Main catalogue 2016/17
International edition

LAPP

LAPP GROUP

DEAR BUSINESS PARTNERS,

Reliably connecting the world – in line with this motto, the Lapp Group has been successfully operating on the international market for many years. The new main catalogue 2016/17 documents the entire spectrum of our comprehensive range of products and solutions on over 1,200 pages and also provides interesting insights into our family company and its long tradition.

Lapp has always placed the utmost importance on customer focus. We hope that you approve of our redesigned and updated main catalogue and that you feel very well informed. Delve into "The World of Lapp" and look forward to millions of tried and tested products, intelligent special solutions and the next generation of highly innovative cable and connection technology, which will enable you to be more successful in the future of Industry 4.0.

I would like to thank you for the interest you have shown and I hope you enjoy looking through the catalogue and discovering our products. Let's stay connected!

Best wishes,

A. Lapp

Andreas Lapp

LEGEND FOR ICONS

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
- Quantity
- Minimum lever action
- 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

CONTENT

FROM SMALL START-UP TO GLOBAL PLAYER

The name Lapp not only stands for innovative strength and quality, it also stands for continuity. The Lapp company was founded by Ursula Ida and Oskar Lapp in 1957 as an ambitious family company – and to this day has remained as such.

The desire to actively shape the future and the courage to embrace change and to think in a visionary way that is focused on solutions and customers are what make the company great. Our relationships with our employees, suppliers and customers which are based on partnership have always played a central role here. In less than 50 years, the small Stuttgart-based family business has evolved into a global player with around 3,200 employees – and into an international market leader for cable technology.

All the signs are pointing towards the future. This has not only become clear at Lapp's new, state-of-the-art European headquarters in Stuttgart-Vaihingen. The third generation of the Lapp family has now taken on responsibilities within the company. Thinking and acting in a value-oriented way is and remains an important component of the company philosophy.
After all, the name Lapp also stands for this.

- **1957** Founding of U.I. Lapp KG, Stuttgart
- **1959** Founding of the world's first industrially produced power and control cable: ÖLFLEX®
- **1963** Expansion of the Stuttgart site with the cable plants and Contact
- **1976** Expansion to America: founding of Lapp USA
- **1978** SKINTOP® cable glands are patented
- **1983** Entry into system business with the founding of Lapp Systems in Stuttgart
- **1990** Founding of additional sites in Central Europe and Scandinavia
- **1995** Establishment in Asia through Lapp Holding Asia and Lapp Logistics
- **1996** Founding of Lapp India
- **2004** Expansion to the East: founding of sites in Ukraine and Russia
- **2010** Founding of Lapp Southern Africa
- **2011** Focus on Industry 4.0 and expansion of automation technology
- **2012** Numerous new developments, such as EPIC® ULTRA and SKINTOP® CUBE MULTI
- **2014** Founding of additional sites in Romania, Slovenia, Kazakhstan and Hungary
- **2015** Expansion of system business

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

FAMILY VALUES AND INNOVATIVE IDEAS

From the very start, the company founders Oskar and Ursula Ida Lapp had a clear vision of the company's orientation. It has never just been about developing and producing innovative products. Family values have always been important too. Values that promote cooperation and enable relationships with employees, suppliers and customers based on partnership and trust. This sense of appreciation is firmly anchored in the business culture – and is a cornerstone of company policy.

SHAPING THE FUTURE

With its headquarters in Stuttgart, Germany, the Lapp Group is a leading supplier of integrated solutions and branded products in the field of cable and connection technology. To make sure that it stays that way in the future, we always keep a very close eye on the markets. Furthermore, over the years we have demonstrated a keen perception for individual customer needs. We are constantly further developing our products and system solutions and are setting standards in safety, quality and functionality.

TAILOR-MADE INDUSTRY SOLUTIONS

Whether it's wind energy, Industry 4.0 or electric mobility – pioneering innovations for different sectors and markets are a significant driving force behind our company's success. One of the many sophisticated, high-tech connection solutions for special applications is, for example, the SKINTOP® HYGIENIC. The stainless steel cable gland was specially developed for the food and beverage industry and, in addition to being ECOLAB® certified, also fulfils the stringent EHEDG guidelines for Hygienic Design.

The Lapp Group also has a competitive edge in organic photovoltaics (OPV) and is earning plaudits thanks to its innovative connection technology. Perhaps the best example is the solar trees in the German pavilion at EXPO 2015 in Milan. For the film-integrated and extremely delicate OPV modules used there, the Lapp Group developed a new connection and cabling process of its own and as a result attracted international attention.

WHATEVER THE FUTURE HOLDS – LAPP HAS THE PERFECT CONNECTION SOLUTION!

And one that is great value for money too. One reason for this is the short pathways that international manufacturing facilities, locations and logistics centres have enabled.

CLOSE TO CUSTOMERS, CLOSE TO THE MARKET

Our perception of trends, sectors and markets allows us to develop products today that will be used all over the world tomorrow. The Lapp Group offers the ideal solution for every complex solution – from tried and tested standard products to sophisticated customized production. Through international production sites and local storage of Lapp branded products, we ensure that we are able to supply all around the world. With our 18 production plants, over 40 sales companies, around 100 sales partners and many competent consultation teams, we offer comprehensive service on every continent.

8 strong brands

more than 40,000 standard products

over 40 of its ownsales companies

employees from 152 countries

1 innovation after another

around 100 sales partners

3,200 employees

SPECIAL EXPERTISE FOR SPECIAL SECTORS

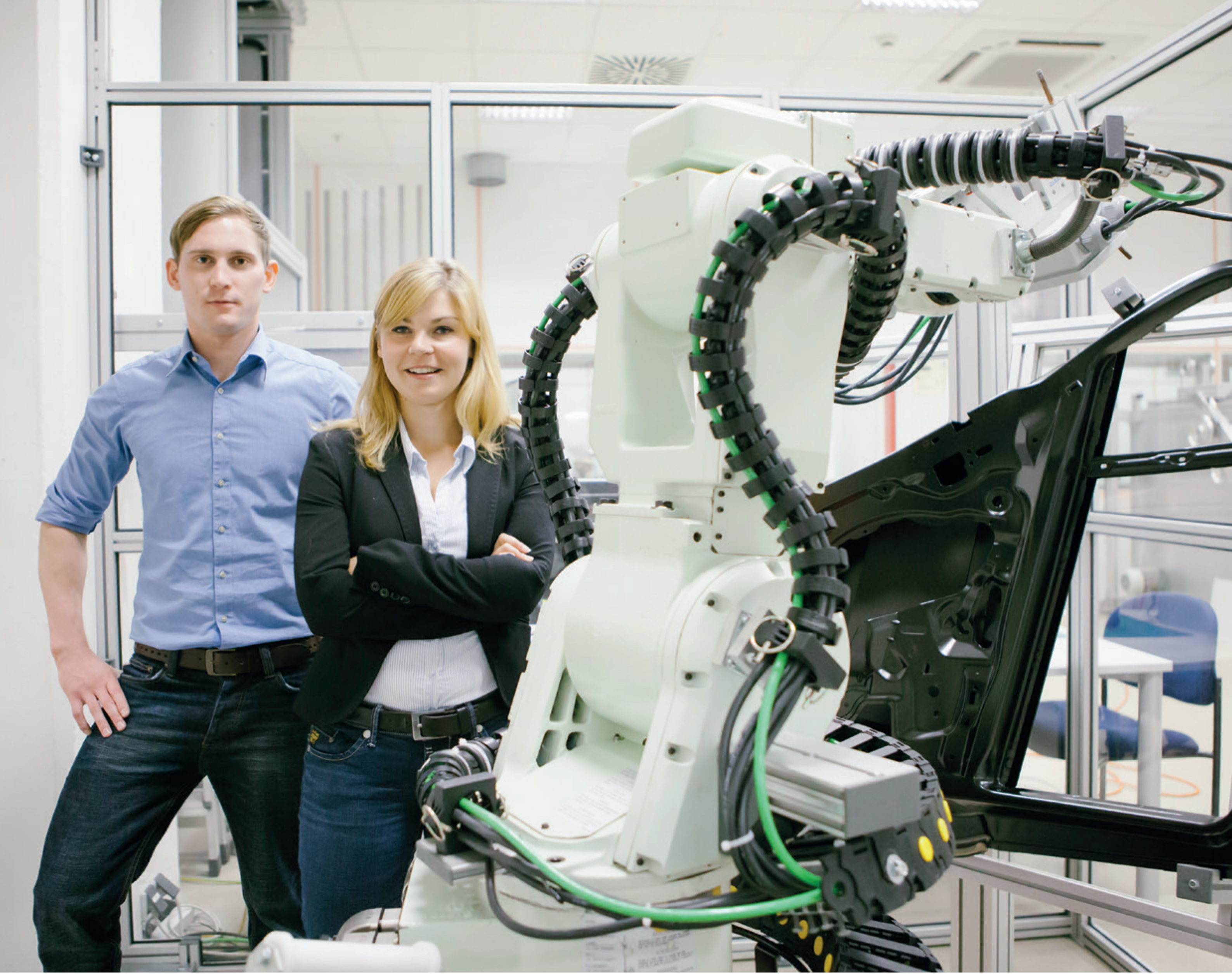
AUTOMATION

INDUSTRY
(machinery and plant engineering, food and beverage industry)

MOBILITY
(e-mobility, railway technology, transport, commercial vehicles)

POWER SUPPLY
(solar, wind, oil & gas, petrochemistry, maritime energy)

INFRASTRUCTURE
(telecommunication, energy distribution, airports, ports,
railway stations, tunnels)



MAKING QUALITY A PRIORITY

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. It is only once the prototypes have been thoroughly tried and tested that production begins.

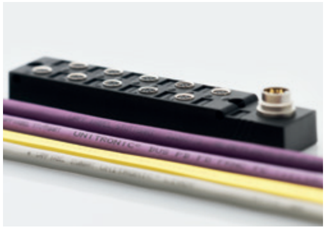
TRIAL AND TEST CENTRE IN STUTTGART

In the trial and test centre in Stuttgart, thorough testing is performed with constant monitoring of 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. It's not rare for the knowledge gained in testing procedures to result in pioneering developments. This culture of putting innovation into practice is beneficial to our customers.

EIGHT BRANDS, ONE PROMISE: 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

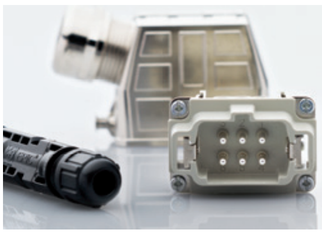
Our high-quality UNITRONIC® data network cables and field bus components provide a forward-looking solution for all applications in industrial machinery and plant engineering. From transmission of simple control signals to field bus signals in complex network structures – we offer a dependable cabling 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. The systems are made up of durable and robust cables and connection components for passive 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.

CENTRE OF LOGISTICAL MASTER PERFORMANCE

Who actually likes waiting for a product, service or solution? We won't leave you waiting – we guarantee quick delivery. All over the world. After all, we have a close-knit network of logistics centres and professionally trained consulting experts. With the finest in high-tech quality, we guarantee a smooth delivery service.

Our logistics and service centre in Ludwigsburg is setting the benchmark in many ways: a fully automated high-rack facility with an area of 30,000 m^2, 120 logistics employees, 30 truck loading ramps, over 90,000 articles and nearly 1 million cables delivered every year.

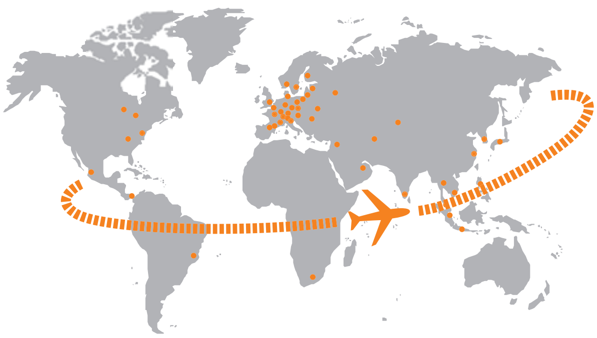
SUSTAINABLE AND ENERGY-EFFICIENT

When the Lapp logistics centre was constructed, great importance was placed on sustainability and energy saving. The photovoltaic system on the roof, for instance, generates 1,000 MWh of energy per year, thus reducing annual CO_2 emissions by around 650 tonnes!

70,000 m^2

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

This is 1.2 times greater than the length of the equator line.



Patented mandrel gripper in the LC6 logistics centre

HERE FOR YOU 24/7: LAPPGROUP.COM

LAPP e-SERVICES FOR YOUR SUCCESS

It's never been easier to get in touch with us. Contact us online, via the App or order directly from the e-Shop (available in various countries). You can even connect your inventory management system to our SAP interface to ensure a flawless procurement process – it's all part of the service. **www.lappgroup.com**

CABLE FINDER

Make short work of searching for cables.
www.lappgroup.com/cablefinder

CONNECTOR FINDER

Configure your EPIC® square, circular or solar plugs online, with only a few clicks of the mouse.
www.lappgroup.com/connectorfinder

CABLE GLAND FINDER

Use the SKINTOP® Finder to help you identify the cable gland you need and the required accessories.
www.lappgroup.com/cable-glandfinder

CHARGING CABLE CONFIGURATOR

The Charging Cable Configurator enables you to find the cables and connectors you need to create the perfect charging cable in no time.
www.lappgroup.com/emobility-cablefinder

CABLE ASSEMBLY FINDER

Based on criteria such as the number of pins, connector/female, sheath material and cable length, you are able to find the suitable cable assembly in a matter of moments from the following areas:
UNITRONIC® Sensor/actuator, ETHERLINE® Industrial Ethernet,
UNITRONIC® Fieldbus, HITRONIC® Fibre optic cable
www.lappgroup.com/assemblyfinder

CONNECTOR HOUSING CONFIGURATOR

Configure your own individual industrial connector housing with locking concept and cable entries.
www.lappgroup.com/connector-housing

CABLE MARKING FINDER

Use our FLEXIMARK® Cable Marking Finder to quickly identify the appropriate marking and labelling for your application. You can also view the corresponding accessories and more detailed product information.
www.lappgroup.com/markingfinder

CAD PRODUCT CATALOGUE

Design time costs money. Our CAD Product Catalogue enables developers and planners to save both.
www.lappgroup.com/3d-data

Enter the world of Lapp:

Our apps are available from the following stores:

Google play · App Store

ALWAYS A PERFECT CONNECTION

ÖLFLEX® CONNECT

Systems Solutions made by Lapp

With our systems service ÖLFLEX® CONNECT, we offer customized cabling solutions assembled exactly to your requirements.

Everything is possible – from cable assemblies to industry standard servo connections right up to sophisticated high-speed drag-chain systems. Do it all with ÖLFLEX® CONNECT. **Systems Solutions made by Lapp**.

With our three distinctive offers, you get made-to-measure solutions, covering all your connectivity needs:

ÖLFLEX® CONNECT CABLES

Cable Systems made by Lapp

ÖLFLEX® CONNECT SERVO

Servo Systems made by Lapp

ÖLFLEX® CONNECT CHAIN

Chain Systems made by Lapp

For more information, please see pages 24 - 25 and 838 - 839.

- NO CAPITAL EXPENDITURE
  Avoid investing in your own production facilities – leverage our state-of-the-art equipment and tools.

- LESS OPERATING EXPENDITURE
  Benefit from a simplified supplier base – Lapp supplies all cable connectivity components from a single source.

- REDUCED INVENTORY
  No stocks of connectors, cables, conduits and hoses. No component scrap or cutting waste.

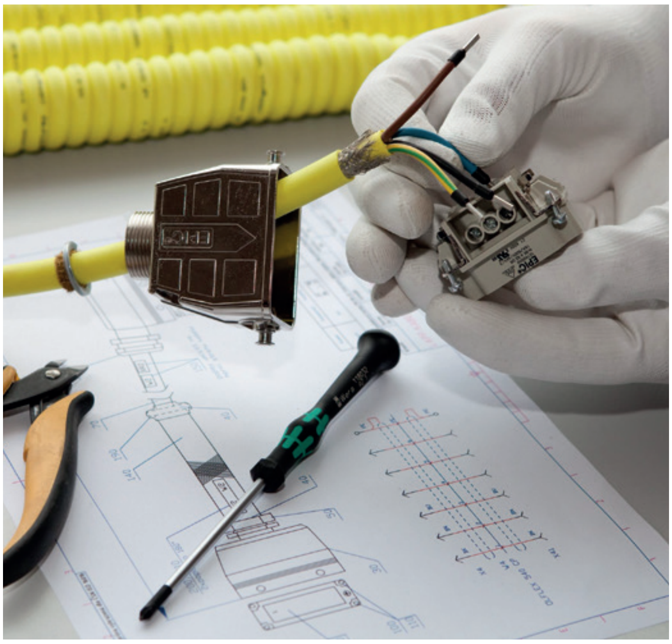
- HIGHEST SCALABILITY
  With Lapp you can immediately respond to increases in demand. Ranging from individual pieces to whole series – with us you receive everything from one source.

- TECHNICAL EXPERTISE
  Make use of our cabling technology expertise and get uncompromising brand products for maximum reliability and safety.

START THINKING SMART TODAY

Focussing your precious resources and capital on your core product and leveraging Lapp for your connectivity needs will allow you to maximize your profitability. **Systems Solutions made by Lapp**.

ASSEMBLIES MADE TO ORDER



ÖLFLEX® **CONNECT** CABLES

Cable Systems made by Lapp

We produce different cable types for fast cabling of CNC machinery, switch boxes, control cabinets and electrical assemblies. 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 supply highly flexible and exceptionally durable spiral cables in uncompromising premium quality. Another of our specialities: Glass fibre system solutions, which we stock in standard lengths but can also produce, test and supply in exactly the length you require.

OUR COMPREHENSIVE RANGE OF SERVICES

- Cable cutting as required
- Unwinding with specified bending radius
- Stripping
- Crimping
- Heat shrinking
- Markings (labels, sleeves, marking rings, packing, stainless steel marking)
- Cable printing
- Crimp force monitoring (CFM)
- Push-pull tests
- Resistance testing

ÖLFLEX® **CONNECT** SERVO

Servo Systems made by Lapp

As a leading manufacturer of assembled servo cable systems, we offer all industry standards for customers from different areas of industrial machinery and drive systems. From the cost-effective **basic line** servo solution for applications free of aggressive environmental influences, to the **core line**, specially designed for dynamic applications, right up to the highly dynamic **extended line** performance class – the Lapp Group offers the right solution for every requirements profile. All of our servo cables are put through their paces at our company owned laboratory with the application site in mind – for maximum quality and safety.

basic line	core line	extended line

OUR INNOVATIVE SERVO CONCEPT

- Global quality standard thanks to automated production process
- 360 degree screen contact for optimum screening
- New servo cable design with all necessary approvals
- Optional RFID solutions available

ÖLFLEX® CONNECT CHAIN

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. Our system engineers know our components right down to the smallest detail, but also have an in-depth understanding of your application. Our experts have an exact knowledge of all product specifications and make sure that everything runs perfectly for your application. Put your trust in innovative, reliable and highly efficient power chain solutions from Lapp.

THREE SYSTEM PACKAGES – THE CHOICE IS YOURS

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

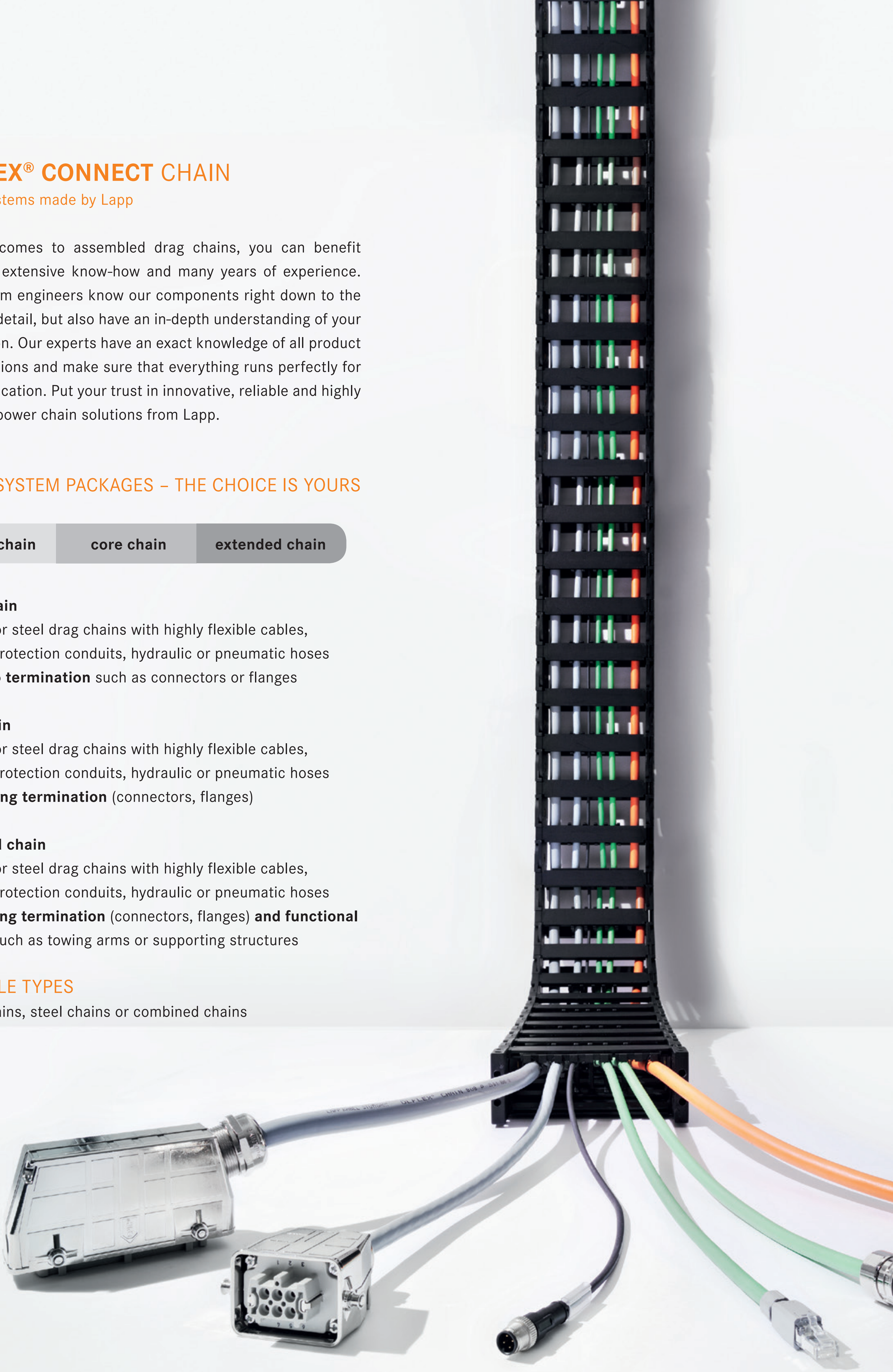
- Nylon or steel drag chains with highly flexible cables, cable protection conduits, hydraulic or pneumatic hoses **including termination** (connectors, flanges)

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

POSSIBLE TYPES

Nylon chains, steel chains or combined chains



WHEN GOOD ISN'T GOOD ENOUGH

CABLES UNDER EXTREME CONDITIONS

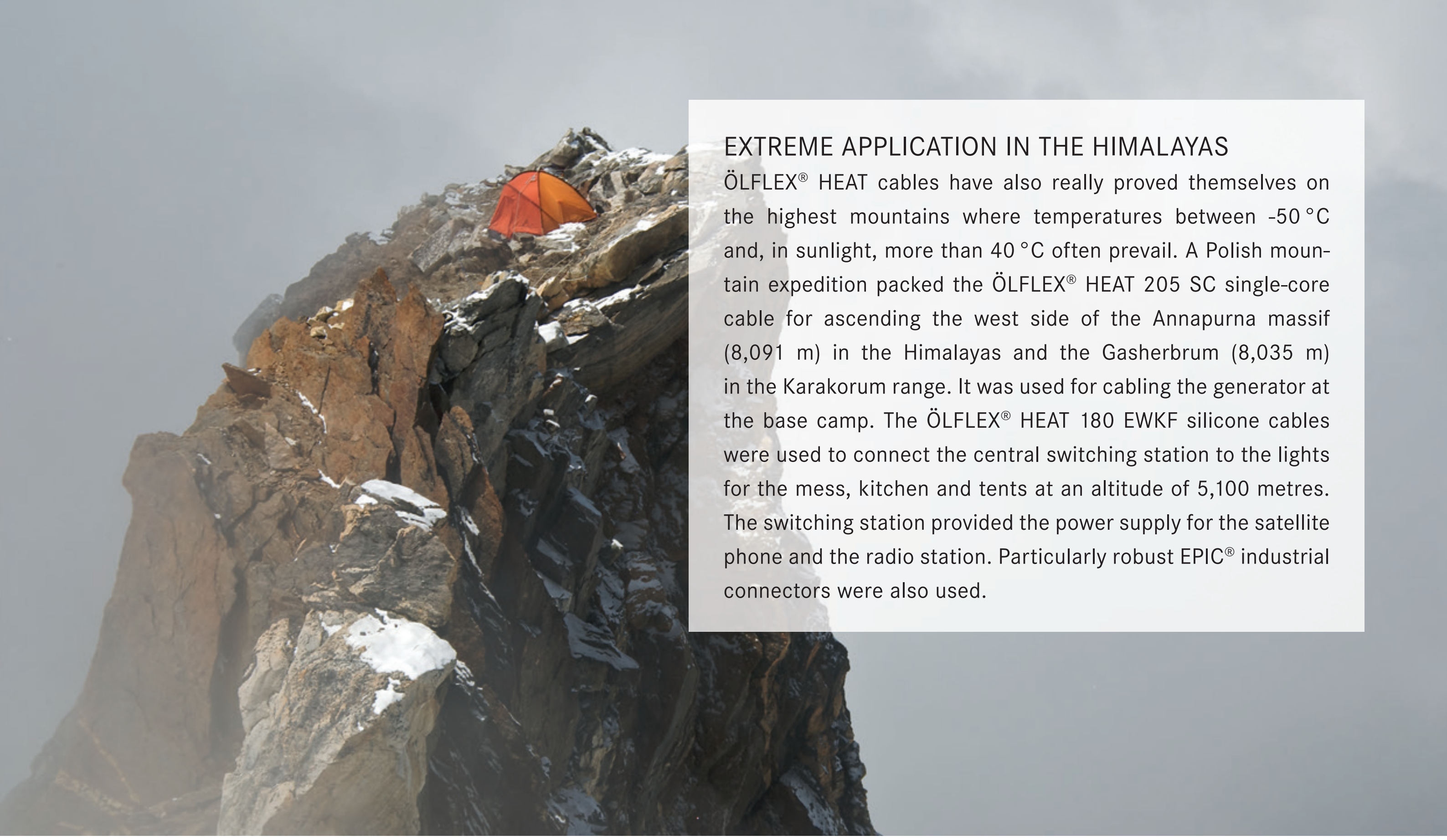
Whether at the North Pole or in the Himalayas, in mines or in underwater caves, in biogas plants or at sporting events in ice and snow, cables and industrial connectors from Lapp often need to withstand extreme conditions. They must withstand very high or very low temperatures, must not disintegrate in aggressive media such as acids or alkalis, and must be particularly robust against mechanical loads.

"Off the shelf" cables won't satisfy our most discerning users for long – there is the risk of failure after only a short time. This can lead to high losses and sometimes even endanger life, especially in areas or plants that are difficult to access.

ÖLFLEX® HEAT FOR THE ARCTIC

For example, for use in the Arctic where temperatures of below -50 °C are sometimes recorded in winter. Therefore, seafaring in the Arctic regions of the Arctic Ocean also requires considerable technical outlay. Nautical devices need to function reliably on a permanent basis as the locations where they are used are often so difficult to reach that maintenance work can only be performed every two years.

The Russian company Technomarine, based in St. Petersburg and specialised in the development and production of radio navigation equipment for the maritime and aviation sector, therefore relies solely on products from Lapp for cabling its beacons and navigation systems in the Arctic. The company particularly orders cables from Lapp that are easy to install and are resistant to low temperatures. They are used for connecting solar power systems, batteries and power modules for beacons and navigation systems.



EXTREME APPLICATION IN THE HIMALAYAS

ÖLFLEX® HEAT cables have also really proved themselves on the highest mountains where temperatures between -50 °C and, in sunlight, more than 40 °C often prevail. A Polish mountain expedition packed the ÖLFLEX® HEAT 205 SC single-core cable for ascending the west side of the Annapurna massif (8,091 m) in the Himalayas and the Gasherbrum (8,035 m) in the Karakorum range. It was used for cabling the generator at the base camp. The ÖLFLEX® HEAT 180 EWKF silicone cables were used to connect the central switching station to the lights for the mess, kitchen and tents at an altitude of 5,100 metres. The switching station provided the power supply for the satellite phone and the radio station. Particularly robust EPIC® industrial connectors were also used.

LIGHT FOR THE DEPTHS OF THE OCEAN

Taking light to the depths of the ocean – this is what the Polish company GRALmarine specialises in. ÖLFLEX® cables and SKINTOP® cable glands from Lapp are used for the connection technology within the underwater lamps. With SKINTOP® BS cable glands and ÖLFLEX® CLASSIC 440P or ÖLFLEX® CLASSIC 550P, lamps and systems from GRALmarine even work reliably at diving depths of more than 1,000 metres. Thanks to the special polyurethane sheath, these cables guarantee a long service life, even in rough operating conditions.

Here is the solution.
Where is the problem?

As far as the history of Lapp is concerned, it all began 55 years ago with cable solutions for industrial machinery and plant engineering – and to this day, industrial applications have remained our core expertise, as well as our favourite discipline. Whether it's wires or highly flexible cables, industrial connectors, cable glands or customised solutions – if you're faced with a challenge, Lapp has the solution. **www.lappgroup.com**

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
- Construction machinery, vehicles and agricultural equipment
- Stage technology
- Mobile electrical equipment (electric tools, power tools, domestic appliances)

Expanded ambient temperatures

Control Cabinet Single Cores

Building Installation

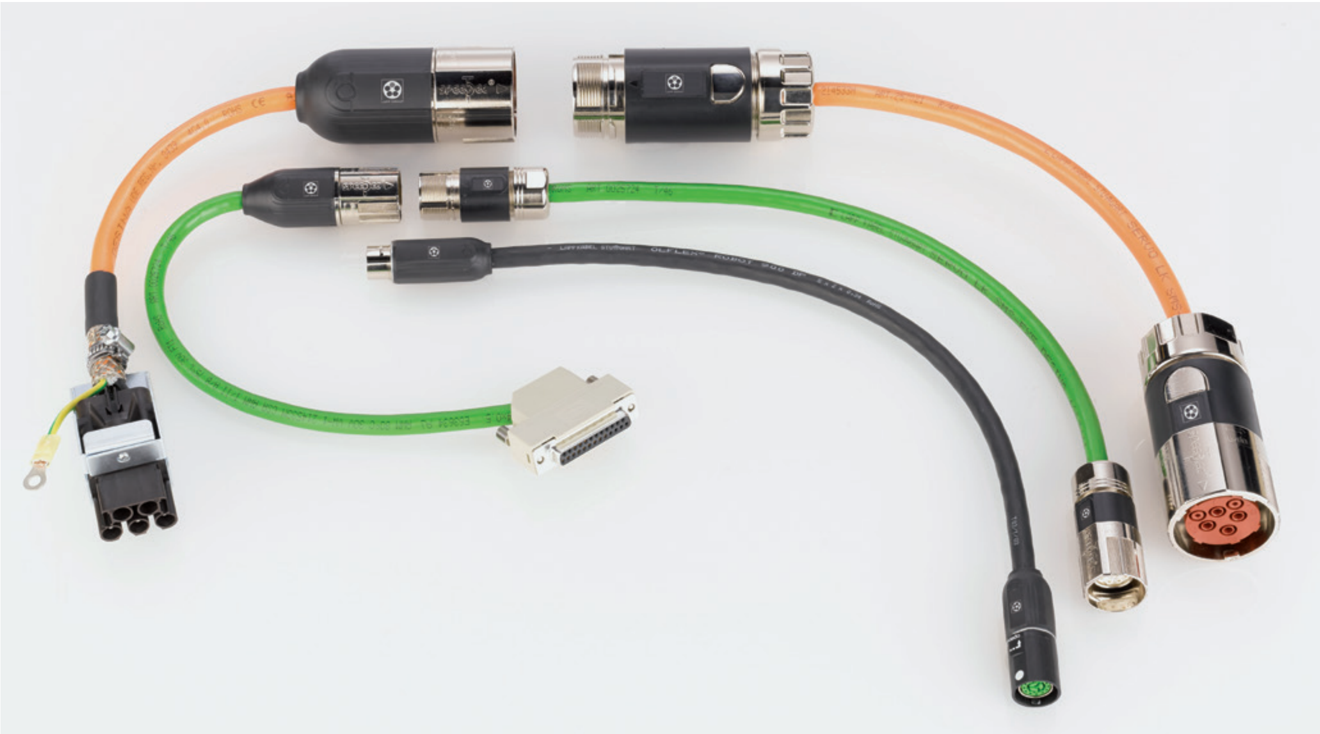
ÖLFLEX® CONNECT Systems Solutions

ÖLFLEX® CONNECT

Systems Solutions made by Lapp

Our dedicated and highly qualified team of engineers, technicians, sales and service personnel are with you throughout – from design to the creation of the prototype right through to production and quality control.

ÖLFLEX® CONNECT SERVO



Thanks to our expertise in manufacturing servo cables and circular connectors, we can provide you with solutions for all your servo-application needs: servo cables in three performance classes, connectors with standard interlocking screws or rapid interlocking system, overmolded assemblies.

Our newly designed servo assemblies
- Global quality standard with automated production process
- 360 degree screen contact for optimum protection against EMI
- All required approvals
- RFID option available

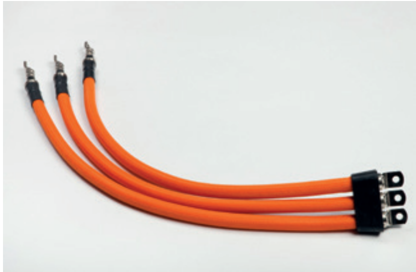
Find our servo assemblies from page 100 onwards

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 0.7 to 2.5 mm^2
- Unextended lengths of > 2.0 m are customizable

Find our spiral cable options from page 241 onwards

Various applications • PVC outer sheath and coloured cores

NEW

ÖLFLEX® CLASSIC 100 300/500V

Colour-coded PVC control cable

Info

- Nominal voltage U_0/U: 300/500V
- Identical to previous ÖLFLEX CLASSIC 100 up to 1,5mm² but with extended range of cross-section
- For nominal voltage U_0/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
- Now available with conductor cross-section from 2,5mm² as 300/500V version

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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
00101264	4 X 0.75	6.2	28.8	66
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

ÖLFLEX® CLASSIC 100 300/500V

Colour-coded PVC control cable

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0010045	6 G 1.0	8.0	58	124
0010046	7 G 1.0	8.0	67	131
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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1120804	7 G 2.5	11.1	168	267
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 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 63
- ÖLFLEX® CLASSIC 100 BK 0,6/1 kV refer to page 32
- ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV refer to page 69

Accessories

- SKINTOP® CLICK refer to page 715
- Detectable Cable ties refer to page 1059
- TY - FAST® cable ties refer to page 1058
- STAR STRIP stripping tool refer to page 1000

NEW

ÖLFLEX® CLASSIC 100 450/750V

Colour-coded PVC power and control cable

Info

- Nominal voltage U_0/U: 450/750V
- Identical to previous ÖLFLEX CLASSIC 100 starting at 2,5mm²
- For nominal voltage U_0/U: 300/500V and conductor cross-sections below 2,5mm² see ÖLFLEX® CLASSIC 100 300/500V

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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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

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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 100 300/500V refer to page 26
- ÖLFLEX® CLASSIC 100 H refer to page 63
- ÖLFLEX® CLASSIC 100 BK 0,6/1 kV refer to page 32

Accessories

- SKINTOP® CLICK refer to page 715
- Detectable Cable ties refer to page 1059
- STAR STRIP stripping tool refer to page 1000

ÖLFLEX® CLASSIC 100 YELLOW

Yellow outer sheath for special warning purposes

Info

- 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
- PVC outer sheath, yellow (RAL 1016)

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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; U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 450 P refer to page 84
- ÖLFLEX® 540 P refer to page 86

Accessories

- SKINTOP® CLICK refer to page 715
- STAR STRIP stripping tool refer to page 1000

ÖLFLEX® CLASSIC 100 CY

Colour-coded and screened PVC control cable

Info

- 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
- 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

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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: U_0/U: 300/500 V
From 1.5 mm²: U_0/U: 450/750 V
Fixed, protected installation: U_0/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 CY; U_0/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; U_0/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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 9YSLCY-JB refer to page 104
- ÖLFLEX® SERVO 2YSLCY-JB refer to page 102

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- 3M Scotch™ 1183 screening tape refer to page 1044
- SKINTOP® MS-M BRUSH refer to page 733

ÖLFLEX® CLASSIC 100 SY

Colour-coded PVC control cable with steel wire braiding

Info

- 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 5.0 Class-ID: EC001578
ETIM 5.0 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: U_0/U: 300/500 V
From 2.5 mm²: U_0/U: 450/750 V
From 2.5 mm², in the case of fixed and protected installations: U_0/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; U_0/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; U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 SY refer to page 41

Accessories

- KT cable shears refer to page 999

Various applications • PVC outer sheath and coloured cores

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
- Suitable for direct burial

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 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/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 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 69
- ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV refer to page 42

Accessories
- FLEXIMARK® Stainless steel kit refer to page 956
- SKINTOP® MS-M refer to page 724
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726

ÖLFLEX® SMART 108

Cost-effective VDE-registered PVC control cable

Info

- 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

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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	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 are not to scale and do not represent detailed images of the respective products.

Similar products

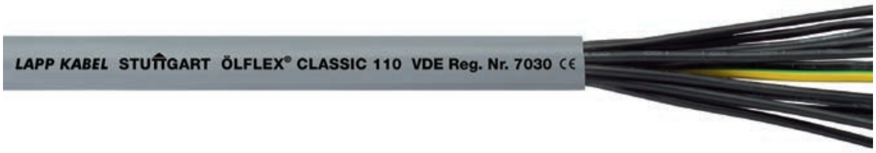
- ÖLFLEX® CLASSIC 110 refer to page 34
- ÖLFLEX® CLASSIC 110 refer to page 37

Accessories

- EPIC® Industrial connectors
- SKINTOP® ST-M refer to page 712

ÖLFLEX® CLASSIC 110

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



Info

- VDE certificate of conformity with factory surveillance
- More than 140 items with up to 100 conductors

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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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
1119065	65 G0.5		50	100			500		19.6	312	644

ÖLFLEX® CLASSIC 110

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

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			
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

ÖLFLEX® CLASSIC 110

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

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			
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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 191 refer to page 52

Accessories

- SKINTOP® CLICK refer to page 715

NEW

ÖLFLEX® CLASSIC 110

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

Info

- With black outer sheath, UV-resistant
- VDE certificate of conformity with factory surveillance

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)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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

Similar products

- ÖLFLEX® CLASSIC 110 LT refer to page 38
- ÖLFLEX® CLASSIC 110 BLACK 0,6/1 kV refer to page 42

Accessories

- SKINTOP® CLICK refer to page 715

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110				
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
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 are not to scale and do not represent detailed images of the respective products.

Various applications • PVC outer sheath and numbered cores

NEW

ÖLFLEX® CLASSIC 110 LT

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

Info

- Successor of ÖLFLEX CLASSIC 110 COLD, flexible down to -30°C
- UV and weather-resistant according to ISO 4892-2
- Torsion resistant for drip loops

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 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 H refer to page 64
- ÖLFLEX® ROBUST 210 refer to page 73

Accessories

- FLEXIMARK® Stainless steel kit refer to page 956
- SKINTOP® MS-M refer to page 724
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726

ÖLFLEX® CLASSIC 110 ORANGE

Info

- 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
- PVC outer sheath, orange (RAL 2003)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- H07V-K <HAR> refer to page 207
- Orange-coloured single cores

Accessories

- SKINTOP® CLICK refer to page 715

Various applications • PVC outer sheath and numbered cores

ÖLFLEX® CLASSIC 110 CY

Screened PVC control cable with transparent outer sheath

Info

- EMC-compliant
- VDE reg. no. 7030

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 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 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

Info

- Steel wire braiding for extra mechanical protection
- VDE reg. no. 7030

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 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	538
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 are not to scale and do not represent detailed images of the respective products.

Similar products

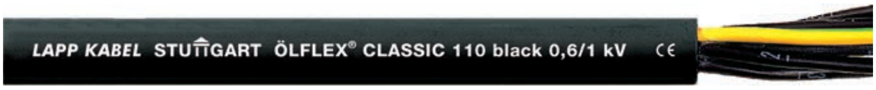
- ÖLFLEX® CLASSIC 100 SY refer to page 31

Accessories

- SKINTOP® MS-M refer to page 724
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726

Various applications • PVC outer sheath and numbered cores

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
- Enhanced suitability for direct burial in ground
- 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 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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	144
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
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	542
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 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 32
- ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV refer to page 69

Accessories

- SKINTOP® MS-M refer to page 724
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726
- KT cable shears refer to page 999

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)
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Enhanced suitability for direct burial in ground

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 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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	238
1121236	4 X0.75	11.4	67	238
1121237	5 G0.75	12.1	78	272
1121241	7 G0.75	12.9	97	315
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	273
1121308	3 X1.5	12.3	87	273
1121309	4 G1.5	13.0	102	290
1121310	4 X1.5	13.0	102	290
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	354
1121342	4 G2.5	14.6	168	413
1121344	5 G2.5	15.7	204	515
1121346	7 G2.5	17.0	265	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	1198
1121378	5 G16	26.7	935	1500
1121381	4 G25	29.8	1165	1814
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 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 70

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-M BRUSH refer to page 733

ÖLFLEX® CLASSIC 115 CY

Screened PVC control cable with small outer diameter

Info

- EMC-compliant
- Thin and light, without inner sheath

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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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

Similar products

- ÖLFLEX® ROBUST 215 C refer to page 74
- ÖLFLEX® CLASSIC 110 CY refer to page 40

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- 3M Scotch™ 1183 screening tape refer to page 1044
- SKINTOP® MS-M BRUSH refer to page 733

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 are not to scale and do not represent detailed images of the respective products.


ROHS
-Reg. -Nr. 6584
2629 - S/25
- LAPP KABEL STUTTGART
ÖLFLEX® CLASSIC 110
12 G 1,5
VDE-Reg. -Nr. 7030
KABEL STUTTGART
ÖLFLEX® SERVO FD 796 CP

ÖLFLEX® EB

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

Info

- For use within intrinsically safe circuits - type of protection 'i'

Benefits

- Space-saving installation due to small cable diameters

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

- 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
- PVC outer sheath, sky blue RAL 5015

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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
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 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 956
- SKINTOP® K-M ATEX plus blue refer to page 723

ÖLFLEX® EB CY

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

Info

- For use within intrinsically safe circuits - type of protection 'i'
- EMC-compliant

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

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)

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, sky blue RAL 5015

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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
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.
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 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 1044
- SKINTOP® K-M ATEX plus blue refer to page 723

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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 150 refer to page 50

Accessories

- SKINTOP® CLICK refer to page 715

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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 150 CY refer to page 51

Accessories

- KMK Label holders refer to page 989
- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-SC-M refer to page 732
- SKINTOP® MS-M BRUSH refer to page 733

ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES | APPENDIX

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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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 U_0/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: -5°C to +90°C
Fixed installation:
HAR: -40°C to +70°C
UL/CSA: -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® 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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 140* refer to page 48
- ÖLFLEX® 191 refer to page 52

Accessories

- SKINTOP® CLICK refer to page 715
- SKINTOP® ST-M refer to page 712

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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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 U_0/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: -5°C to +90°C
Fixed installation:
HAR: -40°C to +70°C
UL/CSA: -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® 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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

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

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-SC-M refer to page 732
- SKINTOP® MS-M BRUSH refer to page 733

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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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 U_0/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: -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® 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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 150 refer to page 50
- ÖLFLEX® CONTROL TM refer to page 54
- ÖLFLEX® TRAY II refer to page 58

Accessories

- SKINTOP® CLICK refer to page 715
- SKINTOP® ST-M refer to page 712
- KT cable shears refer to page 999

ÖLFLEX® 191 CY

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

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

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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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 U_0/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: -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® 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 150 CY refer to page 51
- ÖLFLEX® CONTROL TM CY refer to page 56
- ÖLFLEX® TRAY II CY refer to page 60

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-SC-M refer to page 732
- SKINTOP® MS-M BRUSH refer to page 733
- KT cable shears refer to page 999

ÖLFLEX® CONTROL TM

ÖLFLEX® Control Cable PVC, 0.6/1kV, UL TC-ER/WTTC/AWM20886/WET/OIL RES, 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

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

Application range

- Industrial machinery; plant engineering
- Machine tools compliant with UL MTW (Machine Tool Wiring)
- TC-ER (Tray Cable Exposed Run) approval for open wiring between cable tray and industrial machines/plants acc. to NEC 336.10(7)
- Wind turbines: USA Wind Turbine Tray Cable (WTTC)
- According to NEC/ NFPA 70 (2014), ARTICLE 501, for hazardous Class I, Division 2 locations determined in NEC ARTICLE 500

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
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Suitable for outdoor use thanks to technical UV and ozone resistance

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.
- UL cable type certifications for US use:
  - (UL) TC-ER per UL 1277 [UL file no.: E171371];
  - (UL) MTW per UL 1063 [UL file no.: E155920];
  - (UL) WTTC per UL 2277 [UL file no.: E323700];
  - UL AWM styles 2587 & 21098 (Oil) per UL 758 [UL file no.: E100338].

  Attributes:
  - UL OIL RES I/ II;
  - 75°C Wet, 90°C Dry;
  - Technically sunlight resistant (not SUN. RES. certified);
  - Direct burial;
  - Bus Drop Cable (2.5 mm²/ 14 AWG and larger, 3-core and 4-core versions only);
  - NFPA 79 2015 Edition;
  - FT4 flame retardance.

  NEC (NFPA 70):
  - Class 1, Division 2 per NEC Article 501.

  UL and CSA cable type certifications for use in Canada:
  - c(UL) CIC/ TC FT4 [UL file no.: E171371];
  - CSA AWM I/II A/B FT1;
  - CSA C22.2 210.2.

  Additionally:
  - Impact and Crush test per UL 1277 (excluding 0.75 mm²)

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 5.0 Class-ID: EC000104
ETIM 5.0 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/CSA: 1000 V (AWM)
VDE U_0/U: 600/1000 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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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
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	155
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 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 58

Accessories

• SKINTOP® MS-M refer to page 724
• SKINTOP® ST-M refer to page 712
• SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726

ÖLFLEX® CONTROL TM CY

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

Info

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

Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

Application range

- Industrial machinery; plant engineering
- Machine tools compliant with UL MTW (Machine Tool Wiring)
- TC-ER (Tray Cable Exposed Run) approval for open wiring between cable tray and industrial machines/plants acc. to NEC 336.10(7)
- Wind turbines: USA Wind Turbine Tray Cable (WTTC)
- According to NEC/ NFPA 70 (2014), ARTICLE 501, for hazardous Class I, Division 2 locations determined in NEC ARTICLE 500

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
- 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

- 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.
- UL cable type certifications for US use:
  - (UL) TC-ER per UL 1277 [UL file no.: E171371];
  - (UL) MTW per UL 1063 [UL file no.: E155920];
  - (UL) WTTC per UL 2277 [UL file no.: E323700];
  - UL AWM styles 2587 & 21098 (Oil) per UL 758 [UL file no.: E100338].

  Attributes:
  - UL OIL RES I/ II;
  - 75°C Wet, 90°C Dry;
  - Technically sunlight resistant (not SUN. RES. certified);
  - Direct burial;
  - Bus Drop Cable (2.5 mm²/ 14 AWG and larger, 3-core and 4-core versions only);
  - NFPA 79 2015 Edition;
  - FT4 flame retardance.

  NEC (NFPA 70):
  - Class 1, Division 2 per NEC Article 501.

  UL and CSA cable type certifications for use in Canada:
  - c(UL) CIC/ TC FT4 [UL file no.: E171371];
  - CSA AWM I/II A/B FT1;
  - CSA C22.2 210.2.

  Additionally:
  - Impact and Crush test per UL 1277 (excluding 0.75 mm²)

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 5.0 Class-ID: EC000104
ETIM 5.0 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/CSA: 1000 V (AWM)
VDE U_0/U: 600/1000 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	330
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
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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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 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 60

Accessories

- SKINTOP® MS-SC-M refer to page 732

LAPP GROUP

ÖLFLEX® TRAY II

ÖLFLEX® Control Cable 0.6/1kV, UL TC-ER/WTTC/AWM/WET/OIL RES/SUN RES, CSA AWM

Info

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

Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

Application range

- Industrial machinery; plant engineering
- TC-ER (Tray Cable Exposed Run) approval for open wiring between cable tray and industrial machines/plants acc. to NEC 336.10(7)
- Wind turbines: USA Wind Turbine Tray Cable (WTTC)
- According to NEC/ NFPA 70 (2014), ARTICLE 501, for hazardous Class I, Division 2 locations determined in NEC ARTICLE 500
- Suitable for outdoor use and direct burial

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

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.
- UL certifications for US use:
  - (UL) TC-ER per UL 1277
  [UL file no.: E171371];
  - (UL) MTW per UL 1063
  [UL file no.: E155920];
  - (UL) WTTC per UL 2277
  [UL file no.: E323700];
  - Submersible Pump (2.5 mm²/ 14 AWG & larger, only up to 7 cores);
  - (UL) PLTC-ER per UL 13 (4 mm²/ 12 AWG to and incl. 10 mm²/ 8 AWG) [E216027];
  - (UL) ITC-ER per UL 2250 (1 mm²/ 18 AWG to and incl. 4 mm²/ 12 AWG)
  [UL file no.: E196134];
  - DP-1 per UL 1690 [UL file no.: E233406];
  - UL AWM style 20886 per UL 758
  [UL file no.: E100338].

  Attributes:
  - UL OIL RES I/ II;
  - 75°C Wet, 90°C Dry;
  - Sunlight resistant;
  - Direct burial;
  - NFPA 79 2012+ 2015 Edition;
  - FT4 flame retardance.

  NEC (NFPA 70):
  - Class 1 Division 2 per NEC Article 501.

  UL/ CSA certifications for use in Canada:
  - cUL CIC/ TC FT4 [UL file no.: E171371];
  - CSA AWM I/II A/B FT4.

