cores for each bundle are identified by the base colours of the insulation sheath, which are repeated in the same sequence in each bundle:

Base colour of the pairs

Pair:	1	2	3	4
a-core:	blue	grey	green	white
b-core:	red	yellow	brown	black

Exemption:
The twin-pair installation cable is twisted into a star quad:

Side 1: a-core: blue,
b-core: red,

Side 2: a-core: grey,
b-core: yellow.

4 pairs are stranded into a bundle. The bundles are identified by the colours of the rings on the core insulation sheaths and the arrangement of the coloured rings in groups. The ring groups are located at intervals of approx. 60 mm.

On cables with more than 12 bundles, the 13th bundle and any subsequent bundles have coloured helices. When counting the bundles, start from the innermost layer.

Bundle	Ring colour	Ring group	Bundle helix
1	pink		-
2	pink		-
3	pink		-
4	pink		-
5	orange		-
6	orange		-
7	orange		-
8	orange		-
9	violet		-
10	violet		-
11	violet		-
12	violet		-
13	pink		blue
14	pink		blue
15	pink		blue
16	pink		blue
17	orange		red
18	orange		red
19	orange		red
20	orange		red

Conductor resistances and conductor stranding (metric)

Conductor resistances: up to 0.38 mm² as per DIN VDE 0812 and DIN VDE 0881 for stranded conductors, from 0.5 mm² as per IEC 60228/DIN EN 60228 (VDE 0295) for conductors made of soft-annealed copper and single and multi-core cables.

Nominal cross-section in mm²	Conductor resistances at 20 °C for 1 km in Ω (max. value)			
	made of wires with metal sheath		made of bare wires	
	Class 2	Class 5 + 6	Class 2	Class 5 + 6
0.08		252.0		243.0
0.14		148.0		138.0
0.25		79.9		79.0
0.34		57.5		57.0
0.38		52.8		48.5
0.5	36.7	40.1	36.0	39.0
0.75	24.8	26.7	24.5	26.0
1	18.2	20.0	18.1	19.5
1.5	12.2	13.7	12.1	13.3
2.5	7.56	8.21	7.41	7.98
4	4.70	5.09	4.61	4.95
6	3.11	3.39	3.08	3.30
10	1.84	1.95	1.83	1.91
16	1.16	1.24	1.15	1.21
25	0.734	0.795	0.727	0.780
35	0.529	0.565	0.524	0.554
50	0.391	0.393	0.387	0.386
70	0.270	0.277	0.268	0.272
95	0.195	0.210	0.193	0.206
120	0.154	0.164	0.153	0.161
150	0.126	0.132	0.124	0.129
185	0.100	0.108	0.0991	0.106
240	0.0762	0.0817	0.0754	0.0801
300	0.0607	0.0654	0.0601	0.0641
400	0.0475		0.0470	
500	0.0369		0.0366	
630	0.0286		0.0283	
800	0.0224		0.0221	
1000	0.0177		0.0176	

IEC 60228:2004 / nominal cross-sectional area: value that identifies a particular size of conductor but is not subject to direct measurement

Conductor stranding (metric)

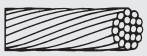
Cross-section in mm²	Multi-wire conductor Number of wires	Fine-wire conductor Single wire diameter	Extra-fine wire conductor Single wire diameter
0.14			max. 0.10 mm
0.25		max. 0.15 mm	max. 0.10 mm
0.34		max. 0.15 mm	max. 0.10 mm
0.38		max. 0.16 mm	max. 0.16 mm
0.5	min. 7 Wire	max. 0.21 mm	max. 0.16 mm
0.75	min. 7 Wire	max. 0.21 mm	max. 0.16 mm
1.0	min. 7 Wire	max. 0.21 mm	max. 0.16 mm
1.5	min. 7 Wire	max. 0.26 mm	max. 0.16 mm
2.5	min. 7 Wire	max. 0.26 mm	max. 0.16 mm
4	min. 7 Wire	max. 0.31 mm	max. 0.16 mm
6	min. 7 Wire	max. 0.31 mm	max. 0.21 mm
10	min. 7 Wire	max. 0.41 mm	max. 0.21 mm
16	min. 7 Wire	max. 0.41 mm	max. 0.21 mm
25	min. 7 Wire	max. 0.41 mm	max. 0.21 mm
35	min. 7 Wire	max. 0.41 mm	max. 0.21 mm
50	min. 19 Wire	max. 0.41 mm	max. 0.31 mm
70	min. 19 Wire	max. 0.51 mm	max. 0.31 mm
95	min. 19 Wire	max. 0.51 mm	max. 0.31 mm
120	min. 37 Wire	max. 0.51 mm	max. 0.31 mm
150	min. 37 Wire	max. 0.51 mm	max. 0.31 mm
185	min. 37 Wire	max. 0.51 mm	max. 0.41 mm
240	min. 37 Wire	max. 0.51 mm	max. 0.41 mm
300	min. 61 Wire	max. 0.51 mm	max. 0.41 mm
400	min. 61 Wire	max. 0.51 mm	
500	min. 61 Wire	max. 0.61 mm	
630	min. 91 Wire	max. 0.61 mm	

NOTE ON STANDARDS:

For single-wire conductors ... **(class 1)**, please see DIN EN 60228 (VDE 0295), table 1
For multi-wire conductors ... **(class 2)**, please see DIN EN 60228 (VDE 0295), table 2
For fine-wire conductors ... **(class 5)**, please see DIN EN 60228 (VDE 0295), table 3
For extra-fine wire conductors ... **(class 6)**, please see DIN EN 60228 (VDE 0295), table 4

single-wire

multi-/several-wire


fine-wire

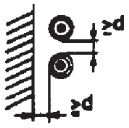
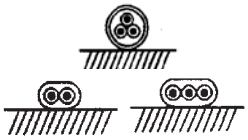
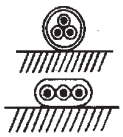
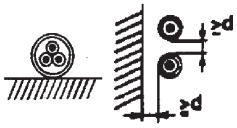
extra-fine wire

Table 12-1: current rating

For cables with a nominal voltage of up to 1000 V and for heat-resistant cables at an ambient temperature of +30 °C.
You can find general regulations and recommended values in DIN VDE 0298 part 2 and part 4.

The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 11 and 15, and based on DIN VDE 0891, 1990-05, part 1.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

	Cable category					
	A **Single-core cables** • Rubber insulation • PVC insulation • TPE insulation • Heat-resistant	**B** **Multi-core cables for domestic/handheld equipment** • Rubber insulation • PVC insulation • TPE insulation		**C** **Multi-core cables excl. domestic/handheld equipment** • Rubber insulation • PVC insulation • TPE insulation • Heat-resistant	**D** **Multi-core rubber-sheathed cables** min. 0.6/1 kV **Single-core** **Special rubber core cables** 0.6/1 or 1.8/3 kV	
Installation type						
Number of cores under load	**1**[3]	**2**	**3**	**2 or 3**	**3**	**1**[3]
Nominal cross-section in mm²	**Current rating in A**	**Current rating in A**		**Current rating in A**	**Current rating in A**	
0.08[1]	3	-	-	2	-	-
0.14[1]	4.5	-	-	3	-	-
0.25[1]	7	-	-	4.5	-	-
0.34[1]	8	-	-	5	-	-
0.5	12[2]	3	3	9[2]	-	-
0.75	15	6	6	12	-	-
1.0	19	10	10	15	-	-
1.5	24	16	16	18	23	30
2.5	32	25	20	26	30	41
4	42	32	25	34	41	55

[1] Current rating values for small conductor cross-sections taken from VDE 0891-1 (0.08 mm² – 0.34 mm²)
[2] Extended range for 0.5 mm² in line with VDE 0298-4, 2003-08, table 11
[3] When bundling single-core, touching or bundled cables, when installed on surfaces, in the open air or on cable conduits, please observe DIN VDE 0298-4, 2013-06, table 10

IMPORTANT:
The information portrayed in this table differs from that in DIN VDE 0298-4, 2013-06.
As such, in the event of any uncertainty the current version of DIN VDE 0298-4 always applies.

Please observe all applicable conversion factors going beyond table 12-1 for:
- differing ambient temperature: table 12-2
- several-core cables up to 10mm² with more than 3 cores under load: table 12-3
- heat-resistant cables for ambient temperatures exceeding 50 °C: table 12-4
- for wound cables: table 12-5
- bundling of single-core or multi-core cables in pipes, ducts, walls or flooring: table 12-6
- bundling of multi-core cables on troughs or conduits: table 12-7
- bundling of single-core cables on troughs or conduits: table 12-8

Note for Low-voltage electrical installations – Protection for safety – Protection against overcurrent:

According to HD 60364-4-43: 2010 and DIN VDE 0100-430 (VDE 0100-430): 2010-10 (IEC 60364-4-43: 2008, modified + Corrigendum Oct. 2008)

According to the above-mentioned standard, the requirements for the protection of live conductors from the effects of overcurrents must be observed. This standard describes how live conductors are protected by one or more devices for the automatic disconnection of the supply in the event of overload and short-circuit.

Please also observe all applicable current ratings going beyond table 12-1 for:
- Flexible cables with cross-linked Elastomer insulation for industrial applications: table 12-9
- Welding cable H01N2-D: table 12-10
- Operating current and power loss of copper conductors: table 12-11
- Current rating for cables in the USA: see NEC excerpt in table 13
- Cables for fixed installation in buildings: see DIN VDE 0298 part 4, 2013-06, table 3 and 4
- ESUY earthing cable: see DIN VDE 0105-1
- Cables in machinery: see DIN EN 60204-1/VDE 0113-1

Table 12-2: conversion factors

For ambient temperatures other than +30 °C. The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 17.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

Permissible/recommended operating temperature at the conductor (Details of the maximum value in °C can be found in the field "Technical data, temperature range for fixed or flexible installation" on the relevant product page in the catalogue)					
	60 °C	70 °C	80 °C	85 °C	90 °C
Ambient temperature in °C	Conversion factors to be applied to the current rating values in T12-1				
30	1.00	1.00	1.00	1.00	1.00
40	0.82	0.87	0.89	0.90	0.91
50	0.58	0.71	0.77	-	0.82
60	-	0.50	0.63	-	0.71
70	-	-	0.45	-	0.58
80	-	-	-	-	0.41

Table 12-3: conversion factors

For several-core cables with conductor cross-sections up to 10 mm². The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 26.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

Number of cores under load	Conversion factor for installation in the open air	Conversion factor for installation underground
5	0.75	0.70
7	0.65	0.60
10	0.55	0.50
14	0.50	0.45
24	0.40	0.35

Table 12-4: conversion factors for heat-resistant cables

The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 18.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

Permissible/recommended operating temperature at the conductor (Details of the maximum value in °C can be found in the field "Technical data, temperature range for fixed or flexible installation" on the relevant product page in the catalogue)				
	90 °C	110 °C	135 °C	180 °C
Ambient temperature in °C	Conversion factors to be applied to the current rating values for heat-resistant cables in T 12-1, column A, C or D.			
up to 50	1.00	1.00	1.00	1.00
75	0.61	1.00	1.00	1.00
85	0.35	0.91	1.00	1.00
105	-	0.41	0.87	1.00
130	-	-	0.35	1.00
175	-	-	-	0.41

Table 12-5: conversion factors for wound cables

The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 27.

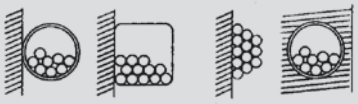
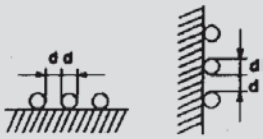
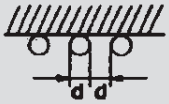
Number of layers on the coil, drum, reel	1	2	3	4	5
Conversion factor	0.80	0.61	0.49	0.42	0.38

A conversion factor of 0.8 applies to spiral winding (in one layer).

Table 12-6: conversion factors

For bundling on walls, in pipes and ducts, on flooring and under ceilings. The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 21.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

Configuration for installation	Number of multi-core cables or number of AC or three-phase circuits formed by single-core cables (2 or 3 live conductors)					
	1	2	3	4	6	10
	Conversion factors to be applied to the current rating values in table 12-1					
Bundled directly on the wall, on the floor, in pipes or ducts for electrical installations. 	1.00	0.80	0.70	0.65	0.57	0.48
In a single layer on the wall or floor, touching.	1.00	0.85	0.79	0.75	0.72	0.70
In a single layer on the wall or floor, with a gap equal to outer diameter d. 	1.00	0.94	0.90	0.90	0.90	0.90
In a single layer under the ceiling, touching.	0.95	0.81	0.72	0.68	0.64	0.61
In a single layer under the ceiling, with a gap equal to outer diameter d. 	0.95	0.85	0.85	0.85	0.85	0.85

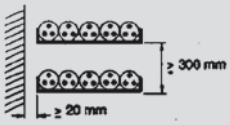
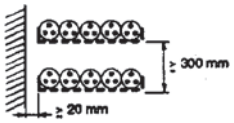
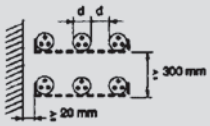
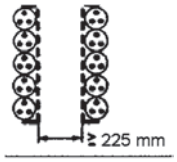
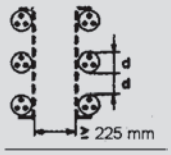
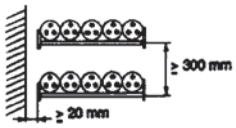
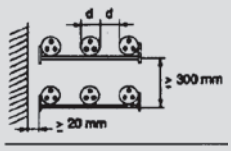
○ = Symbol for single-core or multi-core cable

IMPORTANT: The conversion factors must be applied in order to determine the current rating for cables of the same type and under the same load, when bundled in the same installation type. In the process, the nominal conductor cross-sections must not vary by more than one cross-section classification.

Table 12-7: conversion factors

For bundling multi-core cables on troughs and conduits. The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 22.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

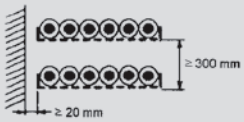
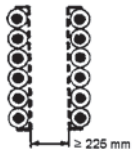
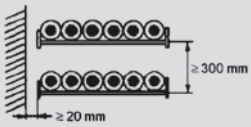
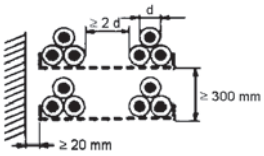
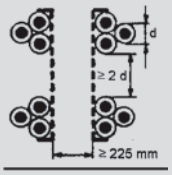
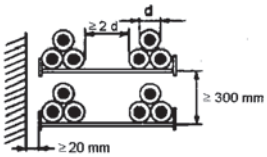
Configuration for installation			Number of troughs or conduits	Number of multi-core cables					
				1	2	3	4	6	9
				Conversion factors					
Non-perforated cable troughs	touching		1	0.97	0.84	0.78	0.75	0.71	0.68
Perforated cable troughs	touching		1	1.00	0.88	0.82	0.79	0.76	0.73
	with gap		1	1.00	1.00	0.98	0.95	0.91	–
	touching		1	1.00	0.88	0.82	0.78	0.73	0.72
	with gap		1	1.00	0.91	0.89	0.88	0.87	–
Cable conduits	touching		1	1.00	0.87	0.82	0.80	0.79	0.78
	with gap		1	1.00	1.00	1.00	1.00	1.00	–

IMPORTANT: The factors stated in this table apply only to groups of cables installed in a single layer in configurations as specified above. However, they do not apply if the cables are touching and installed over one another, or if the actual gap dimensions between the cable troughs or cable conduits fall short of the specified gaps. If this is the case, reduce the conversion factors (e.g. as per table 12-6).

Table 12-8: conversion factors

For bundling single-core cables on troughs and conduits. The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 23.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

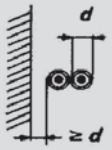
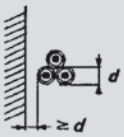
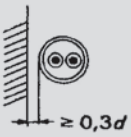
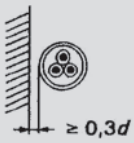
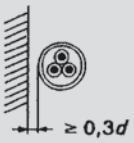
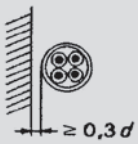
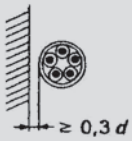
Configuration for installation			Number of troughs or conduits	Number of 3-pin circuits formed by single-core cables			
				1	2	3	To be used as the multiplier for the measurement value of:
				Conversion factors			
Perforated cable troughs	touching		1	0.98	0.91	0.87	Three cables arranged horizontally and level
	touching		1	0.96	0.86	–	Three cables arranged vertically and level
Cable conduits	touching		1	1.00	0.97	0.96	Three cables arranged horizontally and level
Perforated cable troughs			1	1.00	0.98	0.96	Three cables arranged in a horizontal, triangular configuration
			1	1.00	0.91	0.89	Three cables arranged in a vertical, triangular configuration
Cable conduits			1	1.00	1.00	1.00	Three cables arranged in a horizontal, triangular configuration

IMPORTANT: The factors stated in this table apply only to groups of single-core cables installed in a single layer in configurations as specified above. However, they do not apply if the cables are touching and installed over one another, or if the actual gap dimensions between the cable troughs or cable conduits fall short of the specified gaps. If this is the case, reduce the conversion factors (e.g. as per table 12-6). If circuits are connected in parallel, each three-conductor bundle of the parallel connection is to be considered as one circuit.

Table 12-9: current rating of rubber-sheathed cables

Current rating of flexible cables with cross-linked Elastomer insulation for industrial applications (H07RN-F and A07RN-F).
The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 13.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

Permissible operating temperature at the conductor: 60 °C							
Ambient temperature: 30 °C							
Installation type: in the open air							
Number of cores under load	**2**	**3**	**2**	**2**	**3**	**3**	**3**
Nominal cross-section of copper cond. in mm²	**Rating A**						
1	-	-	15	15.5	12.5	13	13.5
1.5	19	16.5	18.5	19.5	15.5	16	16.5
2.5	26	22	25	26	21	22	23
4	34	30	34	35	29	30	30
6	43	38	43	44	36	37	38
10	60	53	60	62	51	52	54
Conversion factors for:							
Differing ambient temperature	see table T 12-2						
Bundling	-	T 12-8			T 12-7		
Wound cables	-	-			T 12-5		
Several-core cables	-				T 12-3	-	

Conversion factors for other ambient temperatures for heat-resistant cables with cross-linked Elastomer insulation.
The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 18.1.

Ambient temperature in °C	Permissible operating temperature: 90 °C Conversion factors to be applied to the current rating values in table 12-9
up to 60	1.00
75	0.71
80	0.58
85	0.41

Table 12-10: operating conditions and ratings for welding cables

H01N2-D and H01N2-E

The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 16.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

Permissible operating temperature at the conductor 85 °C							
Ambient temperature: 30 °C							
Installation type: in the open air							
Number of cores under load	1						
Mode of operation	**Continuous operation**	**Intermittent operation**					
Run time	-	5 minutes					
Switch-on duration (ED)	100 %	85 %	80 %	60 %	35 %	20 %	8 %
Nominal cross-section of copper cond. in mm²	**Rating A**						
10	96	97	98	102	114	137	198
16	130	132	134	142	166	204	301
25	173	179	181	196	234	293	442
35	216	226	229	250	304	384	584
50	274	287	293	323	398	508	779
Mode of operation	**Continuous operation**	**Intermittent operation**					
Run time	-	10 minutes					
Switch-on duration (ED)	100 %	85 %	80 %	60 %	35 %	20 %	8 %
Nominal cross-section of copper cond. in mm²	**Rating A**						
10	96	96	96	97	102	113	152
16	130	131	131	133	144	167	233
25	173	175	176	182	204	244	351
35	216	220	222	233	268	324	477
50	274	281	284	303	356	439	654
Conversion factors for differing ambient temperature	Table T 12-2						

Table 12-11: operating current and power loss of copper conductors

The illustration is taken out of DIN EN 61439-1 (VDE 0660-600-1), 2012-06, Annex H.

The following table provides reference values for operating currents and power losses of conductors inside an assembly of switchgears and control-gears under idealised conditions. The computational methods used to create the values are given in order to calculate values for other conditions.

For copyright reasons, only excerpts from DIN EN 61439-1 can be mapped at this point.

Operating current and power loss of single copper conductors with a permissible conductor temperature of 70 °C
(ambient temperature inside of assemblies of switchgears and controlgears: 55 °C)

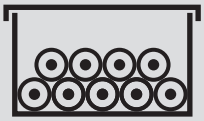
Configuration for installation		 Single-core cable, in a conduit, on walls, arranged horizontally. 6 cables (2 three-phase circuits) continously charged		Single-core cable, touching, installed in the open air or on a perforated cable trough. 6 cables (2 three-phase circuits) continously charged		Gap of at least one cable diameter Single-core cable, installed horizontally in the open air with a specified gap	
Conductor cross section	Conductor resistance at 20 °C, R_{20} [a]	Max. operating current I_{max} [b]	Power loss per core P_v	Max. operating current I_{max} [b]	Power loss per core P_v	Max. operating current I_{max} [b]	Power loss per core P_v
mm²	mΩ/m	A	W/m	A	W/m	A	W/m
1.5	12.1	8	0.8	9	1.3	15	3.2
2.5	7.41	10	0.9	13	1.5	21	3.7
4	4.61	14	1.0	18	1.7	28	4.2
6	3.08	18	1.1	23	2.0	36	4.7
10	1.83	24	1.3	32	2.3	50	5.4

Table 12-12: rated short circuit current densities for cables with copper and aluminum conductors

The values given in the table below are reference values and in a simplified form took out of the DIN VDE 0298 part 4, 2013-06, table 28.

For copyright reasons, only excerpts from DIN VDE 0298 part 4 can be mapped at this point.

Insulation material	Permissible operating temperatur at the conductor	Permissible short circuit temperature ϑ_e	Conductor temperature at the beginning of the short circuit ϑ_a in °C									
			180	135	110	90	80	70	60	50	40	30
			rated short circuit current density J_{thr} for 1 s									
	°C	°C	A/mm²									
Copper conductor												
EPR*	60	250**							159	165	170	176
PVC:												
flexible cable up to 300mm²	70	150						109	117	124	131	138
cables for fixed installation:												
up to 300 mm²	70	160						115	122	129	136	143
above 300 mm²	70	140						103	111	118	126	133
PVC, heat-resistant	90	150				93	101	109	117	124	131	138
Silicone rubber	180	350**	132	153	164	173	178	182	187	192	196	201
Tinned conductor		200	49	91	109	122	128	135	141	147	153	159
Aluminium conductor												
PVC cable												
up to 300 mm²	70	160						76	81	85	90	95
above 300 mm²	70	140						68	73	78	83	88

* Ethylene-Propylene-rubber (EPR) or Ethylene Propylene Diene rubber (EPDM)
** For tinned conductors the temperatur is limited to +200°C, for soft solder connection it is limited to +160°C.

Table 13-1: current rating of cables in the USA

Excerpt from NEC table T310.15 (B)(16)

Permissible current rating of insulated copper conductors with a nominal voltage of 0 to 2000 V, 60 °C to 90 °C (140 °F to 194 °F). Not more than three current-carrying conductors in any one cable duct, pipe, hose or in one (multi-core) cable or installed underground (direct routing underground), based on an ambient temperature of 30 °C (86 °F).

Excerpt from NEC T310.15 (B)(17)

Permissible current rating of single-core cables with copper conductor with a nominal voltage of 0 to 2000 V, installed in free air, based on an ambient temperature of 30 °C.

(NEC edition 2017)

Conductor cross-section	Rating in A with a permissible continuous temperature at the conductor			Conductor cross-section	Rating in A with a permissible continuous temperature at the conductor		
AWG or kcmil (MCM)	60 °C (140 °F)	75 °C (167 °F)	90 °C (194 °F)	AWG or kcmil (MCM)	60 °C (140 °F)	75 °C (167 °F)	90 °C (194 °F)
18	–	–	14*	18	–	–	18
16	–	–	18*	16	–	–	24
14	15*	20*	25*	14	25*	30*	35*
12	20*	25*	30*	12	30*	35*	40*
10	30*	35*	40*	10	40*	50*	55*
8	40	50	55	8	60	70	80
6	55	65	75	6	80	95	105
4	70	85	95	4	105	125	140
3	85	100	115	3	120	145	165
2	95	115	130	2	140	170	190
1	110	130	145	1	165	195	220
1/0	125	150	170	1/0	195	230	260
2/0	145	175	195	2/0	225	265	300
3/0	165	200	225	3/0	260	310	350
4/0	195	230	260	4/0	300	360	405
250	215	255	290	250	340	405	455
300	240	285	320	300	375	445	500
350	260	310	350	350	420	505	570
400	280	335	380	400	455	545	615
500	320	380	430	500	515	620	700
600	350	420	475	600	575	690	780

Correction factors for ambient temperatures other than 30 °C				Correction factors for more than 3 current-carrying conductors in any one cable duct, pipe or in a multi-core cable	
Ambient temperature in °C	60 °C	75 °C	90 °C	Number of current-carrying conductors	Correction factor
21 – 25	1.08	1.05	1.04	4 to 6	0.80
26 – 30	1.00	1.00	1.00	7 to 9	0.70
31 – 35	0.91	0.94	0.96	10 to 20	0.50
36 – 40	0.82	0.88	0.91	21 to 30	0.45
41 – 45	0.71	0.82	0.87	31 to 40	0.40
46 – 50	0.58	0.75	0.82	41 and over	0.35
51 – 55	0.41	0.67	0.76		
56 – 60	–	0.58	0.71		
61 – 65	–	0.47	0.65		
66 – 70	–	0.33	0.58		
71 – 75	–	–	0.50		
76 – 80	–	–	0.41		
81 – 85	–	–	0.29		

*For conductor overcurrent protection please refer to NEC 240.4(D)

NOTE: Please always refer to the valid edition of the NEC. This has to be applied also for all other cases than the above described ones.
The current rating of cables in industrial machinery and equipment can be found in section 12, NFPA 79 Edition 2015.

Cables & The Construction Product Regulation (CPR)

The use of cables in construction works is practically as old as the transmission of electrical power itself. However, the classification of cables as a construction product only gained momentum when (CPR) Regulation (EU) no. 305/2011 came into effect in July 2013, and when the European standard EN 50575 was published in September 2014. There is often insufficient knowledge regarding the rules for classifying the performance of the respective construction product cables, the product marking and the related documentation. LAPP would like to assist manufacturers, distributors and users alike.

This refers to cables within the scope of application of a harmonised standard, namely EN 50575:2014 + A1:2016.

On our website you will find detailled information about application of the CPR regarding cabels.

This includes our extensive FAQ collection; the current overview of CPR classified cables and the corresponding documents.

Declaration of Performance (DoP)

LEISTUNGSERKLÄRUNG
Gemäß Anhang III der Verordnung (EU) Nr. 305/2011
Declaration of Performance
According to Annex III of Regulation (EU) no. 305/2011

Dokument-Nr.
Document-no.
UILCPRDoP17_0014150-1_A

1. Eindeutiger Kenncode des Produkttyps
Unique identification code of the product type
OELFLEX_CLASSIC_100_H-1

2. Verwendungszweck
Usage
Kabel und Leitungen für allgemeine Anwendungen in Bauwerken in Bezug auf die Anforderungen an das Brandverhalten
Cables for general applications in construction works subject to reaction to fire requirements

3. Hersteller
Manufacturer
U.I. Lapp GmbH
Schulze-Delitzsch-Straße 25
D-70565 Stuttgart

4. System zur Bewertung und Überprüfung der Leistungsbeständigkeit
System of assessment and verification of constancy of performance
System 1+

5. Diese Leistungserklärung betrifft ein Bauprodukt, das von der harmonisierten Norm **EN 13501-6** erfasst ist
*This Declaration of Performance concerns a construction product which is covered by the harmonized standard **EN 13501-6***

6. Produktzertifizierungsstelle
product certification body
No. 0366

7. Erklärte Leistung
Declared Performance

Wesentliche Merkmale *Essential characteristics*	Leistung *Performance*	Harmonisierte technische Spezifikation *Harmonized technical standard*
Brandverhalten *Reaction to fire*	**Cca-s2-d2-a1**	**EN 50575:2014 + A1:2016**
Gefährliche Stoffe *Hazardous substances*	**NPD**	

8. Die Leistung des in Nummer 1 genannten Produkts ist in Übereinstimmung mit der erklärten Leistung in Punkt 7.
The performance of the referred product in paragraphs 1 is in conformity with the declared performance in Section 7.

Diese Leistungserklärung ist ausgestellt unter der allgemeinen Verantwortung des unter Punkt 3 genannten Herstellers.
This declaration of performance is issued under the general responsibilities listed in section 3. Manufacturer.

Unterzeichnet für und im Namen des Herstellers von:
Signed for and in name of the manufacturer by:

Stuttgart, 01/04/2017
U.I.Lapp GmbH
Leiter Kabelentwicklung
Head of Cable Development
i.A. Harry Pfeffer

CE-Marking, Label

http://www.lappkabel.de/cpr
U.I.Lapp GmbH Schulze-Delitzsch-Strasse 25 D-70565 Stuttgart

CE 0366
Document No. DoP: UILCPRDoP17_0014150-1_A

Ident.Code Producttype: OELFLEX®_CLASSIC_100_H-1

First time labeling, year:
Erstmalige Kennz., Jahr: 17

European standard: EN50575:2014+A1:2016

Intended use/ Vorgesehene Verwendung:
Cables for general applications in construction works subject to reaction to fire requirements.
Kabel und Leitungen für allgemeine Anwendungen in Bauwerken in Bezug auf die Anforderungen an das Brandverhalten.

React. to fire/ Brandverhalten: Cca-s2-d2-a1
Hazardous substances/ gefährliche Stoffe: NPD

www.lappkabel.com/cpr

This is where you can access the LAPP downloads concerning the European Construction Product Regulation (EU) No. 305/2011 within the scope of application of EN 50575:2014 + A1:2016:

(Power, control and communication cables – cables for general applications in construction works subject to reaction to fire requirements).

The download includes the declaration of performance (DoP) – (currently) in German and English.

There are two ways to find the relevant download.

1. Via the product name in the table below
2. Via the **list of LAPP article-/ordernumbers (CPR articles)** with assignment of the DoP doc. no. and the product type identification code

There is a Readme text file in the download (CPR package) for guidance.

The legal obligation to ensure the consistency/continuity of CE marking on a product is not a new concept for the supply and distribution chain, but it is particularly important in relation to CPR. Manufacturers and distributors need to reach agreements on this matter. The LAPP CPR package offers a **solution (Distributor Contact).**

The answers in the LAPP **FAQs** go into more detail on this subject.

	Product name
1	ÖLFLEX® CLASSIC 100 H
2	ÖLFLEX® CLASSIC 110 H
3	ÖLFLEX® HEAT 125 MC
4	ÖLFLEX® SMART 108
5	UNITRONIC® BUS PB H
6	05Z-K
7	07Z-K
8	ÖLFLEX CLASSIC 110 CH

Applies only to the base materials. Deviations are possible depending on the use/design. Please refer to the relevant page in the catalogue.

Usage criteria	Material					
	Material resistant to org. oils	Polyvinylchloride	Polyethylene	Polyurethane	Polytetrafluoroethylene	Tetrafluoroethylene Hexafluoropropylene copolymer
Parameter						
Abbreviations	Special TPE	PVC	PE	PUR	PTFE	FEP
Code as per VDE	–	Y	2Y	11Y	5Y	6Y
Operating temperature	-50 +120	-30 +70	-50 +70	-50 +90	-190 +260	-100 +200
Dielectric constant	2.4	4.0	2.3	4.0 – 6.0	2.1	2.1
Volume resistivity (Ω x cm)	1015	1012 – 1015	1017	1012	1018	1018
Tensile strength in N/mm² (MPa)	5 – 20	10 – 25	15 – 30	15 – 45	15 – 40	20 – 25
Elongation at break in %	400 – 600	150 – 400	400 – 800	300 – 600	240 – 400	250 – 350
Water absorption (20 °C) in %	1 – 2	0.4	0.1	1.5	0.01	0.01
Weather resistance	very good	good	good	very good	very good	very good
Fuel resistance	good	moderate	moderate	good	very good	very good
Oil resistance	Resistance to org. oil: very good	moderate	moderate	good	very good	very good
Flammability	flammable	self-ext-inguishing	flammable	self-ext-inguishing*	non-flammable	non-flammable

Usage criteria	Material					
	Ethylene tetrafluoroethylene	Chloroprene rubber	Silicone rubber	Ethylene propylene dien rubber	Thermoplastic elastomer polyolefin based	Thermoplastic elastomer polyester based
Parameter						
Abbreviations	ETFE	CR	SI	EPDM	TPE-O	TPE-E
Code as per VDE	7Y	5G	2G	3G	–	12Y
Operating temperature	-100 +150	-40 +100	-60 +180	-30 +120	-40 +120	-70 +125
Dielectric constant	2.6	6.0 – 8.0	2.8 – 3.2	3.2	2.7 – 3.6	3.7 – 5.1
Volume resistivity (Ω x cm)	10^{16}	10^{13}	10^{15}	10^{14}	5×10^{14}	10^{12}
Tensile strength in N/mm² (MPa)	40 – 50	10 – 25	5 – 10	5 – 25	≥ 6	3 – 25
Elongation at break in %	100 – 300	300 – 450	200 – 350	200 – 450	≥ 400	280 – 650
Water absorption (20 °C) in %	0.01	1	1.0	0.02	1.5	0.3 – 0.6
Weather resistance	very good	very good	very good	good	moderate	very good
Fuel resistance	very good	moderate	low	moderate	moderate	good
Oil resistance	very good	good	moderate	moderate	moderate	very good
Flammability	non-flammable	self-ext-inguishing	hardly flammable	flammable	flammable	flammable

* only with additional flame retardant

Insulation resistance

The insulation of cables and wires is used to electrically isolate the individual conductors. For this reason, as opposed to the conductor, the insulation should have very high electrical resistance (which can also be expressed as a low conductivity).

To achieve this goal, a number of different materials can be used. The mechanical and electrical properties of these materials can differ. The most commonly used materials include mixtures based on PVC, PE or TPE.

Terminology

A number of different terms are used to describe the insulation resistance. To help differentiate and better understand these terms, they are explained here in brief.

Volume resistance

Resistance value that results from the measurement of a test specimen when a DC voltage is applied. It results from the test voltage applied to the two electrodes, which are attached to the surfaces of the test specimen (e. g. wire insulation), and the current between these electrodes.

Volume resistivity (specific contact resistance)

This is a relative value that depends on the properties of the material in terms of electrical insulation. In practice, this value relates to a unit of volume; it is typically specified in Ω x cm. For PVC core insulation a typical value is: > 20 GΩ x cm

Insulation resistance

The insulation resistance for a cable can be determined from the volume resistivity and the ratio of the core outer diameter to conductor diameter. Typical units of measurement here are MΩ x km or GΩ x km.

In type standards for cables and wires, minimum values for the insulation resistance are usually required. These values are specified for the maximum operating temperature as a function of the nominal cross section and insulation wall thickness.

Example: For an oil-resistant H05VV5-F control cable, these values are defined in EN 50525-2-51. The minimum value of the insulation resistance of a 3 x 1.5 mm^2 cable must be at least 0.010 MΩ x km.

The real-world values are often more than an order of magnitude higher than these values, well above the requirements of the standard.

Measurement methods

A differentiation must be made between lab measurements performed on a core to test the insulation and real-world measurements performed on complete, potentially installed cables and wires.

Determination of insulation resistance and volume resistivity of the core

Demonstration of compliance with the aforementioned requirements is achieved with measurements according to EN 50395 (VDE 0481-395). For this purpose, a 5-metre sample of the cable is completely stripped and the cores are placed in a water bath for 2 hours. The water bath was previously heated to the maximum operating temperature of the cable (valid for cables with a maximum conductor temperature of up to 90 °C).

Between the conductor and the water bath, 80 - 500 V DC is applied and after 1 minute the insulation resistance is measured at each core. With this value, the insulation resistance of a 1-km length is calculated for each core. Neither of the calculated values may be below the specified minimum value in the type standard. Refer to the above example under “Insulation resistance”.

The volume resistivity can be used for comparisons as it is a material constant and is independent of the insulation wall thickness and the conductor cross-section.

In practical applications these values are used to compare different materials and represent a reproducible measuring method for the manufacturers of cables and wires.

Measurements on complete cables

The above values cannot be compared with resistance values that are determined using a “dry measurement” on the complete cable or on installed cables. In those cases, the resistance value is determined using the leakage current between two adjacent cores within a cable and the measurement voltage of the meter.

Values determined using this method have a very high variance as they are influenced by numerous factors, such as:

- Conditioning of the cable, in particular moisture absorption by the insulation
- Climate conditions during the measurements, in particular the cable temperature
- Individual contact conditions of the insulation of both cores
- Conductivity of the materials that have a common surface contact to the insulated cores
- Installation situation of the cable, as locations in which the cable is subject to external pressure, for example due to bending or clamping (cable glands), can lead to a deformation of the insulation. This increases the contact area between the insulated cores, which increases the leakage current and results in a lower insulation resistance value.

The aforementioned effects of temperature and air humidity are significant and vary greatly in practical applications, as the conditions are not standardised. For example, measurements have shown that between 20 °C (common ambient temperature) and 70 °C (maximum cable operating temperature) the insulation resistance can change by a factor of 1:100 to 1:1000. This means that the temperature during the measurement has such a great effect that measured results that were performed at different temperatures are no longer comparable.

Conclusion

The cable data provided above can be used to compare different cable types but under no circumstances can they be used to compare with measurements of finished cables or electrical systems (such as according to VDE 0100-600 Part 6).

US dimension units for cables – comparison with metric dimensions

In North American markets, cable cross-sections are usually stated as AWG (American Wire Gauge) sizes or, for large cable cross-sections (above AWG 4/0), using the unit "kcmil". You will find these units in the relevant standards for designing cables by current rating.

Multi-standard cables must comply with both the specifications of the metric system (in which the cross-section in mm² is stated as the nominal size) as well the requirements of the AWG system. For this reason, both systems are compared below based on the nominal size.

Please note that exact correspondences between the two systems do not exist as the specifications of the two systems differ in terms of the cross-section and conductor resistance. The following table can be used to help you when selecting the correct nominal cross-section.

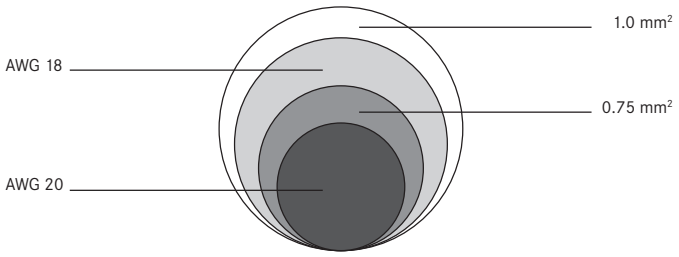
Standards required as part of project planning, such as UL1581 or IEC 60228 (VDE 0295), must be applied accordingly.

Please note that when selecting appropriate connecting elements such as conductor end sleeves, the **actual** conductor cross-section is decisive. This is stated on the relevant product page.

Column 1a	Column 1b	Column 2	Column 3	Column 4	Column 5a	Column 5b
North American cross-section required		Geometric conversion	Metric nominal cross-section that meets the electrical requirements	Metric nominal cross-section required	North American size that meets the electrical requirements	
AWG	kcmil	mm²	mm²	mm²	AWG	kcmil
	750	380.03	**400**	400		800
	500	253.35	**300**	300		750
	450	228.02	**240**	240		500
	400	202.68				450
	350	177.35	**185**	185		400
	300	152.01				350
	250	126.68	**150**	150		300
4/0		107.22	**120**	120		250
3/0		85.01	**95**	95	4/0	
2/0		67.43	**70**	70	3/0	
1/0		53.49			2/0	
1		42.41	**50**	50	1/0	
2		33.62	**35**	35	1	
3		26.67			2	
4		21.15	**25**	25	3	
5		16.77			4	
6		13.30	**16**	16	5	
7		10.55			6	
8		8.37	**10**	10	7	

Column 1a	Column 1b	Column 2	Column 3	Column 4	Column 5a	Column 5b
North American cross-section required		Geometric conversion	Metric nominal cross-section that meets the electrical requirements	Metric nominal cross-section required	North American size that meets the electrical requirements	
AWG	kcmil	mm²	mm²	mm²	AWG	kcmil
9		6.63			8	
10		5.26	**6**	6	9	
11		4.17			10	
12		3.31	**4**	4	11	
13		2.62			12	
14		2.08	**2.5**	2.5	13	
15		1.65			14	
16		1.31	**1.5**	1.5	15	
17		1.04			16	
18		0.82	**1**	1	17	
19		0.65	**0.75**	0.75	18	
20		0.52			19	
21		0.41	**0.5**	0.5	20	
22		0.33	**0.34**	0.34	21	
23		0.26			22	
24		0.20	**0.25**	0.25	23	
25		0.16			24	
26		0.13	**0.14**	0.14	25	

Principle of cross-section figures



Example 1:

The electro-technical project planning requirements as per North-American standards stipulate that you require a cable of AWG 20.

The relevant product page in the catalogue does not list any cables with this AWG size. A size of AWG 20 is listed in the above table in column 1a. Column 3 lists the metric nominal cross-section that, as a minimum, meets the electrical requirements of size AWG 20. Thus, you will require a cable with a nominal cross-section of 0.75 mm².

Example 2:

The electro-technical project planning requirements as per European standards stipulate that you require a cable of 0.75 mm².

The product page in the catalogue lists only AWG figures or large metric cross-sections. Nominal cross-section 0.75 mm² is listed in the above table in column 4. Column 5a lists the AWG size that, at a minimum, meets the electrical requirements of a nominal cross-section of 0.75 mm². Thus, you will require a cable with size AWG 18.

General dimensions*:

The base units are as follows:
In the British gravitational system:

Length (ft) – force (lbf = Lb) – time (s)

In the British absolute system:

Length (ft) – mass (lb) – time (s)

1. Measures of length

1 mil	=	0.0254 mm
1 inch (in;“)	=	25.4 mm
1 foot (ft;‘)	=	0.305 m
1 yard (yd)	=	0.914 m
1 chain (ch)	=	20.1 m
1 statue mile	=	1.61 km
1 nautical mile	=	1.835 km
1 statute mile	=	1760 yards

2. Measures of volume

1 cubic inch	=	16.39 cm^3
1 cubic foot	=	0.0283 m^3
1 cubic yard	=	0.765 mm^3
1 US liquid gallon	=	3.79 l
1 pint	=	0.473 l
1 quart	=	0.946 l
1 brit gallon	=	4.53 l
1 barrel	=	119.2 l

3. Measures of area

1 circ. mil (CM)	=	$0.507 \cdot 10^{-3}$ mm^2
1 kcmil (MCM)	=	0.5067 mm^2
1 square inch (sq. in.)	=	645.16 mm^2
1 square foot (sg.ft.)	=	0.0929 m^2
1 square yard	=	0.836 m^2
1 acre	=	0.00405 km^2
1 square mile	=	2.59 km^2
1 m^2	=	10.764 sq. ft.

4. Units of mass

British gravitation system:

1 slug	=	1 lbs · s^2/ft

British absolute system:

1 pound	=	1 lb

1 slug = 32.174 lb, with 32.174 ft/s^2
as the standard value of gravitational acceleration

1 grain	=	64.80 mg		
1 dram	=	1.770 g		
1 ounce (oz)	=	16 drams	=	28.35 g
1 pound (lb)	=	16 oz	=	453.59 g
1 stone	=	14 lbs	=	6.35 kg
1 US ton (short ton)	=	0.907 t		
1 Brit. ton (long ton)	=	0.016 t		

5. Units of force

British gravitational system:

pound-force 1 lbf	=	1 Lb

British absolute system:

poundal 1 pdl	=	1 lb · ft/s^2

1 lbf = 32.174 pdl – 9.80665 lb · m/s^2

6. Conversion to metric units

1 pound-force (lbf)	=	0.454 kp
1 Brit. ton-force	=	1016 kp
1 poundal (pdl)	=	0.1383 N
1 lbf	=	4.445 N

7. Electrical units per unit of length

1µf per mile	=	0.62 µF/km
1 megohm per mile	=	1.61 MΩ · km
1 megohm per 1000 ft	=	3.28 Ω · km
1 ohm per 1000 yd	=	1.0936 Ω/km

8. Weights per unit of length

1 lb per foot	=	1.488 kg/m
1 lb per yard	=	0.469 kg/m
1 lb per mile	=	0.282 kg/m

9. Density

1 lb/ft^3	=	16.02 kg/m^3

10. Specific weight

1 lbf/ft^3	=	16.02 kp/m^3

11. Copper wire weight per mile

lb/mile	=	Ø mm
5	=	0.404
6.5	=	0.51
7.5	=	0.55
10	=	0.64
20	=	0.90
40	=	1.27

12. Units of energy

1 horsepower	=	0.746 kW (H. P.)
1 Brit. therm. unit	=	0.252 kcal

Insulation wall thickness is often expressed in n/64 inches with n/64 inch equalling approx. 0.4 mm.

13. Further dimensions for wire weights and electrical field strengths:

lbf pr. MFeet	=	1.488 kg/km
lbf pr. Mile	=	0.282 kg/km
40 V/mil	=	1.6 kV/mm
80 V/mil	=	3.2 kV/mm
100 V/mil	=	4.0 kV/mm
250 V/mil	=	10.0 kV/mm

* Most of these units are no longer in use and are provided purely for information purposes.

Table 17-1: example using “copper”

Copper prices

Cables, wires and piece goods are sold at daily copper prices (DEL). DEL is the stock exchange listing for German electrolytic copper for conducting purposes, i. e. 99.9 % pure copper. The DEL is expressed in euros per 100 kg and can usually be found in the business section of daily newspapers under “Commodity markets”.

FOR EXAMPLE: DEL 576.93 means: 100 kg copper (Cu) costs EUR 576.93. Currently a 1 % procurement surcharge is added to the daily quotation for cables, wires and piece goods.
Further information, particularly concerning the DEL quote, can be obtained from the ZVEI professional association for cables and insulated wires: www.zvei.org

Copper price basis

A proportion of the copper price is already included in the list price for many cables and almost all wires and piece goods. This is also expressed in euros per 100 kg.

- EUR 150.00 / 100 kg for most flexible cables (e. g. ÖLFLEX® CLASSIC 110) and piece goods (e. g. ÖLFLEX® SPIRAL 540 P)
- EUR 100.00 / 100 kg for telephone cables (e. g. J -Y(St)Y)
- EUR 0.00 / 100 kg for underground cables (e. g. power cable NYY), i. e. hollow price.

Exact details can be found on each page of the catalogue beneath the article table.

Copper index

The copper index is the calculated copper weight of a cable, wire (kg/km) or piece good (kg/1000 pc) and is specified for each catalogue item.

Example I: Calculating the copper surcharge for goods sold by the meter:

Cable ÖLFLEX® CLASSIC 110, 3G1.5 mm²

Copper index as per catalogue 43 kg/km

The calculated copper weight of the cable is 43 kg per 1 km.

$$\text{Copper index (kg/km)} \times \frac{\text{(DEL + 1 \% procurement costs) – copper price basis}}{1000} = \text{Copper surcharge in Euro/100 m}$$

ÖLFLEX® CLASSIC 110, 3G1.5 mm².

DEL: EUR 576.93/100 kg. Cu basis EUR 150.00/100 kg.

Cu index: 43 kg/km

$$43\ \text{kg/km} \times \frac{(576.93 + 5.77) - 150.00}{1000} = \text{Euro } 18.61/100\ \text{m}$$

Assuming a DEL quotation of EUR 576.93/100 kg, this figure represents the copper surcharge for 100 m ÖLFLEX® CLASSIC 110 3G1.5 mm².

Example II: Calculating the copper surcharge for piece goods:

ÖLFLEX® SPIRAL 540P 3G1.5 mm² (item no.: 73220150).

Copper index as per catalogue: 516 kg/1000 pc.
Copper price basis as per catalogue: EUR 150.00/100 kg

The calculated copper weight (copper index) of the piece good spiral cable is 516 kg/1000 pc.

Formula for calculating the copper surcharge for piece goods:

$$\text{Copper index (kg/1000 pc)} \times \frac{\text{(DEL + 1 \% procurement costs) – copper price basis}}{1000} = \text{Copper surcharge in Euro/100 pc}$$

$$516\ \text{kg/1000 pc} \times \frac{(576.93 + 5.77) - 150.00}{1000} = \text{Euro } 223.27/100\ \text{pc}$$

Price including copper:

The net price is calculated as follows:
Gross price – % discount + copper surcharge = net price including copper.
The copper surcharge is shown separately on the invoice.

Other metals

This same method is also used for other metals, e. g. “aluminium”. In this case, replace “copper” with “aluminium”. General term: “metal”.

Table 17-2: background information on cables

For the majority of our product range, the construction of conductors for cables and insulated wires is governed by the international standard DIN EN 60228 (VDE 0295)/IEC 60228. Normative threshold values are defined for the nominal cross sections and the conductor materials copper/aluminium/aluminium alloy listed in the standard. The application of these threshold values varies for the different conductor classes, however, they all exhibit a maximum conductor resistance at 20 °C.

Conductor resistance at 20 °C is an important normative compliance value. Other geometric requirements in DIN EN 60228 et seqq. and in product standards that reference DIN EN 60228 et seqq., serve to ensure the compatibility of conductors and connectors and do not contain any requirements concerning the weight of the conductor materials used in the wire or cable.

For example, the density of copper used in the manufacture of cables and wires is specified as 8.89 g/cm³ in accordance with DIN EN 13602. Therefore, a single-core cable with a nominal cross section of 1 mm² has a copper content of 8.89 kg/km. This simple formula for calculating the copper content provides an indication. However, the actual value may be lower than this, as it is the maximum conductor resistance at 20 °C that is important.
The extent of the (+/-) deviation from this calculation value depends on the production process employed by individual manufacturers and the semifinished conductors they use.

When it comes to invoicing, e.g. for copper surcharges, the copper index is used. You may also see the term “calculated copper weight” being used instead of “copper index”. This typical industry value* is 9.6 kg/km** – based on the nominal cross section of 1 mm² – and factors in the necessary increased use of material/copper.

This increase generalises individual (manufacturer-dependent) additional expenditure during the manufacturing process. In particular, this includes irreversible losses resulting from lead-in lengths and abrasion on the drawing dies as well as from the widening (wearing) of the dies during wire production. It also includes additional expenditure due to twisting of the conductors and the resulting enlargement of the stretched length. There are also surcharges to ensure the conductor resistance at unavoidable manufacturing tolerances – e.g. cross section reduction due to the tensile load during extrusion and twisting. It should also be mentioned that the copper index calculated in this manner is the only way to enable standardisation across manufacturers – particularly in the case of unshielded cables – and therefore serves as the basis for price comparisons, particularly when calculating copper surcharges.

The aim of this customer information is to explain the technical and commercial background for determining and using the copper index and to demonstrate the benefits and efficiency of its use for manufacturers, traders and customers alike.

*U.I. Lapp GmbH is a member of the professional association for cables and insulated wires of ZVEI
**The corresponding figure to be used for aluminium is 2.9 kg/km

Laying guidelines for cables and wires

Cables must be selected in accordance with the laying and operating conditions. They must be protected against mechanical, thermal and chemical effects as well against moisture penetrating through the cable ends.

Insulated power cables must not be laid underground. Temporary covering of NSSHÖU rubber-sheathed cables or trailing cables with soil, sand or a similar material, e.g. on building sites, does not constitute underground installation.

Fasteners and fixtures must not cause any damage to fixed wires and cables. Where cables or wires running horizontally along walls or ceilings are fixed using clips, the following guidelines regarding clip spacing must be observed:

For non-reinforced cables and wires, 20 x outside diameter.

These spacing guidelines also apply when laying cables in conduits and racks. When laying cables vertically, the spacing between clips can be increased depending on the type of cable or clip.

When connecting flexible cables (e. g. ÖLFLEX® cables, UNITRONIC® cables) to portable power consumers, there must be no strain or thrust at the insertion points and the cables must be secured against twisting and kinking. Outer cable sheaths must not be damaged at the insertion points or by the strain relief devices. Standardversion flexible PVC cables are not designed for outdoor use.

Special cables must be deployed for permanent underwater use.

Thermal stress

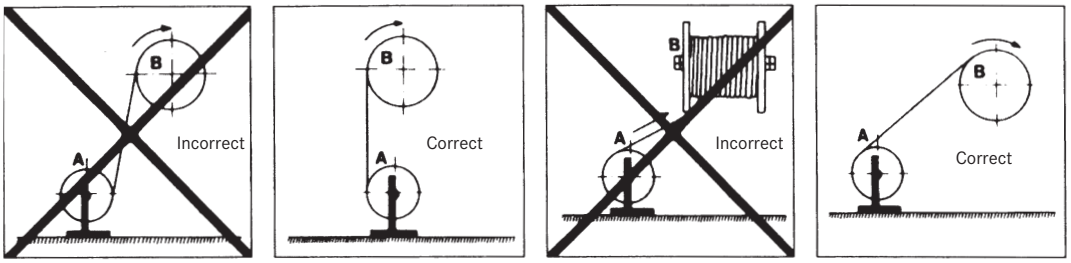
The temperature limits for the respective cable designs can be found in the technical data. The upper temperature limits must not be exceeded as a result of the cable heating up due to current heat and thermal environmental factors.
The lower temperature limits denote the lowest permitted ambient temperature.

Tensile strain

Tensile strain on the conductor should be as low as possible.
The following tensile strains for conductors must not be exceeded for cables.

- When laying and operating copper cables for portable equipment: 15 N per mm² conductor cross-section; this does not include screening, concentric conductors and divided protective conductors. In the case of cables that are subjected to dynamic stresses, e. g. in crane systems with high acceleration or power chains subject to frequent movement, appropriate measures must be taken, e.g. enlargement of the bending radius in individual cases. A shorter service life may be expected.
- Cables for static installation. When laying permanent cables, 50 N per mm² conductor cross-section.
- For fibre optic cables, BUS, LAN, industrial and Ethernet cables, the respective permitted strain must be observed.
  These values can be found in the product data sheets or are available on request.

For more information on this subject, see tables T3, T4 and T5.



Winding and unwinding cables

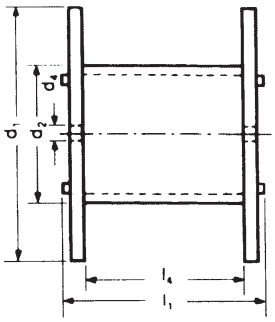
NEOPRENE® is a registered trademark of DuPont de Nemour.