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 5.0 Class-ID: EC000104
ETIM 5.0 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)
VDE U_0/U: 600/1000 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	AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® Tray II					
221803	3 G 1.0		7.5	28.8	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

Article number	Number of cores and mm² per conductor	AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	191
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	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 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 54

Accessories

- SKINTOP® MS-M refer to page 724
- SKINTOP® ST-M refer to page 712
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726

ÖLFLEX® TRAY II CY

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

Info

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

Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

Application range

- Industrial machinery; plant engineering
- TC-ER (Tray Cable Exposed Run) approval for open wiring between cable tray and industrial machines/plants acc. to NEC 336.10(7)
- Wind turbines: USA Wind Turbine Tray Cable (WTTC)
- According to NEC/ NFPA 70 (2014), ARTICLE 501, for hazardous Class I, Division 2 locations determined in NEC ARTICLE 500
- Suitable for outdoor use and direct burial

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

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.
- UL certifications for US use:
  - (UL) TC-ER per UL 1277 [UL file no.: E171371];
  - (UL) MTW per UL 1063 [UL file no.: E155920];
  - (UL) WTTC per UL 2277 [UL file no.: E323700];
  - Submersible Pump (2.5 mm²/ 14 AWG & larger, only up to 7 cores);
  - (UL) PLTC-ER per UL 13 (4 mm²/ 12 AWG to and incl. 10 mm²/ 8 AWG) [E216027];
  - (UL) ITC-ER per UL 2250 (1 mm²/ 18 AWG to and incl. 4 mm²/ 12 AWG) [UL file no.: E196134];
  - DP-1 per UL 1690 [UL file no.: E233406];
  - UL AWM style 20886 per UL 758 [UL file no.: E100338].

  Attributes:
  - UL OIL RES I/ II;
  - 75°C Wet, 90°C Dry;
  - Sunlight resistant;
  - Direct burial;
  - NFPA 79 2012+ 2015 Edition;
  - FT4 flame retardance.

  NEC (NFPA 70):
  - Class 1 Division 2 per NEC Article 501.

  UL/ CSA certifications for use in Canada:
  - cUL CIC/ TC FT4 [UL file no.: E171371];
  - CSA AWM I/II A/B FT4.

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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)
VDE U_0/U: 600/1000 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	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

Article number	Number of cores and mm² per conductor	AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	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 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-SC-M refer to page 732

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 (RAL 2003)

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 500 P refer to page 85
- ÖLFLEX® 550 P* refer to page 88

Accessories

- SKINTOP® ST-M refer to page 712
- STAR STRIP stripping tool refer to page 1000

ÖLFLEX® CLASSIC 100 H

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

Info

- High flexibility and oil-resistance
- Nominal voltage 450/750V
- Torsion resistant for drip loops

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 made of special halogen-free compound, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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
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 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 69

Accessories

- SKINTOP® ST-HF-M refer to page 718

LAPP GROUP

ÖLFLEX® CLASSIC 110 H

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 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)
- 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 made of special halogen-free compound, grey (RAL 7001)

Info

- New: Extended application range due to GL certification
- High flexibility and oil-resistance
- VDE-certified

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 U_0/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 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

Info

- New: Extended application range due to GL certification
- High flexibility and oil-resistance
- Items with higher cross-sections on request

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)
- 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 made of special halogen-free compound, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 U_0/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
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 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

- VDE-certified
- For use within public buildings and industrial plants
- **New**: Extended application range GL certified and cold flexible down to -25°C

Benefits

- Easy installation due to flexible design
- Certified for maritime applications
- Substitutes ÖLFLEX® 120 H

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 style 21089
- 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 made of special halogen-free compound, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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
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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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
1123160	4 G 4	10.8	153.6	267

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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
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 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 69

Accessories

- SKINTOP® ST-HF-M refer to page 718

ÖLFLEX® CLASSIC 135 CH

Screened halogen-free control cable with improved fire characteristics

Info

- VDE-certified
- For use within public buildings and industrial plants
- **New**: Extended application range GL certified and cold flexible down to -25°C

Benefits

- Easy installation due to flexible design
- Space-saving installation due to small cable diameters
- Certified for maritime applications
- Substitutes ÖLFLEX® 120 CH

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 style 21089
- 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 made of special halogen-free compound, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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)

Various applications • Halogen-free

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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 CH refer to page 65
- ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV refer to page 70

Accessories

- SKINTOP® MS-SC-M refer to page 732
- SKINTOP® ST-HF-M refer to page 718

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

- Public buildings
- 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

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 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/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: +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
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	757
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 H refer to page 64
- ÖLFLEX® CLASSIC 130 H refer to page 66

Accessories

- SKINTOP® ST-HF-M refer to page 718

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

- Public buildings
- 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

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 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/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: +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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 110 CH refer to page 65
- ÖLFLEX® CLASSIC 135 CH refer to page 67

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-M BRUSH refer to page 733

ÖLFLEX® PETRO C HFFR

Chemically and mechanically robust cable for harsh environmental conditions - certified

Info

- Resistant to oil and drilling fluids acc. to NEK TS 606:2009 (Oil & Mud)
- Highly flame retardant
- UL/cUL certified for North America

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
- 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

Product features

- Resistant against oil and drilling fluids according NEK TS 606:2009 and IEC 61892-4
- Fire behaviour:
  - Halogen-free (VDE 0472-815)
  - Flame-retardant (IEC 60332-1-2)
  - No flame propagation (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

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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 U_0/U: 600/1000 V
Up to 1.0mm² 300/500 V

Test voltage
4000 V

Temperature range
Occasional flexing: -40°C to +90°C
According to UL/AWM: -40°C to +80°C
Fixed installation: -50°C to +90°C
according to UL/AWM: -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® 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				
0023275	3 G 0.5	10.1	36	140
0023274	2 X 1.0	10.5	41	149
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				
0023276	3 G 0.5	10.1	36	140
0023273	2 X 1.0	10.5	41	147
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 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

- Excellent 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 plant, animal or synthetic-based organic 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 agents
- Well-suited to frequent 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

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- H07RN-F, enhanced version refer to page 92
- ÖLFLEX® ROBUST 210 refer to page 73
- ÖLFLEX® ROBUST 215 C refer to page 74

Accessories

- FLEXIMARK® Stainless steel kit refer to page 956
- SKINTOP® MS-M refer to page 724
- SKINTOP® ST-HF-M refer to page 718
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726

ÖLFLEX® ROBUST 210

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

Info

- Excellent 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 plant, animal or synthetic-based organic 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 agents
- Well-suited to frequent 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

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 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 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

Info

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

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 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 agents
- Well-suited to frequent 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

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

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
- Outdoor use is possible within the indicated operating temperature range

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: silver grey (RAL 7001)
- DESINA®-compliant: black (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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
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

Harsh conditions • High mechanical and chemical resistance

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 408 P refer to page 79
- ÖLFLEX® 409 P refer to page 80
- ÖLFLEX® 440 P refer to page 81

Accessories

- SKINTOP® metric plastic cable glands

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
- Outdoor use is possible within the indicated operating temperature range

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: silver grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 415 CP refer to page 78
- ÖLFLEX® 440 CP refer to page 82
- ÖLFLEX® CLASSIC 415 CP
- ÖLFLEX® 440 CP

Accessories

- Conductor end sleeves
- SKINTOP® MS-SC-M refer to page 732

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
- Outdoor use is possible within the indicated operating temperature range

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: silver grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® ROBUST 215 C refer to page 74
- ÖLFLEX® CLASSIC 400 CP refer to page 77

Accessories

- Conductor end sleeves
- SKINTOP® MS-SC-M refer to page 732

NEW

ÖLFLEX® 408 P

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

Info

- High mechanical strength
- Good oil resistance
- 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 jacket stripping
- VDE-tested characteristics

Application range

- Appliance and apparatus construction
- Industrial machinery and machine tools
- Measurement, control and electrical applications
- Outdoor use is possible within the indicated operating temperature range
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress

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: silver grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

LAPP GROUP

Harsh conditions • High mechanical and chemical resistance

NEW

ÖLFLEX® 409 P

Abrasion- and oil-resistant PUR control cable for increased application requirements - certified for North America

Info

- Substitudes previous ÖLFLEX® 491 P
- UL/cUL certified for North America
- 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 jacket stripping
- Certified for the USA and Canada for export-oriented appliance and apparatus manufacturers

Application range

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

Product features

- High oil-resistance
- Flammability:
  UL/CSA: VW-1, FT1
  IEC/EN: 60332-1-2
- Abrasion and notch-resistant
- Low-adhesive surface
- Resistant to hydrolysis and microbes

Norm references / Approvals

- 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 (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 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

- Flexible down to -40°C
- 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

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- Cores twisted in layers
- Special polyurethane outer sheath (PUR)
- Sheath colour: silver grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® ROBUST 210 refer to page 73
- ÖLFLEX® CLASSIC 400 P refer to page 75

Accessories

- Conductor end sleeves
- SKINTOP® ST-M refer to page 712

ÖLFLEX® 440 CP

Screened, abrasion- and oil-resistant all-weather control cable with TPE insulation and PUR sheath - VDE certified

Info

- Halogen-free and flame-retardant
- VDE-tested and registered
- 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
- 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)
- Resistant to hydrolysis and microbes
- Flexible at low temperatures

Norm references / Approvals

- VDE reg. no. 6582

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: silver grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC 400 CP refer to page 77

Accessories

- Conductor end sleeves
- SKINTOP® MS-SC-M refer to page 732

ÖLFLEX® 491 P

Abrasion- and oil-resistant PUR control cable for increased application requirements - certified for North America

Info

- For the North American market
- High oil-resistance
- Discontinued product - Will be substituted of ÖLFLEX® 409 P

Benefits

- Certified for the USA and Canada for export-oriented appliance and apparatus manufacturers
- 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
- Metric flexible conductor design
- Also available as DESINA® compliant power cable with black outer sheath colour

Application range

- Appliance and apparatus construction
- Plant engineering
- Very suitable for oily wet areas within machinery and production lines that are subject to normal mechanical stress
- Outdoor use is possible within the indicated operating temperature range

Product features

- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface
- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- Resistant to hydrolysis and microbes

Norm references / Approvals

- In accordance with UL AWM Style 20234
- CUL AWM II A/B FT1
- 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, bare copper conductor
- Core insulation: special PVC
- Cores twisted in layers
- Special polyurethane outer sheath (PUR)
- Sheath colour: silver grey (RAL 7001)
- DESINA®-compliant: black (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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 U_0/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
Flexible use: -5°C to 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® 491 P - sheath colour: black				
0013009	3 G 1.0	7.7	27	73
0013017	3 G 1.5	8.3	44	100
0013018	4 G 1.5	9.0	58	123
0013019	5 G 1.5	9.8	72	150
0013020	7 G 1.5	10.7	101	197
0013021	12 G 1.5	13.8	173.4	344
0013023	25 G 1.5	20.0	360	682
0013024	3 G 2.5	9.2	72	152
0013025	4 G 2.5	9.9	96	200
ÖLFLEX® 491 P - sheath colour: grey				
0013208	2 X 1.0	7.3	19.2	62
0013210	4 G 1.0	8.2	35	89
0013212	7 G 1.0	9.7	61	138
0013213	12 G 1.0	12.5	105	232
0013214	18 G 1.0	14.8	157	340
0013215	25 G 1.0	17.8	218	454
0013223	3 G 1.5	8.3	44	100
0013220	4 G 1.5	9.0	57.6	123
0013222	7 G 1.5	10.7	101	197
0013225	12 G 1.5	13.8	173	344
0013226	18 G 1.5	16.6	260	488
0013227	25 G 1.5	20.0	360	682

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 409 P refer to page 80

Accessories

- Marking systems
- SKINTOP® Standard

ÖLFLEX® 450 P

Abrasion- and oil-resistant cable for handheld equipment with integrated 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
- Outdoor use is possible within the indicated operating temperature range

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 540 P refer to page 86
- ÖLFLEX® 550 P* refer to page 88

Accessories

- SKINTOP® BS-M refer to page 719
- SKINTOP® ST-M refer to page 712

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

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 540 P refer to page 86
- ÖLFLEX® 550 P* refer to page 88

Accessories

- Marking systems
- Conductor end sleeves
- SKINTOP® CLICK refer to page 715
- SKINTOP® ST-M refer to page 712

Harsh conditions • High mechanical and chemical resistance

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

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 5.0 Class-ID: EC001578
ETIM 5.0 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: U_0/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 U_0/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 U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® ROBUST 200 refer to page 72
- H07RN-F, enhanced version refer to page 92
- ÖLFLEX® 550 P* refer to page 88

Accessories

- SKINTOP® BS-M refer to page 719
- SKINTOP® MS-M refer to page 724
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726

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
- Additional robustness thanks to inner sheath
- The signal colour of the outer sheath increases safety and visual perception

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

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 5.0 Class-ID: EC001578
ETIM 5.0 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: U_0/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 U_0/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 U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® 440 CP refer to page 82

Accessories

- SKINTOP® MS-SC-M refer to page 732
- SKINDICHT® SM-PE-M refer to page 763

Harsh conditions • High mechanical and chemical resistance

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 5.0 Class-ID: EC001578
ETIM 5.0 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: U_0/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 U_0/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 U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® ROBUST 200 refer to page 72
- H05RN-F refer to page 90
- H07RN-F refer to page 91
- H07RN-F, enhanced version refer to page 92
- ÖLFLEX® 500 P refer to page 85
- ÖLFLEX® 540 P refer to page 86

Accessories

- Cutting tools for various applications
- Stripping tools
- SKINTOP® MS-M refer to page 724
- SKINTOP® ST-M refer to page 712
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- H05RN-F refer to page 90

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	80
1600252	3 G 0.75	6.2 - 8.1	21.6	95
16002583	4 G 0.75	6.8 - 8.8	28.8	105
1600251	2 X 1.0	6.1 - 8.0	19.2	95
1600253	3 G 1.0	6.5 - 8.5	28.8	115

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 are not to scale and do not represent detailed images of the respective products.

Similar products

- H07RN-F refer to page 91

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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 - 7.1	14.4	59
1600099	1 X 2.5	6.3 - 7.9	24	72
1600097	1 X 4	7.2 - 9.0	38.4	99
1600098	1 X 6	7.9 - 9.8	57.6	130
1600194	1 X 10	9.5 - 11.9	96	230
1600195	1 X 16	10.8 - 13.4	153.6	320
1600196	1 X 25	12.7 - 15.8	240	450
1600193	1 X 35	14.3 - 17.9	336	605
1600197	1 X 50	16.5 - 20.6	480	825
1600189	1 X 70	18.6 - 23.3	672	1090
1600190	1 X 95	20.8 - 26.0	912	1405
1600198	1 X 120	22.8 - 28.6	1152	1745
1600191	1 X 150	25.2 - 31.4	1440	1887
1600175	1 X 185	27.6 - 34.4	1776	2274
1600177	1 X 240	30.6 - 38.3	2304	2955
30015435	1 X 300	33.5 - 41.9	2880	3479
1600117	3 G 1.0	8.3 - 10.7	28.8	130
1600199	2 X 1.5	8.5 - 11.0	28.8	135
1600103	3 G 1.5	9.2 - 11.9	43.2	165
16001233	4 G 1.5	10.2 - 13.1	57.6	200
16001043	5 G 1.5	11.2 - 14.4	72	240
1600151	7 G 1.5	14.7 - 18.7	100.8	385
1600148	12 G 1.5	17.6 - 22.4	172.8	516
1600259	19 G 1.5	20.7 - 26.3	273.6	800
1600166	24 G 1.5	24.3 - 30.7	345.6	882
1600263	25 G 1.5	25.1 - 25.9	360	920
1600187	2 X 2.5	10.2 - 13.1	48	195
1600118	3 G 2.5	10.9 - 14.0	72	235
16001053	4 G 2.5	12.1 - 15.5	96	290
16001293	5 G 2.5	13.3 - 17.0	120	294
1600152	7 G 2.5	17.1 - 21.8	168	520
1600154	12 G 2.5	20.6 - 26.2	288	810
1600156	19 G 2.5	25.5 - 31.0	456	1200
1600157	24 G 2.5	28.8 - 36.4	576	1650
1600186	2 X 4	11.8 - 15.1	76.8	270
1600119	3 G 4	12.7 - 16.2	115.2	320
16001063	4 G 4	14.0 - 17.9	153.6	395
16001303	5 G 4	15.6 - 19.9	192	485
1600161	7 G 4	20.1 - 25.5	268.8	681
1600120	3 G 6	14.1 - 18.0	172.8	360
16001073	4 G 6	15.7 - 20.0	230.4	475
16001313	5 G 6	17.5 - 22.2	288	760
1600121	3 G 10	19.1 - 24.2	288	880
16001083	4 G 10	20.9 - 26.5	384	1060
16001093	5 G 10	22.9 - 29.1	480	1300
1600122	3 G 16	21.8 - 27.6	460.8	1090
16001103	4 G 16	23.8 - 30.1	614.4	1345
16001113	5 G 16	26.4 - 33.3	768	1680
16001123	4 G 25	28.9 - 36.6	960	1995
16001133	5 G 25	32.0 - 40.4	1200	2470
1600124	3 G 35	29.3 - 37.1	1008	1910
16001143	4 G 35	32.5 - 41.4	1344	2645
16001363	5 G 35	35.7 - 45.1	1680	2810
16001153	4 G 50	37.7 - 47.5	1920	3635
1600126	5 G 50	41.8 - 53.0	2400	4050
16001163	4 G 70	42.7 - 54.0	2688	4830
16001283	4 G 95	48.4 - 61.0	3648	6320
16001323	4 G 120	53.0 - 66.0	4608	6830
16000883	4 G 150	58.0 - 73.0	5760	8320
1600141	4 G 185	64.0 - 80.0	7104	9800
1600183	4 G 240	72.0 - 91.0	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- H07RN-F, enhanced version refer to page 92

Accessories

- SKINTOP® CLICK System
- EASY STRIP stripping and cutting tool refer to page 1004

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, UV/ Ozone resistant

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 und 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 acc. EN 50267-2 (sub-parts -1 and -2), flame-retardant according to IEC 60332-1-2 and low smoke density (LS) acc. EN 61034-2

Norm references / Approvals

- <HAR> H07RN-F cable type approval according to EN 50525-2-21

Product Make-up

- Strands of bare copper wires
- Core insulation: special rubber
- Outer sheath: special rubber compound

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
4533035	3 G 6	14.1 - 18.0	172.8	415
4533069	4 G 6	15.7 - 20.0	230.4	535
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- V 1311-A pressing pliers, hydraulic refer to page 1030
- STAR STRIP stripping tool refer to page 1000
- KT cable shears refer to page 999
- PVL 1300 pressing pliers battery-operated refer to page 1031

LAPP GROUP

H07ZZ-F

Machines, devices; halogen-free: events, locations with a high density of people and valuable assets

Info
- Public buildings

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
- Strands of bare copper wires
- Core insulation: rubber compound, halogen-free
- Outer sheath: rubber compound, halogen-free

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- H07RN-F refer to page 91
- H07RN-F, enhanced version refer to page 92

Accessories
- SKINTOP® CLICK System
- EASY STRIP stripping and cutting tool refer to page 1004
- PEW 8.87 crimping pliers refer to page 1016
- KS 20 cable shears refer to page 999

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 5.0 Class-ID: EC000824
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Accessories

- KS 20 cable shears refer to page 999

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 according IEC 60332-1-2
- Oil-resistant according to EN 60811-404
- High notch resistance
- Abrasion-resistant
- The outer diameters stated in the part number table are maximum values

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 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/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 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- H07RN-F, enhanced version refer to page 92
- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 163
- ÖLFLEX® CRANE PUR refer to page 164

Accessories
- STAR STRIP stripping tool refer to page 1000
- KT cable shears refer to page 999

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 U_0/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 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Accessories

- V 1311-A pressing pliers, hydraulic refer to page 1030
- KS 20 cable shears refer to page 999
- PVL 1300 pressing pliers battery-operated refer to page 1031

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

- The outer diameters stated in the part number table are maximum values
- 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 classes U_0/U 0.6/1 kVac and 3.6/6 kVac available on request

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 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Accessories

- V 1311-A pressing pliers, hydraulic refer to page 1030
- KS 20 cable shears refer to page 999
- PVL 1300 pressing pliers battery-operated refer to page 1031

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, 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

- Strands of bare copper wires
- Core insulation: rubber compound, type EI 4
- Outer sheath: rubber compound, type EM2

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	200
1600604	1 X 25	12.7 - 15.8	240	400
1600606	3 G 1.5	9.2 - 11.9	43.2	170
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- H07RN-F refer to page 91
- H07RN-F, enhanced version refer to page 92

Accessories

- SKINTOP® CLICK System
- EASY STRIP stripping and cutting tool refer to page 1004
- PEW 8.87 crimping pliers refer to page 1016
- KS 20 cable shears refer to page 999

ÖLFLEX® SERVO 700

Servo cable with shielded control pairs and PVC outer sheath for static use

Info

- Power, brake, temperature
- Fits to servo drive systems from various manufacturers
- Without overall screening

Benefits

- One common cable for multiple circuits

Application range

- Connecting cable between servo controller and motor
- For static and occasionally flexible use
- Industrial machinery and plant engineering
- Only for outdoor use within the indicated operating temperature range, with UV-protection
- In dry, damp or wet interiors with normal mechanical stress conditions

Product features

- Flame retardant acc. to IEC 60332-1-2

Norm references / Approvals

- Core based on VDE 0812/0250/0285
- Outer sheath based on VDE 0245/0285

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: PVC
- Control pairs 0.34 mm², colour-coded, from 0.5 mm² black with consecutive imprinted numbering
- Control pair with laminated aluminium film and tinned-copper wire screening
- The model with one control pair does not have laminated aluminium foil (FDF).
- Core and pairs are twisted together
- PVC outer sheath, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description:
Control cable

Core identification code
Versions with 2 pairs or 1 star quad:
Power cores: black with white numbers 1-3 and GN/YE protective conductor;
Control cores: black with white numbers 5-8 (numbering increases in line with cross-section); 0.34 mm² pairs: WH/BR/GN/YE
Versions with 1 control pair:
Power cores: (4+7 cored): black with white numbers 3-5 or 3-8 and GN/YE protective conductor;
Power cores (5 cored): coloured according to VDE 0293-1
Control cores: black with white numbers 1-2

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
Power cores: U_0/U 600/1000 V
Control core pairs: 250 V/AC

Test voltage
Power cores:
C/C: 4000 V; C/S: 2000V
Control cores:
C/C: 1500 V; C/S: 750 V

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

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

Accessories

- EPIC® POWER LS1
- SKINTOP® ST-M refer to page 712

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO 700				
0036140	4 G 0,75 + 2 x (2 x 0,34)	9.5	91.9	120
0036145	4 G 1,5 + 2 x (2 x 0,75)	12.1	100.6	185
0036150	4 G 2,5 + (2 x 2 x 0,75)	13.9	142.1	327
0036151	4 G 4 + (2 x 0,75 + 2 x 1,0)	15.8	217.8	423
0036152	4 G 6 + (2 x 0,75 + 2 x 1,0)	16.7	294.6	544
0036154	4 G 16 + (2 x 2 x 1,0)	23.5	668.8	1168
0036025	4 G 1,5 + (2 x 0,75)	11.7	98	149
0036001	5 G 1,5 + (2 x 0,75)	12.7	110	160
0036015	7 G 1,5 + (2 x 0,75)	12.4	144.8	210
0036026	4 G 2,5 + (2 x 0,75)	13.1	138.6	227
0036020	7 G 2,5 + (2 x 0,75)	15.2	215.7	334

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® SERVO 720 CY

Screened encoder cable with PVC outer sheath for static use

Info

- Feedback signalling
- Fits to various encoder systems
- In EMC-sensitive environments

Benefits

- Thin, lightweight, reliable functionality
- Easy to install
- Total screening reduces interferences from nearby cables

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

- Flame-retardant according to IEC 60332.1.2

Norm references / Approvals

- Core based on VDE 0812/0285
- Outer sheath based on VDE 0250/0285
- This product is designed for appropriate use in a voltage range < 50 V AC or 75 V DC. Therefore, the EEC (Low Voltage Directive) does not apply

Product Make-up

- Fine-wire, bare copper conductor
- Core insulation: Based on PVC
- Refer to “Technical Data” for the colour-codes
- Core and pairs are twisted together
- Tinned copper screen braiding (*with drain wire)
- PVC outer sheath, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Core identification code
0036170 pairs: rd/bk, bn/gn, gy/pk, bl/vt; single cores: wt, bn
0036175 cores 0.14: wt, bn, gn, ye, gy, pk, bl, rd, bk, vt; cores 0.5: wt, bn
0036177 cores 0.14: wt, bn, gn, ye, gy, pk, bl, rd, bk, vt; cores 0.5: wt, bn, bl, bk
0036178 cores 0.5: wh, bn, gn, ye; cores 0.14 DIN 47100 from grey
0036181 pairs 0.14: rd/bk, bn/gn, ye/vt, gy/pk; single core 0.5: wh, bl, wtgn, bngn
0036168 pairs: 0.14 gn/ye, rd/bl, gy/pk; single core 0.5: wt, bn

Peak operating voltage
350 V Uss (not for power applications)
Nominal voltage: 48 V AC

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

Test voltage
C/C: 2000 V
C/S: 1000 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® SERVO 720 CY				
0036170	4 x 2 x 0,25 + 2 x 1,0 *	8.9	70.8	128
0036175	10 x 0,14 + 2 x 0,5	7.9	39.3	88
0036177	10 x 0,14 + 4 x 0,5	8.0	51.1	94
0036178	15 x 0,14 + 4 x 0,5	8.7	59.7	125
0036181	4 x 2 x 0,14 + 4 x 0,5	8.1	48.8	95
0036168	3 x (2 x 0,14) + 2 x (0,5)	8.5	67	129

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 798 CP refer to page 112
- Special Encoder and resolver cables refer to page 118

Accessories

- EPIC® SIGNAL M23 Housings
- EPIC® SIGNAL M23 Inserts
- EPIC® SIGNAL M23 Contacts, tools, accessories

LAPP GROUP

NEW

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 drive 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 and direct burial

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 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/U: 600/ 1000 V

Test voltage
Core/Core: 4 kV
Core/Screen: 4 kV

Protective conductor
G = with GN-YE protective conductor
X = witout 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 9YSLCY-JB refer to page 104

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-SC-M refer to page 732
- SKINTOP® MS-M BRUSH refer to page 733

NEW

ÖLFLEX® SERVO 719 CY

Screened, low capacitive servo cable with PVC outer sheath for static use - certified for North America

Info

- Successor of ÖLFLEX® SERVO 700 CY and ÖLFLEX® SERVO 709 CY
- Low-capacitance design
- EMC-compliant

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 screened control core pairs twisted together in short lay lengths
- Tinned copper screen braiding
- PVC outer sheath, orange (RAL 2003)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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 U_0/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)	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
1020019	4 G 1,5 + (2 x 1,5)	11.5	146	242
1020020	4 G 2,5 + (2 x 1,5)	12.9	189	306
1020021	4 G 4 + (2 x 1,5)	15.0	271	420
1020022	4 G 6 + (2 x 1,5)	17.0	351	529
1020023	4 G 10 + (2 x 1,5)	19.5	540	752
1020024	4 G 0,75 + 2 x (2 x 0,34)	9.7	99	163
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® POWER LS1
- SKINTOP® MS-M BRUSH refer to page 733

ÖLFLEX® SERVO 9YSLCY-JB

EMC-optimised motor cable, low-capacitance, double-screened, certified

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 drive due to low capacitance design
- Symmetrical 3+3 Version supports the reduction of bearing currents
- 9YSLCY black design: also for outdoor applications, as well as buried underground, but not for USA or Canada

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

Info

- EMC-optimised design
- 3+3 symmetry reduces common-mode interference effects
- AWM certification for USA and Canada

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 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 U_0/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 +70°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
UL/CSA: -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 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	34.1	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 2YSLCY-JB refer to page 102

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-SC-M refer to page 732
- SKINTOP® MS-M BRUSH refer to page 733

NEW

ÖLFLEX® SERVO 7DSL

Low capacitive hybrid servo cable with PVC outer sheath for static use - certified for North America

Info

- OCS - One Cable Solution
- 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 lenght: 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 5.0 Class-ID: EC000104
ETIM 5.0 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: U_0/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.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
HIPERFACE DSL® is a registered trademark of SICK AG
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 719 CY refer to page 103

Accessories

- Protective cable conduit systems and cable carrier systems
- Circular connectors

SERVO cables in acc. to SIEMENS® Standard 6FX 5008-

Motor and resolver/encoder cables - certified

Info

- Servo drives
- EMC-compliant

Benefits

- Motor & servo motor cables up to 6 mm²: low capacitance characteristics due to PP insulation
- Multi-standard certification reduces part varieties and saves costs

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

- Oil-resistant
- Flame-retardant according to IEC 60332-1-2 & CSA FT1
- EMC-compliant

Norm references / Approvals

- Power cable:
  VDE-registered
  UL/CSA AWM Style 2570
- Signal cables:
  UL/CSA AWM style 2502
- UL File No. E63634

Product Make-up

- Design according to SIEMENS® standard 6FX 5008
- Core insulation: up to 6 mm² = PP; 10 mm² and larger = PVC
- Core and pairs are twisted together
- Tinned-copper braiding
- Outer sheath made of special PVC compound
- Signal cables: green (RAL 6018)
- Motor and servomotor cables: orange (RAL 2003)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description:
Control cable

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

Minimum bending radius
For fixed installation:
5 x outer diameter
For flexible use:
15 x outer diameter

Nominal voltage
Signal cables:
30 V AC (IEC)
30 V AC/DC (UL/CSA)
Power cable:
- Power cores:
U_0/U 600/1000 V (IEC)
1000 V (UL/CSA)
- Control cores:
30 V AC (IEC)
1000 V (UL/CSA)

Test voltage
Power cable:
Power cores: 4000 V
Control cores: 2000 V
Signal cables: 500 V

Temperature range
Fixed installation: -20°C to +80°C
Flexing: from -0°C to +60°C

Article number	Number of cores and mm² per conductor	Reference article no.	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Signal cables					
0025724	4 x 2 x 0,38 + 4 x 0,5	6FX5008-1BD21	9.0	76.4	120
0025725	3 x (2 x 0,14) + 4 x 0,14 + 2 x 0,5	6FX5008-1BD41	8.9	63	100
0025726	3 x (2 x 0,14) + 4 x 0,14 + 2 x 0,5 + 4 x 0,23	6FX5008-1BD51	9.5	69	139
Motor cables					
00257001	4 G1.5	6FX5008-1BB11 LC	8.0	88	131
00257011	4 G2.5	6FX5008-1BB21 LC	9.6	132	219
00257021	4 G4	6FX5008-1BB31 LC	11.0	195	312
00257031	4 G6	6FX5008-1BB41 LC	13.1	280	380
0025704	4 G10	6FX5008-1BB51	19.3	445	620
0025705	4 G16	6FX5008-1BB61	23.3	715	1060
0025706	4 G25	6FX5008-1BB25	26.9	1110	1640
0025707	4 G35	6FX5008-1BB35	30.3	1540	2310
0025708	4 G50	6FX5008-1BB50	36.5	2160	3240
Servo cables					
00257151	4 G 1,5 + (2 x 1,5)	6FX5008-1BA11 LC	10.4	150	248
00257161	4 G 2,5 + (2 x 1,5)	6FX5008-1BA21 LC	12.0	194	310
00257171	4 G 4 + (2 x 1,5)	6FX5008-1BA31 LC	13.6	272	445
00257181	4 G 6 + (2 x 1,5)	6FX5008-1BA41 LC	15.6	351	554
0025719	4 G 10 + (2 x 1,5)	6FX5008-1BA51	21.0	536	806

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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. DESINA® is a registered trademark of the German Machine Tool Builders' Association.
Article numbers refer to genuine Lapp products.
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 796 CP refer to page 110
- SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS refer to page 114

Accessories

- Circular connectors
- SKINTOP® EMC/Earthing

SERVO Cables in acc. to SEW® Standard

Screened, low capacitive servo cable with PVC outer sheath for static use - certified for North America

Info
- Servo drives
- EMC-compliant

Benefits
- Multi-standard certification reduces part varieties and saves costs
- Longer cable installation lengths thanks to low mutual capacitance cable design
- Copper braiding screens the cable against electromagnetic interference

Application range
- Specially designed to connect SEW servomotors
- Connecting cable between servo controller and motor
- For static and occasionally flexible use
- Industrial machinery and machine tools
- Plant engineering

Product features
- Oil-resistant
- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

Norm references / Approvals
- Based on VDE 0250 / 0285
- UL-AWM-Style 2570
- UL File No. E63634

Product Make-up
- Fine-wire, bare copper conductor
- Core insulation: TPE
- Control core triplet with laminated aluminium film and a layer of tinned-copper wires
- Cores twisted in short lay lengths
- Tinned-copper braiding
- PVC outer sheath, orange (RAL 2003)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Core identification code
Power: black cores with U, VV, WWW printing and 1 core gnye
Control cores: black cores with numbers 1, 2 and 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: 4 x outer diameter

Nominal voltage
Power cores: IEC 750 V, UL 600 V
Control cores: IEC 350 V, UL 600 V

Test voltage
2000 V

Protective conductor
G = with GN-YE protective conductor

Temperature range
Flexing: -10°C to +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)
Servo cables				
0038060	4 G 1,5 + (3 x 1,0)	11.8	151	300
0038061	4 G 2,5 + (3 x 1,0)	13.4	212.9	370
0038062	4 G 4 + (3 x 1,0)	15.0	281.8	476
0038063	4 G 6 + (3 x 1,5)	17.0	392.8	625
0038064	4 G 10 + (3 x 1,5)	20.0	625.1	1024

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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).
SEW® is a registered trademark of SEW Eurodrive GmbH & Co KG, Ernst-Blickle Str. 42, D-76646 Bruchsal
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-SC-M refer to page 732
- SKINTOP® MS-M BRUSH refer to page 733

ÖLFLEX® SERVO FD 781 CY

Screened, low capacitive servo cable with PVC outer sheath for flexible power chain application

Info

- Core Line for ordinary duty in power chain applications
- EMC-compliant

Benefits

- Well-proven and reliable
- Longer cable connection possible between frequency converter and drive 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
- Designed for 5 million alternating bending cycles and travel distances up to 10 meter

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 5.0 Class-ID: EC000104
ETIM 5.0 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: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 600/1000 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: -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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 796 CP refer to page 110
- SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS refer to page 114

Accessories

- Rectangular connectors
- EPIC® POWER LS1
- SKINTOP® EMC/Earthing

ÖLFLEX® SERVO FD 796 P

Servo cable with PUR outer sheath for highly dynamic power chain application - certified for North America

Info
- Extended Line for heavy duty in power chain applications
- 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 drive 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
- Dynamic power chain performance: Acceleration up to 50 m/s². Travel speeds up to 5 m/s. Travel distances up to 100 m.
- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter
- 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 (from 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 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC U_0/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

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	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	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. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products
- ÖLFLEX® SERVO FD 796 CP refer to page 110

Accessories
- Protective cable conduit systems and cable carrier systems
- Circular connectors

ÖLFLEX® SERVO FD 796 CP

Screened servo cable with PUR outer sheath for highly dynamic power chain application - certified

Info

- Extended Line for heavy duty in power chain applications
- AWM certification for USA and Canada
- VDE-tested characteristics

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 drive 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

- Dynamic power chain performance: Acceleration up to 50 m/s². Travel speeds up to 5 m/s. Travel distances up to 100 m.
- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter
- 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 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 screened control core pairs twisted together in short lay lengths
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
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 U_0/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

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	Number of cores and mm² per conductor	Outer diameter (mm)	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
0027959	4 G 1,5 + (2 x 1,5)	11,6	135	261
0027960	4 G 2,5 + (2 x 1,5)	13,4	188	318
0027961	4 G 4 + (2 x 1,5)	14,8	235	385
0027962	4 G 6 + (2 x 1,5)	16,8	329	486
0027963	4 G 10 + (2 x 1,5)	19,4	515	701
0027964	4 G 16 + (2 x 1,5)	23,1	757	1048
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	2181	2721
0027969	4 G 1,5 + 2 x (2 x 0,75)	12,2	155	313

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0027970	4 G 2,5 + 2 x (2 x 1,0)	14,6	212	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	339	485
0027972	4 G 6 + (2 x 1,0) + (2 x 1,5)	18,1	441	588
0027973	4 G 10 + (2 x 1,0) + (2 x 1,5)	21,8	606	819
0027974	4 G 16 + 2 x (2 x 1,5)	25,5	797	1135
0027975	4 G 25 + 2 x (2 x 1,5)	28,8	1182	1559
0027976	4 G 35 + 2 x (2 x 1,5)	30,9	1583	2093
0027977	4 G 50 + 2 x (2 x 2,5)	36,3	2252	2920

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- Circular connectors
- SKINTOP® EMC/Earthing

ÖLFLEX® SERVO FD 798 CP

Screened encoder cable with PUR outer sheath for highly dynamic power chain application - certified

Info

- Extended Line for heavy duty in power chain applications
- 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

- Dynamic power chain performance:
  Acceleration up to 50 m/s².
  Travel speeds up to 5 m/s.
  Travel distances up to 100 m.
- 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 5.0 Class-ID: EC000104
ETIM 5.0 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
Flexible use: 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

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	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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- Circular connectors
- SILVYN® CHAIN cable protection and guiding systems

NEW

ÖLFLEX® SERVO FD 7DSL

Low capacitive hybrid servo cable with PUR outer sheath for highly dynamic power chain application - certified

Info

- OCS - One Cable Solution
- Suitable for Hiperface DSL® motor-feedback systems
- Extended Line for heavy duty in power chain applications

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

- Dynamic power chain performance:
  Acceleration up to 50 m/s².
  Travel speeds up to 5 m/s.
  Travel distances up to 20m.
- Maximum DSL transmission lenght: 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 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use:
7.5 x outer diameter
Fixed installation: 5 x outer diameter

Nominal voltage
Power and control:
IEC: U_0/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

Alternating bending cycles
10 mio. cycles

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)
ÖLFLEX® SERVO FD 7DSL				
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	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	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. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
HIPERFACE DSL® is a registered trademark of SICK AG
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 7DSL refer to page 105
- ÖLFLEX® SERVO FD 796 CP refer to page 110

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.
- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter
- 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 horizontal travel distances up to 100m
- 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 5.0 Class-ID: EC000104
ETIM 5.0 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:
U_0/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

Alternating bending cycles
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	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 G1.5	6FX8008-1BB11-Plus	9,1	90	150
0027785	4 G2.5	6FX8008-1BB21-Plus	10,6	132	220
0027786	4 G4	6FX8008-1BB31-Plus	11,9	204	300
0027787	4 G6	6FX8008-1BB41-Plus	14,5	315	450
0027788	4 G10	6FX8008-1BB51-Plus	17,5	488	660
0027789	4 G16	6FX8008-1BB61-Plus	21,6	769	1010
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

Article number	Number of cores and mm² per conductor	Reference article no.	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	2188	2760

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 796 CP refer to page 110

Accessories

- Circular connectors
- SKINTOP® EMC/Earthing

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

Similar products

- ÖLFLEX® SERVO FD 796 CP refer to page 110

Product features

- Designed for 5 million alternating bending cycles
- 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 5.0 Class-ID: EC000104
ETIM 5.0 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:
U_0/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

Alternating bending cycles
5 mio. cycles

Temperature range
Fixed installation: -50°C to +80°C
Flexing: -30°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	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	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	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	1231	1420

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 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

Info

- Servo drives
- For static or highly flexible use
- EMC-compliant

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)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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:
U_0/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	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	65	136
Motor cables for power chain application				
7072509	4 G 1,0 + (2 x 0,5)	10	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	44	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. Detailed values (e.g. tolerances) are 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 und 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- Circular connectors
- SKINTOP® EMC/Earthing

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

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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	green	60	121

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO FD 798 CP refer to page 112
- SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS refer to page 114
- SERVO cables in acc. to INDRAMAT® Standard INK refer to page 116

Accessories

- Circular connectors
- SKINTOP® EMC/Earthing
- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CLASSIC FD 810

Highly flexible control cable with PVC core insulation and PVC sheath

Info

- Core Line for ordinary duty in power chain applications
- The classic for multi-functional use

Benefits

- Well-proven and reliable
- Cost-effective solution
- 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

- Designed for 5 million alternating bending cycles and travel distances up to 10 meter
- Flame-retardant according IEC 60332-1-2
- Low-adhesive surface

Norm references / Approvals

- Core based on VDE 0245/0285
- 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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use:
7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
4000 V

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

Alternating bending cycles
5 mio. cycles

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	10.6	120	214
0026181	4 G 4	11.7	160	266
0026182	5 G 4	13.1	200	325
0026183	4 G 6	13.9	230.4	396
0026184	5 G 6	15.5	288	484
0026185	4 G 10	17.6	384	644
0026186	5 G 10	19.6	480	785
0026187	4 G 16	21	615	922
0026188	5 G 16	23.6	768	1133

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

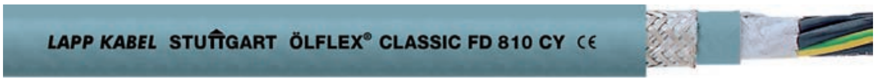
- ÖLFLEX® FD 891 refer to page 127

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CLASSIC FD 810 CY

Highly flexible, screened control cable with PVC core insulation and PVC inner and outer sheath



Info

- Core Line for ordinary duty in power chain applications
- The classic for multi-functional use
- EMC-compliant

Benefits

- Well-proven and reliable
- Cost-effective solution
- 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

- Designed for 5 million alternating bending cycles and travel distances up to 10 meter
- Flame-retardant according IEC 60332-1-2
- Low-adhesive surface
- EMC-compliant

Norm references / Approvals

- Core based on VDE 0245/0285
- 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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use:
7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
4000 V

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

Alternating bending cycles
5 mio. cycles

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 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
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. Detailed values (e.g. tolerances) are 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 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-M BRUSH refer to page 733
- 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

Info

- Basic Line for light & ordinary duty in power chain applications
- AWM certification for USA and Canada

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Easy to install
- Multifunctional application possibilities
- Under consideration of the temperature range also suitable for flexible outdoor use

Application range

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- This cable can substitute multi-core power cables where space requirements or minimum bending radii cause problems
- Specially designed for power circuits of servomotors driven by frequency converters
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

Product features

- Designed for 2 million alternating bending cycles and travel distances up to 10 meter
- 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 (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 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: 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 600 V

Test voltage
4000 V

Alternating bending cycles
2 mio. cycles

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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CHAIN 90 P
- ÖLFLEX® FD 90 refer to page 123

Accessories

- SILVYN® CHAIN cable protection and guiding systems

NEW

ÖLFLEX® CHAIN 809 SC CY

Highly flexible, screened single core cable with PVC insulation and PVC sheath - certified for North America

Info

- Basic Line for light & ordinary duty in power chain applications
- AWM certification for USA and Canada
- EMC compliant copper screening

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Easy to install
- Multifunctional application possibilities
- Under consideration of the temperature range also suitable for flexible outdoor use
- Copper braiding screens the cable against electromagnetic interference

Application range

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- This cable can substitute screened multi-core motor cables where space requirements or minimum bending radii cause problems
- Specially designed for power circuits of servomotors driven by frequency converters
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

Product features

- Designed for 2 million alternating bending cycles and travel distances up to 10 meter
- 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 (RAL 9005)

Technical data

Core identification code
Black, other colours are available upon request

Specific insulation resistance
> 20 GOhm x cm

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

Minimum bending radius
Flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 600 V

Test voltage
4000 V

Alternating bending cycles
2 mio. cycles

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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CHAIN 90 CP
- ÖLFLEX® FD 90 CY refer to page 124

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 for ordinary duty in power chain applications
- 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

Application range

- In power chains or moving machine parts
- For internal wiring of electric and electronic equipment in switch cabinets
- This cable can substitute multi-core power cables where space requirements or minimum bending radii cause problems
- Specially designed for power circuits of servomotors driven by frequency converters
- Test systems in the automotive industry, vehicles and stationary fuel cell systems

Product features

- Designed for 5 million alternating bending cycles and travel distances up to 10 meter
- 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 ≤ 120mm²
- 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 (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 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: 7.5 x outer diameter
Fixed installation: 3 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 600 V

Test voltage
4000 V

Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: -5°C to +90°C
Fixed installation: -40°C to +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. Detailed values (e.g. tolerances) are 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 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 for ordinary duty in power chain applications
- 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

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

- Designed for 5 million alternating bending cycles and travel distances up to 10 meter
- 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 ≤ 120mm²
- 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 (RAL 2003)

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 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
For flexible use:
7.5 x outer diameter
Fixed installation: 3 x outer diameter

Nominal voltage
IEC: U_0/U 600/1000 V
UL & CSA: 600 V

Test voltage
4000 V

Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: -5°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)
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	1410.4	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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-M BRUSH refer to page 733
- 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 for light & ordinary duty in power chain applications
- AWM certification for USA and Canada

Benefits

- Good combination of quality and price
- Compact design
- Multi-standard certification reduces part varieties and saves costs
- Ideal for export-oriented machinery and equipment 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
- PVC outer sheath, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible applications:
Chains in self supporting non-gliding arrangements: 10 x outside diameter
Chains in gliding arrangements: 12 x outside diameter
Fixed installation: 4 x outer diameter

Nominal voltage
VDE: U_0/U: 300/500 V
UL & CSA: 1000 V

Test voltage
4000 V

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

Alternating bending cycles
2 mio. cycles

Temperature range
Flexing: VDE 0 °C to +70 °C
UL 0 °C to +80 °C
Fixed installation: VDE -40°C to +70°C; UL/CSA -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® 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	11.1	160	266

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 100 m; Drum (500; 1000) m
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC FD 810 refer to page 119

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 for light & ordinary duty in power chain applications
- AWM certification for USA and Canada
- EMC compliant copper screening

Benefits

- Good combination of quality and price
- Thin and light, without inner sheath
- Multi-standard certification reduces part varieties and saves costs
- Ideal for export-oriented machinery and equipment 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
- 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
- Tinned-copper braiding
- PVC outer sheath, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible applications:
Chains in self supporting non-gliding arrangements: 10 x outside diameter
Chains in gliding arrangements:
12 x outside diameter
Fixed installation: 4 x outer diameter

Nominal voltage
VDE: U_0/U: 300/500 V
UL & CSA: 1000 V

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

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

Alternating bending cycles
2 mio. cycles

Temperature range
Flexing: VDE 0 °C to +70 °C
UL 0 °C to +80 °C
Fixed installation: VDE -40°C to +70°C;
UL/CSA -40°C to +80°C;

Similar products

- ÖLFLEX® CLASSIC FD 810 CY
  refer to page 120

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	76.6	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	11.9	248	305

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 100 m; Drum (500; 1000) m
Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® FD 891

Highly flexible control cable with PVC core insulation and PVC sheath - certified for North America

Info

- Core Line for ordinary duty in power chain applications
- AWM certification for USA and Canada

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Ideal for export-oriented machinery and equipment 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

- Designed for 5 million alternating bending cycles and travel distances up to 10 meter
- 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 (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: U_0/U 300/500 V
UL/CSA: 600 V

Test voltage
4000 V

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

Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: -5°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® 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	11.8	153.6	263
1026505	5 G 4	13.2	192	325
1026507	7 G 4	16.1	268.8	469
1026604	4 G 6	13.7	230.4	368
1026614	4 G 10	17.9	384	588
1026624	4 G 16	24.1	614.4	1031
1026634	4 G 25	27.9	960	1530
1026644	4 G 35	31.1	1344	1959

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 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 for ordinary duty in power chain applications
- AWM certification for USA and Canada
- EMC compliant copper screening

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Ideal for export-oriented machinery and equipment 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

- Designed for 5 million alternating bending cycles and travel distances up to 10 meter
- 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 (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: U_0/U 300/500 V
UL/CSA: 600 V

Test voltage
4000 V

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

Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: -5°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® 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	12.4	157.5	275
1027504	4 G 4	14	218.1	365
1027507	7 G 4	18.3	373.2	629
1027604	4 G 6	16.1	304.7	500
1027624	4 G 16	27.1	803.6	1357
1027634	4 G 25	31.3	1180.4	1879
1027644	4 G 35	34.3	1593.7	2360

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M BRUSH refer to page 733
- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CHAIN 808 P

Highly flexible control cable with PVC core insulation and abrasion and oil resistant PUR sheath

Info

- Basic Line for light & ordinary duty in power chain applications
- Good oil resistance

Benefits

- Good combination of quality and price
- Compact 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

- 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
- Assembly lines, production lines, in all kinds of machines
- In dry, damp or wet interiors

Product features

- Designed for 2 million alternating bending cycles and travel distances up to 10 meter
- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface

Norm references / Approvals

- Based on EN 50525-2-21
- 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
- PUR outer sheath, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible applications:
Chains in self supporting non-gliding arrangements: 10 x outside diameter
Chains in gliding arrangements: 12 x outside diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
Core/core: 4000 V

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

Alternating bending cycles
2 mio. cycles

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® CHAIN 808 P				
1027700	2 X 0.5	5.2	10	40
1027701	3 G 0.5	5.5	15	48
1027702	4 G 0.5	6	20	58
1027703	5 G 0.5	6.5	24	67
1027704	7 G 0.5	7.7	34	88
1027705	12 G 0.5	9.2	58	136
1027706	18 G 0.5	11	87	195
1027707	25 G 0.5	13.3	120	274
1027708	2 X 0.75	5.6	15	49
1027709	3 G 0.75	6	22	60
1027710	4 G 0.75	6.5	29	73
1027711	5 G 0.75	7.1	37	86
1027712	7 G 0.75	8.5	51	117
1027713	12 G 0.75	10.3	87	181
1027714	18 G 0.75	12.2	130	259
1027715	25 G 0.75	14.8	181	363
1027716	2 X 1.0	5.9	19	58
1027717	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)
1027718	4 G 1.0	6.9	39	88
1027719	5 G 1.0	7.5	48	104
1027720	7 G 1.0	9	67	142
1027721	12 G 1.0	10.9	115	221
1027722	18 G 1.0	13.2	173	324
1027723	25 G 1.0	15.7	240	445
1027724	2 X 1.5	6.5	29	74
1027725	3 G 1.5	6.9	43.2	93
1027726	4 G 1.5	7.6	58	114
1027727	5 G 1.5	8.5	72	139
1027728	7 G 1.5	10.3	101	189
1027729	12 G 1.5	12.3	173	295
1027730	18 G 1.5	14.9	259	429
1027731	25 G 1.5	17.9	360	597
1027732	3 G 2.5	8.4	72	145
1027733	4 G 2.5	9.3	96	179
1027734	7 G 2.5	12.7	168	218
1027737	4 G 4	11.1	160	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 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

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CHAIN 808 CP

Highly flexible, screened control cable with PVC core insulation and abrasion and oil resistant PUR sheath

Info

- Basic Line for light & ordinary duty in power chain applications
- Good oil resistance
- EMC compliant copper screening

Benefits

- Good combination of quality and price
- Compact design
- Thin and light, without inner sheath
- 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

- In power chains or moving machine parts
- In EMC-sensitive environments
- Particularly in wet areas of machine tools and transfer lines
- Suitable for use in measuring, control and regulating circuits
- In dry, damp or wet interiors

Product features

- Designed for 2 million alternating bending cycles and travel distances up to 10 meter
- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface

Norm references / Approvals

- Based on EN 50525-2-21
- 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
- PUR outer sheath, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible applications:
Chains in self supporting non-gliding arrangements: 10 x outside diameter
Chains in gliding arrangements: 12 x outside diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/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

Alternating bending cycles
2 mio. cycles

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® CHAIN 808 CP				
1027751	2 X 0.5	5.8	36	45
1027752	3 G 0.5	6.1	43	59
1027753	4 G 0.5	6.6	49	83
1027754	5 G 0.5	7.1	57	96
1027755	7 G 0.5	8.5	69	136
1027756	12 G 0.5	10	104	200
1027757	18 G 0.5	11.8	141	275
1027758	25 G 0.5	14.1	211	350
1027759	2 X 0.75	6.2	43	56
1027760	3 G 0.75	6.6	52	70
1027761	4 G 0.75	7.1	61	95
1027762	5 G 0.75	7.7	72	130
1027763	7 G 0.75	9.1	89	168
1027764	12 G 0.75	10.9	138	232
1027765	18 G 0.75	13	211	315
1027766	25 G 0.75	15.6	280	435
1027767	2 X 1.0	6.5	51	84
1027768	3 G 1.0	6.9	62	110
1027769	4 G 1.0	7.5	74	130
1027770	5 G 1.0	8.3	88	156
1027771	7 G 1.0	9.8	112	192
1027772	12 G 1.0	11.7	185	285
1027773	18 G 1.0	14	268	395
1027774	25 G 1.0	16.7	354	656
1027775	2 X 1.5	7.1	65	97
1027776	3 G 1.5	7.5	82	125
1027777	4 G 1.5	8.4	100	165
1027778	5 G 1.5	9.1	119	193
1027779	7 G 1.5	10.9	154	245
1027780	12 G 1.5	13.3	268	365
1027781	18 G 1.5	15.7	373	553
1027782	25 G 1.5	18.7	530	734
1027783	3 G 2.5	9	118	188
1027784	4 G 2.5	10.1	147	236
1027785	7 G 2.5	13.5	253	340
1027788	4 G 4	11.9	248	305

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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC FD 810 CP refer to page 132

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-M BRUSH refer to page 733
- 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 for ordinary duty in power chain applications
- Good oil resistance

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
- In dry, damp or wet interiors with normal mechanical stress conditions

Product features

- Designed for 5 million alternating bending cycles and travel distances up to 10 meter
- Flame-retardant according to IEC 60332.1.2
- High oil-resistance
- Abrasion and notch-resistant
- Low-adhesive surface

Norm references / Approvals

- Core based on VDE 0245/0285
- 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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use:
7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
4000 V

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

Alternating bending cycles
5 mio. cycles

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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® FD 855 P refer to page 135

Accessories

- SILVYN® CHAIN cable protection and guiding systems

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 for ordinary duty in power chain applications
- 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

- Designed for 5 million alternating bending cycles and travel distances up to 10 meter
- Flame-retardant according to IEC 60332.1.2
- High oil-resistance
- Abrasion and notch-resistant
- EMC-compliant
- Low-adhesive surface

Norm references / Approvals

- Core based on VDE 0245/0285
- 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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
4000 V

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

Alternating bending cycles
5 mio. cycles

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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® FD 855 CP refer to page 136

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- SKINTOP® MS-M BRUSH refer to page 733
- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® ROBUST FD

Highly flexible, all-weather control cable with TPE sheath - resistant to a wide range of chemical media

Info

- Extended Line for heavy duty in power chain 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 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 agents
- Well-suited to frequent 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

- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter
- 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
- Clean room classification for individual items on request
- 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
- Robust outer sheath made of special halogen-free TPE, black (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use:
7.5 x cable diameter
(at temperatures < 70 °C)
10 x cable diameter
(at a max. temperature of 105 °C)
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
4000 V

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

Alternating bending cycles
10 mio. cycles

Temperature range
Flexing: -40 °C to +105 °C
Fixed installation: -50 °C to +110 °C
Short-term: up to +120 °C

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBUST FD				
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
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
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
0026521	3 G 1.5	8.9	43.2	90

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® FD 855 P refer to page 135

Accessories

- SILVYN® CHAIN cable protection and guiding systems

Power chain applications • Harsh conditions

ÖLFLEX® ROBUST FD C

Highly flexible, screened all-weather control cable with TPE sheath - resistant to a wide range of chemical media

Info

- Extended Line for heavy duty in power chain 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 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 agents
- Well-suited to frequent 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
- 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
- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter
- 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 (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use:
7.5 x cable diameter
(at temperatures < 70 °C)
10 x cable diameter
(at a max. temperature of 105 °C)
Fixed installation: 4 x Outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
4000 V

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

Alternating bending cycles
10 mio. cycles

Temperature range
Flexing: -40 °C to +105 °C
Fixed installation: -50 °C to +105 °C
Short-term: up to +120 °C

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBUST FD C				
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
0026709	3 G 1.0	9.8	61.1	125
0026716	7 G 1.0	13.9	132.3	278
0026717	12 G 1.0	16.1	189.1	370
0026721	3 G 1.5	10.9	79.8	163
0026722	4 G 1.5	12.1	99.2	210

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® PETRO FD 865 CP refer to page 137

Accessories

- SKINTOP® MS-M BRUSH refer to page 733
- SILVYN® CHAIN cable protection and guiding systems

NEW

ÖLFLEX® FD 855 P

Halogen-free, highly flexible control cable with abrasion and oil resistant PUR sheath - certified

Info

- Extended Line for heavy duty in power chain applications
- Small bending radii - long travel lenghts
- 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 indoor and outdoor use

Product features

- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter
- 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/B 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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use: 5 x outer diameter
Fixed installation: 3 x outer diameter

Nominal voltage
IEC U_0/U: 300/500 V
UL: 1000 V

Test voltage
3000 V

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

Alternating bending cycles
10 mio. cycles

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -50°C to +90°C
according to UL/AWM: -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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CHAIN 896 P refer to page 139

Accessories

- SILVYN® CHAIN cable protection and guiding systems

LAPP GROUP

Power chain applications • Harsh conditions, certified

NEW

ÖLFLEX® FD 855 CP

Halogen-free, highly flexible and screened control cable with abrasion and oil resistant PUR sheath - certified

Info

- Extended Line for heavy duty in power chain applications
- Small bending radii - long travel lenghts
- 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
- For indoor and outdoor use

Product features

- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to oil and drilling fluids according to IEC 61892-4, Appendix D
- High oil-resistance
- 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 (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use:
7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC U_0/U: 300/500 V
UL: 1000 V

Test voltage
3000 V

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

Alternating bending cycles
10 mio. cycles

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -50°C to +90°C
according to UL/AWM: -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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® PETRO FD 865 CP refer to page 137

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 for heavy duty in power chain applications
- Resistant to oil and drilling fluids acc. to NEK TS 606:2009 (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
- 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

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 indoor and outdoor use

Product features

- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter

Norm references / Approvals

- DNV Det Norske Veritas certified
- Resistant against oil and drilling fluids according NEK TS 606:2009 and IEC 61892-4
- Salt water-resistant according to UL 1309
- 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 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
3000 V

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

Alternating bending cycles
10 mio. cycles

Temperature range
Flexing: -50°C to +80°C
Fixed installation: -60°C to +90°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
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	13.9	205	311
0023354	5 G 4	15.4	250	381
0023355	4 G 6	16.2	289	423
0023356	5 G 6	17.8	354	512
0023357	4 G 10	20.4	475	672
0023358	5 G 10	22.3	582	814

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® FD 891 P

Highly flexible control cable with PVC core insulation and abrasion and oil resistant PUR sheath - certified

Info

- Core Line for ordinary duty in power chain applications
- 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
- Ideal for export-oriented machinery and equipment 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

Product features

- Designed for 5 million alternating bending cycles and travel distances up to 10 meter
- 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 (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use:
7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: U_0/U 300/500 V
UL/CSA: 600 V

Test voltage
4000 V

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

Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: -5°C to +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® 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
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	10.9	115.2	197
1028504	4 G 4	12.1	153.6	257
1028507	7 G 4	16.1	268.8	471
1028604	4 G 6	13.7	230.4	363
1028614	4 G 10	17.9	384	605
1028624	4 G 16	23.4	614.4	973
1028634	4 G 25	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® FD 855 P refer to page 135

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® CHAIN 896 P

Highly flexible, halogen-free power cable with low capacitive insulation and oil resistant PUR sheath - certified

Info

- Extended Line for heavy duty in power chain applications
- 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

- Dynamic power chain performance:
  Acceleration up to 50 m/s².
  Travel speeds up to 5 m/s.
  Travel distances up to 100 m.
- 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 (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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
For flexible use:
7.5 x outer diameter (≤16mm²)
10 x outer diameter (>16mm²)
Fixed installation: 4 x outer diameter

Nominal voltage
IEC U_0/U: 600/1000 V
UL & CSA: 1000 V

Test voltage
4000 V

Protective conductor
G = with GN-YE protective conductor
X = without 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	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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SERVO 7DSL refer to page 105
- ÖLFLEX® SERVO FD 796 P refer to page 109
- ÖLFLEX® SERVO FD 7DSL refer to page 113

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® ROBOT 900 P

TPE-PUR robot cable for flexing and torsion load

Info

- Simultaneous bending and torsion
- Torsion angle up to +/- 360 °/m

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- 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

- Plant engineering
- Industrial machinery and machine tools
- Automated handling equipment
- Multi-axis articulated robots
- In power chains or moving machine parts

Product features

- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Flexible at low temperatures
- Low-adhesive surface

Norm references / Approvals

- For travel distances up to 10 m.
- For use in power chains: Please comply with assembly guideline Appendix T3

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
- PTFE tape wrapping
- PUR outer sheath, black (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Core identification code
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: black cores with white printed numbers

Mutual capacitance
C/C approx. 100 nF/km
C/S approx. 120 nF/km

Peak operating voltage
0.34 mm²: 350 V
(not for power transmission)

Inductivity
approx. 0.7 mH/km

Conductor stranding
Fine wire or extra-fine wire

Torsion
Torsion load max. ± 360 °/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 U_0/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

Similar products

- ÖLFLEX® ROBOT F1 refer to page 142

Accessories

- SILVYN® RILL PA 12 refer to page 863

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® ROBOT 900 P				
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
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
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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® ROBOT 900 DP

Screened TPE-PUR robot cable for bending and torsion loads

Info
- Simultaneous bending and torsion
- Torsion angle up to +/- 180 °/m
- Copper screening

Benefits
- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- 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
- Plant engineering
- Industrial machinery and machine tools
- Automated handling equipment
- Multi-axis articulated robots
- In power chains or moving machine parts

Product features
- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Flexible at low temperatures
- Low-adhesive surface

Norm references / Approvals
- 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
- PTFE tape wrapping
- Screen wrapping of tinned copper wires
- PUR outer sheath, black (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Core identification code
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: black cores with white printed numbers

Mutual capacitance
C/C approx. 100 nF/km
C/S approx. 120 nF/km

Peak operating voltage
0.34 mm²: 350 V
(not for power transmission)

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 U_0/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				
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
0028195	12 G 1,5	14.0	259	395

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- ÖLFLEX® ROBOT F1 (C) refer to page 143

Accessories
- SILVYN® RILL PA 12 refer to page 863

ÖLFLEX® ROBOT F1

TPE-PUR robot cable for flexing and torsion load, certified

Info
- Simultaneous bending and torsion
- Torsion angle up to +/- 360 °/m
- 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
- Wide temperature range for applications in harsh climatic environments

Application range
- Multi-axis articulated robots
- Automated handling equipment
- Industrial machinery and machine tools
- In power chains or moving machine parts
- Plant engineering

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 VW1
  cUL AWM I/II A/B FT 1
- UL File No. E213974
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up
- Extra-fine strands, 0.14 mm² - 0.5 mm², made from tinned-copper wires, bare above.
- Core insulation: TPE
- Cores (or core pairs) twisted in layers or bundles
- PTFE tape wrapping
- Pair screen (D): layer of tinned-copper wires
- PUR outer sheath, black (RAL 9005)

Accessories
- SILVYN® RILL PA 12 refer to page 863

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Core identification code
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: white cores with black printed numbers

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 300/500 V
UL/CSA up to 1.5 mm² 600 V, from 2.5 mm² 1000 V

Test voltage
Cores: spark test 6 kV

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				
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
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
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	13.3	220	330

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® ROBOT F1 (C)

Screened TPE-PUR robot cable for bending and torsion loads, certified

Info

- Simultaneous bending and torsion
- Torsion angle up to +/- 180 °/m
- 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
- Wide temperature range for applications in harsh climatic environments

Application range

- Multi-axis articulated robots
- Automated handling equipment
- Industrial machinery and machine tools
- In power chains or moving machine parts
- Plant engineering

Product features

- Abrasion and notch-resistant
- Flame-retardant
- High oil-resistance
- Resistant to cold temperatures
- Low-adhesive surface

Norm references / Approvals

- UL AWM Style 20940 VW1
  cUL AWM I/II A/B FT 1
- UL File No. E213974
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine strands, 0.14 mm² - 0.5 mm², made from tinned-copper wires, bare above.
- Core insulation: TPE
- Cores (or core pairs) twisted in layers or bundles
- PTFE tape wrapping
- Braiding or wrapping of tinned copper wires
- PUR outer sheath, black (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description:
Control cable

Core identification code
Up to 0.34 mm²: DIN 47100 cores
From 0.5 mm²: white cores with black printed numbers

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 300/500 V
UL/CSA up to 1.5 mm² 600 V,
from 2.5 mm² 1000 V

Test voltage
Cores: spark test 6 kV

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)				
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
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. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® RILL PA 12 refer to page 863

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 5.0 Class-ID: EC000993
ETIM 5.0 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	100	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- DIN-assorted boxes conductor end sleeves refer to page 1011
- PEW 8.87 crimping pliers refer to page 1016
- KS 15 cable shears

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 5.0 Class-ID: EC000993
ETIM 5.0 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 (mm^2)	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 are not to scale and do not represent detailed images of the respective products.

Accessories
- DIN-assorted boxes conductor end sleeves refer to page 1011
- PEW 8.87 crimping pliers refer to page 1016
- KS 15 cable shears

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

- Strands of bare copper wires
- Braiding made of bare copper wires
- Outer sheath: Based on PVC, transparent

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 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)	Conductor stranding: number of wires x wire diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ESUY Copper Earthing Cable					
4571101	16	4,200 x 0.07	8.8	177	230
4571102	25	3,192 x 0.1	10.4	275	316
4571103	35	4,480 x 0.1	12.4	387	475
4571104	50	6,383 x 0.1	14.6	560	670
4571105	70	8,918 x 0.1	17.0	791	905
4571106	95	12,100 x 0.1	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- X00V3-D Copper Earthing Cable refer to page 147

Accessories

- KT cable shears refer to page 999

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 or EN 61138

Product Make-up

- Strands of bare copper wires
- Outer sheath: Based on PVC, transparent

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 Class-Description: Single core cable

Conductor stranding
Based on VDE 0283 Part 3 or 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	223
4571111	25	9.5	240	330
4571112	35	11.0	336	455
4571113	50	13.2	480	648
4571114	70	15.8	672	913
4571115	95	18.3	912	1234

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ESUY Copper Earthing Cable refer to page 146

Accessories

- KT cable shears refer to page 999

ÖLFLEX® TRUCK 170 FLRYY

Info
- Commercial vehicles
- Hazardous materials transportation

Benefits
- Special ADR approval
- ADR approval enables use in vehicles transporting hazardous goods

Application range
- Commercial vehicles
- 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
- Strands of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based outer sheath

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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	50.4	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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® TRUCK 470 P FLRYY11Y

Info

- Commercial vehicles
- Hazardous materials transportation
- Hydrolysis and microbe resistant

Benefits

- Special ADR approval
- ADR approval enables use in vehicles transporting hazardous goods

Application range

- Commercial vehicles
- 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

- Strands of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based inner sheath
- Outer sheath made of special polyurethane

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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 FLRYY11Y					
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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® TRUCK 170 TWIN

Info
- Commercial vehicles
- Hazardous materials transportation
- Battery twin cable

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
- Commercial vehicles

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
- Strands of bare copper wires
- Core insulation: Based on PVC
- Special PVC-based outer sheath

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® SOLAR XLR-R

Electron beam cross-linked solar cables with reduced diameters - TÜV type approved

Info
- Optimised cable design - thin, light and robust
- TÜV Type PV1-F (2 PfG 1169/08.2007)

Benefits
- Reduced outer diameters enable space and weight saving installation
- 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 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
- Weather/UV-resistant acc. to HD 605/A1 Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLR-R = X-Linked Radiated-Reduced Proven electron beam cross-linked quality
- Version without colour stripe for size up to 300mm² on request

Norm references / Approvals
- PV1-F (TÜV type approved according to 2 PfG 1169/08.2007)

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 or blue stripe

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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 U_0/U : 600/1000 V
DC U_0/U : 900/1500 V
Max. permissible operating voltage: DC 1,8 kV (Conductor-conductor, non earthed system)

Test voltage
AC 6500 V

Current rating
In compliance with TÜV 2 PfG 1169/08.2007 table 1

Temperature range
-40°C to +120°C max. conductor temperature based on EN 60216-1
Ambient temperature according to TÜV 2 PfG 1169/08.07: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLR-R				
Core insulation: white / Outer sheath: black				
0023175	1.5	4.4	14.4	34
0023176	2.5	4.8	24	46
0023177	4.0	5.2	38.4	63
0023178	6.0	5.8	57.6	86
0023179	10.0	7	96	132
0023180	16.0	8.3	153.6	197
Core insulation: white / Outer sheath: black with red stripe				
0023360	2.5	4.8	24	46
0023361	4.0	5.2	38.4	63
0023362	6.0	5.8	57.6	86
0023363	10.0	7	96	132
0023364	16.0	8.3	153.6	197
Core insulation: white / Outer sheath: black with blue stripe				
0023370	2.5	4.8	24	46
0023371	4.0	5.2	38.4	63
0023372	6.0	5.8	57.6	86
0023373	10.0	7	96	132
0023374	16.0	8.3	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 are not to scale and do not represent detailed images of the respective products.

Similar products
- ÖLFLEX® SOLAR XLR WP refer to page 153

Accessories
- EPIC® SOLAR 4 M refer to page 703
- EPIC® SOLAR 4 F refer to page 703
- UNIVERSAL STRIP stripping tool refer to page 1006
- KS 20 cable shears refer to page 999

ÖLFLEX® SOLAR XLS-R

Electron beam cross-linked solar cables with reduced outer diameters

Info

- Optimised cable design - thin, light and robust

Benefits

- Reduced outer diameters enable space and weight saving installation
- Robust against mechanical impacts
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- 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 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

- Weather/UV-resistant acc. to HD 605/A1
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLS-R = X-Linked Standard - Reduced Proven electron beam cross-linked quality

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 or blue stripe

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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 U_0/U : 600/1000 V
DC U_0/U : 900/1500 V
Max. permissible operating voltage: DC 1,8 kV (Conductor-conductor, non earthed system)

Test voltage
AC 6500 V

Temperature range
Fixed installation: -40°C to +100°C max. conductor temperature

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLS-R				
0023136	2.5	4.8	24	46
0023137	4.0	5.2	38.4	63
0023138	6.0	5.8	57.6	86
0023104	10.0	7	96	132
0023105	16.0	8.3	153.6	197
Core insulation: white / Outer sheath: black with red stripe				
0023390	2.5	4.8	24	46
0023391	4.0	5.2	38.4	63
0023392	6.0	5.8	57.6	86
0023393	10.0	7	96	132
0023394	16.0	8.3	153.6	197
Core insulation: white / Outer sheath: black with blue stripe				
0023395	2.5	4.8	24	46
0023396	4.0	5.2	38.4	63
0023397	6.0	5.8	57.6	86
0023398	10.0	7	96	132
0023399	16.0	8.3	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® SOLAR XLR-R refer to page 151

Accessories

- EPIC® SOLAR 4 M refer to page 703
- EPIC® SOLAR 4 F refer to page 703
- UNIVERSAL STRIP stripping tool refer to page 1006
- KS 20 cable shears refer to page 999

NEW

ÖLFLEX® SOLAR XLR WP

Electron beam cross-linked solar cables with optimized performance in water - TÜV type

Info

- Optimised cable design - constant high volume resistance even after long-term period in water
- TÜV Type PV1-F (2 PfG 1169/08.2007)

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 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
- Suitable for direct burial: see data sheet

Product features

- Weather/UV-resistant acc. to HD 605/A1
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLR WP = X-Linked Radiated Water-Proof Proven electron beam cross-linked quality

Norm references / Approvals

- PV1-F (TÜV type approved according to 2 PfG 1169/08.2007)

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 or blue stripe

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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 U_0/U : 600/1000 V
DC U_0/U : 900/1500 V
Max. permissible operating voltage: DC 1,8 kV (Conductor-conductor, non earthed system)

Test voltage
AC 6500 V

Current rating
In compliance with TÜV 2 PfG 1169/08.2007 table 1

Temperature range
-40°C to +120°C max. conductor temperature based on EN 60216-1
Ambient temperature according to TÜV 2 PfG 1169/08.07: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLR WP				
Core insulation: white / Outer sheath: black				
1023501	2.5	5.2	24	48
1023502	4.0	5.6	38.4	65
1023503	6.0	6.2	57.6	88
1023504	10.0	7.4	96	135
1023505	16.0	8.7	153.6	207
Core insulation: white / Outer sheath: black with red stripe				
1023521	2.5	5.2	24	48
1023522	4.0	5.6	38.4	65
1023523	6.0	6.2	57.6	88
1023524	10.0	7.4	96	135
1023525	16.0	8.7	153.6	207
Core insulation: white / Outer sheath: black with blue stripe				
1023526	2.5	5.2	24	48
1023527	4.0	5.6	38.4	65
1023528	6.0	6.2	57.6	88
1023529	10.0	7.4	96	135
1023530	16.0	8.7	153.6	207

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SOLAR 4 M refer to page 703
- EPIC® SOLAR 4 F refer to page 703
- UNIVERSAL STRIP stripping tool refer to page 1006
- KS 20 cable shears refer to page 999

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

Screened, 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
- EMC/Screened

Benefits

- The special design reliably compensates for the permanent torsional drip loop movements inside the wind turbine between the nacelle and the tower
- The high flexibility and good dismantling and stripping properties enable easy space-
  saving cable installation and fast processing
- Resistant to lipper and drops of sea water for onshore and offshore applications
- 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
- The copper wrapping of the screened D version protects against electromagnetic interference

Application range

- For fixed and flexible installations, as well as for applications with torsional movements (e.g. machinery, wind turbines)
- Very suitable for installation in the drip loop, between the rotating nacelle and the stationary windmill tower, to connect the generator to the control units

Product features

- Torsion-resistant up to ±150°/m
- Good weather, abrasion, temperature and UV-resistance
- Resistant to oils
- Halogen-free and highly flame-retardant
- Depending on the quantity, customised designs are also possible upon request

Norm references / Approvals

- Use of leading, European metric stranded conductors according to the IEC scale for conductor nominal cross-sections in mm² according to IEC 60228/VDE 0295, braided conductor class 6 (tinned): For converting to AWG, odd-numbered nominal AWG cross-sections must be excluded. The next lowest nominal AWG conductor cross-section in mm² must then be allocated to the metric nominal conductor cross-section in mm² (according to IEC 60228) (please refer to the technical catalogue appendix T16). This is to ensure that the normative current rating defined by the nominal AWG conductor cross-section does not exceed the physical/real current rating defined by the nominal IEC conductor cross-section that is actually used
- Cable type certifications: UL AWM style 21288 by UL acc. UL standard as well as cUL AWM II A/B by UL acc. CSA AWM standard
- 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)
  - No fire propagation (IEC 60332-3-24 and IEC 60332-3-25)
- Oil-resistant according to EN 60811-404 and UL OIL RES I and UL OIL RES II
- UV-resistant according to ISO 4892-2 and ozone-resistant according to EN 50396

Product Make-up

- Extra-fine wire conductor made of bare copper
- Core insulation: polyolefin compound
- Core connection optimised for high torsion requirements, twisted in layers
- Optional screening (D): wrapped with braided tinned-copper wires
- Outer sheath: special compound, halogen-free, black (RAL 9005)

Technical data

Classification
ÖLFLEX® TORSION FRNC
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 Class-Description: Low voltage power cable
ÖLFLEX® TORSION D FRNC
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Core identification code
Power and control cables: Colour-coded in accordance with VDE 0293-308, refer to Appendix T9
From 6 cores: black with white numbers
Paired signal cables: DIN 47100

Conductor stranding
ÖLFLEX® TORSION FRNC
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6 (Refer to Appendix T16 for the matching US conductor sizes in AWG standard)
ÖLFLEX® TORSION D FRNC
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

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

Minimum bending radius
Flexible use: 10 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
According to IEC/VDE: U0/U 0.6/1 kV ac
Operating voltage in accordance with UL: 1000V

Test voltage
ÖLFLEX® TORSION FRNC
C/C: 4000 V
ÖLFLEX® TORSION D FRNC
C/C: 4000 V
C/S: 2000 V

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

Temperature range
Flexible use: -40°C to +90°C (UL +80°C)
Fixed installation: -40°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)
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	72	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 x 0.5	11.9	71	205
1150115	12 x 2 x 0.5	18.3	188	518
1150121	4 x 2 x 0.75	12.7	90	232
1150125	12 x 2 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 are not to scale and do not represent detailed images of the respective products.

Similar products

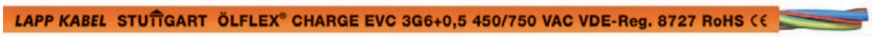
ÖLFLEX® TORSION FRNC

- H07RN-F, enhanced version refer to page 92

NEW

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

- Normative compliance of the charging process with IEC 61851-1
- VDE EVC certified according to VDE-AR-E 2283-5/ EVC cable type as third-party approved component involved in charging
- Low toxicity of flue in the event of fire
- Permanent connection as flexible charging cable to charging station or for permanent on-board carriage inside vehicles
- 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

ETIM 5.0 Class-ID: EC002884
ETIM 5.0 Class-Description:

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
U_0/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

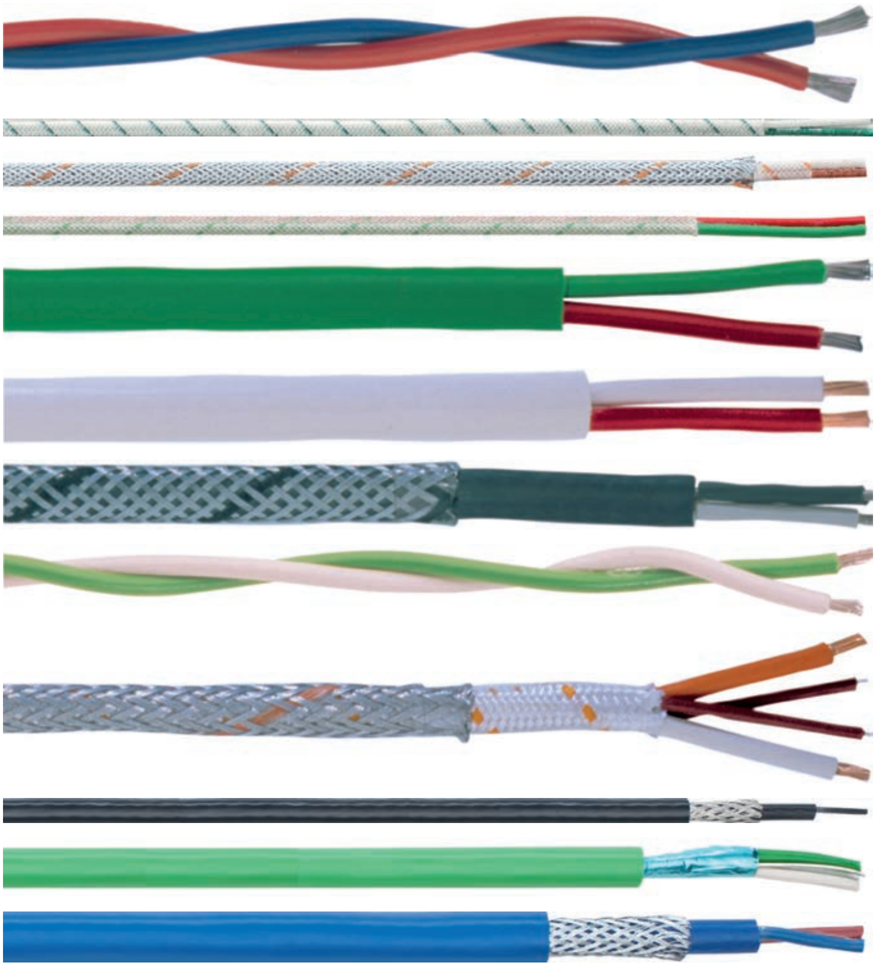
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and 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 5.0 Class-ID: EC000838
ETIM 5.0 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
  - **S**teel 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

Special applications • Temperature measurement (extension and compensating cables)

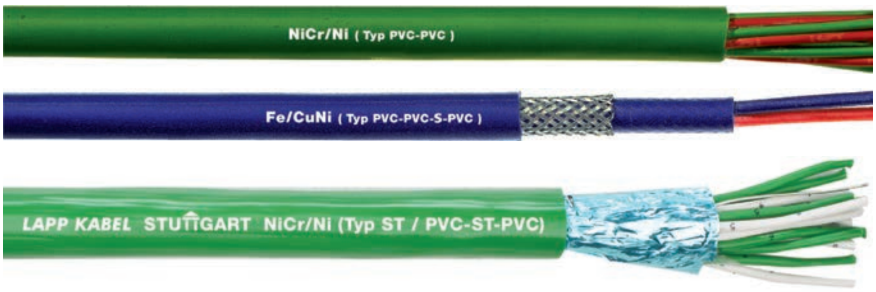
Article number	Reference/article designation	Thermocouple	Product Make-up	Cable design	Number of cores and mm² per conductor	Outer diameter (mm)	Outer dimensions, width x height (mm)	Weight (kg/km)
0.22 mm² extension and compensating cables								
0151051	KE 9-022 L	Fe/CuNi	DIN LX	PVC-PVC	2 x 0.22	4.0		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 cables 0,5 mm								
1161008	K FEP-FEP	NiCr/Ni	IEC K	FEP-FEP ovale	2 x 0.5		2.4 x 1.5	45
1161009	K GL-GL	NiCr/Ni	IEC K	EGL-EGL ovale	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

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)
0152023	KN 15 L-SIL-S	NiCr/Ni	DIN KCA	SIL-SIL-S round	2 x 1.5	7.8		105
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 ovale	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 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
  - **S**teel wire braiding
  - **PVC** outer sheath
- **Design, for example PVC-ST-PVC:**
  - **PVC** core insulation
  - **ST**atic 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 5.0 Class-ID: EC000838
ETIM 5.0 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
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

Article number	Thermocouple	Product Make-up	Cable design	Number of cores and mm² per conductor	Outer diameter (mm)	Weight (kg/km)
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 are not to scale and do not represent detailed images of the respective products.

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
- For connecting mobile equipment in hazardous areas acc. to DIN VDE 0165
- 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 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/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	12.2	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	13.5	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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 163
- ÖLFLEX® CRANE PUR refer to page 164

Accessories

- STAR STRIP stripping tool refer to page 1000
- KT cable shears refer to page 999

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
- For connecting mobile equipment in hazardous areas acc. to DIN VDE 0165

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 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CRANE NSHTÖU refer to page 162
- ÖLFLEX® CRANE PUR refer to page 164

Accessories

- EASY STRIP stripping and cutting tool refer to page 1004
- V 1311-A pressing pliers, hydraulic refer to page 1030
- STAR STRIP stripping tool refer to page 1000
- KT cable shears refer to page 999
- PVL 1300 pressing pliers battery-operated refer to page 1031

LAPP GROUP

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
- For connecting mobile equipment in hazardous areas acc. to DIN VDE 0165

Product Make-up

- Strands 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 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/U: 600/1000 V

Test voltage
3500 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CRANE NSHTÖU refer to page 162
- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 163

Accessories

- EASY STRIP stripping and cutting tool refer to page 1004
- KT cable shears refer to page 999

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

- Strands of bare copper wires
- Core insulation: rubber compound
- Special supporting element as strain relief
- Outer sheath: rubber compound, type EM2

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CRANE NSHTÖU refer to page 162
- ÖLFLEX® CRANE VS (N)SHTÖU refer to page 163

Accessories

- SKINTOP® CLICK System

ÖLFLEX® CRANE 2S

Flexible at cold temperatures, PVC cables with external steel supporting elements

Info

- Double tensile strength safety
- Teach pad cable

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

- Strands 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 5.0 Class-ID: EC000104
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EASY STRIP stripping and cutting tool refer to page 1004

ÖLFLEX® LIFT

Flexible at cold temperatures, PVC lift cables with supporting element

Info
- High operating efficiency
- Suspension length up to 90 m
- VDE-tested and registered

Benefits
- Special cable design for a long service life
- Attractive price and maximum operational efficiency
- 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

Norm references / Approvals
- VDE registration under VDE reg. no. 7039

Product Make-up
- Strands 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 5.0 Class-ID: EC000826
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products
- ÖLFLEX® LIFT T refer to page 168
- ÖLFLEX® LIFT S refer to page 169

Accessories
- Round cable wedged clamps
- KT cable shears refer to page 999

ÖLFLEX® LIFT T

Flexible at cold temperatures, PVC lift cables with textile braiding and supporting element

Info

- Robust cable design
- Suspension length up to 90 m
- VDE-tested and registered

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

Norm references / Approvals

- VDE registration under VDE reg. no. 7040

Product Make-up

- Strands 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 5.0 Class-ID: EC000826
ETIM 5.0 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
U_0/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
0027006	28 G 1,0 + 2 x (0,5) C	25.2	90	293	765

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® LIFT refer to page 167
- ÖLFLEX® LIFT S refer to page 169

Accessories

- Round cable wedged clamps
- KT cable shears refer to page 999

ÖLFLEX® LIFT S

Flexible at cold temperatures, PVC lift cables with textile braiding and steel supporting element

Info
- Robust cable design
- Suspension length up to 150 m

Benefits
- Special cable design for a long service life
- Practical experience and long-term tests proved that the cable can withstand extreme stress
- High suspension lengths due to the steel wire supporting element
- 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
- Strands of bare copper wires
- Special PVC-based core insulation
- Steel support element
- Fleece-wrapping between cores and sheath
- Support braid made of textile fibre blend
- Special PVC-based outer sheath

Technical data

Classification
ETIM 5.0 Class-ID: EC000826
ETIM 5.0 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
U_0/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 S					
0027009	24 G 1.0	22.1	150	230	680
0027010	36 G 1.0	28.6	150	345.6	1092

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- ÖLFLEX® LIFT refer to page 167
- ÖLFLEX® LIFT T refer to page 168

Accessories
- Round cable wedged clamps
- STAR STRIP stripping tool refer to page 1000

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

- 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 (NGFLGÖU)

Product Make-up

- Strands of bare or tinned-copper wires
- Core insulation: rubber compound
- Outer sheath: special rubber compound

Technical data

Classification
ETIM 5.0 Class-ID: EC000825
ETIM 5.0 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
U_0/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 G 4	26.0 x 9.0	153.6	410
0041053	7 G 4	42.0 x 9.0	268.8	700
0041054	4 G 6	29.0 x 9.5	230	600
0041055	5 G 6	35.0 x 9.5	288	650
0041056	7 G 6	42.0 x 9.5	403	850
0041057	4 G 10	33.0 x 11.0	384	800
0041059	4 G 16	38.0 x 13.0	614	1150
0041060	4 G 25	49.5 x 15.0	960	1700
0041061	4 G 35	55.0 x 17.0	1344	2360
0041062	4 G 50	63.0 x 19.0	1920	3000
0041063	4 G 70	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® LIFT F refer to page 172

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

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0250 (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 5.0 Class-ID: EC000825
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CRANE F refer to page 170
- ÖLFLEX® LIFT F refer to page 172

Accessories

- Cable trolley systems
- Flat cable wedge clamps

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

ÖLFLEX® LIFT F

Flexible at cold temperatures, PVC flat cables

Info

- For cable trolley application
- Space-saving installation
- Also suitable for power chains and lift applications

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

- Strands of bare copper wires
- Core insulation: Based on PVC
- Outer sheath: Based on PVC

Technical data

Classification
ETIM 5.0 Class-ID: EC000825
ETIM 5.0 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: U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CRANE F refer to page 170

Accessories

- Cable trolley systems
- Flat cable wedge clamps

ÖLFLEX® HEAT 105 MC

Colour-coded connection cables made of high heat-resistant PVC

Info
- Based on H05V2V2-F

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	6.5	19.2	61
0026007	3 G 1	6.9	29	74
00260083	4 G 1	7.7	38.4	89
00260093	5 G 1	8.4	48	110
0026010	7 G 1	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 are not to scale and do not represent detailed images of the respective products.

Similar products
- ÖLFLEX® HEAT 125 MC refer to page 174

Accessories
- SKINTOP® CLICK refer to page 715
- KS 20 cable shears refer to page 999

NEW

ÖLFLEX® HEAT 125 MC

Electron beam cross-linked cables for more demanding application requirements

Info

- Substitudes previous ÖLFLEX® HEAT 145 MC
- 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 5.0 Class-ID: EC001578
ETIM 5.0 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 U_0/U 300/500 V
From 1.5mm² U_0/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 300/500V				
1024300	2 X 0.5	6.0	9.6	38
1024301	3 G 0.5	6.3	14.4	46
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	6.6	19.2	50
1024316	3 G 1	7.0	28.8	67
1024317	4 G 1	7.8	38.4	87
1024318	5 G 1	8.6	48	107
1024319	7 G 1	9.5	67	152
1024320	12 G 1	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 450/750V				
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EASY STRIP stripping and cutting tool refer to page 1004
- SILVYN® HCX refer to page 919
- SILVYN® EMC AS-CU refer to page 899
- STAR STRIP stripping tool refer to page 1000

NEW

ÖLFLEX® HEAT 125 C MC

Electron beam cross-linked cables for more demanding application requirements

Info

- Substitudes previous ÖLFLEX® HEAT 145 C MC
- 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
- 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

Accessories

- SKINTOP® MS-SC-M refer to page 732
- SKINTOP® MS-SC refer to page 794
- EASY STRIP stripping and cutting tool refer to page 1004
- SKINTOP® MS-M BRUSH refer to page 733
- SILVYN® EMC AS-CU refer to page 899
- STAR STRIP stripping tool refer to page 1000

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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 U_0/U 300/500 V
From 1.5mm² U_0/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	7.4	56	90
1024416	3 G 1	8.0	65.3	104
1024417	4 G 1	8.6	78.1	129
1024418	5 G 1	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	7.4	56	90
1024485	3 X 1	8.0	65.3	104
1024419	7 G 1	10.3	113.3	211
1024420	12 G 1	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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® HEAT 180 SiHF

Silicone cables with extended temperature range

Info

- The classic for multi-functional use

Benefits

- Flexibility simplifies installation where space is limited
- Possesses insulating properties after combustion due to remaining SiO_2 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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	6.6	19.2	66
0046008	3 G 1	7.0	29	79
00460093	4 G 1	7.9	38.4	101
00460103	5 G 1	8.8	48	127
0046012	7 G 1	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 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 177
- ÖLFLEX® HEAT 180 EWKF refer to page 180

Accessories

- SILVYN® AS refer to page 896
- SKINDICHT® SHV-M-VITON® refer to page 757
- SILVYN® EDU-AS refer to page 898

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 SiO_2 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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	6.8	19.2	63
0046905	3 G 1	7.2	28.8	81
00469063	4 G 1	7.9	38.4	98
00469073	5 G 1	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 EWKF refer to page 180
- ÖLFLEX® HEAT 180 EWKF C refer to page 181

Accessories

- SILVYN® AS refer to page 896
- SKINDICHT® SHV-M refer to page 756
- SILVYN® EDU-AS refer to page 898

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/600V)
- Metric flexible conductor design

Benefits

- Certified for the USA and Canada for export-oriented 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 SiO_2 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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	8.2	19.2	93
0046613	3 G 1	8.7	28.8	110
00466143	4 G 1	9.4	38.4	133
00466153	5 G 1	10.3	48	160
0046616	7 G 1	11.1	67.2	195
0046617	12 G 1	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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 SiF A refer to page 192
- ÖLFLEX® HEAT 180 C MS refer to page 179

Accessories

- KS 20 cable shears refer to page 999

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/600V)
- Metric flexible conductor design

Benefits

- Certified for the USA and Canada for export-oriented 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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	9.0	48.2	104
0046709	3 G 1	9.5	65	131
0046710	4 G 1	10.2	74.6	152
0046711	5 G 1	11.0	91.5	181
0046712	7 G 1	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 MS refer to page 178

Accessories

- KS 20 cable shears refer to page 999

ÖLFLEX® HEAT 180 EWKF

Silicone cables with increased mechanical characteristics

Info

- Proven notch-resistant EWKF quality

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 SiO_2 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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	6.8	20	56
0046507	3 G 1	7.1	29	68
00465083	4 G 1	7.9	39	88
00465093	5 G 1	8.8	48	110
0046110	7 G 1	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	12.4	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 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 177
- ÖLFLEX® HEAT 180 EWKF C refer to page 181

Accessories

- SILVYN® AS refer to page 896
- SKINDICHT® SHV-M refer to page 756
- SILVYN® EDU-AS refer to page 898
- KS 20 cable shears refer to page 999

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	9.0	43	116
0046308	3 G 1	9.7	55.7	142
00463093	4 G 1	10.9	67.8	175
00463103	5 G 1	11.6	80.3	203
0046312	7 G 1	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 C MS refer to page 179
- ÖLFLEX® HEAT 180 EWKF refer to page 180

Accessories

- SILVYN® AS refer to page 896
- SKINTOP® MS-SC-M refer to page 732
- SKINTOP® MS-M BRUSH refer to page 733
- SILVYN® EDU-AS refer to page 898
- KS 20 cable shears refer to page 999

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 SiO_2 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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	7.8	19.2	92
0046208	3 G 1	8.2	28.8	106
00462093	4 G 1	9.1	38.4	132
00462103	5 G 1	10.0	48	161
0046212	7 G 1	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 260 GLS refer to page 186

Accessories

- KS 20 cable shears refer to page 999

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
- Flame retardant acc. to IEC 60332-1-2

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	4.5	19	41.6
0091231	3 G 1	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	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 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 184

Accessories

- SILVYN® AS refer to page 896
- SKINDICHT® SHV-M refer to page 756
- SILVYN® EDU-AS refer to page 898
- KS 20 cable shears refer to page 999

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
- Flame retardant acc. to IEC 60332-1-2

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	4.8	19.2	42
0091311	3 G 1	5.1	28.8	56
0091312	4 G 1	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 205 MC refer to page 183

Accessories

- SILVYN® HIPROJACKET refer to page 914
- SILVYN® SSUE refer to page 908
- EASY STRIP stripping and cutting tool refer to page 1004
- STAR STRIP stripping tool refer to page 1000

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
- Flame retardant acc. to IEC 60332-1-2

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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	5.8	48	81
0091333	4 G 1	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.
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® SSUE refer to page 908
- EASY STRIP stripping and cutting tool refer to page 1004
- STAR STRIP stripping tool refer to page 1000

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 180 GLS refer to page 182

Accessories

- EASY STRIP stripping and cutting tool refer to page 1004

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/U 230/400 V

Test voltage
1500 V

Temperature range
Fixed installation: -50°C to +350°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 350 MC				
0091375	2 X 1	6.8	19.2	56
0091376	3 G 1	7.4	28.8	70
0091377	4 G 1	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 350 SC refer to page 197
- ÖLFLEX® HEAT 1565 MC refer to page 188

Accessories

- SILVYN® SSUE refer to page 908

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 5.0 Class-ID: EC001578
ETIM 5.0 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
U_0/U: 300/500 V

Test voltage
2200 V

Temperature range
-195°C to +400°C
(adequate ventilation required)
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	7.7	19.2	74
30016603	2 x 1.5	8.2	28.8	87
30020810	2 x 2.5	9.7	48	114
30020811	2 x 4	11.2	76.8	161
30016606	4 x 1	8.9	38.4	123
30016600	4 x 1.5	9.5	57.6	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, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® SSUE refer to page 908

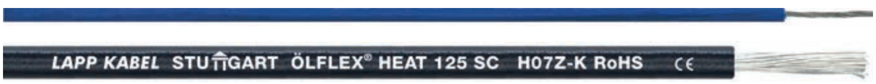
NEW

ÖLFLEX® HEAT 125 SC

VDE tested single cores according to EN 50525-3-41 (H05Z-K & H07Z-K) for more demanding requirements

Info

- Now available in cardboard boxes
- 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 und 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 5.0 Class-ID: EC000993
ETIM 5.0 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 U_0/U 300/500 V
From 1.5mm² U_0/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: 300/500V											
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: 450/750V											
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				

Expanded ambient temperatures • Cross-linked single cores (-55°C to +125°C)

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: 300/500V											
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: 450/750V											
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 are not to scale and do not represent detailed images of the respective products.
Cross-section 0.5 - 4 mm² only available as 100 m box

Accessories

- Conductor end sleeves AH, not insulated refer to page 1013
- UNIVERSAL STRIP stripping tool refer to page 1006
- KS 20 cable shears refer to page 999

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 SiO_2 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 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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 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 192

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

NEW

ÖLFLEX® HEAT 180 SiF A

UL-AWM certified Silicone single core cable with extended temperature range

Info

- A for Advanced here: UL and CSA certifications
- UL AWM Style 3644 (150°C/1000V)

Benefits

- Certified for the USA and Canada for export-oriented appliance and apparatus manufacturers
- Possesses insulating properties after combustion due to remaining SiO_2 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): VW-1, 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 5.0 Class-ID: EC000993
ETIM 5.0 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 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 SiO_2 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 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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 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 191
- ÖLFLEX® HEAT 180 SiF A refer to page 192

Expanded ambient temperatures • Silicone single cores (-50°C to +180°C)

ÖLFLEX® HEAT 180 SiF/GL

ÖLFLEX® HEAT 180 SiZ

ÖLFLEX® HEAT 180 FZLSi

Info

- With glass fibre protection braiding

Info

- Separable twin conductor

Info

- 10 kV high-voltage ignition wire

Benefits

- Possesses insulating properties after combustion due to remaining SiO_2 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 5.0 Class-ID: EC000993
ETIM 5.0 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:
U_0/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

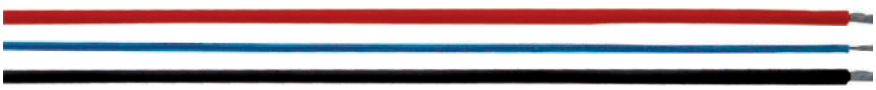
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- UNIVERSAL STRIP stripping tool refer to page 1006
- KS 20 cable shears refer to page 999

ÖLFLEX® HEAT 205 SC

For very high and low temperature requirements



Info

- Now available as spools
- Thermal and chemical resistance
- 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

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

- Flame retardant acc. to IEC 60332-1-2
- 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

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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 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 196

Accessories

- EASY STRIP stripping and cutting tool refer to page 1004
- KT 11 cable shears

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

- Flame retardant acc. to IEC 60332-1-2
- 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 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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
ÖLFLEX® HEAT 260 SC									
28 (7)	0.8	0.9	2	0094003	0094001	0094106	0094002	0094000	0094009
26 (7)	0.9	1.4	2.7		0095001	0095106	0095002		0095009
26 (19)	0.9	1.5	2.9		0096001	0106011		0096000	
24 (7)	1.1	2.2	3.8	0097003	0097001		0097002		
24 (19)	1.1	2.3	4	0098003	0098001	0098106	0098002	0098000	
22 (7)	1.2	3.4	5.4	0099003	0099001		0099002		
22 (19)	1.2	3.7	5.7	0100003	0100001		0100002		0100009
20 (7)	1.4	5.4	7.7	0101003	0101001		0101002		
20 (19)	1.4	5.9	8.2	0102003	0102001	0102106	0102002	0102000	0102009
18 (7)	1.7	8.6	12		0103001				
18 (19)	1.7	9.3	12	0104003	0104001		0104002	0104000	0104009
16 (19)	2.0	11.8	16	0105003	0105001		0105002	0105000	0105009
14 (19)	2.4	18.7	23	0106003	0106001	0106106	0106002	0106000	
12 (19)	2.8	29.6	35	0107003	0107001		0107002	0107000	0107009
10 (37)	3.4	45.6	51		0108001		0108002	0108000	

AWG No. and wire number	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	white	green	yellow	violet	red
ÖLFLEX® HEAT 260 SC								
28 (7)	0.8	0.9	2	0094105	0094006	0094005	0094007	0094104
26 (7)	0.9	1.4	2.7	0095105	0095006		0095007	0095104
26 (19)	0.9	1.5	2.9		0096006			0096104
24 (7)	1.1	2.2	3.8	0097105				0097104
24 (19)	1.1	2.3	4	0098105	0098006			0098104
22 (7)	1.2	3.4	5.4	0099105	0099006	0099005	0099007	0099104
22 (19)	1.2	3.7	5.7	0100105		0100005		0100104
20 (7)	1.4	5.4	7.7	0101105	0101006			0101104
20 (19)	1.4	5.9	8.2	0102105	0102006	0102005	0102007	0102104
18 (7)	1.7	8.6	12					0103104
18 (19)	1.7	9.3	12	0104105	0104006	0104005	0104007	0104104
16 (19)	2.0	11.8	16	0105105	0105006	0105005	0105007	0105104
14 (19)	2.4	18.7	23	0106105	0106006	0106005		0106104
12 (19)	2.8	29.6	35	0107105	0107006	0107005		
10 (37)	3.4	45.6	51	0108105				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 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 195

Accessories

- EASY STRIP stripping and cutting tool refer to page 1004
- KT 11 cable shears

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 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/U: 300/500 V

Test voltage
1500 V

Temperature range
Fixed installation: -50°C to +350°C (adequate ventilation required)

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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® HEAT 650 SC refer to page 199
- ÖLFLEX® HEAT 1565 SC refer to page 198

Accessories

- SILVYN® SSUE refer to page 908
- BULLI cable shears refer to page 998
- SMART STRIP stripping tool

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

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 5.0 Class-ID: EC000993
ETIM 5.0 Class-Description:
Single core cable

Conductor stranding
Fine copper wire strands

Minimum bending radius
Fixed installation: 5 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
2200 V

Temperature range
-195°C to +400°C
(adequate ventilation required)
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	15.9
3020781	1	3.0	9.6	18.8
3013234	1.5	3.3	14.4	24.3
3020782	2.5	3.8	24	35
3018942	4	4.8	38.4	56
3020783	6	5.6	57.6	86.4
3016697	10	6.2	96	123
3016698	16	7.9	153.6	202.5
3016699	25	9.2	240	295.1
3016771	35	10.6	336	403.9
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® SSUE refer to page 908
- STAR STRIP stripping tool refer to page 1000
- KS 15 cable shears

NEW

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 at high temperatures, low conductor resistance due to nickel strand

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 5.0 Class-ID: EC000993
ETIM 5.0 Class-Description: Single core cable

Conductor stranding
Fine wire
see data sheet

Minimum bending radius
Fixed installation: 5 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
1800 V

Temperature range
Occasional flexing: -50°C to +650°C
Fixed installation: -50°C to +700°C
(adequate ventilation required)

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.
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 are not to scale and do not represent detailed images of the respective products.