Drum holding capacity for plastic-insulated cables in m DIN 46391

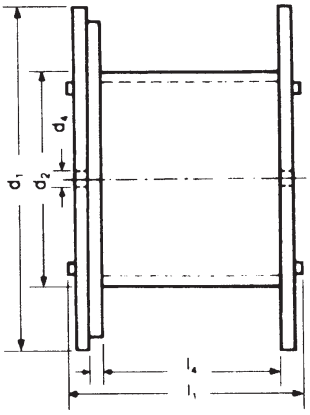
Wooden drums: holding capacity

Drum ID number	Cable Ø mm										
	6	9	12	15	20	25	30	40	50	60	80
71	2024	892	468	297	165	–	–	–	–	–	–
81	2755	1152	643	430	219	151	–	–	–	–	–
91	–	2202	1206	749	402	285	162	–	–	–	–
101	–	–	1540	1000	576	365	220	–	–	–	–
121	–	–	–	1991	1139	688	450	249	–	–	–
141	–	–	–	2479	1352	839	564	327	–	–	–
161	–	–	–	–	2435	1608	1028	549	319	–	–
181	–	–	–	–	–	1867	1197	640	373	256	–
201	–	–	–	–	–	2522	1583	812	558	296	163
221	–	–	–	–	–	–	2383	1328	678	566	278
250	–	–	–	–	–	–	–	1892	1107	699	363

Up to drum size 10 with cable bushing



From drum size 12 with spiral



Wooden drums: dimensions and load-bearing capacity

Drum ID number	Drum size	Diameter (mm)			Width (mm)		Load-bearing capacity kg	Weight kg
		d_1	d_2	d_4	l_1	l_4		
071	07	710	355	80	520	400	250	25
081	08	800	400	80	520	400	400	31
091	09	900	450	80	690	560	750	47
101	10	1000	500	80	710	560	900	71
121	12	1250	630	80	890	670	1700	144
141	14	1400	710	80	890	670	2000	175
161	16/8	1600	800	80	1100	850	3000	280
181	18/10	1800	1000	100	1100	840	4000	380
201	20/12	2000	1250	100	1340	1045	5000	550
221	22/14	2240	1400	125	1450	1140	6000	710
250	25/14	2500	1400	125	1450	1140	7500	875
251	25/16	2500	1600	125	1450	1130	7500	900
281	28/18	2800	1800	140	1635	1280	10000	1175

Transport damage

We take great care when selecting our transport service providers.

However, please inspect all delivered goods to make sure that:

- there are no external signs of damage
- you have received the correct goods and
- the delivery is complete.

If you find any of these faults, please ask the carrier to confirm this on your shipping documents before accepting the goods. You should also always record the fault on the carrier's delivery receipt.

If you fail to write down an obvious fault on the shipping documents, we shall not be legally held liable for any damage claims.

In case of damage or loss, please also contact your local sales representative at our company and provide us with the delivery note and/or invoice number.

If you find a latent defect, please notify your sales representative straight away.

Information on our cable drums

Our cable drums. Free of charge to you!

We ship our cables on plywood and solid wood drums (treated according to ISPM 15 IPPC upon request).
We do not charge any rental for drums.

Any other special requests?

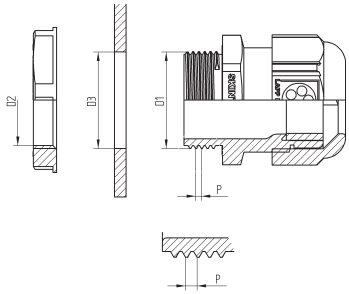
No problem! LAPP has a highly motivated team of experts standing by to help you with your logistics requirements in any way they can. Just get in touch!

www.lappkabel.com/service/logistics

Thread and hole dimensions – technical data for installation

Metric thread to EN 60423 (for screw connections to IEC 62444)

Nominal size	Ø D1	P	Ø D2	Hole Ø D3
M6 x 1	6	1	5.2	6.0 + 0.2
M8 x 1	8	1	7.1	8.0 + 0.2
M10 x 1	10	1	9.1	10.0 + 0.2
M12 x 1.5	12	1.5	10.6	12.0 + 0.2
M16 x 1.5	16	1.5	14.6	16.0 + 0.2
M20 x 1.5	20	1.5	18.6	20.0 + 0.2
M25 x 1.5	25	1.5	23.6	25.0 + 0.2
M32 x 1.5	32	1.5	30.6	32.0 + 0.3
M40 x 1.5	40	1.5	38.6	40.0 + 0.3
M50 x 1.5	50	1.5	48.6	50.0 + 0.4
M63 x 1.5	63	1.5	61.6	63.0 + 0.4
M75 x 1.5	75	1.5	73.6	75.0 + 0.5
M90 x 2	90	2	88.8	90.0 + 0.5
M110 x 2	110	2	108.8	110.0 + 0.5



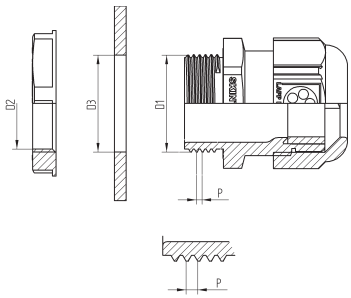
D1 = External-Ø
D2 = Core Ø internal thread
D3 = Hole Ø
P = Pitch

Metric thread to DIN 13 part 6 and 7 (for screw connections to DIN 89 280)

Nominal size	Ø D1	P	Ø D2	Hole Ø D3
M18 x 1.5	18	1.5	16.4	18.3 – 0.2
M24 x 1.5	24	1.5	22.4	24.3 – 0.2
M30 x 2	30	2	27.8	30.3 – 0.2
M36 x 2	36	2	33.8	36.3 – 0.2
M45 x 2	45	2	42.8	45.4 – 0.3
M56 x 2	56	2	53.8	56.4 – 0.3
M72 x 2	72	2	69.8	72.5 – 0.4
M80 x 2	80	2	77.8	80.5 – 0.4
M105 x 2	105	2	102.8	105.5 – 0.4

PG thread to DIN 40430

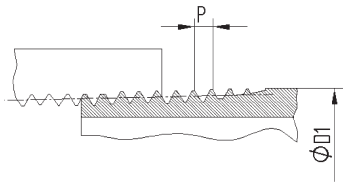
Nominal size	Ø D1	P	Ø D2	Hole Ø D3
PG 7	12.5	1.27	11.3	12.8 – 0.2
PG 9	15.2	1.41	13.9	15.5 – 0.2
PG 11	18.6	1.41	17.3	18.9 – 0.2
PG 13.5	20.4	1.41	19.1	20.7 – 0.2
PG 16	22.5	1.41	21.2	22.8 – 0.2
PG 21	28.3	1.588	26.8	28.6 – 0.2
PG 29	37.0	1.588	35.5	37.4 – 0.3
PG 36	47.0	1.588	45.5	47.4 – 0.3
PG 42	54.0	1.588	52.5	54.4 – 0.3
PG 48	59.3	1.588	57.8	59.7 – 0.3



D1 = External-Ø
D2 = Core Ø internal thread
D3 = Hole Ø
P = Pitch

NPT thread to ANSI B1.20.2

Nominal size	Ø D1	P	Hole Ø D3
NPT 1/4"	13.7	1.41	14.1 – 0.2
NPT 3/8"	17.1	1.41	17.4 – 0.2
NPT 1/2"	21.3	1.81	21.6 – 0.2
NPT 3/4"	26.7	1.81	27.0 – 0.2
NPT 1"	33.4	2.21	33.7 – 0.2
NPT 1 1/4"	42.2	2.21	42.5 – 0.2
NPT 1 1/2"	48.3	2.21	48.7 – 0.2
NPT 2"	60.3	2.21	60.7 – 0.2



D1 = External-Ø
D3 = Hole Ø
P = Pitch

Tightening torques* for SKINTOP® metric cable glands

Table of recommended tightening torques (domed cap nut, connection thread) for metric SKINTOP® glands to achieve ingress protection and category A strain relief according to IEC 62444. For more information regarding the protection rating, see the product page.

Nominal size	Tightening torque in Nm	
	Plastic	Metal
M6 x 1	-	1.5
M8 x 1	-	3
M10 x 1	-	6
M12 x 1.5	1.5	8
M16 x 1.5	3.0	10
M20 x 1.5	6.0	12
M25 x 1.5	8.0	12
M32 x 1.5	10.0	18
M40 x 1.5	13.0	18
M50 x 1.5	15.0	20
M63 x 1.5	16.0	20
M63 x 1.5 plus	-	25
M75 x 1.5	-	30
M90 x 2	-	45
M110 x 2	-	55

*NOTE: The values in the table above constitute the tightening torques for fittings and the maximum tightening torques for domed cap nuts under normal climatic conditions.
Note that lower torques must be used with different cable insulation materials; otherwise, the cable insulation may be damaged.
For ATEX screw connections, see the corresponding operating instructions for the respective tightening torques (operating instructions can be found in the delivery bag).

Tightening torques* for SKINTOP® PG cable glands

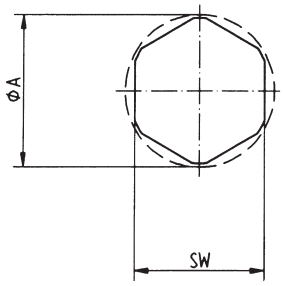
Nominal size	Tightening torques for fittings in Nm		Tightening torques for domed cap nuts in Nm	
	Plastic	Metal	Plastic	Metal
PG 7	3.0	6.25	1.7	6.25
PG 9	4.0	6.25	2.5	6.25
PG 11	4.0	6.25	2.5	6.25
PG 13.5	4.0	6.25	2.5	6.25
PG 16	6.0	7.5	3.3	7.5
PG 21	8.0	10.0	5.0	10.0
PG 29	13.0	10.0	5.0	10.0
PG 36	13.0	10.0	5.0	10.0
PG 42	13.0	10.0	5.0	10.0
PG 48	13.0	10.0	5.0	10.0

*NOTE: The values in the table above constitute the tightening torques for fittings and the maximum tightening torques for domed cap nuts under normal climatic conditions.
Note that lower torques must be used with different cable insulation materials; otherwise, the cable insulation may be damaged.
For ATEX screw connections, see the corresponding operating instructions for the respective tightening torques (operating instructions can be found in the delivery bag).

Installation dimensions and wrench sizes for cable glands

Diameter A indicates the installation space required for the relevant hexagon. This diameter corresponds to the width of the hexagon across corners plus an installation tolerance.

SW	Ø A	SW	Ø A	SW	Ø A	SW	Ø A
9	10.4	22	25.0	37	41.5	54	61.0
11	12.5	24	27.3	39	44.0	55	62.0
13	14.9	25	28.3	40	45.2	57	64.4
14	16.0	26	29.5	41	46.1	60	67.5
15	17.1	27	30.6	42	47.0	64	72.3
16	18.2	28	31.8	45	51.2	65	73.1
17	19.4	29	32.5	45	51.2	66	74.5
18	20.4	30	34.0	46	52.5	67	74.5
19	22.0	32	36.2	47	52.5	95	105.0
20	22.7	33	37.2	50	58.3	115	127.0
21	23.9	36	40.5	53	60.0	135	150.0

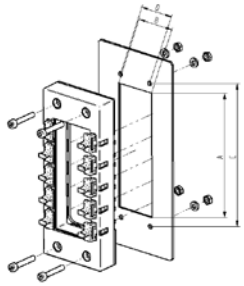


Installation dimensions for multi-cable entry systems

The mounting measurements of the SKINTOP® multi-cable entry systems are related to the 16- and 24- pin cut-out for industrial connectors.

Installation dimensions for SKINTOP® CUBE FRAME

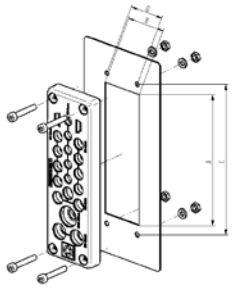
Product name	A	B	C	D
SKINTOP® CUBE FRAME 16	86	36	103	32
SKINTOP® CUBE FRAME 24	113	36	130	32



SKINTOP® CUBE FRAME can be assembled with the SKINTOP® CUBE modules for use with harnessed cables. For non-harnessed cables the SKINTOP® CUBE MULTI plate can be inserted into the frame (applies only to frame size 24).

Installation dimensions for SKINTOP® MULTI

Product name	A	B	C	D
SKINTOP® MULTI	113	36	130	32



SKINTOP® MULTI offers various versions with different entry designs for non harnessed cables, hoses and conduits.

Definition of protection ratings to EN 60529 (DIN 0470-1: 2014-09)

The protection ratings are indicated by a code that is always made up of the same two identification letters IP and the code numbers for the degree of protection.

Degrees of protection against solid foreign bodies

First code number	Short description	Definition
0	Not protected	
1	Protected against solid foreign bodies 50 mm diameter and above	The object probe, sphere of 50mm diameter, shall not fully penetrate.
2	Protected against solid foreign bodies 12.5 mm diameter and above	The object probe, sphere of 12.5 mm diameter, shall not fully penetrate.
3	Protected against solid foreign bodies 2.5 mm diameter and above	The object probe, sphere of 2.5 mm diameter, shall not penetrate at all.
4	Protected against solid foreign bodies 1.0 mm diameter and above	The object probe, sphere of 1.0 mm diameter, shall not penetrate at all.
5	Protected against dust	Intrusion of dust is not completely prevented but dust shall not penetrate in a quantity that would interfere with the satisfactory operation of the device or impair safety.
6	Dust-tight	No penetration of dust.

Degrees of protection against water

Second code number	Short description	Definition
0	Not protected	
1	Protected against drops of water	Vertically falling drops shall have no harmful effects.
2	Protected against drops of water if the housing is tilted by up to 15°.	Vertically falling drops shall have no harmful effects if the housing is tilted by up to 15° on either side of the vertical.
3	Protected against spraying water	Water sprayed at an angle of up to 60° on either side of the vertical shall have no harmful effects.
4	Protected against splashing water	Water splashed against the housing from any direction shall have no harmful effects.
5	Protected against jets of water	Water projected in jets against the housing from any direction shall have no harmful effects.
6	Protected against powerful jets of water	Water projected in powerful jets against the housing from any direction shall have no harmful effects.
7	Protected against the effects of temporary immersion in water	Water must not penetrate in quantities causing harmful effects when the housing is temporarily immersed in water under standardised pressure and time conditions.
8	Protected against the effects of permanent immersion in water	Water must not penetrate in quantities causing harmful effects when the housing is continually immersed in water under conditions that must be agreed upon between the manufacturer and the user. However, the conditions must be more difficult than for number 7.
9	Protected against high-pressure and steam-jet cleaning (with high temperatures)	Water projected against the housing from any direction under very high pressure shall have no harmful effects

NOTE: Starting from September 2014 the description of degree of protection IP 69K has changed to IP 69, all test basics remain the same according to DIN EN 60529 (VDE-01): 2014-09.

FOR EXAMPLE: Identification letters IP **65**

- **Second code number:** Protection against liquids.
- **First code number:** Protection against contact with and penetration of foreign bodies.

Table 23-1: substitution PG/metric

Getting the link to the future – now

At the turn of the Millennium, the old, familiar PG thread was replaced by the metric thread. On 31 December 1999, the DIN 46320 standard for PG thread connections was withdrawn.

It was replaced by the European Standard IEC 62444 for metric threads – means that with the year 2000, only cable glands with metric connection threads have to be used.

The changeover affects not only cable glands, but also all housing systems and appliances into which cables must be inserted.

Sizes PG 7 to PG 48 were replaced by metric sizes M 12 to M 63. Additional sizes have been adopted into the European Standard, covering a range M 6 to M 110.

The ZVEI (Zentralverband Elektrotechnik und Elektroindustrie e. V. – the German Federation of Electrotechnical and Electrical Industries) draws attention to the fact that the European safety standard IEC 62444 must be applied as from March 2001 at the latest; furthermore, the present test standard VDE 0619 for glands with PG thread will be withdrawn in March 2001.

IEC 62444 is a safety standard, and no longer a construction standard with the function of defining dimensions, like DIN 46319 or DIN 46320.

This means that the functions required by a cable gland can be realised without restrictions applied by prescribed forms, such as:

- strain relief
- degree of protection
- impact strength
- temperature range.

With our cable glands SKINTOP® and SKINDICHT®, we have transposed the requirements of IEC 62444. Our metric SKINTOP® glands combine all the features of the proven SKINTOP® series: easy, fast, permanent installation, optimal strain relief, protection against vibration, variable clamping range and sealing according to Protection Class IP 68.

Naturally, we can also supply you with the corresponding supplementary components, such as:

- SKINTOP® GMP-GL-M counter nuts
- SKINDICHT® SM-M counter nuts
- SKINTOP® SD-M dust seal
- SKINTOP® DV-M sealing plugs
- plugs made of metal or plastic material;
- O-rings
- adapters

and many more.

Table of clamping ranges PG/metric

SKINTOP® ST and SKINTOP® ST-M

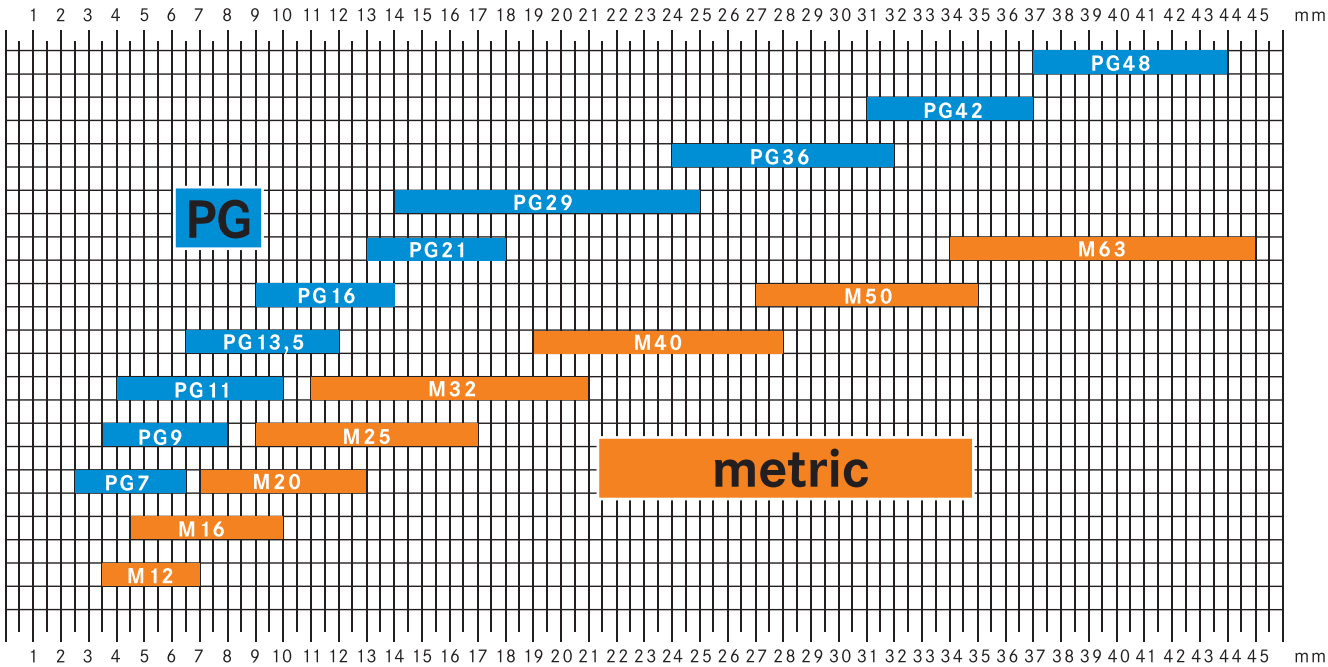
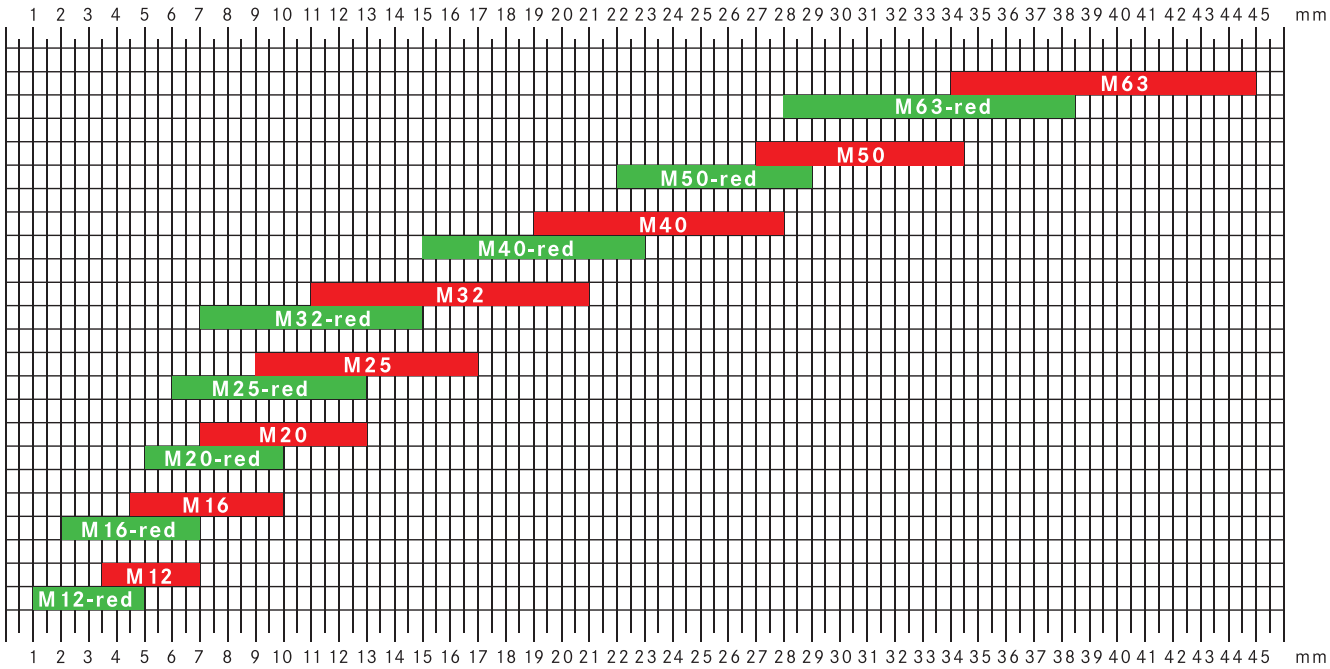


Table 23-1: substitution PG/metric

Clamping ranges SKINTOP® metric

SKINTOP® ST M and SKINTOP® STR-M



Comparison and classification of cable glands spanner size PG/metric

SKINTOP® ST and SKINTOP® ST-M

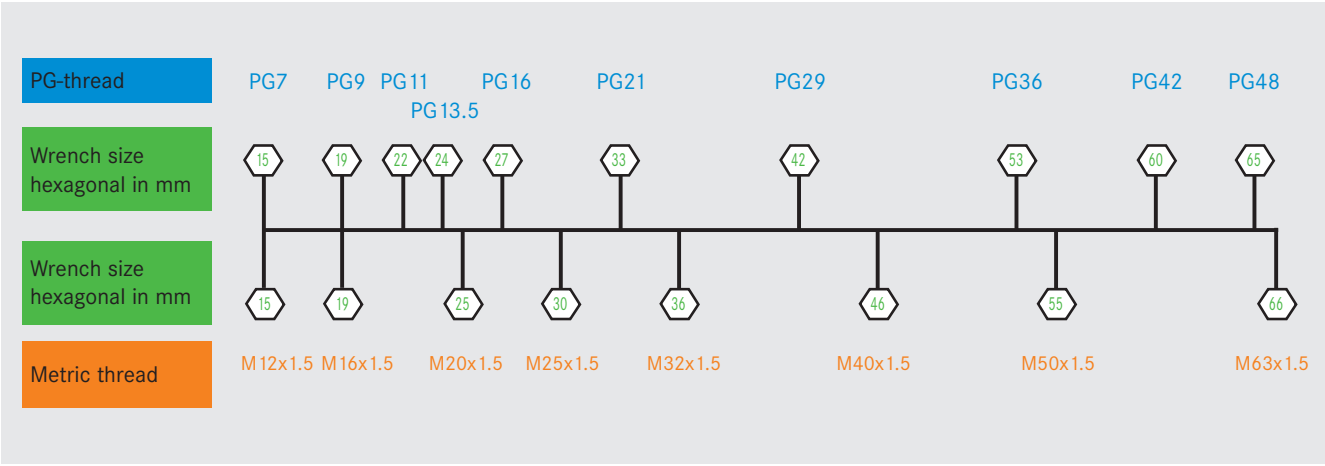


Table 23-2: EMC Optimized screening for use of cable glands

Optimized screening

In industrial environments, motors, controls and automatic welding machines can seriously impair electromagnetic compatibility (EMC). Particular problems are caused in industrial installations by long cable runs for power supply or data transmission between individual components; appropriate preventive measures are therefore essential.

Due to the antenna radiation effect of such cables, radio interference can be picked up and the useful signal (for example, temperature sensor or shaft encoder) blanketed. Result: functional disturbances of the connected equipment – from undetected false readings to the breakdown of an entire production line. Conversely, cables can function as transmitters causing radio interference. Installation of electronic components in an earthed switch cabinet and the simultaneous use of screened cables has proved to be an effective countermeasure. In practice, however, the location of the cable duct frequently constitutes a weak point in the switch cabinet. Insufficient contact between the cable screening and the metal housing often destroys the desired screening effect.

It is here that the SKINTOP® and SKINDICHT® cable glands from LAPP prove their worth. The newly developed SKINTOP® MS-SC-M and SKINTOP® MS-M BRUSH in particular are distinguished by their excellent EMC characteristics in addition to ease of handling. It enables the use of various different cable designs within a large diameter range.

Screening concepts

With the interference phenomena typically found in the industrial environment, we must distinguish principally between cable-linked and field-linked interference. Field-linked interference emissions which, for example, are radiated directly from a circuit board or, conversely, exercise an effect upon it, can be effectively checked by installing electrical or electronic assemblies in closed metal housings such as switch cabinets. If the housing does not have any particularly large apertures, a Faraday shield is produced which affords efficient protection against electro-magnetic interferences. In practice, this type of screening is generally extremely expensive and is hardly practicable in the case of moving machine components. An alternative solution is provided by cables with screening braid. In this case, the quality of the screen effect depends to a great extent on the texture and thickness of the braiding. In addition, optimum attachment of the the cable screening to the housing must be ensured by suitable mechanical elements in order to prevent penetration of the interference conducted on the cable screening. Of decisive importance is the derivation resistance, i.e. the resistance which a guide wave “sees” upon the cable screening when it meets the point of intersection cable/housing.

Practical requirements

Thus, in terms of EMC, we have a series of practical requirements for optimum contact:

- The connection between the cable screening and the housing potential must be of low impedance. To ensure this, the contact surfaces must be as large as possible. Under ideal conditions the cable screening, together with the housing wall, constitute a closed connection and form a continuation of the housing, without permitting any openings to be formed.
- The connection must be of low induction. This means that the cable screening must be led to the housing wall via the shortest possible path and with the widest possible cross-section. Preferably a type of contact should be chosen which completely surrounds the internal conductor. The procedure frequently practised, namely first leading the cable into the housing and placing the screening somewhere inside the housing, whereby the screen braiding is often extended by means of a thin cable strand, makes effective screening almost impossible.
- For practical application, simplicity of handling and installation are desirable. An electrician must be able to carry out installation without difficulty.

SKINTOP® and SKINDICHT®

The cable glands SKINTOP® and SKINDICHT® guarantee, in addition to perfect mechanical contact, the necessary low impedance and low induction connection. These glands, which are simple to install, are available in different versions and sizes. With SKINDICHT® SHVE-M, the cable screen is pressed between an earthing sleeve and a conical seal, thus permitting 360° contact over a wide area. In the case of SKINTOP® MS-SC-M, the contact is produced by means of cylindrically arranged contact springs, the SKINTOP® MS-M BRUSH offers a 360° contact with a EMC BRUSH. Only the cable sheathing in the area of the contact springs must be removed, and it is not necessary to open the screen braiding.

For the sake of clarity, this article focuses upon the cable gland SKINTOP® MS-SC-M. In a number of tests, excellent screening properties were demonstrated. Since the appropriate standard for cable glands does not define a particular set-up of test equipment, two possible measuring procedures and their evaluation are described below:

Derivation impedance, derivation attenuation

As a characteristic quantity for evaluating the quality of a cable connection to the wall of the housing (reference potential), the derivation resistance RA is documented via the frequency. This provides information as to what extent charges on the cable screening can be derived against the potential of the housing. To determine the screen attenuation factor of a cable, the derivation attenuation is calculated: the potential at the derivation resistance is related to the maximum available potential in a 50 W reference system. The derivation attenuation is obtained as follows:

aA (in dB) = 20 log (2RA/(2RA + 50 W)).

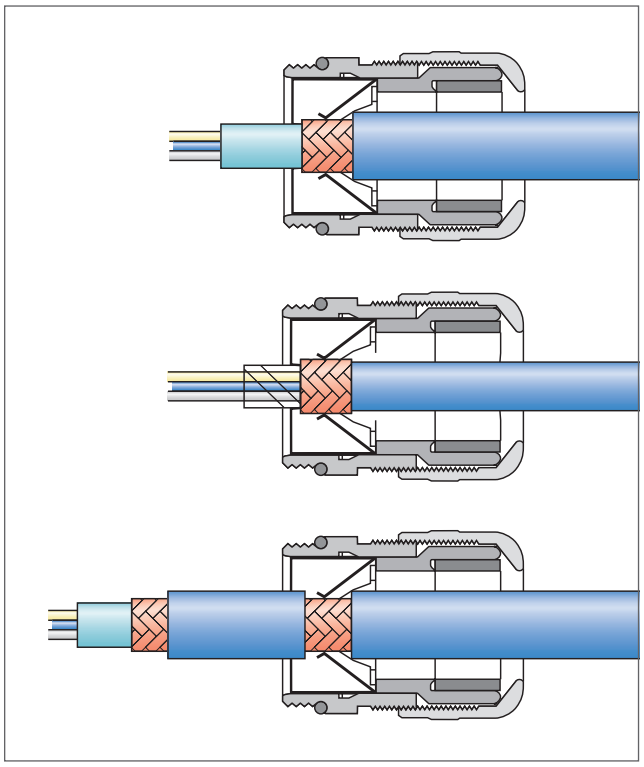


Table 23-2: EMC Optimized screening for use of cable glands

	Triaxial Method	Measurement of the derivation impedance
Application	Pairs of connectors and screened cables	Cable glands
Measurement	Screen attenuation mass from which the interaction impedance is calculated	Derivation impedance is determined directly
Reference to later application	Description of the screening efficiency: how effectively is the re-radiation of irradiation suppressed by field-linked interferences.	Description of how effectively interferences on the screening can be derived to an earthing mass (e.g. wall of switch cabinet)

Triaxial Method

In the Triaxial Method, measurement is carried out in accordance with the German Defence Equipment Standard VG 95373 Pt 40 or 41.

These set-ups, using a coaxial structure in a graduated tube (hence the term triaxial), are designed for a male/female socket pair, or employ a piece of cable of defined length for the purpose of qualifying a cable. The values of the screen attenuation mass aS and the coupling impedance ZK are determined for evaluation of the screening effect of the connectors depending upon their material characteristics and their construction, according to the formula:

aS = 20 log (50 W/ZK).

A precondition for measurement according to these standards is a solid sheathing of the supply cable used (generally by means of a tube). However, this results in screen attenuation values of almost 100 dB; for practical applications on a switch cabinet wall, depending upon the conditions, these can be achieved only with difficulty or not at all.

Comparison of both methods

In order to provide by means of the measured values a description of practical use of the a/m products, the measurement procedure of the derivation impedance and conversion into screen attenuation have been used (see table).

Measurement Results

Measurements were made in example upon glands of type SKINTOP® MS-SC-M in various sizes with screened cables ÖLFLEX® CLASSIC CY in diameters of 6–22 mm, by both methods, in order to test and compare the validity of the results for cable glands obtained by each method.

Measuring the derivation impedance: in order to determine the derivation impedance, the cable glands were in each case connected to a piece of cable of approx. 10 cm length. At frequencies up to 10 MHz, all glands reveal a derivation impedance of <1W. This results in attenuation values of 30–50 dB (assuming a 50 W reference system). The amplitudes of high-frequency spurious components which are located in this freqency range are thus reduced at least by the factor 30, maximum by the factor 300. Only at frequencies above 3–4 MHz does the achievable attenuation sink to values <40 db (factor 100). At higher frequencies (100 MHz), derivation impedance values in the range of 5–10 W are obtained. The measurement values confirm the assumed favourable EMC characteristics. Even up to high frequencies, low derivation impedance – or high derivation attenuation values can be obtained. Thus together with effective cable screening, optimum protection against cable-conducted interference signals can be achieved.

Triaxial measurement

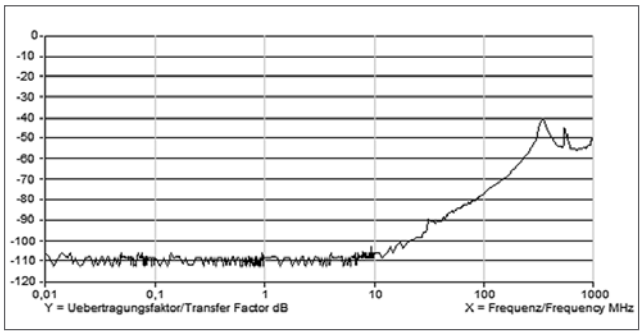
Measurements were performed as described above, in accordance with the German Defence Equipment Standard VG 95373, Procedure KS 01 B. The DC resistance of the glands equals 1 mW; this produces screening attenuation values which, depending upon the size and type of the gland, can amount to >100 dB.

Comparison of results

The results reveal a clear difference between derivation attenuation and the screening attenuation in a system with identical components cable/gland. The curve for derivation attenuation is shifted upwards by approx. 40 dB almost parallel to the screening attenuation curve, i. e. shifted to lower attenuation values. Nevertheless, these values are more meaningful with regard to cable-conducted interference, because in reality, attenuation values of between 80 and 100 dB can hardly be achieved.

Conclusion

The different measurement methods give different values for the attenuation rate and, with these values, different characteristics are expressed. On the one hand, the value “screening attenuation” expresses how effectively the re-radiation or the irradiation is suppressed by field-linked interferences (Triaxial Method); the value “derivation attenuation”, on the other hand, expresses how effectively interferences on the screening can be derived to an earthing mass (measurement of derivation impedance). This means that attenuation values cannot be simply compared without reservation. It can however be assumed that values for “derivation attenuation” are more meaningful for glands, because the results of the Triaxial Method (screen attenuation) are dependent on the screening of the supply cable used.



Source: Authors Dr.-Ing. U. Bochtler, Dipl.-Ing. M. Jacobsen, Botronic – Bochtler Electronic GmbH, Stuttgart

T24 Technical Tables

LAPP

Chemical resistance of plastics

Reagent	Concentration	at +°C %	Polyamide PA 6	Polyamide PA 6.6	Polyamide PA 12	Thermoplastic polyurethane PU	Polypropylene PP	Polyethylene HD-PE	Polyethylene LD-PE	Polystyrene PS	Nitrile butadiene rubber NBR
Exhaust gases containing carbon dioxide	all	60						✅	✅		
Exhaust gases, containing SO_2	low	60						✅	✅		
Acetaldehyde	40 %	20	❌	❌	✅		✅				20 °C ✅
Acetone	100 %	20	✅	✅	✅	⚫	✅	❌	❌		⚫
Acrylic acid	100 %	> 30	⚫	⚫	⚫						⚫
Alums, aqueous	diluted	40					✅	✅	✅	✅	20 °C ✅
Allyl alcohol	96 %	20	❌	❌	✅	✅	✅	✅	20 % ✅		
Aluminium chloride, aqueous	diluted	40					✅	✅	✅	✅	20 °C ✅
Aluminium sulphate, aqueous	diluted	40					✅	✅	✅	✅	20 °C ✅
Formic acid, aqueous	10 %	20	❌	❌	✅		✅	✅		✅	
Ammonia, aqueous	saturated	20	20 % ✅	20 % ✅	20 % ✅		✅	✅	✅	25 % ✅	
Ammonium chloride, aqueous	saturated	60				3 % ❌	✅	✅	✅		20 °C ✅
Ammonium nitrate, aqueous	diluted	40					✅	✅	✅	✅	20 °C ✅
Ammonium sulphate, aqueous	diluted	40					✅	✅	✅		⚫
Aniline, pure	100 %	20	❌	❌	❌		✅	✅	✅	⚫	
Aniline hydrochloride, aqueous	saturated						✅	❌	❌		
Benzaldehyde, aqueous	saturated	20	pure ❌	pure ❌	pure ❌		✅			⚫	⚫
Benzine	100 %	20	✅	✅	✅		❌	✅	❌	⚫	✅
Benzoic acid, aqueous	all	40	20 % ❌	20 % ❌			✅	✅	✅	✅	⚫
Benzole	100 %	20	✅	✅	✅		❌	❌	❌	⚫	⚫
Bleaching liquor	12.5 Cl	20	⚫	⚫	❌	3 % ⚫	✅	✅	✅	✅	⚫
Drilling oil	all	20	⚫	⚫	⚫		⚫	⚫	⚫	⚫	⚫
Chrome alum, aqueous	diluted	40					✅	✅	✅		20 °C ✅
Cyclohexanol	–	20	✅	✅	✅		✅	✅	✅	✅	✅
Diesel fuel		85	✅	✅	✅	20 °C ✅	20 °C ✅	20 °C ✅	20 °C ✅		
Ferric chloride, aqueous, neutral	10 %	20	✅	✅	✅		✅	✅	✅	✅	✅
Glacial acetic acid	100 %	20					✅	✅	✅		❌
Acetic acid	10 %	20	❌	❌	✅	3 % ❌	✅	✅	✅	❌	
Ethyl alcohol, aqueous	10 %	20	40 vol % ✅	40 vol % ✅	40 vol % ✅			✅		✅	
Ethylene chloride	100 %	20					❌	⚫	⚫		⚫
Ethylene oxide	100 %	20					❌				
Ethyl ether	100 %	20					❌				❌
Potassium ferrocyanide, aqueous	saturated	60					✅	✅	✅		
Fluorine	50 %	40	pure ⚫	pure ⚫	pure ⚫	⚫	⚫	⚫			
Formaldehyde, aqueous	diluted	40	pure ✅	pure ✅	pure ❌		40 % ✅	40 % ✅	40 % ✅	30 % ✅	20 °C ❌
Glucose, aqueous	all	50					✅	✅	✅		
Urea, aqueous	to 10 %	40	20 % ✅	20 % ✅	20 % ✅		✅	✅	✅	✅	
Flame-retardant hydraulic fluid		80	✅	✅	✅						
Hydraulic oils H and HL (DIN 51524)		100	✅	✅	✅						
Hydroxylamine sulphate, aqueous	to 12 %	30					✅				
Caustic potash, aqueous	50 %	20	✅	✅	✅		✅	✅	✅	✅	
Potassium bromide, aqueous	all	20	10 % ✅	10 % ✅	10 % ✅		✅	✅	✅	✅	
Potassium chloride, aqueous	10 %	20	✅	✅	✅		✅	✅	✅	✅	✅
Potassium dichromate, aqueous	40 %	20	5 % ❌	5 % ❌	5 % ❌		✅	✅	✅		✅
Potassium nitrate, aqueous	all	20	10 % ✅	10 % ✅	10 % ✅		✅	✅	✅	✅	✅
Potassium permanganate, aqueous	saturated	20					✅			✅	
Hydrosilicofluoric acid, aqueous	to 30%	20	⚫	⚫			✅	✅	✅		

✅ Highly resistant
❌ Limited resistance
⚫ Not resistant

The information is given to the best of our knowledge and experience, however, it must be regarded as being for guidance purposes only. In many cases, a final judgement can only be made by performing tests under actual working conditions.

Reagent	Concentration	at +°C %	Polyamide PA 6	Polyamide PA 6.6	Polyamide PA 12	Thermoplastic polyurethane PU	Polypropylene PP	Polyethylene HD-PE	Polyethylene LD-PE	Polystyrene PS	Nitrile butadiene rubber NBR
Carbon dioxide, dry	100 %	60					✅	✅	✅	50 °C ✅	20 °C ✅
Carbonic acid	100 %	60	✅	✅	✅						20 °C ✅
Cresylic acid, aqueous	to 90 %	20	pure ❌	pure ❌			✅	✅	❌	❌	❌
Coolant DIN 53521		120	❌	❌							
Copper chloride, aqueous	saturated	20					✅	✅	✅		✅
Copper sulphate, aqueous	saturated	60					✅	✅	✅		20 °C ✅
Magnesium carbonate, aqueous	saturated	100					✅			50 °C ✅	
Magnesium chloride, aqueous	saturated	20	10 % ✅	10 % ✅	10 % ✅		✅	✅	✅	✅	✅
Methyl alcohol	100 %	20	✅	✅	✅		40 °C ✅	✅	✅	✅	✅
Methylene chloride	100 %	20	❌	❌	❌		❌	❌	❌		
Lactic acid, aqueous	to 90 %	20	10 % ✅	10 % ✅	10 % ✅	3 % ❌	✅	✅	✅	80 % ✅	✅
Mineral oil			✅	✅	✅		20 °C ✅	20 °C ✅	20 °C ✅		
Sodium chlorate, aqueous	saturated	20	10 % ❌	10 % ❌	10 % ❌		✅	✅	✅		
Sodium hydroxide, aqueous	10 %	20	✅	✅	✅	3 % ❌	✅	✅	✅	✅	
Nickel chloride, aqueous	saturated	20	10 % ❌	10 % ❌	10 % ❌		✅			✅	✅
Nickel sulphate, aqueous	saturated	20	10 % ❌	10 % ❌	10 % ❌		✅	✅	✅		✅
Nitroglycerin	diluted	20						❌	❌		
Oil and grease		20	✅	✅	✅		❌				
Oleic acid	–	20	✅	✅	✅		✅	✅	✅	✅	❌
Oxalic acid	all	20	10 % ❌	10 % ❌	10 % ❌	3 % ❌	✅	✅	✅	✅	❌
Ozone	pure		❌	❌	❌		❌	❌	❌		
Petroleum	100 %	80	✅	✅	✅		20 °C ✅	20 °C ✅	20 °C ❌	❌	
Phosgene, gaseous	100 %	20					❌	❌	❌		
Phosphoric acid, aqueous	diluted	20	10 % ❌	10 % ❌	10 % ❌	3 % ❌	✅	✅	✅	86 % ✅	❌
Phosphorus pentoxide	100 %	20					✅				
Mercury	pure	20	✅	✅	✅		✅	✅	✅	✅	✅
Nitric acid, aqueous	50 %	20	❌	❌	❌	3 % ❌	❌	❌	❌	30 % ✅	❌
Hydrochloric acid, aqueous	30 %	20	20 % ❌	20 % ❌	20 % ❌	3 % ❌	✅	✅	✅	15 % ✅	❌
Lubricating grease, ester oil base		110	❌	❌							
Polyphenyl ester base		110	✅	✅	✅						
Lubricating grease, silicone oil base		110	✅	✅	✅						
Carbon disulphide	100 %	20	✅	✅	✅		✅	❌	❌	❌	❌
Sodium sulfide, aqueous	diluted	40					✅	✅	✅		
Sulphuric acid, aqueous	10 %	20	❌	❌	❌	3 % ❌	50 % ✅	50 % ✅	50 % ✅	✅	❌
Sea water		40	✅	✅	✅	20 °C ✅	✅	✅	✅	✅	20 °C ✅
Soap solution, aqueous	all	20	diluted ✅	diluted ✅	diluted ✅	✅	✅	✅		✅	
Carbon tetrachloride	100 %	20	✅	✅	✅		❌	❌	❌	❌	
Toluene	100 %	20	✅	✅	✅	❌		❌	❌	❌	❌
Trichloroethylene	100 %	20	❌	❌	❌		❌	❌	❌		
Vinyl acetate	100 %	20					✅				
Hydrogen	100 %	60	20 °C ✅	20 °C ✅	20 °C ✅		✅	✅	✅		20 °C ✅
Xylene	100 %	20	✅	✅	✅		❌	❌	❌	❌	❌
Zinc chloride, aqueous	diluted	60	10 % ❌	10 % ❌			✅	✅	✅	50 °C ✅	20 °C ✅
Zinc sulphate, aqueous	diluted	60					✅	✅	✅		20 °C ✅
Zinc chloride, aqueous	diluted	40					✅	✅	✅	❌	20 °C ✅
Citric acid	to 10 %	40	20 °C ✅	20 °C ✅	20 °C ✅	3 % ❌	✅	✅	✅	✅	20 °C ✅

✅ Highly resistant
❌ Limited resistance
❌ Not resistant

The information is given to the best of our knowledge and experience, however, it must be regarded as being for guidance purposes only. In many cases, a final judgement can only be made by performing tests under actual working conditions.

LAPP trademarks registered in multiple countries

LAPP®	SKINTOP®
ÖLFLEX®	SKINMATIC®
HITRONIC®	UNITRONIC®
EPIC®	SILVYN®
FLEXIMARK®	ETHERLINE®
SKINDICHT®	

Registered trademarks of other companies

Temflex™ 1500	(3M)	Novell	(Novell)
Scotch™ 1183	(3M)	Arcnet	(Datapoint)
NEOPRENE®	(DuPont de Nemours)	Apple	(Apple)
TEFLON®	(DuPont de Nemours)	Macintosh	(Apple)
KEVLAR®	(DuPont de Nemours)	HP	(Hewlett Packard)
TERMI-POINT®	The Whitaker Corporation	SIMATIC®	(SIEMENS®)
INTERBUS®	(Phoenix Contact)	SHIELD-KON®	(ABB)
VariNET®	(Pepperl + Fuchs)	TY-FAST™	(ABB)
DEC®	(Digital Equipment Corporation)	TY-GUN™	(ABB)
LAT®	(Digital Equipment Corporation)	TY-RAP®	(ABB)
Thinwire® (net)	(Digital Equipment Corporation)	TWIST TAIL™	(ABB)
IBM	(International Business Machines)	CIBES®	(Swedish Cable Trolleys AB)
PS/2	(International Business Machines)	SafetyBUS p	(Pilz)
Netview	(International Business Machines)	QUICKON®	(PhoenixContact)
AS/400	(International Business Machines)	INDRAMAT®	(Bosch Rexroth)
DYMO®	(Newell Rubbermaid)	Ecofast	(SIEMENS®)
VITON®	(DuPont Dow Elastomers)	DESINA®	VDW (Verein Deutscher Werkzeugmaschinenfabriken – German Machine Tool Builders Association)
OS/2	(IBM)	NYLON®	(DuPont de Nemours)
DeviceNET™	(Open Device Net Vendor Association, ODVA)	EtherCAT®	(EtherCAT Organisation)
Microsoft®	(Microsoft)	EtherNet/IP®	(Open Device Net Vendor Association, ODVA)
Microsoft® Windows	(Microsoft)	CANopen	(CAN in Automation)
SCO®	(Santa Cruz Operation)	TRASP®	(3M)
Perbunan®	(Bayer AG)	KNIPEX®	(KNIPEX)
PROFINET®	(PI, PROFINET International)	X-Cut®	(KNIPEX)
PROFIBUS®	(PI, PROFIBUS International)	Alligator®	(KNIPEX)
Netware	(Novell)	Super Knips®	(KNIPEX)

Certificate type Product	Page	Fire protection	EAC
Flexible power and control cables, nominal voltage up to 500 V			
ÖLFLEX® CLASSIC 100 300/500 V	27	✔	✔
ÖLFLEX® CLASSIC 100 CY	31	✔	✔
ÖLFLEX® CLASSIC 100 SY	32	✔	✔
ÖLFLEX® SMART 108	34	✔	✔
ÖLFLEX® CLASSIC 110	35	✔	✔
ÖLFLEX® CLASSIC 110 LT	39	✔	✔
ÖLFLEX® CLASSIC 110 Orange	40	✔	✔
ÖLFLEX® CLASSIC 110 CY	41	✔	✔
ÖLFLEX® CLASSIC 110 SY	42	✔	✔
ÖLFLEX® CLASSIC 115 CY	45	✔	✔
ÖLFLEX® EB	47	✔	✔
ÖLFLEX® EB CY	48	✔	✔
ÖLFLEX® 140	49	✔	✔
ÖLFLEX® 140 CY	50	✔	✔
ÖLFLEX® 150	51	✔	✔
ÖLFLEX® 150 CY	52	✔	✔
ÖLFLEX® 191	53	✔	✔
ÖLFLEX® 191 CY	54	✔	✔
ÖLFLEX® SF	59	✔	✔
ÖLFLEX® ROBUST 210	71		✔
ÖLFLEX® ROBUST 215 C	72		✔
ÖLFLEX® CLASSIC 400 P	73		✔
ÖLFLEX® CLASSIC 400 CP	74		✔
ÖLFLEX® CLASSIC 415 CP	75		✔
ÖLFLEX® 408 P	76		✔
ÖLFLEX® 409 P	77	✔	✔
ÖLFLEX® 440 P	78	✔	✔
ÖLFLEX® 440 CP	79	✔	✔
ÖLFLEX® 450 P	80	✔	✔
ÖLFLEX® 500 P	81	✔	✔
ÖLFLEX® 540 P	82	✔	✔
ÖLFLEX® 540 CP	83	✔	✔
ÖLFLEX® 550 P	84		✔
ÖLFLEX® SERVO FD 798 CP	111	✔	
Special Encoder and resolver cables	117	✔	✔
ÖLFLEX® CLASSIC FD 810	118	✔	✔
ÖLFLEX® CLASSIC FD 810 CY	119	✔	✔
ÖLFLEX® CHAIN 809	124	✔	✔
ÖLFLEX® CHAIN 809 CY	125	✔	✔
ÖLFLEX® CLASSIC FD 810 P	131	✔	✔
ÖLFLEX® CLASSIC FD 810 CP	132	✔	✔
ÖLFLEX® FD 855 P	140	✔	✔
ÖLFLEX® FD 855 CP	141	✔	✔
ÖLFLEX® ROBUST FD	133		✔
ÖLFLEX® ROBUST FD C	134		✔
ÖLFLEX® FD 891	127	✔	✔

Certificate type Product	Page	Fire protection	EAC
ÖLFLEX® FD 891 CY	128	✔	✔
ÖLFLEX® FD 891 P	139	✔	✔
ÖLFLEX® PETRO FD 865 CP	142	✔	✔
ÖLFLEX® ROBOT 900 P	144	✔	✔
ÖLFLEX® ROBOT 900 DP	145	✔	✔
ÖLFLEX® ROBOT F1	146	✔	✔
ÖLFLEX® ROBOT F1 C	147	✔	✔
ÖLFLEX® SPIRAL 400 P	252		✔
ÖLFLEX® SPIRAL 540 P	255	✔	✔
Flexible power and control cables, nominal voltage up to 750 V			
ÖLFLEX® CLASSIC 100 450/750 V	29	✔	✔
ÖLFLEX® CLASSIC 100 Yellow	30	✔	✔
ÖLFLEX® CLASSIC 100 CY	31	✔	✔
ÖLFLEX® CLASSIC 100 SY	32	✔	✔
ÖLFLEX® ROBUST 200	70		✔
ÖLFLEX® 540 P	82	✔	✔
ÖLFLEX® 540 CP	83	✔	✔
ÖLFLEX® 550 P	84		✔
SERVO cables in acc. to SEW® Standard	248	✔	✔
ÖLFLEX® SPIRAL 540 P	255	✔	✔
Flexible power and control cables, nominal voltage up to 1000 V			
ÖLFLEX® CLASSIC 100 BK 0,6/1 kV	33	✔	✔
ÖLFLEX® CLASSIC 110 Black 0,6/1 kV	43	✔	✔
ÖLFLEX® CLASSIC 110 CY Black 0,6/1 kV	44	✔	✔
ÖLFLEX® CONTROL TM	55	✔	✔
ÖLFLEX® CONTROL TM CY	56	✔	✔
ÖLFLEX® TRAY II	57	✔	✔
ÖLFLEX® TRAY II CY	58	✔	✔
NSSHÖU	92	✔	✔
ÖLFLEX® SERVO 720 CY		✔	
ÖLFLEX® SERVO 2YSLCY-JB	97	✔	✔
ÖLFLEX® SERVO 2YSLCYK-JB	97	✔	✔
ÖLFLEX® SERVO 719 CY	100	✔	✔
ÖLFLEX® SERVO 9YSLCY-JB	98	✔	✔
ÖLFLEX® SERVO 9YSLCY-JB BK	98	✔	✔
ÖLFLEX® SERVO 7DSL	102	✔	✔
ÖLFLEX® SERVO FD 781 CY	107	✔	✔
ÖLFLEX® SERVO FD 796 P	108	✔	✔
ÖLFLEX® SERVO FD 796 CP	109	✔	✔
SERVO LK SMS 6FX 8PLUS	113	✔	✔
SERVO cables in acc. to INDRAMAT® Standard INK	115	✔	✔
SERVO cables in acc. to LENZE® Standard	116	✔	✔
ÖLFLEX® CHAIN 809 SC	120	✔	✔
ÖLFLEX® CHAIN 809 SC CY	121	✔	✔
ÖLFLEX® FD 90	122	✔	✔
ÖLFLEX® FD 90 CY	123	✔	✔
ÖLFLEX® CHAIN 896 P	143	✔	✔

The table displays the state of available certifications at the time of catalogue printing. Please contact us regarding the current certification status of our products.