Similar products

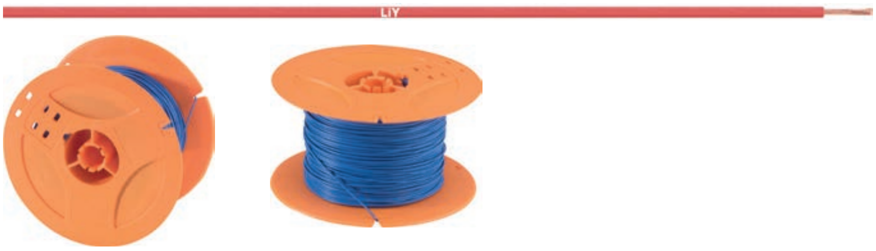
- ÖLFLEX® HEAT 1565 SC refer to page 198

Accessories

- SILVYN® UI 511 refer to page 912
- SMART STRIP stripping tool
- KS 20 cable shears refer to page 999

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 5.0 Class-ID: EC000993
ETIM 5.0 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 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 5.0 Class-ID: EC000993
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

H05V-K <VDE>

<VDE> cable type certification

Info

- <VDE>

Benefits

- Cables' <VDE> marking is a testing mark/ proof of the successful testing according to VDE/ EN/ HD/ IEC standards as well as possible health and safety regulations. <VDE> is issued by the VDE testing and certification institute.

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

Norm references / Approvals

- <VDE> 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

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
1	2.4 - 2.8	100	9.6	15	8110033	8110013	8110063	8110023	8110003

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs 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.

H05V-K <HAR>

European <HAR> cable type certification

Info

- <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

- 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

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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 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.

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H05V-K in big one-way cardboard box

Harmonised, flexible single conductor for protected, fixed installation

Info

- Efficient
- <HAR>

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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/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 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 <VDE> refer to page 202
- H05V-K <HAR> refer to page 203

Accessories

- DIN-assorted boxes conductor end sleeves refer to page 1011
- EASY STRIP stripping and cutting tool refer to page 1004
- BULLI cable shears refer to page 998
- PEW 8.87 crimping pliers refer to page 1016

X05V-K with twin colour helix insulation

Info

- Twin-colour spiralized PVC

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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 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.

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H07V-K <VDE>

<VDE> cable type certification

Info

- <VDE>

Benefits

- Cables' <VDE> marking is a testing mark/ proof of the successful testing according to VDE/ EN/ HD/ IEC standards as well as possible health and safety regulations. <VDE> is issued by the VDE testing and certification institute.

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

Norm references / Approvals

- <VDE> 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

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow
1.5	2.8 - 3.4	100	14.4	22	8120031	8120011	8120061	8120021	8120001
2.5	3.4 - 4.1	100	24	37	8120032	8120012	8120062	8120022	8120002
4	3.9 - 4.8	100	38.4	45	8120033	8120013	8120063	8120023	8120003
6	4.4 - 5.3	100	57.6	71	8120034	8120014	8120064	8120024	8120004

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs 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.

H07V-K <HAR>

European <HAR> cable type certification

Info

- <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 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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				

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 are not to scale and do not represent detailed images of the respective products.
*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 212
• MULTI-STANDARD SC 2.2 refer to page 214

Accessories

• Mobile crimp tool crimping pliers refer to page 1033
• DIN-assorted boxes conductor end sleeves refer to page 1011
• PEW 8.87 crimping pliers refer to page 1016
• FLEXIMARK® Collar Snap-on refer to page 985

H07V-K in big one-way cardboard box

Harmonised, flexible single conductor for protected, fixed installation

Info

- Efficient
- <HAR>

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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

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 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 203
- H07V-K <HAR> refer to page 207

Accessories

- DIN-assorted boxes conductor end sleeves refer to page 1011
- EASY STRIP stripping and cutting tool refer to page 1004
- BULLI cable shears refer to page 998
- PEW 8.87 crimping pliers refer to page 1016

X07V-K with twin colour helix insulation

Info

- 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 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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 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

- X05V-K with twin colour helix insulation refer to page 205

Accessories

- DIN-assorted boxes conductor end sleeves refer to page 1011
- EASY STRIP stripping and cutting tool refer to page 1004
- PEW 8.87 crimping pliers refer to page 1016

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 5.0 Class-ID: EC000993
ETIM 5.0 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: U_0/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 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 203
- MULTI-STANDARD SC 2.1 refer to page 212

Accessories

- DIN-assorted boxes conductor end sleeves refer to page 1011
- EASY STRIP stripping and cutting tool refer to page 1004
- PEW 8.87 crimping pliers refer to page 1016
- FLEXIMARK® Collar Snap-on refer to page 985

MULTI-STANDARD SC 2.1

USA: UL-listed (MTW), Canada: CSA (TEW), Europe: <HAR> H07V-K (depending on cross s.), tin-coated strands

Info

- The all-rounder for many markets

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 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: U_0/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): -40°C 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	4160201K
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

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 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 207
- MULTI-STANDARD SC 2.2 refer to page 214

Accessories
- DIN-assorted boxes conductor end sleeves refer to page 1011
- Conductor end sleeves XL, insulated refer to page 1012
- PEW 8.87 crimping pliers refer to page 1016

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 5.0 Class-ID: EC000993
ETIM 5.0 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: U_0/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): -40°C 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		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	

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 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 212

Accessories

- DIN-assorted boxes conductor end sleeves refer to page 1011
- Conductor end sleeves XL, insulated refer to page 1012
- EASY STRIP stripping and cutting tool refer to page 1004
- PEW 8.87 crimping pliers refer to page 1016
- FLEXIMARK® Collar Snap-on refer to page 985

H05Z-K 90°C

Harmonised; halogen-free to protect human life, the environment and material assets

Info

- Halogen-free and harmonised (HAR)
- For expanded ambient temperatures 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 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

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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 bis +90°C
Fixed installation: -40°C bis +90°C

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 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

- ÖLFLEX® HEAT 125 SC refer to page 189

H07Z-K 90°C

Harmonised; halogen-free to protect human life, the environment and material assets

Info

- 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 5.0 Class-ID: EC000993
ETIM 5.0 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
U_0/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 bis +90°C
Fixed installation: -40°C bis +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

Control Cabinet Single Cores • Halogen-free

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 are not to scale and do not represent detailed images of the respective products.
*for conventional use, **for careful bending; “OD” = outer diameter
The outer diameters stated in the part number table are maximum values.

Similar products

- ÖLFLEX® HEAT 125 SC refer to page 189

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 5.0 Class-ID: EC000993
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SENSOR STRIP stripping tool refer to page 1003

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 5.0 Class-ID: EC000993
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

LAPP GROUP

ÖLFLEX® STATIC CY black

Closely screened, doubly insulated PVC single core for fixed installation

Info

- An alternative to single-core NYY with overall braiding used as EMC-relevant screening
- EMC-compliant

Benefits

- Cost-effective, double-insulated/sheathed single-core cable for fixed, unprotected installation indoors or outdoors, at most occasional flexing taking into account the higher minimum bending radii of 12.5 x cable outer diameter
- High degree of screening enables a very good EMC performance
- No additional protection such as a closed cable duct or protective conduit is required for installation

Application range

- Very suitable for power circuits as an external connection or for the internal wirings in electric and electronic equipment
- In dry or damp interiors with low mechanical stress conditions
- Can be used indoors as a connecting cable to the inverter in the photovoltaic sector
- Outdoor use is possible within the indicated operating temperature range

Product features

- Flame retardant acc. to IEC 60332-1-2
- UV and weather-resistant according to ISO 4892-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Based on PVC
- Nonwoven wrapping/plastic foil
- Tinned-copper braiding
- Outer sheath: Based on PVC

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 Class-Description: Low voltage power cable

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

Minimum bending radius
Fixed installation: 6 x outer diameter
Occasional flexing: 12.5 x outer diameter

Nominal voltage
U_0/U: 600/1000 V

Test voltage
Core/screen: 2000 V

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

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® STATIC CY black				
4600023	16	10.3	177	275
4600024	25	12.7	267	396
4600025	35	14.3	384	542
4600026	50	16.9	537	752
4600027	70	18.7	763	1004
4600028	95	21.7	1012	1368
4600029	120	24.7	1264	1719

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CHAIN 90 CP
- ÖLFLEX® FD 90 CY refer to page 124

Accessories

- KS 20 cable shears refer to page 999

NYM-J

Standard cable for plaster, brickwork and immovable concrete

Info

- 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 5.0 Class-ID: EC000043
ETIM 5.0 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
U_0/U: 300/500 V

Test voltage
2000 V

Protective conductor
"-J" in NYM-J/Dimension with "G": With protection earth PE conductor
"-O" in NYM-O/Dimension with "X": No protection earth PE 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- NYY-J, NYY-O refer to page 223
- (N)HXMH refer to page 222

Accessories

- STAR STRIP stripping tool refer to page 1000
- KS 20 cable shears refer to page 999

(N)HXMH

Halogen-free; for plaster, bricks, concrete; at high density of people and valuable assets

Info

- 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 5.0 Class-ID: EC000043
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

Similar products

- NYM-J refer to page 221

Accessories

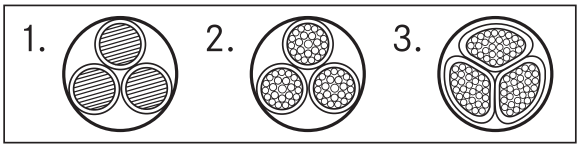
- STAR STRIP stripping tool refer to page 1000

NYY-J, NYY-O

Fixed installation, direct burial; PVC cable with different application areas

Info

- 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
- In water: no longer than 2 weeks at a time, maximum submersion depth 10 metres, only in static water/bodies of water without shipping traffic

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;
  Picture 1. = re
  Picture 2. = rm
  Picture 3. = sm
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/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
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

Power and control cables

Building Installation • Cables for direct burial

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- NYCY refer to page 228
- NYCWY refer to page 229
- NAYY-J refer to page 230

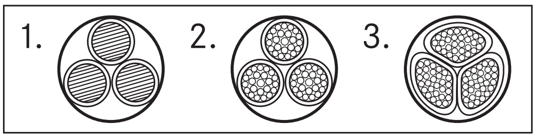
Accessories

- V 1311-A pressing pliers, hydraulic refer to page 1030
- STAR STRIP stripping tool refer to page 1000
- KT cable shears refer to page 999
- PVL 1300 pressing pliers battery-operated refer to page 1031

NEW

N2XH

Halogen-free power cable with rated voltage 0,6/1 kV for fixed installation



Info

- 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;
  Picture 1. = re
  Picture 2. = rm
  Picture 3. = sm
- Core insulation: PE
- Filling compound over the core assembly
- Outer sheath: halogen-free, thermoplastic polyolefin compound

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/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 bis +90°C
Fixed installation: -40°C bis +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	6.0	14	53
1550557	1x2,5 RE	6,5	24	90
3017600	1x4 RE	8,5	38	69
30017645	1x6 RE	6,5	58	90
30017646	1x10 RE	7,3	96	131
30017647	1x16 RM	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
3017604	2x16 RM	18.0	307	625
3017605	2x25 RM	21.0	480	950
35002466	3x1,5 RM	13.0	43	179
1550581	3x2,5 RM	14.0	72	225
N2XH-J				
1112940	1x25 RM	10,2	240	293
1112941	1x35 RM	11,3	336	389
1112942	1x50 RM	12,7	480	517

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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
30017664	3x16 RM	16,7	461	638
30017665	3x25 RM	20,2	720	1015
30017666	3x35 RM	22,3		1231
30017667	3x50 RM	25,5	1440	1652
30017668	3x70 RM	30.0	2016	2455
30017669	3x95 RM	32.0	2736	3260
30017670	3x120 RM	35.0	3456	4000
3017606	3x150 RM	39.0	4320	5100
3017607	3x185 RM	44.0	5328	6160
3017608	3x240 RM	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
30017676	4x16 RM	18,3	614	839
30017677	4x25 RM	22,6	960	1294
30017678	4x35 RM	25,8	1344	1605

Building Installation • Cables for direct burial

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
30017679	4x50 RM	29,4	1920	2154
30017680	4x70 RM	34,4	2688	3047
30017681	4x95 RM	38,6	3648	4102
30017682	4x120 RM	42,4	4608	5062
3017609	4x150 RM	47,2	5760	6256
3017610	4x185 RM	52.0	7104	7751
3017611	4x240 RM	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
30017688	5x16 RM	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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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	14x2,5 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.
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- NYY-J, NYY-O refer to page 223

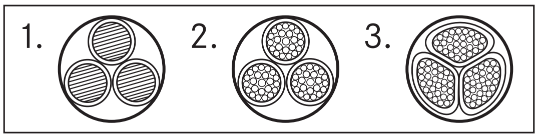
NEW

N2XCH

Halogen-free power cable with concentric copper conductor

Info

- Halogen-free alternative to the PVC installation cable NYCY
- 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;
  Picture 1. = re
  Picture 2. = rm
  Picture 3. = sm
- Core insulation: PE
- Filling compound over the core assembly
- Concentric conductor: bare copper wires
- Outer sheath: halogen-free, thermoplastic polyolefin compound

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/U: 0.6/1.0 kV

Test voltage
4000 V

Temperature range
During installation: -5°C bis +90°C
Fixed installation: -40°C bis +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	52	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
30017700	2x16 RM/16	19.0	490	790
30017701	3x1,5 RE/1,5	11,5	66	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	408	600
30017706	3x16 RM/16	19,9	643	896
30017707	3x25 RM/16	25,3	1001	1360
30017708	3x35 RM/16	29,2	1400	1795
30017709	3x50 RM/25	32.0	2003	2460
30017710	3x70 RM/35	36.0	2794	3080
30017711	3x95 RM/50	39.0	3790	4310
30017712	3x120 RM/70	42.0	4785	5233
30017713	3x150 RM/70	44.0	5100	5788
30017714	3x185 RM/95	48.0	6381	7150
30017715	3x240 RM/120	54.0	8240	9273
30017716	4x1,5 RE/1,5	12,2	81	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
30017720	4x10 RE/10	18.0	504	709
30017721	4x16 RM/16	21,5	796	1068
30017722	4x25 RM/16	25,6	1142	1526
30017723	4x35 RM/16	26,9	1526	1814
30017724	4x50 RM/25	29,6	2203	2405
30017725	4x70 RM/35	34.0	3082	3378
30017726	4x95 RM/50	38,5	4208	4568
30017727	4x120 RM/70	42,7	5388	5773
30017728	4x150 RM/70	46,6	6540	6921
30017729	4x185 RM/95	51,8	8195	8866
30017732	4x240 RM/120	57,6	10546	11167
30017730	7x1,5 RE/1,5	15.0	133	380
30017731	7x2,5 RE/2,5	15.0	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	17,2	205	437
30017736	12x2,5 RE/4	19.0	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

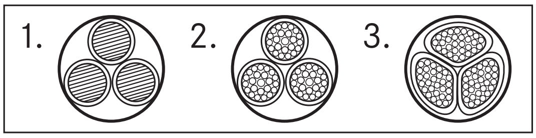
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type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

Similar products

- NYCY refer to page 228
- NYCWY refer to page 229

NYCY

Fixed installation, direct burial; PVC cable with concentric, helical copper conductor and cross-conductive spiral



Info

- 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
- In water: no longer than 2 weeks at a time, maximum submersion depth 10 metres, only in static water/bodies of water without shipping traffic

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;
  Picture 1. = re
  Picture 2. = rm
  Picture 3. = sm
- 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 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

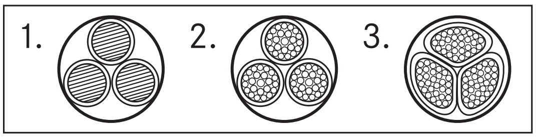
Similar products

- NYY-J, NYY-O refer to page 223

NYCWY

Fixed installation, direct burial; PVC cable with concentric, wave-like copper conductor and cross-conductive spiral

Info
- With concentric, wave-like copper conductor



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
- In water: no longer than 2 weeks at a time, maximum submersion depth 10 metres, only in static water/bodies of water without shipping traffic

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;
  Picture 1. = re
  Picture 2. = rm
  Picture 3. = sm
- 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

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 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
U_0/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 are not to scale and do not represent detailed images of the respective products.

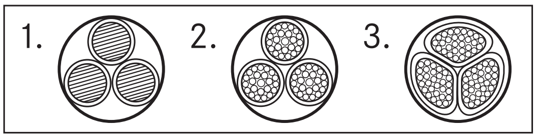
Similar products
- NYY-J, NYY-O refer to page 223

Accessories
- V 1311-A pressing pliers, hydraulic refer to page 1030
- KT cable shears refer to page 999
- PVL 1300 pressing pliers battery-operated refer to page 1031

LAPP GROUP

NAYY-J

Fixed installation, direct burial; PVC cable with solid aluminium conductors



Info

- 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
- In water: no longer than 2 weeks at a time, maximum submersion depth 10 metres, only in static water/bodies of water without shipping traffic

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;
  Picture 1. = re
  Picture 2. = rm
  Picture 3. = sm
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 Class-Description:
Low voltage power cable

Core identification code
According to VDE 0293-308 (table T9)

Conductor stranding
Single-wire

Minimum bending radius
Fixed installation: 12 x outer diameter

Nominal voltage
U_0/U: 0.6/1.0 kV

Test voltage
4000 V

Protective conductor
J = with GN-YE 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-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 are not to scale and do not represent detailed images of the respective products.

Similar products

- NYY-J, NYY-O refer to page 223

Accessories

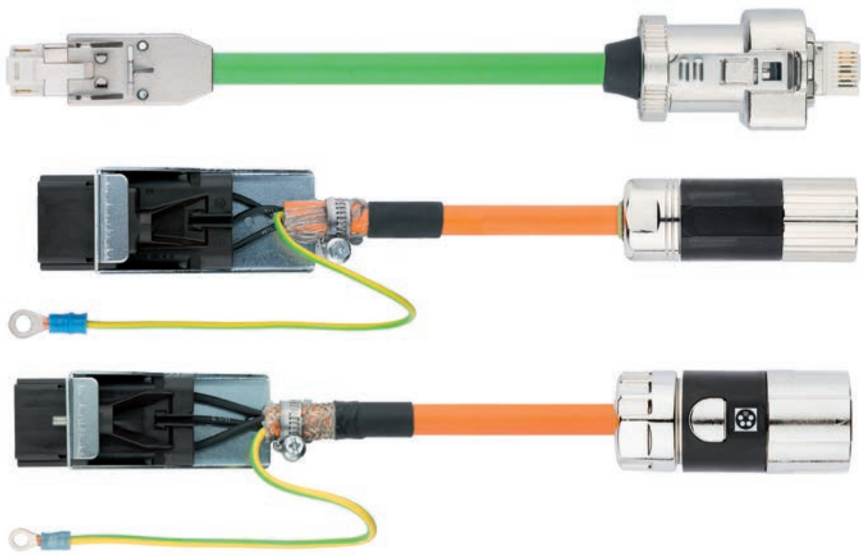
- V 1311-A pressing pliers, hydraulic refer to page 1030
- STAR STRIP stripping tool refer to page 1000
- PVL 1300 pressing pliers battery-operated refer to page 1031
- Cable lugs and other connectors made of aluminium or bi-metal Al-Cu are available upon request

NEW

ÖLFLEX® SERVO Basic Line according to Siemens 6FX5002 (PVC)

Info

- Cables in application-oriented performance categories
- Custom length available
- PVC outer sheath



Benefits
- Regional manufactured worldwide available
- Lapp quality standards
- Optional overmoulding

Application range
- Food production and packaging machinery
- Woodworking Machinery

Product features
- New Power PVC servo cable, shielded
- Designed for average operational demands in industrial applications
- Innovative connnector concept (optionally overmolded)

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 1mm² wire gauge
- Basic Line for static applications and with resistant PVC outer mantle

Technical data

Minimum bending radius
Flexing: 15 x outer diameter
Power cable up to 6mm²: 7,5xD

Nominal voltage
Signal cables:
30 V AC (IEC)
30 V AC/DC (UL/CSA)
Power cable:
- Power cores:
1000 V (UL/CSA)
600/1000 V (IEC)
- Control cores:
750 V (UL/CSA)
30 V AC (IEC)

Distance of Travel
Power cable up to 6mm²: 5m

Acceleration
Power cable up to 6mm²: 10m/s²

Speed of Travel
Power cable up to 6mm²: 3m/s

Max. bending cycles
Power cable up to 6mm²: 2 Mio.

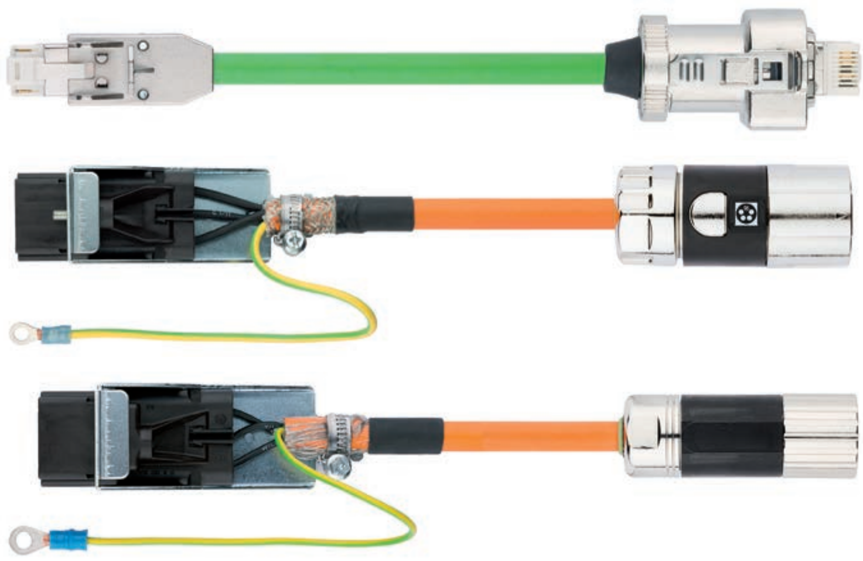
Temperature range
Flexible use: 0°C to +60°C

Article number	Length (m)	SIEMENS® assembly designation	Copper index kg/1.000 pieces	Other dimensions	PU
ÖLFLEX® SERVO Basic Line according to Siemens 6FX5002 (PVC)					
5470000415	10.0	2DC10	370	Other lengths available	1
5470000416	10.0	2DC20	370	Other lengths available	1
5470000427	10.0	5CN05	880	Other lengths available	1
5470000428	10.0	5CN11	1320	Other lengths available	1
5470000437	10.0	5CQ28	880	Other lengths available	1
5470000442	10.0	5CS01	880	Other lengths available	1
5470000450	10.0	5CS31	1320	Other lengths available	1
5470000479	10.0	5DQ28	1560	Other lengths available	1
5470000484	10.0	5DS01	1560	Other lengths available	1
5470000488	10.0	5DS31	1940	Other lengths available	1

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 are not to scale and do not represent detailed images of the respective products.

NEW

ÖLFLEX® SERVO Core Line according to Siemens (PUR)



Info

- Cables in application-oriented performance categories
- Custom length available
- Optimized for harnessings up to 30m

Benefits
- Regional manufactured worldwide available
- Lapp quality standards
- Optional overmoulding

Application range
- Specifically for machine tool building
- For travel distances up to 10 m.
- For dynamic applications

Product features
- New PUR servo cable, halogen-free & shielded
- Innovative connnector concept (optionally overmolded)

Norm references / Approvals
- Design according to SIEMENS® standard

Product Make-up
- Brake wire with 1mm² wire gauge
- Core Line for light duty power chain applications

Technical data

Distance of Travel
Power cables up to 6mm²: 10m/s

Acceleration
Power cable up to 6mm²: 20m/s²

Speed of Travel
Power cables up to 6mm²: 10m/s

Max. bending cycles
Power cable up to 6mm²: 5 Mio.

Temperature range
Moved: -40°C to +90°C

Article number	Length (m)	SIEMENS® assembly designation	Copper index kg/1.000 pieces	Other dimensions	PU
ÖLFLEX® SERVO Core Line according to Siemens (PUR)					
5470000519	10.0	5CA05	1660	other lengths up to 30m available	1
5470000520	10.0	5CA15	1970	other lengths up to 30m available	1
5470000521	10.0	5CA28	1660	other lengths up to 30m available	1
5470000522	10.0	5CA38	1970	other lengths up to 30m available	1
5470000523	10.0	5CA48	3590	other lengths up to 30m available	1
5470000526	10.0	5CN01	1660	other lengths up to 30m available	1
5470000527	10.0	5CN05	1660	other lengths up to 30m available	1
5470000528	10.0	5CN11	1970	other lengths up to 30m available	1
5470000529	10.0	5CN21	1660	other lengths up to 30m available	1
5470000530	10.0	5CN31	1970	other lengths up to 30m available	1
5470000531	10.0	5CN41	3590	other lengths up to 30m available	1
5470000536	10.0	5CQ15	1970	other lengths up to 30m available	1
5470000537	10.0	5CQ28	1660	other lengths up to 30m available	1
5470000538	10.0	5CQ38	1970	other lengths up to 30m available	1
5470000539	10.0	5CQ48	3590	other lengths up to 30m available	1
5470000542	10.0	5CS01	1660	other lengths up to 30m available	1
5470000543	10.0	5CS02	1660	other lengths up to 30m available	1
5470000544	10.0	5CS11	1970	other lengths up to 30m available	1
5470000545	10.0	5CS12	1970	other lengths up to 30m available	1
5470000548	10.0	5CS21	1660	other lengths up to 30m available	1
5470000550	10.0	5CS31	1970	other lengths up to 30m available	1
5470000551	10.0	5CS41	3590	other lengths up to 30m available	1
5470000561	10.0	5DA05	2620	other lengths up to 30m available	1
5470000562	10.0	5DA15	1810	other lengths up to 30m available	1
5470000563	10.0	5DA28	2620	other lengths up to 30m available	1
5470000564	10.0	5DA38	1810	other lengths up to 30m available	1
5470000565	10.0	5DA48	4830	other lengths up to 30m available	1
5470000568	10.0	5DN01	2620	other lengths up to 30m available	1
5470000569	10.0	5DN05	2620	other lengths up to 30m available	1
5470000570	10.0	5DN11	1810	other lengths up to 30m available	1
5470000571	10.0	5DN21	2620	other lengths up to 30m available	1
5470000572	10.0	5DN31	1810	other lengths up to 30m available	1
5470000573	10.0	5DN41	4830	other lengths up to 30m available	1
5470000578	10.0	5DQ15	1810	other lengths up to 30m available	1

Article number	Length (m)	SIEMENS® assembly designation	Copper index kg/1.000 pieces	Other dimensions	PU
5470000579	10.0	5DQ28	2620	other lengths up to 30m available	1
5470000580	10.0	5DQ38	1810	other lengths up to 30m available	1
5470000581	10.0	5DQ48	4830	other lengths up to 30m available	1
5470000584	10.0	5DS01	2620	other lengths up to 30m available	1
5470000585	10.0	5DS11	1810	other lengths up to 30m available	1
5470000587	10.0	5DS21	2620	other lengths up to 30m available	1
5470000588	10.0	5DS31	1810	other lengths up to 30m available	1
5470000589	10.0	5DS41	4830	other lengths up to 30m available	1

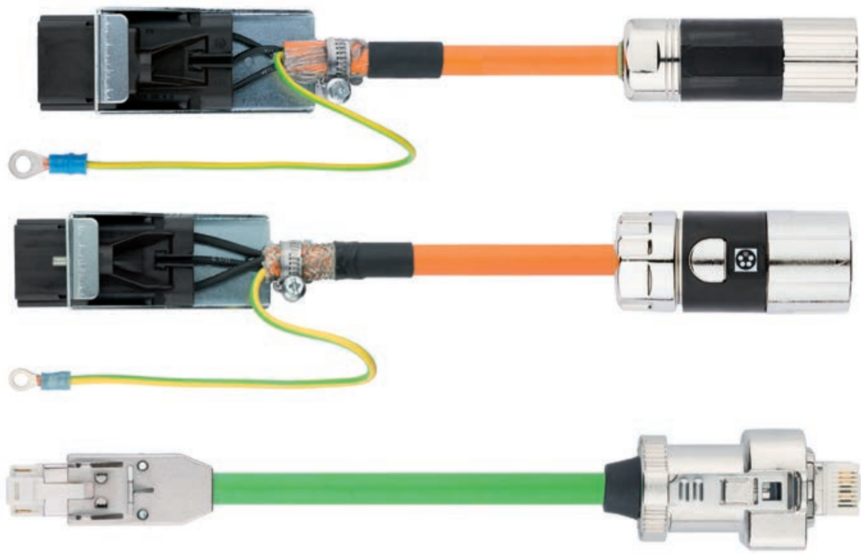
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Siemens part designations (6FX5002/5008, 6FX7002/7008, 6FX8002/8008) are registered trademarks of Siemens AG, and are listed for comparison purposes only
Other lengths and cable terminations are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

ÖLFLEX® SERVO Extended Line according to Siemens 6FX8002 (PUR)

Info

- Cables in application-oriented performance categories
- Connector with novel, safe screen connection
- For the most demanding mechanical requirements



Benefits
- Regional manufactured worldwide available
- Lapp quality standards
- Optional overmoulding

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
- Proven for hightes dynamic stresses and long distances
- Classical production and assembly

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
- Proven PUR servo cable, halogen-free & shielded
- Extended Line for high mechanical stress in Power chains

Technical data

Minimum bending radius
Flexible use: 7.5 x outer diameter
Flexible Use: from 25mm² 10x outer diameter

Distance of Travel
100m

Acceleration
50m/s²

Speed of Travel
5m/s²

Max. bending cycles
10 Mio.

Temperature range
Flexing: -40°C to +90°C

ÖLFLEX® CONNECT Systems Solutions • ÖLFLEX® CONNECT Servo assemblies

Article number	Length (m)	SIEMENS® assembly designation	Copper index kg/1.000 pieces	Other dimensions	PU
Assemblies for signal transmission systems					
5470000500	10.0	2AD00	700	Other lengths available	1
5470000501	10.0	2AD04	700	Other lengths available	1
5470000502	10.0	2AH00	510	Other lengths available	1
5470000503	10.0	2AH04	510	Other lengths available	1
5470000504	10.0	2CA11	510	Other lengths available	1
5470000505	10.0	2CA14	510	Other lengths available	1
5470000506	10.0	2CA31	700	Other lengths available	1
5470000507	10.0	2CA34	700	Other lengths available	1
5470000508	10.0	2CF02	700	Other lengths available	1
5470000509	10.0	2CF04	700	Other lengths available	1
5470000510	10.0	2CG00	510	Other lengths available	1
5470000511	10.0	2CH00	700	Other lengths available	1
5470000512	10.0	2CQ31	700	Other lengths available	1
5470000513	10.0	2CQ34	700	Other lengths available	1
5470000514	10.0	2DC00	420	Other lengths available	1
5470000515	10.0	2DC10	420	Other lengths available	1
5470000516	10.0	2DC20	420	Other lengths available	1
5470000517	10.0	2EQ10	700	Other lengths available	1
5470000518	10.0	2EQ14	700	Other lengths available	1
5470000524	10.0	5CA58	3970	Other lengths available	1
5470000525	10.0	5CA68	5910	Other lengths available	1
5470000532	10.0	5CN51	3970	Other lengths available	1
5470000533	10.0	5CN54	3970	Other lengths available	1
5470000534	10.0	5CN61	5910	Other lengths available	1
5470000535	10.0	5CN64	5910	Other lengths available	1
5470000540	10.0	5CQ58	3970	Other lengths available	1
5470000541	10.0	5CQ68	5910	Other lengths available	1
5470000546	10.0	5CS13	5910	Other lengths available	1
5470000547	10.0	5CS14	5910	Other lengths available	1
5470000549	10.0	5CS23	9550	Other lengths available	1
5470000552	10.0	5CS51	3970	Other lengths available	1
5470000553	10.0	5CS54	3970	Other lengths available	1
5470000554	10.0	5CS61	5910	Other lengths available	1
5470000555	10.0	5CS64	5910	Other lengths available	1
5470000556	10.0	5CX18	5910	Other lengths available	1
5470000557	10.0	5CX28	9550	Other lengths available	1
5470000558	10.0	5CX38	13370	Other lengths available	1
5470000559	10.0	5CX48	17690	Other lengths available	1
5470000560	10.0	5CX58	24680	Other lengths available	1
5470000566	10.0	5DA58	4860	Other lengths available	1
5470000567	10.0	5DA68	7010	Other lengths available	1
5470000574	10.0	5DN51	4860	Other lengths available	1
5470000575	10.0	5DN54	4860	Other lengths available	1
5470000576	10.0	5DN61	7010	Other lengths available	1
5470000577	10.0	5DN64	7010	Other lengths available	1
5470000582	10.0	5DQ58	4860	Other lengths available	1
5470000583	10.0	5DQ68	7010	Other lengths available	1
5470000586	10.0	5DS13	7010	Other lengths available	1
5470000590	10.0	5DS51	4860	Other lengths available	1
5470000591	10.0	5DS61	7010	Other lengths available	1

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 are not to scale and do not represent detailed images of the respective products.

Servo harnessing according to SIEMENS® 6FX5002-

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description:
Control cable

Certifications
Power cable:
VDE-registered
UL/CSA AWM Style 2570
Signal cables:
UL/CSA AWM style 2502

Conductor stranding
Extra-fine wire strand made of bare copper wires according to VDE 0295 class 6/IEC 60228 class 6

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexible use: 12 x outer diameter

Nominal voltage
Signal cables:
30 V AC (IEC)
30 V AC/DC (UL/CSA)
Power cable:
- Power cores:
1000 V (UL/CSA)
600/1000 V (IEC)
- Control cores:
750 V (UL/CSA)
30 V AC (IEC)

Temperature range
Fixed installation: -20°C to +80°C
Flexible use: 0°C to +60°C

Benefits

- This cable is designed according to SIEMENS® standard. 6FX5002 is the high-quality, yet more economical, version of the highly flexible 6FX8002 version.
- 100% compatible with SIEMENS® systems
- The oil-resistant PVC sheath enables usage in industrial environments
- Fixed installation

Application range

- Plant engineering
- Servo drives and servo assemblies

Product Make-up

- Design according to SIEMENS® standard 6FX 5002
- Outer sheath: special PVC compound, flame-retardant according to IEC 332.1,

Note

- 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.

Article number	Length (m)	SIEMENS® assembly designation	SIEMENS® cable designation	Other dimensions	PU
Assemblies for signal transmission systems					
74305559	10.0	6FX5002-2AD00-1BA0	6FX5008-1BD41	Other lengths available	1
74305659	10.0	6FX5002-2AD04-1BA0	6FX5008-1BD41	Other lengths available	1
74305759	10.0	6FX5002-2AH00-1BA0	6FX5008-1BD21	Other lengths available	1
74305859	10.0	6FX5002-2CA11-1BA0	6FX5008-1BD21	Other lengths available	1
74306059	10.0	6FX5002-2CA31-1BA0	6FX5008-1BD51	Other lengths available	1
74306159	10.0	6FX5002-2CA34-1BA0	6FX5008-1BD51	Other lengths available	1
74306659	10.0	6FX5002-2CF01-1BA0	6FX5008-1BD41	Other lengths available	1
74306759	10.0	6FX5002-2CF02-1BA0	6FX5008-1BD41	Other lengths available	1
74306859	10.0	6FX5002-2CH00-1BA0	6FX5008-1BD41	Other lengths available	1
74307059	10.0	6FX5002-2EQ10-1BA0	6FX5008-1BD51	Other lengths available	1
74307159	10.0	6FX5002-2EQ14-1BA0	6FX5008-1BD51	Other lengths available	1
70430150	10.0	6FX5002-2DC00-1BA0	6FX2008-1DC00	Other lengths available	1
70430069	10.0	6FX5002-2DC10-1BA0	6FX2008-1DC00	Other lengths available	1
70430151	10.0	6FX5002-2DC20-1BA0	6FX2008-1DC00	Other lengths available	1
Assemblies for motors without brake					
74307259	10.0	6FX5002-5CA01-1BA0	6FX5008-1BB11	Other lengths available	1
74307459	10.0	6FX5002-5CA05-1BA0	6FX5008-1BB11	Other lengths available	1
74308259	10.0	6FX5002-5CA31-1BA0	6FX5008-1BB21	Other lengths available	1
74308559	10.0	6FX5002-5CA41-1BA0	6FX5008-1BB31	Other lengths available	1
74308659	10.0	6FX5002-5CA51-1BA0	6FX5008-1BB41	Other lengths available	1
70430003	10.0	6FX5002-5CS01-1BA0	6FX5008-1BB11	Other lengths available	1
70430004	10.0	6FX5002-5CS11-1BA0	6FX5008-1BB21	Other lengths available	1
Assemblies for motors with brake					
74308959	10.0	6FX5002-5DA01-1BA0	6FX5008-1BA11	Other lengths available	1
74309159	10.0	6FX5002-5DA05-1BA0	6FX5008-1BA11	Other lengths available	1
74309960	10.0	6FX5002-5DA31-1BA0	6FX5008-1BA21	Other lengths available	1
74313361	10.0	6FX5002-5DA41-1BA0	6FX5008-1BA31	Other lengths available	1
74313661	10.0	6FX5002-5DA51-1BA0	6FX5008-1BA41	Other lengths available	1
70430001	10.0	6FX5002-5DS01-1BA0	6FX5008-1BA11	Other lengths available	1
70430002	10.0	6FX5002-5DS11-1BA0	6FX5008-1BA21	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 definition 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. DESINA® is a registered trademark of the German Machine Tool Builders' Association.
Article numbers refer to genuine Lapp products.
Photographs are not to scale and do not represent detailed images of the respective products.

Servo harnessing according to SIEMENS® 6FX 8002-

Benefits
- Highly flexible servomotor and sensor cables that are designed for use in power chains
- 100% compatible with SIEMENS® systems
- The oil-resistant PUR sheath enables usage in industrial environments

Application range
- Plant engineering
- Servo drives and servo assemblies

Product features
- Abrasion and cut-resistant, halogen-free, oil-resistant

Product Make-up
- Extra-fine strand made of copper wires:
  > Signal cables: tinned
  > Power cables: bare
- Design according to SIEMENS® standard 6FX 8002
- PUR outer sheath
- Signal cables: green (RAL 6018)
- Servo cable: orange (RAL 2003)

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

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description:
Control cable

Certifications
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

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 (IEC)
30 V AC/DC (UL/CSA)
Power cable:
- Power cores:
U_0/U 600/1000 V (IEC)
1000 V (UL/CSA)
- Control cores:
250 V AC (IEC)
1000 V (UL/CSA)

Temperature range
Fixed installation: -50°C to +80°C
Flexing: -20°C to +60°C

Article number	Length (m)	SIEMENS® assembly designation	SIEMENS® cable designation	Other dimensions	PU
Assemblies for signal transmission systems					
70301549	10.0	6FX8002-2AD00-1BA0	6FX8008-1BD41	Other lengths available	1
74303559	10.0	6FX8002-2AD04-1BA0	6FX8008-1BD41	Other lengths available	1
70389020	10.0	6FX8002-2AH00-1BA0	6FX8008-1BD41	Other lengths available	1
70301550	10.0	6FX8002-2CA11-1BA0	6FX8008-1BD21	Other lengths available	1
70301553	10.0	6FX8002-2CA31-1BA0	6FX8008-1BD51	Other lengths available	1
70301554	10.0	6FX8002-2CA34-1BA0	6FX8008-1BD51	Other lengths available	1
70301563	10.0	6FX8002-2CG00-1BA0	6FX8008-1BD21	Other lengths available	1
70301564	10.0	6FX8002-2CH00-1BA0	6FX8008-1BD41	Other lengths available	1
70301567	10.0	6FX8002-2EQ10-1BA0	6FX8008-1BD51	Other lengths available	1
70391522	10.0	6FX8002-2EQ14-1BA0	6FX8008-1BD51	Other lengths available	1
70301568	10.0	6FX8002-2CF01-1BA0	6FX8008-1BD41	Other lengths available	1
70301569	10.0	6FX8002-2CF02-1BA0	6FX8008-1BD41	Other lengths available	1
70301575	10.0	6FX8002-4AA21-1BA0	6FX8008-1BD61	Other lengths available	1
70430149	10.0	6FX8002-2DC00-1BA0	6FX8008-2DC00	Other lengths available	1
70431018	10.0	6FX8002-2DC10-1BA0	6FX8008-2DC00	Other lengths available	1
70430096	10.0	6FX8002-2DC20-1BA0	6FX8008-2DC00	Other lengths available	1
Assemblies for motors without brake					
70301578	10.0	6FX8002-5CA01-1BA0	6FX8008-1BB11	Other lengths available	1
70301601	10.0	6FX8002-5CA05-1BA0	6FX8008-1BB11	Other lengths available	1
70301583	10.0	6FX8002-5CA31-1BA0	6FX8008-1BB21	Other lengths available	1
70301585	10.0	6FX8002-5CA41-1BA0	6FX8008-1BB31	Other lengths available	1
70301586	10.0	6FX8002-5CA51-1BA0	6FX8008-1BB41	Other lengths available	1
70430007	10.0	6FX8002-5CS01-1BA0	6FX8008-1BB11	Other lengths available	1
70430008	10.0	6FX8002-5CS11-1BA0	6FX8008-1BB21	Other lengths available	1
Assemblies for motors with brake					
70301588	10.0	6FX8002-5DA01-1BA0	6FX8008-1BA11	Other lengths available	1
70301600	10.0	6FX8002-5DA05-1BA0	6FX8008-1BA11	Other lengths available	1
70301594	10.0	6FX8002-5DA31-1BA0	6FX8008-1BA21	Other lengths available	1
70301597	10.0	6FX8002-5DA41-1BA0	6FX8008-1BA31	Other lengths available	1
70301598	10.0	6FX8002-5DA51-1BA0	6FX8008-1BA41	Other lengths available	1
70430005	10.0	6FX8002-5DS01-1BA0	6FX8008-1BA11	Other lengths available	1
70430006	10.0	6FX8002-5DS11-1BA0	6FX8008-1BA21	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 definition and calculation of copper-related surcharges.
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Article numbers refer to genuine Lapp products.
Other designs and lengths are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

Servo harnessing according to INDRAMAT® IKG / RKL

Benefits

- Highly flexible servomotor cables that are designed for use in power chains.
- 100% compatible with INDRAMAT® systems
- The oil-resistant PUR sheath enables usage in industrial environments

Application range

- Plant engineering
- Servo drives and servo assemblies

Product Make-up

- In accordance with INDRAMAT® standard IKG/RKL

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

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description:
Control cable

Certifications
UL/CSA AWM Style 20234

Minimum bending radius
Fixed installation: 6 x outer diameter
Flexible use: 10 x outer diameter

Nominal voltage
Power cores:
- 1000 V (UL/CSA)
- 600/1000 V (IEC)
- Control cores:
250 V AC (IEC)
1000 V (UL/CSA)

Temperature range
Fixed installation: -50°C to +80°C
Flexible: -30 °C to +60 °C

Article number	Length (m)	INDRAMAT® ordering designation	Cable designation	Other dimensions	PU
Assemblies to INDRAMAT® standard IKG					
70345476	10.0	IKG4009-010	INK0653	Other lengths available	1
70345503	10.0	IKG4087-010	INK0603	Other lengths available	1
70345521	10.0	IKG4163-010	INK0605	Other lengths available	1
70345522	10.0	IKG4170-010	INK0605	Other lengths available	1
70345541	10.0	IKG4020-010	INK0653	Other lengths available	1
70345542	10.0	IKG4018-010	INK0653	Other lengths available	1
70345543	10.0	IKG4016-010	INK0653	Other lengths available	1
70345545	10.0	IKG4050-010	INK0650	Other lengths available	1
Assemblies to INDRAMAT® standard RKL					
70410000	10.0	RKL4330-010	INK0606	Other lengths available	1
70392839	10.0	RKL4302-010	INK0653	Other lengths available	1
70410001	10.0	RKL4303-010	INK0653	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 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 are not to scale and do not represent detailed images of the respective products.

Servo harnessing according to INDRAMAT® IKS / RKG

Benefits
- Highly flexible feedback cables that are designed for use in power chains
- 100% compatible with INDRAMAT® systems
- The oil-resistant PUR sheath enables usage in industrial environments

Application range
- Plant engineering
- Servo drives and servo assemblies

Product Make-up
- In accordance with INDRAMAT® standard IKS/RKG

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

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Certifications
UL/CSA AWM Style 20236

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexible use: 10 x outer diameter

Nominal voltage
300 V

Temperature range
Fixed installation: -30°C to +90°C
Flexible: -30 °C to +80 °C

Article number	Length (m)	INDRAMAT® ordering designation	Cable designation	Other dimensions	PU
Assemblies to INDRAMAT® standard IKS					
70335583	10.0	IKS4374-010	INK0448	Other lengths available	1
70335584	10.0	IKS4376-010	INK0448	Other lengths available	1
70335595	10.0	IKS4103-010	INK0448	Other lengths available	1
70335596	10.0	IKS4153-010	INK0448	Other lengths available	1
Assemblies to INDRAMAT® standard RKG					
70392984	10.0	RKG4200-010	INK0448	Other lengths available	1
70410002	10.0	RKG4201-010	INK0448	Other lengths available	1

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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Article numbers refer to genuine Lapp products.
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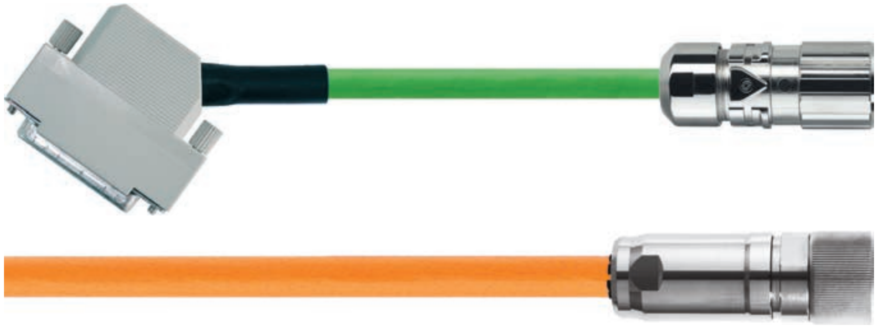
Servo harnessing according to LENZE®



Benefits

- Servomotors, resolvers and encoder cables for fixed installation or application in power supply chains
- 100% compatible with specific drive systems
- Outer sheath makes them particularly suitable for use in industrial areas

Application range

- Plant engineering
- Servo drives and servo assemblies

Product Make-up

- Design according to specific drive systems:
- Designs for fixed installation: PVC outer sheath, PP core insulation.
- Designs for highly flexible use: PUR outer sheath, TPE core insulation

Note

- For the highly flexible version, please observe 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

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Certifications
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

Minimum bending radius
Fixed installation: 7.5 x outer diameter
Flexible use: 10 x outer diameter

Nominal voltage
Signal cables:
30 V (VDE), 300 V (UL/CSA)
Signal cables:
30 V (VDE), 300 V (UL/CSA)

Test voltage
Signal cable: 1.5 kV
Motor cable:
- Power cores: 4 kV
- Control cores: 2 kV

Temperature range
Fixed installation: -25°C to +80°C
Flexible use: -5°C to +70°C

Article number	Length (m)	LENZE® item designation	Static	Highly flexible	Number of cores and mm² per conductor	Other dimensions	PU
Servo cables							
74320320	10.0	EWLM-010GM-015	•		4 G 1,5+(2x0,5)	Other lengths available	1
74320499	10.0	EWLM-010GM-025	•		4 G 2,5+(2x0,5)	Other lengths available	1
74321272	10.0	EWLM-010GMS-015		•	4 G 1,5+(2x0,5)	Other lengths available	1
74321426	10.0	EWLM-010GMS-025		•	4 G 2,5+(2x0,5)	Other lengths available	1
70415002	10.0	EYP-0003-A-0100-M01-A00	•		4 G 1.5	Other lengths available	1
Fan cables							
74322480	10.0	EWLL-010GM	•		5 G 0.5	Other lengths available	1
74322629	10.0	EWLL-010GMS		•	5 G 0.5	Other lengths available	1
70415001	10.0	EYL-0001-V-0100L02-J02		•	5 G 0.75	Other lengths available	1
Resolver cables							
74320540	10.0	EWLR-010GM-T	•		3x (2x0,14) + 1x (2x0,5)	Other lengths available	1
74323073	10.0	EWLR-010GMS-T		•	3x (2x0,14) + 1x (2x0,5)	Other lengths available	1
70415005	10.0	EYF-0020-A-0100-F01-S04		•	3x (2x0,14) + 3x 0,14	Other lengths available	1
Encoder cables							
74323522	10.0	EWLE-010GM-T	•		4x (2x0,14) + 1x (2x1,0)	Other lengths available	1
74323672	10.0	EWLE-010GMS-T		•	4x (2x0,14) + 1x (2x1,0)	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 definition and calculation of copper-related surcharges.
Lenze® part designations (EWLM_, EWLR_, EWLE_, EWLL_, EYL und 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 are not to scale and do not represent detailed images of the respective products.

Servo harnessing according to SEW®

Benefits
- Servomotors, resolvers and encoder cables for fixed installation or application in power supply chains
- Outer sheath makes them particularly suitable for use in industrial areas

Application range
- Plant engineering
- Servo drives and servo assemblies

Product Make-up
- Design according to specific drive systems:
- Flame-retardant according IEC 60332-1-2

Note
- For the highly flexible version, please observe 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

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Certifications
Power cable: UL AWM Style 2587

Minimum bending radius
Power cable occasional flexing: 15 x cable diameter
Signal cable for flexible installation: 15 x outer diameter

Nominal voltage
Power cable: power cores: IEC 750 V, UL 600 V
Signal cores: IEC 350 V, UL 600 V
Signal cable: 250 V

Test voltage
Power cable: 2 KV
Signal cable: 1.5 KV

Temperature range
Flexing power cable: -10 °C to +80 °C
Signal cable flexing: -5 °C to +70 °C

Article number	Length (m)	SEW item designation	Static	Highly flexible	Number of cores and mm² per conductor	Other dimensions	PU
Motor cables							
70430251	10.0	05904544	•		4G 1,5	Other lengths available	1
70430250	10.0	13324853	•		4G1,5+3x1	Other lengths available	1
Assemblies for signal transmission systems							
70430249	10.0	13324535	•		6x2x0,25	Other lengths available	1
70430252	10.0	1995405		•	6x2x0,25	Other lengths available	1

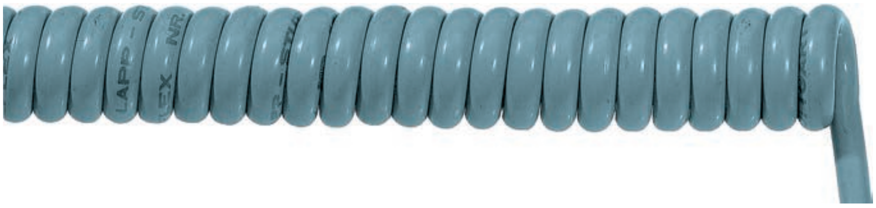
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
SEW® is a registered trademark of SEW Eurodrive GmbH & Co KG, Ernst-Blickle Str. 42, D-76646 Bruchsal
Article numbers refer to genuine Lapp products.
Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® SPIRAL 400 P

PUR spiral cable with increased chemical resistance

Info

- High resistance to benzols, benzines and other substances listed in Appendix T1
- Good oil resistance
- High mechanical strength



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

ETIM 5.0 Class-ID: EC000247
ETIM 5.0 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
U_0/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					
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
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	1500	500	5.7	20
70002647	2 X 1	3000	1000	5.7	20
70002648	2 X 1	4500	1500	5.7	20
70002649	2 X 1	6000	2000	5.7	20
70002651	3 G 1	1500	500	6	21
70002652	3 G 1	3000	1000	6	21
70002653	3 G 1	4500	1500	6	21
70002654	3 G 1	6000	2000	6	21
70002656	4 G 1	1500	500	6.5	24
70002657	4 G 1	3000	1000	6.5	24
70002658	4 G 1	4500	1500	6.5	24
70002659	4 G 1	6000	2000	6.5	24
70002661	5 G 1	1500	500	7.1	25

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
70002662	5 G 1	3000	1000	7.1	25
70002663	5 G 1	4500	1500	7.1	25
70002664	5 G 1	6000	2000	7.1	25
70002666	7 G 1	1250	500	8	30
70002667	7 G 1	2500	1000	8	30
70002668	7 G 1	3750	1500	8	30
70002669	7 G 1	5000	2000	8	30
70002670	12 G 1	1500	500	10.5	37
70002671	12 G 1	3000	1000	10.5	37
70002672	18 G 1	1500	500	12.7	45
70002673	18 G 1	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 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 244

Accessories

- SKINTOP® 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

ETIM 5.0 Class-ID: EC000247
ETIM 5.0 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
U_0/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 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 241
- ÖLFLEX® SPIRAL 540 P refer to page 244

Accessories

- SKINTOP® CLICK System
- SKINTOP® BS refer to page 790
- SKINTOP® BS-M refer to page 719
- SKINTOP® BT refer to page 791
- SKINTOP® CLICK BS refer to page 720

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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

ETIM 5.0 Class-ID: EC000247
ETIM 5.0 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)
U_0/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	1000	300	7	24
73220124	2 X 1	2000	600	7	24
73220125	2 X 1	3500	1000	7	24
73220126	2 X 1	5000	1500	7	24
73220127	3 G 1	1000	300	7.4	29
73220128	3 G 1	2000	600	7.4	29
73220129	3 G 1	3500	1000	7.4	29
73220130	3 G 1	5000	1500	7.4	29
71220131	4 G 1	1000	300	8.2	30
71220132	4 G 1	2000	600	8.2	30
71220133	4 G 1	3500	1000	8.2	30
71220134	4 G 1	5000	1500	8.2	30
71220135	5 G 1	1000	300	9	32
71220136	5 G 1	2000	600	9	32
71220137	5 G 1	3500	1000	9	32
71220138	5 G 1	5000	1500	9	32
73220139	7 G 1	1000	350	10.9	40
73220140	7 G 1	2000	700	10.9	40
73220141	7 G 1	3500	1200	10.9	40
73220142	7 G 1	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)
U_0/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 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 241
- ÖLFLEX® SPIRAL 540 P with angular, isolated ground plug refer to page 246

Accessories

- SKINTOP® 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

ETIM 5.0 Class-ID: EC000247
ETIM 5.0 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
U_0: 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	1000	300	7.4	29
73220856	3 G 1	2000	600	7.4	29
73220863	3 G 1	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 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 244

UNITRONIC® SPIRAL

Spiral cable with outer PUR sheath and overall shielding for exact impulse transmission

Info

- Secure against electrical interferences
- PUR outer sheath

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

Product features

- Abrasion and cut-resistant
- Very high flexibility

Product Make-up

- Strands of bare copper wires
- Core insulation: Based on PVC
- Screening: wrapped with braided copper wires
- Outer sheath: PUR compound
- 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

ETIM 5.0 Class-ID: EC000247
ETIM 5.0 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)	Pieces / PU
UNITRONIC® SPIRAL						
73220200	2 x 0.14	400	100	4.1	15	5
73220201	2 x 0.14	800	200	4.1	15	5
73220202	2 x 0.14	1200	300	4.1	15	5
73220203	2 x 0.14	1600	400	4.1	15	5
73220204	2 x 0.14	2000	500	4.1	15	5
73220205	3 x 0.14	400	100	4.3	18	5
73220206	3 x 0.14	800	200	4.3	18	5
73220207	3 x 0.14	1200	300	4.3	18	5
73220208	3 x 0.14	1600	400	4.3	18	5
73220209	3 x 0.14	2000	500	4.3	18	5
73220210	4 x 0.14	400	100	4.5	19	5
73220211	4 x 0.14	800	200	4.5	19	5
73220212	4 x 0.14	1200	300	4.5	19	5
73220213	4 x 0.14	1600	400	4.5	19	5
73220214	4 x 0.14	2000	500	4.5	19	5
73220215	5 x 0.14	400	100	4.8	20	5
73220216	5 x 0.14	800	200	4.8	20	5
73220217	5 x 0.14	1200	300	4.8	20	5
73220218	5 x 0.14	1600	400	4.8	20	5
73220219	5 x 0.14	2000	500	4.8	20	5
73220220	6 x 0.14	400	100	5.5	21	5
73220221	6 x 0.14	800	200	5.5	21	5
73220222	6 x 0.14	1200	300	5.5	21	5
73220223	6 x 0.14	1600	400	5.5	21	5
73220224	6 x 0.14	2000	500	5.5	21	5
73220230	12 x 0.14	400	100	7.2	27	1
73220231	12 x 0.14	800	200	7.2	27	1
73220232	12 x 0.14	1200	300	7.2	27	1
73220233	12 x 0.14	1600	400	7.2	27	1
73220234	12 x 0.14	2000	500	7.2	27	1
73220235	18 x 0.14	400	100	8	29	1
73220236	18 x 0.14	800	200	8	29	1
73220237	18 x 0.14	1200	300	8	29	1
73220238	18 x 0.14	1600	400	8	29	1
73220239	18 x 0.14	2000	500	8	29	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 definition and calculation of copper-related surcharges.
Photographs 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 System

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

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

ETIM 5.0 Class-ID: EC001576
ETIM 5.0 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
U_0: 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 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

ETIM 5.0 Class-ID: EC001576
ETIM 5.0 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
U_0: 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	black	6.3 - 8.0	2.5	72.0
73222336	3 G 1	grey	6.3 - 8.0	2.5	72.0
73222381	3 G 1.5	grey	7.4 - 9.4	5	216.0
73222335	3 G 1	white	6.3 - 8.0	2.5	72.0
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	324.0
1st end: moulded angular earthing-type plug with double earthed contact 2nd end: 30 mm stripped, with conductor end sleeves					
70261139	3 G 1	black	6.3 - 8.0	1.5	43.2
70261140	3 G 1	black	6.3 - 8.0	2	57.6
70261141	3 G 1	black	6.3 - 8.0	3	86.4
70261166	3 G 1	black	6.3 - 8.0	5	144.0
70261145	3 G 1	grey	6.3 - 8.0	1.5	43.2
70261146	3 G 1	grey	6.3 - 8.0	2	57.6
70261147	3 G 1	grey	6.3 - 8.0	3	86.4
70261143	3 G 1	white	6.3 - 8.0	2	57.6
70261144	3 G 1	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	86.0
70261150	3 G 1.5	black	7.4 - 9.4	3	129.0
70261160	3 G 1.5	black	7.4 - 9.4	5	215.0
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	86.0
70261156	3 G 1.5	grey	7.4 - 9.4	3	129.0
70362272	3 G 1.5	grey	7.4 - 9.4	4	172.0.
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	86.0
70261153	3 G 1.5	white	7.4 - 9.4	3	129.0
70261163	3 G 2.5	black	9.2 - 11.4	3	216.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 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 540 P Connection Cable

Robust, VDE-registered connecting cable with DIN/VDE or international plugs

Info

- Available with international plugs
- Safety colour: yellow

Benefits

- VDE cable registration: LAPP ÖLFLEX® 540 P, sold by the metre and assembled to size
- Safety colour: yellow
- VDE marking approval/VDE type certification for the straight central plug according to DIN/VDE in the item numbers table

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
- Special, flame-retardant polyurethane sheath compound

Norm references / Approvals

- Cable ÖLFLEX® 540 P: VDE reg. no. 6583 - 300/500 VAC up to 1.0 mm²; VDE reg. no. 6584 - 450/750 VAC as from 1.5 mm²

Product Make-up

- Strands of tinned-copper wires
- Core insulation: TPE
- Outer sheath made of special polyurethane
- 1st option: 2-core ÖLFLEX® 540 P cable in conjunction with straight, extruded, round, shaped DIN/VDE central 2-pin attachment contour plug (CEE 7/17) without earthed contact according to DIN VDE 0620-1/DIN 49406-R and with plug protection rating IP 20 as well as with non-contacting hole in the overmould for the round earthing pin of the French plug system type E
- 2nd alternative: 3-core ÖLFLEX® 540 P cable incl. green-yellow, protective equipment grounding conductor in conjunction with 3-pole, straight, moulded, splash water protected, central, isolated ground DIN/ VDE hybrid plug (CEE 7/7 combining
the French type E with the German “SchuKo” type E) incl. double protection/ earthing contact/ pin system according to DIN VDE 0620-1/ DIN 49441-R2/ DIN 49441-2-AR2 as well as
with plug protection type/ category IP 44 and with
contacting hole for the round earthing pin of the French plug system type E
- Other end: 30 mm dismantled, with protection sleeves for the ends of the conductor
- Other, international plug versions in conjunction with the cable ÖLFLEX® 540 P on request

Technical data

ETIM 5.0 Class-ID: EC001576
ETIM 5.0 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
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0: 250 V AC

Test voltage
Assembly: 2000 V
ÖLFLEX® 540 P: 3000 V

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

Temperature range
Occasional flexing and fixed installation: -40 °C to +80 °C

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Length (m)	Copper index kg/1.000 pieces
1st option: 2-core ÖLFLEX® 540 P cable with DIN/VDE central 2-pin attachment contour plug (CEE 7/17)				
73220842	2 X 1	7.0	2	38.4
73220843	2 X 1	7.0	3.5	67.2
73220844	2 X 1	7.0	5	96.0
73221558	2 X 1.5	8.4	2	57.6
73221559	2 X 1.5	8.4	3.5	86.4
73221560	2 X 1.5	8.4	5	144.0
2nd alternative: 3-core ÖLFLEX® 540 P cable incl. green-yellow, protective equipment grounding conductor with 3-pole DIN/ VDE hybrid plug (CEE 7/7)				
73220846	3 G 0.75	7.0	2	43.2
73220847	3 G 0.75	7.0	3.5	75.6
73220848	3 G 0.75	7.0	5	108.0
73221561	3 G 1	7.4	2	57.6
73221562	3 G 1	7.4	3.5	100.8
73221563	3 G 1	7.4	5	144.0
73220849	3 G 1.5	8.9	2	86.0
73220850	3 G 1.5	8.9	3.5	150.6
73220851	3 G 1.5	8.9	5	215.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 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!”

Accessories

- SKINTOP® CLICK System

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 5.0 Class-ID: EC001576
ETIM 5.0 Class-Description: Power cord

Nominal voltage
U_0: 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	215.0
73222322	3 G 1.5	8.9	10	430.0
73222375	3 G 1.5	8.9	15	645.0
73222323	3 G 1.5	8.9	25	1075.0
73222324	3 G 1.5	8.9	50	2150.0
73222385	3 G 2.5	10.6	5	360.0
73222325	3 G 2.5	10.6	10	720.0
73222386	3 G 2.5	10.6	15	1080.0
73222326	3 G 2.5	10.6	25	1800.0
73222327	3 G 2.5	10.6	50	3600.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 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

ETIM 5.0 Class-ID: EC001576
ETIM 5.0 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
U_0/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	180.0
71222239	16	5 G 1.5	11.2 - 14.4	5	360.0
71222232	16	5 G 2.5	13.3 - 17.0	2.5	300.0
71222240	16	5 G 2.5	13.3 - 17.0	5	600.0
71222241	32	5 G 2.5	13.3 - 17.0	5	600.0
71222234	32	5 G 4	15.6 - 19.9	2.5	480.0
71222242	32	5 G 4	15.6 - 19.9	5	960.0
71222243	32	5 G 6	17.5 - 22.2	5	1440.0
ÖLFLEX® PLUG CEE extension cable					
71222292	16	5 G 1.5	11.2 - 14.4	10	720.0
71222295	16	5 G 2.5	13.3 - 17.0	10	1200.0
71222296	16	5 G 2.5	13.3 - 17.0	25	3000.0
71222298	32	5 G 2.5	13.3 - 17.0	10	1200.0
71222299	32	5 G 2.5	13.3 - 17.0	25	3000.0
71222301	32	5 G 4	15.6 - 19.9	10	1920.0
71222302	32	5 G 4	15.6 - 19.9	25	4800.0
71222304	32	5 G 6	17.5 - 22.2	10	2880.0
71222305	32	5 G 6	17.5 - 22.2	25	7200.0

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 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

- 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

Technical data

ETIM 5.0 Class-ID: EC001576
ETIM 5.0 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
U_0/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 connecting cable with phase shifter*					
71002843	16	5 G 1.5	11.2 - 14.4	3.5	252
71002844	16	5 G 1.5	11.2 - 14.4	5	360
71002846	16	5 G 2.5	13.3 - 17.0	3.5	420
71002847	16	5 G 2.5	13.3 - 17.0	5	600

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 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 5.0 Class-ID: EC000104
ETIM 5.0 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 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
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

CHARGE M3 —/T2C S

Info

- For charging stations

CHARGE M3 —/T1C S

Info

- For charging stations

Benefits

CHARGE M3 —/T2C S
- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechancal stress, in particular abrasion and sliding demands

CHARGE M3 —/T1C S
- New two-chamber system for environmental protection of moving parts to the connection part
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechancal stress, in particular abrasion and sliding demands

Application range

- For installation in charging stations

Product Make-up

CHARGE M3 —/T2C S
- Cable for 1-phase charging up to 20A: ÖLFLEX® Charge 3G2.5 mm²+1x0.5 mm²
- Cable for 3-phase charging up to 20A: ÖLFLEX® Charge 5G2.5mm²+1x0.5mm²
- Cable for 1-phase charging up to 32A: ÖLFLEX® Charge 3G6mm²+1x0,5mm²
- Cable for 3-phase charging up to 32 A: ÖLFLEX® Charge 5G6mm²+1x0.5mm²
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics

CHARGE M3 —/T1C S
- Cable for 1-phase charging up to 20A: ÖLFLEX® Charge 3G2.5 mm²+1x0.5 mm²
- Cable for 1-phase charging up to 32A: ÖLFLEX® Charge 3G6mm²+1x0,5mm²

Technical data

ETIM 5.0 Class-ID: EC002839
ETIM 5.0 Class-Description: Accessories for battery/charger

Certifications
according to VDE-AR-E2283-5
according to EN 61851-1

Temperature range
Flexing: -30°C to +50°C

Article number	Version	Effective length (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Cut off clean, charging cable, vehicle connector type 2 (Total length: effective length +1m straight)					
74880134	Charging: 1 phase 20A	5000	473	1280	1
74880135	Charging: 1 phase 20A	7000	627	1600	1
74880137	Charging: 3 phase 20A	5000	770	1840	1
74880138	Charging: 3 phase 20A	7000	1020	2360	1
74880141	Charging: 1 phase 32A	5000	1096	2160	1
74880142	Charging: 1 phase 32A	7000	1452	2800	1
74880145	Charging: 3 phase 32A	5000	1717	2900	1
74880146	Charging: 3 phase 32A	7000	2303	3820	1
Cut off clean, charging cable, vehicle connector type 1 (Total length: effective length +1m straight)					
74880127	Charging: 1 phase 20A	5000	479	1240	1
74880128	Charging: 1 phase 20A	7000	633	1540	1
74880130	Charging: 1 phase 32A	5000	1057	2100	1
74880131	Charging: 1 phase 32A	7000	1413	2740	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 definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.
Further colour combinations and lengths on request

CHARGE M3 —/T2C C

Info

- For charging stations

CHARGE M3 —/T1C C

Info

- For charging stations

Benefits

CHARGE M3 —/T2C C
- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechancal stress, in particular abrasion and sliding demands

CHARGE M3 —/T1C C
- New two-chamber system for environmental protection of moving parts to the connection part
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechancal stress, in particular abrasion and sliding demands

Application range
- For installation in charging stations

Product Make-up

CHARGE M3 —/T2C C
- Cable for 1-phase charging up to 20A: ÖLFLEX® Charge 3G2.5 mm²+1x0.5 mm²
- Cable for 3-phase charging up to 20A: ÖLFLEX® Charge 5G2.5mm²+1x0.5mm²
- Cable for 1-phase charging up to 32A: ÖLFLEX® Charge 3G6mm²+1x0,5mm²
- Cable for 3-phase charging up to 32 A: ÖLFLEX® Charge 5G6mm²+1x0.5mm²
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics

CHARGE M3 —/T1C C
- Cable for 1-phase charging up to 20A: ÖLFLEX® Charge 3G2.5 mm²+1x0.5 mm²
- Cable for 1-phase charging up to 32A: ÖLFLEX® Charge 3G6mm²+1x0,5mm²

Technical data

ETIM 5.0 Class-ID: EC002839
ETIM 5.0 Class-Description: Accessories for battery/charger

Certifications
according to VDE-AR-E2283-5
according to EN 61851-1

Temperature range
Flexing: -30°C to +50°C

Article number	Version	Effective length (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Cut off clean, charging cable spiralized, vehicle connector type 2 (Total length: effective length +1m straight)					
74880136	Charging: 1 phase 20A	5000	1064	2480	1
74880139	Charging: 3 phase 20A	5000	1845	4060	1
74880143	Charging: 1 phase 32A	5000	2609	4880	1
Cut off clean, charging cable spiralized, vehicle connector type 1 (Total length: effective length +1m straight)					
74880129	Charging: 1 phase 20A	5000	1048	2420	1
74880132	Charging: 1 phase 32A	5000	2570	4820	1

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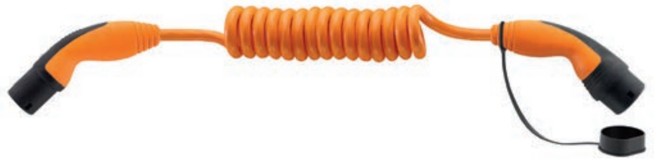
Photographs are not to scale and do not represent detailed images of the respective products.
Further colour combinations and lengths on request

CHARGE M3 T2P/T2C S

Info
- For electric vehicles with type 2 vehicle inlet

CHARGE M3 T2P/T2C C



Info
- For electric vehicles with type 2 vehicle inlet

CHARGE M3 T2P/T2C H

Info
- For electric vehicles with type 2 vehicle inlet

Benefits
- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechanical stress, in particular abrasion and sliding demands

Application range
- For charging stations, electric and Plug-in Hybrid vehicles

Product Make-up
- Cable for 1-phase charging up to 20A: ÖLFLEX® Charge 3G2.5 mm²+1x0.5 mm²
- Cable for 3-phase charging up to 20A: ÖLFLEX® Charge 5G2.5mm²+1x0.5mm²
- Cable for 1-phase charging up to 32A: ÖLFLEX® Charge 3G6mm²+1x0,5mm²
- Cable for 3-phase charging up to 32 A: ÖLFLEX® Charge 5G6mm²+1x0.5mm²
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics

Technical data
ETIM 5.0 Class-ID: EC002839
ETIM 5.0 Class-Description: Accessories for battery/charger

Certifications
according to VDE-AR-E2283-5
according to EN 61851-1

Temperature range
Flexing: -30°C to +50°C

Article number	Version	Effective length (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Plug type 2, charging cable, vehicle connector type 2					
74880153	Charging: 1 phase 20A	5000	409	1740	1
74880167	Charging: 1 phase 20A	7000	562	2060	1
74880169	Charging: 3 phase 20A	5000	665	2280	1
74880170	Charging: 3 phase 20A	7000	915	2800	1
74880160	Charging: 1 phase 32A	5000	947	2620	1
74880161	Charging: 1 phase 32A	7000	1303	3260	1
74880164	Charging: 3 phase 32A	5000	1559	3360	1
74880092	Charging: 3 phase 32A	7000	2145	4280	1
Plug type 2, Charging cable spiralised, Vehicle connector type 2					
74880168	Charging: 1 phase 20A	5000	1000	2940	1
74880158	Charging: 3 phase 20A	5000	1740	4520	1
74880162	Charging: 1 phase 32A	5000	2460	5340	1
Plug type 2, charging cable Helix, vehicle connector type 2					
74880159	Charging: 3 phase 20A	5000	734	2220	1
74880163	Charging: 1 phase 32A	5000	1045	2700	1

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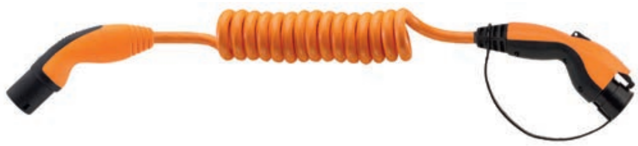
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.
Further colour combinations and lengths on request

CHARGE M3 T2P/T1C S

Info

- For electric vehicles with type 1 vehicle inlet

CHARGE M3 T2P/T1C C



Info

- For electric vehicles with type 1 vehicle inlet

CHARGE M3 T2P/T1C H

Info

- For electric vehicles with type 1 vehicle inlet

Benefits

- New two-chamber system for environmental protection of moving parts to the connection part
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechanical stress, in particular abrasion and sliding demands

Application range

- For charging stations, electric and Plug-in Hybrid vehicles

Product Make-up

- Cable for 1-phase charging up to 20A: ÖLFLEX® Charge 3G2.5 mm²+1x0.5 mm²
- Cable for 1-phase charging up to 32A: ÖLFLEX® Charge 3G6mm²+1x0,5mm²
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics

Technical data

ETIM 5.0 Class-ID: EC002839
ETIM 5.0 Class-Description: Accessories for battery/charger

Certifications
according to VDE-AR-E2283-5
according to EN 61851-1

Temperature range
Flexing: -30°C to +50°C

Article number	Version	Effective length (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Plug type 2, charging cable, vehicle connector type 1					
74880152	Charging: 1 phase 20A	5000	409	2740	1
74880147	Charging: 1 phase 20A	7000	571	2000	1
74880149	Charging: 1 phase 32A	5000	961	2560	1
74880093	Charging: 1 phase 32A	7000	1317	3200	1
Plug type 2, charging cable spiralised, vehicle connector type 1					
74880148	Charging: 1 phase 20A	5000	1006	2880	1
74880151	Charging: 1 phase 32A	5000	2474	5280	1
Plug type 2, charging cable Helix, vehicle connector type 1					
74880270	Charging: 1 phase 32A	5000	1059	1680	1

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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Further colour combinations and lengths on request

CHARGE M3 T3P/T2C S

Info

- For electric vehicles with type 2 vehicle inlet

CHARGE M3 T3P/T1C S

Info

- For electric vehicles with type 1 vehicle inlet

Benefits

CHARGE M3 T3P/T2C S

- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechancal stress, in particular abrasion and sliding demands

CHARGE M3 T3P/T1C S

- New two-chamber system for environmental protection of moving parts to the connection part
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechancal stress, in particular abrasion and sliding demands

Application range

- For charging stations, electric and Plug-in Hybrid vehicles

Product Make-up

CHARGE M3 T3P/T2C S

- Cable for 1-phase charging up to 20A: ÖLFLEX® Charge 3G2.5 mm²+1x0.5 mm²
- Cable for 3-phase charging up to 20A: ÖLFLEX® Charge 5G2.5mm²+1x0.5mm²
- Cable for 1-phase charging up to 32A: ÖLFLEX® Charge 3G6mm²+1x0,5mm²
- Cable for 3-phase charging up to 32 A: ÖLFLEX® Charge 5G6mm²+1x0.5mm²
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics

CHARGE M3 T3P/T1C S

- Cable for 1-phase charging up to 20A: ÖLFLEX® Charge 3G2.5 mm²+1x0.5 mm²
- Cable for 1-phase charging up to 32A: ÖLFLEX® Charge 3G6mm²+1x0,5mm²

Technical data

ETIM 5.0 Class-ID: EC002839
ETIM 5.0 Class-Description: Accessories for battery/charger

Certifications
according to VDE-AR-E2283-5
according to EN 61851-1

Temperature range
Flexing: -30°C to +50°C

Article number	Version	Effective length (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Plug type 3, charging cable, vehicle connector type 2					
74880097	Charging: 1 phase 20A	5000	407	1580	1
74880171	Charging: 3 phase 20A	5000	663	2140	1
74880098	Charging: 3 phase 32A	5000	1554	3200	1
74880559	Charging: 3 phase 32A	7000	2140	4120	1
Plug type 3, charging cable, vehicle connector type 1					
74880173	Charging: 1 phase 20A	5000	414	1540	1
74880174	Charging: 1 phase 32A	5000	959	2400	1

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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Further colour combinations and lengths on request

CHARGE M2 TFP/T2C S

Info

- Harnessing with In-Cable Control Box for charging mode 2 for electric vehicles with type 2 vehicle inlet

CHARGE M2 TFP/T1C S

Info

- Harnessing with In-Cable Control Box for charging mode 2 for electric vehicles with type 1 vehicle inlet

Benefits

CHARGE M2 TFP/T2C S

- Resistant to microbes
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechancal stress, in particular abrasion and sliding demands

CHARGE M2 TFP/T1C S

- New two-chamber system for environmental protection of moving parts to the connection part
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Withstands high mechancal stress, in particular abrasion and sliding demands

Application range

- For charging stations, electric and Plug-in Hybrid vehicles

Product features

- Charging current from 6-13A in 5 steps
- Monitoring of protective earth conductor
- PUR outer sheath
- Suitable for all weather conditions

Product Make-up

- H07BQ-F: Cable from Typ F plug up to ICCB
- Type 2 connectors are injection moulded in two-components process for optimal ergonomics
- Type F cable connectors are injection moulded

Technical data

ETIM 5.0 Class-ID: EC002839
ETIM 5.0 Class-Description: Accessories for battery/charger

Certifications
according to VDE-AR-E2283-5
according to EN 61851-1

Temperature range
Flexing: -30°C to +50°C

Article number	Version	Effective length (mm)	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Plug type F, charging cable with ICCB, connector type 2					
74880085	Charging: 1 phase 13A	4.000	344	2570	1
Plug type F, charging cable with ICCB, connector type 1					
74880086	Charging: 1 phase 13A	4.000	344	2570	1

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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Further colour combinations and lengths on request

NEW

Socket outlet Type 2 IP54 up to 63A and connector locking flat

Info
- Sturdy and durable socket outlet for frequent connection

Socket outlet Type 2 IP54 up to 63A with cover and connector locking

Info
- Sturdy and durable socket outlet for frequent connection

Socket outlet Type 2 IP54 up to 63A with RGB LED as well as cover and connector locking

Info
- Sturdy and durable socket outlet for frequent connection

Socket outlet Type 2 IP54 up to 63A and connector locking

Info
- Sturdy and durable socket outlet for frequent connection

Socket outlet Type 2 IP54 up to 63A with RGB LED and connector locking

Info
- Sturdy and durable socket outlet for frequent connection

Benefits
- Socket outlet and controller fits perfectly together

Application range
- For installation in charging stations

Product features
- 5 different versions for all installation situations
- Socket outlet type 2 according to IEC62196-1,2 and IEC 61851-1
- Optionally available: Hinged lid locking, RGB LED, flat design

Product Make-up
- Screw terminals for 3P+N+PE as well as PP and CP
- With easy CONTACT and silver plated contacts
- Plug interlock with integrated actuator
- Hinged lid included

Technical data

Nominal voltage
200/346V 240/415V

Protection rating
IP 54

Temperature range
-30°C up to +50°C

Article number	Charging current	Article designation	PU
Socket outlet type 2 flat			
74880200	bis 20A	EVCP2 Controller 74880215 or 74880218	1
74880201	bis 32A	EVCP2 Controller 74880215 or 74880218	1
74880202	bis 63A	EVCP2 Controller 74880215 or 74880218	1
Socket outlet type 2 with hinged lid locking			
74880203	bis 20A	EVCP2 Controller 74880217 or 74880220	1
74880204	bis 32A	EVCP2 Controller 74880217 or 74880220	1
74880205	bis 63A	EVCP2 Controller 74880217 or 74880220	1
Socket outlet type 2 with hinged lid locking and RGB LED			
74880206	bis 20A	EVCP2 Controller 74880217 or 74880220	1
74880207	bis 32A	EVCP2 Controller 74880217 or 74880220	1
74880208	bis 63A	EVCP2 Controller 74880217 or 74880220	1
Socket outlet type 2			
74880209	bis 20A	EVCP2 Controller 74880215 or 74880218	1
74880210	bis 32A	EVCP2 Controller 74880215 or 74880218	1
74880211	bis 63A	EVCP2 Controller 74880215 or 74880218	1
Socket outlet type 2 with RGB LED			
74880212	bis 20A	EVCP2 Controller 74880215 or 74880218	1
74880213	bis 32A	EVCP2 Controller 74880215 or 74880218	1
74880214	bis 63A	EVCP2 Controller 74880215 or 74880218	1

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

EVCP2 Controller Mode 3/ Typ 2

Benefits

- For safe and continuous charging
- Power reserve for plug release in case of power failure
- Additional 12V outputs for peripherals

Product features

- Integrated power supply unit 230V/12V with power supply in case of power failure
- Adjustable charging current of 6A-80A by means of rotary switch
- For each type 2 socket outlet EVCP2 one controller is necessary
- Possibility to control the RGB LED lighting
- Control of charging contactor and connector lock

Info

- For optimal control of the type 2 socket outlets

Technical data

Nominal voltage
95 ... 265 V AC

Protection rating
IP 30

Temperature range
Operation: -20 °C to +70 °C

Article number	Article designation	PU
EVCP2 Controller Mode 3 / Type 2		
74880215	Standard + query via RS485	1
74880216	Vehicle connector firmly connected to EVSE, suitable for type 1 and type 2, query via RS485	1
74880217	Standard + query via RS485 + hinged lid locking + limit switch	1
74880218	Standard + query via RS485 + analog input	1
74880219	Vehicle connector firmly connected to EVSE, suitable for Type 1 and Type 2, query via RS485 + analog input	1
74880220	Standard + query via RS485 + hinged lid locking + limit switch + analog input	1
Software for EVCP2 controllers including manual		
74880221	To adjust and for query via RS232 / RS485	1
Connecting cable for plug and hinged lid locking		
74880222	Acutator coupler with single cores 3x0.5, length 1000mm	1

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Vehicle connector Type 1 up to 32A

Benefits
- Dust cover enclosed
- New two-chamber system for environmental protection of moving parts to the connection part

Product features
- Suitable for field assembly

Product Make-up
- L1+L2/N+PE and CP+CS

Info
- Field harnessable

Technical data
Nominal voltage
200-250V

Protection rating
IP 44

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Vehicle connector Type 1 up to 32A		
74880223	Vehicle connector Type 1 20A	1
74880224	Vehicle connector Type 1 32A	1

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Plug Type 2 up to 63A

Benefits
- With integrated resistance coding

Product features
- Suitable for field assembly

Info
- Field harnessable

Technical data
Nominal voltage
200-250V (1p+N+PE)
200/380-250/480V (3p+N+PE)

Protection rating
IP 44

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Plug Type 2 up to 63A		
74880225	Plug type 2, 20A, 1-phase	1
74880226	Plug type 2, 32A, 1-phase	1
74880227	Plug Typ 2, 32A, 3-phase	1
74880228	Plug type 2, 32A, 3-phase	1
74880229	Plug type 2, 63A, 3-phase	1

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Vehicle connector Type 2 up to 63A

Benefits
- With integrated resistance coding
- Dust cover enclosed

Product features
- Suitable for field assembly

Info
- Field harnessable

Technical data
Nominal voltage
200-250V (1p+N+PE)
200/380-250/480V (3p+N+PE)

Protection rating
IP 44

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Vehicle connector Type 2 up to 63A		
74880230	Vehicle connector type 2, 20A, 1-phase	1
74880231	Vehicle connector type 2, 32A, 1-phase	1
74880232	Vehicle connector type 2, 20A, 3-phase	1
74880233	Vehicle connector type 2, 32A, 3-phase	1
74880234	Vehicle connector type 2, 63A, 3-phase	1

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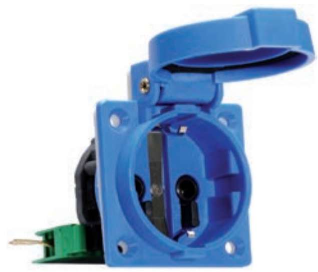
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Socket outlet ground receptacle 16A 230V, German System



Benefits
- With auxiliary contact “closing”

Application range
- For installation in charging stations

Product features
- Suitable for field assembly

Info
- Suitable for 16A continuous load

Technical data
Nominal voltage
250V

Protection rating
IP 54

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet ground receptacle 16A 230V, German System		
74880235	Socket outlet colour blue	1
74880236	Socket outlet black colour	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 definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

Socket outlet ground receptacle 16A 230V, German System

Benefits
- With auxiliary contact “closing”

Application range
- For installation in charging stations

Product features
- Suitable for field assembly
- Without hinged cover

Info
- Suitable for 16A continuous load

Technical data
Nominal voltage
250V

Protection rating
IP 40

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet ground receptacle 16A 230V, German System		
74880237	Socket outlet colour blue	1
74880238	Socket outlet black colour	1

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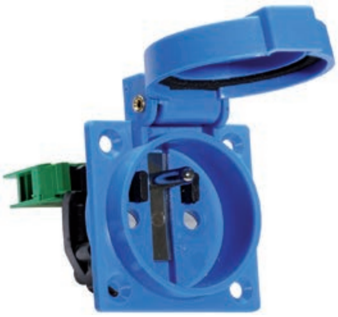
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

Socket outlet ground receptacle 16A 230V, Belgian/French System



Benefits
- With auxiliary contact “closing”

Application range
- For installation in charging stations

Product features
- Suitable for field assembly

Info
- Suitable for 16A continuous load

Technical data
Nominal voltage
250V

Protection rating
IP 54

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet ground receptacle 16A 230V, Belgian/French System		
74880239	Socket outlet colour blue	1
74880240	Socket outlet black colour	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 definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Socket outlet Type 23, Swiss System

Benefits
- With auxiliary contact “closing”

Application range
- For installation in charging stations

Product features
- Suitable for field assembly

Info
- Suitable for 16A continuous load

Technical data
Nominal voltage
250V

Protection rating
IP 54

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet Type 23, Swiss System		
74880241	Socket outlet colour blue	1
74880242	Socket outlet black colour	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 definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Socket outlet ground receptacle with flat design

Benefits
- With auxiliary contact “closing”

Application range
- For installation in charging stations

Product features
- Suitable for field assembly

Info
- Suitable for 16A continuous load

Technical data
Nominal voltage
250V

Protection rating
IP 44

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet ground receptacle with flat design		
74880243	German system	1
74880244	Belgian / French system	1
74880245	Swiss system	1

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Socket outlet ground receptacle with hinged cover locking

Benefits
- With auxiliary contact "closing"

Application range
- For installation in charging stations

Product features
- Suitable for field assembly

Info
- Suitable for 16A continuous load

Technical data

Nominal voltage
250V

Protection rating
IP 44

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet ground receptacle with hinged cover locking		
74880246	German system	1
74880247	Belgian / French system	1
74880248	Swiss system	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 definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Socket outlet ground receptacle with hinged cover locking and LED

Benefits
- With auxiliary contact "closing"

Application range
- For installation in charging stations

Product features
- Suitable for field assembly

Info
- Suitable for 16A continuous load

Technical data

Nominal voltage
250V

Protection rating
IP 44

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet ground receptacle with hinged cover locking and LED		
74880249	German system	1
74880250	Belgian / French system	1
74880251	Swiss system	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 definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Socket outlet ground receptacle

Benefits
- With auxiliary contact “closing”

Application range
- For installation in charging stations

Product features
- Suitable for field assembly

Info
- Suitable for 16A continuous load

Technical data
Nominal voltage
250V

Protection rating
IP 44

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet ground receptacle		
74880252	German system	1
74880253	Belgian / French system	1
74880254	Swiss system	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 definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Socket outlet ground receptacle with LED

Benefits
- With auxiliary contact “closing”

Application range
- For installation in charging stations

Product features
- Suitable for field assembly

Info
- Suitable for 16A continuous load

Technical data
Nominal voltage
250V

Protection rating
IP 44

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet ground receptacle with LED		
74880255	German system	1
74880256	Belgian / French system	1
74880257	Swiss system	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 definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Socket outlet CEE 3-way 230V

Benefits
- With inclination

Application range
- For installation in charging stations

Product features
- Suitable for field assembly

Info
- With auxiliary contact “closing” and “break”

Technical data
Nominal voltage
200-250V

Protection rating
IP 54

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet CEE 3-way 230V		
74880258	16A	1
74880259	32A	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 definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Socket outlet CEE 5-way 400V

Benefits
- With inclination

Application range
- For installation in charging stations

Product features
- Suitable for field assembly

Info
- With auxiliary contact “closing” and “break”

Technical data
Nominal voltage
200-250V / 380-415V

Protection rating
IP 54

Temperature range
-30°C up to +50°C

Article number	Article designation	PU
Socket outlet CEE 5-way 400V		
74880260	16A	1
74880261	32A	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 definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

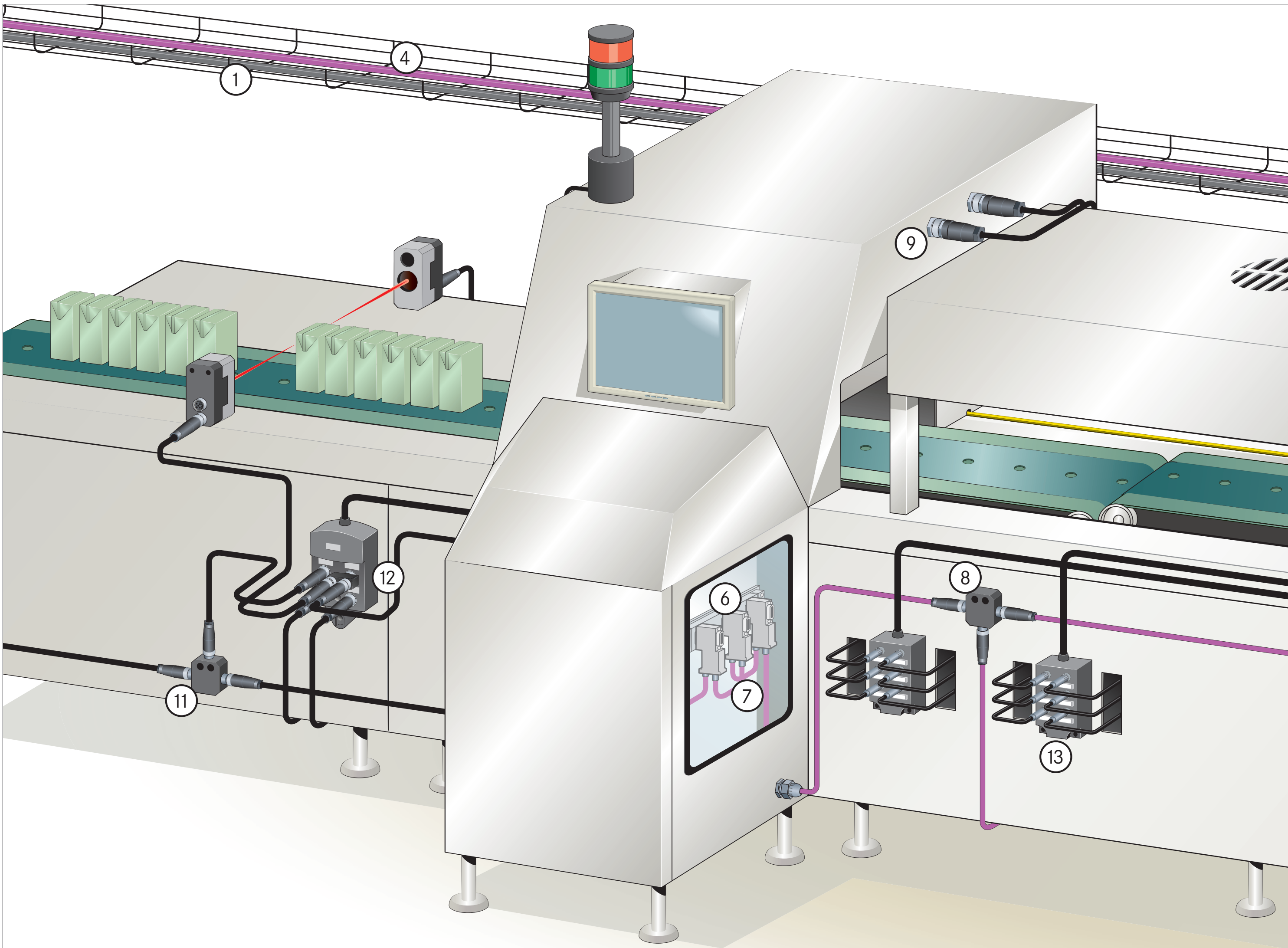
UNITRONIC®

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.

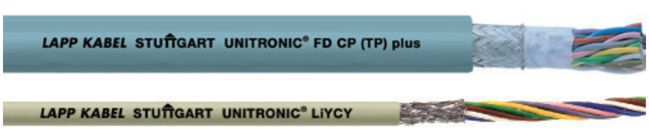
Application range

- 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



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 325
4. PROFIBUS® cables (fixed installation) from page 328
5. PROFIBUS® cables (highly flexible) from page 338
6. PROFIBUS® Sub-D connector from page 347
7. PROFIBUS® M12 cordsets, page 352
8. PROFIBUS® M12 T distributor, page 355
9. Sensor/actuator M12 connector from page 391
10. Valve connectors from page 395
11. Sensor/actuator T distributor, page 394
12. Sensor/actuator Y distributor from page 397
13. Sensor/actuator M8 distribution boxes, page 401
14. Sensor/actuator M12 distribution boxes, page 402

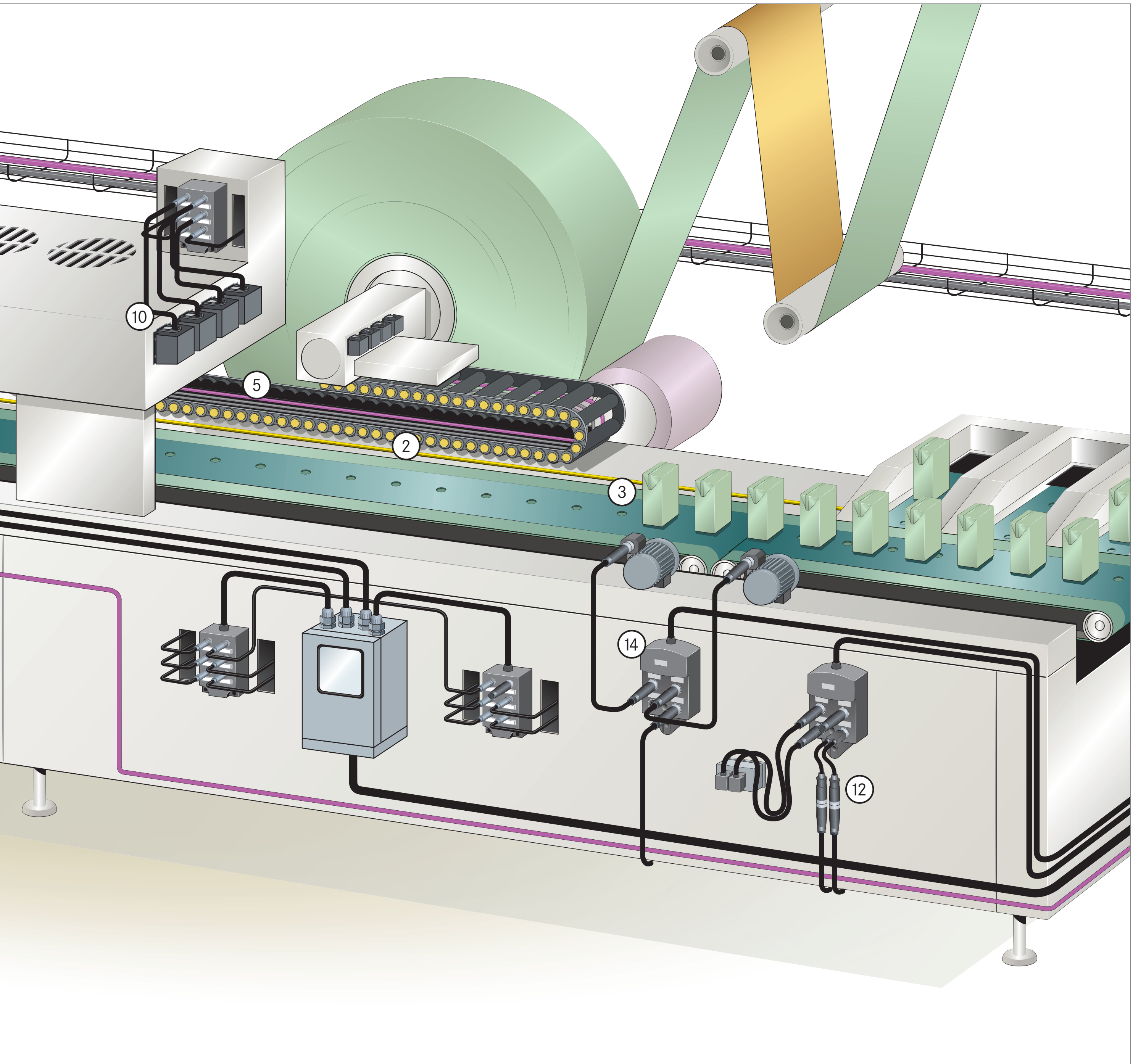
Low frequency data cables
Page 276 to page 320



Installation/data cables for low frequency transmission – for fixed and flexible installation, continuous flexing application.

Coaxial cables
Page 321 to page 322

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 323 to page 375

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 376 to page 406

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.

LAPP GROUP

UNITRONIC® 100

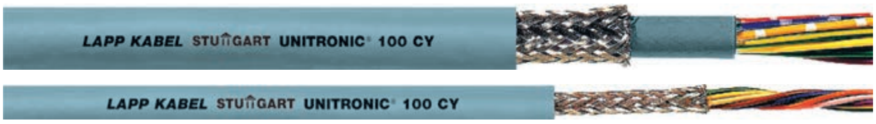
Control and signal cable with small cross-sections

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0028038	30 x 0,25	9.9	75	187
0028039	36 x 0,25	10.7	90	235
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 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

- UNIVERSAL STRIP stripping tool refer to page 1006
- STAR STRIP stripping tool refer to page 1000

UNITRONIC® LiYY

Data transmission cable with colour code acc. to DIN 47100

Info

- The classic for multi-functional use

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
At 0.14 mm²: 1200 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)
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
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	40
0028503	3 x 0.50	5	14.4	47
0028504	4 x 0.50	5.6	19.2	56
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
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	285
0028702	2 x 1.00	5.6	19.2	55
0028703	3 x 1.00	5.9	29	70

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
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 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 712
- STAR STRIP stripping tool refer to page 1000
- SENSOR STRIP stripping tool refer to page 1003

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, instrumentation 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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
At 0.14 mm²: 1200 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)
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	104
0034320	20 x 0.14	7.7	53.9	116
0034321	21 x 0.14	7.9	55.5	121
0034324	24 x 0.14	8.4	61	132
0034325	25 x 0.14	8.5	63	149
0034328	28 x 0.14	8.5	66.1	153
0034330	30 x 0.14	8.7	69	158
0034336	36 x 0.14	9.3	83	183
0034340	40 x 0.14	10.4	87.5	210
0034344	44 x 0.14	10.7	110.5	225
0034350	50 x 0.14	11.1	122.5	253
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

Low frequency data transmission cables • DIN colour code

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0034406	6 x 0.25	6	30	58
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	124
0034418	18 x 0.25	8.8	83	143
0034420	20 x 0.25	9.3	88	152.3
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	49
0034504	4 x 0.34	5.7	28	59
0034505	5 x 0.34	6.2	30	66
0034506	6 x 0.34	6.8	45	79
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	129.2
0034512	12 x 0.34	8.5	80	142
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	54
0034603	3 x 0.50	5.9	38	67
0034604	4 x 0.50	6.3	43	77
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	135
0034610	10 x 0.50	9.3	88	160
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	64
0034703	3 x 0.75	6.3	49	76
0034704	4 x 0.75	7	58	92
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	153
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 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 794
- Multipurpose shears A and B refer to page 998
- UNIVERSAL STRIP stripping tool refer to page 1006

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
At 0.14 mm²: 1200 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® LiYY (TP)				
0035101	2 x 2 x 0.14	4.8	5.4	25.5
0035102	3 x 2 x 0.14	4.9	8	32
0035103	4 x 2 x 0.14	5.5	10.7	38.5
0035104	5 x 2 x 0.14	5.7	13.4	45.5
0035105	6 x 2 x 0.14	6.2	16.1	51
0035108	10 x 2 x 0.14	8	26.9	77.5
0035110	12 x 2 x 0.14	8.2	32.3	94.5
0035113	16 x 2 x 0.14	9.1	43	110.5
0035160	2 x 2 x 0.25	6.1	9.6	38
0035161	3 x 2 x 0.25	6.2	14.4	48
0035162	4 x 2 x 0.25	6.9	19.2	59
0035163	6 x 2 x 0.25	7.8	28.8	80
0035164	8 x 2 x 0.25	9.2	38.4	98
0035170	2 x 2 x 0.5	7.9	19.2	72
0035171	3 x 2 x 0.5	8	28.8	83
0035172	4 x 2 x 0.5	8.7	38.4	115
0035174	8 x 2 x 0.5	12.2	76.8	206
0035175	10 x 2 x 0.5	13.2	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 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 715
- 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

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
At 0.14 mm²: 1200 V

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 0,5	7.9	48.1	93
0035811	3 x 2 x 0,5	8.7	73.7	129
0035812	4 x 2 x 0,5	9.4	82	146
0035813	6 x 2 x 0,5	11.1	110	198
0035814	8 x 2 x 0,5	13.1	139	259
0035816	12 x 2 x 0,5	14.9	198.3	354
0035817	16 x 2 x 0,5	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	9	84	142
0035831	3 x 2 x 1	10.4	96	173
0035832	4 x 2 x 1	11.3	121	212
0035836	5 x 2 x 1	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 are not to scale and do not represent detailed images of the respective products.