T26 Technical Tables

LAPP

Products with certification for Russia

Certificate type Product	Page	Fire protection	EAC
Halogen-free, flame retardant, flexible power cables, nominal voltage up to 1000 V			
ÖLFLEX® CLASSIC 100 H	60	✔	✔
ÖLFLEX® CLASSIC 110 H	61	✔	✔
ÖLFLEX® CLASSIC 110 CH	62	✔	✔
ÖLFLEX® CLASSIC 130 H	63	✔	✔
ÖLFLEX® CLASSIC 135 CH	64	✔	✔
ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV	66	✔	✔
ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV	67	✔	✔
ÖLFLEX® PETRO C HFFR	69	✔	✔
ÖLFLEX® PETRO FD 865 CP	142	✔	✔
H1Z2Z2-K	158	✔	✔
ÖLFLEX® TORSION FRNC	160	✔	✔
ÖLFLEX® TORSION D FRNC	160	✔	✔
Flexible rubber cables, nominal voltage 450/750 V			
H05RR-F	85		✔
H05RN-F	86	✔	✔
H07RN-F	87	✔	✔
H07ZZ-F	90	✔	✔
H01N2-D	91	✔	✔
H07RN8-F	95	✔	✔
Flexible cables for conveyor technology			
ÖLFLEX® CRANE NSHTÖU	169	✔	✔
ÖLFLEX® CRANE VS (N)SHTÖU	170	✔	✔
ÖLFLEX® CRANE PUR	171	✔	✔
ÖLFLEX® CRANE	172	✔	✔
ÖLFLEX® CRANE 2S	173	✔	✔
ÖLFLEX® LIFT	174	✔	✔
ÖLFLEX® LIFT T	175	✔	✔
ÖLFLEX® LIFT S		✔	✔
ÖLFLEX® CRANE F	176	✔	✔
ÖLFLEX® CRANE CF	177	✔	✔
ÖLFLEX® LIFT F	178	✔	✔
Heat resistant cables and single cores			
ÖLFLEX® HEAT 105 MC	180	✔	✔
ÖLFLEX® HEAT 125 SC	196	✔	✔
ÖLFLEX® HEAT 125 MC	181	✔	✔
ÖLFLEX® HEAT 125 C MC	182	✔	✔
ÖLFLEX® HEAT 180 SiHF	183	✔	✔
ÖLFLEX® HEAT 180 SiF	198	✔	✔
ÖLFLEX® HEAT 180 SiF/GL	201	✔	✔
ÖLFLEX® HEAT 180 SiD	200	✔	✔
ÖLFLEX® HEAT 180 SiZ	201	✔	✔
ÖLFLEX® HEAT 180 H05SS-F EWKF	184	✔	✔
ÖLFLEX® HEAT 180 MS	185	✔	✔
ÖLFLEX® HEAT 180 C MS	186	✔	✔
ÖLFLEX® HEAT 180 EWKF	187	✔	✔
ÖLFLEX® HEAT 180 EWKF C	188	✔	✔

Certificate type Product	Page	Fire protection	EAC
ÖLFLEX® HEAT 180 GLS	189	✔	✔
ÖLFLEX® HEAT 205 MC	190	✔	✔
ÖLFLEX® HEAT 205 SC	202	✔	✔
ÖLFLEX® HEAT 205 PTFE/FEP	190	✔	✔
ÖLFLEX® HEAT 260 MC	191	✔	✔
ÖLFLEX® HEAT 260 C MC	192	✔	✔
ÖLFLEX® HEAT 260 SC	203	✔	✔
ÖLFLEX® HEAT 260 GLS	193	✔	✔
ÖLFLEX® HEAT 350 MC	194	✔	✔
ÖLFLEX® HEAT 350 SC	204	✔	✔
ÖLFLEX® HEAT 650 SC	206	✔	✔
ÖLFLEX® HEAT 1565 MC	195	✔	✔
ÖLFLEX® HEAT 1565 SC	205	✔	✔
Standard single cores, nominal voltage up to 1000 V			
LiFY/LiFY 1 kV	149-150	✔	✔
H05V-K	210	✔	✔
X05V-K	212	✔	✔
H07V-K	213	✔	✔
X07V-K	216	✔	✔
H05Z-K 90° C	225	✔	✔
H07Z-K 90° C	226	✔	✔
Multi-Standard SC 1	217	✔	✔
Multi-Standard SC 2.1	218	✔	✔
Multi-Standard SC 2.2	221	✔	✔
PVC power cables for buildings/infrastructure			
NYM-J	230	✔	✔
NYY-J	232	✔	✔
NYY-O	232	✔	✔
NYCY	237	✔	✔
NYCWY	238	✔	✔
Halogen-free, flame retardant power cables for buildings/infrastructure			
(N)HXMH	231	✔	✔
N2XH	234	✔	✔
N2XCH	236	✔	✔
Cable for railways vehicles			
ÖLFLEX® TRAIN	156-157	✔	
UNITRONIC® TRAIN	367	✔	
ETHERLINE® TRAIN	450	✔	
Data transmission cables: low/high frequency			

ETHERLINE®
UNITRONIC®
UNITRONIC® BUS
UNITRONIC® LAN and
Coaxial cables

don't subject to the "Low voltage directive" 2014/35/EU.
They don't have mandatory certification and no EAC certificates.

Fire certificates are available. Please contact us.

The table displays the state of available certifications at the time of catalogue printing. Please contact us regarding the current certification status of our products.

Fire load values of cables

Inclusion in the calculation of fire loads on and in buildings

Current regulations and standards governing the assessment and restriction of consequential fire risks vary from country to country. In Germany, the valid state building regulations stipulate the inclusion of specific thresholds with regard to the accumulation of combustible parts of the building installation – which also includes cables – directly connected to the building.

Flexible cables are not intended for fixed installation in buildings. However, the approximate fire load of such cables can be calculated as follows:

- look up the "Approx. weight in kg/km" in the ordering table on the relevant product page of the catalogue and
- subtract the copper content (see column "Copper index in kg/km" in the catalogue) from this value. This results in the mass of the combustible insulation and sheathing material for the relevant article in kg/km,
- divide this value by a factor of 1000 to obtain the combustible mass in kg/m,
- multiply this value by the material-specific calorimetric value (in kWh/m or MJ/m) of the cable or wire as per table below.

RESULT: Average fire load value of this cable in kWh/m or MJ/m:

Material type	Fire load value in kWh/kg Average	Fire load value in MJ/kg Average
PVC	5.8	21
PE	12.2	44
PS	11.5	42
PA	8.1	26
PP	12.8	46
PUR	6.4	23
TPE-E	6.3	23
TPE-O	7.1	26
NR	6.4	23
SIR	5.0	18
EPR	6.4	23
EVA	5.9	21
CR	4.6	17
CSM	5.9	21
PVDF	4.2	15
ETFE	3.9	14
FEP	1.4	5
PFA	1.4	5
PTFE	1.4	5
HFFR	4.8	17
HFFR cross-linked	4.2	15

NOTE: The above calculation can only be used for cables of which the combustible content is made up entirely of the same material type and which contain no additional metals other than the copper content. Specific fire load values for the following products are available in tabular format on request: ÖLFLEX® CLASSIC 100 H, ÖLFLEX® CLASSIC 110 H, ÖLFLEX® CLASSIC110 CH, ÖLFLEX® CLASSIC 130 H, ÖLFLEX® CLASSIC 135 CH. Conversions: 1 kWh/m = approx. 3.6 MJ/m; 1 MJ/m = approx. 0.277 kWh/m.

Materials of cables and wires exposed to electromagnetic radiation

Types of radiation and their effects

Electromagnetic radiation is a familiar term in many different areas. It can occur naturally (e.g. solar or natural radioactivity) and can also be produced artificially (e.g. X-ray units, lights or mobile communications). It can be divided up into different types or components – the decisive factor here is the wavelength, or alternatively the frequency, of the radiation. The electromagnetic spectrum is divided up into the following categories, listed here in descending wavelength order, or ascending frequency order:

- alternating currents (e.g. very low frequency broadcasting)
- radio waves (e.g. radio broadcasting)
- microwaves (e.g. microwave ovens, mobile communications, radar)
- infrared radiation (thermal radiation, e.g. thermography, remote control)
- visible light (component of radiation from artificial sources of light and from the sun)
- ultraviolet radiation (UV radiation – component of sunlight, technical applications)
- X-radiation (e.g. image processing within medical technology or material testing)
- gamma radiation (e.g. nuclear energy, technical applications)

Due to the impact they have, gamma rays, x-rays and very short wavelength UV rays are also summarised under “ionising radiation”. This term refers to radiation that carries enough energy to free electrons from atoms or molecules (ionisation).

With organic compounds, such as plastics used for cables and wires, the fundamental factor to consider is the impact of UV radiation and ionising radiation. They have the highest amount of energy and therefore have the greatest impact on the materials out of all the types of electromagnetic radiation.
This influence is used in plastic processing to give materials certain properties – for example using the appropriate radiation conditions to set certain adhesives, coatings, insulation materials and sheath materials of cables and wires, which only in this way achieve the required strength and durability. This is known as “cross-linking” or, to be more precise, “electron beam cross-linking” because there are also other cross-linking processes (e.g. chemical).
When it comes to the practical use of cables and wires, however, UV radiation and ionising radiation tend to have undesired effects.Colours can fade and plastics can become dull or brittle. Ultimately if the plastic becomes brittle or cracks start to form, the cables will no longer be fit for use.

Use of cables and wires exposed to UV radiation

UV radiation is a component of solar radiation and therefore primarily affects exposed outdoor applications. Here the components which are able to penetrate the ozone layer have an impact: UVA radiation and a proportion of UVB radiation. UVC is filtered by the ozone layer and therefore does not reach the earth’s surface.
While UV radiation also occurs indoors, it is considerably less intense than it is outdoors because glass panes, depending on their design, can filter out a considerable proportion. Furthermore, shading is often installed and artificial sources of light usually only emit a small amount of UV radiation.

Since different products are subjected to remarkably different conditions at their respective sites of application, for example regarding the duration and angle of irradiation, as well as shading and other influencing factors such as ambient temperature, humidity and air quality, it is not possible to make any universal statements about the durability and service life of products (see also technical appendix T0, 7. Service life).

Testing methods complying with UV resistance-related standards (e.g. ISO 4892-2) enable a general evaluation of products that are to be exposed to UV radiation when in use and make it possible to compare different materials and end products.

The plastics used for cables and wires differ in their sensitivity to the impact of UV rays; using appropriate stabilisers, colour pigments or soot can considerably reduce this sensitivity by absorbing the UV radiation and converting it into less critical thermal radiation. This prevents UV rays from penetrating into the molecular chains of the sheath material, splitting them up into highly reactive radicals which attack the molecular chain structure of the plastic and in the process trigger accelerated ageing.

Cables and wires with black sheaths are generally better protected than those with other colours because black surfaces are considerably better at absorbing UV radiation.
This knowledge has also been applied in standards, thus cables with black sheaths are suitable for outdoor use in accordance with EN 50525-1 and VDE 0285-525-1.

Some plastics demonstrate a good level of resistance even without a black colouring, these are:

- cross-linked polyethylene (XLPE)
- elastomers (e.g. CR or Si)
- thermoplastic elastomers (TPE-E, TPE-O, TPE-U, e. g. PUR)
- fluoropolymers (e.g. PTFE or FEP)

However, these plastics also differ in terms of resistance depending on the colour because the aforementioned effect of black sheaths always improves resistance.

With polyurethane cables which are not black (e.g. orange or yellow cables), it is important to note that, despite fading considerably with time, they will continue displaying a good level of flexibility and strength because the base material is able to withstand the UV radiation, just not the colour pigments.
This means that despite the visible damage caused by UV radiation or weather conditions, these types can be technically still fully functional.

Use of cables and wires exposed to ionising radiation

Ionising radiation normally only occurs in defined applications and when it is supposed to, meaning that materials with the appropriate resistance can be specially adapted to the prevalent conditions of the application in advance.
Cables are therefore normally only tested for radiation resistance if their intended usage includes exposure to ionising radiation. This means that for all other cables, indications can only be made for the radiation resistance of typically used materials. While these indications are not representative of the resistance of the whole cable, the values can still act as a rough guide and make it possible to compare the cables with one another.

The radiation resistance of materials is defined using the Radiation Index (RI) in IEC 60544-4 and refers to the point at which the elongation at break is reduced to ≥ 50 % of the original value.

Materials of cables and wires exposed to electromagnetic radiation

The table below lists the typical maximum dose of the individual materials in grays (and rad) of a gamma radiation source at which the elongation at break of the test specimen still remains above 50 % of its unaged value.

Conversions:

1 Gy = 100 rad; 1Gy = 1J/kg

The resistance of cables, wires and other products for connection technology against ionising radiation plays a particularly crucial role in nuclear plants. In addition to the suitability of the products themselves, all the processes also need to meet the special requirements of such application areas.

This is why U.I. Lapp GmbH proved itself as qualified supplier of cables, wires, cable glands and cable-related accessories to nuclear plants by passing system-related and product-related quality assurance testing – see "Zertifikat KTA 1401" (Acknowledgement of quality assurance in accordance with regulation KTA 1401). The certificate is available in German at:
www.lappkabel.de/Service/Downloadcenter/Zertifikate

Resistance of plastics to ionising radiation

Material-type	Radiation dose in Gy approx.	Radiation dose in rad approx
PVC	8×10^5	8×10^7
PE LD	1×10^5	1×10^7
PE HD	7×10^4	7×10^6
VPE (XLPE)	1×10^5	1×10^7
PA	1×10^5	1×10^7
PP	1×10^3	1×10^5
PETP	1×10^7	1×10^7
PUR	5×10^5	5×10^7
TPE-E	1×10^5	1×10^7
TPE-O	1×10^5	1×10^7
NR	8×10^5	8×10^7
SIR	2×10^5	2×10^7
EPR	1×10^6	1×10^8
EVA	1×10^5	1×10^7
CR	2×10^5	2×10^7
ETFE	1×10^5	1×10^7
FEP	3×10^3	3×10^5
PFA	1×10^3	1×10^5
PTFE	1×10^3	1×10^5

Table 29-1: UL mark on cables and wires and its significance with regard to intended usage

(UL) or (UL) UL Listing Mark für listed cables & wires

The intended use of cables and wires in this category is for fixed wiring in residential buildings or for commercial or industrial use. For example listed cables and wires not only have to meet individual UL product standards, but must also be applied according to the relevant articles of the National Electrical Code (NEC). The NEC/NFPA 70 contains detailed specifications relating to the correct usage of listed cables and wires.

Such products can be used both for factory wiring of electrical equipment, devices, appliances and machines as well as for on-site or field wiring of industrial machinery and systems according to NFPA 79 or of energy generation installations.

Typical codes for listed cables and wires:

MTW, TC, PLTC, CM, CL2, THHN, THWN; SO, SOO, ST, STO, SJT, SJTO.

A selection of LAPP products with multiple listings/approvals:

ÖLFLEX® CONTROL TM, ÖLFLEX® TRAY II, ÖLFLEX® FD AUTO-X; UNITRONIC® BUS, UNITRONIC® 300.

See table T29-4 for more details.

Approval mark on product:

(UL) = UL Listing Mark

UL Recognition Mark für AWM cables and wires

UL recognized Appliance Wiring Material (abbrev. “AWM”) comprises cables and wires intended for **fully factory-wired** electrical equipment, devices, appliances, control cabinets and industrial machinery.

Commonly AWM is not intended for direct on-site wiring (field wiring). Cables and wires with UL AWM style labelling must be used for the applications stipulated by the relevant style description on the UL Style Sheet (www.ul.com). Since some UL (AWM) Styles are permitted to be applied by equipment manufacturers with particular ratings out of a shortlist of style ratings depending on the style, it will be very recommendable to identify product features considering the product’s technical data as per the LAPP catalogue and LAPP’s product data sheet, especially when it comes down to UL ratings for possible oil resistance, voltage class, flame retardance and operating temperature on the conductor.

If the manufacturer of an electrical device, appliance or machine wishes to obtain an officially recognised “UL listing” to release the relevant item as a series product or acquire a “field labelling” for a stand-alone machine or system, the body tasked with the certification (the National Recognized Testing Laboratory or NRTL) must be provided with all construction-relevant documentation.

The entire listing process will be significantly faster, simpler and cheaper if all installed cables and wires are already “listed” or “recognized”, as any cables that do not meet these criteria will have to be tested for suitability.

NOTE:
Multi-standard cables and wires

Multi-standard cables with mm^2 and AWG/MCM conductor sizes generally have special conductor stranding, as a result of which one of the specified conductor cross-sections is always a little larger (oversized). In individual cases, this may cause problems when connecting terminals designed for AWG conductor sizes.

For further information on the topic of this appendix, see:

Table T11 “Conductor resistances and conductor stranding (metric)”, Table T16 “Anglo-American dimensions”, Table T13 “Current rating of cables according to NFPA 70 (National Electrical Code) NFPA 79 Electrical Standard of Industrial Machinery”.

Quick and simple: check LAPP UL approvals online

Any Internet user can visit http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm to gain direct access to the Online Certification Directory of Underwriters Laboratories. Our UL approvals can be viewed by entering “**U. I. Lapp**” or “**Lapp USA**” in the “Company name” field; the individual File Numbers and Control Category Numbers (CCN) are also provided.

Table 29-2: NFPA – using cables in industrial installations in the USA (part 1)

NFPA 79 is the US-american, electrical standard of the USA's NFPA (National Fire Protection Association) about industrial machinery to be operated in the USA. NFPA 79 generally applies to electrical components used in individual machines and machine configurations operating together (machine groups).

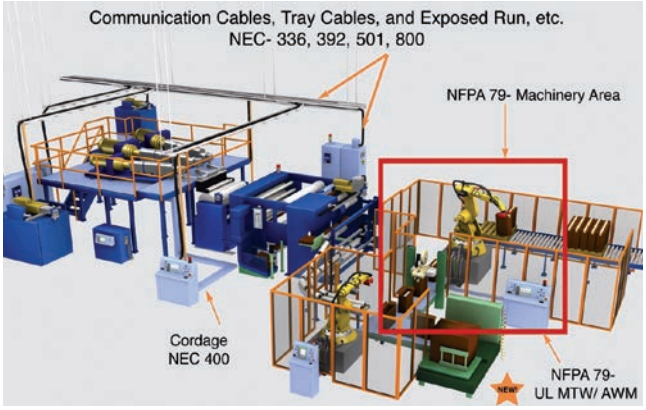
Examples of industrial machinery include: Machine tools, injection moulding, woodworking, assembly and material handling machines – generally, any machines for material processing and transport in the broader sense, but with a clear distinction from "passenger transport", for example.

Important aspects of NFPA 79 were revised in 2006. One of the main objectives of this revision was the further harmonisation of NFPA 79 with its European "counterpart", IEC/EN 60204. As a result, the chapter structure of NFPA 79 has been aligned with IEC/EN 60204 and safety standards adopted to represent the latest state of the art.

In NFPA 79-Edition 2007 – AWM single cores or multi-core AWM cables were explicitly prohibited, with the exception of those with a discretionary provision. Edition 2012 greatly relaxed the strict restrictions regarding the use of AWM cables. As per 2015 Edition, section 12.9.2, AWM cables are permitted, provided that **at least one** of the following conditions is met:

- cable as part of a, for this purpose, "listed assembly"
- cable specified for use in listed system or machine and utilised according to the instructions of the component supplier
- cable meets all design requirements stipulated by NFPA 79 (sections 12.2 to 12.6) incl. modifications with regard to conductor stranding, flame retardancy, insulation wall thickness and insulation/sheath labelling

"Machine Tool Wire (MTW)" – as a single-core or multi-core cable is a permitted alternative. In the case of wiring between elements of a machine group, "Tray Cable" (TC) is often a standard-compliant and cost-effective solution.



This schematic of an industrial machine shows the main applications of cables and wires with reference to the relevant sections in NEC®/NFPA. "NEC®" is a trademark of the National Fire Protection Association (NFPA).

As of NFPA 79, 2012 Edition, particular significance is attached to the selection of cables. This reflects the high demands placed on the reliability of industrial machines as well as the frequently draconian impact of liability claims. The global means of cable procurement also carry a certain amount of risk. It is therefore all the more important that the relevant technical standards are met.

We are committed to informing our customers of any significant changes to important technical standards. For this purpose, we work closely together with our colleagues at the production and sales location in Florham Park, New Jersey (www.lappusa.com).

LAPP offers a range of products with the "UL – Recognition Mark" and "UL – Listing", fully compliant with the specifications of NFPA 79, 2015 Edition.

Examples are: ÖLFLEX® TRAY II, UNITRONIC® 300 STP, MULTI-STANDARD SC 2.1.

Further information on this topic can be found at:
www.lappkabel.de → SERVICE → Knowledge Centre → NFPA 79.

Table 29-3: NFPA – using cables in industrial installations in the USA (part 2)

The following general rules apply to the construction and operation of machinery in the USA:

The machinery must comply with federal safety laws issued by the Occupational Safety and Health Administration (OSHA.: www.osha.gov) as well as the national or local codes (legal regulations) applicable at the installation location.

Machines are only deemed safe if they have been constructed and manufactured in accordance with the relevant standards (NFPA 70, NFPA 79, ...) and their safety both tested and confirmed by a Nationally Recognized Testing Laboratory (NRTL: www.osha.gov/dts/otpca/nrtl/). Meeting of the above conditions must be clearly indicated to the local inspector/safety officer/authority (Authority Having Jurisdiction, AHJ) by the attachment of an NRTL label (listing or field labelling) to the machine.

NFPA 79 Electrical Standard for Industrial Machinery – 2015 Edition

This important standard is published by the National Fire Protection Association (www.nfpa.org).

It is basically the US counterpart of IEC 60204-1, which equates to the European standard EN 60204-1 for machine safety. As a rule, only "listed cables" must be used – although "UL AWM recognized cables & wires" can be used for "factory-wired equipment" if one of the conditions specified in table T29-2 is met.

Any lines laid on (open) cable conduits or cable trays must be approved for this purpose (cable tray rating).

In the case of industrial installations, in which permanent maintenance and repair by qualified electricians is assured, cables with the addition "ER" (which stands for "exposed run" and replaces the previous designation "open wiring") can also be applied for unprotected (Exposed) transitions of not longer than 6 ft. or 1.8 metres each between cable trays or between cable tray and machine/cabinet, for example.

The use of cables with such ratings – such as the LAPP types: ÖLFLEX® TRAY II, ÖLFLEX® FD AUTO-X, ÖLFLEX® AUTO-I, UNITRONIC® 300 – enables significant material and time savings during installation.

In many sections, NFPA 79 refers to the US National Electrical Code (NEC®). This applies particularly to wiring between machines or machine groups where the cable routing utilises the building structures. In such cases, the wiring must comply with the appropriate wiring method specified by the NEC®.

NEC® (National Electrical Code) Handbook Edition NEC® <NFPA 70> 2017

This code contains the standard NFPA 70. As well as the normative content, the handbook also provides many useful explanations, tables, graphics, photos and comments. Both the NEC® and the NFPA 79 standard can be ordered via the website at www.nfpa.org.

UL 508-A

In addition to the aforementioned basic and technical standards, there are also special standards such as UL 508-A, according to which control cabinets for machines can also be configured and labelled on the basis of this separate standard for industrial control panels (www.ul.com).

Table 29-4: overview of corresponding products in this catalogue – type “Listed”

LAPP cable type with UL listing	Listed type	Voltage in V	Temperature in °C	Compound	Compliant with NFPA 79, Edition 2015
Multi-Standard SC 2.1	MTW	600	90	PVC	✔
Multi-Standard SC 2.2	MTW	600	90	PVC	✔
ÖLFLEX® CONTROL TM, TM CY	MTW, TC-ER, WTTC	600, 1000	90	Thermopl. Polymer	✔
ÖLFLEX® TRAY II, TRAY II CY	MTW, TC-ER or DP-1, WTTC, SUNRES	600, 1000	90	Thermopl. Polymer	✔
ÖLFLEX® SERVO 7TCE, FD 7TCE	TC-ER, Flexible Motor Supply	600, 1000	90	Thermopl. Elastomer	✔
ÖLFLEX® VFD 2XL, 2XL with Signal	TC-ER, Flexible Motor Supply	600, 1000, 2000	90	Thermopl. Elastomer	✔
ÖLFLEX® CHAIN TM, TM CY	MTW, TC-ER, WTTC	600, 1000	90	Special compound	✔
UNITRONIC® 300, 300 S, 300 STP	CMG, PLTC, Open Wiring, Oil Res 1	300	105	PVC	✔
UNITRONIC® FD CP plus	CMX	250	75	PUR	✔
UNITRONIC® FD CP (TP) plus	CMX	250	75	PUR	✔
UNITRONIC® BUS IBS A	CMX	250	70	PVC	✔
UNITRONIC® BUS IBS P COMBI	CMX	250	75	PUR	✔
UNITRONIC® BUS IBS FD P	CMX	250	70	PUR	✔
UNITRONIC® BUS IBS FD P COMBI	CMX	450	70	PUR	✔
UNITRONIC® BUS IBS Yv	CMX	250	75	PVC	✔
UNITRONIC® BUS IBS Yv COMBI	CMX	250	75	PVC	✔
UNITRONIC® BUS LD	CMX	250	70	PVC	✔
UNITRONIC® BUS LD FD P	CMX	250	75	PUR	✔
UNITRONIC® BUS PB A	CMX	250	75	PVC	✔
UNITRONIC® BUS PB FC	CMG	100	60	PVC	✔
UNITRONIC® BUS PB 7-W FC	CMX	250	75	PVC	✔
UNITRONIC® BUS PB H FC	CMX	100	75	FRNC	✔
UNITRONIC® BUS PB P FC	CMX	100	75	PUR	✔
UNITRONIC® BUS PB FD P A	CMX	250	70	PUR	✔
UNITRONIC® BUS PB TORSION	CMX	300	75	PUR	✔
UNITRONIC® BUS PB FESTOON	CMG	600	75	PVC	✔
UNITRONIC® BUS PB FRNC FC	CM	250	60	PUR	✔
UNITRONIC® BUS PB FD FRNC FC	CM	250	60	PUR	✔
UNITRONIC® BUS PB TRAY	CMG/PLTC-ER	600	75	PVC	
UNITRONIC® BUS PA (BU)	CMX	100	75	PVC	✔
UNITRONIC® BUS PA (BK)	CMX	100	75	PVC	✔
UNITRONIC® BUS PA FC	CMG	100	75	PVC	✔
UNITRONIC® BUS FF 3 (YE)	CMG/PLTC	300	105	PVC	✔
UNITRONIC® BUS FF 3 ARM	CMG/PLTC	300	105	PVC	✔
UNITRONIC® BUS FF 2	CMG	300	105	PVC	✔
UNITRONIC® BUS CC	CM/PLTC	300	75	PVC	✔
UNITRONIC® BUS CAN	CMX	250	75	PVC	✔
UNITRONIC® BUS CAN FD P	CMX	250	70	PUR	✔
UNITRONIC® BUS CAN TRAY	CMG/PLTC-ER	600	75	PVC	
UNITRONIC® BUS ASI (PVC)	CMG	300	80	PVC	✔
UNITRONIC® BUS SAFETY	CMX	250	75	Compound	✔
UNITRONIC® BUS DN THICK FRNC	CMG	300	80	FPE FRNC	✔
UNITRONIC® BUS DN THIN FRNC	CMG	300	80	FPE FRNC	✔
UNITRONIC® BUS DN THICK Y	CMG	300	80	PVC	✔
UNITRONIC® BUS DN THIN Y	CMG	300	80	PVC	✔
UNITRONIC® BUS DN THICK FD P	CMX	300	80	PUR	✔
UNITRONIC® BUS DN THIN FD Y	CMG	300	80	PVC	✔
UNITRONIC® BUS DN THICK FD Y	CMG	300	80	PVC	✔
UNITRONIC® BUS DN THIN FD P	CMX	300	80	PUR	✔
ETHERLINE® PN Cat.5e Y	CMX	300	75	PVC	✔
ETHERLINE® Y FC Cat.5	CMG/PLTC	600	75	PVC	✔
ETHERLINE® PN Cat.5e YY	CMG	300	75	PVC	✔
ETHERLINE® PN Cat.5 Y Flex FC	CMG/PLTC	600	75	PVC	✔
ETHERLINE® FD P FC Cat.5e	CMX	300	75	PUR	✔
ETHERLINE® PN Cat.5e FRNC FLEX FC	CMG/PLTC	300	75	FRNC	✔
ETHERLINE® Y FLEX Cat.5e	CMG	300	75	PVC	✔
ETHERLINE® Y EC FLEX Cat.5e	CMX	300	75	PVC	✔
ETHERLINE® P EC FLEX Cat.5e	CMX	300	75	PUR	✔
ETHERLINE® PN Cat.6_A Y FLEX	CMG	300	75	PVC	✔
ETHERLINE® PN Cat.6_A FRNC FLEX	CM	300	75	FRNC	✔
ETHERLINE® PN Cat.6_A FD Y	CMX	300	75	PVC	✔
ETHERLINE® PN Cat.6_A FD P	CMX	300	75	PUR	✔
ETHERLINE® PN Cat.6_A TORSION Y	CMX	300	75	PVC	✔
ETHERLINE® PN Cat.6_A TORSION P	CMX	300	75	PUR	✔
ETHERLINE® FD P Cat.6	CMX	300	75	PUR	✔
ETHERLINE® TRAY ER PN Y FC	CMG/PLTC-ER	600	75	PVC	✔
ETHERLINE® MARINE FRNC FC	CMG/PLTC	600	75	FRNC	✔
ETHERLINE® TORSION Cat.7	CMX	300	75	PUR	✔
HITRONIC® PCF Duplex PN B PVC-PVC A	OFNG		75	PVC	✔

The table displays the state of available certifications at the time of catalogue printing. Please contact us regarding the current certification status of our products.

Table 29-5: overview of corresponding products in this catalogue – type AWM

LAPP cable type with AWM style	Style number	Voltage in V	Temperature in °C	Compound	Compliant with NFPA 79, Edition 2015
Multi-Standard SC 2.1	1015	600	105	PVC	✔
Multi-Standard SC 2.2	10269	1000	105	PVC	✔
Multi-Standard SC 1	1007, 1569	300	105	PVC	✔
ÖLFLEX® CLASSIC 110 H	21089	600	75	Special compound, halogen-free	✔
ÖLFLEX® CLASSIC 110 CH	21089	600	75	Special compound, halogen-free	✔
ÖLFLEX® CLASSIC 130 H	21089	600	75	Special compound, halogen-free	✔
ÖLFLEX® CLASSIC 135 CH	21089	600	75	Special compound, halogen-free	✔
ÖLFLEX® CLASSIC 130 H BK	21156	1000	75	Special compound, halogen-free	✔
ÖLFLEX® CLASSIC 135 CH BK	21156	1000	75	Special compound, halogen-free	✔
ÖLFLEX® 150	21098	600	90	PVC	✔
ÖLFLEX® 150 CY	21098	600	90	PVC	✔
ÖLFLEX® 191	21098	600	90	PVC	✔
ÖLFLEX® 191 CY	21098	600	90	PVC	✔
ÖLFLEX® 409 P	20234	1000	80	PUR	✔
ÖLFLEX® CONTROL TM, TM CY	20886	1000	105	Special PVC compound	✔
ÖLFLEX® CHAIN TM, TM CY	20886	1000	105	Special compound	✔
ÖLFLEX® CHAIN 809	20886	1000	80	PVC	✔
ÖLFLEX® CHAIN 809 CY	20886	1000	80	PVC	✔
ÖLFLEX® CHAIN PN	20886	1000	90	PVC	✔
ÖLFLEX® FD 891	2587, 21098	600	90	PVC	✔
ÖLFLEX® FD 891 CY	2587, 21098	600	90	PVC	✔
ÖLFLEX® CHAIN 819 P, CP	21576	1000	80	PUR	✔
ÖLFLEX® FD 855 P, CP	21576	1000	80	PUR	✔
ÖLFLEX® FD 891 P	20234	600	80	PUR	✔
ÖLFLEX® CHAIN 896 P	20234	1000	80	PUR	✔
ÖLFLEX® CHAIN 809 SC, SC CY	10107	600	90	PVC	✔
ÖLFLEX® FD 90	10107	600	90	PVC	✔
ÖLFLEX® FD 90 CY	10107	600	90	PVC, DESINA®-compliant	✔
ÖLFLEX® CHAIN 90 P, CP	11624	1000	80	PUR	✔
ÖLFLEX® TORSION (D) FRNC	21288	1000	80	Special compound, halogen-free	✔
ÖLFLEX® HEAT 180 MS	4476, 3529	600	150	Silicone compound	✔
ÖLFLEX® HEAT 180 C MS	4476, 3529	600	150	Silicone compound	✔
ÖLFLEX® HEAT 180 SiF A	3644	1000	150	Silicone	✔
ÖLFLEX® PETRO C HFFR	10587, 20234	1000	80	PUR	✔
ÖLFLEX® ROBOT F1	20940	Up to 1.5 mm²: 600 From 2.5 mm²: 1000	80	PUR	✔
ÖLFLEX® SERVO 719	2570	1000	80	PVC	✔
ÖLFLEX® SERVO 719 CY	2570	1000	80	PVC	✔
ÖLFLEX® SERVO 728 CY	2464	300	80	PVC	✔
ÖLFLEX® SERVO 9YSLCY-JB	2570, 20886	1000	80	PVC	✔
ÖLFLEX® SERVO 7DSL	2570	1000/300	80	PVC	✔
ÖLFLEX® SERVO FD 796 P	20234	1000	80	PUR	✔
ÖLFLEX® SERVO FD 796 CP	20234	1000	80	PUR	✔
ÖLFLEX® SERVO FD 798 CP	20236	30	80	PUR	✔
ÖLFLEX® SERVO FD 7DSL	21223	1000/300	80	PUR	✔
SERVO cables acc. to INDRAMAT® standard INK	Power cables: 20234 Signalling cables: 20236	Power cables: 600/1000 Signalling cables: 300	80	PUR	✔
SERVO cables acc. to LENZE® standard	Resolver + encoder cable: 2464, 21165 Motor cable: 2570, 20940	Resolver + encoder cable: 300 Motor cable: 600	80	PUR	✔
SERVO cables acc. to SIEMENS® standard FX 8PLUS	Power cables: 21223 Signalling cables: 20236	Power cables: 1000 Signalling cables: 30	80	PUR	✔
UNITRONIC® 300, 300 S, 300 STP	2464	300	80	PVC	✔
UNITRONIC® LiYCY A	2464	300	80	Special PVC	✔
UNITRONIC® LiYCY(TP) A	2464	300	80	Special PVC	✔
UNITRONIC® LiYY A	2464	300	80	Special PVC	✔
UNITRONIC® FD P plus	21576	1000	80	PUR	✔
UNITRONIC® FD CP plus	21576	1000	80	PUR	✔
UNITRONIC® FD CP (TP) plus	21576	1000	80	PUR	✔
UNITRONIC® BUS CC FD P FRNC	20233	300	80	PUR	✔
UNITRONIC® BUS ASI (TPE)	2103	300	105	TPE	✔
UNITRONIC® BUS ASI FD FRNC	20549	300	80	PUR	✔
UNITRONIC® SENSOR FD	20549	300	80	PUR	✔
UNITRONIC® SENSOR master cable	21198	300	80	PUR	✔
ETHERLINE® Cat.5 FRNC HYBRID	21282	150	80	FRNC	✔
ETHERLINE® TORSION Cat.5	10532, 21161	300	80	PUR	✔
ETHERLINE® FD P Cat.5e	21576	1000	80	PUR	✔
ETHERLINE® P Cat.5e	21576	1000	80	PUR	✔
ETHERLINE® P Cat.5e Flex	21576	1000	80	PUR	✔
ETHERLINE® FD BK Cat.5	21576	1000	80	PUR	✔
ETHERLINE® FD P Cat.6$_A$	21576	1000	80	PUR	✔
ETHERLINE® FD P Cat.6$_A$	21576	1000	80	PUR	✔
ETHERLINE® TRAY ER PN Y	20201	600	60	PVC	✔
ETHERLINE® Y FC Cat.5	21694	600	75	PVC	✔
ETHERLINE® Cat.7 FLEX	21576	1000	80	PUR	✔

The table displays the state of available certifications at the time of catalogue printing. Please contact us regarding the current certification status of our products.
The use is mentioned in the UL Style pages.

Our products – contained substances and legislation

The use of hazardous substances in products is subject to ever stricter international laws and restrictions.

Applies to the editorial deadline:
The products in the catalogue meet the following legal requirements (among others):

- **REACH – Regulation No 1907/2006/EC**
- **RoHS – Directive 2011/65/EU**
- **Regulation No 1005/2009/EC on substances that deplete the ozone layer**

REACH:

Regulation No 1907/2006/EC represents the EU's standard system concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). The purpose of the regulation is to ensure a high level of protection for human health and the environment.

LAPP sells products within the meaning of REACH. The following requirements of the REACH regulation are therefore particularly significant:

1. Information requirement for the manufacturers and importers of products containing a material on the "candidate list" at a concentration in excess of 0.1% of the mass of the product
2. Observance of substances requiring authorisation in accordance with REACH Annex XIV
3. Observance of the manufacturing, marketing and use restrictions specified in REACH Annex XVII.

LAPP has attributed great importance to the subject of safety and the environment from a very early stage. Our aim is to implement the REACH regulation by keeping our products free from substances of very high concern (SVHC) or to replace such substances with non-hazardous materials.

We therefore keep a very close eye on the Candidate List, in which the European Chemicals Agency lists these dangerous substances, continuously evaluate our products and implement any necessary measures. We observe all registration requirements for materials in accordance with REACH Annex XIV as well as the manufacturing, marketing and use restrictions specified in REACH Annex XVII.

To meet the periodic updates of the Candidate List of Substances of Very High Concern (SVHC), we offer the latest information on REACH on www.lappgroup.com/rohs-reach. Please contact our competent REACH experts regarding specific substances.

RoHS:

Directive 2011/65/EU represents the updated version of the EU's directive on the restriction of the use of hazardous substances in electrical and electronic equipment and supersedes the previous directive 2002/95/EC. Directive 2011/65/EC was published on 1 July 2011, different transitional periods apply for the amendments introduced by the directive. This directive results in national laws (e.g. the German ElektroStoffV).

In addition to the extended scope of the directive, which now also comprises "other" electrical and electronic equipment (EEE), one significant new feature is the obligation to assure compliance with the requirements of the RoHS directive by means of a conformity assessment procedure. LAPP certifies the "RoHS-conformity" of EEE covered by the directive with a product-specific EC declaration of conformity and the application of the CE mark. For products that are not within the scope of the directive, LAPP provides statements declaring the exemption from the conformity assessment procedures.

Applies to the editorial deadline:
All products in this catalogue meet the substance-specific requirements of the RoHS directive.

As a general rule: All information is provided to the best of our knowledge and belief. The information given represents the current state of the art. This is supported through continuous random testing of our products.

Given the vast number of our products, complete verification without exception is not possible. Therefore, the specifications above do not constitute a generally applicable guarantee in a legal or warranty sense.

WEEE directive 2012/19/EU

The WEEE directive governs the disposal and recycling of electrical and electronic goods. A list of products from our range falling under the category of electrical and electronic tools and equipment is provided below, along with the relevant registration numbers:

Article number	Registration number
61801245	DE 39896667
83259601, 83259602, 83259598	DE 42488170
61813817	DE 38694244
83257106, 83257107	DE 32428305

The article/registration numbers are subject to change as a result of any modifications to the scope of the WEEE directive after printing of this catalogue.

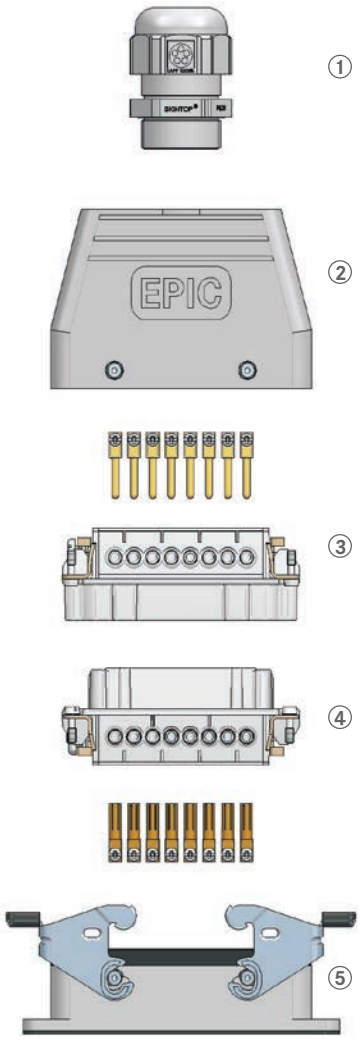
Directive 2006/66/EC on batteries and accumulators as well as waste batteries and accumulators

This directive and the resulting national laws (e.g. the German batteries Act – BattG) stipulate obligations for the registration and return of batteries. The products listed in this catalogue do not constitute or contain batteries, nor are any batteries provided with these products.

Therefore, the articles in this catalogue do not fall within the scope of this directive or its associated national laws.

EXCEPTION: EPIC® M23 Tool, article 11148001 EPIC® CIRCON CRIMPTOOL DIGITAL is supplied with a standard 3 V lithium battery (button cell CR2025) which can be recycled at the designated collection points for waste batteries.

Table 31-1: EPIC® rectangular connectors



1. Cable Gland:
The Cable Gland provides a seal between the cable and the connector housing. It may also be used to offer additional functions like strain relief and and braid continuity for EMC protection.

2. Upper housing:
Hood

3. Male insert:
Types of contact termination
- Screw
- Crimp*
- Cage clamp
- Push-In

4. Female insert:
Types of contact termination
- Screw
- Crimp*
- Cage clamp
- Push-In

5. Lower housing:
- Panel mounting (cable entry though cut out in panel)
- Surface mounting (cable entry through a gland into the side of the connector base)
- Cable Connector Hood, cable to cable connection

* contacts must be ordered separately

Please pay attention on the EPIC® Selection table A10, this table is a great guide in helping you to find the right insert and suitable housings. It is particularly convenient using the connector with the connector-finder in the internet (www.lappgroup.com/connectorfinder) and the connector housing configurator for customized solutions (www.lappgroup.com/connector-housing). You will also find configurated connector kits in our webcatalogue.

High variety of applications with EPIC® rectangular connectors:

- Number of pins from 1 up to 216
- Currents up to 220A
- Voltage up to 1.000V
- Modular system with inserts for power supply, signal and data transmission, fiber optics, coax connection and compressed air
- Termination technologies: Screw, crimp, cage clamp, solder, Push-In
- Housings for cable connection and for the assembly on devices
- **Degree of protection** (depends on the type of housing and the cable gland. Therefore we recommend to use a brass gland with integrated sealing ring for example SKINTOP® MS-M.)
- **EMC protection** (For applications with EMC requirements, we recommend the EPIC® ULTRA in combination with the SKINTOP® BRUSH.)

TIP: Only use tools recommended and approved by LAPP. This ensures the safe and long-term operation of the connector. An assurance of the technical characteristics, as well as the validity of the certificates can only be given if all components are used exclusively by LAPP.

WARNING: EPIC® industrial connectors may not be connected or disconnected under load.

Table 31-2: EPIC® housings and inserts

Hood (fig. 1):
It may have a top or angle (side) entry of different PG sizes to accommodate a wide range of cable diameters. The hood can be mated with either a surface or panel mounting base, or a cable coupler hood (for cable to cable connection).

1

Panel mount base (fig. 2):
It is wired from below though a hole cut in a panel. The panel base is attached to the surface of a control panel for connection of control or power cables.

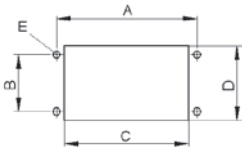
2

Surface mount base (fig. 3):
The surface base is a complete enclosure only offering cable entry through a cable gland mounted either on one or both sides of the base.

3

Cable Coupler (fig. 4):
The cable connector hood mates with a top entry hood to offer cable to cable connection. This is frequently used to extend cables.

4



Panel cut out for panel mount base (mm)					
Panel mount base	A	B	C	D	E
H-A 3	30	–	21	21	3.3
H-A 10	70	17.5	57.5	24	3.6
H-A 16	86	17.5	73.7	24	3.6
H-A 32	92	42	74.2	48.4	4.3
H-A 48	110	65	85.5	71	5.5
H-B 6	70	32	52.2	35	4.3
H-B 10	83	32	65.2	35	4.3
H-B 16	103	32	85.5	35	4.3
H-B 24	130	32	112.2	35	4.3
H-B 32	110	65	85.5	71	5.5
H-B 48	148	70	117	82	7

Screw connection technology (as DIN EN 60999)				
Screw thread	M3	M4	M5	M6
Starting torque Nm	0.5	1.2	2.0	2.5
Clamping screw: H-A, H-BE, H-BVE	●			
Clamping screw: H-BS		●		
Grounding screw: H-A, H-BE, H-BVE		●		
Grounding screw: H-BS			●	
Clamping screw: Module High-Current				●
Fixing screw: Inserts and Module frames	●			

All EPIC® connectors refer to IEC 61984.

Table 31-3: EPIC® – definitions and instructions for use

General information

Connectors may not be connected or disconnected under load. The temperature range for connectors can be found in the catalog data. The degree of contamination is given in the technical data of the connector. The rated voltage and rated current are based on a power system with DC or AC (rms) at a frequency of 50 or 60 Hz at 0 ... 2000 m above sea level, and are given in the technical data of the connector. For other applications, the additional loads (e.g. electrical, chemical, climatic, biological, mechanical or radioactive) can mean for the connector, or request mateability with competitive products the user is responsible for the review and approval.

Connectors

Connectors are devices that are not for connection or disconnection under load.

Application Note: This distinguishes these kind of connectors from plug devices that may be connected or disconnected under load. When connecting or disconnecting a connector under load, sparks and at short-term high temperatures that can cause damage to the contact surface and finally a total failure of the connector.

Types of connection

For EPIC® Industrial Connectors different connection types of wire to the electrical contact are available. There is the classic screw, crimping, soldering and the spring-loaded terminals and Push-In.

Application Note: Each of these connection types has advantages and disadvantages. Screw is the simplest and a very common practice. Crimping gives with the appropriate crimping tool 100% process-reliable results, but it requires special tools. Spring loaded terminals also allows quick and easy connection and is vibration resistant. Soldering requires little space and is often used with small connector systems. Push-In is ideal for massive conductors and cores with wire end sleeves.

Rated voltage

The rated voltage is the voltage according to which the connectors are designed and related to the relevant operating characteristics.

Application Note: The rated voltage is defined depending on the environmental degree of contamination for which the connector it is developed and tested. If the same connector is tested for pollution degree 1, the rated voltage given in the catalogue is significantly higher than when he was tested for pollution degree 2. EPIC® connectors are generally designed for pollution degree 3 and therefore have high safety reserves, even if the plug moist inside or should be dirty.

Rated current

A current value assigned by the manufacturer, which the connector or PSD can carry continuously (without interruption) and simultaneously through all its contacts wired with the largest conductor preferrably at an ambient temperature of 40°C without the upper temperature being exceeded. The rated current is specified for the largest conductor cross-section.

Rated impulse withstand voltage

The test voltage is the maximum voltage at which a connector will not be subjected to flashover under the set conditions.

Application Note: In this specified voltage there will be no spark damage to the connector.

EMC (electromagnetic compatibility)

The capacity of an electrical installation to function satisfactorily in its electromagnetic environment without an unacceptable influence to the environment which also includes other installations (DIN/VDE 0870, Section 1).

Application Note: For good EMC shielding, there is a diagram that describes the behavior for different frequencies. This serves as an evaluation criterion to compare different components. In the industrial sector, the interfering frequencies are in the lower frequency range. Typically less than 100kHz. In this frequency range, it depends mainly on a low impedance, high crosssection, 360° shielding. When evaluating the different EMC concepts such qualitative parameters can be recognized easily. The EPIC® ULTRA housing convinces with a highly sophisticated sealing and contact technology. The innovative design allows safe EMC contact and allows the current on the cable screen to flow to the ground. The 360° shield connection is done via the cable gland SKINTOP® BRUSH.

Coding

Coding is a system by which it is possible to prevent interfacing confusion between adjacent connectors which are of the same configuration. This is useful if two or more connectors of the same type are mounted on the same unit

Application Note: So plugging errors and incorrect wiring is prevented. When coding the rectangular connector with guide pin and guide bushing in addition the plug insert is centered. Uncentred connection is prevented resulting in an increased service life of the contacts. For every EPIC® connectors exists the right coding element.

Table 31-3: EPIC® – definitions and instructions for use

Contact

The coating of the base material with a precious metal is necessary to guarantee a long lasting and good connection. The contacts are plated normally by galvanic processes. To reach a long-lasting plating, there are some requirements for the contact and the plating material.

LAPP uses mainly silver (Ag) and gold (Au) for surface coating,

- Silver has the highest electrical conductivity of all metals and is the most cost effective precious metal. By sulfur or sulfur-containing substances in the ambient air rapidly forms a brownish to black oxide layer of silver sulfide (Ag_2S). This layer, however, can break during mating or is broken at high currents, so that the required electrical conductivity is maintained. Passivation of the silver surface reduces the formation of the oxide layer and reduces the plug and pulling forces.
- Gold is the most stable precious metal. The oxide and sulfide formation can be neglected. Gold contacts are characterized by low insertion and extraction forces. They are mainly used in the transmission of signals with low current and voltage values. Due to high-precision manufacturing of contacts and selection of the contact materials is the lifetime of the EPIC® connector very high.

Mating cycles

Mating cycles are mechanical operations of connectors by insertion and removal.

Application Note: The maximum number of mating cycles resulting from the increase in the resistance of the connection after X-time insertion and removal. This must not be more than 50% increase in-or exceed 5mOhm. Another soft factor is the condition of the contacts or the locking elements. There should be no harmful abrasion inside the connector. EPIC® has for the soft factors extremely high internal standards. This internal review can vary widely depending on the manufacturer.

Temperature range

The temperature range is determined by the upper and lower limit temperature. These temperatures are the highest and lowest allowable temperatures at which a connector must still be operated.

Application Note: The higher temperature limit includes the heating of contacts and the-ambient temperature. It is always measured at the hottest point. These are either the transition of the crimp area or the contacts in general. The temperature of the protective housing is usually much lower than the hottest point of contact.

The lower limit temperature is the lowest permissible temperature at which a connector may be operated. In particular, the sealing materials get stiff at low temperatures and lose elasticity. Is the connector mated or unmated under in this temperature range, separated or assembled, it may cause damage to the seals. At static use depending on the connector system and application can be used at a lower temperature range. Due to the used materials and the design of the housing the temperature range of the EPIC® connectors is very wide.

Degree of pollution

Numerical value which states the anticipated pollution in the micro-environment.

The pollution degree 3 is typical for industrial environments, whilst pollution degree 2 is typical for households.

Pollution degree 1:

No pollution or only dry, non-conductive pollution occurs. This pollution has no influence.

Example for environment: Open, unprotected insulation in air-conditioned or clean, dry rooms.

Pollution degree 2:

Only non-conductive pollution occurs. Occasionally, however, it may be anticipated that transient conductivity arises due to condensation.

Example for environment: Open unprotected insulations in residential, commercial or business premises (fine mechanical engineering workshops, laboratories, test areas, rooms used for medical purposes).

Pollution degree 3:

Conductive pollution arises, or dry, non-conductive pollution which becomes conductive because condensation has to be anticipated.

Example for environment: Example: Open unprotected insulations in rooms of industrial, commercial and agricultural companies, unheated storage rooms, boilerhouses and workshops.

Pollution degree 4:

The pollution generates persistent conductivity caused by conductive dust, rain or snow.

Pre-mating contact

If the construction of the circuit requires that for safety reasons, e. g. for neutral conductors, one or several contacts of a connector have to make contact first upon mating, or have to be separated last upon unmating, then connectors with switch (extended) contacts are used.

Safety note:

In the case of EPIC® inserts such as H-BE or H-BS, the protective conductor connection can be changed. When connecting the protective conductor, the low-resistance connection to the protective conductor of the counter piece must not be interrupted. Terminal screw changes must be performed on both sides to ensure that the protective function is maintained.

Otherwise, the relevant specifications apply in accordance with:
DIN EN 50110-1 (VDE 0105-1) – Operation of electrical installations.

It is up to the user to assess whether, in specific areas of application not covered by us, the components listed in this catalogue comply with regulations other than those specified here. We reserve the right to make constructional and design modifications due to quality improvements, enhancements or manufacturing requirements. The information in this catalogue serves to specify the components and does not guarantee properties.

Assurance of the technical properties can only be given if all components are supplied by LAPP. Otherwise, any testing and approval is the responsibility of the operator.

Certificates:

VDE, certificate number 40016270, 40011894, 40013251, 40019264
UL, file number: E75770, E249137, E192484
CSA files: E75770, E249137, E192484
TÜV

For further information on the topic of this appendix, see:

Table T22: Definition of protection according to EN 60529 and DIN 40050

Table T23-1: PG/Metric: Connection thread of EPIC® housing

Part-Number	Page
00008746	651
00008747	651
00008749	651
00008779	651
00008822	651
00008825	651
00008829	651
00008854	651
00008867	651
00008899	651
00008939	652
00008978	652
00008979	651
00009005	652
00009045	651
00009057	652
00009082	652
00009135	652
00009371	652
00009470	652
00009894	652
00010108	642
00010521	642
00100004	27
00100014	27
00100024	27
00100034	27
0010004	27
0010005	27
0010006	27
0010007	27
0010008	27
0010009	27
0010010	27
0010011	27
0010012	27
0010016	27
00100214	27
00100224	27
00100234	27
00100244	27
0010025	27
0010026	27
0010027	27
0010028	27
0010029	27
0010030	27
0010031	27
0010032	27
0010033	27
0010034	27
0010036	27
0010037	27
00100414	27
00100424	27
00100434	27
00100444	27
0010045	27
0010046	27
0010047	28
0010049	28
0010050	28
0010052	28
0010053	28
0010054	28
0010056	28
00100634	28
00100644	28
00100654	28
00100664	28
0010068	28
0010069	28
0010071	28
0010072	28
0010074	28
0010076	28
0010086	29
0010087	29
00100883	29
00100893	29
0010091	29
0010092	29
00100933	29
0010100	29
00101013	29
00101023	29
0010103	29
0010105	29
00101063	29
00101073	29
0010108	29

Part-Number	Page
00101093	29
00101103	29
0010111	29
00101123	29
00101133	29
00101153	29
00101163	29
00101173	29
00101183	29
00101193	29
00101203	29
00101213	29
00101224	27
00101234	27
00101244	27
00101254	27
00101264	27
00101274	27
00101284	28
00101294	28
00101304	28
00102034	27
00102044	27
00102054	27
0010210	29
0010301	29
0010302	29
0010303	29
0010304	29
0010305	29
0010306	29
0010307	29
0010308	29
00103093	29
00103113	29
00103123	29
00103133	29
00103143	29
00103153	29
0010400	30
0010401	30
00104023	30
00104033	30
00104043	30
00104053	30
0011000	49
0011001	49
0011002	49
0011003	49
0011004	49
0011005	49
0011006	49
0011009	49
0011010	49
0011011	49
0011012	49
0011013	49
0011014	49
0011015	49
0011018	49
0011019	49
0011020	49
0011021	49
0011022	49
0011023	49
0011024	49
0011027	49
0011028	49
0011029	49
0011030	49
0011031	49
0011032	49
0011033	49
0011036	49
0011037	49
0011038	49
0011039	49
0011040	49
0011041	49
0011045	49
0011104	49
0011113	53
0011114	53
0011115	53
0011116	53
0011117	53
0011118	53
0011119	53
0011125	53
0011136	53
0011137	53

Part-Number	Page
0011138	53
0011139	53
0011140	53
0011142	53
0011143	53
0011144	53
0011150	53
0011151	53
0011152	53
0011153	53
0011160	53
0011161	53
0011162	53
0011165	53
0011166	53
0011167	53
0011169	53
0011170	53
0011172	53
0011173	53
0011175	53
0011176	53
0011178	53
0011179	53
0011180	54
0011181	54
0011182	54
0011183	54
0011184	54
0011185	54
0011186	54
0011187	54
0011188	54
0011189	54
0011190	54
0011191	54
0011192	54
0011193	54
0011194	54
0011195	54
0011196	54
0011197	54
0011202	54
0011204	49
0011205	53
0011206	53
0011207	53
0011208	53
0011222	53
0011223	53
0011224	53
0011234	54
0011241	49
0011302	54
0011304	49
0011341	49
0011404	49
0011504	49
0012101	80
0012102	80
0012202	80
00122033	80
00122043	80
0012302	80
00123043	80
0012345	81
0012346	81
00123473	81
00123483	81
0012351	81
0012352	81
00123533	81
00123543	81
00123553	81
0012365	81
00123663	81
0012401	47
0012402	47
0012403	47
0012404	47
0012420	47
0012421	47
0012422	47
0012423	47
0012425	47
0012427	47
0012429	47
0012430	47
0012440	47
0012441	47
0012443	47

Part-Number	Page
0012444	47
0012446	47
0012448	47
0012452	82
0012453	82
00124543	82
00124553	82
0012456	82
0012457	82
0012458	82
00124593	82
00124603	82
0012461	82
0012462	82
0012463	82
00124643	82
00124653	82
0012466	82
0012467	82
0012468	82
00124693	82
00124703	82
0012471	82
0012474	82
00124753	82
00124763	82
00124783	82
00124793	82
00124813	82
00124823	82
0012501	47
0012502	47
0012503	47
0012504	47
0012505	47
0012506	47
0012507	47
0012620	283
0012621	283
0012622	283
0012624	283
0012626	283
0012640	48
0012641	48
0012642	48
0012643	48
0012644	48
0012645	48
0012646	48
0012647	48
0012650	48
0012651	48
0012652	48
0012653	48
0012654	48
0012655	48
0012656	48
0012660	48
0012661	48
0012662	48
0012663	48
0012664	48
0012666	48
0012752	83
0012753	83
00127553	83
0012757	83
0012758	83
00127603	83
0012761	83
0012762	83
0012763	83
00127643	83
00127653	83
0012766	83
0012767	83
0012768	83
00127693	83
00127703	83
00127753	83
00127783	83
00127793	83
00127813	83
00127823	83
0012800	78
0012801	78
0012802	78
0012803	78
0012804	78
0012805	78
0012806	78

Part-Number	Page
0012807	78
0012813	78
0012814	78
0012815	78
0012816	78
0012817	78
0012818	78
0012819	78
0012820	78
0012825	78
0012826	78
0012827	78
0012828	78
0012829	78
0012830	78
0012831	78
0012832	78
0012833	78
0012834	78
0012837	78
0012838	78
0012839	78
0012840	78
0012841	78
0012842	78
0012843	78
0012844	78
0012846	78
0012850	78
0012851	78
0012852	78
0012853	78
0012854	78
0012901	79
0012902	79
0012903	79
0012904	79
0012906	79
0012907	79
0012908	79
0012911	79
0012912	79
0012913	79
0012914	79
0012915	79
0012917	79
0012919	79
0012925	79
0012926	79
0012927	79
0012928	79
0012929	79
0012931	79
0012932	79
0012933	79
0012934	79
0012940	79
0012941	79
0012942	79
0012943	79
0012944	79
0012945	79
0012946	79
0012947	79
0012949	79
0012950	79
0012951	79
0012952	79
0012953	79
0012954	79
0013600	84
0013601	84
00136023	84
00136033	84
0013610	84
0013611	84
00136123	84
00136133	84
0013620	84
0013621	84
00136223	84
00136233	84
0013630	84
0013631	84
00136323	84
00136333	84
0014150	60
0014151	60
0014152	60
0014153	60
0014156	60

Part-Number	Page
0014157	60
0014158	60
0014159	60
0014162	60
0014163	60
0014164	60
0014166	60
0014167	60
0014168	60
0014170	60
0014171	60
0014173	60
0014174	60
0014176	60
0014177	60
0014179	60
0014180	60
0014182	60
0014184	60
0014186	60
0014188	60
0015002	51
0015003	51
0015004	51
0015005	51
0015007	51
0015012	51
0015018	51
0015025	51
0015034	51
0015041	51
0015102	51
0015103	51
0015104	51
0015105	51
0015107	51
0015112	51
0015118	51
0015125	51
0015134	51
0015141	51
0015202	51
0015203	51
0015204	51
0015205	51
0015206	51
0015207	51
0015212	51
0015218	51
0015225	51
0015234	51
0015241	51
0015250	51
0015302	51
0015303	51
0015304	51
0015305	51
0015307	51
0015312	51
0015318	51
0015325	51
0015334	51
0015341	51
0015402	51
0015403	51
0015404	51
0015405	51
0015407	51
0015412	51
0015418	51
0015425	51
0015602	52
0015603	52
0015604	52
0015605	52
0015607	52
0015612	52
0015702	52
0015703	52
0015704	52
0015705	52
0015707	52
0015712	52
0015802	52
0015803	52
0015804	52
0015805	52
0015807	52
0015812	52
0015903	52
0015904	52

Part-Number	Page
0015905	52
0015907	52
0016022	32
0016023	32
00160243	32
00160253	32
0016027	32
0016031	32
0016042	32
0016043	32
00160443	32
00160453	32
0016047	32
0016064	32
0016065	32
00160663	32
00160673	32
0016069	32
0016072	32
0016075	32
0016077	32
0016087	32
0016088	32
00160893	32
00160903	32
0016092	32
0016101	32
00161023	32
00161033	32
0016106	32
00161073	32
00161083	32
00161103	32
00161113	32
00161133	32
00161143	32
00161163	32
00161173	32
00161183	32
00161193	32
00161203	32
0019700	40
0019701	40
0019702	40
0019706	40
0019708	40
0019709	40
0019710	40
0019711	40
0019718	40
0019720	40
0021800	70
0021801	70
0021802	70
0021803	70
0021805	70
0021806	70
0021807	70
0021808	70
0021809	70
0021810	70
0021811	70
0021812	70
0021813	70
0021814	70
0021816	70
0021817	70
0021818	70
0021822	70
0021823	70
0021825	70
0021826	70
0021828	70
0021829	70
0021831	70
0021833	70
0021836	70
0021880	71
0021881	71
0021882	71
0021883	71
0021884	71
0021885	71
0021886	71
0021888	71
0021889	71
0021890	71
0021891	71
0021892	71
0021893	71
0021897	71

Part-Number	Page
0021898	71
0021899	71
0021900	71
0021901	71
0021902	71
0021903	71
0021904	71
0021905	71
0021907	71
0021908	71
0021909	71
0021910	71
0021911	71
0021912	71
0021913	71
0021914	71
0021915	71
0021916	71
0021917	71
0021918	71
0021919	71
0021920	71
0021921	71
0021922	71
0021923	71
0021924	71
0021925	71
0021926	71
0021927	71
0021928	71
0021929	71
0021930	71
0021931	71
0021932	71
0021933	71
0021934	71
0021936	71
0021937	71
0021938	71
0021940	71
0021941	71
0021942	71
0021943	71
0021945	71
0021946	71
0021947	71
0021949	71
0021951	71
0021953	71
0021954	71
0021963	71
0021964	71
0021965	71
0021966	71
0021967	71
0021968	71
0021969	71
0021970	71
0021971	71
0021972	71
0021973	71
0022403	300
0022404	300
0022405	300
0022408	300
0022412	300
0022416	300
0022421	300
0022502	300
0022505	300
0022508	300
0022512	300
0022602	300
0022603	300
0022604	300
0022605	300
0022607	300
0022608	300
0022612	300
0022616	300
0022624	300
0022632	300
0022642	300
0022700	72
0022701	72
0022702	72
0022703	72
0022704	72
0022705	72
0022706	72
0022708	72

Part-Number	Page
0022709	72
0022711	72
0022712	72
0022713	72
0022717	72
0022718	72
0022719	72
0022720	72
0022721	72
0022722	72
0022723	72
0022724	72
0022725	72
0022727	72
0022728	72
0022729	72
0022730	72
0022733	72
0022734	72
0022735	72
0022736	72
0022737	72
0022738	72
0022739	72
0022740	72
0022742	72
0022743	72
0022744	72
0022748	72
0022749	72
0022750	72
0022751	72
0022752	72
0022753	72
0022754	72
0022756	72
0022757	72
0022760	72
0022761	72
0022762	72
0022763	72
0022767	72
0022768	72
0022769	72
0022770	72
0022771	72
0022774	72
0022776	72
0022777	72
0022778	72
0022780	72
0023233	69
0023234	69
0023237	69
0023238	69
0023239	69
0023240	69
0023242	69
0023244	69
0023245	69
0023246	69
0023248	69
0023249	69
0023250	69
0023251	69
0023252	69
0023253	69
0023254	69
0023255	69
0023256	69
0023257	69
0023258	69
0023260	69
0023261	69
0023262	69
0023263	69
0023264	69
0023265	69
0023266	69
0023267	69
0023268	69
0023269	69
0023270	69
0023271	69
0023272	69
0023278	69
0023279	69
0023280	69
0023281	69
0023282	69
0023283	69

Part-Number	Page
0023284	69
0023300	142
0023301	142
0023302	142
0023303	142
0023304	142
0023305	142
0023306	142
0023307	142
0023308	142
0023309	142
0023310	142
0023311	142
0023312	142
0023313	142
0023314	142
0023315	142
0023316	142
0023317	142
0023318	142
0023319	142
0023320	142
0023321	142
0023322	142
0023323	142
0023324	142
0023325	142
0023326	142
0023327	142
0023328	142
0023329	142
0023330	142
0023331	142
0023332	142
0023333	142
0023334	142
0023335	142
0023336	142
0023337	142
0023338	142
0023339	142
0023340	142
0023341	142
0023342	142
0023343	142
0023344	142
0023345	142
0023346	142
0023347	142
0023348	142
0023349	142
0023350	142
0023351	142
0023352	142
0023353	142
0023354	142
0023355	142
0023356	142
0023357	142
0023358	142
0025312	108
0025319	108
0025320	108
0025321	108
0025322	108
0025323	108
0025324	108
0025326	108
0025327	108
0025328	108
0025329	108
0025330	108
0026001	180
0026002	180
00260033	180
00260043	180
0026005	180
0026006	180
0026007	180
00260083	180
00260093	180
0026010	180
0026011	180
0026012	180
00260133	180
00260143	180
0026015	180
0026100	118
0026101	118
0026102	118
0026103	118

Part-Number	Page
0026104	118
0026105	118
0026106	118
0026107	118
0026108	118
0026109	118
0026110	118
0026119	118
0026120	118
0026121	118
0026122	118
0026123	118
0026124	118
0026125	118
0026126	118
0026127	118
0026130	118
0026131	118
0026132	118
0026133	118
0026134	118
0026135	118
0026136	118
0026137	118
0026138	118
0026139	118
0026140	118
0026141	118
0026142	118
0026143	118
0026144	118
0026149	118
0026150	118
0026151	118
0026152	118
0026153	118
0026154	118
0026156	118
0026157	118
0026158	118
0026159	118
0026160	118
0026161	118
0026162	118
0026170	118
0026171	118
0026172	118
0026173	118
0026174	118
0026175	118
0026180	118
0026181	118
0026182	118
0026183	118
0026184	118
0026185	118
0026186	118
0026187	118
0026188	118
0026200	119
0026201	119
0026202	119
0026203	119
0026204	119
0026205	119
0026206	119
0026207	119
0026208	119
0026219	119
0026220	119
0026221	119
0026222	119
0026223	119
0026224	119
0026226	119
0026227	119
0026229	119
0026230	119
0026231	119
0026232	119
0026233	119
0026234	119
0026235	119
0026238	119
0026239	119
0026240	119
0026241	119
0026242	119
0026243	119
0026249	119
0026250	119

Part-Number	Page
0026251	119
0026252	119
0026253	119
0026254	119
0026255	119
0026256	119
0026257	119
0026259	119
0026270	119
0026271	119
0026272	119
0026273	119
0026281	119
0026282	119
0026283	119
0026285	119
0026287	119
0026300	131
0026301	131
0026302	131
0026303	131
0026304	131
0026305	131
0026306	131
0026319	131
0026320	131
0026321	131
0026322	131
0026323	131
0026324	131
0026326	131
0026327	131
0026330	131
0026331	131
0026332	131
0026333	131
0026334	131
0026335	131
0026338	131
0026339	131
0026341	131
0026342	131
0026343	131
0026344	131
0026349	131
0026350	131
0026351	131
0026352	131
0026353	131
0026354	131
0026355	131
0026356	131
0026357	131
0026359	131
0026361	131
0026362	131
0026370	131
0026371	131
0026372	131
0026373	131
0026374	131
0026375	131
0026381	131
0026382	131
0026383	131
0026385	131
0026386	131
0026387	131
0026400	132
0026401	132
0026402	132
0026403	132
0026404	132
0026405	132
0026419	132
0026420	132
0026421	132
0026422	132
0026423	132
0026424	132
0026425	132
0026426	132
0026427	132
0026430	132
0026431	132
0026432	132
0026433	132
0026434	132
0026435	132
0026438	132
0026439	132

Part-Number	Page
0026449	132
0026450	132
0026451	132
0026452	132
0026453	132
0026454	132
0026456	132
0026457	132
0026470	132
0026471	132
0026472	132
0026473	132
0026474	132
0026475	132
0026481	132
0026483	132
0026484	132
0026485	132
0026487	132
0026501	133
0026502	133
0026503	133
0026504	133
0026505	133
0026506	133
0026507	133
0026508	133
0026509	133
0026510	133
0026511	133
0026516	133
0026517	133
0026518	133
0026519	133
0026521	133
0026522	133
0026523	133
0026524	133
0026525	133
0026526	133
0026527	133
0026531	133
0026532	133
0026533	133
0026534	133
0026536	133
0026537	133
0026538	133
0026539	133
0026540	133
0026541	133
0026544	133
0026545	133
0026546	133
0026547	133
0026548	133
0026551	133
0026561	133
0026571	133
0026600	122
0026601	122
0026603	122
0026604	122
0026607	122
0026608	122
0026610	122
0026611	122
0026613	122
0026614	122
0026616	122
0026617	122
0026619	122
0026620	122
0026622	122
0026623	122
0026625	122
0026626	122
0026628	122
0026629	122
0026634	122
0026635	122
0026640	122
0026641	122
0026651	123
0026653	123
0026655	123
0026657	123
0026659	123
0026661	123
0026663	123
0026665	123

Part-Number	Page
0026667	123
0026669	123
0026671	123
0026673	123
0026701	134
0026702	134
0026703	134
0026704	134
0026705	134
0026706	134
0026707	134
0026708	134
0026709	134
0026710	134
0026711	134
0026716	134
0026717	134
0026718	134
0026719	134
0026721	134
0026722	134
0026723	134
0026724	134
0026725	134
0026726	134
0026727	134
0026731	134
0026732	134
0026733	134
0026734	134
0026736	134
0026737	134
0026738	134
0026739	134
0026740	134
0026741	134
0026744	134
0026745	134
0026746	134
0026747	134
0026748	134
0026751	134
0026761	134
0026771	134
0027001	175
0027002	175
0027004	175
0027005	175
0027007	175
0027008	175
0027020	174
0027022	174
0027024	174
0027027	174
0027029	174
0027370	140
0027371	140
0027372	140
0027373	140
0027374	140
0027375	140
0027376	140
0027380	141
0027381	141
0027382	141
0027383	141
0027384	141
0027385	141
0027386	141
0027411	306
0027412	306
0027413	306
0027414	306
0027416	306
0027418	306
0027420	306
0027422	306
0027425	306
0027426	306
0027427	306
0027428	306
0027429	306
0027431	306
0027434	306
0027436	306
0027438	306
0027440	306
0027441	306
0027442	306
0027443	306
0027444	306

Part-Number	Page
0027446	306
0027448	306
0027450	306
0027452	306
0027503	173
0027504	173
0027505	173
0027530	140
0027531	140
0027532	140
0027533	140
0027534	140
0027535	140
0027536	140
0027537	140
0027538	140
0027540	140
0027541	140
0027545	140
0027546	140
0027547	140
0027548	140
0027549	140
0027550	140
0027551	140
0027552	140
0027553	140
0027555	140
0027560	140
0027561	140
0027562	140
0027563	140
0027564	140
0027565	140
0027566	140
0027567	140
0027568	140
0027570	140
0027571	140
0027575	140
0027576	140
0027577	140
0027578	140
0027579	140
0027580	140
0027582	140
0027584	140
0027585	140
0027586	140
0027587	140
0027590	59
0027591	59
00275923	59
00275933	59
0027594	59
0027600	59
0027601	59
00276033	59
0027605	141
0027606	141
0027607	141
0027608	141
0027609	141
0027610	141
0027611	141
0027612	141
0027613	141
0027615	141
0027616	141
0027620	141
0027621	141
0027622	141
0027623	141
0027624	141
0027625	141
0027626	141
0027628	141
0027630	141
0027635	141
0027636	141
0027637	141
0027638	141
0027639	141
0027640	141
0027641	141
0027643	141
0027645	141
0027646	141
0027649	141
0027650	141
0027651	141

Part-Number	Page
0027652	141
0027653	141
0027654	141
0027656	141
0027659	141
0027661	141
0027701	59
00277023	59
00277033	59
00277101	113
00277111	113
00277121	113
00277131	113
00277141	113
00277151	113
00277161	113
00277171	113
0027784	113
0027785	113
0027786	113
0027787	113
0027788	113
0027789	113
0027790	114
0027791	114
0027792	114
0027793	114
0027794	114
0027795	114
0027796	114
0027797	114
0027798	114
00277992	113
0027841	305
0027842	305
0027843	305
0027844	305
0027845	305
0027846	305
0027847	305
0027848	305
0027855	305
0027856	305
0027857	305
0027858	305
0027859	305
0027860	305
0027861	305
0027863	305
0027865	305
0027870	305
0027871	305
0027872	305
0027873	305
0027874	305
0027875	305
0027876	305
0027877	305
0027878	305
0027925	109
0027926	109
0027927	110
0027930	109
0027931	109
0027932	110
0027933	110
0027934	110
0027935	110
0027936	110
0027937	110
0027948	109
0027950	109
0027951	109
0027952	109
0027953	109
0027954	109
0027955	109
0027956	109
0027957	109
0027958	109
0027959	110
0027960	110
0027961	110
0027962	110
0027963	110
0027964	110
0027965	110
0027966	110
0027967	110
0027969	110
0027970	110

Part-Number	Page
0027971	110
0027972	110
0027973	110
0027974	110
0027975	110
0027976	110
0027977	110
0027978	110
0027980	110
0027981	110
0027982	110
0027983	110
0027984	110
0028009	276
0028010	276
0028012	276
0028014	276
0028015	276
0028019	276
0028025	276
0028030	276
0028031	276
0028032	276
0028033	276
0028034	276
0028035	276
0028036	276
0028037	276
0028038	276
0028039	276
0028040	277
0028042	277
0028044	277
0028047	277
0028048	277
0028051	277
0028100	145
0028105	145
0028110	144
0028116	144
0028126	145
0028135	145
0028136	145
0028145	144
0028146	144
0028160	144
0028164	144
0028170	144
0028171	144
0028172	144
0028174	144
0028176	144
0028178	144
0028180	144
0028181	144
0028182	144
0028185	144
0028186	144
0028187	144
0028188	144
0028189	144
0028190	144
0028191	144
0028195	145
0028198	144
0028202	278
0028203	278
0028204	278
0028205	278
0028207	278
0028208	278
0028210	278
0028212	278
0028214	278
0028216	278
0028220	278
0028225	278
0028236	278
0028237	278
0028240	278
0028250	278
0028256	278
0028302	278
0028303	278
0028304	278
0028305	278
0028306	278
0028307	278
0028308	278
0028310	278
0028312	278

Part-Number	Page
0028314	278
0028316	278
0028318	278
0028320	278
0028325	278
0028330	278
0028332	278
0028336	278
0028337	278
0028340	278
0028350	278
0028400	144
0028402	278
0028403	278
0028404	278
0028405	278
0028406	278
0028407	278
0028408	278
0028410	278
0028412	278
0028414	278
0028416	278
0028420	278
0028421	278
0028425	278
0028430	278
0028436	278
0028440	278
0028450	278
0028502	278
0028503	278
0028504	278
0028505	278
0028507	278
0028508	278
0028510	278
0028512	278
0028516	278
0028520	278
0028525	278
0028530	278
0028540	278
0028602	278
0028603	278
0028604	278
0028605	279
0028607	279
0028608	279
0028610	279
0028612	279
0028616	279
0028620	279
0028625	279
0028647	310
0028650	310
0028651	310
0028652	310
0028653	310
0028654	310
0028656	310
0028657	310
0028658	310
0028659	310
0028660	310
0028661	310
0028662	310
0028663	310
0028664	310
0028665	310
0028666	310
0028667	310
0028668	310
0028669	310
0028670	310
0028671	310
0028672	310
0028673	310
0028674	310
0028675	310
0028677	310
0028678	310
0028679	310
0028680	310
0028702	279
0028703	279
0028704	279
0028705	279
0028802	279
0028803	279
0028804	279

Part-Number	Page
0028880	311
0028881	311
0028882	311
0028883	311
0028884	311
0028885	311
0028886	311
0028887	311
0028888	311
0028889	311
0028890	311
0028891	311
0028892	311
0028893	311
0028894	311
0028895	311
0028896	311
0028897	311
0028898	311
0028899	311
0028900	311
0028901	311
0028902	311
0028903	311
0028904	311
0028905	311
0028906	311
0029200	131
0029210	131
0029220	131
0029590	146
0029591	146
0029592	146
0029593	146
0029594	146
0029595	146
0029596	146
0029599	146
0029600	146
0029601	146
0029608	146
0029609	146
0029610	146
0029611	146
0029612	146
0029614	146
0029615	146
0029616	146
0029617	146
0029618	146
0029619	146
0029620	146
0029621	146
0029622	146
0029624	146
0029625	146
0029627	146
0029629	146
0029630	146
0029631	146
0029632	146
0029641	146
0029653	147
0029654	147
0029655	147
0029656	147
0029657	147
0029658	147
0029664	147
0029665	147
0029689	147
0029690	147
0029691	147
0029692	147
0030910	312
0030911	312
0030912	312
0030913	312
0030914	312
0030915	312
0030916	312
0030919	312
0030920	312
0030921	312
0030922	312
0030923	312
0030924	312
0030925	312
0030926	312
0030928	312
0030929	312

Part-Number	Page
0030930	312
0030932	312
0030934	312
0030937	313
0030938	313
0030939	313
0030940	313
0030941	313
0030942	313
0030943	313
0030944	313
0030946	313
0030947	313
0030948	313
0030950	313
0030951	313
0030952	313
0030953	313
0030955	313
0030956	313
0030957	313
0030958	313
0030959	313
0030962	312
0030963	312
0030964	312
0030965	313
0031031	277
0031032	277
0031033	277
0031034	277
0031048	277
0031049	277
0031050	277
0031052	277
0031060	277
0031066	277
0031067	277
0031068	277
0031069	277
0031070	277
0031320	292
0031321	292
0031322	292
0031323	292
0031324	292
0031325	292
0031326	292
0031327	292
0031328	292
0031330	292
0031331	292
0031332	292
0031333	292
0031334	292
0031335	292
0031336	292
0031350	292
0031351	292
0031352	292
0031353	292
0031354	292
0031355	292
0031356	292
0031357	292
0031358	292
0031360	292
0031361	292
0031362	292
0031363	292
0031364	292
0031365	292
0031366	292
0031370	292
0031371	292
0031372	292
0031373	292
0031377	307
0031378	307
0031379	307
0031380	307
0031381	307
0031382	307
0031383	307
0031384	307
0031385	307
0031386	307
0031387	307
0031388	307
0031389	307
0031390	307

Part-Number	Page
0031391	307
0031392	307
0031393	307
0031394	307
0031395	307
0031396	307
0031397	307
0031398	307
0031399	307
0031400	307
0031401	307
0031402	307
0031403	307
0031404	307
0031405	307
0031406	307
0031407	307
0031408	307
0031409	308
0031410	308
0031411	308
0031412	308
0031413	308
0031414	308
0031415	308
0031416	308
0031417	308
0031418	308
0031419	308
0031420	308
0031421	308
0031422	308
0031423	308
0031424	308
0031425	308
0031426	308
0031427	309
0031428	309
0031429	309
0031430	309
0031431	309
0031432	309
0031433	309
0031434	309
0031435	309
0031436	309
0031437	309
0031438	309
0031439	309
0031440	309
0031441	309
0031442	309
0031443	309
0031444	309
0031445	309
0031446	309
0031447	309
0031448	309
0031449	309
0031450	309
0031451	309
0031452	309
0031453	309
0031454	309
0031455	309
0031456	309
0031457	309
0031458	309
0031459	309
0031460	309
0031461	309
0031462	309
0031463	309
0031464	309
0031465	309
0031466	309
0031467	309
0031468	309
0031469	309
0031470	309
0031471	309
0031472	309
0031473	309
0031474	309
0031475	309
0031476	309
0032302	284
0032303	284
0032304	284
0032305	284
0032400	314

Part-Number	Page
0032401	314
0032411	314
0032412	314
0032413	314
0032415	314
0032418	314
0032420	314
0032421	314
0032422	314
0032423	314
0032424	314
0032428	314
0032430	314
0032431	314
0032432	314
0032433	314
0032434	314
0032436	314
0032438	315
0032442	315
0032448	315
0032449	315
0032450	315
0032451	315
0032453	315
0032458	315
0032464	315
0032465	315
0032466	315
0032467	315
0032470	316
0032471	316
0032472	316
0032474	316
0032475	316
0032477	316
0032801	289
0032802	289
0032803	289
0032804	289
0032805	289
0032806	289
0032812	289
0032813	289
0032821	289
0032822	289
0032824	289
0032830	289
0032836	289
0032850	290
0032851	290
0032852	290
0032854	290
0032860	290
0032861	290
0032862	290
0032864	290
0033000	287
0033001	287
0033202	288
0033203	288
0033204	288
0033205	288
0033206	288
0033207	288
0033212	288
0033218	288
0033302	288
0033303	288
0033304	288
0033305	288
0033306	288
0033307	288
0033312	288
0033318	288
0034006	277
0034007	277
0034008	277
0034009	277
0034010	277
0034011	277
0034012	277
0034013	277
0034016	277
0034040	293
0034041	293
0034042	293
0034043	293
0034044	293
0034045	293
0034046	293

Part-Number	Page
0034047	293
0034048	293
0034060	293
0034061	293
0034062	293
0034063	293
0034064	293
0034065	293
0034070	293
0034071	293
0034072	293
0034073	293
0034120	317
0034121	317
0034122	317
0034123	317
0034125	317
0034126	317
0034171	321
0034173	321
0034176	321
0034178	321
0034190	317
0034191	317
0034192	317
0034193	317
0034194	317
0034195	317
0034197	317
0034200	318
0034201	318
0034202	318
0034203	318
0034204	318
0034208	318
0034210	318
0034212	318
0034220	318
0034221	318
0034222	318
0034223	318
0034224	318
0034225	318
0034226	318
0034227	318
0034228	318
0034231	285
0034233	285
0034245	325
0034246	325
0034247	325
0034250	286
0034251	286
0034252	286
0034253	286
0034254	286
0034256	286
0034257	286
0034258	286
0034259	286
0034302	279
0034303	279
0034304	279
0034305	279
0034306	279
0034307	279
0034308	279
0034310	279
0034312	279
0034314	279
0034315	279
0034316	279
0034318	279
0034320	279
0034321	279
0034324	279
0034325	279
0034328	279
0034330	279
0034336	279
0034340	279
0034344	279
0034350	279
0034402	279
0034403	279
0034404	279
0034405	279
0034406	279
0034407	280
0034408	280
0034410	280

Part-Number	Page
0034412	280
0034414	280
0034415	280
0034416	280
0034418	280
0034420	280
0034421	280
0034425	280
0034428	280
0034432	280
0034436	280
0034440	280
0034450	280
0034461	280
0034502	280
0034503	280
0034504	280
0034505	280
0034506	280
0034507	280
0034508	280
0034510	280
0034512	280
0034514	280
0034515	280
0034516	280
0034518	280
0034520	280
0034521	280
0034525	280
0034528	280
0034530	280
0034532	280
0034536	280
0034540	280
0034550	280
0034602	280
0034603	280
0034604	280
0034605	280
0034606	280
0034607	280
0034608	280
0034610	280
0034612	280
0034618	280
0034620	280
0034625	280
0034630	280
0034702	280
0034703	280
0034704	280
0034705	280
0034707	280
0034710	280
0034712	280
0034718	280
0034725	280
0034730	280
0034802	280
0034803	280
0034804	280
0034805	280
0034807	280
0034810	280
0034812	280
0034818	280
0034825	280
0034902	280
0034903	280
0034904	280
0034905	280
0034907	280
0034912	280
0034918	280
0034925	280
0034952	31
0034953	31
0034954	31
0034955	31
0034956	31
0035000	31
0035001	31
0035002	31
00350033	31
0035004	31
0035005	31
00350063	31
0035011	31
00350123	31
00350133	31

Part-Number	Page
00350143	31
00350153	31
00350163	31
00350173	31
00350183	31
00350193	31
00350213	31
00350223	31
00350233	31
00350243	31
00350253	31
00350263	31
00350273	31
00350283	31
00350293	31
0035101	281
0035102	281
0035103	281
0035104	281
0035105	281
0035108	281
0035110	281
0035113	281
0035131	282
0035132	282
0035133	282
0035134	282
0035135	282
0035136	282
0035137	282
0035141	282
0035142	282
0035150	282
0035160	281
0035161	281
0035162	281
0035163	281
0035164	281
0035170	281
0035171	281
0035172	281
0035174	281
0035175	281
00352013	31
0035202	31
0035203	31
0035204	31
0035220	31
0035221	31
00352223	31
00352233	31
0035289	31
00352903	31
00354303	31
00354313	31
00354323	31
0035458	31
00354593	31
00354603	31
0035461	31
0035700	50
0035701	50
0035702	50
0035703	50
0035704	50
0035710	50
0035711	50
0035712	50
0035713	50
0035714	50
0035715	50
0035716	50
0035717	50
0035720	50
0035721	50
0035722	50
0035723	50
0035724	50
0035725	50
0035726	50
0035727	50
0035730	50
0035731	50
0035732	50
0035733	50
0035734	50
0035735	50
0035736	50
0035740	50
0035741	50
0035742	50

Part-Number	Page
0035743	50
0035744	50
0035800	282
0035801	282
0035802	282
0035803	282
0035804	282
0035805	282
0035806	282
0035807	282
0035808	282
0035810	282
0035811	282
0035812	282
0035813	282
0035814	282
0035816	282
0035817	282
0035820	282
0035821	282
0035822	282
0035823	282
0035824	282
0035825	282
0035827	282
0035830	282
0035831	282
0035832	282
0035836	282
0036320	107
0036321	107
0036322	107
0036324	107
0036325	107
0036327	107
0036328	107
0036425	97
0036426	97
0036427	97
0036428	97
0036429	97
0036430	97
0036431	97
0036432	97
0036433	97
0036434	97
0036435	97
0036436	97
0036437	97
0036438	97
0036439	97
0036440	97
0036441	97
0036442	97
0036443	97
0036444	97
0036445	97
0036446	97
0036447	97
0036448	97
0036449	97
0036450	97
0036451	97
0036453	97
0036479	97
0036910	111
0036911	111
0036912	111
0036913	111
0036914	111
0036915	111
0036916	111
0036917	111
0036918	111
0036920	111
0036921	111
0036923	111
0036924	111
0036926	111
0036927	111
0036928	111
0036929	111
0036930	111
0037000	98
0037001	98
0037002	98
0037003	98
0037004	98
0037005	98
0037006	98
0037007	98

Part-Number	Page
0037008	98
0037009	98
0037010	98
0037011	98
0037012	98
0037013	98
0037014	98
0037015	98
0037016	98
0037017	98
0037018	98
0037019	98
0037020	98
0037021	98
0037022	98
0037023	98
0037024	98
0037025	98
0037026	98
0037027	98
0037028	98
0037104	297
0037120	297
0037121	297
0037122	297
0037124	297
0037125	297
0037126	297
0037128	297
0037140	297
0037141	297
0037142	297
0037143	297
0037147	297
0037150	297
0037151	297
0037152	297
0037153	297
0037154	297
0037160	297
0037162	297
0037165	297
0037171	297
0037172	297
0037302	298
0037304	298
0037308	298
0037312	298
0037325	298
0037402	298
0037403	298
0037404	298
0037406	298
0037407	298
0037408	298
0037410	298
0037425	298
0037502	298
0037503	298
0037504	298
0037507	298
0037508	298
0037510	298
0037516	298
0037525	298
0037602	298
0037603	298
0037604	298
0037605	298
0037606	298
0037607	298
0037608	298
0037610	298
0037612	298
0037618	298
0037702	298
0037703	298
0037704	298
0037802	298
0037803	298
0037804	298
0037807	298
0037902	298
0037903	298
0038302	299
0038303	299
0038304	299
0038308	299
0038312	299
0038316	299
0038325	299

Part-Number	Page
0038402	299
0038403	299
0038404	299
0038406	299
0038408	299
0038412	299
0038416	299
0038602	299
0038603	299
0038604	299
0038606	299
0038608	299
0038612	299
0038616	299
0038702	299
0038704	299
0038708	299
0038802	299
0038803	299
0038804	299
0039001	172
0039002	172
00390033	172
00390043	172
0039017	172
0039018	172
00390193	172
00390203	172
0039034	172
0039035	172
00390363	172
00390373	172
00390463	172
00390473	172
00390483	172
00390493	172
00390503	172
00390513	172
00390523	172
00390533	172
0039054	172
0039055	172
0039056	172
0039057	172
0039058	172
0039059	172
0039060	172
0039061	172
0039107	172
0039109	172
0039208	172
0039209	172
0039210	172
0039307	172
0039309	172
0039312	172
0039316	172
0039318	172
0039324	172
0040434	384
0041041	176
0041042	176
0041043	176
0041044	176
0041045	176
0041046	176
0041047	176
0041048	176
0041049	176
0041050	176
0041051	176
0041052	176
0041053	176
0041054	176
0041055	176
0041056	176
0041057	176
0041059	176
0041060	176
0041061	176
0041062	176
0041063	176
0041075	177
0041076	177
0041077	177
0041078	177
0041079	177
0041080	177
0041081	177
0041082	177
0041083	177

Part-Number	Page
0041084	177
0041085	177
0041086	177
00420013	178
00420023	178
0042003	178
0042004	178
0042005	178
0042006	178
00420073	178
00420083	178
0042009	178
0042010	178
00420113	178
0042012	178
00420133	178
00420143	178
00420153	178
00420163	178
0042020	178
0042021	178
0042022	178
0042023	178
0042050	178
00430003	169
00430053	169
0043006	169
00430073	169
0043008	169
0043009	169
0043010	169
0043011	169
0043012	169
0043013	169
00430143	169
0043015	169
0043016	169
0043017	169
0043018	169
0043019	169
00430203	169
00430213	169
00430223	169
00430233	169
00430243	169
00430253	169
00430263	169
00430283	169
00430293	169
00430303	169
00430323	169
00430333	169
00430343	169
0044008	170
0044009	170
0044010	170
0044011	170
0044015	170
0044016	170
00440223	170
00440233	170
00440243	170
00440253	170
00440263	170
00440283	170
00440293	170
00440323	170
00440333	170
0044036	170
0044602	301
0044604	301
0044652	301
0044655	301
0044658	301
0044662	301
0044702	301
0044703	301
0044704	301
0044705	301
0044707	301
0044712	301
0044716	301
0044721	301
0044732	301
0044733	301
0044735	301
0044738	301
0044746	301
0044850	301
0044851	301
0045207	171

Part-Number	Page
0045209	171
0045210	171
0045211	171
0045212	171
0045213	171
0045214	171
0045215	171
0045216	171
0045218	171
0045220	171
0045221	171
0045222	171
0045223	171
0045224	171
0045225	171
0045227	171
0045228	171
0045229	171
0045230	171
0045231	171
0045232	171
0045233	171
0045234	171
0045235	171
0045237	171
0045238	171
0045240	171
0045241	171
0045242	171
0046001	183
0046002	183
00460033	183
00460043	183
0046005	183
0046006	183
0046007	183
0046008	183
00460093	183
00460103	183
0046012	183
0046013	183
0046014	183
00460153	183
00460163	183
0046018	183
0046019	183
0046020	183
00460213	183
00460223	183
0046024	183
0046025	183
0046026	183
00460273	183
00460283	183
0046030	183
0046031	183
0046032	183
00460333	183
00460343	183
0046036	183
00460373	183
00460383	183
0046039	183
0046040	183
0046041	183
0046042	183
00460453	183
0046110	187
0046115	187
0046116	187
0046117	187
0046119	187
0046131	187
00461323	187
00461333	187
0046141	187
00461423	187
00461433	187
0046201	189
0046202	189
00462033	189
00462043	189
0046205	189
0046206	189
0046207	189
0046208	189
00462093	189
00462103	189
0046212	189
0046213	189
0046214	189

Part-Number	Page
00462153	189
00462163	189
0046218	189
0046219	189
0046220	189
00462213	189
00462223	189
0046224	189
0046226	189
00462273	189
00462283	189
00462313	189
00462343	189
00462353	189
0046237	189
0046301	188
0046302	188
00463033	188
00463043	188
0046307	188
0046308	188
00463093	188
00463103	188
0046312	188
0046313	188
0046314	188
00463153	188
00463163	188
0046318	188
0046320	188
00463213	188
00463223	188
00463273	188
00463283	188
0046330	188
00463313	188
00463323	188
0046500	187
0046501	187
00465023	187
00465033	187
0046506	187
0046507	187
00465083	187
00465093	187
0046511	187
0046512	187
00465133	187
00465143	187
0046520	187
0046521	187
00465223	187
00465233	187
0046600	185
0046601	185
00466023	185
00466033	185
0046604	185
0046612	185
0046613	185
00466143	185
00466153	185
0046616	185
0046617	185
0046618	185
0046619	185
00466203	185
00466213	185
0046622	185
0046623	185
0046625	185
0046626	185
0046628	185
0046629	185
00466303	185
00466313	185
0046633	185
00466343	185
00466353	185
0046636	185
00466373	185
00466383	185
0046701	186
0046702	186
0046703	186
0046708	186
0046709	186
0046710	186
0046711	186
0046712	186
0046716	186

Part-Number	Page
0046717	186
0046718	186
0046719	186
0046720	186
0046721	186
0046723	186
0046724	186
0046728	186
0046729	186
0046730	186
0046734	186
0046735	186
0046736	186
0046740	186
0046741	186
0046742	186
0046900	184
0046901	184
00469023	184
00469033	184
0046904	184
0046905	184
00469063	184
00469073	184
0046908	184
0046909	184
00469103	184
00469113	184
0046912	184
0046913	184
00469143	184
00469153	184
0046916	184
00469173	184
0046919	184
00469203	184
0047000	198
0047001	198
0047002	198
0047003	198
0047005	198
0047006	198
0047007	198
0047008	198
0047009	198
0047104	198
0047105	198
0047106	198
0048000	198
0048001	198
0048002	198
0048003	198
0048005	198
0048006	198
0048007	198
0048008	198
0048009	198
0048104	198
0048105	198
0048106	198
0049000	198
0049001	198
0049002	198
0049003	198
0049005	198
0049006	198
0049007	198
0049008	198
0049009	198
0049104	198
0049105	198
0049106	198
0050000	198
0050001	198
0050002	198
0050003	198
0050005	198
0050006	198
0050007	198
0050008	198
0050009	198
0050104	198
0050105	198
0050106	198
0051000	198
0051001	198
0051002	198
0051003	198
0051005	198
0051006	198
0051007	198

Part-Number	Page
0051008	198
0051009	198
0051104	198
0051105	198
0051106	198
0052000	198
0052001	198
0052002	198
0052003	198
0052005	198
0052006	198
0052007	198
0052104	198
0052105	198
0052106	198
0053000	198
0053001	198
0053002	198
0053003	198
0053005	198
0053006	198
0053009	198
0053104	198
0053105	198
0053106	198
0054000	198
0054001	198
0054002	198
0054003	198
0054005	198
0054006	198
0054104	198
0054105	198
0054106	198
0055000	198
0055001	198
0055002	198
0055003	198
0055009	198
0055104	198
0055105	198
0055106	198
0056000	198
0056001	198
0056002	198
0056104	198
0056105	198
0056106	198
0057000	198
0057001	198
0057002	198
0057104	198
0057106	198
0058000	198
0058001	198
0058002	198
0058104	198
0059000	198
0059001	198
0059104	198
0060001	198
0060002	198
0061000	198
0061001	198
0061105	198
0062000	198
0062001	198
0063001	198
0064001	198
0065102	201
0065103	201
0065104	201
0065105	201
0065106	201
0065107	201
0065108	201
0065109	201
0065110	201
0065111	201
0065112	201
0065113	201
0065201	201
0065202	201
0066202	302
0066204	302
0066205	302
0066208	302
0066210	302
0066212	302
0066216	302
0066219	302

Part-Number	Page
0066220	302
0066221	302
0066232	302
0066233	302
0066234	302
0066235	302
0066238	302
0066239	302
0066240	302
0066242	302
0066243	302
0066244	302
0066262	302
0068001	200
0068105	200
0069000	200
0069001	200
0069002	200
0069003	200
0069105	200
0070000	200
0070001	200
0070002	200
0070003	200
0070105	200
0071000	200
0071001	200
0071002	200
0071003	200
0071105	200
0072001	200
0072002	200
0073001	200
0074001	200
0074002	200
0080001	202
0080002	202
0080005	202
0080006	202
0080010	202
0080104	202
0080105	202
0081001	202
0081001S	202
0081002	202
0081002S	202
0081003	202
0081003S	202
0081005	202
0081006	202
0081009	202
0081010	202
0081104	202
0081104S	202
0081105	202
0081106	202
0082000	202
0082001	202
0082001S	202
0082002	202
0082002S	202
0082003	202
0082003S	202
0082005	202
0082006	202
0082007	202
0082009	202
0082010	202
0082104	202
0082104S	202
0082105	202
0082106	202
0083000	202
0083000S	202
0083001	202
0083001S	202
0083002	202
0083002S	202
0083003	202
0083003S	202
0083005	202
0083006	202
0083010	202
0083104	202
0083104S	202
0083105	202
0084000	202
0084000S	202
0084001	202
0084001S	202
0084002	202

Part-Number	Page
0084002S	202
0084003	202
0084003S	202
0084005	202
0084006	202
0084007	202
0084010	202
0084104	202
0084104S	202
0084105	202
0084106	202
0085000	202
0085000S	202
0085001	202
0085001S	202
0085002	202
0085002S	202
0085003	202
0085003S	202
0085005	202
0085010	202
0085104	202
0085104S	202
0085105	202
0086000	202
0086000S	202
0086001	202
0086001S	202
0086002	202
0086002S	202
0086003	202
0086003S	202
0086007	202
0086010	202
0086104	202
0086104S	202
0086105	202
0086106	202
0087000	202
0087001	202
0087002	202
0087003	202
0087005	202
0087010	202
0087104	202
0087105	202
0088000	202
0088001	202
0088002	202
0088003	202
0088010	202
0088104	202
0089000	202
0089001	202
0089002	202
0089003	202
0089010	202
0089104	202
0089105	202
0089106	202
0090000	202
0090001	202
0090002	202
0090104	202
0091100	190
00911013	190
0091102	190
00911033	190
0091120	193
0091121	193
00911223	193
00911233	193
0091124	193
0091200	190
0091201	190
00912023	190
0091210	190
0091211	190
00912123	190
0091220	190
0091221	190
00912223	190
0091230	190
0091231	190
00912323	190
00912353	190
0091236	190
00912373	190
00912423	190
00912433	190
0091300	191

Part-Number	Page
0091301	191
0091302	191
0091305	191
0091306	191
0091307	191
0091310	191
0091311	191
0091312	191
0091315	191
0091316	191
0091317	191
0091320	191
0091321	191
0091322	191
0091330	192
0091331	192
0091332	192
0091333	192
0091334	192
0091335	192
0091336	192
0091337	192
0091338	192
0091339	192
0091350	204
0091351	204
0091352	204
0091353	204
0091354	204
0091355	204
0091356	204
0091357	204
0091358	204
0091359	204
0091360	204
0091361	204
0091375	194
0091376	194
0091377	194
0091380	194
0091381	194
0091382	194
0091383	194
0091390	194
0091391	194
0091392	194
0094000	203
0094001	203
0094002	203
0094003	203
0094005	203
0094006	203
0094007	203
0094009	203
0094104	203
0094105	203
0094106	203
0095001	203
0095002	203
0095006	203
0095007	203
0095009	203
0095104	203
0095105	203
0095106	203
0096000	203
0096001	203
0096006	203
0096104	203
0097001	203
0097002	203
0097003	203
0097104	203
0097105	203
0098000	203
0098001	203
0098002	203
0098003	203
0098006	203
0098104	203
0098105	203
0098106	203
0099001	203
0099002	203
0099003	203
0099005	203
0099006	203
0099007	203
0099104	203
0099105	203
0100001	203

Part-Number	Page
0100002	203
0100003	203
0100005	203
0100009	203
0100104	203
0100105	203
0101001	203
0101002	203
0101003	203
0101006	203
0101104	203
0101105	203
0102000	203
0102001	203
0102002	203
0102003	203
0102005	203
0102006	203
0102007	203
0102009	203
0102104	203
0102105	203
0102106	203
0103001	203
0103104	203
0104000	203
0104001	203
0104002	203
0104003	203
0104005	203
0104006	203
0104007	203
0104009	203
0104104	203
0104105	203
0105000	203
0105001	203
0105002	203
0105003	203
0105005	203
0105006	203
0105007	203
0105009	203
0105104	203
0105105	203
0106000	203
0106001	203
0106002	203
0106003	203
0106005	203
0106006	203
0106011	203
0106104	203
0106105	203
0106106	203
0107000	203
0107001	203
0107002	203
0107003	203
0107005	203
0107006	203
0107009	203
0107105	203
0108000	203
0108001	203
0108002	203
0108104	203
0108105	203
0151001	164
0151003	164
0151005	165
0151006	165
0151007	165
0151010	164
0151011	164
0151015	165
0151017	164
0151019	165
0151022	164
0151023	164
0151030	164
0151035	164
0151040	164
0151050	164
0151051	164
0151052	164
0152001	164
0152003	164
0152005	165
0152006	165
0152007	165

Part-Number	Page
0152010	164
0152011	164
0152015	165
0152017	164
0152019	165
0152022	164
0152023	164
0152030	164
0152035	164
0152040	164
0152045	164
0152051	164
0152052	164
0153005	165
0153006	165
0153007	165
0153010	164
0153015	165
0153019	165
0153022	164
0153023	165
0153051	164
0153052	164
0154010	164
0154011	164
0154012	164
0154013	164
0154014	164
0155001	166
0155002	166
0155003	166
0155005	166
0155007	166
0155010	166
0155501	167
0155502	167
0155503	167
0155505	167
0155507	167
0155510	167
0156001	166
0156002	166
0156003	166
0156007	166
0156010	166
0156501	167
0156502	167
0156503	167
0156505	167
0157001	166
0157002	166
0157501	167
0157502	167
0157513	164
0157514	164
0157515	164
0158500	167
0158501	167
0158503	167
0158504	167
0158506	167
0158507	167
0158509	167
0158510	167
0161001	164
0161003	164
0161005	165
0161006	165
0161007	165
0161010	164
0161011	164
0161015	165
0161017	164
0161019	165
0161022	164
0161023	164
0161030	164
0161035	164
0161040	164
0161050	164
0161051	164
0161052	164
0162001	164
0162003	164
0162005	165
0162006	165
0162007	165
0162010	164
0162011	164
0162015	165
0162017	164

Part-Number	Page
0162019	165
0162022	164
0162023	165
0162030	164
0162035	164
0162040	164
0162045	164
0162051	164
0162052	164
0163005	165
0163006	165
0163007	165
0163010	164
0163015	165
0163022	164
0163023	165
0163051	164
0163052	164
0164010	164
0164011	164
0164012	164
0164013	164
0164014	164
0165001	166
0165002	166
0165003	166
0165005	166
0165007	166
0165010	166
0165501	167
0165502	167
0165503	167
0165505	167
0165507	167
0165510	167
0166001	166
0166002	166
0166003	166
0166007	166
0166010	166
0166501	167
0166502	167
0166503	167
0166505	167
0167001	166
0167002	166
0167501	167
0167502	167
0167513	164
0167514	164
0167515	164
0168500	167
0168501	167
0168503	167
0168504	167
0168506	167
0168507	167
0168509	167
0168510	167
10015000	630
10015100	630
10016500	630
10017000	631
10017100	631
10018920	631
10018921	631
10018922	631
10018923	631
10019000	629
10019849	61
10019851	61
10019852	61
10019853	61
10019854	61
10019855	61
10019856	61
10019900	61
10019901	61
10019902	61
10019903	61
10019904	61
10019905	61
10019906	61
10019907	61
10019910	61
10019911	61
10019912	61
10019913	61
10019914	61
10019915	61
10019916	61

Part-Number	Page
10019917	61
10019918	61
10019919	61
10019920	61
10019921	61
10019922	61
10019927	61
10019930	61
10019931	61
10019932	61
10019933	61
10019934	61
10019935	61
10019936	61
10019937	61
10019938	61
10019944	61
10019945	61
10019946	61
10019947	61
10019948	61
10019949	61
10019950	61
10019951	61
10019952	61
10019953	61
10019954	61
10019960	61
10019961	61
10019962	61
10019963	61
10019964	61
10019965	61
10019967	61
10019968	61
10019969	61
10019970	61
10019971	61
10019972	61
10019973	61
10019975	61
10019980	61
10019981	61
10019982	61
10027000	628
10027100	628
10027200	628
10027300	628
10027410	628
10027510	628
10027610	628
10027710	628
10027810	628
10030099	34
10035030	62
10035031	62
10035032	62
10035033	62
10035034	62
10035035	62
10035036	62
10035037	62
10035040	62
10035041	62
10035042	62
10035043	62
10035044	62
10035045	62
10035046	62
10035047	62
10035048	62
10035050	62
10035051	62
10035052	62
10035055	62
10035056	62
10035057	62
10035058	62
10035059	62
10035060	62
10035061	62
10035062	62
10035063	62
10035064	62
10035065	62
10035067	62
10035068	62
10035069	62
10035070	62
10035071	62
10035072	62

Part-Number	Page
10035073	62
10035074	62
10035075	62
10035089	62
10035090	62
10035091	62
10035092	62
10035093	62
10035094	62
10035095	62
10035096	62
10035097	62
10035098	62
10035099	62
10035380	62
10035381	62
10035382	62
10035383	62
10035384	62
10035386	62
10040099	34
10047000	630
10047100	630
10048500	630
10048600	630
10048700	630
10049000	631
10049100	631
10050099	34
10051000	629
10051200	629
10051400	629
10051600	629
10052000	629
10052200	629
10070099	34
10087000	630
10087100	630
10088500	630
10088600	630
10088700	630
10118000	630
10118020	630
10118100	630
10118600	630
10118700	630
10119500	630
10170000	550
10170600	550
10171000	550
10171600	550
10180000	541
10180400	548
10181000	541
10181400	548
10182000	543
10182400	548
10183000	543
10183400	548
10184000	545
10184400	549
10185000	545
10185400	549
10186000	547
10186400	549
10187000	547
10187400	549
10190000	541
10190100	541
10191000	541
10191100	541
10192000	543
10192100	543
10193000	543
10193100	543
10194000	545
10194100	545
10195000	545
10195100	545
10196000	547
10196100	547
10197000	547
10197100	547
1020010	100
1020011	100
1020012	100
1020013	100
1020014	100
1020015	100
1020016	100
1020017	100

Part-Number	Page
1020018	100
1020019	100
1020020	100
1020021	100
1020022	100
1020023	100
1020024	100
1020025	100
1020026	100
1020027	100
1020028	100
1020029	100
1020030	100
1020031	100
1020032	100
1020033	100
1020034	100
1020035	100
1020040	100
1020041	100
1020042	100
1020043	100
1020044	100
1020045	100
1020046	100
1020047	100
1020048	100
1020049	100
1020050	100
1020053	100
1020054	100
1020055	100
1020056	100
1020057	100
1020058	100
1020060	99
1020061	99
1020062	99
1020063	99
1020064	99
1020065	99
1020066	99
1020067	99
1020068	99
1020069	99
1020071	99
1020072	99
1020073	99
1020074	99
1020075	99
1020076	99
1020100	101
1020101	101
1020102	101
1020110	101
1020111	101
1020120	101
1020121	101
1020122	101
1020130	101
1020131	101
1020132	101
1020133	101
1020134	101
1020135	101
1020140	101
1020141	101
10210010	551
10210110	551
10211010	551
10211110	551
1023229	143
1023230	143
1023238	143
1023239	143
1023245	143
1023246	143
1023248	143
1023249	143
1023250	143
1023251	143
1023252	143
1023253	143
1023254	143
1023255	143
1023274	112
1023275	112
1023276	112
1023277	112
1023278	112
1023279	112

Part-Number	Page
1023280	112
1023290	102
1023291	102
1023292	102
1023293	102
1023294	102
1023295	102
1023552	158
1023553	158
1023554	158
1023555	158
1023572	158
1023573	158
1023574	158
1023575	158
1023582	158
1023583	158
1023584	158
1023585	158
1023590	158
1023591	158
1023601	159
1023602	159
1023603	159
1023604	159
1023621	159
1023622	159
1023623	159
1023624	159
10239010	551
10239110	551
10240010	551
10240110	551
1024300	181
1024301	181
1024302	181
1024307	181
1024308	181
1024309	181
1024310	181
1024311	181
1024315	181
1024316	181
1024317	181
1024318	181
1024319	181
1024320	181
1024323	181
1024324	181
1024325	181
1024326	181
1024327	181
1024328	181
1024333	181
1024334	181
1024335	181
1024336	181
1024337	181
1024341	181
1024342	181
1024346	181
1024347	181
1024400	182
1024401	182
1024407	182
1024408	182
1024409	182
1024410	182
1024411	182
1024412	182
1024415	182
1024416	182
1024417	182
1024418	182
1024419	182
1024420	182
1024423	182
1024424	182
1024425	182
1024426	182
1024427	182
1024428	182
1024433	182
1024434	182
1024435	182
1024436	182
1024437	182
1024438	182
1024441	182
1024446	182
1024451	182

Part-Number	Page
1024480	182
1024481	182
1024482	182
1024483	182
1024484	182
1024485	182
1024486	182
1024487	182
1024488	182
1024489	182
1024490	182
1026012	127
1026103	127
1026104	127
1026105	127
1026107	127
1026112	127
1026118	127
1026125	127
1026127	127
1026128	127
1026129	127
1026130	127
1026131	127
1026132	127
1026133	127
1026303	127
1026304	127
1026305	127
1026307	127
1026312	127
1026318	127
1026325	127
1026334	127
1026403	127
1026404	127
1026405	127
1026407	127
1026412	127
1026504	127
1026505	127
1026507	127
1026513	135
1026514	135
1026515	135
1026516	135
1026517	135
1026518	135
1026519	135
1026520	135
1026521	135
1026522	135
1026523	135
1026524	135
1026525	135
1026526	135
1026527	135
1026528	135
1026529	135
1026530	135
1026531	135
1026532	135
1026533	135
1026534	135
1026535	135
1026536	135
1026537	135
1026538	135
1026539	135
1026540	135
1026541	135
1026542	135
1026543	135
1026544	135
1026547	136
1026548	136
1026549	136
1026550	136
1026551	136
1026553	136
1026555	136
1026557	136
1026559	136
1026561	136
1026563	136
1026565	136
1026567	136
1026569	136
1026571	136
1026573	136
1026604	127