Similar products

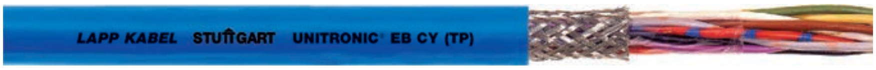
- UNITRONIC® CY PiDY (TP) refer to page 286
- UNITRONIC® PUR CP (TP) refer to page 290
- UNITRONIC® Li2YCY (TP) fine-wire refer to page 291
- UNITRONIC® LiYCY (TP) A refer to page 302

Accessories

- SKINTOP® MS-SC-M refer to page 732
- Multipurpose shears A and B refer to page 998
- STAR STRIP stripping tool refer to page 1000

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- JE-LiYCY...BD EB refer to page 315

Accessories

- Multipurpose shears A and B refer to page 998
- SKINTOP® K-M ATEX plus blue refer to page 723

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
1200 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)
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 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-SC-M refer to page 732
- Multipurpose shears A and B refer to page 998
- UNIVERSAL STRIP stripping tool refer to page 1006
- DATA STRIP stripping tool refer to page 1001

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
800 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)
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-SC-M refer to page 732
- EASY STRIP stripping and cutting tool refer to page 1004
- Multipurpose shears A and B refer to page 998
- DATA STRIP stripping tool refer to page 1001

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
1200 V

Loop resistance
< 160 Ohm/km

Characteristic impedance
Approx. 65 Ohm

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® 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	11.1	88.2	168
0034253	5 x 2 x 0.25	11.8	103.8	201
0034254	6 x 2 x 0.25	12.8	125.7	244
0034256	8 x 2 x 0.25	15.4	161	325
0034257	10 x 2 x 0.25	17.1	186.8	342
0034258	12 x 2 x 0.25	18.3	239.5	416
0034259	16 x 2 x 0.25	20.3	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 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-SC-M refer to page 732
- UNIVERSAL STRIP stripping tool refer to page 1006
- STAR STRIP stripping tool refer to page 1000

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
1500 V

Characteristic impedance
Approx. 95 Ohm

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- UNIVERSAL STRIP stripping tool refer to page 1006
- DATA STRIP stripping tool refer to page 1001

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
1200 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)
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
0033306	6 x 0.25	6.8	26.1	49
0033312	12 x 0.25	8.4	48.1	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 are not to scale and do not represent detailed images of the respective products.

Similar products
- UNITRONIC® SPIRAL refer to page 247

Accessories
- Multipurpose shears A and B refer to page 998
- UNIVERSAL STRIP stripping tool refer to page 1006
- DATA STRIP stripping tool refer to page 1001

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
0.14 mm²: 1200 V
≥0.25 mm²: 1500 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)
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	63
0032813	5 x 0.34	6.2	30	69
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® PUR CP (TP) refer to page 290
- UNITRONIC® FD CP plus refer to page 308
- UNITRONIC® FD CP (TP) plus refer to page 309

Accessories

- SKINTOP® MS-SC-M refer to page 732
- 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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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

Test voltage
0.14 mm²: 1200 V
≥0.25 mm²: 1500 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® 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	8.6	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® FD CP (TP) plus refer to page 309

Accessories

- SKINTOP® MS-SC-M refer to page 732
- 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 reinforced black outer sheath (Yv) is suitable for indoors and outdoors and provides enhanced appropriateness for direct burial in the ground

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
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)
- Wall thickness of the outer sheath is increased ("Y**v**")
- Outer sheath colour: black (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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 Ohm (> 1 MHz)

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

Data communication systems

Low frequency data transmission cables • Low capacitance

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	56
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® BUS LD refer to page 323

Accessories

- SKINTOP® MS-SC-M refer to page 732
- Multipurpose shears A and B refer to page 998
- STAR STRIP stripping tool refer to page 1000
- STEEL GUN HT-338 cable tie pliers refer to page 1068
- LS steel cable ties refer to page 1066

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 (1mm²) bare stranded copper conductor
- 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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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 Ohm (> 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	12.5	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
7-wire				
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	9.9	82	126
0034071	3 x 2 x 1	11.8	109	156
0034072	4 x 2 x 1	12.7	133	193
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 are not to scale and do not represent detailed images of the respective products.

NEW

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 plant, animal or synthetic-based organic 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 agents
- Well-suited to frequent 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
- Halogen-free materials
- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to EN 50267-2-3 (degree of acidity)
- 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 5.0 Class-ID: EC000830
ETIM 5.0 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	15 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® ST-HF-M refer to page 718
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 1001

ECOLAB

NEW

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

LAPP KABEL STUTTGART UNITRONIC® ROBUST C

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 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 agents
- Well-suited to frequent 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
- Halogen-free materials
- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to EN 50267-2-3 (degree of acidity)
- 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 5.0 Class-ID: EC000830
ETIM 5.0 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
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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® ST-HF-M refer to page 718
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 1001

NEW

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 plant, animal or synthetic-based organic 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 agents
- Well-suited to frequent 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

- Halogen-free materials
- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to EN 50267-2-3 (degree of acidity)
- 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 5.0 Class-ID: EC000830
ETIM 5.0 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	4.9	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	9	64.1	98
1032132	3 x 2 x 1	10.4	83.5	135
1032133	4 x 2 x 1	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® ST-HF-M refer to page 718
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 1001

UNITRONIC® LiHH

Halogen-free data transmission cable with colour code acc. to DIN 47100

Info

- For use within public buildings and industrial plants

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 according to IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to EN 50267-2-3 (degree of acidity)
- 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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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	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	6.1	28.8	57
0037172	4 x 1	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 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 718
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 1001

UNITRONIC® LiHCH

Screened halogen-free data transmission cable with colour code acc. to DIN 47100

Info

- For use within public buildings and industrial plants

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 according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to EN 50267-2-3 (degree of acidity)
- 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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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	131
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	6.5	43	72
0037803	3 x 1	7	56	90
0037804	4 x 1	7.5	68	109
0037807	7 x 1	8.8	118	171
0037902	2 x 1.5	7.7	58	90
0037903	3 x 1.5	8.1	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 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-SC-M refer to page 732
- Multipurpose shears A and B refer to page 998

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 according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to EN 50267-2-3 (degree of acidity)
- 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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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	5.9	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
0038416	16 x 2 x 0.25	12.7	146.5	238
0038602	2 x 2 x 0.5	8.8	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	9.5	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	10.5	84	142
0038803	3 x 2 x 1	10.6	96	173
0038804	4 x 2 x 1	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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® MS-SC-M refer to page 732
- Multipurpose shears A and B refer to page 998

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

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

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 (RAL 7005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Peak operating voltage
(not for power applications)
300 V
UL/CSA: 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

Test voltage
1500 V

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

Article number	Number of cores and AWG per conductor	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiYY A					
0022403	3 x AWG26/7	3 x 0.14	3.8	4.2	19.7
0022404	4 x AWG26/7	4 x 0.14	4	5.6	23
0022405	5 x AWG26/7	5 x 0.14	4.3	7	25
0022408	8 x AWG26/7	8 x 0.14	5.1	11.2	34
0022412	12 x AWG26/7	12 x 0.14	5.8	16.8	47
0022416	16 x AWG26/7	16 x 0.14	6.3	22.4	58
0022421	21 x AWG26/7	21 x 0.14	7	29.4	63
0022502	2 x AWG24/7	2 x 0.23	4	4.6	26.2
0022505	5 x AWG24/7	5 x 0.23	4.8	11.5	39.4
0022508	8 x AWG24/7	8 x 0.23	5.7	18.4	52.5
0022512	12 x AWG24/7	12 x 0.23	6.6	27.6	72.2
0022602	2 x AWG22/7	2 x 0.34	4.8	6.8	32.8
0022603	3 x AWG22/7	3 x 0.34	5	10.2	35
0022604	4 x AWG22/7	4 x 0.34	5.4	13.6	45.9
0022605	5 x AWG22/7	5 x 0.34	5.9	17	55.8
0022607	7 x AWG22/7	7 x 0.34	6.4	23.3	68.9
0022608	8 x AWG22/7	8 x 0.34	6.9	27.2	75.5
0022612	12 x AWG22/7	12 x 0.34	8.2	40.8	103
0022616	16 x AWG22/7	16 x 0.34	9.1	54.4	131.2
0022624	24 x AWG22/7	24 x 0.34	11.6	81.6	190
0022632	2 x AWG20/7	2 x 0.50	5.3	11.2	29
0022642	2 x AWG19/19	2 x 0.75	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 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 715
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 1001

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

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 (RAL 7005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Peak operating voltage
(not for power applications)
300 V
UL/CSA: 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

Test voltage
1500 V

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

Article number	Number of cores and AWG per conductor	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiYCY A					
0044602	2 x AWG26/7	2 x 0.14	4.3	15.6	29.5
0044604	4 x AWG26/7	4 x 0.14	4.7	18	33
0044652	2 x AWG24/7	2 x 0.23	4.7	17.6	36.1
0044655	5 x AWG24/7	5 x 0.23	5.5	28.5	51
0044658	8 x AWG24/7	8 x 0.23	6.4	31.1	72.2
0044662	12 x AWG24/7	12 x 0.23	7.3	51.8	96
0044702	2 x AWG22/7	2 x 0.34	5.5	17.6	32
0044703	3 x AWG22/7	3 x 0.34	5.7	21.2	36
0044704	4 x AWG22/7	4 x 0.34	6.1	27.3	44
0044705	5 x AWG22/7	5 x 0.34	6.6	30.8	53
0044707	7 x AWG22/7	7 x 0.34	7.1	46.4	71
0044712	12 x AWG22/7	12 x 0.34	8.9	66.8	120
0044716	16 x AWG22/7	16 x 0.34	9.8	83.9	145
0044721	21 x AWG22/7	21 x 0.34	11.3	109.4	170
0044732	2 x AWG20/7	2 x 0.50	6	24.4	41
0044733	3 x AWG20/7	3 x 0.50	6.3	29.9	47
0044735	5 x AWG20/7	5 x 0.50	7.3	49.2	72
0044738	8 x AWG20/7	8 x 0.50	8.5	70.8	102
0044850	7 x AWG18/19	7 x 1.00	8.9	93.2	160.8
0044851	10 x AWG18/19	10 x 1.00	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 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-SC-M refer to page 732
- KS 15 cable shears
- DATA STRIP stripping tool refer to page 1001

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

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 (RAL 7005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Peak operating voltage
(not for power applications)
300 V
UL/CSA: 300 V

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

Test voltage
1500 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +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	45.9
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	57
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	45
0066239	3 x 2 x AWG22/7	8.1	45.1	64
0066240	4 x 2 x AWG22/7	8.8	54.6	75
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
0066262	2 x 2 x AWG19/19	8.7	65.2	140

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® FD CP (TP) plus refer to page 309

Accessories

- SKINTOP® MS-SC-M refer to page 732
- DATA STRIP stripping tool refer to page 1001

UNITRONIC® 300 / UNITRONIC® 300 S

Control and signal cables with small cross sections - UL/CSA listed

Info

- Shielded Version:
  Formerly UNITRONIC® 300 CY,
  now UNITRONIC® 300 S

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
- Process control; electrical equipment; industrial machinery; low-voltage control interconnect
- For the North American market
- 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

Product features

- CMG (for USA and Canada) and PLTC (for USA) for tray use in North America (24 AWG has got no PLTC certification)
- PLTC-ER & ITC-ER ("-ER" = Exposed Run: According to NEC/ NFPA 70 for unprotected transitions of the cable, each not longer than 1.8 m or 6 ft., outside of trays and in the USA) for 18 AWG and 16 AWG
- UV-resistant UL SUN RES
- DIRECT BURIAL certification for 18 AWG & 16 AWG for normatively permitted, direct burial in the USA
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Norm references / Approvals

- UL: CMG per UL 444; PLTC-ER per UL 13 (18 AWG + 16 AWG); PLTC (not for 24 AWG); ITC-ER per UL 2250 (18 AWG + 16 AWG); UL AWM Style 2464
- According to NEC/ NFPA 70, 2014 HANDBOOK, ARTICLE 501, II., 501.10, (B), (1), and apart from any kind of "Flexible Connections", suitability for Class I, Division 2 in the USA, and that for all versions with ITC-ER as per NEC 2014 ARTICLE 727.4 and in conjunction with additional UL listed components as well as for all versions with PLTC or PLTC-ER in line with the provisions of NEC 2014 ARTICLE 725 and in mandatory conjunction with tray use and additional, UL listed components
- Canada: c(UL) CMG FT4, CSA AWM I/II A/B FT1
- Oil-resistant according to UL OIL RES I

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Core identification code
refer to Appendix T9

Conductor stranding
Fine wire

Torsion movement in WTG
TW-0 & TW-1, 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: -25°C to +105°C
(AWM for USA: +80°C)
Fixed installation: -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
302204	UNITRONIC® 300	4 x AWG22	5	13.7	33
302210	UNITRONIC® 300	10 x AWG22	7	34.896	67
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
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® 300 STP refer to page 304

Accessories

- SKINTOP® ST-M refer to page 712

Low frequency data transmission cables • UL/CSA-certified

NEW

UNITRONIC® 300 STP

Screened control and signal cables with small cross sections and twisted pairs - UL/CSA listed

Benefits

- 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
- Process control; electrical equipment; industrial machinery; low-voltage control interconnect
- 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
- Thanks to the DIRECT BURIAL approval, direct burial of versions with the nominal conductor cross section 18 AWG is normatively permitted in the USA

Product features

- CMG (for USA and Canada) and PLTC (for USA) for tray use in North America (24 AWG has got no PLTC certification)
- PLTC-ER & ITC-ER ("-ER" = Exposed Run: In the USA, unprotected transitions of the cable outside of trays, each transition with a max. length of 1.8 m or 6 ft., according to NEC/ NFPA 70) for 18 AWG
- UV-resistant UL SUN RES
- DIRECT BURIAL-Zertifizierung for 18 AWG for normatively permitted, direct burial in the USA

Norm references / Approvals

- UL: CMG per UL 444; PLTC-ER per UL 13 (18 AWG); PLTC (not for 24 AWG); ITC-ER per UL 2250 (18 AWG); UL AWM Style 2464
- According to NEC/ NFPA 70, 2014 HANDBOOK, ARTICLE 501, II., 501.10, (B), (1), and apart from any kind of "Flexible Connections", suitability for Class I, Division 2 in the USA, and that for all versions with ITC-ER as per NEC 2014 ARTICLE 727.4 and in conjunction with additional UL listed components as well as for all versions with PLTC or PLTC-ER in line with the provisions of NEC 2014 ARTICLE 725 and in mandatory conjunction with tray use and additional, UL listed components
- Canada: c(UL) CMG FT4, CSA AWM I/II A/B FT1
- Oil-resistant according to UL OIL RES I

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 5.0 Class-ID: EC000830
ETIM 5.0 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

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

Test voltage
1500 V

Temperature range
Occasional flexing: -25°C to +105°C
(AWM for USA: +80°C)
Fixed installation: -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 are not to scale and do not represent detailed images of the respective products.

Similar products

- UNITRONIC® FD CP (TP) plus refer to page 309

Accessories

- SKINTOP® MS-SC-M refer to page 732
- DATA STRIP stripping tool refer to page 1001

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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	51
0027859	7 x 0.25	6.1	17.5	51
0027860	10 x 0.25	7.4	25	84
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 are not to scale and do not represent detailed images of the respective products.

Similar products
- ÖLFLEX® CLASSIC FD 810 refer to page 119
- UNITRONIC® FD CY refer to page 306
- UNITRONIC® FD P plus refer to page 307

Accessories
- SILVYN® CHAIN
- DATA STRIP stripping tool refer to page 1001

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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	70
0027416	10 x 0.14	6.7	39.3	90
0027418	14 x 0.14	6.8	45.3	106
0027420	18 x 0.14	7.4	54.1	123
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	114
0027434	14 x 0.25	8.3	64.2	141
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	63
0027442	4 x 0.34	6	35.7	81
0027443	5 x 0.34	6.5	39.1	89
0027444	7 x 0.34	7.4	52.7	117
0027446	10 x 0.34	9.1	67.4	155
0027448	14 x 0.34	9.2	85.3	194
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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ÖLFLEX® CLASSIC FD 810 CY refer to page 120
- UNITRONIC® FD CP plus refer to page 308

Accessories

- SKINTOP® MS-SC-M refer to page 732
- SILVYN® CHAIN
- STAR STRIP stripping tool refer to page 1000

NEW

UNITRONIC® FD P plus

Highly flexible data cable with PUR jacket and AWM certification for US & Canadian use

Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

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), but not inside drag chains or on machines since AWM style is limited to internal wiring

Application range

- Highly flexible data cable with PUR outer sheath, meets the highest service life requirements, even under harsh climatic conditions.
- Multifunctional-use, e.g. for packaging industry and storage and retrieval units
- 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

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
- CULus AWM/ Recognized certification (by UL/ UL file no. for Stuttgart-based U.I. Lapp GmbH: E63634): UL AWM Style 21576 acc. to UL 758 and AWM A/B I/II to CSA C22.2 No. 210-11

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)

Technical data

Classification
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD P plus				
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
0028653	7 x 0.14	5.1	9.8	48
0028654	10 x 0.14	6.1	14	60
0028656	18 x 0.14	6.8	25.2	87
0028657	25 x 0.14	8.3	35	120
0028658	2 x 0.25	4.3	5	27
0028659	3 x 0.25	4.5	7.5	32
0028660	4 x 0.25	4.9	10	39
0028662	7 x 0.25	6.1	17.5	61
0028663	10 x 0.25	7.4	25	80
0028664	14 x 0.25	7.5	35	103
0028665	18 x 0.25	8.5	45	125
0028666	25 x 0.25	10.4	62.5	171
0028667	2 x 0.34	4.7	6.8	33
0028668	3 x 0.34	5	10.2	41
0028669	4 x 0.34	5.4	13.6	55
0028670	5 x 0.34	5.9	17	62
0028671	7 x 0.34	6.8	23.8	80
0028672	10 x 0.34	8.5	34	110
0028673	14 x 0.34	8.6	47.6	144
0028674	18 x 0.34	9.7	61.2	175
0028675	25 x 0.34	11.9	85	239

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 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 308

Accessories

- SILVYN® CHAIN
- SMART STRIP stripping tool

NEW

UNITRONIC® FD CP plus

Screened highly flexible data transmission cable with PUR outer sheath - UL/CSA-listed

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), but not inside drag chains or on machines since AWM style is limited to internal wiring
- **ATTENTION:** 3rd condition acc. to NFPA 79, 2015 Ed., 12.9.2, not applicable for this product before May 2016

Application range

- Multifunctional-use, e.g. for packaging industry and storage and retrieval units
- 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 ratings: IEC 60332-1-2, VW-1 acc. UL 1581, FT2 (Horizontal Flame Test)
- Designed for 5 up to 10 million bending/ unbending cycles (constant flex) in drag chains

Norm references / Approvals

- CULus CMX (Communications Cable listing) acc. to UL 444 and CSA C22.2 No.214, certified by UL (UL file no. for Stuttgart-based U.I. Lapp GmbH: E236660)
- CULus AWM/ Recognized certification (by UL/ UL file no. for Stuttgart-based U.I. Lapp GmbH: E63634): UL AWM Style 21576 acc. to UL 758 and AWM A/B I/II to CSA C22.2 No. 210-11

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)

Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

Technical data

Classification
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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

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
UL/CSA CMX: +75°C
UL AWM: +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	67
0028885	10 x 0.14	6.7	39.3	87
0028886	14 x 0.14	6.8	45.3	102
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	4.9	14.9	38
0028890	3 x 0.25	5.1	18.8	45
0028891	4 x 0.25	5.5	21.3	52
0028892	5 x 0.25	5.9	31	69
0028893	7 x 0.25	6.7	39.6	84
0028894	10 x 0.25	8.2	53.9	109
0028895	14 x 0.25	8.3	64.2	136
0028896	18 x 0.25	9.1	78.4	161
0028897	25 x 0.25	11	101	213
0028898	2 x 0.34	5.3	18.1	45
0028899	3 x 0.34	5.6	28.7	61
0028900	4 x 0.34	6	35.7	77
0028901	5 x 0.34	6.5	39.1	83
0028902	7 x 0.34	7.4	52.7	109
0028903	10 x 0.34	9.1	67.4	147
0028904	14 x 0.34	9.2	85.8	186
0028905	18 x 0.34	10.3	99.7	216
0028906	25 x 0.34	12.5	155	314

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

NEW

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 mm^2 and <16 AWG), but not inside drag chains or on machines since AWM style is limited to internal wiring
- **ATTENTION:** 3rd condition acc. to NFPA 79, 2015 Ed., 12.9.2, not applicable for this product before May 2016

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 ratings: IEC 60332-1-2, VW-1 acc. UL 1581, FT2 (Horizontal Flame Test)
- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter

Norm references / Approvals

- CULus CMX (Communications Cable listing) acc. to UL 444 and CSA C22.2 No.214, certified by UL (UL file no. for Stuttgart-based U.I. Lapp GmbH: E236660)
- CULus AWM/ Recognized certification (by UL/ UL file no. for Stuttgart-based U.I. Lapp GmbH: E63634): UL AWM Style 21576 acc. to UL 758 and AWM A/B I/II to CSA C22.2 No. 210-11

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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
Up to 0.5 mm^2: 60 nF/km
Up to 1.0 mm^2: 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 mm^2: 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
UL/CSA CMX: +75°C
UL AWM: +80 °C

Article number	Number of pairs and mm^2 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	53
0030912	4 x 2 x 0.14	6.7	27.1	59
0030913	5 x 2 x 0.14	7.3	37.4	75
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	4.9	14	27
0030919	2 x 2 x 0.25	6.5	32	60
0030920	3 x 2 x 0.25	6.8	38.4	72
0030921	4 x 2 x 0.25	7.4	43.2	85
0030922	5 x 2 x 0.25	8.3	51.5	103
0030923	6 x 2 x 0.25	8.9	71.8	131
0030924	8 x 2 x 0.25	10.4	74.4	155
0030925	10 x 2 x 0.25	12	90	186
0030926	14 x 2 x 0.25	12.2	111.2	219
0030963	1 x 2 x 0.34	5.3	20	36
0030928	2 x 2 x 0.34	7.1	41	81
0030929	3 x 2 x 0.34	7.5	52	101
0030930	4 x 2 x 0.34	8.4	59	119
0030932	6 x 2 x 0.34	10.1	86.2	165
0030934	10 x 2 x 0.34	13.8	131.1	274
0030964	1 x 2 x 0.5	5.9	22	47

Low frequency data transmission cables • Highly flexible and UL/CSA-certified

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	11.8	99.6	194
0030942	8 x 2 x 0.5	14	144.3	284
0030943	10 x 2 x 0.5	15.9	176	343
0030944	14 x 2 x 0.5	16.2	215.4	401
0030965	1 x 2 x 0.75	6.3	34	61
0030946	2 x 2 x 0.75	8.9	60	112
0030947	3 x 2 x 0.75	9.7	85.7	157
0030948	4 x 2 x 0.75	10.6	93.6	172
0030950	6 x 2 x 0.75	12.8	130.4	231
0030951	8 x 2 x 0.75	15.2	192.2	342
0030952	10 x 2 x 0.75	17.3	258	466
0030953	14 x 2 x 0.75	18.2	316.6	545
0030955	1 x 2 x 1	6.7	42	71
0030956	2 x 2 x 1	9.7	73	129
0030957	3 x 2 x 1	10.4	93.6	169
0030958	4 x 2 x 1	11.6	117.8	204
0030959	5 x 2 x 1	12.7	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-SC-M refer to page 732
- SILVYN® CHAIN
- STAR STRIP stripping tool refer to page 1000

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
- 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 the black jacketed versions, also for outdoor operation, while they all feature enhanced suitability for direct burial in the ground

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

- Based on 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 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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 ohm/km
1.3 mm²: max. 14.3 ohm/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	Number of pairs and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
RE-2Y(ST)Yv 0.5 mm² blue				
0032400	1 x 2 x 0.5	7.2	15	74
0032401	2 x 2 x 0.5	9.5	30	117
0.5 mm² black				
0032411	1 x 2 x 0.5	7.2	15	74
0032412	2 x 2 x 0.5	9.5	30	117
0032413	4 x 2 x 0.5	11.1	50	140
0032415	10 x 2 x 0.5	14.5	110	220
0032418	20 x 2 x 0.5	17.9	210	385
0032420	36 x 2 x 0.5	22.6	370	656
0032421	48 x 2 x 0.5	27.1	490	854
1.3 mm² blue				
0032422	1 x 2 x 1.3	8.6	31	102
0032423	2 x 2 x 1.3	11.5	62	161
0032424	4 x 2 x 1.3	13.8	114	230
0032428	24 x 2 x 1.3	27.5	684	952
1.3 mm² black				
0032430	1 x 2 x 1.3	8.6	31	102
0032431	2 x 2 x 1.3	11.5	62	161
0032432	4 x 2 x 1.3	13.8	114	230
0032433	8 x 2 x 1.3	16.9	218	377
0032434	12 x 2 x 1.3	19.3	322	520
0032436	24 x 2 x 1.3	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 are not to scale and do not represent detailed images of the respective products.

RE-2Y(ST)Yv PiMF

Instrumentation cable with reinforced outer sheath and pairs in metalfoil

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
- 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 the black jacketed versions, also for outdoor operation, while they all feature enhanced suitability for direct burial in the ground

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

- Based on 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)

Technical data

Classification
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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 ohm/km
1.3 mm²: max. 14.2 ohm/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

Article number	Number of pairs and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
RE-2Y(ST)Yv PiMF 0.5 mm² blue				
0032438	2 x 2 x 0.5	10	35	128
0032442	12 x 2 x 0.5	16.7	161	325
0.5 mm² black				
0032448	2 x 2 x 0.5	10	35	128
0032449	4 x 2 x 0.5	11.6	60	170
0032450	8 x 2 x 0.5	14.4	121	230
0032451	10 x 2 x 0.5	15.9	136	270
0032453	16 x 2 x 0.5	19.1	212	430
1.3 mm² blue				
0032458	2 x 2 x 1.3	12.4	68	184
1.3 mm² black				
0032464	2 x 2 x 1.3	12.4	68	184
0032465	4 x 2 x 1.3	14.2	124	269
0032466	8 x 2 x 1.3	18.5	239	442
0032467	12 x 2 x 1.3	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- KT cable shears refer to page 999

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 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description:
Signal-/telecommunications 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 Ohm/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 ohm
At 10 kHz: approx. 130 ohm

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and mm² per conductor	Number of bundles	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
RD-Y(ST)Y grey					
0032470	2 x 2 x 0.5		6.5	25	65
0032471	4 x 2 x 0.5	1	9	45	110
0032472	8 x 2 x 0.5	2	11.5	85	180
0032474	16 x 2 x 0.5	4	15.5	165	310
0032475	24 x 2 x 0.5	6	19	245	450
0032477	48 x 2 x 0.5	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- STAR STRIP stripping tool refer to page 1000
- KS 20 cable shears refer to page 999
- KT cable shears refer to page 999

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
JE-Y(ST)Y...BD
ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable
JE-Y(ST)Y...BD EB
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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
Core/core: 500 V
Core/screen: 2000 V

Loop resistance
max. 73.2 Ohm/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 are not to scale and do not represent detailed images of the respective products.

Info

- In accordance with DIN VDE 0815

Info

- Blue version:
  Hazard protection type -i- is required where there is a risk of explosion

JE-LiYCY...BD

Screened data transmission cable for industrial electronics

JE-LiYCY...BD EB

Screened data transmission cable for industrial electronics

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)

Technical data

Classification
JE-LiYCY...BD
ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable
JE-LiYCY...BD EB
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data 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
Core/core: 500 V
Core/screen: 2000 V

Loop resistance
max. 78.4 ohm/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

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 are not to scale and do not represent detailed images of the respective products.

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 5.0 Class-ID: EC000829
ETIM 5.0 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 ohm/km
0.8 mm: max. 73.2 ohm/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
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 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 318

Accessories

- UNIVERSAL STRIP stripping tool refer to page 1006
- STAR STRIP stripping tool refer to page 1000

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 5.0 Class-ID: EC000829
ETIM 5.0 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 Ohm/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 are not to scale and do not represent detailed images of the respective products.

Accessories

- STAR STRIP stripping tool refer to page 1000
- KS 20 cable shears refer to page 999

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

Classification
ETIM 5.0 Class-ID: EC000829
ETIM 5.0 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 ohm/km

Characteristic impedance
100 Ohm +- 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	110
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 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 1000

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 5.0 Class-ID: EC000829
ETIM 5.0 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: 6 x outer diameter

Test voltage
Core/core: 800 V
Core/screen: 800 V

Loop resistance
0.6 mm: max. 130 ohm/km
0.8 mm: max. 73.2 ohm/km

Conductor cross-section
0.6 mm: 0.28 mm^2
0.8 mm: 0.50 mm^2

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 are not to scale and do not represent detailed images of the respective products.

LAPP GROUP

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 5.0 Class-ID: EC000829
ETIM 5.0 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

Impedance
At 800 Hz 0.6 mm: approx. 720 Ohm
At 800 Hz 0.8 mm: approx. 520 Ohm

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

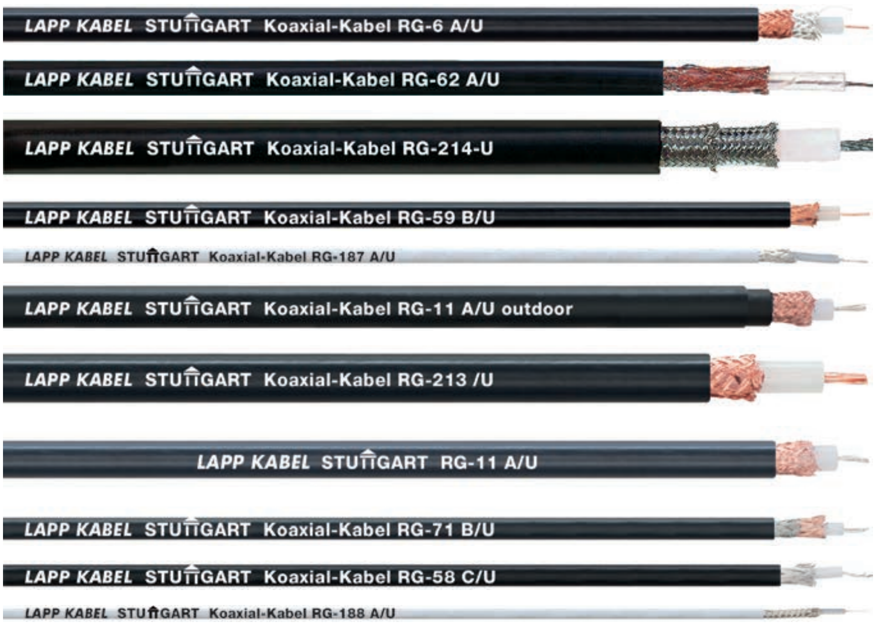
Loop resistance
0.6 mm: 130 ohm/km
0.8 mm: 73.2 ohm/km

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	65
1591052	6	10.3	34	110
1591053	10	11.5	57	140
A-2Y(L)2Y...ST III BD copper conductor 0.8 mm				
1591150	2	8.6	20	75
1591151	4	10.9	40	120
1591152	6	11.5	60	145
1591153	10	13.5	101	200
1591154	20	17.3	201	340
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 are not to scale and do not represent detailed images of the respective products.

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 according IEC 60332-1-2

Product Make-up

- Coaxial cables are significantly less sensitive to external interference due to their structure.

Technical data

ETIM 5.0 Class-ID: EC000019
ETIM 5.0 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-DTL 17 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	Character-istic impedance in ohm	Capa-city pF/m	Attenu-ation approx. dB/100 m at 200 MHz/400 MHz	Pro-paga-tion rate (%)	Operating voltage 50 Hz eff. kV	Test voltage (kV)	Inner con-ductor material	Internal Ø	Di-electric material	Di-electric Ø	Outer con-ductor material	Outer cable sheath	Outer dia-meter (mm)	Copper index (kg/km)	Weight (kg/km)
Characteristic impedance: 50 ohm																
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 ohm																
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 Ohm																
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 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
ETIM 5.0 Class-ID: EC000019
ETIM 5.0 Class-Description: Coaxial cable

Based on
Similar to MIL specification MIL-DTL 17 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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Characteristic impedance: 75 ohm				
2170056	2 x RG 59 B/U	6.5 x 13.0	50	116

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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
ETIM 5.0 Class-ID: EC000019
ETIM 5.0 Class-Description: Coaxial cable

Mutual capacitance
60 nF/km

Minimum bending radius
15 x outer diameter

Characteristic impedance
75 Ohm

Temperature range
-10 °C to +80 °C
Occasional flexing: -5°C to +70°C

Article number	Article designation	Max. 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

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Accessories
- STAR STRIP stripping tool refer to page 1000
- DATA STRIP stripping tool refer to page 1001

UNITRONIC® BUS LD

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
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals
- UL versions with certification:
  UL/CSA type CMX acc. to UL 444 and CSA C22.2 no. 214-02

Product Make-up
- Stranded bare 7-wire conductor, colour-coded according to DIN 47100
- Copper braid
- PVC sheath
- Colour: violet (RAL 4001)
- UNITRONIC® BUS LD A as UNITRONIC® BUS LD, but with UL/CSA certification

Technical data

ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

Mutual capacitance
(800 Hz): max. 60 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 186 ohm/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 - 120 Ohm

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 are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS LD FD P

Info

- LD is a LAPP abbreviation for long distance

Benefits

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- UL versions with certification: UL/CSA type CMX acc. to UL 444 and CSA C22.2 no. 214-02
- Suitable for multiple Bus systems based on RS485 / RS422

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
- Flame-retardant according IEC 60332-1-2

Product Make-up

- Stranded conductor, bare, core identification code in accordance with DIN 47100
- Copper braid
- PUR outer sheath
- Colour: violet (RAL 4001)
- UV-resistant (but colour may change after some time)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 ohm/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 Ohm

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 (power chains, moving machine parts)					
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 (e.g. power chains) - 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

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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).
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Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® CHAIN
- SMART STRIP stripping tool

UNITRONIC® BUS ASI

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
- UNITRONIC® Fieldbus 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 version with UL/CSA (CMG) certification
- UL/CSA version: CMG c(UL)us or (UL)CL2 or AWM 300V FT4 certified

Product Make-up

- Extra-fine wire, tinned copper strands
- Core insulation: blue and brown
- Profiled outer sheath made of rubber (G), thermoplastic elastomers (TPE) or PVC
- Colour: yellow (RAL 1023) or black (RAL 9005)
- Colour: red (RAL 3000)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm/km
2.5 mm²: max. 8.21 Ohm/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 material	Outer sheath colour	Application	Number of cores and mm² per conductor	Copper index (kg/km)	Weight (kg/km)
For fixed and flexible applications (19-wire stranded conductor)							
2170228	UNITRONIC® BUS ASI (G)	EPDM (rubber)	yellow	Data and power transmission	2 x 1,5	29	85
2170229	UNITRONIC® BUS ASI (G)	EPDM (rubber)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	85
2170371	UNITRONIC® BUS ASI LD (G)	EPDM (rubber)	yellow	Data and power transmission	2 x 2,5	48	85
2170372	UNITRONIC® BUS ASI LD (G)	EPDM (rubber)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48	85
2170230	UNITRONIC® BUS ASI (TPE)	TPE	yellow	Data and power transmission	2 x 1,5	29	64
2170231	UNITRONIC® BUS ASI (TPE)	TPE	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	64
2170232	UNITRONIC® BUS ASI (TPE)	TPE	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29	64
2170842	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	yellow	Data and power transmission	2 x 1,5	29	70
2170843	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	70
2170844	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® DIX-M AUTOMATION refer to page 741
- UNIVERSAL STRIP stripping tool refer to page 1006
- AS-I clip clamp / AS-I end sealing refer to page 1072
- AS-I STRIP special stripping tool refer to page 1002
- AS-I STRIP special
- SKINTOP® DIX ASI

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

UNITRONIC® BUS ASI FD

Highly flexible application

LAPP KABEL STUTTGART UNITRONIC® BUS ASI FD

LAPP KABEL STUTTGART UNITRONIC® BUS ASI FD

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
- UNITRONIC® Fieldbus 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: blue and brown
- Profiled outer sheath: TPE or PUR
- Colour: yellow (RAL 1023) or black (RAL 9005)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
300 V (not for power applications)

Conductor resistance
1.5 mm²: max. 13.7 Ohm/km
2.5 mm²: max. 8.21 Ohm/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 material	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	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29	64
2170358	UNITRONIC® BUS ASI FD P FRNC	PUR UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	64
2170317	UNITRONIC® BUS ASI LD FD P	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 2,5	48	74
2170318	UNITRONIC® BUS ASI LD FD P	PUR UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48	74
2170830	UNITRONIC® BUS ASI FD (TPE) A	TPE UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29	64
2170831	UNITRONIC® BUS ASI FD (TPE) A	TPE UL/CSA (AWM)	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® DIX-M AUTOMATION refer to page 741
- UNIVERSAL STRIP stripping tool refer to page 1006
- AS-I clip clamp / AS-I end sealing refer to page 1072
- AS-I STRIP special stripping tool refer to page 1002
- 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 325
- UNITRONIC® BUS ASI FD Page 326

Technical data

ETIM 5.0 Class-ID: EC001604
ETIM 5.0 Class-Description: Fieldbus, decentr. periphery - communication module

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 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 1078

NEW

UNITRONIC® BUS PB TRAY

Fixed installation

Info

- PLTC-ER (power limited tray cable epxosed run) for unprotected use on cable trays

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

- UV-resistant UL SUN RES
- Oil-resistant according to UL OIL RES I
- Flame retardant acc. UL 1685 - FT4 (vertical tray)
- 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

- 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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Mutual capacitance
(1 kHz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Impedance
150 +/- 15 Ohm

Conductor resistance
(loop): max. 110 ohm/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
150 ± 15 Ohm

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).
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Accessories

- Sub-D Bus-Connectors

UNITRONIC® BUS PB

Fixed installation

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, black Outer sheath, e.g. for the food
  and beverage industry
- 7-W: 7-wire, e.g. for applications where vibrations occur
- COMBI: Data transmission and power supply in one cable

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm/km.
see also datasheet

Minimum bending radius
Fixed installation: see data sheet

Test voltage
Core/core: 1500 V rms

Characteristic impedance
150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
For fixed installation - conventional cable assembly					
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
For fixed installation - UL/CSA CMX certification					
2170219	UNITRONIC® BUS PB A	1 x 2 x 0.64	8	30.1	57
For fixed installation - UL/CSA CMG certification					
2170824	UNITRONIC® BUS PB 7-W A	1 x 2 x 0.64	8	30.1	55
For fixed installation - "Fast Connect" cable assembly					
2170333	UNITRONIC® BUS PB PE FC	1 x 2 x 0.64	8	26	67
For fixed installation - UL/CSA CMX certification					
2170330	UNITRONIC® BUS PB P FC	1 x 2 x 0.64	8	26	71
For fixed installation - "Fast Connect" cable assembly - 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).
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Similar products

- UNITRONIC® BUS PB ROBUST refer to page 330
- UNITRONIC® BUS PB 105 refer to page 331

Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 1002
- SENSOR STRIP stripping tool refer to page 1003

UNITRONIC® BUS PB ROBUST

Fixed installation

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
- Foam Skin - core isolation (02YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- With conventional cable design, but with an outer sheath made of special TPE

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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).
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Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Sub-D Bus-Connectors

UNITRONIC® BUS PB 105

Fixed installation

Benefits
- A standard PROFIBUS cable can only be used up to a max. temperature of 80°C
- This enables an extended area of application

Application range
- Cable has been designed for use in factory halls where temperatures up to max. 105°C may occur.

Product features
- Flame-retardant according IEC 60332-1-2
- Oil-resistant

Product Make-up
- Stranded conductor, 7-wire, bare
- Core insulation: PP
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath for use up to 105°C

Suitable connectors
- Sub-D Bus-Connectors

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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

Accessories
- Multipurpose shears A and B refer to page 998

NEW

UNITRONIC® BUS PB 105 plus

Info
- Bus system PROFIBUS-DP/FMS/FIP
- Lapp Kabel is a member of the PROFIBUS User Organisation (PNO)

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-based

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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
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NEW

UNITRONIC® BUS PB HEAT 180

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
- Screening: wrapped with braided tinned-copper wires
- Outer Sheath: Perflourethylenpropylen, FEP, violet

Suitable connectors
- Sub-D Bus-Connectors

Technical data
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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 1X(2X0,64)	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.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
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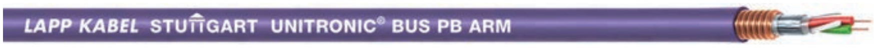
UNITRONIC® BUS PB ARM
Fixed installation



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
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Overlapping plastic tape
- Copper tape, welded longitudinally Outer sheath: PVC

Technical data
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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).
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UNITRONIC® BUS PB FRNC FC

Fixed installation

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

- Halogen-free and highly flame-retardant
- 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

- The cable is UL/CSA-certified (CMG)
- 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

Product Make-up

- Solid, bare, single-wire copper conductor
- PE core insulation
- Inner sheath, screening foil and braiding
- Thermoplastic outer sheath
- Colour: violet (RAL 4001)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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
80mm

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ohm

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 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 1002

UNITRONIC® BUS PB Yv

Suitable for outdoor use and direct burial, UV-resistant

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
- Tin-plated copper wire braiding
- Outer sheath: reinforced PVC, black

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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).
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Photographs are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB YY

Suitable for outdoor use and direct burial, UV-resistant

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

- Dual PVC outer sheath

Product Make-up

- Solid and bare copper conductor
- PE core insulation
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath, violet, OD 7.5 mm
  PVC outer sheath, black, OD 9.5 mm

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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).
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Accessories

- Sub-D Bus-Connectors
- Multipurpose shears A and B refer to page 998

UNITRONIC® BUS PB BURIAL FC

Suitable for outdoor use and direct burial, UV-resistant

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
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath, violet, OD 8 mm
  PE outer sheath, black, OD 10.8 mm

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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).
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Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 1002

NEW

UNITRONIC® BUS PB Y 7-W FC BK

Suitable for outdoor use, UV-resistant

Benefits

- UV and weather-resistant in black
- 7-W: 7-wire, e.g. for applications where vibrations occur
- 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).

Product features

- PVC compound TM2 acc. to EN 50363-4-1
- Resistant to acids, alkalis and certain oils at room temperature

Product Make-up

- Stranded conductor, 7-wire, bare
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath, black

Suitable tools

- FC STRIP stripping tool refer to page 1002

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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).
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Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 1002

UNITRONIC® BUS PB FD P

Highly flexible application

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).
- 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

- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- Outer sheath: PUR compound

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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

Article number	Article designation	Number of cores and mm² per conductor	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 1x2x0,64	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).
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Accessories

- Sub-D Bus-Connectors

UNITRONIC® BUS PB FD P A

Highly flexible application

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
- For highly flexible applications (power chains, moving machine parts)

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).
- 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
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: PUR compound

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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

Article number	Article designation	Number of cores and mm² per conductor	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).
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Accessories

- Sub-D Bus-Connectors

UNITRONIC® BUS PB FD P FC

Highly flexible application

Benefits
- Fast Connect (FC) cable design
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For highly flexible applications (power chains, moving machine parts)

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
- 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
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: PUR compound

Technical data
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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

Article number	Article designation	Number of cores and mm² per conductor	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).
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Accessories
- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 1002

UNITRONIC® BUS PB FD FRNC FC

Highly flexible application

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
- 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

- 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

- The cable is UL/CSA-certified (CMG)
- 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

Product Make-up

- Stranded bare copper wire
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: PUR compound

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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

Article number	Article designation	Number of cores and mm² per conductor	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).
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Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 1002

UNITRONIC® BUS PB FD P COMBI

Highly flexible application

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 to IEC 60332.1.2

Product Make-up

- Cores for Power Supply 3 x 1.0 mm² (AWG18)
- Core insulation: Based on Polyolefin
- PUR-based outer sheath

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 100 V

Minimum bending radius
Flexing: 145 mm

Test voltage
Core/core: 600 V

Characteristic impedance
150 ± 15 Ohm

Temperature range
Flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Highly flexible application					
2170227	UNITRONIC® BUS PB FD P COMBI	1 x 2 x 0.64 Ø + 3 x 1.0 mm²	10.1	59	125

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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).
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UNITRONIC® BUS PB FD P HYBRID

Highly flexible application

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
- Oil-resistant

Product Make-up

- Cores for Power Supply 4 x 1.5 mm² (AWG16)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 100 V

Minimum bending radius
Flexing: 15 x outer diameter

Test voltage
Core/core: 600 V
Core/screen: 600 V

Characteristic impedance
150 ± 15 Ohm

Temperature range
Flexing: -30°C to +60°C
Fixed installation: -40°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)
Highly flexible application					
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).
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UNITRONIC® BUS PB FD Y HYBRID

Highly flexible application

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

- Outer sheath: special PVC compound
- Cores for Power Supply 4 x 1.5 mm² (AWG 16)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
600 V (not for power applications)

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
150 ± 15 Ohm

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).
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UNITRONIC® BUS PB TORSION

Highly flexible application

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

- PE core insulation

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Highly flexible application					
2170332	UNITRONIC® BUS PB TORSION	1 x 2 x 0.80	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).
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Accessories

- Sub-D Bus-Connectors

UNITRONIC® BUS PB FESTOON

Highly flexible application

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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm

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	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Highly flexible application					
2170331	UNITRONIC® BUS PB Festoon	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).
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Accessories
- Sub-D Bus-Connectors

EPIC® DATA PB Sub-D

PROFIBUS connectors with screw terminals | REPEATER function | ATEX

Info
- Optional with LED diagnostic
- ATEX and REPEATER Version
- Versions with 2th Sub-D ports

Benefits
- Easy connection with proven srew clamp connection
- Compact design: small space requirements
- 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: 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
- LED Version indicate:
bus operation - (green)
station transmission - (blue)
terminating resistor "on" - (orange)

Suitable cables
- Bus system PROFIBUS-DP/FMS/FIP

Suitable tools
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078

Technical data

ETIM 5.0 Class-ID: EC001132
ETIM 5.0 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°
(LxWxH)

Connection type
Screwing

Protection rating
IP20

Terminating resistor
150 Ω

Interfaces
PROFIBUS station:
D-Sub socket, 9-pin
PROFIBUS cable:
4 terminal blocks for wires up to 1.0 mm²
(solid/flexible 7/19 wire)

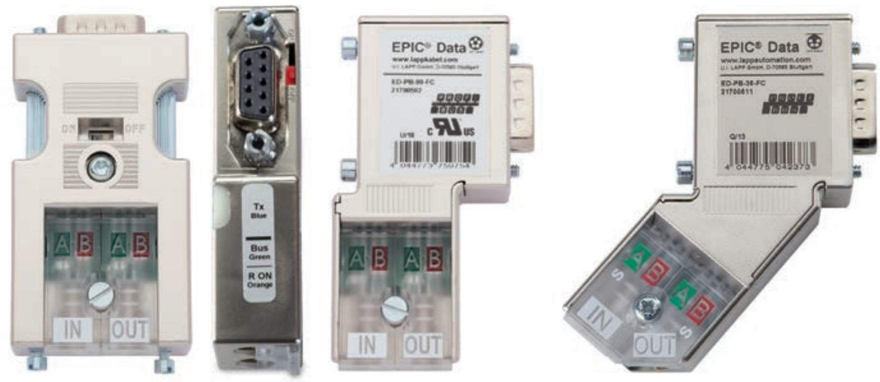
Permissble ambient conditions
Operating temperature:
-25°C to +85°C
*The max. temperature for UL is 60 °C.

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
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 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 2th Sub-D ports
- Optional with LED diagnostic

Benefits

- Quick installation with Fast Connect ('FC') technology
- Compact design: small space requirements
- 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: 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 1002
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078

Technical data

ETIM 5.0 Class-ID: EC001132
ETIM 5.0 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
IP20

Terminating resistor
150 Ω

Interfaces
PROFIBUS station:
SUB-D socket, 9-pin
PROFIBUS cable:
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 / 7-wire stranded 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 are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB Sub-D M 12

PROFIBUS Connectors M 12

Info

- Plug & Play together with ready-to-use PROFIBUS M 12 cordsets

Benefits
- Cost-efficient due to quick installation (Plug & Play)
- Compact design: small space requirements
- No loose parts
- Terminating resistor (integrated) can be switched
- Suitable for assembled M 12 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: E331560

Product Make-up
- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Connector M 12, B-coded
- Improved electromagnetic compatibility (EMC) by metallized housing
- Version with additional Sub-D port for programming/diagnostic (‘PG’)

Suitable cables
- UNITRONIC® BUS PB M 12 Page 352
- UNITRONIC® BUS PB M 12-M 12

Technical data

ETIM 5.0 Class-ID: EC001132
ETIM 5.0 Class-Description:
D-Sub connector

Dimensions
70 mm x 40 mm x 17 mm (L x W x H)

Connection type
M 12

Protection rating
IP20

Terminating resistor
150 Ω

Interfaces
PROFIBUS station:
D-Sub socket, 9-pin
PROFIBUS cable:
M 12 PB system cabling

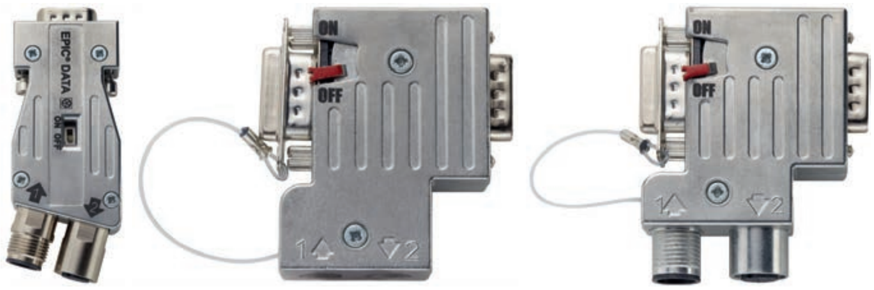
Permissble ambient conditions
Operating temperature:
-25 °C to +85 °C
*The max. temperature for UL is 60 °C.

Article number	Article designation	PG-Interface	PU
90° cable outlet			
21700520	ED-PB-PG-90-M 12	yes	1

Photographs 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 352
- UNITRONIC® BUS PB M12-M12

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078

Technical data

ETIM 5.0 Class-ID: EC001132
ETIM 5.0 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
PROFIBUS station:
D-Sub socket, 9-pin
PROFIBUS cable:
M12 PROFIBUS cordsets
Spring type for solid conductor
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
35° cable outlet				
21700564	ED-PB-35-PG-ST-PRO	Internal spring type	yes	1
21700561	ED-PB-35-PG-M12-PRO	M12	yes	1
90° cable outlet				
21700565	ED-PB-90-PG-ST-PRO	Internal spring type	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
21700563	ED-PB-AX-M12-PRO	M12	no	1

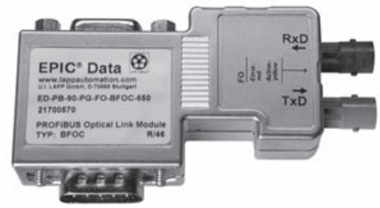
Photographs are not to scale and do not represent detailed images of the respective products.