Part-Number	Page
1026614	127
1026624	127
1026634	127
1026644	127
1026700	124
1026701	124
1026702	124
1026703	124
1026704	124
1026705	124
1026706	124
1026707	124
1026708	124
1026709	124
1026710	124
1026711	124
1026712	124
1026713	124
1026714	124
1026715	124
1026716	124
1026717	124
1026718	124
1026719	124
1026720	124
1026721	124
1026722	124
1026723	124
1026724	124
1026725	124
1026726	124
1026727	124
1026728	124
1026729	124
1026730	124
1026731	124
1026732	124
1026733	124
1026734	124
1026737	124
1026751	125
1026752	125
1026753	125
1026754	125
1026755	125
1026756	125
1026757	125
1026758	125
1026759	125
1026760	125
1026761	125
1026762	125
1026763	125
1026764	125
1026765	125
1026766	125
1026767	125
1026768	125
1026769	125
1026770	125
1026771	125
1026772	125
1026773	125
1026774	125
1026775	125
1026776	125
1026777	125
1026778	125
1026779	125
1026780	125
1026781	125
1026782	125
1026783	125
1026784	125
1026785	125
1026788	125
1026791	126
1026792	126
1026793	126
1026794	126
1026795	126
1026796	126
10270010	551
1027003	128
1027004	128
1027005	128
1027007	128
10270110	551
1027012	128
1027018	128
1027025	128

Part-Number	Page
10271010	551
1027103	128
1027104	128
1027105	128
1027107	128
10271110	551
1027112	128
1027118	128
1027292	128
1027293	128
1027294	128
1027295	128
1027296	128
1027301	128
1027302	128
1027303	128
1027304	128
1027305	128
1027307	128
1027312	128
1027318	128
1027325	128
1027403	128
1027404	128
1027405	128
1027407	128
1027412	128
1027503	128
1027504	128
1027507	128
1027604	128
1027624	128
1027634	128
1027644	128
1027800	137
1027801	137
1027802	137
1027803	137
1027804	137
1027805	137
1027806	137
1027807	137
1027810	137
1027811	137
1027812	137
1027813	137
1027814	137
1027815	137
1027816	137
1027817	137
1027820	137
1027821	137
1027822	137
1027823	137
1027824	137
1027825	137
1027826	137
1027827	137
1027830	137
1027831	137
1027832	137
1027833	137
1027834	137
1027835	137
1027836	137
1027837	137
1027840	137
1027841	137
1027842	137
1027843	137
1027844	137
1027850	137
1027852	137
1027855	137
1027857	137
1027900	138
1027901	138
1027902	138
1027903	138
1027904	138
1027905	138
1027906	138
1027907	138
1027910	138
1027911	138
1027912	138
1027913	138
1027914	138
1027915	138
1027916	138
1027917	138

Part-Number	Page
1027920	138
1027921	138
1027922	138
1027923	138
1027924	138
1027925	138
1027926	138
1027927	138
1027930	138
1027931	138
1027932	138
1027933	138
1027934	138
1027935	138
1027936	138
1027937	138
1027940	138
1027941	138
1027942	138
1027943	138
1027944	138
1027950	138
1027952	138
1027955	138
1027957	138
1028007	139
1028103	139
1028104	139
1028105	139
1028107	139
1028112	139
1028118	139
1028125	139
1028134	139
1028150	139
1028303	139
1028304	139
1028305	139
1028307	139
1028312	139
1028318	139
1028325	139
1028334	139
1028403	139
1028404	139
1028405	139
1028407	139
1028412	139
1028503	139
1028504	139
1028507	139
1028604	139
1028614	139
1028624	139
1028634	139
1028752	139
1028952	139
1032000	294
1032001	294
1032002	294
1032003	294
1032004	294
1032005	294
1032006	294
1032007	294
1032009	294
1032011	294
1032012	294
1032013	294
1032014	294
1032015	294
1032016	294
1032017	294
1032018	294
1032019	294
1032021	294
1032024	294
1032025	294
1032026	294
1032027	294
1032028	294
1032030	294
1032031	294
1032032	294
1032033	294
1032035	294
1032038	294
1032050	295
1032051	295
1032052	295
1032053	295

Part-Number	Page
1032055	295
1032056	295
1032057	295
1032058	295
1032061	295
1032062	295
1032063	295
1032064	295
1032065	295
1032067	295
1032068	295
1032069	295
1032070	295
1032073	295
1032074	295
1032075	295
1032076	295
1032077	295
1032079	295
1032080	295
1032081	295
1032082	295
1032084	295
1032086	295
1032100	296
1032101	296
1032102	296
1032103	296
1032104	296
1032105	296
1032106	296
1032107	296
1032108	296
1032109	296
1032110	296
1032111	296
1032112	296
1032113	296
1032114	296
1032115	296
1032116	296
1032117	296
1032118	296
1032119	296
1032120	296
1032121	296
1032122	296
1032123	296
1032124	296
1032125	296
1032126	296
1032127	296
1032128	296
1032129	296
1032130	296
1032131	296
1032132	296
1032133	296
10344100	572
10344300	579
10344600	572
10345100	572
10345300	579
10345600	572
10381000	583
10381100	583
10381200	583
10381300	583
10381400	583
10381500	583
10381600	583
10381700	583
10382000	575
10382100	575
10382200	576
10382300	576
10382400	576
10382500	576
10383200	575
10383300	575
10383400	577
10383500	577
10383600	577
10383700	577
10390400	579
10390410	580
10390411	580
10390412	580
10390413	580
10390500	579
10390600	579

Part-Number	Page
10390700	579
10399000	575
10399100	575
10399200	579
10399300	579
10399400	577
10399500	577
10399600	576
10399700	576
10399800	574
10399900	574
10400000	541
10400100	543
10400200	545
10400300	547
10401000	541
10401100	543
10401200	545
10401300	547
10407900	552
10407910	552
10420000	526
10421000	526
10430000	630
10430100	630
10430300	630
10430400	630
10431000	526
10431500	531
10432000	526
10432500	531
10440000	527
10440100	527
10441000	527
10441100	527
10451400	629
10457500	630
10457600	630
10457700	630
10457800	630
10458000	631
10468000	631
10469500	630
10469600	630
10469700	630
10469800	630
10480100	631
10481500	630
10481600	630
10481700	630
10481800	630
10485200	528
10486100	528
10487200	528
10488100	528
10490200	529
10491100	529
10492200	529
10493100	529
10500200	530
10501100	530
10502200	530
10503100	530
10513000	630
10513100	630
10530000	527
10531000	527
10532000	527
10533000	527
10607100	629
10607200	629
10607300	629
10607600	629
1062900	120
1062901	120
1062902	120
1062903	120
1062904	120
1062905	120
1062906	120
1062907	120
1062908	120
1062909	120
1062910	120
1062911	120
1062912	120
1062913	120
1062914	120
1062915	120
1062916	120
1062917	120

Part-Number	Page
1062918	120
1062919	120
1062920	120
1062921	120
1062922	120
1062923	120
1062940	121
1062941	121
1062942	121
1062943	121
1062944	121
1062945	121
1062946	121
1062947	121
1062948	121
1062949	121
1062950	121
1062951	121
1062952	121
11030099	34
11040099	34
11050099	34
11070099	34
1112935	234
1112940	235
1112941	235
1112942	235
1112943	235
1112944	235
1112945	235
1112946	235
1112947	235
1112948	235
1112949	235
11132500	586
11147000	587
11147000	588
11147000	590
11147000	591
11147000	592
11147000	594
11147000	599
11147000	674
11147001	587
11147001	588
11147001	590
11147001	591
11147001	592
11147001	594
11147001	599
11147100	587
11147100	590
11147100	591
11147110	594
11147111	595
11147120	594
11147130	599
11147170	588
11147180	588
11147180	592
11147190	588
11147190	592
11147200	587
11147200	590
11147200	591
11147210	594
11147300	588
11147300	592
11148000	650
11148000	659
11148001	650
11148001	659
11148002	650
11148002	659
11148003	1021
11148300	650
11148300	659
11158400	586
11160000	592
11161000	587
11161000	588
11171000	591
11171100	594
11171100	599
11171200	582
11182500	590
11190000	590
1119003	35
1119004	35
1119005	35
1119007	35

Part-Number	Page
1119010	35
11190100	590
1119012	35
1119014	35
1119018	35
1119020	38
11190200	590
1119021	35
1119025	35
1119030	35
11190300	590
11190301	590
11190302	590
1119035	35
1119040	35
11190400	590
1119052	35
1119061	35
1119065	36
1119080	36
1119100	36
1119103	36
1119104	36
1119105	36
1119107	36
1119109	36
1119110	36
1119112	36
1119115	36
1119116	36
1119117	36
1119118	36
1119121	36
1119125	36
1119126	36
1119134	36
1119141	36
1119150	36
1119151	36
1119161	36
1119165	36
1119180	36
1119200	36
11192000	590
1119203	36
1119204	36
1119205	36
1119206	36
1119207	36
1119208	36
1119209	36
1119210	36
11192100	590
1119212	36
1119214	36
1119216	36
1119218	36
1119220	36
11192200	590
1119225	36
1119226	36
11192300	590
1119234	36
1119236	36
1119241	36
1119244	38
1119245	38
1119246	38
1119247	38
1119248	38
1119249	38
1119250	36
1119251	38
1119252	38
1119256	36
1119261	36
1119265	36
1119280	36
1119300	36
1119303	36
1119304	36
1119305	36
1119306	36
1119307	36
1119308	36
1119309	36
1119310	36
1119311	36
1119312	36
1119313	36
1119314	36

Part-Number	Page
1119316	36
1119318	36
1119321	36
1119325	36
1119326	37
1119332	37
1119334	37
1119341	37
1119350	37
1119361	37
1119365	37
1119403	37
1119404	37
1119405	37
1119407	37
1119412	37
1119414	37
1119418	37
1119425	37
1119434	37
1119450	37
11195000	590
1119503	37
1119504	37
1119505	37
1119507	37
11195100	590
1119511	37
1119512	37
11195200	590
11195300	590
11195400	590
1119603	37
1119604	37
1119605	37
1119607	37
1119613	37
1119614	37
1119615	37
1119617	37
1119624	37
1119625	37
1119627	37
1119634	37
1119635	37
1119636	37
1119644	37
1119645	37
11197000	590
11197100	590
11197200	590
11197300	590
1119752	35
1119753	35
1119754	35
1119755	35
1119757	35
1119802	36
1119803	36
1119804	36
1119805	36
1119807	36
1119809	38
1119812	36
1119852	36
1119853	36
1119854	36
1119855	36
1119857	36
1119862	36
1119868	36
1119870	36
1119871	38
1119872	38
1119873	38
1119874	38
1119875	38
1119876	38
1119877	38
1119878	38
1119879	38
1119880	38
1119881	38
1119882	38
1119883	38
1119884	38
1119885	38
1119886	38
1119887	38
1119888	38
1119889	38

Part-Number	Page
1119890	38
1119891	38
1119892	38
1119893	38
1119894	38
1119895	38
1119896	38
1119897	38
1119898	38
1119899	38
1119900	38
1119902	36
1119903	36
1119904	36
1119905	36
1119907	36
1119911	38
1119912	36
1119913	38
1119914	38
1119915	38
1119916	38
1119917	38
1119918	38
1119919	38
1119920	38
1119921	38
1119922	38
1119923	38
1119952	37
11201000	592
11202000	592
1120232	43
1120233	43
1120234	43
1120235	43
1120237	43
1120241	43
1120248	43
1120251	43
1120259	43
1120266	43
1120267	43
1120268	43
1120269	43
1120270	43
1120271	43
1120274	43
1120280	43
1120284	43
1120290	43
1120294	43
1120298	43
1120306	43
1120307	43
1120308	43
1120309	43
1120311	43
1120314	43
1120320	43
1120322	43
1120324	43
1120328	43
1120330	43
1120333	43
1120339	43
1120340	43
1120342	43
1120343	43
1120344	43
1120346	43
1120349	43
1120350	43
1120351	43
1120353	43
1120360	43
1120361	43
1120362	43
1120366	43
1120367	43
1120368	43
1120370	43
1120371	43
1120374	43
1120375	43
1120376	43
1120378	43
1120379	43
1120382	43
1120383	43
1120385	43

Part-Number	Page
1120387	43
1120389	43
1120390	43
1120457	33
1120459	33
1120462	33
1120463	33
1120464	33
1120465	33
1120469	33
1120470	33
1120474	33
1120475	33
11205000	592
11206000	592
1120730	39
1120731	39
1120732	39
1120733	39
1120734	39
1120735	39
1120736	39
1120737	39
1120738	39
1120739	39
1120740	39
1120741	39
1120742	39
1120743	39
1120744	39
1120745	39
1120746	39
1120747	39
1120748	39
1120749	39
1120750	39
1120751	39
1120752	39
1120753	39
1120754	39
1120755	39
1120756	39
1120757	39
1120758	39
1120759	39
1120760	39
1120761	39
1120762	39
1120763	39
1120764	39
1120765	39
1120766	39
1120767	39
1120768	39
1120769	39
1120770	39
1120771	39
1120772	39
1120773	39
1120800	28
11208000	593
1120801	28
1120802	28
1120803	28
1120804	28
1120805	28
1120806	28
1120807	28
1120808	28
1120809	28
1120810	28
1120811	28
1120812	28
1120813	28
1120814	28
1120815	28
1120816	28
1120817	28
1120818	28
1120819	28
1120820	28
1120821	28
1120822	28
1120823	28
1120824	28
1120825	28
1120826	28
1120827	28
1120828	28
11208500	593
11209000	593

Part-Number	Page
11209500	593
1121000C	594
1121010C	594
1121020C	594
1121060C	594
1121070C	594
1121232	44
1121233	44
1121235	44
1121236	44
1121237	44
1121241	44
1121247	44
1121251	44
1121254	44
1121266	44
1121267	44
1121268	44
1121269	44
1121270	44
1121271	44
1121274	44
1121280	44
1121284	44
1121290	44
1121300C	591
1121306	44
1121307	44
1121308	44
1121309	44
1121310	44
1121310C	591
1121311	44
1121314	44
1121320	44
1121320C	591
1121324	44
1121328	44
1121330C	591
1121340	44
1121340C	591
1121342	44
1121344	44
1121346	44
1121349	44
1121360	44
1121361	44
1121362	44
1121367	44
1121368	44
1121372	44
1121373	44
1121377	44
1121378	44
1121381	44
1121385	44
1121388	44
1121391	44
1121394	44
1121397	44
11214200	598
1121500C	594
1121510C	594
1121520C	594
1121560C	594
1121570C	594
1121800C	591
1121810C	591
1121820C	591
1121830C	591
1121840C	591
11219200	598
11220000	589
11220100	589
11220700	589
11221000	588
11221300	588
11222700	589
11223000	589
11223500	588
11226000	589
11226500	589
11227700	589
11228000	589
11228500	588
1123000	63
11230000	589
1123001	63
1123002	63
1123003	63
1123004	63

Part-Number	Page
1123005	63
1123006	63
1123008	63
1123009	63
1123010	63
1123012	63
1123013	63
1123017	63
1123020	63
1123021	63
1123032	63
1123033	63
1123034	63
1123035	63
1123036	63
1123037	63
1123038	63
11230400	589
1123041	63
1123042	63
1123046	63
1123047	63
1123048	63
11230500	589
1123051	63
1123054	63
1123056	63
1123066	63
1123067	63
1123068	63
1123069	63
1123070	63
11230700	589
1123071	63
1123072	63
1123074	63
1123075	63
1123076	63
1123078	63
1123080	63
1123081	63
1123083	63
1123084	63
1123090	63
1123094	63
1123106	63
1123107	63
1123108	63
1123109	63
1123110	63
11231100	588
1123111	63
1123112	63
1123114	63
1123115	63
1123116	63
1123118	63
1123120	63
1123124	63
1123128	63
1123130	63
1123139	63
1123140	63
1123142	63
1123144	63
1123146	63
1123149	63
1123151	63
1123153	63
1123159	63
1123160	64
1123161	64
1123162	64
1123166	64
1123167	64
1123168	64
1123169	64
1123172	64
1123173	64
1123177	64
1123178	64
1123181	64
1123182	64
1123185	64
1123200	65
1123201	65
1123202	65
1123203	65
1123204	65
1123205	65
1123206	65

Part-Number	Page
1123208	65
1123209	65
1123213	65
1123217	65
1123220	65
1123232	65
1123233	65
1123234	65
1123235	65
1123236	65
1123237	65
1123238	65
1123241	65
1123242	65
1123247	65
1123248	65
1123251	65
1123254	65
1123266	65
1123267	65
1123268	65
1123269	65
1123270	65
1123271	65
1123272	65
1123274	65
1123275	65
1123280	65
1123281	65
1123284	65
1123290	65
1123291	65
1123306	65
1123307	65
1123308	65
1123309	65
1123310	65
11233100	588
1123311	65
1123312	65
1123314	65
1123315	65
1123320	65
1123324	65
1123328	65
1123339	65
1123340	65
1123342	65
1123344	65
1123346	65
1123349	65
1123359	65
1123360	65
1123361	65
1123362	65
1123366	65
1123367	65
1123368	65
1123369	65
1123372	65
1123373	65
1123374	65
1123377	65
1123378	65
1123381	65
1123382	65
1123385	65
1123410	66
1123411	66
1123412	66
1123413	66
1123414	66
1123415	66
1123418	66
1123419	66
1123420	66
1123421	66
1123422	66
1123423	66
1123424	66
1123425	66
1123427	66
1123428	66
1123429	66
1123430	66
1123431	66
1123432	66
1123433	66
1123434	66
1123435	66
1123436	66

Part-Number	Page
1123438	66
1123439	66
1123440	66
1123441	66
1123443	66
1123444	66
1123460	67
1123461	67
1123462	67
1123463	67
1123464	67
1123465	67
1123466	67
1123467	67
1123468	67
1123469	67
1123470	67
1123471	67
1123472	67
1123473	67
1123474	67
1123475	67
1123476	67
1123477	67
1123478	67
1123479	67
1123480	67
1123481	67
1123482	67
1123483	67
1123485	67
1123486	67
1123487	67
1123488	67
1123489	67
1123490	67
1123492	67
1123493	67
1123494	67
11235000	589
11235200	589
11235700	589
11236100	588
11238100	588
11240000	589
11240400	589
11240500	589
11240700	589
11241100	588
11243100	588
11250000	532
1125003	42
1125004	42
1125005	42
1125007	42
1125010	42
1125012	42
1125014	42
1125018	42
1125021	42
1125025	42
1125030	42
1125040	42
11250500	532
1125061	42
11251000	532
1125103	42
1125104	42
1125105	42
1125107	42
1125109	42
1125112	42
1125115	42
1125118	42
1125125	42
1125134	42
1125150	42
11251500	532
1125203	42
1125204	42
1125205	42
1125207	42
1125208	42
1125209	42
1125212	42
1125214	42
1125218	42
1125220	42
1125225	42
1125234	42
1125241	42

Part-Number	Page
1125250	42
11252500	533
1125303	42
1125304	42
1125305	42
1125307	42
1125308	42
1125312	42
1125314	42
1125318	42
1125325	42
1125332	42
1125350	42
11253500	533
1125403	42
1125404	42
1125405	42
1125407	42
1125412	42
1125418	42
1125425	42
11255000	534
1125503	42
1125504	42
1125505	42
1125507	42
11256000	534
1125604	42
1125605	42
1125607	42
1125614	42
1125615	42
1125617	42
1125624	42
1125625	42
1125626	42
1125629	42
1125630	42
1125752	42
1125802	42
1125852	42
1125902	42
11260000	535
11261000	535
11265000	536
11265200	536
11266000	536
11266200	536
11270000	537
11271000	537
11272000	537
11273000	537
11280000	629
11281000	629
11282200	534
11282300	535
11283200	534
11283300	535
11285000	538
11285100	538
11285200	539
11285300	539
11286000	538
11286100	538
11286200	539
11286300	539
1135003	41
1135004	41
1135005	41
1135007	41
1135012	41
1135018	41
1135025	41
1135030	41
1135040	41
1135103	41
1135104	41
1135105	41
1135107	41
1135112	41
1135118	41
1135125	41
1135134	41
1135141	41
1135203	41
1135204	41
1135205	41
1135207	41
1135212	41
1135216	41
1135218	41

Part-Number	Page
1135225	41
1135234	41
1135241	41
1135250	41
1135303	41
1135304	41
1135305	41
1135307	41
1135312	41
1135318	41
1135325	41
1135334	41
1135341	41
1135350	41
1135402	41
1135403	41
1135404	41
1135405	41
1135407	41
1135412	41
1135502	41
1135504	41
1135505	41
1135602	41
1135604	41
1135605	41
1135607	41
1135614	41
1135615	41
1135616	41
1135617	41
1135622	41
1135623	41
1135624	41
1135625	41
1135626	41
1135627	41
1135628	41
1135702	41
1135752	41
1135753	41
1135754	41
1135755	41
1135757	41
1135762	41
1135802	41
1135803	41
1135804	41
1135805	41
1135807	41
1135812	41
1135818	41
1135840	41
1135852	41
1135853	41
1135854	41
1135902	41
1135903	41
1135904	41
1135905	41
1135907	41
1136003	45
1136004	45
1136005	45
1136007	45
1136012	45
1136018	45
1136025	45
1136103	45
1136104	45
1136105	45
1136107	45
1136112	45
1136118	45
1136125	45
1136203	45
1136204	45
1136205	45
1136207	45
1136212	45
1136218	45
1136225	45
1136303	45
1136304	45
1136305	45
1136307	45
1136312	45
1136318	45
1136325	45
1136334	45
1136403	45

Part-Number	Page
1136404	45
1136405	45
1136407	45
1136412	45
1136418	45
1136425	45
1136450	97
1136451	97
1136452	97
1136453	97
1136454	97
1136455	97
1136456	97
1136457	97
1136458	97
1136459	97
1136460	97
1136461	97
1136462	97
1136463	97
1136504	45
1136507	45
1136604	45
1136607	45
1136614	45
1136615	45
1136624	45
1136625	45
1136634	45
1136635	45
1136638	45
1136752	45
1136753	45
1136754	45
1136755	45
1136757	45
1136762	45
1136768	45
1136775	45
1136802	45
1136803	45
1136804	45
1136805	45
1136807	45
1136825	45
1136852	45
1136853	45
1136854	45
1136855	45
1136857	45
1136902	45
1136903	45
1136904	45
1136905	45
1136907	45
1150111	161
1150115	161
1150121	161
1150125	161
1150221	161
1150228	161
1150271	161
1150272	161
1150273	161
1150275	161
1150279	161
1150311	161
1150312	161
1150313	161
1150350	161
1150351	161
1150357	161
1150362	161
1150373	161
1150378	161
1161007	164
1161008	164
1161009	164
1161011	164
1161012	165
11764200	631
11764201	631
11764202	631
11764203	631
11764300	631
11764301	631
11764400	631
12030099	34
12040099	34
12050099	34
12070099	34

Part-Number	Page
1232000	196
1232001	196
1232001K	196
1232002	196
1232003	196
1232005	197
1232006	197
1232007	197
1232009	196
1232104	197
1232105	197
1232106	196
1232114	197
1232650	206
1232651	206
1232652	206
1232653	206
1232654	206
1232655	206
1232656	206
1232657	206
1232658	206
1232659	206
1232660	206
1232661	206
1233000	196
1233001	196
1233001K	196
1233002	196
1233002K	196
1233003	196
1233003K	196
1233005	197
1233006	197
1233007	197
1233009	196
1233009K	196
1233104	197
1233104K	197
1233105	197
1233105K	197
1233106	196
1233106K	196
1233114	197
1233114K	197
1234000	196
1234000K	196
1234001	196
1234001K	196
1234002	196
1234002K	196
1234003	196
1234003K	196
1234005	197
1234006	197
1234007	197
1234009	196
1234009K	196
1234104	197
1234104K	197
1234105	197
1234105K	197
1234106	196
1234106K	196
1234114	197
1234114K	197
1235000	196
1235000K	196
1235001	196
1235001K	196
1235002	196
1235002K	196
1235003	196
1235003K	196
1235005	197
1235006	197
1235007	197
1235009	196
1235009K	196
1235104	197
1235104K	197
1235105	197
1235105K	197
1235106	196
1235106K	196
1235114	197
1235114K	197
1236000	196
1236001	196
1236001K	196
1236002	196

Part-Number	Page
1236003	196
1236005	197
1236006	197
1236007	197
1236009	196
1236104	197
1236105	197
1236106	196
1236114	197
1237000	196
1237001	196
1237002	196
1237003	196
1237009	196
1237104	197
1237105	197
1237106	196
1237114	197
1238000	196
1238001	196
1238002	196
1238003	196
1238104	197
1238106	196
1238114	197
1239000	196
1239001	196
1239002	196
1239003	196
1239104	197
1240000	196
1240001	196
1240002	196
1240003	196
1240104	197
1240114	197
1241000	196
1241001	196
1242000	196
1242001	196
1243000	196
1243001	196
1244000	196
1244001	196
1245000	196
1245001	196
1246001	196
1247000	196
1247001	196
1248001	196
1249001	196
1249500	199
1249502	199
1249503	199
1249504	199
1249505	199
1249506	199
1249507	199
1249508	199
1249509	199
1249510	199
1249511	199
1249520	199
1249522	199
1249523	199
1249524	199
1249525	199
1249526	199
1249527	199
1249528	199
1249529	199
1249530	199
1249531	199
1249532	199
1249533	199
1249534	199
1249535	199
1249540	199
1249542	199
1249543	199
1249544	199
1249545	199
1249546	199
1249547	199
1249548	199
1249549	199
1249550	199
1249551	199
1249560	199
1249562	199
1249563	199

Part-Number	Page
1249564	199
1249565	199
1249566	199
1249567	199
1249568	199
1249569	199
1249570	199
1249580	199
1249582	199
1249583	199
1249584	199
1249585	199
1249586	199
1249587	199
1249588	199
1249589	199
1249590	199
1249591	199
1249592	199
1249593	199
1249600	199
1249602	199
1249603	199
1249604	199
1249605	199
1249606	199
1249607	199
1249608	199
1249609	199
1249610	199
1249611	199
1249620	199
1249622	199
1249623	199
1249624	199
1249625	199
1249626	199
1249627	199
1249628	199
1249640	199
1249642	199
1249643	199
1249644	199
1249645	199
1249646	199
1249660	199
1249662	199
1249663	199
1249664	199
1249665	199
1249666	199
1249680	199
1249682	199
1249683	199
1249684	199
1249685	199
1249686	199
1249700	199
1249702	199
1249703	199
1249704	199
1249705	199
1249706	199
1249720	199
1249722	199
1249723	199
1249724	199
1249725	199
1249726	199
13030099	34
13040099	34
13050099	34
13070099	34
1308003	76
1308004	76
1308005	76
1308007	76
1308010	76
1308012	76
1308018	76
1308025	76
1308103	76
1308104	76
1308105	76
1308107	76
1308110	76
1308112	76
1308118	76
1308125	76
1308203	76
1308204	76

Part-Number	Page
1308205	76
1308207	76
1308210	76
1308212	76
1308218	76
1308225	76
1308303	76
1308304	76
1308305	76
1308307	76
1308312	76
1308318	76
1308325	76
1308403	76
1308404	76
1308405	76
1308407	76
1308412	76
1308504	76
1308505	76
1308507	76
1308514	76
1308604	76
1308605	76
1308607	76
1308615	76
1308617	76
1308624	76
1308802	76
1308803	76
1308804	76
1308805	76
1308807	76
1308852	76
1308853	76
1308854	76
1308855	76
1308857	76
1308902	76
1308903	76
1308904	76
1308905	76
1308907	76
1308952	76
1308953	76
1308954	76
1308955	76
1308957	76
1311103	77
1311104	77
1311105	77
1311107	77
1311110	77
1311112	77
1311118	77
1311125	77
1311203	77
1311204	77
1311205	77
1311207	77
1311210	77
1311212	77
1311218	77
1311225	77
1311303	77
1311304	77
1311305	77
1311307	77
1311312	77
1311318	77
1311325	77
1311403	77
1311404	77
1311405	77
1311407	77
1311412	77
1311504	77
1311505	77
1311604	77
1311605	77
1311704	77
1311705	77
1311804	77
1311805	77
1311852	77
1311902	77
1311952	77
1312003	73
1312004	73
1312005	73
1312007	73

Part-Number	Page
1312010	73
1312012	73
1312018	73
1312025	73
1312034	73
1312041	73
1312103	73
1312104	73
1312105	73
1312107	73
1312110	73
1312112	73
1312118	73
1312125	73
1312134	73
1312141	73
1312203	73
1312204	73
1312205	73
1312207	73
1312210	73
1312212	73
1312218	73
1312225	73
1312234	73
1312241	73
1312303	73
1312304	73
1312305	73
1312307	73
1312312	73
1312318	73
1312325	73
1312334	73
1312341	73
1312403	73
1312404	73
1312405	73
1312407	73
1312412	73
1312504	73
1312505	73
1312507	73
1312604	73
1312605	73
1312607	73
1312614	73
1312615	73
1312617	73
1312624	73
1312802	73
1312803	73
1312804	73
1312805	73
1312807	73
1312852	73
1312853	73
1312854	73
1312855	73
1312857	73
1312902	73
1312903	73
1312904	73
1312905	73
1312952	73
1312953	73
1312954	73
1312955	73
1312957	73
1312970	73
1312973	73
1312974	73
1312975	73
1312976	73
1312978	73
1312981	73
1312983	73
1313103	74
1313104	74
1313105	74
1313107	74
1313112	74
1313118	74
1313125	74
1313134	74
1313141	74
1313203	74
1313204	74
1313205	74
1313207	74
1313212	74

Part-Number	Page
1313218	74
1313225	74
1313234	74
1313241	74
1313303	74
1313304	74
1313305	74
1313307	74
1313312	74
1313318	74
1313325	74
1313334	74
1313341	74
1313403	74
1313404	74
1313405	74
1313407	74
1313412	74
1313504	74
1313505	74
1313604	74
1313605	74
1313614	74
1313624	74
1313852	74
1313853	74
1313854	74
1313855	74
1313857	74
1313902	74
1313903	74
1313904	74
1313952	74
1313953	74
1313954	74
1313955	74
1313957	74
1314000	75
1314001	75
1314002	75
1314003	75
1314004	75
1314005	75
1314006	75
1314007	75
1314008	75
1314010	75
1314011	75
1314012	75
1314013	75
1314014	75
1314015	75
1314017	75
1314018	75
1314019	75
1314020	75
1314021	75
1314022	75
1314023	75
1314024	75
1314025	75
1314026	75
1314027	75
1314028	75
1314029	75
1314032	75
1314033	75
1314034	75
1314035	75
1314036	75
1314037	75
1314038	75
1314039	75
1314040	75
1314041	75
1314042	75
1314043	75
1314046	75
1314047	75
1314048	75
1314049	75
1314050	75
1314051	75
1314052	75
1314053	75
1314054	75
1314055	75
1314056	75
1314057	75
1314058	75
1314061	75

Part-Number	Page
1314062	75
1314063	75
1314064	75
1314065	75
1314066	75
1314067	75
1314068	75
1314070	75
1314071	75
1314073	75
1314074	75
1314075	75
1314076	75
1314077	75
13162000	587
13162100	587
13162200	587
13162300	587
13162400	587
13162500	587
13162600	587
13162700	587
13162800	587
13162900	587
13163000	587
13163100	587
13163200	587
13163300	587
13163400	587
13163500	587
13163600	587
13163700	587
13163800	587
13163900	587
14030099	34
14040099	34
14050099	34
14070099	34
15500013	232
15500023	232
15500033	232
1550004	232
1550005	232
1550006	232
1550007	232
1550008	232
1550009	232
15500103	232
15500113	232
15500123	232
1550013	232
15500153	233
15500163	233
15500173	233
15500183	233
15500193	233
15500203	233
15500213	233
15500223	233
15500233	233
15500243	233
15500253	233
15500263	233
15500273	233
1550030	232
1550032	232
1550033	232
1550035	232
1550037	232
1550038	232
15500583	233
15500593	233
15500603	233
15500613	233
15500713	233
15500723	233
15500733	233
15500743	233
15500753	233
15500763	233
15500773	233
15500783	233
15500793	233
15500803	233
15500813	233
15500823	233
15500833	233
1550084	232
1550086	232
1550090	232
1550091	233

Part-Number	Page
1550092	233
1550094	233
1550096	233
1550097	233
15502003	233
1550205	233
1550206	233
1550207	233
1550208	233
1550209	233
1550210	233
1550211	233
1550212	233
1550213	233
1550214	233
1550215	233
1550216	233
1550218	233
15502193	233
15502203	233
15502213	233
15502223	233
15502533	233
15502543	233
15502563	233
15502573	233
15502583	233
15503003	237
15503103	237
15503113	237
15503203	237
15503213	237
15503223	237
15503233	237
1550330	237
1550332	237
1550337	237
1550350	237
1550355	237
15505003	238
15505143	238
15505153	238
15505163	238
15505173	238
15505263	238
15505273	238
15505283	238
15505303	238
15505323	238
15505353	238
15505403	238
15505413	238
15505423	238
15505433	238
15505443	238
15505453	238
15505463	238
15505473	238
15505483	238
1550556	234
1550557	234
1550561	234
1550578	234
1550581	234
1550601	235
1550603	235
1550604	235
1550605	235
1550606	235
1550607	235
1550608	235
1550609	235
1550610	235
1550616	235
1550618	235
1550619	235
1550620	235
1550621	235
1550622	235
1550623	235
1550624	235
1550625	235
1550631	235
1550633	235
1550649	235
1550650	235
1550651	235
1550652	235
1550653	235
1550654	235
1550655	235

Part-Number	Page
1550661	236
1550667	236
1550670	236
1550671	236
1550672	236
1550673	236
1550674	236
1550675	236
1550676	236
1550682	236
1550685	236
1550686	236
1550687	236
1550688	236
1550689	236
1550690	236
1550691	236
1550696	236
1550697	236
1550701	236
1550702	236
1552010	239
1552011	239
1552012	239
1552013	239
1552014	239
1552015	239
1552016	239
1552017	239
1552022	239
1591028	323
1591029	323
1591030	323
1591031	323
1591032	323
1591033	323
1591035	323
1591037	323
1591050	323
1591052	323
1591053	323
1591150	323
1591151	323
1591152	323
1591153	323
1591154	323
1591217	323
1591218	323
1591221	323
1591222	323
1591223	323
1591224	323
1591225	323
1591226	323
1591228	323
1591301	319
1591302	319
1591303	319
1591304	319
1591305	319
1591306	319
1591307	319
1591308	319
1591310	319
1591311	319
1591312	319
1591313	319
1591315	319
1591318	319
1591500	319
1591501	319
1591502	319
1591503	319
1591505	319
1591506	319
1591507	319
1591508	319
1591511	319
16000003	230
16000013	230
16000023	230
1600003	230
16000053	230
16000063	230
1600008	230
1600009	230
1600010	230
1600011	230
1600012	230
16000213	230
16000313	230

Part-Number	Page
16000323	230
16000333	230
16000353	230
16000513	230
16000523	230
16000533	230
16000543	230
16000553	230
1600071	230
16000883	87
1600096	87
1600097	87
1600098	87
1600099	87
1600103	87
16001043	87
16001053	87
16001063	87
16001073	87
16001083	87
16001093	87
16001103	87
16001113	87
16001123	87
16001133	87
16001143	87
16001153	87
16001163	87
1600117	87
1600118	87
1600119	87
1600120	87
1600121	87
1600122	87
16001233	87
1600124	87
1600126	87
16001283	87
16001293	87
16001303	87
16001313	87
16001323	87
16001363	87
1600141	87
1600148	87
1600151	87
1600152	87
1600154	87
1600156	87
1600157	87
1600161	87
1600166	87
1600175	87
1600177	87
1600183	87
1600186	87
1600187	87
1600189	87
1600190	87
1600191	87
1600193	87
1600194	87
1600195	87
1600196	87
1600197	87
1600198	87
1600199	87
1600200	85
16002013	85
16002023	85
1600203	85
1600204	85
1600205	85
1600206	85
1600207	85
1600208	85
1600209	85
16002113	85
16002123	85
16002133	85
1600250	86
1600251	86
1600252	86
1600253	86
16002583	86
1600259	87
1600263	87
1600300	93
1600301	93
1600302	93
1600303	93

Part-Number	Page
1600304	93
1600305	93
1600306	93
1600307	93
1600308	93
1600309	93
1600310	93
1600311	93
1600312	93
1600313	93
1600314	93
1600500	92
1600501	92
1600502	92
1600503	92
1600504	92
1600505	92
1600506	92
1600507	92
1600508	92
1600509	92
1600516	92
1600517	92
16005243	92
16005253	92
16005263	92
16005273	92
16005283	92
16005293	92
16005303	92
16005313	92
16005323	92
16005333	92
16005343	92
16005353	92
16005363	92
16005373	92
16005383	92
1600541	92
1600544	92
1600600	95
1600601	95
1600602	95
1600604	95
1600606	95
1600607	95
1600609	95
1600610	95
1600611	95
1600612	95
1600613	95
1600614	95
1600615	95
1600616	95
1600620	95
1600621	95
1600810	90
1600811	90
1600812	90
1600815	90
1600816	90
1600820	90
1600821	90
1600822	90
1600823	90
1600825	90
1600836	90
1600837	90
1600841	90
1600842	90
1600844	90
1600845	90
1600847	90
1600849	90
1600851	90
1600852	90
16010223	230
16010233	230
16020003	231
16020013	231
16020023	231
1602003	231
16020103	231
16020123	231
1708001	320
1708002	320
1708004	320
1708010	320
17520099	34
17530099	34
17540099	34

Part-Number	Page
18020099	34
18030099	34
18040099	34
18520099	34
19020099	34
19520099	34
21124030	986
21124040	986
21124041	986
2170000	324
2170001	324
2170002	324
2170003	324
2170005	324
2170006	324
2170007	324
2170008	324
2170009	324
2170010	324
2170011	324
21700118	457
21700119	457
2170012	324
21700121	456
21700122	456
2170016	324
21700501	351
21700502	351
21700503	350
21700504	350
21700505	350
21700506	350
21700507	350
21700511	351
21700513	351
21700514	351
21700515	351
21700520	350
21700520	352
21700529	350
21700530	350
21700536	368
21700537	368
21700538	368
21700540	472
21700541	350
21700542	350
21700543	350
21700544	351
21700546	351
21700547	351
2170056	325
21700561	353
21700562	353
21700563	353
21700564	353
21700565	353
21700566	353
21700568	354
21700569	354
21700570	354
21700590	369
21700591	369
21700600	459
21700601	459
21700602	462
21700605	458
21700611	460
21700612	460
21700613	461
21700614	461
21700615	459
21700616	459
21700617	463
21700618	463
21700621	462
21700622	462
21700623	463
21700630	460
21700631	460
21700632	460
21700633	460
21700636	459
21700637	459
21700638	458
21700639	459
21700640	459
21700641	374
21700641	402
21700647	462
21700648	462

Part-Number	Page
2170127	470
2170129	470
2170139	470
2170142	470
2170144	470
2170172	470
2170203	326
2170204	326
2170205	326
2170206	379
2170207	380
2170208	379
2170209	379
2170213	327
2170214	327
2170215	327
2170216	381
2170217	380
2170218	381
2170219	332
2170220	332
2170222	342
2170223	338
2170225	332
2170226	332
2170227	346
2170228	328
2170229	328
2170230	328
2170231	328
2170232	328
2170233	332
2170234	360
2170235	360
2170236	339
2170240	382
2170241	382
2170242	382
2170247	337
2170260	363
2170261	363
2170263	363
2170264	363
2170266	363
2170267	363
2170269	363
2170270	363
2170272	363
2170273	363
2170275	363
2170276	363
2170278	363
2170279	363
2170280	417
2170281	417
2170283	418
2170284	418
2170289	420
2170295	378
2170296	417
2170297	417
2170298	417
2170299	418
2170300	418
2170310	341
2170317	329
2170318	329
2170322	344
2170323	340
2170326	332
2170330	332
2170331	349
2170332	348
2170333	332
2170334	360
2170335	360
2170340	361
2170341	361
2170342	361
2170343	361
2170344	362
2170345	362
2170346	362
2170347	362
2170350	376
2170351	376
2170352	376
2170353	376
2170357	329
2170358	329
2170360	377

Part-Number	Page
2170370	377
2170371	328
2170372	328
2170385	366
2170386	366
2170387	366
2170388	366
2170430	419
2170431	419
2170433	422
2170450	453
2170451	454
2170452	454
2170453	454
2170454	455
2170455	455
2170456	455
2170463	453
2170481	449
2170482	445
2170483	445
2170484	444
2170485	444
2170486	418
2170488	425
2170489	420
2170494	429
2170495	346
2170496	438
2170500	365
2170560	375
2170561	375
2170581	451
2170582	451
2170583	442
2170584	442
2170585	442
2170586	443
2170587	443
2170594	447
2170595	447
2170596	447
2170597	448
2170598	448
2170620	333
2170630	334
2170635	334
2170636	432
2170803	326
2170813	327
2170814	327
2170815	327
2170818	381
2170820	332
2170822	343
2170824	332
2170826	332
2170830	329
2170831	329
2170842	328
2170843	328
2170844	328
2170850	451
2170853	336
2170854	345
2170856	331
2170857	364
2170875	347
2170879	429
2170885	378
2170886	430
2170887	434
2170888	436
2170889	433
2170890	430
2170891	429
2170893	429
2170894	435
2170901	431
2170905	452
2170906	450
2170907	450
2170909	450
2170910	450
2170934	428
2170936	437
2170950	464
2170951	464
2170952	464
2170953	464
2170954	465

Part-Number	Page
2170955	465
2170956	465
2170960	466
2170961	466
2170962	466
2170963	466
2170971	467
2170972	467
2170974	467
2170975	467
2170976	468
2170977	469
2170978	469
2173000	367
2173001	367
2173002	367
2173003	367
2173004	367
21920004	990
21920005	990
21920006	990
21920008	990
21920009	990
21920120	990
21920122	990
21920125	990
21920126	990
21920129	990
21920130	990
21920131	990
21920135	990
21920140	990
21920141	990
220204	57
2202040	58
220404	57
2204040	58
220604	57
2206040	58
220605	57
220804	57
2208040	58
220805	57
221004	57
2210040	58
221005	57
221007	57
2210700	91
2210701	91
2210702	91
2210703	91
2210704	91
2210705	91
2210706	91
2210707	91
2210708	91
221204	57
2212040	58
221205	57
2212070	58
221403	57
2214030	58
221404	57
2214040	58
221405	57
2214050	58
221407	57
2214070	58
221412	57
2214120	58
221418	57
2214180	58
221425	57
2214250	58
221603	57
2216030	58
221604	57
2216040	58
221605	57
2216050	58
221607	57
2216070	58
221609	57
221612	57
2216120	58
221618	57
2216180	58
221625	57
2216250	58
221641	57
221803	57

Part-Number	Page
2218030	58
221804	57
2218040	58
221805	57
2218050	58
221807	57
2218070	58
221812	57
2218120	58
221818	57
2218180	58
221825	57
2218250	58
22260001	409
22260002	409
22260003	409
22260004	409
22260005	409
22260006	409
22260007	409
22260008	409
22260010	409
22260011	409
22260012	409
22260013	409
22260014	409
22260015	409
22260016	409
22260017	409
22260018	409
22260019	409
22260020	409
22260021	409
22260022	409
22260023	409
22260024	409
22260025	409
22260026	408
22260027	408
22260028	408
22260029	408
22260030	408
22260031	408
22260032	408
22260033	408
22260034	408
22260035	408
22260036	408
22260037	408
22260038	408
22260039	408
22260043	391
22260044	391
22260045	391
22260046	391
22260053	387
22260055	387
22260056	387
22260057	387
22260058	387
22260059	388
22260060	388
22260061	388
22260062	388
22260079	356
22260080	396
22260081	396
22260083	401
22260084	401
22260085	401
22260086	401
22260087	401
22260088	401
22260089	401
22260090	401
22260100	392
22260101	392
22260102	392
22260103	392
22260105	401
22260106	401
22260107	401
22260108	401
22260111	401
22260112	401
22260113	401
22260114	401
22260115	401
22260116	401
22260117	401
22260118	401

Part-Number	Page
22260119	391
22260120	391
22260121	391
22260122	391
22260123	391
22260124	391
22260125	391
22260126	391
22260127	398
22260128	398
22260129	398
22260130	398
22260131	398
22260132	398
22260133	398
22260134	398
22260135	372
22260135	398
22260136	372
22260136	398
22260200	387
22260201	387
22260202	387
22260203	387
22260204	387
22260205	387
22260206	388
22260207	388
22260208	388
22260209	388
22260210	388
22260211	388
22260212	388
22260213	388
22260214	388
22260215	388
22260216	388
22260217	388
22260218	387
22260219	387
22260220	387
22260225	395
22260226	395
22260227	395
22260228	395
22260229	395
22260230	395
22260231	395
22260232	395
22260241	389
22260242	389
22260243	389
22260244	389
22260245	389
22260246	389
22260247	389
22260248	389
22260267	395
22260268	395
22260269	395
22260270	395
22260271	389
22260272	389
22260273	389
22260274	389
22260275	387
22260276	387
22260277	387
22260300	387
22260308	387
22260309	387
22260310	387
22260311	387
22260312	387
22260313	388
22260314	388
22260315	388
22260316	388
22260317	387
22260318	387
22260319	387
22260347	395
22260348	395
22260349	395
22260350	395
22260370	390
22260500	405
22260501	406
22260502	406
22260503	406
22260504	406

Part-Number	Page
22260505	406
22260506	406
22260507	406
22260508	406
22260509	406
22260510	406
22260511	406
22260512	406
22260513	405
22260514	406
22260515	406
22260516	406
22260517	406
22260518	406
22260519	406
22260520	406
22260521	406
22260522	406
22260523	406
22260524	406
22260525	406
22260526	405
22260550	404
22260551	404
22260552	404
22260553	404
22260554	404
22260555	404
22260556	404
22260557	404
22260558	404
22260559	404
22260560	404
22260561	404
22260562	404
22260563	404
22260564	404
22260565	404
22260566	404
22260567	404
22260568	404
22260569	404
22260570	404
22260571	404
22260572	404
22260573	404
22260574	403
22260575	403
22260576	403
22260577	403
22260578	403
22260579	403
22260580	403
22260581	403
22260582	403
22260583	403
22260584	403
22260585	403
22260586	403
22260587	403
22260588	403
22260589	403
22260590	403
22260591	403
22260600	407
22260601	407
22260602	407
22260603	407
22260604	407
22260618	409
22260619	409
22260620	409
22260621	409
22260636	398
22260638	398
22260640	398
22260641	398
22260644	398
22260646	357
22260647	398
22260648	398
22260649	398
22260651	398
22260653	357
22260661	396
22260663	396
22260665	390
22260678	396
22260683	396
22260685	396
22260688	396

Part-Number	Page
22260689	396
22260705	396
22260722	358
22260761	359
22260765	374
22260765	402
22260766	373
22260767	355
22260768	355
22260769	355
22260770	355
22260771	355
22260772	355
22260773	356
22260774	356
22260775	356
22260776	356
22260777	356
22260778	410
22260779	410
22260780	410
22260781	410
22260782	410
22260783	410
22260784	411
22260785	411
22260786	411
22260787	411
22260788	411
22260789	370
22260790	370
22260791	370
22260792	370
22260793	370
22260794	370
22260795	371
22260796	371
22260797	371
22260798	371
22260799	371
22260800	330
22260801	330
22260802	330
22260803	330
22260804	330
22260805	330
22260806	330
22260825	398
22260826	398
22260832	396
22260833	396
22260841	396
22260844	390
22260845	390
22260846	390
22260847	390
22260848	390
22260869	356
22260889	357
22260904	356
22260905	356
22260907	356
22260908	356
22260955	356
22260956	355
22260970	409
22260985	391
22260986	391
22260987	387
22260993	391
22260994	391
22260995	398
22260996	398
22260997	398
22260999	401
22261001	358
22261016	462
22262004	370
22262010	412
22262011	412
22262012	412
22262013	412
22262020	372
22262020	400
22262021	358
22262022	463
22262023	398
22262024	398
22262025	391
22262026	391
22262027	391

Part-Number	Page
22262028	391
22262040	397
22262041	397
22262042	397
22262043	397
22262044	397
22262045	397
22262046	397
22262047	397
22262048	397
22262049	399
22262050	399
22262051	399
22262060	397
22262061	397
22262062	397
22262063	397
22262064	397
22262065	397
22262078	357
22262081	390
22262083	396
22262093	390
22262095	396
22262096	396
22262097	396
22262098	396
22262099	396
22262100	396
22262101	396
22262102	396
22262103	396
22262104	396
22262105	390
22262106	390
22262107	390
22262108	398
22262109	398
22262110	391
22262111	391
22262112	391
22262113	391
22262123	399
22262124	399
2310026	91
24420054	639
24420055	639
24420056	654
24420057	654
24420058	654
24420059	654
24441122	474
24441200	471
24441201	471
24441202	471
24441203	471
24441204	471
24441205	471
24441206	471
24441207	471
24441208	471
24441209	471
24441210	471
24441211	471
24441212	471
24441213	471
24441214	471
24441215	471
24441216	471
24441217	471
24441218	471
24441219	471
24441220	471
24441221	471
24441222	471
24441223	471
24441224	471
24441225	471
24441226	471
24441227	471
24441228	471
24441229	471
24441230	471
24441231	471
24441232	471
24441233	471
24441234	471
24441235	471
24441236	471
24441237	471
24441238	471

Part-Number	Page
24441239	471
24441240	471
24441241	471
24441242	471
24441243	471
24441244	471
24441245	471
24441246	471
24441247	471
24441248	471
24441249	471
24441250	471
24441251	471
24441252	471
24441253	471
24441254	471
24441255	471
24441256	473
24441258	473
24441259	473
24441260	473
24441261	473
24441262	473
2510001	201
2510005	201
26000102	512
26000104	512
26000108	512
26000112	512
26000202	512
26000204	512
26000208	512
26000212	512
26000302	512
26000304	512
26000308	512
26000312	512
26000902	512
26000904	512
26000908	512
26000912	512
26010102	513
26010104	513
26010108	513
26010112	513
26010202	513
26010204	513
26010208	513
26010212	513
26010302	513
26010304	513
26010308	513
26010312	513
26300102	501
26300104	501
26300108	501
26300112	501
26300202	501
26300204	501
26300208	501
26300212	501
26300302	501
26300304	501
26300308	501
26300312	501
26300402	501
26300404	501
26300408	501
26300412	501
26300902	501
26300904	501
26300908	501
26300912	501
26310102	499
26310104	499
26310108	499
26310112	499
26310202	499
26310204	499
26310208	499
26310212	499
26310302	499
26310304	499
26310308	499
26310312	499
26310902	499
26310904	499
26310908	499
26310912	499
26600224	504
26600248	504

Part-Number	Page
26600324	504
26600348	504
26600924	504
26600948	504
26601924	504
26601944	504
26601948	504
26601972	504
26601996	504
26609912	502
26609924	502
26609944	502
26609948	502
26609972	502
26609996	502
26610104	500
26610106	500
26610108	500
26610204	500
26610206	500
26610208	500
26610304	500
26610306	500
26610308	500
26610404	500
26610406	500
26610408	500
26610904	500
26610906	500
26610908	500
26610912	500
26640912	508
26640924	508
26640948	508
26640972	508
26640996	508
26644912	509
26644924	509
26644948	509
26644972	509
26644996	509
26900924	506
26900944	506
26900948	506
26900972	506
26900996	506
27400104	510
27400108	510
27400112	510
27400124	510
27400204	510
27400208	510
27400212	510
27400224	510
27400304	510
27400308	510
27400312	510
27400324	510
27400404	510
27400408	510
27400412	510
27400424	510
27400904	510
27400908	510
27400912	510
27400924	510
27500104	511
27500108	511
27500112	511
27500124	511
27500204	511
27500208	511
27500212	511
27500224	511
27500304	511
27500308	511
27500312	511
27500324	511
27500904	511
27500908	511
27500912	511
27500924	511
27560104	498
27560108	498
27560112	498
27560124	498
27560204	498
27560208	498
27560212	498
27560224	498
27560304	498

Part-Number	Page
27560308	498
27560312	498
27560324	498
27560904	498
27560908	498
27560912	498
27560924	498
27600104	503
27600108	503
27600112	503
27600124	503
27600204	503
27600208	503
27600212	503
27600224	503
27600304	503
27600308	503
27600312	503
27600324	503
27600904	503
27600908	503
27600912	503
27600924	503
27900104	505
27900108	505
27900112	505
27900124	505
27900204	505
27900208	505
27900212	505
27900224	505
27900304	505
27900308	505
27900312	505
27900324	505
27900904	505
27900908	505
27900912	505
27900924	505
27920104	507
27920108	507
27920112	507
27920124	507
27920204	507
27920208	507
27920212	507
27920224	507
27920304	507
27920308	507
27920312	507
27920324	507
27920904	507
27920908	507
27920912	507
27920924	507
28000001	480
28000002	482
28020001	481
28020002	483
28020702	492
28030002	483
28051002	484
28052002	484
28052702	494
28055702	494
280604	55
280804	55
280804CY	56
280805	55
281004	55
281004CY	56
281005	55
281203	55
281204	55
281204CY	56
281205	55
281205CY	56
281207	55
281403	55
281403CY	56
281404	55
281404CY	56
281405	55
281405CY	56
281407	55
281407CY	56
281602	55
281603	55
281603CY	56
281604	55
281604CY	56

Part-Number	Page
281605	55
281605CY	56
281607	55
281607CY	56
281609	55
281612	55
281612CY	56
281618	55
281618CY	56
281625	55
281803	55
281803CY	56
281804	55
281804CY	56
281805	55
281805CY	56
281807	55
281807CY	56
281812	55
281812CY	56
281818	55
281818CY	56
281825	55
281825CY	56
28320001	481
28320002	483
28320702	493
28351002	484
28351702	494
28352702	494
28600701	491
28620702	492
29011102	514
29011202	514
29011302	514
29011402	514
29011902	514
29021102	514
29021202	514
29021302	514
29021402	514
29021902	514
29022102	514
29022202	514
29022302	514
29022402	514
29022902	514
29031102	514
29031202	514
29031302	514
29031402	514
29031902	514
29032102	514
29032202	514
29032302	514
29032402	514
29032902	514
29033102	514
29033202	514
29033302	514
29033402	514
29033802	514
29033902	514
29039902	514
29044102	514
29044202	514
29044302	514
29044402	514
29110198	516
29110199	516
29110988	516
29110989	516
29110998	516
29110999	516
29120098	486
29120099	486
29120198	516
29120199	516
29120998	516
29120999	516
29125098	486
29125099	486
29125798	495
29125799	495
29126798	495
29126799	495
29130088	486
29130089	486
29130098	486
29130099	486
29130198	516

Part-Number	Page
29130199	516
29130988	516
29130989	516
29130998	516
29130999	516
29132088	486
29132089	486
29135088	486
29135089	486
29135098	486
29135099	486
29135798	495
29135799	495
29136798	495
29136799	495
29137098	486
29137099	486
29140098	485
29140099	485
29140199	516
29140798	495
29140799	495
29140999	516
29141098	485
29141099	485
29141798	495
29141799	495
29142098	485
29142099	485
29143098	485
29143099	485
29144098	485
29144099	485
29145098	485
29145099	485
29146098	485
29146099	485
29147098	485
29147099	485
29148098	485
29148099	485
29150098	486
29150099	486
29161097	487
29165797	496
29166797	496
29310102	515
29310202	515
29310302	515
29310402	515
29310902	515
29320102	515
29320202	515
29320302	515
29320402	515
29320902	515
29330102	515
29330202	515
29330302	515
29330402	515
29330902	515
29410199	517
29410989	517
29410999	517
29420099	487
29420199	517
29420999	517
29421199	517
29421999	517
29430089	487
29430099	487
29430199	517
29430989	517
29430999	517
29440099	485
29441099	485
29450099	486
29500001	488
29500002	488
29500004	488
29500010	488
29500011	488
29500012	488
29500013	488
29500014	488
29500015	488
29500016	488
29500017	488
29500020	489
29500021	489
29500022	489

Part-Number	Page
29500023	489
29500024	489
29500031	489
29500032	489
29500033	489
29500034	489
29500035	489
29500036	489
29500037	489
29500070	490
29500071	490
29500072	490
29500073	490
29500074	490
29500075	490
29500076	490
29500077	490
29500080	490
29500081	490
29500082	490
29500083	490
29500084	490
29500089	490
29500701	496
29500702	496
29500703	496
29500704	496
29500711	497
29500712	497
29500713	497
29500714	497
29500715	497
29500733	489
29500770	497
29500771	497
29500772	497
29500773	497
30010542	54
30010543	54
30010544	54
30010545	54
30010546	54
30010547	54
30010548	54
30010639	54
30010928	54
30015435	87
30016373	190
30016600	195
30016603	195
30016606	195
30016609	195
30017645	234
30017646	234
30017648	234
30017649	234
30017650	234
30017651	234
30017652	234
30017653	234
30017654	234
30017655	234
30017656	234
30017657	234
30017658	234
30017659	235
30017660	235
30017661	235
30017662	235
30017663	235
30017665	235
30017671	235
30017672	235
30017673	235
30017674	235
30017675	235
30017677	235
30017683	235
30017684	235
30017685	235
30017686	235
30017687	235
30017689	235
30017690	235
30017691	235
30017692	235
30017693	235
30017694	235
30017695	236
30017696	236
30017697	236

Part-Number	Page
30017698	236
30017699	236
30017701	236
30017702	236
30017703	236
30017704	236
30017705	236
30017707	236
30017708	236
30017716	236
30017717	236
30017718	236
30017719	236
30017720	236
30017722	236
30017723	236
30017730	236
30017731	236
30017733	236
30017734	236
30017735	236
30017736	236
30017737	236
30017738	236
30017739	236
30017740	236
30017787	322
30017788	322
30017798	322
30017801	322
30020808	195
30020809	195
30020810	195
30020811	195
3013234	205
301602	303
301602S	303
301606S	303
3016697	205
3016698	205
3016699	205
3016771	205
3017600	234
3017601	234
3017602	234
3017603	234
3017605	234
3017612	235
3017613	235
3017614	235
3017615	235
3017616	235
3017617	235
3017618	235
3017619	235
3017620	235
3017621	235
3017622	235
3017741	236
3017861	205
301801STP	304
301802	303
301802S	303
301802STP	304
301803S	303
301804S	303
301806STP	304
301825S	303
3018942	205
302002S	303
302002STP	304
302003STP	304
302004S	303
302006	303
302006S	303
302006STP	304
302015	303
302020	303
302025	303
3020780	205
3020781	205
3020782	205
3020783	205
302201STP	304
302203STP	304
302204	303
302206S	303
302206STP	304
302210	303
302215	303
302220	303

Part-Number	Page
302225	303
3022673	94
3022674	94
3022675	94
3022676	94
3022677	94
3022678	94
3022679	94
3022680	94
3022681	94
3022682	94
3022683	94
3022684	94
3022685	94
3022686	94
3022687	94
3022688	94
3023130	54
3023131	54
3023132	54
302402STP	304
302403STP	304
302406STP	304
302410	303
3025946	54
3025947	54
3026535	54
3026536	54
3026826	93
3031981	335
3036547	239
3036548	239
3036549	239
3036550	239
3036551	239
3036552	239
35002466	234
4125000S	208
4125001S	208
4125002S	208
4125003S	208
4125005S	208
4125006S	208
4125007S	208
4125008S	208
4125009S	208
4125104S	208
4125105S	208
4125106S	208
4126000S	208
4126001S	208
4126002S	208
4126003S	208
4126005S	208
4126006S	208
4126007S	208
4126008S	208
4126009S	208
4126014S	208
4126104S	208
4126105S	208
4126106S	208
4150101	221
4150102	221
4150103	221
4150104	222
4150105	222
4150114	222
4150201	221
4150202	221
4150204	222
4150205	222
4150214	222
4150300	221
4150301	221
4150301K	221
4150302	221
4150303	221
4150304	222
4150305	222
4150309	221
4150400	221
4150401	221
4150402	221
4150403	221
4150404	222
4150405	222
4150406	221
4150409	221
4150410	222
4150414	222

Part-Number	Page
4150500	221
4150501	221
4150501K	221
4150502	221
4150503	221
4150504	222
4150506	221
4150509	221
4150600	221
4150601	221
4150601K	221
4150602	221
4150603	221
4150604	222
4150605	222
4150610	222
4150614	222
4150700	221
4150701	221
4150702	221
4150704	222
4150706	221
4150800	221
4150801	221
4150802	221
4150900	221
4150901	221
4151000	221
4151001	221
4151100	221
4151101	221
4151201	221
4151301	221
4151401	221
4160100	219
4160101	218
4160101K	218
4160102	218
4160102K	218
4160103	218
4160104	219
4160104K	219
4160105	219
4160106	218
4160106K	218
4160107	219
4160109	219
4160109K	219
4160110	219
4160111	219
4160114	219
4160114K	219
4160126	220
4160144K	220
4160200	219
4160201	218
4160202	218
4160202K	218
4160203	218
4160203K	218
4160204	219
4160205	219
4160206	218
4160207	219
4160209	219
4160209K	219
4160210	219
4160214	219
4160214K	219
4160226	220
4160226K	220
4160244	220
4160244K	220
4160300	219
4160300K	219
4160301	218
4160301K	218
4160302	218
4160302K	218
4160303	218
4160303K	218
4160304	219
4160304K	219
4160305	219
4160305K	219
4160306	218
4160307	219
4160308	220
4160309	219
4160309K	219
4160310	219

Part-Number	Page
4160311	219
4160314	219
4160314K	219
4160326	220
4160326K	220
4160344	220
4160344K	220
4160400	219
4160400K	219
4160401	218
4160401K	218
4160402	218
4160402K	218
4160403	218
4160403K	218
4160404	219
4160404K	219
4160405	219
4160405K	219
4160406	218
4160406K	218
4160407	219
4160408	220
4160409	219
4160409K	219
4160410	219
4160411	219
4160414	219
4160414K	219
4160426	220
4160426K	220
4160444	220
4160500	219
4160500K	219
4160501	218
4160501K	218
4160502	218
4160502K	218
4160503	218
4160504	219
4160504K	219
4160505	219
4160505K	219
4160506	218
4160506K	218
4160507	219
4160509	219
4160509K	219
4160510	219
4160511	219
4160514	219
4160514K	219
4160526	220
4160544	220
4160544K	220
4160600	219
4160600K	219
4160601	218
4160601K	218
4160602	218
4160603	218
4160604	219
4160605	219
4160606	218
4160609	219
4160609K	219
4160610	219
4160610K	219
4160611	219
4160614	219
4160626	220
4160644	220
4160700	219
4160700K	219
4160701	218
4160701K	218
4160702	218
4160702K	218
4160703	218
4160704	219
4160704K	219
4160705	219
4160706	218
4160709	219
4160709K	219
4160710	219
4160711	219
4160714	219
4160714K	219
4160726	220
4160744	220

Part-Number	Page
4160800	219
4160801	218
4160802	218
4160803	218
4160804	219
4160805	219
4160806	218
4160809	219
4160810	219
4160811	219
4160814	219
4160826	220
4160844	220
4160900	219
4160901	218
4160902	218
4160903	218
4160904	219
4160905	219
4160906	218
4160909	219
4160910	219
4160911	219
4160914	219
4161000	219
4161001	218
4161002	218
4161003	218
4161004	219
4161006	218
4161009	219
4161010	219
4161011	219
4161100	219
4161101	218
4161102	218
4161104	219
4161111	219
4161200	219
4161201	218
4161202	218
4161211	219
4161300	219
4161301	218
4161400	219
4161401	218
4161402	218
4161500	219
4161501	218
4161502	218
4180400	217
4180401	217
4180402	217
4180403	217
4180404	217
4180405	217
4180406	217
4180409	217
4180414	217
4180414K	217
4180500	217
4180501	217
4180502	217
4180503	217
4180504	217
4180506	217
4180507	217
4180514	217
4180514K	217
4180600	217
4180600K	217
4180601	217
4180602	217
4180603	217
4180604	217
4180605	217
4180606	217
4180609	217
4180614	217
44420001	643
44420002	643
44420003	643
44420004	643
44420005	643
44420006	643
44420007	643
44420008	643
44420009	643
44420010	643
44420011	643
44420012	643

Part-Number	Page
44420015	639
44420016	639
44420017	639
44420018	639
44420019	639
44420020	639
44420021	641
44420022	641
44420023	641
44420024	641
44420025	641
44420026	641
44420029	640
44420030	640
44420031	640
44420032	640
44420033	640
44420034	640
44420035	641
44420036	643
44420037	643
44420038	643
44420039	643
44420040	643
44420041	643
44420043	640
44420044	640
44420045	640
44420046	640
44420047	640
44420048	640
44420049	641
44420050	641
44420051	641
44420052	641
44420053	641
44420071	640
44420073	640
44420078	650
44420088	656
44420089	656
44420090	656
44420091	656
44420092	657
44420093	657
44420094	657
44420095	657
44420103	658
44420104	658
44420105	658
44420120	648
44420121	648
44420122	648
44420123	648
44420124	648
44420125	648
44420126	648
44420127	648
44420128	648
44420129	648
44420130	648
44420131	648
44420132	648
44420133	648
44420134	648
44420135	648
44420148	644
44420149	644
44420150	644
44420151	644
44420152	644
44420153	644
44420154	644
44420155	644
44420156	644
44420157	644
44420158	644
44420159	644
44420211	670
44420212	670
44420213	670
44420214	670
44420215	670
44420216	670
44420217	670
44420218	670
44420219	670
44420220	670
44420221	669
44420222	669
44420223	669

Part-Number	Page
44420224	669
44420225	669
44420226	669
44420227	669
44420228	669
44420229	669
44420230	669
44420231	672
44420232	668
44420236	672
44420237	668
44420241	668
44420242	668
44420243	668
44420243	672
44420244	668
44420245	668
44420246	668
44420247	668
44420250	668
44420250	672
44420251	668
44420251	672
44420252	668
44420252	672
44420253	668
44420253	672
44420254	668
44420254	672
44420255	668
44420255	672
44420259	668
44420259	672
44420260	672
44420261	672
44420262	666
44420263	666
44420264	666
44420265	666
44420266	666
44420267	666
44420268	666
44420269	666
44420270	666
44420271	666
44420272	665
44420273	665
44420274	665
44420275	665
44420276	665
44420277	665
44420278	665
44420279	665
44420280	665
44420281	665
44420282	667
44420283	667
44420284	671
44420285	671
44420286	667
44420287	667
44420288	671
44420289	671
44420290	672
44420291	672
44420292	672
44420293	672
44420294	672
44420295	672
44420301	666
44420305	666
44420316	669
44420317	669
44420318	670
44420319	670
44420320	665
44420321	665
44420330	672
44420331	672
44420332	672
44420333	672
44420334	672
44420335	672
44420336	672
44420337	672
44420554	672
44420555	672
44420556	672
44420557	672
44420558	672
44420559	672

Part-Number	Page
44423017	629
44423018	629
44423041	629
44423050	635
44423051	635
44423052	635
44423053	635
44423054	635
44423055	635
44423056	635
44423057	635
44423058	635
44423059	635
44423060	635
44423061	635
44423062	635
44423063	635
44423064	635
44423065	635
44423066	635
44423067	635
44423068	635
44423069	635
44423070	634
44423071	634
44423072	634
44423073	634
44423074	634
44423075	634
44423076	634
44423077	634
44423078	634
44423079	634
44423080	634
44423081	634
44423082	634
44423083	634
44423084	634
44423085	634
44423086	634
44423087	634
44423088	634
44423089	634
44423090	634
44423091	634
44423092	634
44423093	634
44423094	634
44423095	634
44423096	634
44423097	634
44423098	634
44423099	634
44423100	637
44423101	637
44423102	637
44423103	637
44423104	637
44423105	637
44423106	637
44423107	637
44423108	636
44423109	636
44423110	636
44423111	636
44423112	636
44423113	636
44423114	636
44423115	636
44423116	636
44423117	636
44423118	636
44423119	636
44423120	638
44423121	638
44423122	638
44423123	638
44423124	638
44423125	638
44423126	638
44423127	638
44423128	638
44423129	638
44423130	638
44423131	638
44423132	638
44423133	638
44423134	638
44423135	638
44423136	638
44423140	632

Part-Number	Page
44423141	632
44423142	632
44423143	632
44423144	632
44423145	632
44423146	632
44423147	632
44423200	541
44423201	541
44423202	543
44423203	543
44423204	545
44423205	545
44423206	547
44423207	547
44423212	555
44423213	555
44423214	556
44423215	556
44423216	558
44423217	558
44423218	559
44423219	559
44423220	560
44423221	560
44423222	561
44423223	561
44423224	562
44423225	562
44423226	563
44423227	563
44423228	566
44423229	566
44423230	566
44423231	566
44423232	569
44423233	569
44423234	571
44423235	571
44423236	571
44423237	571
44423238	571
44423239	571
44423240	571
44423241	571
44423242	596
44423243	596
44423244	596
44423245	596
44423246	596
44423247	596
44423248	596
44423249	596
44423250	595
44423251	595
44423252	595
44423253	595
44423254	595
44423255	595
44423256	595
44423257	595
44423258	595
44423259	595
44423260	567
44423261	567
44423262	567
44423263	567
44423264	571
44423265	568
44423266	564
44423267	564
44423269	597
44423270	597
44423271	597
44423272	597
44423273	597
44423275	568
44423276	565
44423277	565
44423278	565
44423279	565
44423280	565
44423281	565
44423282	565
44423283	565
44423284	565
44423285	585
44423286	585
44423287	585
44423288	585
44423289	585

Part-Number	Page
44423290	585
44423291	565
44423292	565
44423293	557
44423294	557
44423295	568
44423296	568
44423297	568
44423298	568
44423320	585
44423321	585
44423322	585
44423323	585
44423324	584
44423325	584
44423326	565
44423327	565
44424004	581
44424005	581
44424006	581
44424007	581
44424008	581
44424009	581
44424010	581
44424011	581
44424012	573
44424013	573
44424014	595
44424015	595
44424017	573
44424018	573
44424019	596
44424020	596
44424021	596
44424022	596
44424023	596
44424024	596
44424025	596
44424026	596
44424027	596
44424028	552
44424029	595
44424030	573
44424031	573
44424032	597
44424033	597
44424034	597
44424035	597
44424036	597
44424037	597
44424038	597
44424039	597
44424040	597
44424041	553
44424042	553
44424043	553
44424044	553
44424049	531
44424050	531
44424052	629
44428200	673
44428201	673
44428203	673
44428204	673
44428224	673
44428226	675
44428227	675
44428992	674
44428993	674
44428994	674
44428995	674
44428996	674
44429001	658
44429007	586
44429008	586
44429009	586
44429010	586
44429011	586
44429012	586
44429013	586
44429014	586
44429017	598
44429018	598
44429019	598
44429020	598
44429021	598
44429022	598
44429300	661
44429301	661
44429302	661
44429303	661

Part-Number	Page
44429304	661
44429305	661
44429306	660
44429307	660
44429308	660
44429309	660
44429310	661
44429311	661
44429312	661
44429313	661
44429314	661
44429315	661
44429316	660
44429317	660
44429318	662
44429319	662
44429320	662
44429321	662
44429322	662
44429323	662
44429324	662
44429325	662
44429326	662
44429327	662
44429328	662
44429329	662
44429330	662
44429331	662
44429332	662
44429333	662
44429334	662
44429335	662
44429336	662
44429337	662
44429338	662
44429339	662
44429340	662
44429341	662
44429342	662
44429343	662
44429344	663
44429345	663
44429346	663
44429347	663
44429348	663
44429349	663
44429350	663
44429351	663
44429352	663
44429353	663
44429354	664
44429355	664
44429356	664
44429357	664
44429358	664
44429359	664
44429360	664
44429361	664
44429362	664
44429363	664
44429364	664
44429365	664
44429366	664
44429367	662
44429368	662
44429370	658
44429371	658
44429440	628
44429441	628
44429442	628
44429443	628
4502232S	209
4502262S	209
4502282S	209
4502292S	209
4502342S	209
4502392S	209
4502442S	209
4502462S	209
4510001	210
4510001K	211
4510001S	210
4510002	210
4510002K	211
4510002S	210
4510003	210
4510003K	211
4510003S	210
4510011	210
4510011K	211
4510011S	210

Part-Number	Page
4510012	210
4510012K	211
4510012S	210
4510013	210
4510013E	211
4510013K	211
4510013S	210
4510021	210
4510021E	211
4510021K	211
4510021S	210
4510022	210
4510022E	211
4510022K	211
4510022S	210
4510023	210
4510023E	211
4510023K	211
4510023S	210
4510031	210
4510031S	210
4510032	210
4510032K	211
4510032S	210
4510033	210
4510033K	211
4510033S	210
4510041	210
4510041S	210
4510042	210
4510042K	211
4510042S	210
4510043	210
4510043K	211
4510043S	210
4510051	210
4510051S	210
4510052	210
4510052K	211
4510052S	210
4510053	210
4510053K	211
4510053S	210
4510061	210
4510061S	210
4510062	210
4510062K	211
4510062S	210
4510063	210
4510063K	211
4510063S	210
4510071	210
4510071S	210
4510072	210
4510072K	211
4510072S	210
4510073	210
4510073K	211
4510073S	210
4510081	210
4510082	210
4510082K	211
4510082S	210
4510083	210
4510091	210
4510091S	210
4510092	210
4510092K	211
4510092S	210
4510093	210
4510093K	211
4510093S	210
4510102S	210
4510103S	210
4510111	210
4510111S	210
4510112	210
4510112K	211
4510112S	210
4510113	210
4510113K	211
4510121	210
4510121S	210
4510122	210
4510122K	211
4510122S	210
4510123	210
4510123S	210
4510141	210
4510141S	210
4510142	210

Part-Number	Page
4510142K	211
4510142S	210
4510143	210
4510143K	211
4510143S	210
4510161	210
4510161K	211
4510162K	211
4510162S	210
4510163	210
4510163K	211
4510163S	210
4510262K	211
4510263K	211
4510921	210
4510921K	211
4510922	210
4510922K	211
4510923	210
4510923K	211
4511060E	211
4511061E	211
4511062E	211
4511064K	211
4511065K	211
4511068K	211
4511071K	211
4511072K	211
4511073K	211
4512221S	212
4512222S	212
4512223S	212
4512231S	212
4512232S	212
4512233S	212
4512241S	212
4512242S	212
4512243S	212
4512251S	212
4512252K	212
4512252S	212
4512253S	212
4512261S	212
4512262S	212
4512263S	212
4512272S	212
4512291S	212
4512292S	212
4512293S	212
4512321S	212
4512322S	212
4512351S	212
4512352S	212
4512353S	212
4512371S	212
4512372S	212
4512373S	212
4512381S	212
4512382S	212
4512383S	212
4512391S	212
4512392S	212
4512393K	212
4512393S	212
4512401S	212
4512402S	212
4512403S	212
4512421S	212
4512422S	212
4512423K	212
4512423S	212
4512431S	212
4512432S	212
4512433S	212
4512441S	212
4512442S	212
4512443S	212
4512471S	212
4512472S	212
4512473S	212
4512921S	212
4512922S	212
4512923S	212
4520001	213
4520001E	215
4520001K	215
4520001S	213
4520002	213
4520002E	215
4520002K	215
4520002S	213

Part-Number	Page
4520003	213
4520003K	215
4520004	213
4520004E	215
4520004K	215
4520005	213
4520006	213
4520011	213
4520011E	215
4520011K	215
4520011S	213
4520012	213
4520012E	215
4520012K	215
4520012S	213
4520013	213
4520013E	215
4520013K	215
4520014	213
4520014E	215
4520014K	215
4520015	213
4520016	213
4520021	213
4520021E	215
4520021K	215
4520021S	213
4520022	213
4520022E	215
4520022K	215
4520022S	213
4520023	213
4520023K	215
4520024	213
4520024E	215
4520024K	215
4520025	213
4520026	213
4520031	213
4520031K	215
4520031S	213
4520032	213
4520032K	215
4520032S	213
4520033	213
4520033K	215
4520034	213
4520035	213
4520036	213
4520041	214
4520041E	215
4520041K	215
4520041S	214
4520042	214
4520042K	215
4520042S	214
4520043	214
4520043K	215
4520044	214
4520044E	215
4520044K	215
4520045	214
4520046	214
4520051	213
4520051K	215
4520051S	213
4520052	213
4520052K	215
4520052S	213
4520053	213
4520054	213
4520055	213
4520056	213
4520061	213
4520061K	215
4520061S	213
4520062	213
4520062K	215
4520062S	213
4520063	213
4520063K	215
4520064	213
4520065	213
4520066	213
4520071	214
4520071K	215
4520072	214
4520074	214
4520091	213
4520091K	215
4520092	213

Part-Number	Page
4520092K	215
4520093	213
4520093K	215
4520094	213
4520094K	215
4520095	213
4520096	213
4520111	213
4520111K	215
4520112	213
4520113	213
4520114	213
4520121	213
4520122	213
4520122K	215
4520123	213
4520124	213
4520126	213
4520141	213
4520141E	215
4520141K	215
4520141S	213
4520142	213
4520142K	215
4520142S	213
4520143	213
4520143K	215
4520144	213
4520145	213
4520146	213
4520161	214
4520162	214
4520163	214
4520164	214
4520263K	215
4520264K	215
4520922K	215
4520923K	215
4520924K	215
4521001	213
4521002	213
4521003	213
4521004	213
4521005	213
4521006	213
4521007	213
4521008	213
4521009	213
4521011	213
4521012	213
4521013	213
4521014	213
4521015	213
4521016	213
4521017	213
4521018	213
4521019	213
4521021	213
4521022	213
4521023	213
4521024	213
4521025	213
4521031	213
4521032	213
4521041	214
4521042	214
4521043	214
4521044	214
4521062	213
4521091	213
4521092	213
4522211S	216
4522221S	216
4522222S	216
4522231S	216
4522251S	216
4522252S	216
4522261S	216
4522262S	216
4522291S	216
4522292S	216
4522311S	216
4522321S	216
4522371S	216
4522381S	216
4522391S	216
4522392S	216
4522401S	216
4522421S	216
4522422S	216
4522441S	216

Part-Number	Page
4522461S	216
4522921S	216
4522922S	216
4530101	228
4530102	228
4530103	228
4530104	228
4530105	228
4530106	228
4530107	228
4533000	88
4533001	88
4533002	88
4533003	88
4533004	89
4533005	89
4533006	89
4533007	89
4533008	89
4533009	89
4533010	89
4533011	89
4533012	89
4533013	89
4533014	89
4533015	89
4533016	89
4533017	89
4533020	88
4533021	88
4533022	88
4533023	88
4533024	89
4533027	88
4533029	88
4533031	88
4533033	88
4533035	88
4533037	89
4533039	89
4533041	89
4533043	89
4533045	89
4533061	88
4533062	88
4533063	88
4533064	88
4533065	88
4533066	88
4533067	88
4533069	88
4533071	89
4533073	89
4533075	89
4533077	89
4533079	89
4533081	89
4533083	89
4533085	89
4533087	89
4533089	89
4533091	88
4533093	88
4533095	88
4533097	88
4533099	89
4533101	89
4533103	89
4533105	89
4533107	89
4533109	89
4533111	88
4533113	88
4533115	88
4550115	228
4550116	228
4550117	228
4550118	228
4550119	228
4560011S	150
4560012S	150
4560013S	149
4560014S	149
4560016S	149
4560017S	149
4560021S	150
4560022S	150
4560023S	149
4560024S	149
4560026S	149
4560027S	149

Part-Number	Page
4560033S	149
4560034S	149
4560036S	149
4560037S	149
4560041S	150
4560042S	150
4560053S	149
4560054S	149
4560056S	149
4560057S	149
4560063	149
4560064	149
4560067	149
4560073	149
4560074	149
4560076	149
4560077	149
4560083	149
4560086	149
4560087	149
4571101	151
4571102	151
4571103	151
4571104	151
4571105	151
4571106	151
4571110	152
4571111	152
4571112	152
4571113	152
4571114	152
4571115	152
4571120	1037
4571121	1037
4571122	1037
4571123	1037
4571124	1037
4571125	1037
4571126	1037
4571127	1037
4571128	1037
4571129	1037
4571130	1037
4571131	1037
4571132	1037
4571133	1037
4571134	1037
4571135	1037
4571136	1037
4571137	1037
4571196	1037
4571197	1037
4571198	1037
4724050	223
4724051	223
4724052	223
4724053	223
4724054	223
4724055	223
4724056	223
4724057	223
4724058	223
4724059	223
4724060	224
4724061	224
4724062	224
4724063	224
4724064	224
4724065	224
4724066	224
4724067	224
4724068	224
4724069	224
4724070	224
4724071	224
4724072	224
4724073	224
4724074	224
4724075	224
4724076	224
4724077	224
4724078	224
4724079	224
4724080	224
4724081	224
4724082	224
4724083	224
4724084	224
4724085	224
4724086	224
4724087	224

Part-Number	Page
4724088	224
4724089	224
4725001	225
4725001K	225
4725002	225
4725002K	225
4725003	225
4725003K	225
4725011	225
4725011K	225
4725012	225
4725012K	225
4725013	225
4725013K	225
4725021	225
4725021K	225
4725022	225
4725022K	225
4725023	225
4725023K	225
4725031	225
4725031K	225
4725032	225
4725032K	225
4725033	225
4725033K	225
4725041	225
4725041K	225
4725042	225
4725042K	225
4725043	225
4725043K	225
4725051	225
4725051K	225
4725052	225
4725052K	225
4725053	225
4725053K	225
4725061	225
4725061K	225
4725062	225
4725062K	225
4725063	225
4725063K	225
4725071	225
4725071K	225
4725072	225
4725072K	225
4725073	225
4725073K	225
4725081	225
4725081K	225
4725082	225
4725082K	225
4725083	225
4725083K	225
4725091	225
4725091K	225
4725092	225
4725092K	225
4725093	225
4725093K	225
4725111	225
4725111K	225
4725112	225
4725112K	225
4725113	225
4725113K	225
4725121	225
4725121K	225
4725122	225
4725122K	225
4725123	225
4725123K	225
4725141	225
4725141K	225
4725142	225
4725142K	225
4725143	225
4725143K	225
4725263K	225
4726001	227
4726001K	227
4726002	227
4726002K	227
4726003	227
4726003K	227
4726004	227
4726004K	227
4726005	227
4726006	227

Part-Number	Page
4726007	227
4726008	227
4726009	227
4726011	226
4726011K	226
4726012	226
4726012K	226
4726013	226
4726013K	226
4726014	226
4726014K	226
4726015	226
4726016	226
4726017	226
4726018	226
4726019	226
4726021	226
4726021K	226
4726022	226
4726022K	226
4726023	226
4726023K	226
4726024	226
4726024K	226
4726025	226
4726026	226
4726027	226
4726028	226
4726029	226
4726031	226
4726031K	226
4726032	226
4726032K	226
4726033	226
4726033K	226
4726034	226
4726034K	226
4726035	226
4726036	226
4726037	226
4726038	226
4726039	226
4726041	227
4726041K	227
4726042	227
4726042K	227
4726043	227
4726043K	227
4726044	227
4726044K	227
4726045	227
4726046	227
4726047	227
4726048	227
4726049	227
4726051	227
4726051K	227
4726052	227
4726052K	227
4726053	227
4726053K	227
4726054	227
4726054K	227
4726055	227
4726056	227
4726057	227
4726058	227
4726059	227
4726061	226
4726061K	226
4726062	226
4726062K	226
4726063	226
4726063K	226
4726064	226
4726064K	226
4726065	226
4726066	226
4726067	226
4726068	226
4726069	226
4726071	227
4726071K	227
4726072	227
4726072K	227
4726073	227
4726073K	227
4726074	227
4726074K	227
4726075	227
4726076	227

Part-Number	Page
4726077	227
4726078	227
4726079	227
4726081	227
4726081K	227
4726082	227
4726082K	227
4726083	227
4726083K	227
4726084	227
4726084K	227
4726085	227
4726086	227
4726087	227
4726088	227
4726089	227
4726091	227
4726091K	227
4726092	227
4726092K	227
4726093	227
4726093K	227
4726094	227
4726094K	227
4726095	227
4726096	227
4726097	227
4726098	227
4726099	227
4726111	227
4726111K	227
4726112	227
4726112K	227
4726113	227
4726113K	227
4726114	227
4726114K	227
4726115	227
4726116	227
4726117	227
4726118	227
4726119	227
4726121	227
4726121K	227
4726122	227
4726122K	227
4726123	227
4726123K	227
4726124	227
4726124K	227
4726125	227
4726126	227
4726127	227
4726128	227
4726129	227
4726141	227
4726141K	227
4726142	227
4726142K	227
4726143	227
4726143K	227
4726144	227
4726144K	227
4726145	227
4726146	227
4726147	227
4726148	227
4726149	227
4726261K	227
4726262K	227
4727001	227
4727002	227
4727011	226
4727012	226
4727021	226
4727022	226
4727031	226
4727032	226
4727041	227
4727042	227
4727051	227
4727052	227
4727061	226
4727062	226
4727071	227
4727072	227
4727081	227
4727082	227
4727091	227
4727092	227
4727111	227

Part-Number	Page
4727112	227
4727121	227
4727122	227
4727141	227
4727142	227
50200800	653
50201120	653
50201203	653
50202203	653
51712740	788
51730010	803
51730020	803
51730025	803
51730030	803
51730035	803
51730040	803
51730050	803
51730060	803
51730070	803
51730080	803
51730090	803
51730100	803
51730110	803
51730200	751
51730201	751
51730202	751
51730203	751
51730204	750
51730205	750
51731000	805
51731010	805
51731020	805
51731030	805
51731040	805
52000110	799
52000120	799
52000130	799
52000140	799
52000150	799
52000160	799
52000170	799
52000180	799
52000190	799
52000200	799
52000210	782
52000220	782
52000240	782
52000241	782
52000251	782
52000260	782
52000270	782
52000280	782
52000310	782
52000320	782
52000330	782
52000340	782
52000350	782
52000360	782
52000830	786
52000840	786
52000850	786
52000860	786
52000870	786
52000880	786
52000890	786
52000900	786
52000910	786
52000920	786
52000930	787
52000940	787
52000950	787
52000960	787
52000970	787
52000980	787
52000990	790
52001000	790
52001010	790
52001020	790
52001030	790
52001040	790
52001050	790
52001060	790
52001070	790
52001080	790
52001090	790
52001100	790
52001110	790
52001120	790
52001130	790
52001140	790
52001150	790

Part-Number	Page
52001160	790
52001170	790
52001180	790
52001190	790
52001200	790
52001210	790
52001220	790
52001230	790
52001860	738
52001880	738
52001887	738
52001889	738
52001894	738
52001895	738
52001970	814
52001980	814
52001990	814
52002000	814
52002010	814
52002020	814
52002030	814
52002040	814
52002050	814
52002060	814
52002070	814
52002080	814
52002090	814
52002100	814
52002110	814
52002120	814
52002130	814
52002140	814
52002150	814
52002160	814
52002170	814
52002180	814
52002190	814
52002200	814
52002210	814
52002530	794
52002540	794
52002550	794
52002560	794
52002570	794
52002590	794
52002600	794
52002620	794
52002630	794
52002640	794
52002650	794
52002660	794
52002670	794
52002680	802
52002690	794
52002700	794
52002710	794
52002790	802
52002827	825
52002828	825
52002839	825
52002840	825
52002841	825
52002842	825
52002843	825
52002844	825
52002845	825
52002846	825
52002847	825
52002980	826
52002990	826
52003020	826
52003030	826
52003040	826
52003050	826
52003060	826
52003070	826
52003080	826
52003090	826
52003100	826
52003110	826
52003130	827
52003140	827
52003160	827
52003170	827
52003390	802
52003400	802
52003410	802
52003420	802
52003430	802
52003440	802
52003450	802

Part-Number	Page
52003460	802
52003490	800
52003500	800
52003510	800
52003520	800
52003530	800
52003540	800
52003550	800
52003560	800
52003570	800
52003580	800
52003585	793
52003690	809
52003700	809
52003710	809
52003720	809
52003730	809
52003740	809
52003750	804
52003760	804
52003770	804
52003780	804
52003790	804
52003800	804
52003810	804
52003820	804
52003830	804
52003840	804
52003850	804
52003860	804
52003870	804
52003880	804
52003890	804
52003900	804
52003910	804
52003920	804
52003930	804
52003940	804
52003950	804
52003970	804
52003980	804
52003990	805
52004000	805
52004010	805
52004020	805
52004030	805
52004040	805
52004050	805
52004060	805
52004070	805
52004080	805
52004090	805
52004100	805
52004110	805
52004120	805
52004130	798
52004140	798
52004150	798
52004180	797
52004190	797
52004200	797
52004210	797
52004220	797
52004225	797
52004230	788
52004240	788
52004250	788
52004260	788
52004270	788
52004280	789
52004290	789
52004300	789
52004310	789
52004320	789
52005080	792
52005090	792
52005100	792
52005110	792
52005120	792
52005130	792
52005140	792
52005150	792
52005160	792
52005170	792
52005180	792
52005190	792
52005200	792
52005210	792
52005240	792
52005310	793
52005320	793

Part-Number	Page
52005330	793
52005340	793
52005350	793
52005360	793
52005370	793
52005380	793
52005390	793
52005400	793
52005410	793
52005411	793
52005412	793
52005414	793
52005420	797
52005430	798
52005470	783
52005480	784
52005490	784
52005500	784
52005510	784
52005520	784
52005530	784
52005540	782
52005550	782
52005560	782
52005570	789
52005575	789
52005576	789
52005577	789
52005590	787
52005600	787
52005610	787
52005620	787
52005680	783
52005690	783
52005700	783
52005710	783
52005720	783
52005740	810
52005750	810
52005760	810
52005770	810
52005780	809
52005790	809
52005800	809
52005810	828
52005820	828
52005830	828
52005840	828
52005850	828
52005860	828
52005870	828
52005880	828
52005900	828
52005949	801
52005950	801
52005960	801
52005970	801
52005980	801
52005990	801
52006000	801
52006010	801
52006020	801
52006030	801
52006100	746
52006101	746
52006103	746
52006106	747
52006107	747
52006109	747
52006110	746
52006111	746
52006113	746
52006116	747
52006117	747
52006119	747
52006120	746
52006121	746
52006123	746
52006126	747
52006127	747
52006129	747
52006130	746
52006131	746
52006133	746
52006136	747
52006137	747
52006139	747
52006140	746
52006141	746
52006143	747
52006146	747

Part-Number	Page
52006147	747
52006149	747
52006150	746
52006151	746
52006153	747
52006156	747
52006157	747
52006159	747
52006160	746
52006161	746
52006163	747
52006166	747
52006167	747
52006169	747
52006170	746
52006171	746
52006173	747
52006176	747
52006177	747
52006179	747
52006321	727
52006345	727
52006355	727
52006365	727
52006375	727
52006401	727
52006425	727
52006460	727
52006461	727
52006465	727
52006470	727
52006475	727
52006480	727
52006485	727
52006490	727
52006491	727
52006495	727
52006500	727
52006505	727
52006510	727
52006515	727
52006520	727
52006530	727
52006531	727
52006535	727
52006540	727
52006541	727
52006545	727
52006550	727
52006563	753
52006564	727
52006565	727
52006575	753
52006579	753
52006600	746
52006610	746
52006620	746
52006630	746
52006640	746
52006650	746
52006660	746
52006670	746
52008010	785
52008020	785
52008030	785
52008040	785
52008050	785
52009040	827
52009050	827
52009061	827
52010000	812
52010010	812
52010020	812
52010030	812
52010040	812
52010050	812
52010060	812
52010070	812
52010080	812
52010090	812
52010100	812
52010110	812
52010120	812
52010130	812
52010140	812
52010161	812
52010162	812
52010163	812
52010164	812
52010340	810
52010350	810

Part-Number	Page
52010360	810
52010370	810
52010380	810
52010390	810
52010400	792
52010405	792
52010410	810
52010415	792
52010420	792
52010440	792
52010450	792
52010460	792
52010470	792
52010480	792
52010490	792
52010500	792
52010510	792
52010520	792
52010530	792
52010540	792
52010550	792
52010560	792
52010570	792
52010580	792
52010590	792
52010600	792
52010610	792
52010620	792
52010630	792
52010640	792
52010650	794
52010660	794
52010670	794
52010680	794
52010690	794
52010700	794
52010710	794
52010720	794
52010730	794
52010740	794
52010750	794
52010760	794
52010770	794
52010780	793
52010790	793
52010800	793
52010810	793
52010820	793
52010830	793
52010840	793
52010850	793
52010860	793
52010870	793
52010880	793
52010890	793
52010900	793
52010910	793
52010980	812
52010985	812
52010996	812
52013000	826
52015700	775
52015710	775
52015720	775
52015730	775
52015740	775
52015750	775
52015760	775
52015765	775
52015766	775
52015767	775
52015770	775
52015780	775
52015790	775
52015800	775
52015810	775
52015820	775
52015830	775
52015831	775
52015832	775
52015833	775
52020300	782
52020310	782
52020320	782
52020330	782
52020341	782
52020513	762
52020523	762
52020533	762
52020543	762
52020553	762

Part-Number	Page
52020563	762
52020573	762
52020818	809
52020820	809
52020830	809
52020840	809
52020850	809
52020860	809
52020870	809
52020880	809
52020890	809
52020900	809
52020930	808
52020940	808
52020950	808
52020960	808
52020970	808
52020980	808
52020990	808
52021000	808
52021010	808
52021070	826
52021080	826
52021120	813
52021130	813
52021140	813
52021146	813
52021150	813
52021160	813
52021170	813
52021180	813
52021190	813
52021200	813
52021210	813
52021220	813
52021230	813
52021240	813
52021250	813
52021259	813
52021260	813
52021261	813
52021262	813
52021263	813
52021265	813
52021266	813
52021267	813
52021268	813
52021269	813
52021271	813
52021272	813
52021385	917
52023340	845
52023350	845
52023360	845
52023370	845
52023380	845
52023390	845
52023400	845
52023410	845
52023430	845
52023586	793
52023601	811
52023602	811
52023603	811
52023604	811
52023606	811
52023607	811
52023608	811
52023609	811
52023611	811
52023620	791
52023621	791
52023622	791
52023623	791
52023624	791
52023625	791
52023626	791
52023627	791
52023628	791
52023629	791
52023717	787
52023718	787
52023719	787
52023720	787
52023721	787
52023722	787
52023723	787
52023970	797
52023980	797
52023990	797
52024000	797

Part-Number	Page
52024010	797
52024015	797
52024020	797
52024090	798
52024100	798
52024110	798
52024120	798
52024460	813
52024560	826
52024640	826
52024670	826
52024680	826
52024840	787
52024848	801
52024849	801
52024850	801
52024851	801
52024852	801
52024853	801
52024854	801
52024855	801
52024856	801
52024857	801
52024934	795
52024935	795
52024936	795
52024937	795
52024961	795
52024962	795
52024964	795
52024965	795
52024966	795
52024967	795
52024968	795
52024969	795
52024970	795
52024971	795
52024973	795
52024974	795
52025040	803
52025050	803
52025060	803
52025070	803
52025100	803
52025110	803
52025120	803
52025130	803
52025140	803
52025150	803
52025160	803
52025170	803
52025180	803
52025190	803
52025200	805
52025210	805
52025220	805
52025230	805
52025235	781
52025240	781
52025250	781
52025260	781
52025270	781
52025280	781
52025290	781
52025291	781
52025530	787
52026000	1059
52026010	1059
52026011	1059
52026012	1059
52026020	1058
52026022	1058
52026024	1058
52026028	1058
52026030	1058
52026050	1058
52026051	1058
52032517	800
52032520	796
52032525	796
5203254	800
52032540	796
52032550	796
52032555	800
52032556	800
52032557	800
52032558	800
52032559	800
52032560	796
52032570	796
52032580	739

Part-Number	Page
52032585	745
52032590	739
52032600	739
52032610	739
52032615	745
52032620	739
52032625	745
52032630	739
52032635	745
52032640	739
52032645	745
52032650	739
52032655	745
52032660	739
52032665	745
52032670	739
52032675	745
52100010	808
52100020	808
52100030	808
52100040	808
52100050	808
52100060	808
52100070	808
52100080	808
52100090	808
52100100	808
52100300	754
52100301	754
52100302	754
52100303	754
52100304	754
52100305	754
52100306	754
52100320	806
52100321	806
52100322	806
52100323	806
52100324	806
52100325	806
52100326	806
52100327	806
52100328	806
52100329	806
52100330	806
52100331	806
52100332	806
52100333	806
52100334	806
52100335	806
52100336	806
52100337	806
52100338	806
52100339	806
52100340	806
52100341	806
52100342	806
52100343	806
52100344	806
52100345	806
52100346	806
52100347	806
52100600	759
52100601	759
52100602	759
52100603	759
52100604	759
52100605	759
52100606	759
52100607	759
52100610	759
52100611	759
52100612	759
52100613	759
52100614	759
52100615	759
52100616	759
52100617	759
52100620	760
52100621	760
52100622	760
52100623	760
52100624	760
52100625	760
52100626	760
52100627	760
52101965	753
52101966	753
52101967	753
52101968	753
52101969	753

Part-Number	Page
52101972	753
52101973	753
52101974	753
52101975	753
52101976	753
52101977	753
52101979	753
52102997	744
52102998	744
52102999	744
52103000	744
52103010	744
52103020	744
52103030	744
52103040	744
52103050	744
52103060	744
52103070	744
52103071	744
52103072	744
52103073	744
52103100	748
52103103	749
52103105	748
52103110	748
52103113	749
52103115	748
52103120	748
52103123	749
52103125	748
52103130	748
52103133	749
52103135	748
52103140	748
52103143	749
52103145	748
52103150	748
52103153	749
52103155	748
52103160	748
52103163	749
52103165	748
52103170	748
52103173	749
52103175	748
52103190	748
52103200	800
52103210	800
52103220	800
52103230	800
52103240	800
52103250	800
52103260	800
52103270	800
52103300	744
52103310	744
52103320	744
52103330	744
52103340	744
52103350	744
52103360	744
52103370	744
52103371	744
52103372	744
52103373	744
52103405	749
52103415	749
52103425	749
52103435	749
52103445	749
52103455	749
52103465	749
52103475	749
52103500	770
52103510	770
52103520	770
52103530	770
52103540	770
52103550	770
52103560	770
52103570	770
52103580	770
52103590	770
52104010	757
52104050	758
52104200	756
52104210	756
52104220	756
52104230	756
52104240	756
52104250	756

Part-Number	Page
52104260	756
52104270	756
52104280	756
52104290	756
52104300	756
52104310	753
52104311	753
52104312	753
52104313	753
52104314	753
52104315	753
52104316	753
52104317	753
52104318	753
52104319	753
52104320	753
52104321	753
52104322	753
52104330	757
52104335	757
52104340	757
52104345	757
52104360	757
52104365	757
52104370	757
52104375	757
52104380	757
52104385	757
52104400	757
52104405	757
52104410	757
52104415	757
52104420	757
52104425	757
52104430	757
52104435	757
52104440	757
52104445	757
52104450	755
52104452	755
52104454	755
52104456	755
52104458	755
52104460	755
52104462	755
52104463	755
52104469	752
52104470	752
52104472	752
52104473	752
52104474	752
52104475	752
52104476	752
52104477	752
52104478	752
52104479	752
52104480	752
52104481	752
52104482	752
52104483	752
52104484	752
52104485	752
52104486	752
52104487	752
52104488	752
52104489	752
52104490	807
52104491	807
52104492	807
52104493	807
52104494	807
52104495	807
52104496	807
52104497	807
52104498	807
52104499	807
52104500	807
52104501	807
52104502	807
52104503	807
52104504	752
52104505	752
52104570	754
52104571	754
52104572	754
52104573	754
52104574	754
52104575	754
52104576	754
52104580	755
52104581	755

Part-Number	Page
52104582	755
52104583	755
52104584	755
52104585	755
52104586	755
52104800	726
52104810	726
52104820	726
52104830	726
52104840	726
52104850	726
52104860	726
52104870	726
52104890	726
52104900	726
52104910	726
52104920	726
52104930	726
52104940	726
52104980	726
52104990	726
52105000	726
52105002	726
52105003	726
52105004	726
52105005	726
52105006	726
52105010	726
52105020	762
52105030	762
52105040	762
52105050	762
52105060	762
52105270	736
52105280	736
52105290	736
52105300	736
52105310	736
52105320	736
52105330	736
52105340	736
52105350	736
52105360	736
52105370	736
52105380	736
52105390	736
52105400	736
52105410	736
52105420	736
52105430	737
52105440	737
52105450	737
52105460	737
52105470	737
52105480	737
52105490	737
52105500	737
52105510	737
52105520	737
52105530	737
52105540	737
52105600	735
52105610	735
52105620	735
52105630	735
52105640	735
52105650	735
52105660	735
52105670	735
52105680	735
52105690	735
52105700	735
52105710	735
52105720	735
52105730	735
52105740	735
52105820	733
52105830	733
52105840	733
52105850	733
52105860	733
52105870	733
52105880	733
52105890	733
52105900	733
52105910	733
52106000	758
52106005	758
52106010	758
52106015	758
52106020	758

Part-Number	Page
52106025	758
52106030	758
52106035	758
52106040	758
52106045	758
52106050	758
52106055	758
52106060	758
52106065	758
52106070	758
52106080	758
52106090	758
52106210	740
52106220	740
52106230	740
52106240	740
52106410	732
52106420	732
52106430	732
52106440	732
52106450	732
52106460	732
52106470	732
52106480	732
52106481	732
52106490	732
52106500	732
52106510	732
52106520	732
52106530	732
52106540	732
52106550	732
52106560	732
52106570	732
52106580	732
52106590	732
52106600	732
52106610	732
52106620	732
52106630	732
52106640	732
52106700	731
52106705	731
52106710	731
52106715	731
52106720	731
52106725	731
52106730	731
52106735	731
52106740	731
52106745	731
52106750	731
52106755	731
52106760	731
52106765	731
52106770	731
52106775	731
52106780	731
52106785	731
52106790	731
52106795	731
52106800	730
52106805	730
52106810	730
52106815	730
52106820	730
52106825	730
52106830	730
52106835	730
52106840	730
52106845	730
52106850	730
52106855	730
52106860	734
52106870	734
52106880	734
52106890	734
52106910	734
52106920	734
52106930	734
52106940	734
52106950	734
52106960	734
52106970	734
52106980	734
52106990	734
52107000	734
52107010	734
52107020	734
52107030	734
52107040	734

Part-Number	Page
52107050	734
52107060	734
52107070	734
52107080	734
52107102	710
52107320	729
52107340	729
52107350	729
52107360	729
52107370	729
52107380	729
52107800	740
52107801	741
52107810	740
52107811	741
52107820	740
52107821	741
52107830	740
52107831	741
52107840	740
52107841	741
52107850	740
52107851	741
52107900	728
52107901	728
52107902	728
52107903	728
52107904	728
52107905	728
52108000	742
52108001	743
52108010	742
52108011	743
52108020	742
52108021	743
52108040	742
52108041	742
52108050	742
52108051	742
52109013	747
52109014	747
52109015	747
52110023	710
52110024	710
52110025	710
52110026	710
52110027	710
52110028	710
52115700	776
52115710	776
52115720	776
52115730	776
52115740	776
52115750	776
52115760	776
52115770	776
52115780	776
52115790	776
52115800	776
52115810	776
52115820	776
52115830	776
52122000	761
52122001	761
52122010	761
52122011	811
52122020	761
52122021	761
52122030	761
52122040	761
52122050	761
52122060	761
52122070	761
52220000	722
52220001	722
52220002	722
52220003	722
52220004	722
52220005	722
52220006	722
52220007	722
52220040	722
52220089	725
53001010	810
53001020	810
53001030	810
53001040	810
53001050	810
53010000	685
53015000	771
53015010	771

Part-Number	Page
53015020	771
53015030	771
53015040	771
53015050	771
53015060	771
53015070	771
53015080	771
53015090	771
53015100	772
53015110	772
53015120	772
53015130	772
53015140	772
53015150	772
53015160	772
53015170	772
53015180	772
53015190	772
53015200	771
53015210	771
53015220	771
53015230	771
53015240	771
53015250	771
53015260	771
53015270	771
53015280	771
53015290	771
53015300	772
53015310	772
53015320	772
53015330	772
53015340	772
53015350	772
53015360	772
53015370	772
53015380	772
53015390	772
53015410	774
53015420	774
53015430	774
53015440	774
53015450	774
53015600	773
53015610	773
53015620	773
53015630	773
53015640	773
53015650	773
53015800	773
53015810	773
53015820	773
53015830	773
53015840	773
53015850	773
53016010	763
53016030	763
53016050	763
53016060	763
53016110	763
53016130	763
53016150	763
53016210	763
53016230	763
53016250	763
53016260	763
53016310	763
53016330	763
53016350	763
53016610	763
53016630	763
53016650	763
53016810	763
53016830	763
53016850	763
53017010	685
53017030	685
53017040	685
53017110	685
53017130	685
53017140	685
53017210	685
53017230	685
53017240	685
53017310	685
53017330	685
53017340	685
53017420	690
53017430	690
53017440	690
53017610	689

Part-Number	Page
53017630	689
53017640	689
53017810	689
53017830	689
53017840	689
53018000	771
53018010	771
53018020	771
53018030	771
53018040	771
53018050	771
53018060	771
53018070	771
53018080	771
53018090	771
53018100	772
53018110	772
53018120	772
53018130	772
53018140	772
53018150	772
53018160	772
53018170	772
53018180	772
53018190	772
53019000	778
53019001	778
53019010	778
53019011	778
53019020	778
53019021	778
53019030	778
53019031	778
53019040	778
53019041	778
53019050	778
53019051	778
53019060	778
53019061	778
53019070	778
53019071	778
53019080	778
53019081	778
53019090	778
53019091	778
53019200	778
53019210	778
53019220	778
53019230	778
53019240	778
53019250	778
53019260	778
53019270	778
53019280	778
53019290	778
53019300	769
53019305	769
53019310	769
53019315	769
53019320	769
53019325	769
53019330	769
53019335	769
53100003	720
53100003	781
53100004	720
53100004	781
53100005	720
53100005	781
53100006	720
53100006	781
53100007	720
53100007	781
53100008	720
53100008	781
53100009	720
53100009	781
53100055	720
53100055	781
53102000	760
53102001	760
53102010	760
53102011	810
53102020	760
53102021	760
53102030	760
53102040	760
53102050	760
53102060	760
53102070	760
53105100	714

Part-Number	Page
53105110	714
53105120	714
53105130	714
53105200	714
53105210	714
53105220	714
53105230	714
53105300	715
53105301	715
53105302	715
53105303	715
53110030	686
53110100	1061
53110101	1061
53110102	1061
53110103	1061
53110104	1061
53110105	1061
53110106	1061
53110107	1061
53110108	1061
53110109	1061
53110110	1061
53110111	1061
53110112	1061
53110113	1061
53110114	1061
53110115	1061
53110116	1061
53110117	1061
53110118	1061
53110119	1061
53110120	1061
53110121	1061
53110122	1061
53110123	1061
53110124	1061
53110125	1061
53110126	1061
53110127	1061
53110130	1062
53110131	1062
53110132	1062
53110133	1062
53110134	1062
53110135	1062
53110140	1061
53110141	1061
53110142	1061
53110143	1061
53110144	1061
53110145	1061
53111000	684
53111010	684
53111020	684
53111030	684
53111040	684
53111050	684
53111060	684
53111070	684
53111100	685
53111110	685
53111120	685
53111130	685
53111140	685
53111150	685
53111160	685
53111170	685
53111200	684
53111210	684
53111220	684
53111230	684
53111240	684
53111250	684
53111260	684
53111270	684
53111300	685
53111310	685
53111320	685
53111330	685
53111340	685
53111350	685
53111360	685
53111370	685
53111400	684
53111407	693
53111410	684
53111417	693
53111420	684
53111427	693
53111430	684

Part-Number	Page
53111437	693
53111440	684
53111447	693
53111450	684
53111457	693
53111460	684
53111467	693
53111470	684
53111477	693
53111500	685
53111510	685
53111520	685
53111530	685
53111540	685
53111550	685
53111560	685
53111570	685
53111600	689
53111610	689
53111620	689
53111630	689
53111640	689
53111700	689
53111710	689
53111720	689
53111730	689
53111740	689
53111800	689
53111810	689
53111820	689
53111830	689
53111840	689
53112000	696
53112004	764
53112005	697
53112006	764
53112010	696
53112014	764
53112015	697
53112016	764
53112020	696
53112024	764
53112025	697
53112026	764
53112030	696
53112034	764
53112035	697
53112036	764
53112037	767
53112040	696
53112044	764
53112045	697
53112046	764
53112047	767
53112050	696
53112054	764
53112055	697
53112056	764
53112057	767
53112060	696
53112064	764
53112065	697
53112066	764
53112067	767
53112070	696
53112074	764
53112076	764
53112077	767
53112080	696
53112087	767
53112100	696
53112105	697
53112110	696
53112115	697
53112120	696
53112125	697
53112130	696
53112135	697
53112140	696
53112145	697
53112150	696
53112155	697
53112160	696
53112165	697
53112170	696
53112210	777
53112220	777
53112230	777
53112240	777
53112250	777
53112260	777

Part-Number	Page
53112270	777
53112310	777
53112320	777
53112330	777
53112340	777
53112350	777
53112360	777
53112500	702
53112501	702
53112503	702
53112504	702
53112505	702
53112510	696
53112511	696
53112512	696
53112514	696
53112515	696
53112530	707
53112531	707
53112532	707
53112533	707
53112534	707
53112535	707
53112536	707
53112543	708
53112544	708
53112545	708
53112546	708
53112547	708
53112551	706
53112552	706
53112553	706
53112554	706
53112570	705
53112571	705
53112572	705
53112573	705
53112574	705
53112575	705
53112576	705
53112577	705
53112610	701
53112620	701
53112625	701
53112630	701
53112635	701
53112640	701
53112645	701
53112650	701
53112655	701
53112660	701
53112665	701
53112670	701
53112675	701
53112676	702
53112677	702
53112678	702
53112679	702
53112680	702
53112681	702
53112686	687
53112687	687
53112688	687
53112689	687
53112690	687
53112691	687
53112692	687
53112694	687
53112695	688
53112700	709
53112705	709
53112710	709
53112715	709
53112720	709
53112725	709
53112730	709
53112735	709
53112740	709
53112745	709
53112750	709
53112755	709
53112760	709
53112765	709
53112770	709
53112775	709
53112779	709
53112780	704
53112790	704
53112800	709
53112810	709
53112820	709