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 490
- HITRONIC® POF DUPLEX CABLE Page 491
- HITRONIC® POF cables for PROFINET Applications Page 492

Suitable connectors

- HBFR, SMA and BFOC(ST)

Technical data

ETIM 5.0 Class-ID: EC001132
ETIM 5.0 Class-Description:
D-Sub connector

Dimensions
64 mm x 40 mm x 17 mm (LxWxH)

Protection rating
IP 20

Interfaces
Connection: Sub-D socket, 9-pin
FO-cable:
- Polymeric-optical-fiber (POF), 650 nm
- Polymer-cladded-fiber (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 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 504
- PCF Connector HFBR refer to page 503
- PCF Connector F-SMA and ST(BFOC) refer to page 503
- POF Assembly Sets refer to page 496
- POF Connector F-SMA and ST(BFOC) refer to page 494
- POF Connector SC-RJ refer to page 495

UNITRONIC® BUS PB M12 / UNITRONIC® BUS PB M12-M12

PROFIBUS cable: M12 plug/socket on free conductor end

PROFIBUS Cable: M12 connector on M12 socket

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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

Product Make-up

- Core cross section: 0.25 mm^2
- 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 Page 353
- EPIC® DATA PB M12/M12 Page 354
- EPIC® DATA PB M12T Page 355

Technical data

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

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
Connector to 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	straight-angled	250	1
22260904	AB-PB-M12MA-10,0PUR-M12FA	10	2	straight-angled	250	1
22260905	AB-PB-M12MA-15,0PUR-M12FA	15	2	straight-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.
Customised cable lengths are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Label LMB refer to page 951

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 352

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 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
IP67

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	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight						
22260653	AB-C5-M12MSB-PG9-SH-AU	5	0.25 - 0.75	6 - 8.5	60	1
22262078	AB-C5-M12MSB-PG11-SH-AU	5	0.25 - 0.75	8 - 10	60	1
Socket, straight						
22260646	AB-C5-M12FSB-PG9-SH-AU	5	0.25 - 0.75	6 - 8.5	60	1
22260889	AB-C5-M12FSB-PG11-SH-AU	5	0.25 - 0.75	8 - 10	60	1

Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB M 12/M 12

PROFIBUS M 12 control cabinet feed-through, shielded

Benefits
- M 12 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, M 12 B-coded
- M 12 plug on M 12 socket
- Screened version

Suitable cables
- UNITRONIC® BUS PB M 12 Page 352
- UNITRONIC® BUS PB M 12-M 12

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

Protection rating
IP67

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-M 12MSB-M 12FSB-M 16-SH	5	60	1

Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB TR M 12

M 12 Terminating resistor for PROFIBUS

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
- 150 Ω terminating resistor for PROFIBUS

Product Make-up
- Straight connector M 12 with integrated termination resistor
- Straight connector M 12, with integrated termination resistor, shielded

Technical data

ETIM 5.0 Class-ID: EC001604
ETIM 5.0 Class-Description: Fieldbus, decentr. periphery - communication module

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

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Plug, unshielded (terminating resistor)				
22260722	AB-C4-M 12MS-PB-TR	4	60	5
Socket, shielded (terminating resistor)				
22261001	AB-C5-M 12FS-PB-TR-SH	4	32	1

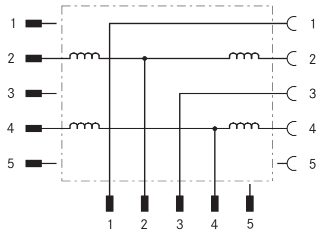
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- EPIC® DATA PB M 12T refer to page 355

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

ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Contact carrier: PUR
Knurl: Nickel-plated brass
Gripping body: PUR
Sealing: VITON®

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 are not to scale and do not represent detailed images of the respective products.

Accessories
- EPIC® DATA PB TR M12 refer to page 354

NEW

EPIC® DATA PB CCR

Cable coupler round, shielded for e.g. sensor /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
- For core outer diameter 0.75 - 2.0 mm
- 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

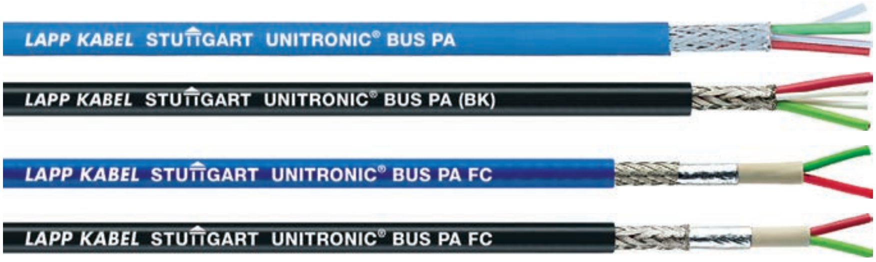
Ambient temperature (operation)
-5°C to +50°C

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 - 0.5	5 - 9.7	60	1

Photographs are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PA



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 (BU/BK) Stranded conductor, core colours: red and green, copper braiding, PVC sheath, colour: blue (intrinsically safe area), colour: black (non-instrinsically safe area)
- UNITRONIC® BUS PA FC (BU/BK) Solid core, UL/CSA CMG certification and “Fast Connect” cable design, which enables rapid connection of the IDC connector (Insulation Displacement Connection).

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 44 ohm/km

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 ± 20 Ohm

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)
For fixed installation - conventional cable assembly					
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
For fixed installation - “Fast Connect” cable assembly - 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- Multipurpose shears A and B refer to page 998
- STAR STRIP stripping tool refer to page 1000
- FC STRIP stripping tool refer to page 1002

UNITRONIC® DeviceNet THICK + THIN

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

- Core insulation made of foam skin
- Outer sheath: Halogene free (FRNC) or Polyvinylchlorid (PVC)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 ohm/km
Thin (loop): max. 180 ohm/km

Minimum bending radius
Fixed installation: 15 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
120 ohm

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
With PVC outer sheath					
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 are not to scale and do not represent detailed images of the respective products.

UNITRONIC® DeviceNet FD THICK+THIN

Highly flexible and UL/CSA-certified

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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 ohm/km
Thin (loop): max. 180 ohm/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 ohm

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)
Version P (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
Version Y (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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® CHAIN
- SMART STRIP stripping tool

UNITRONIC® BUS CAN

UNITRONIC® BUS CAN FD P

Info

- CAN = Controller Area Network

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 outer sheath
- 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
- Colour-coded in accordance with DIN 47100
- Copper braid
- PVC sheath
- Colour: violet (RAL 4001)

UNITRONIC® BUS CAN FD P
- Stranded bare conductor
- Screening: wrapped with braided copper wires
- PUR outer sheath
- Colour: violet (RAL 4001)
- UV-resistant (but colour may change after some time)

Suitable connectors

UNITRONIC® BUS CAN
- EPIC® DATA CAN Sub-D Page 362
- EPIC® DATA CAN Sub-D PRO Page 363

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Mutual capacitance
UNITRONIC® BUS CAN
(800 Hz): max. 40 nF/km
UNITRONIC® BUS CAN FD P
(800 Hz): max. 60 nF/km

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 ohm/km
UNITRONIC® BUS CAN FD P
(loop): max. 159.8 ohm/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 ohm

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

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 are not to scale and do not represent detailed images of the respective products.

Accessories

UNITRONIC® BUS CAN
- Multipurpose shears A and B refer to page 998
- SMART STRIP stripping tool
- SENSOR STRIP stripping tool refer to page 1003

ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES | APPENDIX

NEW

UNITRONIC® BUS CAN TRAY

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
- Colour-coded in accordance with DIN 47100
- Copper braid
- PVC inner sheath and outer sheath
- Colour: violet (RAL 4001)

Suitable connectors

- EPIC® DATA CAN Sub-D Page 362
- EPIC® DATA CAN Sub-D PRO Page 363

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 ohm/km

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
120 ohm

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- Multipurpose shears A and B refer to page 998
- SMART STRIP stripping tool

NEW

UNITRONIC® BUS CAN BURIAL

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 made of polyethylene (PE)
- Colour-coded in accordance with DIN 47100
- Overall screening of braided tinned-copper strands
- Sheath 1: PVC violet, Outer diameter 7,1 mm
  Sheath 2: PE black, Outer diameter ca. 9 mm

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm /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 ohm

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

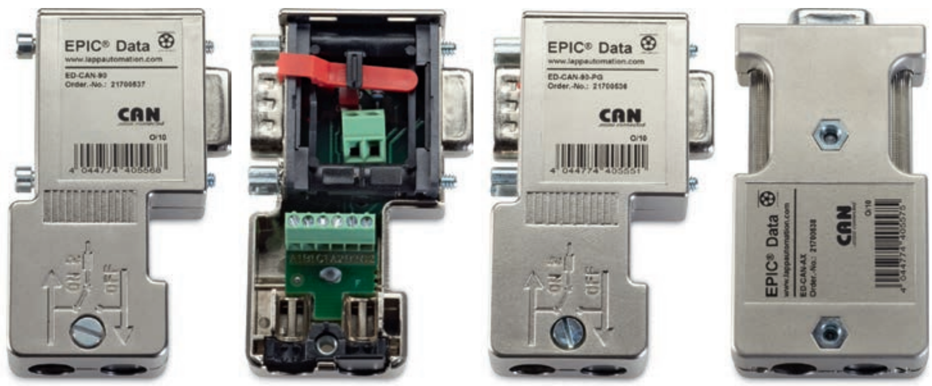
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type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

Accessories

- Sub-D Bus-Connectors

EPIC® DATA CAN Sub-D

CAN Bus-Connectors with screw connection



Benefits

- Terminating resistor (integrated) can be switched
- Compact design: small space requirements
- 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: 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
- Bus system DeviceNet

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078

Technical data

ETIM 5.0 Class-ID: EC002640
ETIM 5.0 Class-Description:
I/O 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
IP20

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

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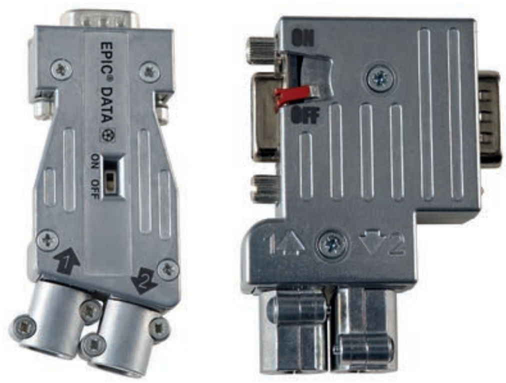
EPIC® DATA CAN Sub-D PRO

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 357
- UNITRONIC® BUS CAN Page 359
- UNITRONIC® DeviceNet FD THICK+THIN Page 358
- UNITRONIC® BUS CAN FD P Page 359
- UNITRONIC® BUS CAN TRAY Page 360
- UNITRONIC® BUS CAN BURIAL Page 361

Suitable tools
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078

Technical data

ETIM 5.0 Class-ID: EC002640
ETIM 5.0 Class-Description: I/O 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

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UNITRONIC® BUS CAN M12 / UNITRONIC® BUS CAN M12-M12

DeviceNet/CANopen Cable: M12 plug/socket on free conductor end

DeviceNet/CANopen Cable: M12 connector on M12 socket

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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-pin 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

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 Page 365
- EPIC® DATA CAN M12/M12 Page 365
- EPIC® DATA CAN TR M12 Page 366
- EPIC® DATA CAN M12T Page 367
- EPIC® DATA CAN CCR Page 367

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

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
Connector to 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.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- FLEXIMARK® Label LMB refer to page 951

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
IP67

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	Connection type	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

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Photographs 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
IP67

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

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Photographs 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

ETIM 5.0 Class-ID: EC001604
ETIM 5.0 Class-Description: Fieldbus, decentr. periphery - communication module

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA CAN M12T refer to page 367

EPIC® DATA CAN M 12T

M 12 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
- M 12 socket on M 12 plug and M 12 socket

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

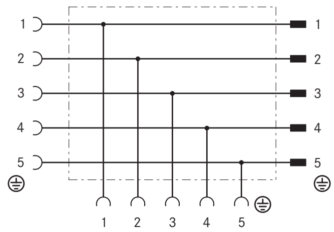
Material
Contact: CuZn
Contact surface: Ni/Au
Contact carrier: TPU GF
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing
Sealing: NBR

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-M 12T-2XM 12FS DN	5	60	5

DeviceNet is a registered trademark of ODVA
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® DATA CAN CCR

Cable coupler round, shielded for e.g. sensor /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

- For core outer diameter 0.75 - 2.0 mm
- 5-pin cable coupler round
- Screened version

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator 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)
-5°C to +50°C

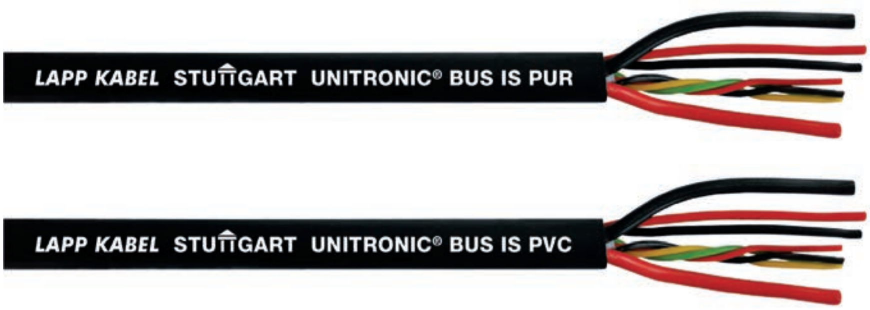
Rated current (A)
4 A

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 are not to scale and do not represent detailed images of the respective products.

NEW

UNITRONIC® BUS IS



Info

- ISOBUS is a bus system for agricultural vehicles, which is standardized in the international standard ISO 11783-2
- 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
- Resistant against oil, benzine and diesel
- UV-resistant
- PUR (Polyurethane) Version with increased robustness, UV- resistance and halogen free

Norm references / Approvals

- ISO 11783-2:2012

Product Make-up

- 4x 0,5 mm² (red, yellow, black, green)
  2x 2,5 mm² (red, black)
  2x 6 mm² (red, black)
- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Outer Sheath: Black PVC or PUR special compound

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
60 V

Test voltage
0,5 mm - 2,5 mm² core / core = 1,5 kV;
6 - 10 mm² core / core = 2,5 kV

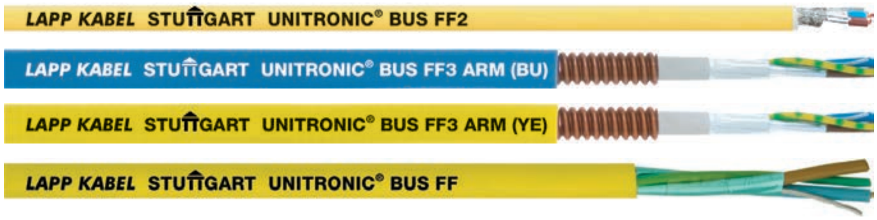
Characteristic impedance
Characteristic impedance: 75 ohm

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	Copper index (kg/km)
UNITRONIC® BUS IS			
2170561	UNITRONIC® BUS IS PUR 2x6+2x2,5+1x4x0,5	2x6+2x2,5+1x4x0,5	182.4
2170560	UNITRONIC® BUS IS PVC 2x6+2x2,5+1x4x0,5	2x6+2x2,5+1x4x0,5	182.4

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 are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS FF



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

- All cables are designed for 105 °C and resistant to sunlight

Norm references / Approvals

- With UL/CSA certification (CMG/PLTC)

Product Make-up

- Lapp bus cables for FOUNDATION™ field bus are available in 4 versions:
- 3-core, unarmoured, with device ground
- 3-core, armoured (longitudinally welded, spiral corrugated copper sheath) with device ground
  Yellow and blue version
- 2-core, not armoured, with device ground

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
300 V

Conductor resistance
≤ 24 Ohm/km

Minimum bending radius
15 x outer diameter

Test voltage
1500 V

Characteristic impedance
100 ± 20 Ohm 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	62	93
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
2170352	UNITRONIC® BUS FF 2	1 x 2 x 1.1	7.9	53.3	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 are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CC

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

- UV-resistant
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- 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

Norm references / Approvals

- CM UL/CSA certification 75°C or PLTC Sun Res

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
300 V

Conductor resistance
11 ohm/1,000 ft. (305 m) at 20°C

Minimum bending radius
15 x outer diameter

Test voltage
2000 V

Characteristic impedance
110 ohm 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 are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CC FD P FRNC

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 and flame-retardant (IEC 60332-1-2)

Norm references / Approvals

- AWM 20233 80 °C 300V

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Certifications
UL AWM Style 20233

Peak operating voltage
300 V

Conductor resistance
11 ohm/1,000 ft. (305 m) at 20°C

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

Test voltage
2000 V

Characteristic impedance
110 ohm 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 are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS SAFETY

Benefits

- For serial transmission of safety-oriented data

Application range

- For fixed installation and 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

Product Make-up

- Stranded conductor, 3 cores twisted, colour-coded in accordance with DIN 47100 (white, brown, green), copper braiding, halogen-free outer sheath
- UNITRONIC® BUS SAFETY FD P is as per UNITRONIC® BUS SAFETY, but also suitable for highly flexible applications
- Flame-retardant according IEC 60332-1-2

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 ohm/km

Minimum bending radius
Fixed installation:
10 x outer diameter

Test voltage
Core/core: 3000 V
Core/core: 1500 V (FD- version)

Characteristic impedance
120 ohm

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)
for fixed installation					
2170295	UNITRONIC® BUS SAFETY	3 x 0.75	7.6	49	68
For highly flexible applications (e.g. power chains)					
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- FC STRIP stripping tool refer to page 1002

UNITRONIC® BUS IBS

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
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals
- In accordance with DIN 19258 and EN 50254

Product Make-up
- UNITRONIC® BUS IBS
- Stranded conductor, bare, core identification code in accordance with DIN 47100, braided copper, PVC outer sheath, violet (RAL 4001)
- UNITRONIC® BUS IBS P COMBI
- Stranded conductor, bare, core identification code in accordance with DIN 47100 (data), stranded, bare (power supply), copper braid, PUR outer sheath, violet (RAL 4001), halogen-free
- UNITRONIC® BUS IBS A is as per UNITRONIC BUS IBS, but with UL/CSA certification

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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. 186 ohm/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 Ohm

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)
for fixed installation						
2170206	Remote bus cable (RBC)	UNITRONIC® BUS IBS	3 x 2 x 0.22	7.2	37	72
2170208	Installation remote bus cable (INBC)	UNITRONIC® BUS IBS P COMBI	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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SENSOR STRIP stripping tool refer to page 1003

UNITRONIC® BUS IBS Yv

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
- In accordance with DIN 19258 and EN 50254

Product Make-up
- Data: stranded bare conductor, core colours: white-brown/green-yellow/grey-pink
- Power supply: stranded bare conductor, colours: red, blue, green/yellow
- Overall copper wire braiding
- Reinforced PVC outer sheath
- Colour: black (RAL 9005)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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. 186 ohm/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 Ohm

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)
Suitable for outdoor use and direct burial, UV-resistant						
2170207	Remote bus cable (RBC)	UNITRONIC® BUS IBS Yv	3 x 2 x 0.22	9.3	37	94
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
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 are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS IBS FD P

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
- IBS cable - for highly flexible application
- 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
- In accordance with DIN 19258 and EN 50254

Product Make-up
- UNITRONIC® BUS IBS FD P
- Stranded conductor, bare, core identification code in accordance with DIN 47100, braided copper wire for overall screening, PUR outer sheath, violet (RAL 4001), halogen-free, flame-retardant in accordance with IEC 60332-1-2.
- UNITRONIC® BUS IBS FD P COMBI
- Bare stranded copper wire conductor, cores twisted to pairs, core colours: white/brown / green/yellow / grey/ pink (data). Bare copper wire stranded conductor, core colours: red, blue, green/ yellow (power supply).
- Overall screening of braided copper, PUR outer sheath (violet, RAL 4001), halogen-free, flame-retardant according to IEC 60332-1-2.

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 ohm/km

Minimum bending radius
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 Ohm

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)
For highly flexible applications (power chains, moving machine parts)						
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
For highly flexible applications (e.g. power chains) - 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® CHAIN
- Multipurpose shears A and B refer to page 998
- 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, solid bare copper conductor, ø 0.8 mm, measurements 2 x 2 x 0.8 ø. 4 solid cores twisted to a star quad; colours of cores: 1st pair red + black, 2nd pair white + yellow.
- Screening: wrapped with aluminium-laminated plastic foil
- Outer sheath: Based on PVC
- Colour: green
- COMBI version with additional power supply cables 3 x 1.5 mm²; core colours: blue, black, green-yellow

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 ohm/km

Minimum bending radius
Fixed installation:
10 x outer diameter

Test voltage
Core/core: 4000 V

Temperature range
Fixed installation: -30°C to +70°C

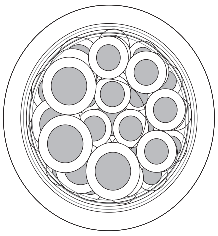
Article number	Article designation	Number of pairs and mm or mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/m)
PVC versions					
2170240	UNITRONIC® BUS EIB	2 x 2 x 0.8	6.6	21	54
2170242	UNITRONIC® BUS EIB COMBI	2 x 2 x 0,8 mm + 3 x 1,5 mm²	12.7	64	128
Halogen-free versions					
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SENSOR STRIP stripping tool refer to page 1003

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

Product Make-up
- UNITRONIC® SENSOR Li9Y11 COMBI
  Conductor: bare copper strand, single wire diameter: 0.1 mm for 0.34 mm², 0.18 mm for 0.5 mm², 0.205 mm for 0.75 mm², 0.15 mm for 1.0 mm². Core insulation: halogen-free PP, outer sheath: halogen-free PUR acc. to DIN VDE 0250 part 818.
- Outer sheath colour: black (similar to RAL 9005)
  Core colors: see data sheet
- UL-AWM-Style 21198

Technical data

ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

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 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
- S/A box with M12 slots and master cable connection

UNITRONIC® SENSOR

Application range

- Cables for UNITRONIC® SENSOR sensor/actuator cabling
- Unshielded and shielded data transmission cables to connect to M8, M12 connectors
- Automation technology
- Mechanical engineering
- Plant engineering

Product features

- Core colour code in accordance with DIN EN 50044
- 3 x 0.25 mm² or 0.34mm²
  1= brown, 2= blue, 3= black
- 4x 0.25 mm² or 0.34 mm²
  1= brown, 2= white, 3= blue, 4= black
- 5 x 0.25 mm² or 0.34 mm²
  1= brown, 2= white, 3= blue, 4= black, 5= grey
- 8x 0.25mm²
  1= white, 2=brown, 3= green, 4= yellow, 5= grey, 6= pink, 7=blue, 8= red

Product Make-up

- UNITRONIC® SENSOR LifYY
  Conductor: extra-fine bare copper strand in accordance with DIN VDE 0295 Class 6; core insulation: PVC, outer sheath: PVC
- UNITRONIC® SENSOR DESINA® LifY11Y
  Stranded bare copper conductor, super-fine. In accordance with VDE 0295 Class 6, special PVC insulation, cores twisted in layers, core identification in accordance with DESINA® (brown, white, blue, black). Outer sheath is made of special polyurethane-based compound; yellow colour in acc. to RAL 1021; flame retardant acc. to IEC 60332-1-2. Operating voltage= 48 V, Peak working voltage= 300 V.
- UNITRONIC® SENSOR FD Li9Y11Y and SENSOR FD Li9YC11Y AWM UL Style 20549, 80 °C/300 V. Conductor: Cu strand, bare, extra-fine wire according to DIN VDE 0295 Class 6, core insulation: modified polypropylene (PP), outer sheath: halogen-free polyurethane (PUR), matt, adhesion-free
- UNITRONIC® SENSOR FD series cables are specially designed for use in power chains

Technical data

ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

Article number	Article designation	Dimensions (mm²)	Outer diameter (mm)	Core/outer sheath material	Colour	Copper index (kg/km)
UNITRONIC® SENSOR						
7038859	S-LifYY	3 x 0.34	4.8	PVC/PVC	black	9.8
7038860	S-LifYY	4 x 0.34	4.8	PVC/PVC	black	13.1
0040434	DESINA	4 x 0.34	5.2	PVC/PUR	yellow (RAL 1021)	13.5
7038861	S-LifY11Y	4 x 0.34	4.8	PVC/PUR	black	13.1
7038862	S-LifY11Y	5 x 0.25	4.9	PVC/PUR	black	12
UNITRONIC SENSOR FD						
7038883	Li9Y11Y	3x0.25	4.4	PP/PUR	black	7.5
7038864	Li9Y11Y	3 x 0.34	4.6	PP/PUR	black	9.8
7038884	Li9Y11Y	4x0.25	4.7	PP/PUR	black	10.2
7038865	Li9Y11Y	4 x 0.34	4.7	PP/PUR	black	13
7038867	Li9Y11Y	5 x 0.25	4.7	PP/PUR	black	12
7038866	Li9Y11Y	5 x 0.34	5.1	PP/PUR	black	16
7038868	Li9Y11Y	8 x 0.25	5.9	PP/PUR	black	19
UNITRONIC® SENSOR FD screened						
7038885	Li9YC11Y	3 x 0.34	4.6	PP/PUR	black	19.1
7038886	Li9YC11Y	4 x 0.34	4.7	PP/PUR	black	23.5
7038887	Li9YC11Y	5 x 0.34	5.1	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
Cables are printed
Other types of composition are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SENSOR M12 refer to page 391
- EPIC® SENSOR M8 refer to page 382
- STAR STRIP stripping tool refer to page 1000
- SMART STRIP stripping tool

UNITRONIC® SENSOR M8

M8 plug/socket on free conductor end

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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 1001

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

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/IP68

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.
Photographs 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-M8

M8 plug on M8 socket

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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 mm^2
- 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

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

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/IP68

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
Connector to 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

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Photographs 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 on www.lappgroup.com/assemblyfinder or upon 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 mm^2
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
- Outer sheath: PUR, black

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description:
Sensor-actuator connector

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/IP68

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

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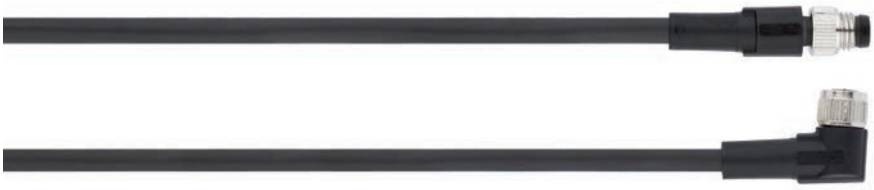
Photographs are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet

NEW

UNITRONIC® SENSOR PVC M8

M8 plug/socket on free conductor end



Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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 1001

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67/IP68

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	60	1
22262106	AB-C4-M8MS-5,0PVC	4	5	straight	60	1
22262107	AB-C4-M8MS-10,0PVC	4	10	straight	60	1
Socket						
22260846	AB-C4-2,0PVC-M8FA	4	2	angled	60	1
22260845	AB-C4-5,0PVC-M8FA	4	5	angled	60	1
22260844	AB-C4-10,0PVC-M8FA	4	10	angled	60	1

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Photographs are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

EPIC® SENSOR M8

Field mountable connectors M8

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 377

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 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

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 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 mm^2

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description:
Sensor-actuator connector

Material
Contact: CuSn
Contact surface: Ag

Protection rating
IP67

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

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- Matching fitting nut: 22260104

UNITRONIC® SENSOR M12

M12 plug/socket on free conductor end

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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: 0,34 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)
  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 1001

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

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/IP68

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							
22260221	AB-C3-M12MS-2,0PUR	3	2	straight	no	250	1
22260222	AB-C3-M12MS-5,0PUR	3	5	straight	no	250	1
22260249	AB-C3-M12MS-10,0PUR	3	10	straight	no	250	1
22260223	AB-C3-M12MA-2,0PUR	3	2	angled	no	250	1
22260224	AB-C3-M12MA-5,0PUR	3	5	angled	no	250	1
22260256	AB-C3-M12MA-10,0PUR	3	10	angled	no	250	1
Socket							
22260257	AB-C3-2,0PUR-M12FS	3	2	straight	no	250	1
22260250	AB-C3-5,0PUR-M12FS	3	5	straight	no	250	1
22260251	AB-C3-10,0PUR-M12FS	3	10	straight	no	250	1
22260252	AB-C3-2,0PUR-M12FS-2L	3	2	straight	2 LEDs	24	1
22260265	AB-C3-5,0PUR-M12FS-2L	3	5	straight	2 LEDs	24	1
22260266	AB-C3-10,0PUR-M12FS-2L	3	10	straight	2 LEDs	24	1
22260258	AB-C3-2,0PUR-M12FA	3	2	angled	no	250	1
22260259	AB-C3-5,0PUR-M12FA	3	5	angled	no	250	1
22260260	AB-C3-10,0PUR-M12FA	3	10	angled	no	250	1
22260253	AB-C3-2,0PUR-M12FA-2L	3	2	angled	2 LEDs	24	1
22260254	AB-C3-5,0PUR-M12FA-2L	3	5	angled	2 LEDs	24	1
22260255	AB-C3-10,0PUR-M12FA-2L	3	10	angled	2 LEDs	24	1
4-pin							
plug							
22260320	AB-C4-M12MS- 2,0PUR	4	2	straight	no	250	1
22260321	AB-C4-M12MS- 5,0PUR	4	5	straight	no	250	1
22260342	AB-C4-M12MS-10,0PUR	4	10	straight	no	250	1
22260301	AB-C4-M12MA-2,0PUR	4	2	angled	no	250	1
22260302	AB-C4-M12MA-5,0PUR	4	5	angled	no	250	1
22260303	AB-C4-M12MA-10,0PUR	4	10	angled	no	250	1
Socket							
22260322	AB-C4- 2,0PUR-M12FS	4	2	straight	no	250	1
22260323	AB-C4- 5,0PUR-M12FS	4	5	straight	no	250	1
22260343	AB-C4-10,0PUR-M12FS	4	10	straight	no	250	1
22260344	AB-C4- 2,0PUR-M12FS-2L	4	2	straight	2 LEDs	24	1
22260345	AB-C4- 5,0PUR-M12FS-2L	4	5	straight	2 LEDs	24	1
22260346	AB-C4-10,0PUR-M12FS-2L	4	10	straight	2 LEDs	24	1
22260324	AB-C4- 2,0PUR-M12FA	4	2	angled	no	250	1
22260325	AB-C4- 5,0PUR-M12FA	4	5	angled	no	250	1
22260341	AB-C4-10,0PUR-M12FA	4	10	angled	no	250	1
22260326	AB-C4- 2,0PUR-M12FA-3L	4	2	angled	3 LEDs	24	1
22260327	AB-C4- 5,0PUR-M12FA-3L	4	5	angled	3 LEDs	24	1
22260340	AB-C4-10,0PUR-M12FA-3L	4	10	angled	3 LEDs	24	1

Article number	Article designation	Number of pins	Length (m)	Design	LED	Rated voltage (V)	PU
5-pin							
plug							
22260400	AB-C5-M12MS-2,0PUR	5	2	straight	no	60	1
22260401	AB-C5-M12MS-5,0PUR	5	5	straight	no	60	1
22260414	AB-C5-M12MS-10,0PUR	5	10	straight	no	60	1
22260402	AB-C5-M12MA-2,0PUR	5	2	angled	no	60	1
22260403	AB-C5-M12MA-5,0PUR	5	5	angled	no	60	1
22260417	AB-C5-M12MA-10,0PUR	5	10	angled	no	60	1
Socket							
22260404	AB-C5- 2,0PUR-M12FS	5	2	straight	no	60	1
22260405	AB-C5- 5,0PUR-M12FS	5	5	straight	no	60	1
22260415	AB-C5-10,0PUR-M12FS	5	10	straight	no	60	1
22260406	AB-C5- 2,0PUR-M12FA	5	2	angled	no	60	1
22260407	AB-C5- 5,0PUR-M12FA	5	5	angled	no	60	1
22260418	AB-C5-10,0PUR-M12FA	5	10	angled	no	60	1
22260408	AB-C5- 2,0PUR-M12FA-3L	5	2	angled	3 LEDs	24	1
22260409	AB-C5- 5,0PUR-M12FA-3L	5	5	angled	3 LEDs	24	1
22260416	AB-C5-10,0PUR-M12FA-3L	5	10	angled	3 LEDs	24	1
8-pin							
plug							
22260091	AB-C8-M12MS-2,0PUR	8	2	straight	no	30	1
22260092	AB-C8-M12MS-5,0PUR	8	5	straight	no	30	1
22260093	AB-C8-M12MS-10,0PUR	8	10	straight	no	30	1
22260094	AB-C8-M12MA-2,0PUR	8	2	angled	no	30	1
22260095	AB-C8-M12MA-5,0PUR	8	5	angled	no	30	1
22260096	AB-C8-M12MA-10,0PUR	8	10	angled	no	30	1
Socket							
22260726	AB-C8-2,0PUR-M12FS	8	2	straight	no	30	1
22260728	AB-C8-5,0PUR-M12FS	8	5	straight	no	30	1
22260729	AB-C8-10,0PUR-M12FS	8	10	straight	no	30	1
22260141	AB-C8-2,0PUR-M12FA	8	2	angled	no	30	1
22260615	AB-C8-5,0PUR-M12FA	8	5	angled	no	30	1
22260616	AB-C8-10,0PUR-M12FA	8	10	angled	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 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-M12

M12 plug on M12 socket

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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: 0,34 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)
  8-pin: wh (1), bn (2), gn (3), ye 4), gy (5), pk (6), bu (7), rd (8)
- Outer sheath: PUR, black

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

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/IP68

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
Connector to socket						
3-pin						
22260233	AB-C3-M12MS-0,3PUR-M12FS	0.3	straight-straight	no	250	1
22260234	AB-C3-M12MS-0,6PUR-M12FS	0.6	straight-straight	no	250	1
22260235	AB-C3-M12MS-1,0PUR-M12FS	1	straight-straight	no	250	1
22260236	AB-C3-M12MS-2,0PUR-M12FS	2	straight-straight	no	250	1
22260237	AB-C3-M12MS-0,3PUR-M12FA	0.3	straight-angled	no	250	1
22260238	AB-C3-M12MS-0,6PUR-M12FA	0.6	straight-angled	no	250	1
22260239	AB-C3-M12MS-1,0PUR-M12FA	1	straight-angled	no	250	1
22260240	AB-C3-M12MS-2,0PUR-M12FA	2	straight-angled	no	250	1
22260261	AB-C3-M12MS-0,3PUR-M12FA-2L	0.3	straight-angled	2 LEDs	24	1
22260262	AB-C3-M12MS-0,6PUR-M12FA-2L	0.6	straight-angled	2 LEDs	24	1
22260263	AB-C3-M12MS-1,0PUR-M12FA-2L	1	straight-angled	2 LEDs	24	1
22260264	AB-C3-M12MS-2,0PUR-M12FA-2L	2	straight-angled	2 LEDs	24	1
4-pin						
22260328	AB-C4-M12MS- 0,3PUR-M12FS	0.3	straight-straight	no	250	1
22260329	AB-C4-M12MS- 0,6PUR-M12FS	0.6	straight-straight	no	250	1
22260330	AB-C4-M12MS- 1,0PUR-M12FS	1	straight-straight	no	250	1
22260331	AB-C4-M12MS- 2,0PUR-M12FS	2	straight-straight	no	250	1
22260332	AB-C4-M12MS- 0,3PUR-M12FA	0.3	straight-angled	no	250	1
22260333	AB-C4-M12MS- 0,6PUR-M12FA	0.6	straight-angled	no	250	1
22260334	AB-C4-M12MS-1,0PUR-M12FA	1	straight-angled	no	250	1
22260335	AB-C4-M12MS-2,0PUR-M12FA	2	straight-angled	no	250	1
22260304	AB-C4-M12MA-0,3PUR-M12FS	0.3	angled-straight	no	250	1
22260305	AB-C4-M12MA-0,6PUR-M12FS	0.6	angled-straight	no	250	1
22260306	AB-C4-M12MA-1,0PUR-M12FS	1	angled-straight	no	250	1
22260307	AB-C4-M12MA-2,0PUR-M12FS	2	angled-straight	no	250	1
22260336	AB-C4-M12MS-0,3PUR-M12FA-3L	0.3	straight-angled	3 LEDs	24	1
22260337	AB-C4-M12MS-0,6PUR-M12FA-3L	0.6	straight-angled	3 LEDs	24	1
22260338	AB-C4-M12MS-1,0PUR-M12FA-3L	1	straight-angled	3 LEDs	24	1
22260339	AB-C4-M12MS-2,0PUR-M12FA-3L	2	straight-angled	3 LEDs	24	1
5-pin						
22260410	AB-C5-M12MS-0,3PUR-M12FS	0.3	straight-straight	no	60	1
22260411	AB-C5-M12MS-0,6PUR-M12FS	0.6	straight-straight	no	60	1
22260412	AB-C5-M12MS-1,0PUR-M12FS	1	straight-straight	no	60	1
22260413	AB-C5-M12MS-2,0PUR-M12FS	2	straight-straight	no	60	1
22260063	AB-C5-M12MS-0,3PUR-M12FA	0.3	straight-angled	no	60	1
22260064	AB-C5-M12MS-0,6PUR-M12FA	0.6	straight-angled	no	60	1
22260065	AB-C5-M12MS-1,0PUR-M12FA	1	straight-angled	no	60	1
22260066	AB-C5-M12MS-2,0PUR-M12FA	2	straight-angled	no	60	1
22260067	AB-C5-M12MS-0,3PUR-M12FA-3L	0.3	straight-angled	3 LEDs	24	1
22260068	AB-C5-M12MS-0,6PUR-M12FA-3L	0.6	straight-angled	3 LEDs	24	1
22260069	AB-C5-M12MS-1,0PUR-M12FA-3L	1	straight-angled	3 LEDs	24	1
22260070	AB-C5-M12MS-2,0PUR-M12FA-3L	2	straight-angled	3 LEDs	24	1
8-pin						
22260097	AB-C8-M12MS-0,3PUR-M12FS	0.3	straight-straight	no	30	1
22260098	AB-C8-M12MS- 0,6PUR-M12FS	0.6	straight-straight	no	30	1
22260099	AB-C8-M12MS-1,0PUR-M12FS	1	straight-straight	no	30	1
22260042	AB-C8-M12MS- 2,0PUR-M12FS	2	straight-straight	no	30	1
22260137	AB-C8-M12MS-0,3PUR-M12FA	0.3	straight-angled	no	30	1
22260138	AB-C8-M12MS-0,6PUR-M12FA	0.6	straight-angled	no	30	1
22260139	AB-C8-M12MS1,0PUR-M12FA	1	straight-angled	no	30	1
22260140	AB-C8-M12MS-2,0PUR-M12FA	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.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs 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 951

UNITRONIC® SENSOR M12-M8

M12 plug on M8 socket

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

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/IP68

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)
3 A

Article number	Article designation	Length (m)	Design	LED	Rated voltage (V)	PU
Connector to 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 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 951

LAPP GROUP

UNITRONIC® SENSOR SH M12

M12 plug/socket on free conductor end, shielded

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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
- Shielding is conducted over the knurl
- 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: 0,34 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: PUR, black
- Shielded version

Suitable tools

- DATA STRIP stripping tool refer to page 1001

Technical data

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
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -25°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						
plug						
22260453	AB-C3-M12MS- 2,0PUR-SH	3	2	straight	250	1
22260454	AB-C3-M12MS- 5,0PUR-SH	3	5	straight	250	1
22260455	AB-C3-M12MS-10,0PUR-SH	3	10	straight	250	1
Socket						
22260450	AB-C3- 2,0PUR-M12FS-SH	3	2	straight	250	1
22260451	AB-C3- 5,0PUR-M12FS-SH	3	5	straight	250	1
22260452	AB-C3-10,0PUR-M12FS-SH	3	10	straight	250	1
22260071	AB-C3- 2,0PUR-M12FA-SH	3	2	angled	250	1
22260072	AB-C3- 5,0PUR-M12FA-SH	3	5	angled	250	1
22260073	AB-C3-10,0PUR-M12FA-SH	3	10	angled	250	1
4-pin						
plug						
22260459	AB-C4-M12MS- 2,0PUR-SH	4	2	straight	250	1
22260460	AB-C4-M12MS- 5,0PUR-SH	4	5	straight	250	1
22260461	AB-C4-M12MS-10,0PUR-SH	4	10	straight	250	1
Socket						
22260456	AB-C4- 2,0PUR-M12FS-SH	4	2	straight	250	1
22260457	AB-C4- 5,0PUR-M12FS-SH	4	5	straight	250	1
22260458	AB-C4-10,0PUR-M12FS-SH	4	10	straight	250	1
22260074	AB-C4- 2,0PUR-M12FA-SH	4	2	angled	250	1
22260675	AB-C4- 5,0PUR-M12FA-SH	4	5	angled	250	1
22260680	AB-C4-10,0PUR-M12FA-SH	4	10	angled	250	1
5-pin						
plug						
22260465	AB-C5-M12MS- 2,0PUR-SH	5	2	straight	60	1
22260466	AB-C5-M12MS- 5,0PUR-SH	5	5	straight	60	1
22260467	AB-C5-M12MS-10,0PUR-SH	5	10	straight	60	1
Socket						
22260462	AB-C5- 2,0PUR-M12FS-SH	5	2	straight	60	1
22260463	AB-C5- 5,0PUR-M12FS-SH	5	5	straight	60	1
22260464	AB-C5-10,0PUR-M12FS-SH	5	10	straight	60	1
22260946	AB-C5- 2,0PUR-M12FA-SH	5	2	angled	60	1
22260714	AB-C5- 5,0PUR-M12FA-SH	5	5	angled	60	1
22260991	AB-C5-10,0PUR-M12FA-SH	5	10	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.
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UL certifications can be found in the data sheet

Accessories

- FLEXIMARK® Label LMB refer to page 951

NEW

UNITRONIC® SENSOR PVC M12 | M12-M12

M12 plug/socket on M12 plug/socket/free conductor end

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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 1001

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

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/IP68

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		2	angled	250	1
22260661	AB-C3-5,0PVC-M12FA		5	angled	250	1
22262083	AB-C3-10,0PVC-M12FA		10	angled	250	1
Connector to socket						
22262096	AB-C3-M12MS-2,0PVC-M12FA		2	straight-angled	250	1
22262097	AB-C3-M12MS-5,0PVC-M12FA		5	straight-angled	250	1
22262098	AB-C3-M12MS-10,0PVC-M12FA		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
Connector to 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		2	straight	250	1
22262100	AB-C5-5,0PVC-M12FS		5	straight	250	1
22262101	AB-C5-10,0PVC-M12FS		10	straight	250	1
Connector to socket						
22262102	AB-C5-M12MS-2,0PVC-M12FA		2	straight-angled	250	1
22262103	AB-C5-M12MS-5,0PVC-M12FA		5	straight-angled	250	1
22262104	AB-C5-M12MS-10,0PVC-M12FA		10	straight-angled	250	1

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UL certifications can be found in the data sheet

NEW

ECOLAB FDA

UNITRONIC® SENSOR HD M12

S/A cable: Hygienic Design for Food&Beverage

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon request

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
- **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 1001

Technical data

ETIM 5.0 Class-ID: EC001855
ETIM 5.0 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	Rated voltage (V)	PU
4-pin						
plug						
22262040	AB-C4-M12MS-2,0TPE-HD	4	2	straight	250	1
22262041	AB-C4-M12MS-5,0TPE-HD	4	5	straight	250	1
22262060	AB-C4-M12MS-7,5TPE-HD	4	7.5	straight	250	1
22262042	AB-C4-M12MS-10,0TPE-HD	4	10	straight	250	1
22262061	AB-C4-M12MS-15,0TPE-HD	4	15	straight	250	1
Socket						
22262043	AB-C4-2,0TPE-M12FS-HD	4	2	straight	250	1
22262044	AB-C4-5,0TPE-M12FS-HD	4	5	straight	250	1
22262062	AB-C4-7,5TPE-M12FS-HD	4	7.5	straight	250	1
22262045	AB-C4-10,0TPE-M12FS-HD	4	10	straight	250	1
22262063	AB-C4-15,0TPE-M12FS-HD	4	15	straight	250	1
22262046	AB-C4-2,0TPE-M12FA-HD	4	2	angled	250	1
22262047	AB-C4-5,0TPE-M12FA-HD	4	5	angled	250	1
22262064	AB-C4-7,5TPE-M12FA-HD	4	7.5	angled	250	1
22262048	AB-C4-10,0TPE-M12FA-HD	4	10	angled	250	1
22262065	AB-C4-15,0TPE-M12FA-HD	4	15	angled	250	1

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EPIC® SENSOR M12

Field mountable connectors M12



Benefits

- 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
- 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

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 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-polig)

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	125	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	125	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 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

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

Product features

- 4-pin connector
- Screw connection
- PWIS-free

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)
Knurl: Stainless steel (V4A)

Protection rating
IP67

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
Socket, straight						
22262050	AB-C4-M12FS-PG7-VA	4	0.25 - 0.75	4 - 6	250	1
Socket angled						
22262051	AB-C4-M12FA-PG7-VA	4	0.25 - 0.75	4 - 6	250	1

Photographs 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

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

Protection rating
IP67

Ambient temperature (operation)
Plug/socket
-25°C to +85°C

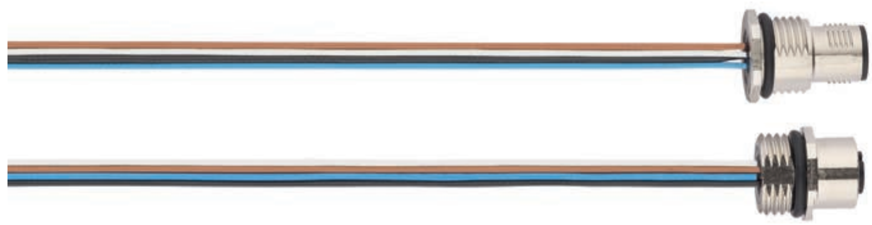
Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

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 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

Product Make-up

- TPE single strands, l = 0.5 m
- Wire cross-section: 0,34 mm²

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

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

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Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

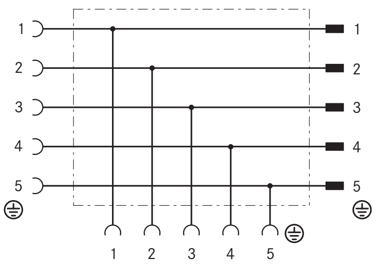
Accessories

- Matching fitting nut: 22261062 (M12), 52003500 (PG9), 22260110 (M16)

DeviceNet CANopen

EPIC® SENSOR 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
- 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	Number of pins	Rated voltage (V)	PU
T distributor				
22260765	AB-C5-M12T-2XM12FS DN	5	60	5

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

DeviceNet CANopen

EPIC® SENSOR CCR

Cable coupler round, shielded for e.g. sensor /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
- For core outer diameter 0.75 - 2.0 mm
- 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)
-5°C to +50°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	0.14 - 0.50	5.0 - 9.7	60

DeviceNet is a registered trademark of ODVA
Photographs 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
  Valve connector for pressure switches
- 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 1001

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description:
Sensor-actuator connector

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 -15°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

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Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SENSOR STRIP stripping tool refer to page 1003
- FLEXIMARK® Label LMB refer to page 951

UNITRONIC® SENSOR Valve-M 12

valve connector on straight M 12 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
  Valve connector for pressure switches
- 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

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description:
Sensor-actuator connector

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 -15°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-M 12MS-0,3PUR-A-1L-S	3	0.3	1 LED	24	1
22260551	AB-C3-M 12MS-0,6PUR-A-1L-S	3	0.6	1 LED	24	1
22260552	AB-C3-M 12MS-1,0PUR-A-1L-S	3	1	1 LED	24	1
22260553	AB-C3-M 12MS-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-M 12MS-0,3PUR-AD-2L	5	0.3	2 LEDs	24	1
22260572	AB-C5-M 12MS-0,6PUR-AD-2L	5	0.6	2 LEDs	24	1
22260571	AB-C5-M 12MS-1,0PUR-AD-2L	5	1	2 LEDs	24	1
22260570	AB-C5-M 12MS-2,0PUR-AD-2L	5	2	2 LEDs	24	1
Straight connector to valve connector type B (10 mm)						
22260558	AB-C3-M 12MS-0,3PUR-B-1L-S	3	0.3	1 LED	24	1
22260559	AB-C3-M 12MS-0,6PUR-B-1L-S	3	0.6	1 LED	24	1
22260560	AB-C3-M 12MS-1,0PUR-B-1L-S	3	1	1 LED	24	1
22260561	AB-C3-M 12MS-2,0PUR-B-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type BI (11 mm)						
22260554	AB-C3-M 12MS-0,3PUR-BI-1L-S	3	0.3	1 LED	24	1
22260555	AB-C3-M 12MS-0,6PUR-BI-1L-S	3	0.6	1 LED	24	1
22260556	AB-C3-M 12MS-1,0PUR-BI-1L-S	3	1	1 LED	24	1
22260557	AB-C3-M 12MS-2,0PUR-BI-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type C (8 mm)						
22260566	AB-C3-M 12MS-0,3PUR-C-1L-S	3	0.3	1 LED	24	1
22260567	AB-C3-M 12MS-0,6PUR-C-1L-S	3	0.6	1 LED	24	1
22260568	AB-C3-M 12MS-1,0PUR-C-1L-S	3	1	1 LED	24	1
22260569	AB-C3-M 12MS-2,0PUR-C-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type CI (9.4 mm)						
22260562	AB-C3-M 12MS-0,3PUR-CI-1L-S	3	0.3	1 LED	24	1
22260563	AB-C3-M 12MS-0,6PUR-CI-1L-S	3	0.6	1 LED	24	1
22260564	AB-C3-M 12MS-1,0PUR-CI-1L-S	3	1	1 LED	24	1
22260565	AB-C3-M 12MS-2,0PUR-CI-1L-S	3	2	1 LED	24	1

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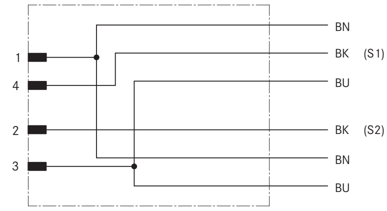
Copper price basis: inclusive of copper. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Label LMB refer to page 951

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 1001

Technical data

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

Protection rating
IP65/IP67/IP68

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

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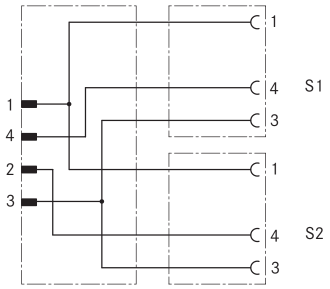
UL certifications can be found in the data sheet

Accessories

- FLEXIMARK® Label LMB refer to page 951

UNITRONIC® SENSOR M12Y-M8

M12 Y plug straight on 2x M8 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 plug on 2 x M8 socket (3-pin)
- Including tag carrier
- PWIS-free
- Suitable for drag chains