Part-Number	Page
53112830	709
53112840	709
53112850	709
53112860	709
53112876	687
53112877	687
53112878	687
53112879	687
53112880	687
53112881	687
53112882	687
53112883	687
53112884	687
53112885	687
53112886	687
53112887	687
53112888	691
53112889	691
53112890	691
53112906	691
53112907	691
53112908	691
53112909	691
53112910	766
53112911	691
53112912	691
53112920	766
53112921	687
53112922	687
53112923	687
53112924	687
53112925	687
53112926	687
53112927	687
53112928	687
53112929	687
53112930	766
53112931	687
53112932	691
53112933	691
53112934	691
53112935	691
53112936	691
53112937	691
53112940	766
53112950	766
53112960	766
53113180	699
53113200	699
53113210	699
53113220	699
53113300	692
53113310	692
53113321	692
53113331	692
53113500	703
53113510	703
53113520	703
53113530	703
53113540	703
53113550	703
53113560	703
53113570	703
53113600	703
53113610	703
53113620	703
53113630	703
53113640	703
53113650	703
53113660	703
53113670	703
53113700	765
53113701	765
53113702	765
53113703	765
53113704	765
53113705	765
53113706	765
53113707	765
53113710	765
53113711	765
53113712	765
53113713	765
53113714	765
53113715	765
53113716	765
53113717	765
53119000	716
53119003	716
53119010	716
53119013	716

Part-Number	Page
53119020	716
53119023	716
53119030	716
53119033	716
53119040	716
53119043	716
53119050	716
53119053	716
53119060	716
53119063	716
53119070	716
53119073	716
53119100	716
53119110	716
53119120	716
53119130	716
53119140	716
53119150	716
53119160	716
53119170	716
53119200	717
53119210	717
53119220	717
53119230	717
53119240	717
53119250	717
53119260	717
53119270	717
53310444	719
53316220	718
53316230	718
53316240	718
53316420	718
53320250	718
53320260	718
53320340	718
53320353	718
53320430	718
53320440	718
53320920	718
53325250	718
53325260	718
53325350	718
53325360	718
53325370	718
53325450	718
53325540	718
53325640	718
53332270	718
53332280	718
53332290	718
53332370	718
53332380	718
53332460	718
53332470	718
53332560	718
53332650	718
53332840	718
53332850	718
53332940	718
53340290	718
53340310	718
53340480	718
53340490	718
53340580	718
53340590	718
53340670	718
53340860	718
53340969	718
53350118	718
53350147	718
53350164	718
53350166	718
53350680	718
53350780	718
53350870	718
53420250	718
53420260	718
53440969	718
53440970	719
53440980	719
53607225	779
53607417	779
53609230	779
53611000	780
53611001	719
53611004	719
53611225	779
53611240	779
53611330	779
53611430	779

Part-Number	Page
53613250	779
53613340	779
53613440	779
53616140	779
53616225	779
53616240	779
53616260	779
53616340	779
53616350	779
53616356	779
53616360	779
53616440	779
53616450	779
53616540	779
53621270	779
53621280	779
53621370	779
53621380	779
53621460	779
53621550	779
53621640	779
53629290	779
53629390	779
53629470	779
53629480	779
53629490	779
53629556	779
53629570	779
53629675	779
53800020	826
53800080	826
53800579	781
53800583	781
53800640	781
53800641	781
53800642	781
53800643	781
53801030	761
53801035	811
53801040	761
53801045	811
53801050	761
53801055	811
53801060	761
53801065	811
53801070	761
53801075	811
53801080	761
53801085	811
53801090	761
53801095	811
53801100	761
53801105	811
53801115	811
53801125	811
53806720	713
53806722	713
53806724	713
53806726	713
53806728	713
53806739	712
53806740	712
53806741	712
53806742	712
53806743	712
53806744	712
53806745	712
53806749	712
53806750	712
53806751	712
53806752	712
53806753	712
53806754	712
53806755	712
53806759	698
53806760	698
53806761	698
53806762	698
53806769	698
53806770	698
53806771	698
53806772	698
53806780	768
53806781	768
53806782	768
53806783	768
53806784	768
54000011	789
54000015	795
54000040	802
54000043	789

Part-Number	Page
54000071	802
54000098	789
54001610	802
54001620	802
54001630	802
54001640	802
54001650	802
54001660	802
54001670	802
54001680	802
54020100	756
54020110	756
54020120	756
54020130	756
54020140	756
54020152	756
54020153	756
54110839	700
54110840	700
54110841	700
54110842	700
54110843	700
54110844	700
54110845	700
54110846	700
54113000	720
54113002	711
54113010	720
54113012	711
54113013	711
54113020	720
54113022	711
54113023	711
54113030	720
54113032	711
54113033	711
54113040	720
54113042	711
54113043	711
54113050	720
54113052	711
54113060	720
54113062	711
54113070	720
54113072	711
54113100	720
54113110	720
54113120	720
54113130	720
54113140	720
54113150	720
54113160	720
54113170	720
54115200	694
54115205	694
54115210	694
54115215	694
54115220	694
54115225	694
54115230	694
54115235	694
54115240	694
54115245	694
54115250	694
54115255	694
54115260	694
54115265	694
54115270	694
54115275	694
54115400	695
54115405	695
54115410	695
54115415	695
54115420	695
54115425	695
54115430	695
54115435	695
54115440	695
54115445	695
54115450	695
54115455	695
54115460	695
54115465	695
54115470	695
54115475	695
5440000011	248
5440000012	248
5440000013	248
5440000014	248
5440000015	248
5440000016	248

Part-Number	Page
5440000105	249
5440000106	249
5440000108	249
5440000125	247
5440000171	248
5440000172	248
5440000173	248
5440000174	249
5440000175	249
5440000176	249
5450000118	247
5450000122	247
5450000123	247
5450000124	247
5450000242	247
5450000243	247
5450000244	247
5450000245	247
5450000268	246
5450000269	246
5450000270	246
5450000271	246
5460000016	245
5460000017	245
5460000018	245
5460000019	245
5460000020	245
5460000021	245
5460000022	245
5460000023	245
5460000024	245
5460000025	245
5460000026	245
5480000015	244
5480000065	244
5480000165	244
5480000290	244
5480000390	244
5480000415	244
5480000440	244
5480000665	243
5480000715	243
5480000765	243
5480001065	243
5480001115	243
5480001215	243
5480001765	243
5480001840	243
5480002115	243
5480002215	243
5480002690	241
5480002715	241
5480002990	241
5480003015	241
5480003240	241
5480003365	241
5480003565	241
5480004290	241
5480004415	241
5480004515	241
5480004940	244
5480005290	244
5480005390	243
5480005440	244
5480005990	244
5480007020	242
5480007090	242
5480007510	242
5480007650	242
5480007720	242
5480007790	242
5480008210	242
5480008630	242
5480048200	243
5480049200	243
5490000029	251
5490000030	251
5490000031	251
5490000039	251
5490000053	250
5490000054	251
5490000055	250
5490000056	251
5490000057	250
5490000058	251
5490000059	250
5490000060	251
5490000061	250
55000000	844
55000010	844
55000020	844

Part-Number	Page
55000030	844
55000040	844
55000050	844
55000060	844
55000070	844
55000090	844
55000531	925
55000541	925
55000551	925
55000561	925
55000571	925
55000572	925
55000911	925
55000921	925
55000931	925
55000941	925
55000951	925
55001080	878
55001081	878
55001082	878
55001083	878
55001085	878
55001086	878
55001090	878
55001091	878
55001092	878
55001093	878
55001200	855
55001230	855
55001240	855
55001310	659
55001312	650
55500400	923
55500410	923
55500420	923
55500430	923
55500440	923
55500450	923
55500460	923
55500800	851
55500805	851
55500810	851
55500815	851
55500820	851
55500825	851
55500830	851
55500835	851
55500840	851
55500845	851
55500850	851
55500855	851
55500860	851
55500865	851
55500870	851
55500875	851
55500990	849
55500995	849
55501000	849
55501005	849
55501010	849
55501015	849
55501020	849
55501025	849
55501030	849
55501035	849
55501040	849
55501045	849
55501050	849
55501055	849
55501060	849
55501065	849
55501070	849
55501075	849
55501080	849
55501085	849
55501090	849
55501095	849
55501110	850
55501115	850
55501120	850
55501125	850
55501130	850
55501135	850
55501140	850
55501145	850
55501150	850
55501155	850
55501160	850
55501165	850
55501170	850
55501175	850

Part-Number	Page
55501180	850
55501185	850
55501190	850
55501195	850
55501200	850
55501205	850
55501210	850
55501215	850
55501220	850
55501225	850
55501230	850
55501235	850
55501240	850
55501245	850
55501250	850
55501255	850
55501300	828
55501310	828
55501320	828
55501330	828
55501340	828
55501350	828
55501360	828
55501370	828
55501400	844
55501410	844
55501420	844
55501430	844
55501440	844
55501450	844
55501460	844
55501470	844
55501650	876
55501660	876
55501670	876
55501850	825
55501860	825
55501870	825
55501880	825
55501890	825
55501900	825
55501910	825
55501920	825
55501930	825
55501940	825
55501950	825
55501981	903
55501982	903
55502001	903
55502002	903
55502003	903
55502004	903
55502021	903
55502022	903
55502023	903
55502024	903
55502031	903
55502032	903
55502041	903
55502042	903
55502051	903
55502052	903
55502061	903
55502062	903
55502071	903
55502072	903
55502073	903
55502366	834
55502367	834
55502368	834
55502369	834
55502370	836
55502371	836
55502372	836
55502373	836
55502374	836
55502375	836
55502431	835
55502432	835
55502433	835
55502434	835
55502435	835
55502436	835
55502437	835
55502438	835
55502439	834
55502441	834
55502442	834
55502443	834
55502444	834
55502445	834

Part-Number	Page
55502446	834
55502447	834
55502448	834
55502449	834
55502451	836
55502452	836
55502453	836
55502454	836
55502455	836
55502456	836
55502457	836
55502458	834
55502459	834
55502460	834
55502461	834
55502462	834
55502463	834
55502464	834
55502465	834
55502466	834
55502467	834
55502468	834
55502469	834
55502470	836
55502471	836
55502472	836
55502473	836
55502474	836
55502476	836
55502477	836
55502478	836
55502479	836
55502480	834
55502481	834
55502482	834
55502483	834
55502484	834
55502485	834
55502486	836
55502487	836
55502488	836
55502489	836
55502490	836
55502493	836
55502494	836
55502495	836
55502496	836
55502497	836
55502498	836
55502499	836
55502601	842
55502602	842
55502603	842
55502604	842
55502605	842
55502606	842
55502607	842
55502608	842
55502609	842
55502611	891
55502612	891
55502613	891
55502614	891
55502615	891
55502616	891
55502617	891
55502618	891
55502619	891
55502621	891
55502622	891
55502623	891
55502624	891
55502625	891
55502626	891
55502627	891
55502628	891
55502629	891
55502631	891
55502633	891
55502634	891
55502636	891
55502638	891
55502639	891
55502641	891
55502642	843
55502642	891
55502643	843
55502644	843
55502645	843
55502646	843
55502646	891

Part-Number	Page
55502647	843
55502648	843
55502649	843
55502651	842
55502652	842
55502653	842
55502654	842
55502655	842
55502656	842
55502657	842
55502658	842
55502659	842
55502661	892
55502662	892
55502663	892
55502664	892
55502665	892
55502666	892
55502667	892
55502668	892
55502669	892
55502671	892
55502672	892
55502673	892
55502674	892
55502675	892
55502676	892
55502677	892
55502678	892
55502679	892
55502680	892
55502682	892
55502683	892
55502684	892
55502685	892
55502687	892
55502688	892
55502689	843
55502689	892
55502690	843
55502691	843
55502692	843
55502693	843
55502694	843
55502694	892
55502696	843
55502697	843
55503168	895
55503169	895
55503170	895
55503171	895
55503172	895
55503173	895
55503174	895
55503175	895
55503176	895
55503177	895
55503178	895
55503179	897
55503180	897
55503181	897
55503182	897
55503183	897
55503184	897
55503185	897
55503186	897
55503187	897
55503188	897
55503200	895
55503201	895
55503202	895
55503203	895
55503204	895
55503205	895
55503206	895
55503207	895
55503210	896
55503211	896
55503212	896
55503213	896
55503214	896
55503215	896
55503220	904
55503221	904
55503222	904
55503223	904
55503224	904
55503225	904
55503226	904
55503227	904
55503228	904

Part-Number	Page
55503230	904
55503231	904
55503232	904
55503233	904
55503234	904
55503235	904
55503279	919
55503280	919
55503281	919
55503282	919
55503283	919
55503284	919
55503285	919
55503286	919
55503287	919
55503288	919
55503289	919
55503290	919
55503291	919
55503292	919
55503370	920
55503371	920
55503372	920
55503373	920
55503374	920
55503375	920
55503376	920
55503470	904
55503471	904
55503472	904
55503473	904
55503474	904
55503475	904
55503476	905
55503477	905
55503478	905
55503479	905
55503489	896
55503490	896
55503491	896
55503492	896
55503493	896
55503494	896
55503495	896
55503496	896
55503497	896
55503498	896
55503499	918
55503500	918
55503501	918
55503502	918
55503503	918
55503504	918
55503505	918
55503506	918
55503507	918
55503508	918
55503509	918
55503510	918
55503511	918
55503512	918
55503513	918
55503514	918
55503515	918
55503516	918
55503517	918
55503518	918
55503519	918
55503520	918
55503521	918
55503522	918
55503523	918
55503524	918
55503525	918
55503526	918
55503527	918
55503528	918
55503529	918
55503530	918
55503531	918
55503532	918
55503533	918
55503534	918
55503535	918
55503536	918
55503537	918
55503538	918
55503539	918
55503540	918
55503541	918
55503542	918

Part-Number	Page
55503543	918
55503544	918
55506010	889
55506011	889
55506012	889
55506013	889
55506014	889
55506015	889
55506016	889
55506017	889
55506018	889
55506019	889
55506020	888
55506021	888
55506022	888
55506023	888
55506024	888
55506025	888
55506026	888
55506027	888
55506028	888
55506029	888
55506030	890
55506031	890
55506032	890
55506033	890
55506034	890
55506035	890
55506036	889
55506037	889
55506038	889
55506039	889
55506040	889
55506041	889
55506042	890
55506043	890
55506044	890
55506045	890
55506070	840
55506071	840
55506072	840
55506073	840
55506074	840
55506075	840
55506076	840
55506077	840
55506080	887
55506081	887
55506082	887
55506083	887
55506084	887
55506085	887
55506086	887
55506087	887
55506090	887
55506091	887
55506092	887
55506093	887
55506094	887
55506095	887
55506096	887
55506097	887
55506101	840
55506102	840
55506103	840
55506104	840
55506105	840
55506106	840
55506110	887
55506111	887
55506112	887
55506113	887
55506114	887
55506115	887
55506116	887
55506120	887
55506121	887
55506122	887
55506123	887
55506124	887
55506125	887
55506126	887
55506135	862
55506145	862
55506146	841
55506147	841
55506148	841
55506149	841
55506150	841
55506151	841
55506152	841

Part-Number	Page
55506155	862
55506165	862
55506175	862
55506185	862
55506195	862
55506205	862
55506215	862
55506225	862
55506226	862
55506235	862
55506245	862
55506255	862
55506265	862
55506275	862
55506285	862
55506295	862
55506300	866
55506305	866
55506310	866
55506315	866
55506320	866
55506325	866
55506330	866
55506335	866
55506340	866
55506341	866
55506345	866
55506346	866
55506350	866
55506351	866
55506355	866
55506357	866
55506360	866
55506365	866
55506370	866
55506375	866
55506380	866
55506385	866
55506390	866
55506395	866
55506400	866
55506405	866
55506470	866
55506475	866
55506480	867
55506485	867
55506490	867
55506495	867
55506500	867
55506505	867
55506510	867
55506515	867
55506520	867
55506521	867
55506525	867
55506526	867
55506530	867
55506531	867
55506535	867
55506536	867
55506540	867
55506545	867
55506550	867
55506555	867
55506560	867
55506565	867
55506570	867
55506575	867
55506580	871
55506585	871
55506590	871
55506595	871
55506600	871
55506605	871
55506610	871
55506615	871
55506620	871
55506625	871
55506630	871
55506635	871
55506640	871
55506645	871
55506650	871
55506655	871
55506660	871
55506665	871
55506670	871
55506675	871
55506680	871
55506685	871
55506690	871

Part-Number	Page
55506695	871
55506700	871
55506705	871
55506710	871
55506715	871
55506720	871
55506725	871
55506730	871
55506735	871
55506740	871
55506745	871
55506750	871
55506755	871
55506760	871
55506765	871
55506770	871
55506775	871
55506780	871
55506785	871
55506790	871
55506795	871
55506800	871
55506805	871
55506810	871
55506815	871
55506820	871
55506825	871
55506900	872
55506905	872
55506910	872
55506915	872
55506920	872
55506925	872
55506930	872
55506935	872
55506940	872
55506945	872
55506949	872
55506950	872
55506954	872
55506955	872
55506960	872
55506965	872
55506970	872
55506975	872
55506980	872
55506985	872
55506990	871
55506995	871
55507000	873
55507001	873
55507005	873
55507006	873
55507010	873
55507011	873
55507015	873
55507016	873
55507020	873
55507025	873
55507030	873
55507031	873
55507032	873
55507035	873
55507036	873
55507037	873
55507040	874
55507041	874
55507042	874
55507043	874
55507044	874
55507045	874
55507046	874
55507047	874
55507050	866
55507055	866
55507070	867
55507075	867
55507080	867
55507085	867
55507090	867
55507095	867
55507097	874
55507098	874
55507099	874
55507100	874
55507101	874
55507102	874
55507105	868
55507115	868
55507125	868
55507135	868

Part-Number	Page
55507145	868
55507155	868
55507165	868
55507175	868
55507265	862
55507275	862
55507285	862
55507286	862
55507300	863
55507301	863
55507302	863
55507303	863
55507304	863
55507305	863
55507306	863
55507307	863
55507308	863
55507309	863
55507310	863
55507311	863
55507312	863
55507313	863
55507314	863
55507315	863
55507316	863
55507317	863
55507318	863
55507319	863
55507340	865
55507341	865
55507342	865
55507343	865
55507344	865
55507350	865
55507351	865
55507352	865
55507353	865
55507360	865
55507361	865
55507362	865
55507363	865
55507364	865
55507365	865
55507366	865
55507367	865
55507368	865
55507369	865
55507370	865
55507371	865
55507372	865
55507373	865
55507400	872
55507405	872
55507410	872
55507415	872
55507700	864
55507710	864
55507720	864
55507730	864
55507740	864
55507750	864
55507760	864
55507770	864
55507780	864
55507790	864
55510000	925
55510010	925
55510020	925
55510030	925
55510040	925
55510050	925
55510060	925
55510070	925
55510200	914
55510210	914
55510220	914
55510230	914
55510240	914
55510250	914
55510260	914
55510270	914
55510280	914
55510290	914
55510300	914
55510301	914
55510302	914
55510303	914
55510304	914
55510305	914
55510306	914
55510310	915

Part-Number	Page
55510311	915
55510312	915
55510313	915
55510400	914
55510410	914
55510420	914
55510430	914
55510440	914
55510450	914
55510460	914
55510470	914
55510480	914
55510600	914
55510610	914
55510620	914
55510630	914
55510640	914
55510650	914
55510700	921
55510701	921
55510702	921
55510703	921
55510704	921
55510705	921
55510706	921
56000100	853
56000105	853
56000120	857
56000125	857
56000130	857
56000135	857
56000140	857
56000145	857
56000150	857
56000155	857
56000160	857
56000165	857
61221035	879
61600010	1038
61600015	1038
61600040	1038
61600045	1038
61600050	1038
61600070	1038
61600080	1038
61610000	815
61610012	815
61610013	815
61710040	1046
61710041	1046
61710042	1046
61710043	1046
61710180	1046
61710190	1046
61711550	837
61711590	837
61711630	837
61711670	837
61711710	837
61711750	837
61711790	837
61711830	837
61711910	837
61712460	923
61712470	908
61712480	908
61712490	908
61712500	908
61712510	908
61712520	908
61712530	908
61712840	908
61712850	908
61712860	908
61712870	908
61712880	908
61712890	908
61712900	908
61712910	923
61712930	923
61713000	917
61713003	917
61713005	917
61713007	917
61713010	917
61713011	917
61713014	917
61713015	917
61713016	917
61713017	917
61713018	917

Part-Number	Page
61713019	917
61713021	917
61713022	917
61713025	917
61713027	917
61713028	917
61713029	917
61713037	917
61713038	917
61713039	917
61713040	917
61713080	1028
61713210	822
61713240	822
61713270	822
61713300	822
61713330	822
61713360	822
61713390	822
61713420	822
61713520	762
61713530	762
61713540	762
61713550	762
61713560	762
61713570	762
61713580	762
61713590	762
61713600	762
61714000	823
61714010	823
61714020	823
61714070	823
61714090	823
61714100	823
61714110	823
61714120	823
61715000	1043
61715060	1043
61715120	1043
61715180	1043
61715240	1043
61715300	1043
61715360	1043
61715420	1044
61715480	1044
61715540	1044
61715600	1044
61715780	1045
61715840	1045
61715880	1045
61715920	1045
61715950	1045
61716020	1045
61716080	1045
61716250	1043
61716310	1043
61716370	1043
61716430	1043
61716490	1043
61716550	1043
61716560	1045
61716700	1031
61716720	1031
61716740	1031
61716760	1031
61716780	1031
61716800	1031
61716820	1031
61716840	1031
61716860	1031
61716880	1031
61717000	1057
61717040	1057
61717070	1057
61718611	1050
61718612	1050
61718613	1050
61718614	1050
61718790	987
61718800	987
61720000	1044
61720070	1044
61721030	1027
61721040	1027
61721045	1027
61721050	1027
61721060	1027
61721070	1027
61721080	1027
61721090	1027

Part-Number	Page
61721100	1027
61721101	1046
61721102	1046
61721103	1046
61721104	1046
61721110	1027
61721120	1027
61721130	1027
61721140	1027
61721258	821
61721259	821
61721260	821
61721261	821
61721262	821
61721263	821
61721264	821
61721265	821
61721266	821
61721267	821
61721268	821
61721269	821
61721270	821
61721271	821
61721272	821
61721273	821
61721274	821
61721280	821
61721281	821
61721282	821
61721283	821
61721284	821
61721340	1023
61721350	1023
61721360	1023
61721370	1029
61721380	1029
61721390	1029
61721395	1029
61721420	1030
61721421	1030
61721422	1030
61721423	1030
61721530	997
61721540	997
61721550	997
61721560	997
61721690	837
61721700	837
61721710	837
61721720	837
61721730	837
61721740	837
61721750	837
61721760	837
61721780	837
61721866	991
61721867	991
61721868	991
61721869	991
61721871	991
61721880	991
61721890	991
61721900	991
61721910	991
61721940	991
61721950	991
61721960	991
61721970	991
61721980	991
61721990	991
61722050	1008
61722060	1008
61722070	1008
61722071	1008
61722110	1010
61722130	1010
61722240	908
61722270	923
61722280	924
61722285	924
61722286	924
61722320	923
61722330	923
61722340	923
61722840	1038
61722850	1038
61722851	1038
61722852	1038
61722856	1038
61723010	1043
61723020	1043

Part-Number	Page
61723030	1043
61723040	1043
61723050	1043
61723060	1043
61723070	1043
61723110	1043
61723120	1043
61723130	1043
61723140	1043
61723150	1043
61723160	1043
61723350	1044
61723351	1042
61723352	1042
61723353	1042
61723354	1042
61723355	1042
61723356	1042
61723357	1042
61723358	1042
61723359	1042
61723360	1042
61723361	1042
61723362	1042
61723363	1042
61723364	1042
61723365	1042
61723366	1042
61723380	1044
61723390	1044
61723400	1044
61723410	1044
61723420	1044
61723430	1044
61723440	1044
61723460	1044
61723470	1044
61723810	1053
61723820	1053
61723840	1053
61724100	1053
61724101	1053
61724102	1053
61724103	1053
61724104	1053
61724105	1053
61724106	1053
61724107	1053
61724108	1053
61724109	1053
61724110	1053
61724111	1053
61724400	1051
61724420	1051
61724430	1052
61724510	1050
61724720	1051
61724810	1051
61724820	1051
61724910	1050
61724920	1050
61725960	989
61725990	974
61725991	974
61725992	974
61725993	974
61726000	974
61726001	974
61726002	974
61726003	974
61726150	961
61726160	961
61726170	961
61726180	961
61726190	961
61735800	988
61735801	988
61735802	988
61735803	988
61735805	988
61735806	988
61735807	988
61735810	986
61735811	986
61735813	988
61735814	988
61735815	988
61735820	985
61735821	985
61735822	985
61735823	985

Part-Number	Page
61735831	987
61735833	987
61735993	987
61737162	861
61737163	861
61737164	861
61737253	861
61737407	922
61742400	1032
61742401	1032
61742402	1032
61742403	1032
61742404	1032
61742405	1032
61742406	1032
61742407	1032
61742408	1032
61742409	1032
61742416	1032
61742417	1032
61742418	1032
61742419	1032
61742420	1032
61742421	1032
61742422	1032
61742423	1032
61742424	1032
61742425	1032
61742426	1032
61742427	1032
61742428	1032
61742429	1032
61742430	1032
61742431	1032
61742433	1032
61742434	1032
61742435	1032
61742436	1032
61742437	1032
61742438	1032
61742439	1032
61742440	1032
61742441	1032
61742442	1032
61742443	1032
61742449	1033
61742450	1033
61742451	1033
61742452	1033
61742453	1033
61742454	1033
61742455	1034
61742456	1034
61742457	1034
61742458	1034
61742459	1034
61742460	1034
61742461	1034
61742462	1034
61742463	1034
61742464	1034
61742670	973
61742700	973
61742710	973
61742720	973
61742810	962
61742820	962
61742822	962
61742824	962
61742826	962
61742900	962
61742922	962
61742926	962
61743200	1023
61743933	1022
61743934	1022
61743935	1022
61743936	1022
61743937	1022
61743938	1022
61743939	1022
61743941	1022
61743942	1022
61743943	1022
61743944	1022
61743945	1022
61743946	1022
61743947	1022
61743948	1022
61743949	1022
61743951	1021

Part-Number	Page
61743952	1021
61743953	1021
61744228	909
61744229	909
61744230	909
61744231	909
61744240	909
61744242	909
61744244	909
61746500	992
61746501	992
61746502	992
61746503	992
61746504	992
61746505	992
61746506	992
61746507	992
61746720	991
61746770	991
61746780	991
61746790	991
61746800	991
61746870	1057
61746880	1057
61746890	1057
61746935	847
61746939	847
61746940	847
61746945	847
61746950	847
61746955	847
61746960	847
61746965	847
61746970	847
61746975	847
61746980	847
61746985	847
61746990	847
61746995	847
61747000	847
61747005	847
61747010	847
61747015	847
61747360	829
61747361	829
61747370	829
61747371	829
61747380	829
61747381	829
61747390	829
61747391	829
61747400	829
61747410	829
61747411	829
61747420	829
61747421	829
61747430	829
61747431	829
61747440	829
61747441	829
61749430	1024
61749440	1024
61749450	1024
61749460	1024
61749470	1024
61749480	1024
61749490	1024
61749500	1024
61749510	1024
61749520	1024
61749530	1024
61749540	1024
61749550	1024
61749560	1024
61749570	1024
61749580	1024
61749590	1024
61749600	1024
61749610	1024
61749620	1024
61749630	1024
61749640	1024
61749650	1024
61749660	1024
61749670	1024
61749680	1024
61749690	1024
61749700	1024
61749710	1024
61749720	1024
61749730	1024

Part-Number	Page
61749740	1024
61749750	1024
61749810	1024
61749820	1024
61749830	1024
61749840	1024
61749850	1024
61749860	1024
61749870	1024
61749880	1024
61749890	1024
61749900	1024
61749910	1024
61749920	1024
61749930	1024
61749940	1024
61749950	1024
61749960	1024
61749970	1025
61749980	1025
61749990	1025
61750000	1025
61750010	1025
61750020	1025
61750030	1025
61750040	1025
61750050	1025
61750060	1025
61750070	1025
61751590	830
61751591	830
61751592	830
61751593	830
61751595	830
61751596	830
61751597	830
61751598	830
61751600	833
61751601	833
61751602	833
61751603	833
61751604	833
61751605	833
61751606	833
61751607	833
61751610	831
61751611	831
61751620	831
61751621	831
61751630	831
61751631	831
61751640	831
61751641	831
61751650	831
61751660	831
61751661	831
61751670	831
61751671	831
61751680	831
61751681	831
61751690	831
61751691	831
61751700	832
61751701	832
61751710	832
61751711	832
61751720	832
61751721	832
61751730	832
61751731	832
61751740	832
61751750	832
61751751	832
61751760	832
61751761	832
61751770	832
61751771	832
61751780	832
61751781	832
61751790	830
61751791	830
61751792	830
61751793	830
61751794	830
61751795	830
61751796	830
61751797	830
61751798	830
61751950	1008
61753760	1023
61753762	1023

Part-Number	Page
61753763	1023
61753764	1023
61754000	861
61754005	861
61754010	861
61754015	861
61754020	861
61754025	861
61754030	861
61754035	861
61754040	861
61754045	861
61754050	861
61754055	861
61754060	861
61754065	861
61754070	861
61754075	861
61754270	861
61754275	861
61754300	861
61754305	861
61760060	1028
61760070	1028
61760080	1028
61760090	1028
61760100	1028
61760110	1028
61760120	1028
61760130	1028
61760140	1028
61790910	1008
61790920	1010
61790930	1009
61790940	1009
61790950	1009
61790961	1014
61791055	1001
61791065	1000
61791095	1000
61791100	1009
61791150	877
61791155	877
61791160	877
61791165	877
61791260	816
61791267	815
61791268	815
61791269	815
61791273	815
61791274	816
61791275	816
61791276	816
61791277	816
61791278	816
61791279	816
61791280	816
61791282	816
61791283	816
61791284	816
61791286	815
61791287	815
61791288	815
61793030	1029
61793040	1029
61793050	1029
61793060	1029
61793070	1029
61793080	1029
61793090	1029
61793100	1029
61793110	1029
61793116	1029
61793119	1029
61793620	824
61793630	824
61793640	824
61793650	824
61793660	824
61793670	824
61793680	824
61793970	875
61793980	875
61793990	875
61794000	875
61794010	875
61794020	875
61794030	875
61794035	875
61794720	995
61794730	995

Part-Number	Page
61794740	995
61794760	992
61794770	992
61794780	992
61794790	992
61794800	992
61794810	992
61794951	1005
61794952	1005
61794953	1005
61794955	1005
61794960	1005
61794969	1005
61794970	1005
61794971	1005
61795925	1014
61795941	1016
61795942	1016
61795950	1016
61795951	1016
61795960	1016
61795970	1016
61795971	1016
61795972	1016
61795980	1016
61795981	1016
61795990	1016
61795991	1016
61796000	1016
61796001	1016
61796010	1016
61796020	1016
61796021	1016
61796030	1016
61796031	1016
61796032	1016
61796042	1016
61796043	1016
61796044	1016
61796045	1016
61796046	1016
61796480	1011
61796490	1011
61796500	1011
61796510	1011
61796520	1011
61796530	1011
61796540	1011
61796550	1011
61796560	1011
61796570	1011
61796580	1011
61796590	1011
61796600	1011
61796610	1011
61796620	1011
61796630	1011
61796631	1011
61796632	1011
61796633	1011
61796640	1011
61796650	1011
61796660	1011
61796670	1011
61796680	1011
61796690	1011
61796700	1011
61796710	1011
61796720	1011
61796730	1011
61796740	1011
61796750	1011
61796760	1011
61796770	1011
61796780	1011
61796790	1011
61796800	1011
61796810	1011
61796820	1011
61796830	1011
61796840	1011
61796850	1011
61796860	1011
61796870	1012
61796880	1012
61796890	1012
61796900	1012
61796910	1012
61796920	1012
61796930	1012
61796940	1012

Part-Number	Page
61796950	1012
61796960	1012
61796970	1012
61796990	1012
61797000	1012
61797020	1012
61797030	1012
61797050	1012
61797080	1012
61797400	1013
61797401	1013
61797402	1013
61797403	1013
61797404	1013
61797405	1013
61797406	1013
61797407	1013
61797408	1013
61797409	1013
61797410	1013
61797411	1013
61797412	1013
61797413	1013
61797414	1013
61797415	1013
61797416	1013
61797417	1013
61797418	1013
61798090	900
61798091	900
61798092	900
61798093	900
61798094	900
61798095	900
61798096	900
61798097	900
61799815	898
61799816	898
61799817	898
61799818	898
61799819	898
61799820	898
61799822	898
61799831	898
61800274	955
61800275	955
61800276	955
61800277	955
61800278	955
61800279	955
61800280	955
61800281	955
61800282	955
61800283	955
61800284	955
61800290	955
61800291	955
61800292	955
61800293	955
61800295	955
61800296	955
61800297	955
61800337	955
61800391	934
61800392	934
61800393	934
61800394	934
61800395	934
61800396	934
61800397	934
61800398	934
61800399	934
61800400	934
61800401	934
61800402	934
61800403	934
61800404	934
61800406	934
61800407	934
61800412	934
61800413	934
61800705	856
61800715	856
61800725	856
61800745	856
61800755	856
61800765	856
61800775	856
61800784	856
61800785	856
61800850	852

Part-Number	Page
61800855	852
61800860	852
61800865	852
61800870	852
61800875	852
61800880	852
61800885	852
61800890	852
61800895	852
61800900	852
61800905	852
61800910	852
61800915	852
61800920	852
61800925	852
61800930	852
61800935	852
61801020	853
61801025	853
61801030	853
61801035	853
61801040	853
61801045	853
61801050	853
61801055	853
61801060	853
61801061	853
61801062	853
61801065	853
61801085	853
61801090	857
61801095	857
61801100	857
61801105	857
61801110	857
61801115	857
61801120	854
61801125	854
61801130	854
61801135	854
61801140	854
61801145	854
61801150	854
61801155	854
61801160	854
61801165	854
61801170	854
61801175	854
61801180	854
61801185	854
61801190	854
61801195	854
61801200	854
61801202	854
61801205	854
61801215	854
61801246	1036
61801580	991
61801590	991
61801600	991
61801620	991
61801630	991
61801640	991
61801650	991
61801660	991
61801670	991
61801680	991
61801690	991
61801700	991
61801710	991
61801720	991
61801730	991
61801750	991
61801760	991
61801770	991
61801780	991
61801790	991
61801800	991
61801810	991
61801820	991
61801830	991
61801840	991
61801850	991
61801860	991
61801870	991
61801890	991
61801900	991
61801920	991
61801930	991
61801940	991
61801950	991

Part-Number	Page
61801960	991
61801970	991
61801980	991
61801990	991
61801999	994
61802000	994
61802010	994
61802020	994
61802030	994
61802032	994
61802033	994
61802034	994
61802035	994
61802040	995
61802041	995
61802042	995
61802046	995
61802052	993
61802054	993
61802056	993
61802058	993
61802060	993
61802061	996
61802062	996
61802063	996
61802064	996
61802065	996
61802066	996
61802067	996
61802068	996
61802069	996
61802080	883
61802090	883
61802100	883
61802110	883
61802120	883
61802130	883
61802140	883
61802150	883
61802170	883
61802180	893
61802190	893
61802200	893
61802210	893
61802220	893
61802230	893
61802240	893
61802250	893
61802270	893
61802300	915
61802301	915
61802302	915
61802303	915
61802304	915
61802305	915
61802306	915
61802307	915
61802308	915
61802330	838
61802331	838
61802332	838
61802333	838
61802334	838
61802335	838
61802336	838
61802337	838
61802380	885
61802390	885
61802400	885
61802410	885
61802420	885
61802430	885
61802440	885
61802450	885
61802470	885
61802480	893
61802490	893
61802500	893
61802510	893
61802520	893
61802530	893
61802540	893
61802550	893
61802570	893
61802581	846
61802582	846
61802583	846
61802584	846
61802585	846
61802586	846
61802587	846

Part-Number	Page
61802588	846
61803020	1012
61803030	1012
61803040	1012
61803050	1012
61803060	1012
61803070	1012
61803080	1012
61803090	1012
61803110	1012
61803120	1012
61803130	1012
61803140	1012
61803160	1012
61803170	1012
61803180	1012
61803190	1012
61803200	1012
61803210	1012
61803220	1012
61803230	1012
61803240	1012
61803250	1012
61803260	1012
61803270	1012
61803280	1012
61803290	1012
61803300	1012
61803310	1012
61803330	1012
61803340	1012
61803350	1012
61803360	1012
61803370	1012
61803380	1012
61803390	1012
61803400	1012
61803420	1012
61803430	1012
61803440	1012
61803800	910
61803801	910
61803802	910
61803803	910
61803804	910
61803805	910
61803806	910
61803807	910
61803808	910
61803809	910
61803810	910
61803811	910
61803812	910
61803813	910
61803814	910
61803815	910
61803816	911
61803817	911
61803818	911
61803819	911
61803820	911
61803821	911
61803822	911
61803823	911
61803824	911
61803825	911
61803826	911
61803827	911
61803828	911
61803829	911
61803830	911
61803831	911
61803832	912
61803833	912
61803834	912
61803835	912
61803836	912
61803837	912
61803838	912
61803839	912
61803840	912
61803841	912
61803842	912
61803843	912
61803844	912
61803845	912
61803846	910
61803847	910
61803848	910
61803849	910
61803850	910

Part-Number	Page
61803851	910
61803852	910
61803853	910
61803854	910
61803870	899
61803871	899
61803872	899
61803873	899
61803874	899
61803875	899
61803876	899
61803877	899
61803878	899
61803879	899
61803880	899
61803881	899
61803882	899
61803883	899
61803884	899
61803885	899
61803886	899
61803887	899
61804600	894
61804601	894
61804602	894
61804603	894
61804604	894
61804605	894
61804612	894
61804613	894
61804614	894
61804615	894
61804623	894
61804624	894
61804625	894
61804626	894
61804627	894
61804628	894
61804629	894
61804630	894
61804631	894
61804632	894
61804633	894
61804634	894
61804635	894
61804636	894
61804637	894
61804638	894
61804639	894
61804640	894
61804702	901
61804712	901
61804722	901
61804732	901
61804742	901
61804752	901
61804762	901
61804772	901
61804787	901
61804788	902
61804789	902
61804792	901
61804793	902
61804794	902
61804795	902
61804796	902
61804797	902
61804798	902
61804799	902
61805170	993
61805180	993
61805190	993
61805200	993
61805210	993
61805300	998
61805301	998
61805302	998
61805400	913
61805410	913
61805420	913
61805430	913
61805440	913
61805450	913
61805460	913
61805470	913
61805480	913
61805600	906
61805610	906
61805620	906
61805630	906
61805640	906

Part-Number	Page
61805650	906
61805660	906
61805670	906
61805680	906
61805690	906
61806100	880
61806110	880
61806120	880
61806130	880
61806140	880
61806150	880
61806160	880
61806170	880
61806180	880
61806190	880
61806200	880
61806210	880
61806550	882
61806555	882
61806560	882
61806565	882
61806570	882
61806575	882
61806580	882
61806615	880
61806616	880
61806617	880
61806618	880
61806619	880
61806620	880
61806621	880
61806622	880
61806625	880
61806630	880
61806631	880
61806635	880
61806640	880
61806641	880
61806645	880
61806650	880
61806651	880
61806655	880
61806660	880
61806665	880
61806670	880
61806671	880
61806672	880
61806675	880
61806676	881
61806677	881
61806678	881
61806679	881
61806680	881
61806681	881
61806682	881
61806683	881
61806684	881
61806685	881
61806686	881
61806687	881
61806688	881
61806689	881
61806690	881
61806691	881
61806692	881
61806693	881
61806694	881
61806695	881
61806696	881
61806697	881
61806698	881
61806699	881
61806700	881
61806710	881
61806720	881
61806730	881
61806740	881
61808168	893
61808169	893
61808170	893
61808180	893
61808190	893
61808200	893
61808201	893
61808202	893
61808204	893
61809400	916
61809410	916
61809420	916
61809430	916
61809440	916

Part-Number	Page
61809450	916
61809460	916
61810350	1041
61810360	1041
61810380	1041
61810390	1041
61810400	1041
61810410	1041
61810420	1041
61810430	1041
61810440	1041
61810450	1041
61810460	1041
61810470	1041
61810490	1041
61810500	1041
61810510	1041
61810520	1041
61810530	1041
61810540	1041
61810550	1041
61810560	1041
61811110	858
61811115	858
61811120	858
61811125	858
61811130	858
61811135	858
61811140	858
61811145	858
61811150	858
61811155	858
61811160	858
61811165	858
61811170	858
61811175	858
61811180	858
61811185	858
61811190	858
61811195	858
61811200	858
61811205	858
61811210	858
61811215	858
61811220	858
61811225	858
61811230	858
61811235	858
61811240	858
61811245	858
61811250	858
61811255	858
61811260	858
61811265	858
61811270	858
61811275	858
61812947	1047
61812948	1047
61812949	1047
61812950	1047
61812960	1047
61812970	1047
61812980	1047
61812990	1047
61813000	1047
61813010	1047
61813020	1047
61813030	1047
61813040	1047
61813050	1047
61813085	1047
61813086	1047
61813087	1047
61813088	1047
61813089	1047
61813090	1047
61813091	1047
61813092	1047
61813093	1047
61813094	1047
61813096	1047
61813097	1047
61813098	1047
61813736	999
61813737	999
61813742	1000
61813744	1000
61813802	1020
61813803	1020
61813804	1020
61813807	1019

Part-Number	Page
61813808	1020
61813809	1020
61813811	1020
61813812	1020
61813813	1020
61813814	1020
61813816	1020
61813817	1019
61813818	1020
61813819	1019
61813821	1015
61813823	1020
61813824	1020
61813825	1020
61813826	1020
61813827	1020
61813849	1020
61813852	1020
61813853	1020
61813861	1020
61813862	1020
61813864	1026
61813865	1026
61813866	1026
61813867	1026
61813868	1026
61813869	1026
61813881	1026
61813882	1026
61813883	1026
61813884	1026
61813885	1026
61813886	1026
61813887	1026
61813958	1060
61813990	1060
61814190	907
61814200	907
61814210	907
61814220	907
61814230	907
61814240	907
61814250	907
61814600	1020
61814601	1020
61814605	1020
61814606	1020
61814607	1020
61815100	848
61815105	848
61815110	848
61815115	848
61815120	848
61815125	848
61815130	848
61815135	848
61815140	848
61815145	848
61815150	848
61815155	848
61815160	848
61815165	848
61815170	848
61815175	848
61815180	848
61815185	848
61815635	1026
61815636	1026
61815637	1026
61815638	1026
61815639	1026
61815640	1026
61815641	1026
61817800	966
61817810	966
61817820	966
61817830	966
61817840	966
61817850	966
61817860	966
61817870	966
61817880	966
61817890	966
61817900	966
61817910	966
61817920	966
61817930	966
61817940	966
61817950	966
61817960	966
61817970	966

Part-Number	Page
61817980	966
61817990	966
61818000	966
61818011	966
61818020	966
61818030	966
61818040	966
61818050	966
61818060	966
61818070	966
61818080	966
61818090	966
61819100	966
61819110	966
61819120	966
61819130	966
61819140	966
61819150	966
61819160	966
61819170	966
61819180	966
61819190	966
61819200	966
61819210	966
61819220	966
61819260	966
61819270	966
61819280	966
61819300	966
61819310	966
61819320	966
61819330	966
61819340	966
61819350	967
61819360	966
61819370	967
61819380	967
61819390	967
61819400	967
61819410	967
61819420	967
61819430	967
61819440	967
61819450	967
61819460	967
61819470	967
61819480	967
61819490	967
61819500	967
61819510	967
61819520	967
61819530	967
61819540	967
61819550	967
61819560	967
61819570	967
61819580	967
61819590	967
61819600	967
61819610	967
61819620	967
61819630	967
61819640	967
61819650	967
61819660	967
61819670	967
61819680	967
61819690	967
61819700	967
61819710	967
61819720	967
61819760	967
61819770	967
61819780	967
61819800	967
61819810	967
61819820	967
61819830	967
61819840	967
61819850	967
61819860	967
61819870	967
61819880	967
61819890	967
61819900	967
61819910	967
61819920	967
61819930	967
61819940	967
61819950	967
61819960	967

Part-Number	Page
61819970	967
61819980	967
61819990	967
61820000	967
61820010	967
61820020	967
61820030	967
61820040	967
61820050	967
61820060	967
61820070	967
61820080	967
61820090	967
61820100	967
61820110	967
61820120	967
61820130	967
61820140	967
61820150	967
61820160	967
61820170	967
61820180	967
61820190	967
61820200	967
61820210	967
61820220	967
61820260	967
61820270	967
61820280	967
61820300	967
61820310	967
61820320	967
61820330	967
61820340	967
61820350	967
61820360	967
61820370	967
61820380	967
61820390	967
61820400	967
61820410	967
61820420	967
61820430	967
61820440	967
61820450	967
61820460	967
61820470	967
61820480	967
61820490	967
61820500	967
61820510	967
61820520	967
61820530	967
61820540	967
61820550	967
61820560	967
61820570	967
61820580	967
61820590	967
61820600	967
61820610	967
61820620	967
61820630	967
61820640	967
61820650	967
61820660	967
61820670	967
61820680	967
61820720	967
61820760	967
61820770	967
61820780	967
61820900	968
61820910	968
61820920	968
61820930	968
61820940	968
61820950	968
61820960	968
61820970	968
61820980	968
61820990	968
61821000	968
61821010	968
61821020	968
61821030	968
61821040	968
61821050	968
61821060	968
61821070	968
61821080	968

Part-Number	Page
61821090	968
61821100	968
61821110	968
61821120	968
61821130	968
61821140	968
61821150	968
61821160	968
61821170	968
61821180	968
61821190	968
61821200	968
61821210	968
61821220	968
61821230	968
61821240	968
61821250	968
61821260	968
61821270	968
61821280	968
61821290	968
61821300	968
61821310	968
61821320	968
61821360	968
61821370	968
61821380	968
61821400	968
61821410	968
61821420	968
61821430	968
61821440	968
61821450	968
61821460	968
61821470	968
61821480	968
61821490	968
61821500	968
61821510	968
61821520	968
61821530	968
61821540	968
61821550	968
61821560	968
61821570	968
61821580	968
61821590	968
61821600	968
61821610	968
61821620	968
61821630	968
61821640	968
61821650	968
61821660	968
61821670	968
61821680	968
61821690	968
61821700	968
61821710	968
61821720	968
61821730	968
61821740	969
61821750	969
61821760	969
61821770	969
61821780	969
61821790	969
61821800	969
61821810	969
61821820	969
61821860	969
61821870	969
61821880	969
61821900	969
61821910	969
61821920	969
61821930	969
61821940	969
61821950	969
61821960	969
61821970	969
61821980	969
61821990	969
61822000	969
61822010	969
61822020	969
61822030	969
61822040	969
61822050	969
61822060	969
61822070	969

Part-Number	Page
61822080	969
61822090	969
61822100	969
61822110	969
61822120	969
61822130	969
61822140	969
61822150	969
61822160	969
61822170	969
61822180	969
61822190	969
61822200	969
61822210	969
61822220	969
61822230	969
61822240	969
61822250	969
61822260	969
61822270	969
61822280	969
61822290	969
61822300	969
61822310	969
61822320	969
61822360	969
61822370	969
61822380	969
61822400	969
61822410	969
61822420	969
61822430	969
61822440	969
61822450	969
61822460	969
61822470	969
61822480	969
61822490	969
61822500	969
61822510	969
61822520	969
61822530	969
61822540	969
61822550	969
61822560	969
61822570	969
61822580	969
61822590	969
61822600	969
61822610	969
61822620	969
61822630	969
61822640	969
61822650	969
61822660	969
61822670	969
61822680	969
61822690	969
61822700	969
61822710	969
61822720	969
61822730	969
61822740	969
61822750	969
61822760	969
61822770	969
61822780	969
61822790	969
61822800	969
61822810	969
61822820	969
61822860	969
61822870	969
61822880	969
61823720	1046
61823730	1046
61823740	1046
61823750	1046
61825040	926
61825050	926
61825052	926
61825170	926
61825180	926
61825190	926
61825200	926
61825210	926
61825250	926
61825255	926
61825257	926
61825259	926
61825260	926

Part-Number	Page
61825262	926
61825264	926
61825295	926
61825355	926
61825365	926
61825375	926
61825380	926
61825382	926
61825390	926
61825392	926
61825400	926
61825402	926
61830000	1035
61830010	1035
61830020	1035
61830040	1035
61830050	1035
61830060	1035
61830070	1035
61830110	1035
61830120	1035
61830130	1035
61830140	1035
61830150	1035
61830160	1035
61830170	1035
61830300	1039
61830302	1039
61830310	1039
61830312	1039
61830320	1039
61830322	1039
61830330	1039
61830332	1039
61830333	1039
61830335	1039
61830340	1039
61830350	1039
61830360	1039
61830370	1039
61830380	1039
61830390	1039
61830391	1039
61830392	1039
61830393	1039
61830394	1039
61830396	1039
61830397	1039
61830398	1039
61830401	1039
61830402	1039
61830403	1039
61830406	1039
61830407	1039
61830408	1039
61831001	1040
61831003	1040
61831004	1040
61831005	1040
61831006	1040
61831007	1040
61831009	1040
61831011	1040
61831013	1040
61831014	1040
61831016	1040
61831020	1040
61831021	1040
61831022	1040
61831023	1040
61831024	1040
61831025	1040
61831026	1040
61831041	1040
61831043	1040
61831044	1040
61831045	1040
61831046	1040
61831047	1040
61831049	1040
61831051	1040
61831053	1040
61831054	1040
61831056	1040
61831060	1040
61831061	1040
61831062	1040
61831063	1040
61831064	1040
61831065	1040
61831066	1040

Part-Number	Page
61919400	970
61919401	970
61919402	970
61919403	970
61919404	970
61919405	970
61919406	970
61919407	970
61919408	970
61919409	970
61919410	970
61919411	970
61919412	970
61919413	970
61919414	970
61919415	970
61919416	970
61919417	970
61919418	970
61919419	970
61919420	970
61919421	970
61919422	970
61919423	970
61919424	970
61919425	970
61919426	970
61919427	970
61919428	970
61919429	970
61919430	970
61919431	970
61919432	970
61919433	970
61919434	970
61919435	970
61919436	970
61919437	970
61919438	970
61919439	970
61919440	970
61919441	970
61919442	970
61919443	970
61919444	970
61919445	970
61919446	970
61919447	970
61919448	970
61919449	970
61919450	970
61919451	970
61919452	970
61919453	970
61919454	970
61919455	970
61919456	971
61919457	971
61919458	971
61919459	971
61919460	971
61919461	971
61919462	971
61919463	971
61919464	971
61919465	971
61919466	971
61919467	971
61919468	971
61919469	971
61919470	971
61919471	971
61919472	971
61919473	971
61919474	971
61919475	971
61919476	971
61919477	971
61919478	971
61919479	971
61919480	971
61919481	971
61919482	971
61919483	971
61919484	971
61919485	971
61919486	971
61919487	971
61919488	971
61919489	971
61919490	971

Part-Number	Page
61919491	971
61919492	971
61919493	971
61919494	971
61919495	971
61919496	971
61919497	971
61919498	971
61919499	971
61919500	971
61919501	971
61919502	971
61919503	971
61919504	971
61919505	971
61919506	971
61919507	971
61919508	971
61919509	971
61919510	971
61919511	971
61919512	971
61919513	971
61919514	971
61919515	971
61919516	971
61919517	971
61919518	971
61919519	971
61919520	971
61919521	971
61919522	971
61919523	971
61919524	971
61919525	971
61919526	971
61919527	971
61919528	971
61919529	971
61919530	971
61919531	971
61919532	971
61919533	971
61919534	971
61919535	971
61919536	971
61919537	971
61919538	971
61919539	971
61919540	971
61919541	971
61919542	971
61919543	971
61919544	971
61919545	971
61919546	971
61919547	971
61919548	971
61919549	971
61919550	971
61919551	971
61919552	971
61919553	971
61919554	971
61919555	971
61919556	971
61919557	971
61919558	971
61919559	971
61919560	971
61919561	971
61919562	971
61919563	971
61919564	971
61919565	971
61919566	971
61919567	971
61919568	971
61919569	971
61919570	971
61919571	971
61919572	971
61919573	971
61919574	971
61919575	971
61919576	971
61919577	971
61919578	971
61919579	971
61919580	971
61919581	971

Part-Number	Page
61919582	971
61919583	971
61919584	971
61919585	971
61919586	971
61919587	971
61919588	971
61919589	971
61919590	971
61919591	971
61919592	971
61919593	971
61919594	971
61919595	971
61919596	971
61919597	971
61919598	971
61919599	971
61919600	971
61919601	971
61919602	971
61919603	971
61919604	971
61919605	971
61919606	971
61919607	971
61919608	971
61919609	971
61919610	971
61919611	971
61919612	971
61919613	971
61919614	971
61919615	971
61919616	971
61919617	971
61919618	971
61919619	971
61919620	971
61919621	971
61919622	972
61919623	972
61919624	972
61919625	972
61919626	972
61919627	972
61919628	972
61919629	972
61919630	972
61919631	972
61919632	972
61919633	972
61919634	972
61919635	972
61919636	972
61919637	972
61919638	972
61919639	972
61919640	972
61919641	972
61919642	972
61919643	972
61919644	972
61919645	972
61919646	972
61919647	972
61919648	972
61919649	972
61919650	972
61919651	972
61919652	972
61919653	972
61919654	972
61919655	972
61919656	972
61919657	972
61919658	972
61919659	972
61919660	972
61919661	972
61919662	972
61919663	972
61919664	972
61919665	972
61919666	972
61919667	972
61919668	972
61919669	972
61919670	972
61919671	972
61919672	972

Part-Number	Page
61919673	972
61919674	972
61919675	972
61919676	972
61919677	972
61919678	972
61919679	972
62000100	1017
62000102	1017
62000105	1017
62000110	1018
62000111	1018
62000112	1018
62000113	1018
62000114	1018
62000115	1018
62000116	1018
62000117	1018
62000118	1018
62000120	1018
62000121	1018
62000122	1018
62000123	1018
62000124	1018
62000125	1018
62000126	1018
62000127	1018
62000128	1018
62120120	1048
62120121	1048
62120125	1048
62120126	1048
62120189	1001
62120200	997
62120210	997
62120220	997
62120230	997
62120240	997
62120250	997
62120260	997
62120270	997
62120280	997
62120321	1049
62120502	981
62120503	981
62120504	981
62120505	982
62120510	984
62120511	984
62120520	979
62120521	979
62120522	979
62120523	980
62120524	980
62120525	980
62120530	983
62120531	983
62120532	983
62200120	1056
62200130	1056
62200417	1055
62200418	1055
62200419	1055
62200420	1055
62200421	1055
62200422	1055
62200424	1055
62200425	1055
62200427	1055
62200429	1055
62200430	1055
62200431	1055
62200432	1055
62200433	1055
62200434	1055
62200435	1055
62200436	1055
62200437	1055
62200438	1055
62200439	1055
62200440	1055
62200442	1055
62200444	1055
62200445	1055
62200446	1055
62200447	1055
62200448	1055
62200449	1055
62200453	1056
62200454	1056
62200456	1055

Part-Number	Page
62200457	1055
62200458	1055
62200459	1055
62200460	1055
62200461	1055
62200462	1056
62200463	1056
62200464	1055
62200465	1055
62200466	1055
62200467	1055
62200477	1055
62200478	1055
62200479	1055
62200480	1055
62200481	1055
62200482	1055
62200483	1055
62200484	1055
62200485	1055
62200486	1055
62200487	1056
62200488	1055
62200489	1055
62200600	1056
62200610	1056
62200620	1056
62200630	1056
62200640	1056
62200650	1056
62200660	1056
62200670	1056
62200680	1056
62200690	1056
62200700	1056
62204504	1055
62204505	1055
63101010	1005
63101020	1005
63101030	1005
63101040	1005
63101050	1005
63101060	1005
63101070	1005
63101080	1005
63101110	1005
63101120	1005
63102010	1005
63102020	1005
63103010	1005
63103020	1005
63103040	1005
63104010	1002
63104020	1002
63104030	1002
63104040	1002
63104050	1002
63104060	1002
63104070	1002
63104080	1002
63104160	1002
63104170	1002
63104180	1002
63104190	1002
63104200	1002
63104340	1002
63104350	1002
63104360	1002
63104370	1002
63104380	1002
63105010	1002
63105020	1002
63105040	1002
63105050	1002
63105060	1002
63105070	1002
63105110	1002
63105120	1002
63105130	1002
63105140	1002
63105150	1002
63105210	1002
63105220	1002
63105230	1002
63106020	1003
63106040	1003
63106080	1003
63107010	1003
63107020	1003
63107040	1003
63107070	1003

Part-Number	Page
63108010	1002
63108040	1002
63108050	1002
63110010	1003
63110020	1003
63111010	1003
63111020	1003
63112010	1003
63112020	1003
63204015	1003
63204025	1003
63204035	1003
63204045	1003
63204055	1003
63204065	1003
63204075	1003
63204085	1003
63204095	1003
63204105	1003
63204115	1003
63204125	1003
63204135	1003
63204145	1004
63204155	1004
63204165	1004
63204175	1004
63204185	1004
63204195	1004
63204205	1004
63204215	1004
63204225	1004
63204235	1004
63204245	1004
63204255	1004
63204265	1004
63204275	1004
63204285	1004
63204295	1004
63204305	1004
63204315	1004
63204325	1004
63204335	1004
63204345	1004
63204355	1004
63204365	1004
63204375	1004
63204385	1004
63204395	1004
63204405	1004
63204415	1004
63204425	1004
63204435	1004
63204445	1004
63204455	1004
63204465	1004
63204475	1004
63204485	1004
63204495	1004
63204505	1004
63204515	1004
63204525	1004
63204535	1004
63204545	1004
63204555	1004
63204565	1004
63204575	1004
63204585	1004
63204595	1004
63204605	1004
63204615	1004
63204625	1004
63204635	1004
63204645	1004
63204655	1004
63204665	1004
63204675	1004
63204685	1004
63204695	1004
63204705	1004
63300100	1007
63300110	1007
63300120	1007
63300130	1007
63300140	1007
63300150	1007
63300160	1007
63300170	1007
63501010	1007
63501012	1007
63501020	1007
63501022	1007

Part-Number	Page
63501060	1006
63501070	1006
63501071	1006
63501080	1006
63501090	1006
63501120	1006
63501130	1006
63501140	1006
63501150	1006
63501520	1006
63501530	1006
64400010	884
64400020	884
64400030	884
64400040	884
64400050	884
64400060	884
64400070	884
64400080	884
64400090	884
64400100	884
64400110	884
64400120	884
64400130	884
64400140	884
64400150	884
64400160	884
64400170	884
64400180	884
64400200	909
64400210	909
64400220	909
64400230	909
64400240	909
64400250	909
64400251	909
64400252	909
64400500	886
64400501	886
64400502	886
64400504	886
64400505	886
64400506	886
64400507	886
64400508	886
64400650	879
64400651	879
64400823	879
64400824	879
64400825	879
64400826	879
64400827	879
64453660	839
64453670	839
64453680	839
64453690	839
64453700	839
64453710	839
64453720	839
64453730	839
64453750	839
65500200	860
65500205	860
65500210	860
65500215	860
65500220	860
65500225	860
65500230	860
65500235	860
65500240	860
65500245	860
65500250	860
65500255	860
65500260	860
65500265	860
65500270	860
65500275	860
65500390	870
65500395	870
65500403	869
65500404	869
65500405	869
65500410	869
65500415	869
65500420	869
65500425	869
65500430	869
65500431	869
65500435	869
65500436	869
65500440	869

Part-Number	Page
65500445	869
65500451	869
65500454	869
65500455	869
65500456	869
65500458	869
65500459	869
65500460	869
65500464	869
65500465	869
65500466	869
65500467	869
65500468	869
65500469	869
65500470	870
65500475	870
65500480	870
65500485	870
65500490	870
65500495	870
65500600	869
65500610	869
65500620	870
65500630	859
65500631	859
65500632	859
65500633	859
65500634	859
65500635	859
65500636	859
65500637	859
65500638	859
65500639	859
65500640	859
65500641	859
65500642	859
65500643	859
65500644	859
65500645	859
65500646	859
65500647	859
68100050	870
68100055	870
68100060	870
68100065	870
68100075	870
68100080	870
68100085	870
68100090	870
68100095	870
68100100	869
68100105	869
68100106	869
68100110	869
68100114	869
68100115	869
68100119	869
68100120	869
68100125	869
68100130	869
68100131	869
68100135	869
68100139	869
68100140	869
68100144	869
68100145	869
68100150	870
68100155	870
68100160	870
68100165	870
68100170	870
68100175	870
68100180	870
68100185	870
68100190	870
68100195	870
68100200	870
68100205	870
68100210	870
68100215	870
68100220	870
68100225	870
68880005	870
70002598	252
70002599	252
70002600	252
70002601	252
70002602	252
70002603	252
70002604	252
70002605	252

Part-Number	Page
70002606	252
70002607	252
70002608	252
70002609	252
70002610	252
70002611	252
70002612	252
70002613	252
70002614	252
70002615	252
70002616	252
70002617	252
70002618	252
70002619	252
70002620	252
70002621	252
70002622	252
70002623	252
70002624	252
70002625	252
70002628	252
70002629	252
70002630	252
70002631	252
70002634	253
70002635	253
70002636	253
70002637	253
70002640	253
70002641	253
70002642	253
70002643	253
70002646	253
70002647	253
70002648	253
70002649	253
70002651	253
70002652	253
70002653	253
70002654	253
70002656	253
70002657	253
70002658	253
70002659	253
70002661	253
70002662	253
70002663	253
70002664	253
70002666	253
70002667	253
70002668	253
70002669	253
70002670	253
70002671	253
70002672	253
70002673	253
70002681	253
70002682	253
70002683	253
70002684	253
70002687	253
70002688	253
70002689	253
70002690	253
70002699	253
70002700	253
70002701	253
70002702	253
70002705	253
70002706	253
70002707	253
70002708	253
70002709	253
70002710	253
70002711	253
70002712	253
70002716	253
70002717	253
70002718	253
70002719	253
70002721	253
70002722	253
70002723	253
70002724	253
70002726	253
70002727	253
70002728	253
70002729	253
70002731	253
70002732	253
70002734	253

Part-Number	Page
70002735	253
70002750	254
70002751	254
70002752	254
70002753	254
70002754	254
70002755	254
70002756	254
70002757	254
70002758	254
70002759	254
70002760	254
70002761	254
700700	104
700701	104
700702	104
700703	104
700704	104
700705	104
700706	104
700707	104
700710	105
700711	105
700712	105
700713	105
700714	105
700715	105
700716	105
700717	105
700730	103
700731	103
700732	103
700733	103
700734	103
700735	103
700736	103
700737	103
700738	103
700739	103
700740	103
700741	103
700742	103
70250200	607
70250201	607
70250202	607
70250203	607
70250204	607
70250205	607
70250206	608
70250207	608
70250208	608
70250209	608
70250210	611
70250211	611
70250212	611
70250213	611
70250214	616
70250215	616
70250216	616
70250217	616
70250219	621
70250220	621
70250221	621
70250222	621
70250263	621
70250264	616
70250265	611
70250266	607
70250267	607
70250268	608
70260001	268
70260018	268
70260021	268
70260046	269
70260053	269
70261130	262
70261131	262
70261132	262
70261133	262
70261134	262
70261135	262
70261136	262
70261137	262
70261138	262
70261139	263
70261140	263
70261141	263
70261143	263
70261144	263
70261145	263
70261146	263

Part-Number	Page
70261147	263
70261148	263
70261149	263
70261150	263
70261151	263
70261152	263
70261153	263
70261154	263
70261155	263
70261156	263
70261160	263
70261163	263
70261166	263
70261185	263
70262618	268
70267059	268
70267060	268
70267076	270
70267078	270
70267080	270
70267081	270
70267083	270
70267086	270
70267088	270
70267091	270
70267093	270
70267095	270
70267096	270
70267098	270
70267101	270
70267103	270
70267106	270
70267108	270
70267110	270
70267111	270
70267113	270
70267116	270
70267118	270
70267121	270
70267123	270
70267125	270
70267126	270
70267128	270
70267131	270
70267133	270
70268409	268
70268410	268
70268411	268
70268412	268
70268421	269
70268423	269
70268424	269
70268427	269
70268724	268
70268725	268
7027000	153
7027001	153
7027004	153
7027007	153
7027010	153
7027012	153
7027015	153
7027016	153
7027017	153
7027020	154
7027021	154
7027022	154
7027024	154
7027025	154
7027030	154
7027031	154
7027032	154
7027034	153
7027035	153
7027038	154
7027046	154
7027052	155
7027054	155
7027055	155
7027056	155
7027057	155
7027058	155
7027059	155
7027060	153
7027061	153
7027062	153
7027063	153
7027064	153
7027065	153
7027066	153
7027067	153

Part-Number	Page
7027068	153
7027069	153
7027070	153
7027071	153
7027073	153
7027074	153
7027080	154
7027081	154
7027082	154
7027083	154
7027084	154
7027085	154
7027086	154
7027087	154
7027088	154
7027089	154
7027090	154
7027091	154
7027092	154
7027093	154
7027094	154
7027130	154
70314100	554
70315100	554
70316100	554
70317100	554
70362272	263
7038861	384
7038862	384
7038864	385
7038865	385
7038866	385
7038867	385
7038868	385
70388718	117
70388719	117
70388720	117
70388721	117
70388722	117
70388724	117
70388726	117
70388727	117
70388728	117
70388730	117
70388731	117
70388732	117
70388733	117
70388734	117
70388735	117
7038880	383
7038881	383
7038882	383
7038883	385
7038884	385
7038885	385
7038886	385
7038887	385
7038889	385
7038890	385
7038893	385
7038894	386
7038895	386
7038896	386
7038897	386
7038898	384
7038899	384
7038900	384
7038901	384
7038902	384
7038903	384
7038904	384
7038905	384
7038906	384
7038907	384
70399965	1037
70399966	1037
70399969	1037
7072400	115
7072401	115
7072402	115
7072403	115
7072404	115
7072405	115
7072406	115
7072407	115
7072408	115
7072409	115
7072410	115
7072414	115
7072415	115
7072416	115

Part-Number	Page
7072417	115
7072500	116
7072501	116
7072502	116
7072507	116
7072508	116
7072509	116
7072510	116
7072511	116
7072512	116
7072513	116
7072514	116
7072515	116
7072516	116
7072517	116
71002843	267
71002844	267
71002846	267
71002847	267
71180200	631
71220115	255
71220116	255
71220117	255
71220118	255
71220119	255
71220120	255
71220121	255
71220122	255
71220131	255
71220132	255
71220133	255
71220134	255
71220135	255
71220136	255
71220137	255
71220138	255
71220151	256
71220152	256
71220153	256
71220154	256
71220163	256
71220164	256
71220165	256
71220166	256
71222231	266
71222232	266
71222234	266
71222239	266
71222240	266
71222241	266
71222242	266
71222243	266
71222292	266
71222295	266
71222296	266
71222298	266
71222299	266
71222301	266
71222302	266
71222304	266
71222305	266
71222373	266
72004000	639
72004010	639
72004100	639
72004110	639
72004200	639
72004210	639
72044000	643
72044010	643
72044020	643
72044030	643
72044100	643
72044110	643
72044120	643
72044130	643
72044200	643
72044210	643
72044220	643
72044230	643
72064000	643
72064010	643
72064020	643
72064030	643
72064100	643
72064120	643
72064130	643
72064200	643
72064210	643
72064220	643
72064230	643

Part-Number	Page
72400000	649
72400001	649
72401000	649
72401600	649
72401601	649
72402000	649
72402001	649
72402600	649
72402601	649
72403000	649
72403100	649
72404000	649
72404100	649
73000000	656
73000001	656
73000002	656
73000003	656
73000004	656
73000005	656
73000006	656
73000007	656
73000008	657
73000009	657
73000010	657
73000011	657
73000012	657
73000013	657
73000014	657
73000015	657
73000016	657
73000017	657
73000020	657
73000021	657
73000023	657
73000024	656
73000025	656
73000026	656
73000027	656
73000028	656
73000029	656
73000030	656
73000031	656
73002700	646
73002701	646
73002702	646
73002703	646
73002704	646
73002705	646
73002706	646
73002707	646
73002708	646
73002709	646
73002710	646
73002711	646
73002712	646
73002713	646
73002714	646
73002715	646
73002716	646
73002717	646
73002718	646
73002719	646
73002720	646
73002721	646
73002722	646
73002723	646
73002724	645
73002725	645
73002726	645
73002727	645
73002728	645
73002729	645
73002730	645
73002731	645
73002732	645
73002733	645
73002734	645
73002735	645
73002736	645
73002737	645
73002738	645
73002739	645
73002740	645
73002741	645
73002742	645
73002743	645
73002744	645
73002745	645
73002746	645
73002747	645
73002760	644

Part-Number	Page
73002761	644
73002762	644
73002763	644
73002764	644
73002765	644
73002766	644
73002767	644
73002768	644
73002769	644
73002770	644
73002771	644
73008000	647
73008010	647
73008500	647
73008510	647
73018000	647
73018010	647
73018500	647
73018510	647
73028000	647
73028010	647
73028500	647
73028510	647
73220107	255
73220108	255
73220109	255
73220110	255
73220111	255
73220112	255
73220113	255
73220114	255
73220123	255
73220124	255
73220125	255
73220126	255
73220127	255
73220128	255
73220129	255
73220130	255
73220139	255
73220140	255
73220141	255
73220142	255
73220143	256
73220144	256
73220145	256
73220146	256
73220147	256
73220148	256
73220149	256
73220150	256
73220155	256
73220156	256
73220157	256
73220158	256
73220159	256
73220160	256
73220161	256
73220162	256
73220200	260
73220201	260
73220202	260
73220203	260
73220204	260
73220205	260
73220206	260
73220207	260
73220208	260
73220209	260
73220210	260
73220211	260
73220212	260
73220213	260
73220214	260
73220215	260
73220216	260
73220217	260
73220218	260
73220219	260
73220220	260
73220221	260
73220222	260
73220223	260
73220224	260
73220225	260
73220226	260
73220227	260
73220228	260
73220229	260
73220230	260
73220231	260

Part-Number	Page
73220232	260
73220233	260
73220234	260
73220235	260
73220236	260
73220237	260
73220238	260
73220239	260
73220240	260
73220241	260
73220242	260
73220243	260
73220244	261
73220245	261
73220246	261
73220247	261
73220248	261
73220249	261
73220250	261
73220251	261
73220252	261
73220253	261
73220254	261
73220255	261
73220256	261
73220257	261
73220258	261
73220259	261
73220260	261
73220261	261
73220262	261
73220263	261
73220264	261
73220265	261
73220266	261
73220267	261
73220268	261
73220269	261
73220270	261
73220271	261
73220272	261
73220273	261
73220274	261
73220275	261
73220276	261
73220277	261
73220278	261
73220279	261
73220300	258
73220301	258
73220302	258
73220303	258
73220304	258
73220305	258
73220306	258
73220307	258
73220308	258
73220309	258
73220310	258
73220311	258
73220312	258
73220313	258
73220314	258
73220315	258
73220316	258
73220317	258
73220318	258
73220319	258
73220320	258
73220321	258
73220322	258
73220323	258
73220324	258
73220325	258
73220326	258
73220327	258
73220328	258
73220329	258
73220330	258
73220331	258
73220332	258
73220333	258
73220334	258
73220335	258
73220336	258
73220337	258
73220338	258
73220339	258
73220340	258
73220341	258
73220342	258

Part-Number	Page
73220343	258
73220344	259
73220345	259
73220346	259
73220347	259
73220348	259
73220349	259
73220350	259
73220351	259
73220352	259
73220353	259
73220354	259
73220355	259
73220356	259
73220357	259
73220358	259
73220359	259
73220360	259
73220361	259
73220362	259
73220363	259
73220364	259
73220365	259
73220366	259
73220367	259
73220368	259
73220369	259
73220370	259
73220371	259
73220372	259
73220373	259
73220374	259
73220375	259
73220376	259
73220377	259
73220378	259
73220379	259
73220381	259
73220382	259
73220383	259
73220384	259
73220385	259
73220386	259
73220387	259
73220388	259
73220389	259
73220390	259
73220391	259
73220392	259
73220393	259
73220394	259
73220395	259
73220396	259
73220397	259
73220398	259
73220399	259
73220400	259
73220401	259
73220402	259
73220403	259
73220404	259
73220405	259
73220406	259
73220407	259
73220408	259
73220409	259
73220410	259
73220411	259
73220412	259
73220413	259
73220414	259
73220415	259
73220416	259
73220417	259
73220418	259
73220419	259
73220420	259
73220852	257
73220853	257
73220854	257
73220855	257
73220856	257
73220860	257
73220861	257
73220862	257
73220863	257
73222322	265
73222323	265
73222324	265
73222325	265
73222326	265

Part-Number	Page
73222327	265
73222334	263
73222335	263
73222336	263
73222337	265
73222375	265
73222381	263
73222385	265
73222386	265
74020601	649
74020601	658
74033000	658
74033001	658
74033100	658
74033101	658
74034000	658
74034001	658
74034100	658
74034101	658
74034500	649
74034500	658
74034501	649
74034501	658
74200600	649
74200600	658
74320092	263
74320106	263
74880550	162
74880558	162
74880574	162
74880582	162
74880600	676
74880601	676
74880602	676
74880603	676
74880604	676
74880605	676
74880606	676
74880607	676
74880608	676
74880609	676
74880610	676
74880611	676
74880612	676
74880613	676
74880614	676
74880615	676
74880624	678
74880625	678
74880626	678
74880627	678
74880628	677
74880629	677
74880630	677
74880631	677
74880632	677
74880633	677
75007710	650
75007710	659
75007810	650
75007810	659
75017400	659
75017500	659
75018010	650
75018010	659
75018110	650
75018310	659
75018410	650
76003000	654
76003510	654
76004000	654
76004510	654
76083000	655
76083510	655
76084000	655
76123000	656
76123100	656
76123510	656
76123610	656
76124000	656
76124100	656
76124510	656
76124610	656
76133000	657
76133510	657
76134000	657
76134510	657
76143000	657
76144000	657
76144510	657
76153000	655

Part-Number	Page
76153510	655
76154000	655
76154510	655
83250003	959
83250022	1049
83250043	959
83251060	957
83251061	957
83251080	952
83251100	938
83251101	938
83251102	938
83251103	938
83251104	938
83251110	938
83251111	938
83251112	938
83251113	938
83251114	938
83251120	938
83251121	938
83251122	938
83251123	938
83251124	938
83251130	938
83251131	938
83251132	938
83251133	938
83251134	938
83251140	938
83251141	938
83251142	938
83251143	938
83251144	938
83251160	938
83251161	938
83251162	938
83251163	938
83251164	938
83251170	938
83251171	938
83251172	938
83251173	938
83251174	938
83251300	935
83251301	935
83251320	935
83251321	935
83251350	935
83251351	935
83251402	933
83251406	933
83251422	933
83251426	933
83251450	933
83251451	933
83251454	933
83251456	933
83251466	933
83251468	933
83251478	933
83251479	933
83251575	974
83251576	974
83251670	948
83251671	948
83251672	948
83251673	948
83251674	948
83251680	948
83251681	948
83251682	948
83251683	948
83251684	948
83251690	948
83251691	948
83251692	948
83251693	948
83251694	948
83252005	957
83252011	959
83252014	959
83252020	957
83252027	957
83252028	957
83252047	961
83252081	957
83252084	957
83252650	960
83252651	960
83252653	960

Part-Number	Page
83252654	960
83252656	960
83252657	960
83252660	960
83252670	960
83252671	960
83252672	960
83252673	960
83252674	960
83252675	960
83252676	960
83252693	960
83252694	960
83252695	960
83253012	957
83254120	964
83254122	964
83254150	964
83254151	964
83254152	964
83254153	964
83254154	964
83254155	964
83254156	964
83254157	964
83254158	964
83254159	964
83254160	964
83254161	964
83254162	964
83254163	964
83254164	964
83254165	964
83254166	964
83254167	964
83254168	964
83254169	964
83254170	964
83254171	964
83254172	964
83254173	964
83254174	964
83254175	964
83254177	964
83254178	964
83254179	964
83254180	964
83254181	964
83254182	964
83254183	964
83254184	964
83254185	964
83254186	964
83254189	965
83254191	964
83254192	964
83254193	965
83254194	964
83254195	964
83254196	965
83254198	965
83254199	964
83254200	965
83254201	964
83254202	965
83254210	965
83254211	965
83254212	965
83254213	965
83254214	965
83254215	965
83254222	963
83254223	963
83254224	963
83254354	949
83254355	949
83254359	949
83254360	949
83254365	949
83254366	949
83254367	949
83254368	949
83254369	949
83254372	949
83254374	949
83254375	949
83254376	949
83254378	949
83254406	943
83254410	943
83254416	943

Part-Number	Page
83254420	943
83254426	943
83254430	943
83254436	943
83254440	943
83254446	943
83254447	943
83254448	943
83254460	943
83254466	943
83254470	943
83254476	943
83254480	943
83254486	943
83254487	943
83254488	943
83254500	943
83254506	943
83254510	943
83254516	943
83254520	943
83254526	943
83254530	943
83254536	943
83254620	941
83254650	941
83254660	941
83254670	941
83254680	942
83254690	941
83254701	941
83254710	941
83254714	941
83254718	941
83254719	941
83254750	940
83254760	940
83254765	940
83254960	958
83254961	958
83254962	958
83254963	958
83254964	958
83254965	958
83254974	958
83254976	958
83254977	958
83254978	958
83254982	958
83255011	949
83255012	949
83255013	949
83255014	949
83255015	949
83255321	946
83255322	946
83255338	951
83255339	951
83255340	951
83255341	951
83255342	951
83255343	952
83255344	952
83255345	952
83255355	952
83255356	952
83255357	952
83255358	952
83255359	952
83255360	952
83255361	952
83255362	952
83255363	952
83255364	934
83255365	934
83255366	934
83255368	934
83255369	934
83255370	934
83255371	934
83255372	934
83255385	936
83255386	936
83255387	936
83255388	936
83255389	936
83255390	936
83255391	936
83255392	936
83255393	936
83255394	936

Part-Number	Page
83255395	936
83255396	936
83256142	939
83256143	939
83256144	939
83256145	939
83256146	939
83256147	939
83256148	939
83256149	939
83256150	939
83256151	939
83256152	939
83256153	939
83256154	939
83256155	939
83256160	939
83256161	939
83256198	944
83256199	944
83256200	944
83256203	944
83256204	944
83256206	944
83256207	944
83256209	944
83256210	944
83256212	944
83256213	944
83256215	944
83256216	944
83256218	944
83256219	944
83256221	944
83256222	944
83256224	944
83256225	944
83256227	944
83256228	944
83256229	944
83256230	944
83256231	944
83256232	944
83256233	944
83256234	944
83256235	944
83256236	944
83256237	944
83256238	944
83256239	944
83256240	944
83256241	944
83256242	944
83256243	944
83256244	944
83256542	939
83256543	939
83256544	939
83256545	939
83256546	939
83256547	939
83256548	939
83256549	939
83256550	939
83256551	939
83256552	939
83256553	939
83256554	939
83256555	939
83257106	956
83257107	956
83257119	956
83257120	956
83257121	956
83257122	956
83257123	956
83257124	956
83257125	956
83257126	956
83257127	956
83257132	956
83257133	956
83257134	956
83257135	956
83257136	956
83257137	956
83257138	956
83257139	956
83257146	956
83257147	956
83257150	956

Part-Number	Page
83257156	956
83257157	956
83257160	956
83257166	956
83257167	956
83257170	956
83257176	956
83257177	956
83257180	956
83257214	956
83257215	956
83257216	956
83257217	956
83259070	958
83259078	958
83259079	958
83259080	958
83259081	958
83259084	958
83259086	958
83259087	958
83259088	958
83259091	958
83259573	950
83259574	950
83259584	953
83259593	950
83259594	950
83259598	953
83259602	953
83259603	953
83259604	954
83259609	954
83259610	950
83259611	950
83259628	950
83259629	950
83259634	950
83259635	950
83259641	950
83259643	950
83259653	950
83259655	950
83259664	950
83259665	950
83259683	950
83259685	950
83259694	950
83259695	950
83259700	950
83259701	950
83259706	950
83259707	950
83259712	950
83259713	950
83259718	950
83259719	950
83259724	950
83259725	950
83259736	950
83259737	950
83259755	950
83259756	950
83259763	950
83259764	950
83259782	950
83259783	950
83259874	945
83259875	945
83259876	945
83259877	945
83259878	945
83259879	945
83259881	945
83259882	945
83259883	945
83259884	945
83259885	945
83259886	945
83259887	945
83259888	945
83259889	945
83259890	945
83259950	957
83259951	957
83259952	957
83259953	957
83259954	957
83260080	947
83260081	947
83260082	947

Part-Number	Page
83260083	947
83260084	947
83260085	947
83260086	947
83260087	947
83260088	947
83260089	947
83260090	947
83260091	947
83260092	947
83260093	947
83260094	947
83260095	947
83260096	947
83260097	947
83260098	947
83260099	947
83260100	947
83260101	947
83260102	947
83260103	947
83260104	947
83260105	947
83260106	947
83260107	947
83260166	951
83260167	951
83260168	951
83260170	951
83260171	951
83260172	951
83260173	951
83260176	952
83260177	952
83260179	952
83260180	952
83260182	952
83260183	952
83260185	952
83260186	952
83260188	952
83260189	952
83260191	946
83260192	946
83260193	946
83260194	946
83260195	946
83260196	946
83260200	954
83260201	954
83260205	954
83260206	954
83260225	947
83260226	947
83260227	947
83260228	947
83260229	947
83260230	947
83260260	954
83260261	954
83260262	954
83274670	935
83280005	943
83280006	958
83280029	937
83280030	937
83280031	937
83280032	937
83280033	937
83280034	937
83280035	937
83280036	937
83280037	937
83280038	937
83280039	937
83280040	937
83280041	937
83280042	937
83280043	937
83280044	937
83280045	937
83280046	937
83280249	936
83280250	936
83280251	936
83280252	936
83280253	936
83280254	936
83280260	946
83280261	946
83280262	946

Part-Number	Page
83280263	946
83280264	946
83280265	946
83280266	946
83280267	946
83280268	946
83280269	946
83280270	946
83280271	946
83280272	946
83280273	946
83280274	946
83280275	946
83280276	946
83280277	946
83280278	946
83280279	946
83280280	946
8710040	129
8710040S	130
8712040	129
8712040S	130
8714040	129
8714040S	130
8714070	129
8714070S	130
8716030	129
8716030S	130
8716040	129
8716040S	130
8716050	129
8716050S	130
8716070	129
8716070S	130
8716120	129
8716120S	130
8716180	129
8716180S	130
8716250	129
8716250S	130
8718030	129
8718030S	130
8718040	129
8718040S	130
8718050	129
8718050S	130
8718070	129
8718070S	130
8718120	129
8718120S	130
8718180	129
8718180S	130
8718250	129
8718250S	130
CE217489	421
CE5076	474
CE5091	473
CE5092	474
CE5093	474
CE6321	472
CE6323	472
CE6324	473
CE9135	518
CE9138	518
CE9139	518
CE9147	519
CE9150	519
CE9151	519
CE9152	519
CE9153	519
CE9913	520
CE9914	520
CE9914D	520
CE9916	520
CE9917	520
CE9918	520
CE9919	520

LAPP worldwide

Algeria
EURL Chemin Solution Installation
Villa N°A 149 Les Castors
Bordj El Kifan, ALGER
Tel.: +213 21 214604
Fax: +213 21 214604
www.eurlcsi.com

Argentina
NAKASE SRL
Calle 49 No. 5764
B1653AOX
Villa Ballester
1870 BUENOS AIRES
Tel.: +54 11 4768 4242
Fax: +54 11 4768 4242
ventas@nakase.com.ar
www.nakase.com.ar

Australia
Lapp Australia Pty Ltd
12 Grevillea Street
EASTERN CREEK, NSW 2766
Tel.: 1800 931 559
sales@lappaustralia.com.au
www.lappaustralia.com.au

Austria
Lapp Austria GmbH
Bremenstraße 8
4030 LINZ
Tel.: +43 732 781272-444
Fax: +43 732 781272-34
sales@lappaustria.at
www.lappaustria.at

Belarus
PNS – Professional Network Systems
Temirjazeva str. 64b, office 308
220035 MINSK
Tel.: +375 17 2908372
Fax: +375 17 2547828
info@pns.by
www.pns.by

Belgium – Luxembourg
Lapp Benelux B.V.
Van Dijklaan 16, 5581 WG WAALRE
Postbus 74, 5580 AB WAALRE
The Netherlands
Tel.: +32 78 353060
Fax +32 78 353065
sales.lappbenelux@lappgroup.com
www.lappbenelux.com

Brazil
Cabos Lapp Brasil Ltda.
Av. Dr. Mauro Lindemberg
Monteiro, 628
Galpao 18, Osasco
CEP 06278-010 SAO PAULO
Tel.: +55 11 21664166
Fax: +55 11 21664165
vendas@lappgroup.com.br
www.lappgroup.com.br

Cabos Lapp Brasil Ltda.
Rodovia BA535 (via Parafuso)
km 13 e 14 – Sentido Salvador
Polo Industrial e Logístico Via
Parafuso – Lote 06
CEP 42810-200 CAMAÇARI-BA
Tel.: +55 71 35002400

Bulgaria
V&V Isomatic Ltd.
40a, Pirin Str.
1680 SOFIA
Tel.: +359 29 583111
Fax: +359 29 582270
office@viv-isomatic.com
www.viv-isomatic.com

Canada
Lapp Canada Inc.
3505 Laird Road, Unit 10
L5L 5Y7 MISSISSAUGA, Ontario
Tel.: +905 8 205492
Fax: +905 8 206516
sales@lappcanada.com
www.lappcanada.com

Chile
Desimat Chile
Av. Puerto Vespucio 9670
Parque Industrial Puerto Santiago
Pudahuel, SANTIAGO
Tel.: +56 2 25851200
Fax: +56 2 27470153
ventaschile@desimat.cl
www.desimat.cl

China
Lapp Kabel Shanghai Co., Ltd.
23A Zhaofeng Universe Building
1800 Zhongshan Road West
SHANGHAI 200235
Tel.: +86 21 64400833
Fax: +86 21 64400834
info@lappgroup.com.cn
www.lappgroup.com.cn

Lapp Cable Works Shanghai Co., Ltd.
No. 6 Standard Workshop Lingang
Industrial Area
1555 Cenglin Road, Pudong District
SHANGHAI 201306
Tel.: +86 21 20955833
Fax.:+86 21 20955834

Colombia
Transmisiones Ltda.
Carrera 69B N. 21A – 24
Bodega UE 28 – 1
BOGOTÁ
Tel.: +57 1 4126898
www.transmisiones.de

Republic of the Congo
Global Automation Solution & Services (GASS)
BP 517, Avenue Tchingobo n°150
Zone Industrielle
POINTE NOIRE
Tel.: 00 242 064277711
Fax: 00 242 064277711
gass_congo@hotmail.com

Costa Rica
Elvatron, SA
De Repifreno en la Uruca
400 metros Nte.
SAN JOSÉ, Costa Rica
P.O. Box 8-3770 (1000)
Tel.: +506 2242-9955
Fax: +506 2520-0697
elvatron@elvatron.com
www.elvatron.com

Croatia
TIM KABEL
Savska cesta 103
10360 ZAGREB – Sesvete
Tel.: +385 1 5555900
Fax: +385 1 5555901
zagreb@tim-kabel.hr
www.tim-kabel.hr

Cyprus
3 BRO Ltd.
3 Limnou Str.
Office 301
3820 LIMASSOL
Tel.: +357 25255353
info@threebro.com
www.threebro.com

Czech Republic
LAPP KABEL s.r.o.
Bartosova 315, Kvitkovice
765 02 OTROKOVICE
Tel.: +420 573 501011
Fax: +420 573 394650
info@lappgroup.cz
www.lappgroup.cz

Denmark
Lapp Danmark
Korskildeeng 6
2670 GREVE
Tel.: +45 43 950000
Fax: +45 43 950009
ordre@lappgroup.dk
www.lappgroup.dk

Dominican Republic
ING. Rudy Moreno & Asociados, S.R.L.
Prolongación 27 de Febrero Esq.
Cuidad Agraria, Edif. Yarudith
SANTO DOMINGO OESTE
Tel.: +809 334 4394
Fax: +809 334 4454
www.ingrudymorenoyasoc.com

Ecuador
Elsystec S.A.
Electricidad Sistemas y Tecnología
Vasco de Contreras N35-251 y
Mañosca
CÓDIGO POSTAL 170521
Tel.: +593 2 2456510
Fax: +593 2 2455698
elsystec@elsystec.com.ec
elsystec@uio.satnet.net
www.elsystec.com.ec

Egypt
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

El Salvador
Intek El Salvador S.A. de C.V.
Calle Gabriela Mistral No. 373
Entre Blvd. Los Héroes y 33 Av. Nte.
SAN SALVADOR, El Salvador CA.
Tel.: +503 2260-8888
Fax: +503 2260-8855
inteksv@intek-ca.com
www.intek-ca-com

Estonia
Lapp Miltronic SIA Eesti Filiaal
Kastani pst 10
44307 RAKVERE
Tel.: +372 6 518970
Fax: +372 6 518971
orders@lappmiltronic.lv
www.lappmiltronic.ee

Finland
SKS Automaatio Oy
Martinkyläntie 50
P.O. Box 122
01721 VANTAA
Tel.: +358 2 076461
Fax: +358 2 07646820
automaatio@sks.fi
www.sks.fi

France
Lapp France s.a.r.l.
Technopôle Forbach-Sud BP 50084
57602 FORBACH CEDEX
Tel.: +33 387 841929
Fax: +33 387 841794
lappfrance@lappgroup.com
www.lappfrance.fr

LAPP MULLER SAS
Z.A. du Grand Pont
83310 GRIMAUD
Tel.: +33 494 566500
Fax: +33 494 43487
info@mullercables.com
www.mullercables.com

Câbleries Lapp Sarl
Technopôle Forbach Sud
Rue Avogadro
57600 Oeting
Tel.: +33 387 844343
Fax: +33 387 871641
accueil@lappgroup.com

Georgia
Insta LLC
Sergo Zakariadze str. 8
0177 TBILISI
Tel.: +995 32 2202020
Fax: +995 32 2202022
sales@insta.ge
www.insta.ge

Germany
U.I. Lapp GmbH
Schulze-Delitzsch-Straße 25
70565 STUTTGART
Tel.: +49 711 783801
Fax: +49 711 78382640
info@lappkabel.de
www.lappkabel.de

Lapp Systems GmbH
Oskar-Lapp-Str. 5
70565 STUTTGART
Tel.: +49 711 783804
Fax: +49 711 78383520
info@lappkabel.de
www.lappkabel.de

Ghana
PROCESS AND PLANT
AUTOMATION Ltd.
No. 3 Becca Villa, behind Cal Bank
Baatsona, Spintex Road.
P.O. Box Sr 95
ACCRA
Tel.: +233 3 02812680
ekua@automationghana.com
www.automationghana.com

Great Britain
Lapp Limited
Unit 3 Perivale Park
Horsenden Lane South
GREENFORD, Middlesex, UB6 7RL
Tel.: +44 20 87587800
Fax: +44 20 87587880
sales@lapplimited.com
www.lappgroup.co.uk

Greece
Dimoulas Special Cables S.A.
100-102 Lenorman Str.
10444 ATHENS
Tel.: +30 21 05157610
Fax: +30 21 05157611
info@dimoulas.gr
www.dimoulas.gr

Guatemala
Intek Guatemala S.A.
4a. Ave. 10 – 31 Zona 9
GUATEMALA
Tel.: +502 2507-0500
Fax: +502 2507-0501
intekgt@intek-ca.com
www.intek-ca.com

Honduras
intek Honduras
Ofi-Bodegas Premier
100 mts. antes del Peaje a La Lima
Edificio PWC-14B
SAN PEDRO SULA
Tel.: +504 2559-4748, -50
Fax: +504 2559-4740
intekhn@intek-ca.com
www.intek-ca.com

Hungary
Lapp Hungária Kft.
Neumann János u.1
2040 BUDAÖRS
Tel.: +36 23 501-250
Fax: +36 23 501-259
sales@lapphungaria.hu
www.lapphungaria.hu

India
Lapp India Pvt. Ltd.
Plot No.98, J & K
Jigani Industrial Area, II Phase
BANGALORE SOUTH – 560 105
Tel.: +91 80 47405222
Fax: +91 80 47405101
info@lappindia.com
www.lappindia.com

Indonesia
PT. JJ-Lapp Cable SMI
Graha INTI FAUZI, 7th Floor
Jl. Buncit Raya No. 22
JAKARTA 12510
Tel.: +62 21 27537051
Fax: +62 21 27537052
sales_jjli@jjsea.com
www.jj-lappcable.com

Iran
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Island
Johan Rönning Ltd.
Klettagardar 25
104 REYKJAVIK
Tel.: +354 5 200800
Fax: +354 5 200888
ronning@ronning.is
www.ronning.is

Israel
Arrow Control Cables Ltd.
7, Zavitan street
49950 NEHALIM
Tel.: +972 3 9074887
Fax: +972 3 9074889
info@arrowcables.com
www.arrowcables.com

Italy
LAPP ITALIA S.R.L.
Via Lavoratori Autobianchi 1
Building 20
20832 DESIO (MB)
Tel.: +39 0362 4871
Fax: +39 0362 487330-340
lappitalia@lappitalia.it
www.lappitalia.it

Camuna Cavi s.r.l.
Via Generale Treboldi, 128
25048 EDOLO (BS)
Tel.: +39 0364 773411
Fax: +39 0364 770120
info@camunacavi.it
www.camunacavi.it
Sales Office
Via Lavoratori Autobianchi 1
Building 20
20832 DESIO (MB)

Japan
Lapp Japan k.k.
5F New Sankei Bldg.
3-18-1 Asakusabashi, Taito-ku
TOKYO, 111-0053
Tel.: +81 3-4520-6245
Fax: +81 3-4520-6246
sales@lappgroup.jp
www.lappgroup.jp

Jordan
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Kazakhstan
Lapp Kazakhstan LLP
Abaya ave. 13, office 703
010000 ASTANA
Tel.: +7 7172 787365
sales@lappgroup.kz
www.lappgroup.kz

Korea
Lapp Korea LLC.
42, Jangangongdan 8-gil
Jangan-myeon, Hwaseong-si
Gyeonggi-do, Republic of Korea
Tel.: +82 1688 1099
Fax: +82 31 697 4099
dowoomi@lappgroup.com
www.lappkorea.com
www.lapp4u.com

Kuwait
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Latvia
LAPP MILTRONIC SIA
Ulbrokas 44a
RIGA, 1021
Tel.: +371 67 501900
Fax: +371 67 501909
pasutijumi@lappmiltronic.lv
www.lappmiltronic.lv

Lebanon
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Libya
Al Jouda Co.
Al Fath – Street
Al Buraq – Building 3rd floor
BENGHAZI
Tel.: +218 91 7433363
ilsharee@yahoo.co.uk

Lithuania
LAPP MILTRONIC filialas
Aukštaičių g. 6
11341 VILNIUS
Tel.: +370 5 2780390
info@lappmiltronic.lt
www.lappmiltronic.lt

Macedonia
Siskon Dooel
Taskenska 4A
1000 SKOPJE
Tel.: +389 2 3062423
Fax: +389 2 3061250
siskon@mt.net.mk
www.siskon.com.mk

Malaysia
JJ-LAPP Cable (M) sdn. Bhd.
16, Jalan 51A/225,
46100 PETALING JAYA SELANGOR
Tel.: +603 78 616288
Fax: +603 78 616299
sales_jjlm@jjsea.com
www.jj-lappcable.com

Malta
G & E Electronics Ltd.
Genics Bldgs.
Giov. Papaffy Str.
B'KARA BKR 4021
Tel.: +356 21 486816
Fax: +356 21 497103
info@gemalta.com
www.gemalta.com

Mexico
Lapp Mexico S de RL de CV
Avenida del bosque 1190 Int. 1
Parque Industrial del Bosque II
45619, TLAQUEPAQUE, Jalisco
Tel.: +52 33 36660250
Fax: +52 33 36660075
ventas@lappmexico.com
www.lappmexico.com

Republic of Moldova
Lapp Kabel Romania SRL
A1 Business Park
(Autostrada Bucuresti – Pitesti, Km 13.5)
Aleea Camilla nr. 11, Unitatea G2
Comuna Dragomiresti Vale
Sat Dragomiresti Deal
Judet ILFOV, 077096
Tel.: +40 213 1009-61
Fax: +40 213 1009-59
office@lappkabel.ro
www.lappkabel.ro

Mongolia
TECHSOURCE Co., Ltd.
4th floor, Gandirs tower
Baruun Selbe 5/26
Chingeltei District-1
ULAANBAATAR 15160
Tel.: +976 70 117171, 94 010920
info@techsource.mn
www.techsource.mn

Morocco
Fiabel
16 Allée des Dahlias (Beausite)
Bd la Grande Ceinture
20250 Ain Sebâa, CASABLANCA
Tel.: +212 522 4033-01, -02
Tel.: +212 522 4046-16, -17, -18
Fax: +212 522 403303
www.fiabel.ma

Netherlands
Lapp Benelux B.V.
Van Dijklaan 16,
5581 WG WAALRE
Postbus 74, 5580 AB WAALRE
Tel.: +31 40 2285000
Fax: +31 40 2285010
sales.lappbenelux@lappgroup.com
www.lappbenelux.com

New Zealand
Engineering Computer
Services Ltd.
Cnr Te-Rapa & Ruffell Rd
P.O. Box 20204
HAMILTON, 3288
Tel.: +64 7 8492211
Fax: +64 7 8492220
garry@lappgroup.co.nzw
www.lappgroup.co.nz

Nicaragua
Electronica Tecnica SA.
De la Óptica Nicaraguense
3C al este, 1/2C al Sur
Casa #38 Residendial Bolonia
MANAGUA
Tel.: +505 2254-4913
info@ni.elvatron.com
nicaragua.elvatron.com

Norway
Miltronic AS
Eikveien 11
3036 DRAMMEN
Tel.: +47 32 261300
Fax: +47 32 261398
info@miltronic.no
www.miltronic.no

Oman
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Pakistan
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Panama
Lapp Panama S.A.
Building 9075, Unit 9
PanAmerica Corporate Center
Panamá Pacífico, Arraiján.
Tel.: +507 320 5090
sales.panama@lappgroup.com
lapplatinamerica.lappgroup.com

Peru
DIPROSOL PERU SAC
Av. Velasco Astete 2371
Surco LIMA 33
Tel.: +51 1 2752765
Fax: +51 1 2752776
ventas@diprosol.com.pe
www.diprosol.com.pe

Philippines
JJ-LAPP Cable (P) Inc
Unit 704, Philplans Corporate Center
1012 Triangle Drive
Bonifacio Global City
1634 TAGUIG CITY, MANILA
Tel.: +632 786 7566
Fax: +632 786 7544
sales_jjlp@jjsea.com
www.jj-lappcable.com

Poland
Lapp Kabel Sp. z o.o.
Ulica: Profesjonalna 1
Biskupice Podgórne
55-040 KOBIERZYCE
Tel.: +48 71 3306300
Fax: +48 71 3306306
info@lapppolska.pl
www.lapppolska.pl

Portugal
Policabos S.A.
Av. Pedro Álvares Cabral
Lugar da Capa Rota
2710-144 SINTRA
Tel.: +351 21 9178640
Fax: +351 21 9178649
policabos@policabos.pt
www.policabos.pt

Qatar
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Romania
Lapp Kabel Romania SRL
A1 Business Park
(Autostrada Bucuresti – Pitesti, Km 13.5)
Aleea Camilla nr. 11, Unitatea G2
Comuna Dragomiresti Vale
Sat Dragomiresti Deal
Judet ILFOV, 077096
Tel.: +40 213 1009-61
Fax: +40 213 1009-59
office@lappkabel.ro
www.lappkabel.ro

Russia
Lapp Russia OOO
Mira st., 7, Krutye Kluchi
443028 SAMARA
Tel.: +7 846 2315155
info@lappgroup.ru
www.lappgroup.ru

Saudi Arabia
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Senegal
Sénégal Automation Technology Assistance (SATA Sarl)
Avenue Birago Diop x rue G Point E
BP 5344, DAKAR
Tel.: +221 338601030
Fax: +221 338207093

Serbia
VESIMPEX d.o.o.
Patrijarha Dimitrija 24 (DMB)
11090 BEOGRAD-RAKOVICA
Tel.: +381 11 4049-070, -071, -072, -073
Magacin/warehouse: +381 11 4049-075
Fax: +381 11 4049-077
Mob: +381 63 693-373
info@vesimpex.rs
www.vesimpex.rs

Singapore
Lapp Asia Pacific Pte. Ltd.
No.9 Tuas South St. 3
SINGAPORE 638017
Tel.: +65 6558-7176
Fax: +65 6558-7081
lappapac.lappgroup.com

JJ-LAPP Cable (S) Pte. Ltd.
No.9 Tuas South St 3
SINGAPORE 638017
Tel.: +65 6508-6200
Fax: +65 6863-1271
sales_jjls@jjsea.com
www.jj-lappcable.com

Slovakia
LAPP SLOVENSKO, s.r.o.
Piaristicka 2
949 24 NITRA
Tel.: +421 376 578095
Fax: +421 376 578096
info@lappgroup.sk
www.lappgroup.sk

Slovenia
Lapp, d. o. o.
Limbuška cesta 2
2341 LIMBUŠ
Tel.: +386 2 4213550
Fax: +386 2 4213571
info@lappslovenia.com
www.lappslovenia.com

South Africa
Lapp Group Southern Africa
51 Brunton Circle
Founders View South
Modderfontein
1645 GAUTENG
Tel.: +27 11 2013200
Fax: +27 11 6095850
info@lappkabel.co.za
www.lappcable.co.za

Spain
Lapp Group España
Avda. de les Garrigues, 34 – 36
Parque Empresarial Mas Blau II
08820 EL PRAT DE LLOBREGAT
(Barcelona)
Tel.: +34 902 108 669
Fax: +34 934 796 272
info@lappgroup.es
www.lappgroup.es

Sweden
Miltronic AB
Kungshagsvägen 7
Box 1022
611 29 NYKÖPING
Tel.: +46 155 77780
info@miltronic.se
www.miltronic.se

Sales office Denmark
Korskildeeng 6
2670 GREVE
Tel.: +45 43 950000
Fax: +45 43 950009
info@miltronic.dk
www.miltronic.dk

Switzerland
Volland AG
Ifangstrasse 103
8153 RÜMLANG
Tel.: +41 44 8179797
Fax: +41 44 8179700
info@volland.ch
www.volland.ch

EPIC®
Bachofen AG
Ackerstraße 42
8610 USTER
Tel.: +41 44 9441111
Fax: +41 44 9441233
info@bachofen.ch
www.bachofen.ch

Syria
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Taiwan
DKSH Taiwan Ltd.
10th Floor, No. 22, Lane 407
Tiding Blvd., Sec. 2
Neihu Technology Park
TAIPEI CITY 114-93
Tel.: +886 2 87527654
Fax: +886 2 87518688
wilson.wang@dksh.com

Thailand
JJ-LAPP Cable (T) Ltd.
23/110-117 Sorachai Building
25-29th FL
Soi Sukhumvit 63 (Ekamai),
Sukhumvit Road, Klongton Nua,
Wattana, BANGKOK 10110
Tel.: +66 27 878288
Fax: +66 27 878299
sales_jjlt@jjsea.com
www.jj-lappcable.com

Tunisia
ELECSA TN, Groupe TTI
Zone industrielle
8030 GROMBALIA
Tel.: +216 72 255954
Fax: +216 72 255980
commercial@elecsa-tn.com
www.elecsa-tn.com

Turkey
LAPP KABLO San. ve Tic. Ltd. Şti.
Atatürk Mah. Şeref Sok. No: 55/1
34758 ATAŞEHIR-İSTANBUL
Tel.: +90 216 4565699
Fax: +90 216 4565687-89
info@lapp.com.tr
www.lapp.com.tr

Ukraine
Lapp Ukraine LLC
201 – 203, Kharkivske shose
02121 KIEV
Tel.: +38 044 495-6000
Fax: +38 044 490-7630
sales@lappukraine.com
www.lappukraine.com

United Arab Emirates
LAPP CABLES MIDDLE EAST FZE
Wing A-502, P.O. Box 341223
Dubai Silicon Oasis
DUBAI
Tel.: +971 4 3712905
Fax: +971 4 3712918
lappme@lappgroup.com
www.lappgroup.com

Uruguay
Reprinter LTDA.
Avda. Italia 6481
MONTEVIDEO
Tel.: +598 2600-7343
Fax: +598 2600-8658
lapp@reprinter.com.uy
www.reprinter.com.uy

USA
Lapp USA, Inc.
29 Hanover Road
FLORHAM PARK, NJ 07932
Tel.: +1 973 6609700
Fax: +1 973 6609330
sales@lappusa.com
www.lappusa.com

Lapp Tannehill, Inc.
8675 Eagle Creek Parkway Suite 900
SAVAGE, MN 55378
Tel.: +1 952 8816700
Fax: +1 952 8810743
sales@lapptannehill.com
www.lapptannehill.com

Venezuela
Somerinca, C.A
Qta Corazón de Jesus
4ta Transversal de Montecristo c/
calle el Carmen, de los Dos Caminos
1070 CARACAS
Tel.: +212 235 1081/
1696/2748, 237 3003
Fax: +212 239 9341
klocmoeller@cantv.net
www.somerinca.com

Vietnam
JJ-Lapp Cable Vietnam Co., Ltd
12th floor, Unit 1206, Sailing Tower
111A Pasteur Street, District 1
HO CHI MINH CITY
Tel.: +84 8 62887668
Fax: +84 8 38236776
sales_jjlv@jjsea.com
www.jj-lappcable.com

Yemen
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Notes

info

Reach us around the world.
Or closer to home.

Lapp India Pvt. Ltd.
Plot No.98, J & K
Jigani Industrial Area, II Phase
Bangalore South – 560 105

Customer Service Number
+91 80 47405222

Telephone
+91 80 47405000

Fax
+91 80 47405101

E-mail
info@lappindia.com

Website
www.lappindia.com

THIS CATALOGUE IS VALID FROM MAY 2018

Enter the world of LAPP:

Follow LAPP on:

Image source: LAPP, Maiwolf, Wolfram Scheible, Bystronic glass, Comau SpA, EMAG, Fotolia, iStock

The following applies for the use of our products

The conformity of our products to the relevant European directives and compliance with the provisions contained therein shall be indicated by the CE marking.

The safety of our products is closely associated with how they are used. A knowledge of and adherence to the respective international/national standards of use (e.g. DIN VDE 0100; 0298) are mandatory. There are particular risks if installed improperly. This applies to all our products/items:

Processing is only to be done by an authorised electrician! Otherwise, there is the risk of an electric shock or a fire ignited by electric current!

Safety

Without exception, our products are tested for application safety in accordance with defined standards and our own regulations, which complement the standards. Relevant legal requirements and safety regulations are also observed. Provided due care and attention is paid, the possibility of product-specific danger to the user may thus reasonably be excluded. Where products are used carelessly or incorrectly, however, considerable danger to persons and the environment may arise. For this reason, our cables must only be processed and/or used responsibly by trained electricians or specialists. This catalogue contains general information for the application of each product. Independent of such information, the application standards DIN VDE 0298 and DIN VDE 0891 for cables will apply. Excerpts from these standards, as well as complementary selection and application tables, design and installation guidelines, are contained in the tables in the appendix to this catalogue. Our machines and installation tools are – where necessary – designed in accordance with the machine guidelines and display the CE identification mark. It must be noted, however, that our machines and installation tools must only be used by trained specialist personnel and for the purpose for which they were designed.

©Copyright by U.I. Lapp GmbH. Reprinting or reproduction of the text or the illustrations may be made only with written approval and with correct indication of source. We reserve the right to make modifications to our products, especially those based on technical improvements or continued development. All illustrations and numerical data etc. are therefore without warranty and are subject to change.

LAPP

ÖLFLEX®
Power and control cables

UNITRONIC®
Data communication systems

ETHERLINE®
Data communication systems
for ETHERNET technology

HITRONIC®
Optical transmission systems

EPIC®
Industrial connectors

SKINTOP®
Cable glands

SILVYN®
Protective cable conduit systems
and cable carrier systems

FLEXIMARK®
Marking systems

Follow LAPP on

Terms of Trade:
Our general conditions of sale
can be downloaded from our website
www.lappgroup.com/terms

Lapp India Pvt. Ltd.
Plot No.98, J & K · Jigani Industrial Area, II Phase
Bangalore South – 560 105
Tel.: +91 80 47405000 · Fax: +91 80 47405101
www.lappindia.com · info@lappindia.com

05/18.3.000.99092323