Product Make-up

- 3 x 0.25 mm²
- Core colours: bn, bu, bk
- Outer sheath: PUR halogen-free, black

Technical data

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

Protection rating
IP65/IP67/IP68

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)	Rated voltage (V)	LED	PU
Y plug to straight socket						
22260514	AB-C3-M12Y-0,3PUR-M8FS	3	0.3	60	no	1
22260515	AB-C3-M12Y-0,6PUR-M8FS	3	0.6	60	no	1
22260516	AB-C3-M12Y-1,0PUR-M8FS	3	1	60	no	1
22260517	AB-C3-M12Y-2,0PUR-M8FS	3	2	60	no	1
Y plug to angled socket						
22260518	AB-C3-M12Y-0,3PUR-M8FA	3	0.3	60	no	1
22260519	AB-C3-M12Y-0,6PUR-M8FA	3	0.6	60	no	1
22260520	AB-C3-M12Y-1,0PUR-M8FA	3	1	60	no	1
22260521	AB-C3-M12Y-2,0PUR-M8FA	3	2	60	no	1
Y plug to angled socket with LEDs						
22260522	AB-C3-M12Y-0,3PUR-M8FA-2L	3	0.3	24	2 LEDs	1
22260523	AB-C3-M12Y-0,6PUR-M8FA-2L	3	0.6	24	2 LEDs	1
22260524	AB-C3-M12Y-1,0PUR-M8FA-2L	3	1	24	2 LEDs	1
22260525	AB-C3-M12Y-2,0PUR-M8FA-2L	3	2	24	2 LEDs	1

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Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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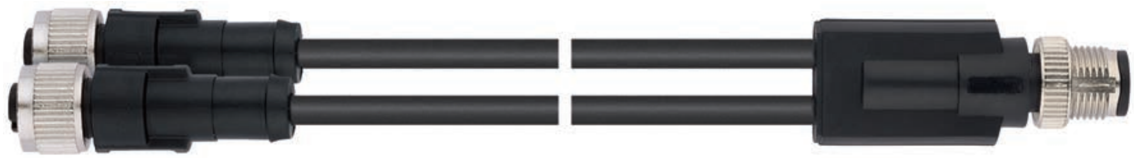
UL certifications can be found in the data sheet

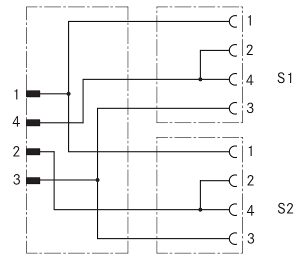
Accessories

- FLEXIMARK® Label LMB refer to page 951

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 plug on 2 x M12 socket (4-pin)
- Socket M12 PIN 2+4 bridged
- 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

Technical data

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

Protection rating
IP65/IP67/IP68

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)	Rated voltage (V)	LED	PU
Y plug to straight socket						
22260501	AB-C3-M12Y-0,3PUR-M12FS-B	3	0.3	250	no	1
22260502	AB-C3-M12Y-0,6PUR-M12FS-B	3	0.6	250	no	1
22260503	AB-C3-M12Y-1,0PUR-M12FS-B	3	1	250	no	1
22260504	AB-C3-M12Y-2,0PUR-M12FS-B	3	2	250	no	1
Y plug to angled socket						
22260505	AB-C3-M12Y-0,3PUR-M12FA-B	3	0.3	250	no	1
22260506	AB-C3-M12Y-0,6PUR-M12FA-B	3	0.6	250	no	1
22260507	AB-C3-M12Y-1,0PUR-M12FA-B	3	1	250	no	1
22260508	AB-C3-M12Y-2,0PUR-M12FA-B	3	2	250	no	1
Y plug to angled socket with LEDs						
22260509	AB-C3-M12Y-0,3PUR-M12FA-2L-B	3	0.3	24	2 LEDs	1
22260510	AB-C3-M12Y-0,6PUR-M12FA-2L-B	3	0.6	24	2 LEDs	1
22260511	AB-C3-M12Y-1,0PUR-M12FA-2L-B	3	1	24	2 LEDs	1
22260512	AB-C3-M12Y-2,0PUR-M12FA-2L-B	3	2	24	2 LEDs	1

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Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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UL certifications can be found in the data sheet

Accessories

- FLEXIMARK® Label LMB refer to page 951

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

ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

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

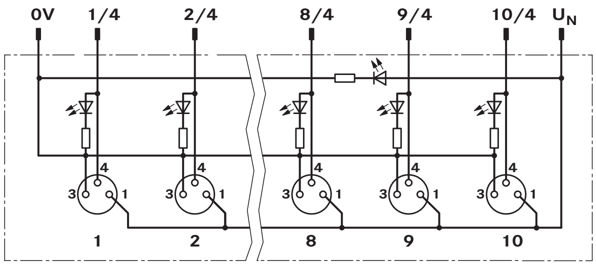
Rated current (A)
4 A
3 A (M8)

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 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 tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

Technical data

ETIM 5.0 Class-ID: EC002585
ETIM 5.0 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

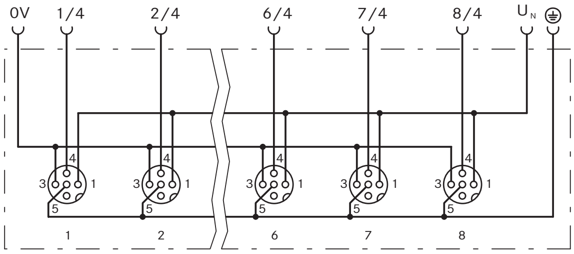
Article number	Article designation	Length (m)	Number of slots	Status display
Fixed master cable				
22260026	AB-B4-M8L-4-5,0PUR	5	4	With LEDs
22260027	AB-B4-M8L-4-10,0PUR	10	4	With LEDs
22260028	AB-B6-M8L-6-5,0PUR	5	6	With LEDs
22260029	AB-B6-M8L-6-10,0PUR	10	6	With LEDs
22260030	AB-B8-M8L-8-5,0PUR	5	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		4	With LEDs
22260039	AB-B6-M8L-6-M12		6	With LEDs
M16 connection				
22260034	AB-B4-M8L-4-M16		4	With LEDs
22260035	AB-B6-M8L-6-M16		6	With LEDs
22260036	AB-B8-M8L-8-M16		8	With LEDs
22260037	AB-B10-M8L-10-M16		10	With LEDs

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.
Unoccupied slots must be covered with protective caps (see accessories) - ArtNo. 22260606 for M8; 22260605 for M12.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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 376
- 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

ETIM 5.0 Class-ID: EC002585
ETIM 5.0 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 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.
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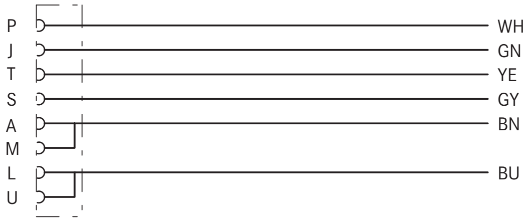
Unoccupied slots must be covered with protective caps (see accessories) - ArtNo. 22260606 for M8; 22260605 for M12.
UL certifications can be found in the data sheet

UNITRONIC® SENSOR M16

M16 socket with connected master cable



Benefits

- Connecting cable for M8 boxes with 4 to 10 slots
- Instead of numerous individual conductors, one master cable is laid to the control unit
- Hybrid cable for signal and power transmission

Product features

- Angled socket M16 on free conductor end
- Suitable for drag chains
- PWIS-free

Product Make-up

- Core cross-section (power): 0.75 mm^2
- Core cross-section (signal): 0.34 mm^2
- Core insulation: PVC
- Outer sheath: PUR, black

Technical data

ETIM 5.0 Class-ID: EC001604
ETIM 5.0 Class-Description: Fieldbus, decentr. periphery - communication module

Material
Contact: CuZn
Contact surface: Ni/Au
Knurl: Nickel-plated brass
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +90°C
Flexing -5°C to 80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Length (m)	Rated voltage (V)	PU
Socket, angled				
8 pole (6x signal - 2 bridged, 2x power)				
22260607	AB-C8- 5,0PUR-M16FA	5	125	1
22260608	AB-C8-10,0PUR-M16FA	10	125	1
10-pin (8x signal - 2 bridged, 2x power)				
22260609	AB-C10- 5,0PUR-M16FA	5	125	1
22260610	AB-C10-10,0PUR-M16FA	10	125	1
12-pin (10x signal - 2 bridged, 2x power)				
22260611	AB-C12- 5,0PUR-M16FA	5	125	1
22260612	AB-C12-10,0PUR-M16FA	10	125	1
14-pin (12x signal - 2 bridged, 2x power)				
22260613	AB-C14- 5,0PUR-M16FA	5	125	1
22260614	AB-C14-10,0PUR-M16FA	10	125	1

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Distribution Box M8 refer to page 401

UNITRONIC® SENSOR M12 Power / UNITRONIC® SENSOR M12-M12 Power

Power cable: M12 plug/socket on free conductor

Power cable: M12 straight plug on M12 straight socket

Info

- Other types are available on www.lappgroup.com/assemblyfinder or upon 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-pin power cable
- M12 connector, A-coded with quick-locking system
- Including tag carrier
- 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

Suitable tools

- DATA STRIP stripping tool refer to page 1001

Suitable connectors

- EPIC® SENSOR M12 Page 391

Technical data

ETIM 5.0 Class-ID: EC001604
ETIM 5.0 Class-Description: Fieldbus, decentr. periphery - communication module

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/IP68

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
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Label LMB refer to page 951

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
- High flexibility through on-site assembly
- Safety use in field environment by high protection class

Application range
- Automation technology
- Plant engineering, machinery manufacturing
- Tool shop
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for use in measuring, control and regulating circuits

Norm references / Approvals
- E249137

Product features
- Robust M12 circular connector with screw connection and knurled srew
- Screw-locking connection, to be connected to different conductor
- For conductor cross-section 0.75 - 1.5 mm² (AWG 18 - AWG 16)

Suitable cables
- ÖLFLEX® FD 855 P Page 135
- (ÖLFLEX® FD 855 P: Example for harsh conditions)

Technical data
ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)
Knurl: Zinc die-cast, nickel-plated
Gripping body: PA

Protection rating
IP67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Coding
T - Power

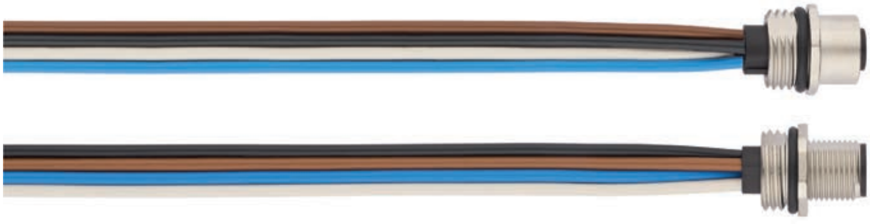
Rated current (A)
12 A

Article number	Article designation	Design	Number of pins	Cable diameter in mm	Rated voltage (V)	PU
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 are not to scale and do not represent detailed images of the respective products.

EPIC® POWER M12 60V flush-type connectors

M12 POWER panel mount connectors for front mounting



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
- Individual solutions in the field of M12 power supply
- Safety use in field environment by high protection class

Application range

- Power Supply for small devices
- Tool shop
- Industrial machinery and plant engineering

Norm references / Approvals

- E249137

Product features

- Designs for front mounting
- Flush type connector with M16 thread and preharnessed wires
- Flush-type connector with M20 thread with screw contacts
- Contact durability: > 100

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

- MULTI-STANDARD SC 2.1 Page 212
- (MULTI-STANDARD SC 2.1.: Example for panel mount connectors with screw terminals)

Suitable connectors

- EPIC® POWER M12 60V Page 405

Technical data

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)

Protection rating
IP67

Ambient temperature (operation)
-40°C to +85°C

Coding
T - Power

Rated current (A)
12 A

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Panel mount connector (male) with screw connection, M20 thread				
22262014	AB-C4-M12MST-M20-PO	4	60	1
Panel mount connector (female) with screw connection, M20 thread				
22262015	AB-C4-M12FST-M20-PO	4	60	1
Panel mount connector (male) with PVC single cores, M16 thread				
22262016	AB-C4-M12MST-M16-0,2	4	60	1
Panel mount connector (socket) with PVC single cores, M16 thread				
22262017	AB-C4-M12FST-M16-0,2	4	60	1

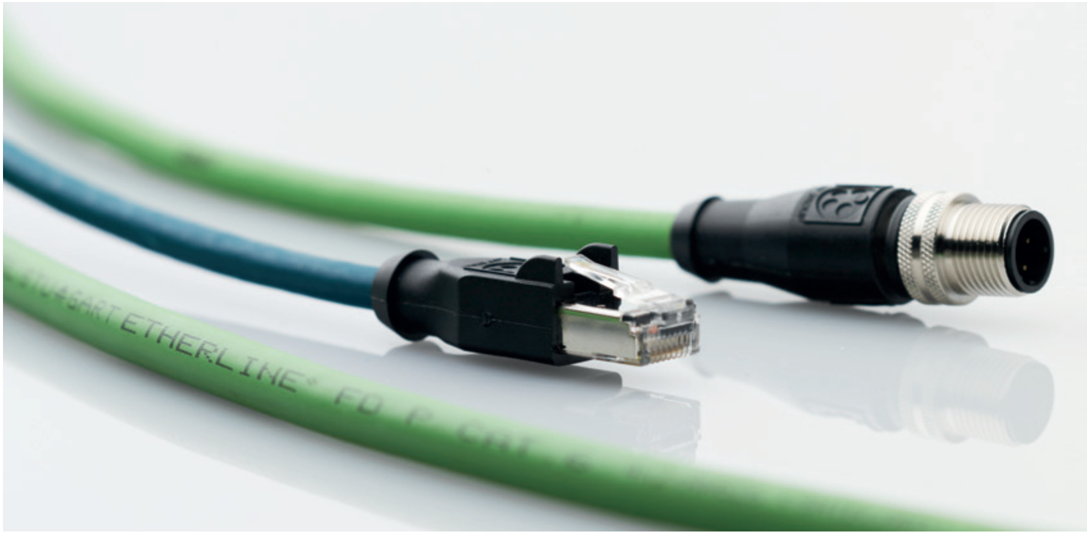
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
M16 or M20 locknuts not included in delivery

Accessories

- SKINDICHT® SM-M refer to page 763

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. The systems are made up of durable and robust cables and connection components for passive 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


ETHERLINE® FD

With ETHERLINE® products you are fit for future

If you want to avoid failures, down times and quality problems, you can trust on our complete and high quality product system. Lapp takes care to offer products of individuality and costumer requirement as well as long time usability. Our big product range of ETHERLINE® cables are suitable for nearly any application and is tested in our test laboratory, for example in drag chains. If there are special requirements as flexibility for applications in drag chains, with torsion stress, industrial environments with high mechanical or temperature specifications, you can find some real all-rounders in the Lapp product program. If you are at the point where you will connect your cable to a device, you can also find suitable connectors, for example RJ45 or M12 connectors. Nearly for every cable and application you can choose the right connector, mostly with you need no special assembly tool. For some applications and for saving time and money, Lapp offers also a big range of patch cords. There the Industrial Ethernet ETHERLINE® cables are used and are assembled with connectors who are especially produced for industrial requirements. The patch cords are completely tested in our plant and you can trust on Industrial Protection classes and transmission rates.

ETHERLINE® copper cables

- Copper data network cables for transmission in PROFINET® applications
- The right cable for almost every application area. There are optimized copper cables for Ethernet either for use in industrial applications (ETHERLINE®) or for use as structured building cabling (UNITRONIC® LAN)
- All current types are available with UL certification

ETHERLINE® connectors

- Configurable connectors for field assembly – fast and without the use of special tools
- Straight or angled RJ45 connectors with colour-coded wire manager for easy connection to 2-pair or 4-pair cables
- M12 D-coded connector for transmission rate up to 100 Mbit/s
- M12 X-coded connector for transmission rate up to 10 Gbit/s

ETHERLINE® assemblies

- Proven cable quality combined with highquality connectors
- A hugh range with overmoulded RJ45 or M12 connectors as angled or straight versions are available from stock
- Factory-tested patch cords save time, prevent differences in connection quality and enable to attain a higher level of sealing tightness

Type specification according to the PROFINET® guideline

The PROFINET® system is specified internationally in IEC 61918 'Industrial communication networks – Installation of communication networks in industrial premises' for cabling within and between automation islands and/or production islands. The specific infrastructure for PROFINET® cabling and connection solutions is standardised in turn in IEC 61784-5-3. This applies for copper-based and fibre optic transmission media and wireless transmission. The 'PROFINET® Cabling and Interconnection Technology Guideline' is created by a working group within the PNO. This guideline reflects IEC 61784-5-3. It always specifies three cable types for copper conductors – for 2-pair and 4-pair cables. This specification therefore defines the exact structure and the mechanical and electrical requirements.

- Type A: for fixed installation, no flexing after installation (solid conductor)
- Type B: for flexible installation, occasional flexing of the cable following installation (7-wire stranded conductor)
- Type C: for special requirements such as use in power chains, torsion applications, etc. (solid wire or flexible stranded conductors with up to 19-wire structure)

Following table shows all three cable types with their design acc. to PROFINET®-Guideline

Number of pairs/cable type	Typ A	Typ B	Typ C
2-pair (2x2)	AWG22/1	AWG22/7	AWG22/1...19
4-pair (4x2)	Min. AWG23/1	Min. AWG23/7	Min. AWG24/1...19

Photographs 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			
		2170893	ETHERLINE® Y FC Cat.5			
		2170494	ETHERLINE® PN Cat.5e YY			
4-pin type B for flexible application		2170886	ETHERLINE® PN Cat.5 Y FLEX FC			
		2170890	ETHERLINE® PN Cat.5e FRNC FLEX FC	M12 plug, D-coded	22260820	AB-C4-M12MSD-SH
		2170889	ETHERLINE® MARINE FRNC FC Cat.5	M12 socket, D-coded	22261016	AB-C4-M12FSD-SH
4-pin type C for special application	Drag chain	2170894	ETHERLINE® FD P FC Cat.5			
	Torsion	2170888	ETHERLINE® TORSION P Cat.5 AWM	RJ45 connector, straight	21700605	ED-IE-AX-5-PN-20-FC
	Routing underground	2170496	ETHERLINE® Cat.5 ARM	RJ45 connector, angled	21700638	ED-IE-90-6A-PN-20-FC
	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			
		2170465	ETHERLINE® Cat.6$_A$ P			
		2170464	ETHERLINE® Cat.6$_A$ Y	M12 plug, X-coded	21700602	ED-IE-AX-M12X-6A-67-FC
	Cat.7	2170476	ETHERLINE® H Cat.7 H			
		2170475	ETHERLINE® Cat.7 P	M12 socket, X-coded	21700621	ED-IE-AX-M12XF-6A-67-FC
		2170474	ETHERLINE® Cat.7 Y	M12 socket, X coded, with flange	21700622	ED-IE-AX-M12XF-RM-6A-67-FC
8-pin type B for flexible application	Cat.6$_A$	2170930	ETHERLINE® PN Cat.6$_A$ Y FLEX 4x2x23/7	RJ45 connector, straight, TIA568-A	21700600	ED-IE-AX-6A-A-20-FC
		2170931	ETHERLINE® PN Cat.6$_A$ FRNC FLEX 4x2x23/7	RJ45 connector, straight, TIA568-B	21700601	ED-IE-AX-6A-B-20-FC
8-pin type C for special application	Drag chain, Cat.6$_A$	2170485	ETHERLINE® FD Cat.6$_A$ 4X2X24/7AWG	RJ45 connector, angled, TIA568-A	21700636	ED-IE-90-6A-A-20-FC
		2170484	ETHERLINE® FD P Cat.6$_A$ 4X2X24/7AWG			
	Torsion, Cat.6$_A$	2170483	ETHERLINE® TORSION P Cat.6$_A$ 4X2XAWG24/7	RJ45 connector, angled, TIA568-B	21700637	ED-IE-90-6A-B-20-FC
		2170482	ETHERLINE® TORSION Y Cat.6$_A$ 4X2XAWG24/7			

Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

ETHERLINE® Cat.5e

Fixed installation

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 IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)

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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm +- 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

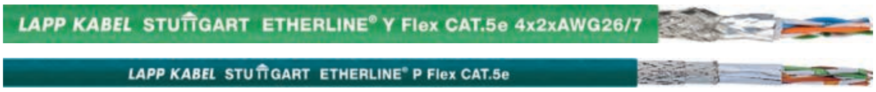
Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2-pair version					
Halogen-free jacket					
2170280	ETHERLINE® H CAT.5e	2 x 2 x AWG24/1	6.1	22	45
PUR outer sheath, halogen-free					
2170281	ETHERLINE® P CAT.5e	2 x 2 x AWG24/1	6.1	22	53
4-pair version					
Halogen-free jacket					
2170296	ETHERLINE® H CAT.5e	4 x 2 x AWG24/1	6.3	32	54
2170298	ETHERLINE® H-H CAT.5e	4 x 2 x AWG24/1	6.3 / 8.3	32	80
PUR outer sheath, halogen-free					
2170297	ETHERLINE® P CAT.5e	4 x 2 x AWG24/1	6.3	32	62

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
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs 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 476
- EPIC® DATA AX RJ45 Cat.6_A refer to page 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463
- EPIC® DATA HS RJ45F Cat.6_A refer to page 464
- EPIC® DATA M12D refer to page 464
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466
- SMART STRIP stripping tool
- DATA STRIP stripping tool refer to page 1001

ETHERLINE® Cat.5e FLEX

Flexible use



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 (CMG) certification
- PUR versions: UL AWM Style 21576
- Flame-retardant according IEC 60332-1-2
- Cable with PUR or halogenfree compound: Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)

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

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications 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 Ohm +- 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	Max. 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	5.9	19	43
PUR outer sheath, halogen-free					
2170284	ETHERLINE® P Flex CAT.5e	2 x 2 x AWG26/7	5.9	19	45
4-pair version					
Halogen-free jacket					
2170299	ETHERLINE® H Flex CAT.5e	4 x 2 x AWG26/7	6.3	25	48
PUR outer sheath, halogen-free					
2170300	ETHERLINE® P Flex CAT.5e	4 x 2 x AWG26/7	6.3	25	54
PVC outer sheath					
2170486	ETHERLINE® Y Flex CAT.5e	4 x2 x AWG26/7	6.4	30	54

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
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs 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 476
- EPIC® DATA AX RJ45 Cat.6_A refer to page 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463
- EPIC® DATA HS RJ45F Cat.6_A refer to page 464
- EPIC® DATA M12D refer to page 464
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466
- DATA STRIP stripping tool refer to page 1001

ETHERLINE® Cat.5e FD

Highly flexible application

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

- 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
- 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 IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)

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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm +- 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

Article number	Article designation	Number of pairs and AWG per conductor	Max. 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	6.2	20	48
4-pair version					
2170489	ETHERLINE® FD P CAT.5e	4 x 2 x AWG26/19	6.6	27	54

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 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Connector RJ45 CAT.6 Hirose TM21 refer to page 477
- SMART STRIP stripping tool
- DATA STRIP stripping tool refer to page 1001

ETHERLINE® Cat.5 FD BK

The Ethernet cable for installation in events

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 IEC 60754-1 (amount of halogen acid gas)
  Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)

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 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm +- 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

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® Cat.5 FD BK					
CE217489	ETHERLINE® FD P BK Cat.5	4x2xAWG26/19	6.6	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- Connector RJ45 CAT.6 Hirose TM21 refer to page 477
- SMART STRIP stripping tool

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, ISO/IEC 11801 and EN 50173, Class D
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- PVC version with UL/CSA (CMX) certification
- 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

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

Characteristic impedance
100 Ohm +- 15%

Temperature range
fixed installation
PVC: -30°C to +80°C
PUR: -40°C to +80°C
flexing
PVC: -5°C to +50°C
PUR: -30°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Max. 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	5.1	20	37
PUR outer sheath, halogen-free					
2170431	ETHERLINE® P EC FLEX Cat.5e	1 x 4 x AWG26/7	5.1	20	35

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SENSOR M8 refer to page 382
- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 476
- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461

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, ISO/IEC 11801 and EN 50173, Class D
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- 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

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 4 x Outer diameter
Flexing: 8 x outer diameter

Characteristic impedance
100 Ohm +- 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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® EC FD Cat.5e					
2170434	ETHERLINE® EC FD Cat.5e	1 x 4 x AWG26/19	5	20	35

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SENSOR M8 refer to page 382

ETHERLINE® PN Cat.5

Fixed installation

Info

- For PROFINET applications type A
- CAT.5/5e

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 für 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

- 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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm +- 15%

Temperature range
See data sheet

Article number	Article designation	Number of pairs and AWG per conductor	Max. 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	6.5	30.4	56
FC: “Fast Connect” cable design					
2170893	ETHERLINE® Y FC Cat.5	2 x 2 x AWG22/1	6.8	30.4	70
2170879	ETHERLINE® TRAY ER PN Y FC	2 x 2 x AWG22/1	6.8	30.4	70
Suitable for outdoor use and direct burial					
2170494	ETHERLINE® PN Cat.5e YY	2 x 2 x AWG22/1	7.8	30.4	62

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
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 463
- EPIC® DATA RJ45F Cat.6_A refer to page 462
- EPIC® DATA M12D refer to page 464

ETHERLINE® PN FLEX

Flexible use

Info

- For Profinet applications
- CAT.5-Performance
- 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 für 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
- 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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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:
during installation: 15 x outer diameter
fixed: 10 x outer diameter

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

Characteristic impedance
100 Ohm +- 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	Max. 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	6.8	31.3	67
FRNC outer sheath					
2170890	ETHERLINE® PN Cat.5 FRNC FLEX FC	2 x 2 x AWG22/7	6.8	31.2	65

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
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA RJ45F Cat.6$_A$ refer to page 462
- EPIC® DATA M12D refer to page 464
- FC STRIP stripping tool refer to page 1002

Industrial Ethernet cable Cat.5/ Cat.5e • PROFINET Type C - continuous flexing application

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 für 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

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 8 x outer diameter
Fixed installation: 5 x outer diameter

Test voltage
Core/core: 700 V
Core/screen: 700 V

Characteristic impedance
100 Ohm +- 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	Max. 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	6.8	31.3	63

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
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 463
- EPIC® DATA M12D refer to page 464

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 für 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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Installation: 5 x outer diameter

Test voltage
700 V

Characteristic impedance
100 ± 15 Ohm (> 1 MHz)

Temperature range
-40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Max. 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	6.8	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA HS RJ45F Cat.6_A refer to page 464
- Multipurpose shears A and B refer to page 998
- SMART STRIP stripping tool

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 für 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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm (> 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	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	6.5	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- ETHERLINE® PN FLEX refer to page 419

Accessories

- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA HS RJ45F Cat.6_A refer to page 464
- EPIC® DATA M12D refer to page 464
- DATA STRIP stripping tool refer to page 1001

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 für 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

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Characteristic impedance
100 Ohm +- 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	Max. outer diameter (mm)	Copper index (kg/km)
ETHERLINE® Cat.5e 105 plus				
2170636	ETHERLINE Cat.5e 105 plus	2x2xAWG22/7	6.5	30.4

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 463
- EPIC® DATA RJ45F Cat.6_A refer to page 462
- EPIC® DATA M12D refer to page 464

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 für 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
ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications 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 Ohm +- 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	Max. 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	6.5	32	68

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
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 are not to scale and do not represent detailed images of the respective products.

Accessories
- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA M12D refer to page 464
- FC STRIP stripping tool refer to page 1002

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 für 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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm +- 15%

Temperature range
Operation: -40 °C to +70 °C
During installation: -20°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Fixed installation					
2170496	ETHERLINE® Cat.5 ARM	2 x 2 x AWG22 / 1	6.7 / 9.8	30.4	124

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
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 463
- EPIC® DATA M12D refer to page 464

Industrial Ethernet cable Cat.5/ Cat.5e • PROFINET HYBRID Type B - flexible application

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

ETHERLINE® Cat.5 FRNC HYBRID

Flexible use

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 für 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 (AWG 16)
- 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

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 5 x outer diameter

Test voltage
See data sheet

Characteristic impedance
100 Ohm +- 15%

Temperature range
Operation: -20 °C to +70 °C

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Flexible use					
2170887	ETHERLINE® Cat.5 FRNC HYBRID	2x2xAWG22/7 + 4x1.5	10.6	94.2	153

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
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 are not to scale and do not represent detailed images of the respective products.

ETHERLINE® CAT.6 FD

Highly flexible application

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!
- LAN Cat.6 cables are specified up to 350 MHz
- Designed for 1...2 million bending/unbending 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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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
At 1 - 100 MHz: 100 ± 15 Ohm

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	Max. 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	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 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 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463
- DATA STRIP stripping tool refer to page 1001

ETHERLINE® Cat.6A

Fixed installation

Info

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- CAT.6A 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 is 100 m max. cable lenght for 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 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 AWG22
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Colour: green (based on RAL 6018)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 10 x outer diameter

Characteristic impedance
100 ohm at 1 - 100 MHz

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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Halogen-free jacket					
2170466	ETHERLINE® Cat.6A H	4 x 2 x AWG22/1	9.0	53	99
PUR outer sheath, halogen-free					
2170465	ETHERLINE® CAT.6A P	4 x 2 x AWG22/1	9.0	53	91
PVC outer sheath					
2170464	ETHERLINE® Cat.6A Y	4 x 2 x AWG22/1	9.0	53	98

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 are not to scale and do not represent detailed images of the respective products.

Accessories

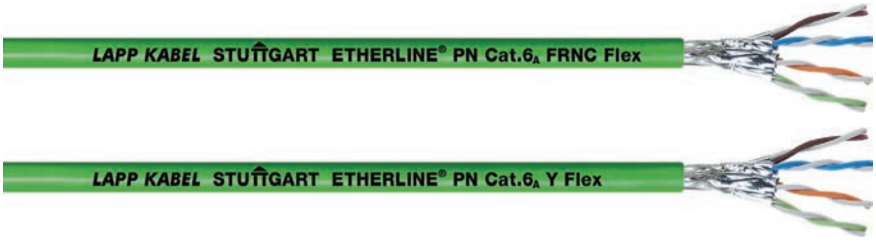
- EPIC® DATA AX RJ45 Cat.6A refer to page 462
- EPIC® DATA 90 RJ45 Cat.6A refer to page 463
- EPIC® DATA AX RJ45 Cat.6A IP68 refer to page 463
- EPIC® DATA RJ45F Cat.6A refer to page 462
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466
- DATA STRIP stripping tool refer to page 1001

ETHERLINE® PN Cat.6$_A$ FLEX

Flexible use

Info

- 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
- 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

Norm references / Approvals

- PVC cable is UL/CSA-certified (CMG)
- ETHERLINE® PN Cat.6$_A$ Y FLEX:**ECOLAB®** Industry standard for innovation and efficiency in the field of professionllen cleaning and disinfection
- FRNC cable is UL/CSA-certified (CM)

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation: PE
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)

Technical data

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter

Characteristic impedance
100 ± 15 Ohm (> 1 MHz)

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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC outer sheath					
2170930	ETHERLINE PN Cat.6$_A$ Y FLEX	4 x 2 x AWG23/7	9.0	48	92
FRNC outer sheath					
2170931	ETHERLINE PN Cat.6$_A$ FRNC FLEX	4 x 2 x AWG23/7	9.0	48	87

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
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Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs 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 462
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 463
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 463
- EPIC® DATA RJ45F Cat.6$_A$ refer to page 462
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466
- DATA STRIP stripping tool refer to page 1001

Industrial Ethernet cable Cat.6_A • Industrial Ethernet / PROFINET Type C - continuous flexing application

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 für 100 Mbit/s is 85 m
- Max. cable lenght für 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: 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

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x cable diameter

Characteristic impedance
100 Ohm

Temperature range
Fixed installation
PVC: -40°C bis +80°C
PUR: -40°C bis +80°C
Flexing
PVC: -10°C to +70°C
PUR: -30°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC sheath					
2170485	ETHERLINE® FD CAT.6_A	4x2xAWG24/7	9.0	44	88
PUR outer sheath, halogen-free					
2170484	ETHERLINE® FD P CAT.6_A	4x2xAWG24/7	9.0	44	90

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
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 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 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 463
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466

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 für 100 Mbit/s is 85 m
- Max. cable lenght für 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: 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

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x cable diameter

Characteristic impedance
100 Ohm

Temperature range
Fixed installation
PVC: -40°C bis +80°C
PUR: -40°C bis +80°C
Flexing
PVC: -10°C to +70°C
PUR: -30°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)
PVC jacket				
2170482	ETHERLINE® TORSION Y CAT6_A	4 x 2 x AWG24/7	9.0	44
PUR outer sheath, halogen-free				
2170483	ETHERLINE® TORSION P CAT6_A	4 x 2 x AWG24/7	9.0	44

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
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 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 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 463
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466

ETHERLINE® Cat.7

Fixed installation

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 is 100 m max. cable lenght for 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 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 AWG22
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Colour: green (based on RAL 6018)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 10 x outer diameter

Characteristic impedance
100 ohm at 1 - 100 MHz

Temperature range
fixed installation
PVC: -30°C to +80°C
PUR: -40°C to +80°C
cable halogenfree compound
Fixed installation: -25°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Halogen-free jacket					
2170476	ETHERLINE® CAT.7 H	4 x 2 x AWG22/1	9.0	53	99
PUR outer sheath, halogen-free					
2170475	ETHERLINE® Cat.7 P	4 x 2 x AWG22/1	9.0	53	91
PVC outer sheath					
2170474	ETHERLINE® Cat.7 Y	4 x 2 x AWG22/1	9.0	53	98

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

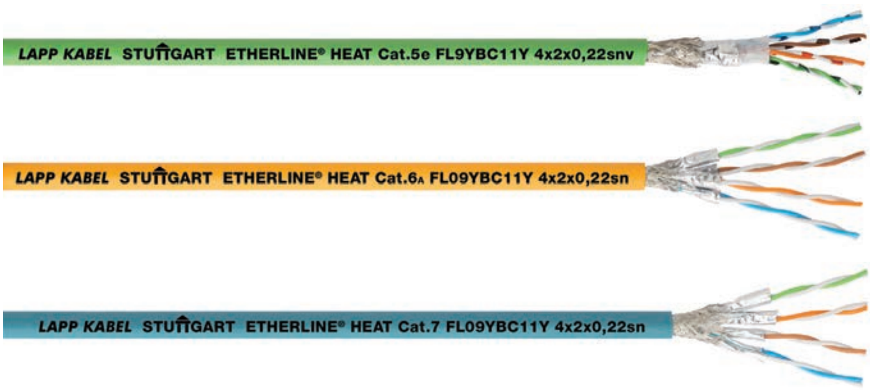
- EPIC® DATA AX RJ45 Cat.6_A refer to page 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 463
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466

NEW

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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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 Ohm 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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® HEAT 6722					
2170850	ETHERLINE® Cat. 5e FL9YBC11Y 4x2x0,22sn	4x2xAWG24/7	7.7	38	72
2170581	ETHERLINE® Cat. 6$_A$ FL09YBC11Y 4x2x0,22sn	4x2xAWG24/7	8.1	38	77
2170582	ETHERLINE® Cat. 7 FL09YBC11Y 4x2x0,22sn	4x2xAWG24/7	8.1	38	77

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
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 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 462
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 463
- EPIC® DATA M12X refer to page 465

Whitepaper - „More stringent fire protection regulation for cabling in buses“
Read the whitepaper to learn what is new and important about the new EU norm ECE-R 110.01 for cabling in buses.

NEW

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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 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
100 ohm at 1 - 100 MHz

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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® TRAY					
2170450	ETHERLINE® TRAY Cat.5e Y 4x2x22AWG	4x2xAWG22/7	9.6	59.368	119

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

ETHERLINE® FIRE Cat.5e PH120

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, ISO/IEC 11801 and EN 50173, 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

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 15 x outer diameter

Characteristic impedance
100 Ohm +- 15%

Temperature range
Operation: -20 °C to +70 °C

Article number	Article designation	Number of pairs and AWG per conductor	Max. 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	8.3	24	75

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
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NEW

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 agents
- Well-suited to frequent 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

- Stranded 7-wire bare conductor
- Core insulation: Based on Polyolefin
- Screening: wrapped with braided tinned-copper wires
- Outer sheath made of special TPE
- Colour: black

Technical data

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Minimum bending radius
Flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ohm +- 15%

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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PROFINET Cat.5e					
2170451	ETHERLINE ROBUST PN Cat.5	2x2xAWG22/7	6.8	30.4	50
PROFINET Cat.7					
2170452	ETHERLINE® ROBUST PN Cat.7	4x2xAWG23/7	9.0	48	75
Industrial Ethernet Cat.7					
2170453	ETHERLINE® ROBUST Cat.7 FLEX	4x2xAWG26/7	6,5	27	36

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
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.
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Accessories

- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA AX RJ45 Cat.6_A refer to page 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 463
- EPIC® DATA M12D refer to page 464
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466

NEW

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 agents
- Well-suited to frequent 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
- Stranded 7-wire bare conductor
- Core insulation: Based on Polyolefin
- Screening: wrapped with braided tinned-copper wires
- Outer sheath made of special TPE
- Colour: black

Technical data

ETIM 5.0 Class-ID: EC000829
ETIM 5.0 Class-Description: Signal-/telecommunications cable

Minimum bending radius
Flexing: 10 x outer diameter
Fixed installation: 4 x Outer diameter

Characteristic impedance
100 ohm at 1 - 100 MHz

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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PROFINET Cat.5e					
2170454	ETHERLINE® ROBUST PN FR Cat.5	2x2xAWG22/7	6.8	30.4	55
PROFINET Cat.7					
2170455	ETHERLINE® ROBUST PN FR Cat.7	4x2xAWG23/7	9.0	48	80
Industrial Ethernet Cat.7					
2170456	ETHERLINE® ROBUST FR Cat.7 FLEX	4x2xAWG26/7	6,5	27	40

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Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
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Accessories
- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA AX RJ45 Cat.6_A refer to page 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 463
- EPIC® DATA M12D refer to page 464
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466

ETHERLINE® P Flex Cat.5e M12

Industrial Ethernet Patchcord M12

Info

- Industrial Ethernet cable
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: water blue (RAL 5021)
- Pre-assembled patchcords with M12 D-coded connectors
- 4 pole M12 connector with vibration protection

Technical data

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 / IP 69

Characteristic impedance
100 Ohm +- 15%

Temperature range
Flexing: -5°C to +50°C (UL: +80°C)
Fixed installation: -30°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug M12				
2171097	IE-5-M12D-S-1-P-2-26-7-M12D-S	2x2xAWG26	1	19
2171098	IE-5-M12D-S-2-P-2-26-7-M12D-S	2x2xAWG26	2	38
2171099	IE-5-M12D-S-3-P-2-26-7-M12D-S	2x2xAWG26	3	57
2171100	IE-5-M12D-S-5-P-2-26-7-M12D-S	2x2xAWG26	5	95
2171101	IE-5-M12D-S-10-P-2-26-7-M12D-S	2x2xAWG26	10	190
2171102	IE-5-M12D-S-20-P-2-26-7-M12D-S	2x2xAWG26	20	380
straight plug M12 on free conductor end				
2171103	IE-5-M12D-S-1-P-2-26-7-OE	2x2xAWG26	1	19
2171104	IE-5-M12D-S-2-P-2-26-7-OE	2x2xAWG26	2	38
2171105	IE-5-M12D-S-3-P-2-26-7-OE	2x2xAWG26	3	57
2171106	IE-5-M12D-S-5-P-2-26-7-OE	2x2xAWG26	5	95
2171107	IE-5-M12D-S-10-P-2-26-7-OE	2x2xAWG26	10	190
2171108	IE-5-M12D-S-20-P-2-26-7-OE	2x2xAWG26	20	380

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

ETHERLINE® P Flex Cat.5e M12-RJ45

Industrial Ethernet Patchcord M12/RJ45

Info

- Industrial Ethernet cable
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: water blue (RAL 5021)
- Pre-assembled patchcords with M12 connector, D-coded and RJ45-connector
- 4 pole M12 connector with vibration protection

Technical data

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
M12 - IP 67 / IP 69
RJ45 - IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
Flexing: -5°C to +50°C (UL: +80°C)
Fixed installation: -30°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug RJ45				
2171109	IE-5-M12D-S-1-P-2-26-7-RJ45	2x2XAWG26	1	19
2171110	IE-5-M12D-S-2-P-2-26-7-RJ45	2x2XAWG26	2	38
2171111	IE-5-M12D-S-3-P-2-26-7-RJ45	2x2XAWG26	3	57
2171112	IE-5-M12D-S-5-P-2-26-7-RJ45	2x2XAWG26	5	95
2171113	IE-5-M12D-S-10-P-2-26-7-RJ45	2x2XAWG26	10	190
2171114	IE-5-M12D-S-20-P-2-26-7-RJ45	2x2XAWG26	20	380

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

ETHERLINE® P Flex Cat.5e RJ45

Industrial Ethernet Patchcord RJ45

Info

- Industrial Ethernet cable
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

Product Make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: water blue (RAL 5021)
- Pre-assembled patchcord with RJ45 connectors

Technical data

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 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
Flexing: -5°C to +50°C (UL: +80°C)
Fixed installation: -30°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
2-pair: straight plug RJ45 on straight plug RJ45				
2171115	IE-5-RJ45-1-P-2-26-7-RJ45	2x2xAWG26	1	19
2171116	IE-5-RJ45-2-P-2-26-7-RJ45	2x2xAWG26	2	38
2171117	IE-5-RJ45-3-P-2-26-7-RJ45	2x2xAWG26	3	57
2171118	IE-5-RJ45-5-P-2-26-7-RJ45	2x2xAWG26	5	95
2171119	IE-5-RJ45-10-P-2-26-7-RJ45	2x2xAWG26	10	190
2171120	IE-5-RJ45-20-P-2-26-7-RJ45	2x2xAWG26	20	380
4-pair: straight plug RJ45 on straight plug RJ45				
2171501	IE-5-RJ45-1-P-4-26-7-RJ45	4x2xAWG26	1	25
2171502	IE-5-RJ45-2-P-4-26-7-RJ45	4x2xAWG26	2	50
2171503	IE-5-RJ45-3-P-4-26-7-RJ45	4x2xAWG26	3	75
2171504	IE-5-RJ45-5-P-4-26-7-RJ45	4x2xAWG26	5	125
2171505	IE-5-RJ45-10-P-4-26-7-RJ45	4x2xAWG26	10	250
2171506	IE-5-RJ45-20-P-4-26-7-RJ45	4x2xAWG26	20	500
4-pair: straight plug RJ45 on free conductor end				
2171507	IE-5-RJ45-1-P-4-26-7-OE	4x2xAWG26	1	25
2171508	IE-5-RJ45-2-P-4-26-7-OE	4x2xAWG26	2	50
2171509	IE-5-RJ45-3-P-4-26-7-OE	4x2xAWG26	3	75
2171510	IE-5-RJ45-5-P-4-26-7-OE	4x2xAWG26	5	125
2171511	IE-5-RJ45-10-P-4-26-7-OE	4x2xAWG26	10	250
2171512	IE-5-RJ45-20-P-4-26-7-OE	4x2xAWG26	20	500

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

ETHERLINE® H Flex Cat.5e M12

Industrial Ethernet Patchcord M12

Info

- Industrial Ethernet cable
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: water blue (RAL 5021)
- Pre-assembled patchcords with M12 D-coded connectors
- 4 pole M12 connector with vibration protection

Technical data

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: 6 x cable diameter

Protection rating
IP 67 / IP 69

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -5 °C to +60 °C
Fixed installation: -30°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug M12				
2171073	IE-5-M12D-S-1-H-2-26-7-M12D-S	2x2xAWG26	1	19
2171074	IE-5-M12D-S-2-H-2-26-7-M12D-S	2x2xAWG26	2	38
2171075	IE-5-M12D-S-3-H-2-26-7-M12D-S	2x2xAWG26	3	57
2171076	IE-5-M12D-S-5-H-2-26-7-M12D-S	2x2xAWG26	5	95
2171077	IE-5-M12D-S-10-H-2-26-7-M12D-S	2x2xAWG26	10	190
2171078	IE-5-M12D-S-20-H-2-26-7-M12D-S	2x2xAWG26	20	380
straight plug M12 on free conductor end				
2171079	IE-5-M12D-S-1-H-2-26-7-OE	2x2xAWG26	1	19
2171080	IE-5-M12D-S-2-H-2-26-7-OE	2x2xAWG26	2	38
2171081	IE-5-M12D-S-3-H-2-26-7-OE	2x2xAWG26	3	57
2171082	IE-5-M12D-S-5-H-2-26-7-OE	2x2xAWG26	5	95
2171083	IE-5-M12D-S-10-H-2-26-7-OE	2x2xAWG26	10	190
2171084	IE-5-M12D-S-20-H-2-26-7-OE	2x2xAWG26	20	380

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

ETHERLINE® H Flex Cat.5e M12-RJ45

Industrial Ethernet Patchcord M12/RJ45

Info

- Industrial Ethernet cable
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: water blue (RAL 5021)
- Pre-assembled patchcords with M12 connector, D-coded and RJ45-connector
- 4 pole M12 connector with vibration protection

Technical data

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: 6 x outer diameter

Protection rating
M12 - IP 67 / IP 69
RJ45 - IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -5 °C to +60 °C
Fixed installation: -30°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug RJ45				
2171085	IE-5-M12D-S-1-H-2-26-7-RJ45	2x2xAWG26	1	19
2171086	IE-5-M12D-S-2-H-2-26-7-RJ45	2x2xAWG26	2	38
2171087	IE-5-M12D-S-3-H-2-26-7-RJ45	2x2xAWG26	3	57
2171088	IE-5-M12D-S-5-H-2-26-7-RJ45	2x2xAWG26	5	95
2171089	IE-5-M12D-S-10-H-2-26-7-RJ45	2x2xAWG26	10	190
2171090	IE-5-M12D-S-20-H-2-26-7-RJ45	2x2xAWG26	20	380

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

ETHERLINE® H Flex Cat.5e RJ45

Industrial Ethernet Patchcord RJ45

Info

- Industrial Ethernet cable
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Automation technology
- For indoor use
- For flexible applications (7-wire stranded conductor)
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

Product Make-up

- Flexible fine-wire copper conductor
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: water blue (RAL 5021)
- Pre-assembled patchcord with RJ45 connectors

Technical data

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: 6 x outer diameter

Protection rating
IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -5 °C to +60 °C
Fixed installation: -30°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
2-pair: straight plug RJ45 on straight plug RJ45				
2171091	IE-5-RJ45-1-H-2-26-7-RJ45	2x2xAWG26	1	19
2171092	IE-5-RJ45-2-H-2-26-7-RJ45	2x2xAWG26	2	38
2171093	IE-5-RJ45-3-H-2-26-7-RJ45	2x2xAWG26	3	57
2171094	IE-5-RJ45-5-H-2-26-7-RJ45	2x2xAWG26	5	95
2171095	IE-5-RJ45-10-H-2-26-7-RJ45	2x2xAWG26	10	190
2171096	IE-5-RJ45-20-H-2-26-7-RJ45	2x2xAWG26	20	380
4-pair: straight plug RJ45 on straight plug RJ45				
2171513	IE-5-RJ45-1-H-4-26-7-RJ45	4x2xAWG26	1	25
2171514	IE-5-RJ45-2-H-4-26-7-RJ45	4x2xAWG26	2	50
2171515	IE-5-RJ45-3-H-4-26-7-RJ45	4x2xAWG26	3	75
2171516	IE-5-RJ45-5-H-4-26-7-RJ45	4x2xAWG26	5	125
2171517	IE-5-RJ45-10-H-4-26-7-RJ45	4x2xAWG26	10	250
2171518	IE-5-RJ45-20-H-4-26-7-RJ45	4x2xAWG26	20	500
4-pair: straight plug RJ45 on free conductor end				
2171519	IE-5-RJ45-1-H-4-26-7-OE	4x2xAWG26	1	25
2171520	IE-5-RJ45-2-H-4-26-7-OE	4x2xAWG26	2	50
2171521	IE-5-RJ45-3-H-4-26-7-OE	4x2xAWG26	3	75
2171522	IE-5-RJ45-5-H-4-26-7-OE	4x2xAWG26	5	125
2171523	IE-5-RJ45-10-H-4-26-7-OE	4x2xAWG26	10	250
2171524	IE-5-RJ45-20-H-4-26-7-OE	4x2xAWG26	20	500

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

ETHERLINE® EC Flex Cat.5e M8

Industrial Ethernet EC Patchcord M8

Info

- For EtherCAT applications
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- Flexible use

Application range

- Suitable for use in industrial applications
- Especially for EtherCat applications
- For indoor use
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- Stranded conductor, 7-wire, 2x2xAWG26/7
- Overall screening with copper braid and plastic-laminated aluminium foil
- Pre-assembled patchcords with M8 connectors
- Colour: green (based on RAL 6018)

Technical data

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: 8 x outer diameter

Protection rating
IP 67

Characteristic impedance
100 Ohm +- 15%

Temperature range
Fixed installation: -30°C to +80°C
Flexing: -5°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M8 on straight plug M8				
2171300	IE-EC-5-M8-S-0,5-Y-2-26-7-M8-S	2x2xAWG26	0.5	10
2171301	IE-EC-5-M8-S-1-Y-2-26-7-M8-S	2x2xAWG26	1	20
2171302	IE-EC-5-M8-S-2-Y-2-26-7-M8-S	2x2xAWG26	2	40
2171303	IE-EC-5-M8-S-3-Y-2-26-7-M8-S	2x2xAWG26	3	60
2171304	IE-EC-5-M8-S-5-Y-2-26-7-M8-S	2x2xAWG26	5	100
2171305	IE-EC-5-M8-S-7-Y-2-26-7-M8-S	2x2xAWG26	7	140
2171306	IE-EC-5-M8-S-10-Y-2-26-7-M8-S	2x2xAWG26	10	200
2171307	IE-EC-5-M8-S-15-Y-2-26-7-M8-S	2x2xAWG26	15	300
2171308	IE-EC-5-M8-S-20-Y-2-26-7-M8-S	2x2xAWG26	20	400
angled plug M8 on straight plug M8				
2171350	IE-EC-5-M8-A-0,5-Y-2-26-7-M8-S	2x2xAWG26	0.5	10
2171351	IE-EC-5-M8-A-1-Y-2-26-7-M8-S	2x2xAWG26	1	20
2171352	IE-EC-5-M8-A-2-Y-2-26-7-M8-S	2x2xAWG26	2	40
2171353	IE-EC-5-M8-A-3-Y-2-26-7-M8-S	2x2xAWG26	3	60
2171354	IE-EC-5-M8-A-5-Y-2-26-7-M8-S	2x2xAWG26	5	100
2171355	IE-EC-5-M8-A-7-Y-2-26-7-M8-S	2x2xAWG26	7	140
2171356	IE-EC-5-M8-A-10-Y-2-26-7-M8-S	2x2xAWG26	10	200
2171357	IE-EC-5-M8-A-15-Y-2-26-7-M8-S	2x2xAWG26	15	300
2171358	IE-EC-5-M8-A-20-Y-2-26-7-M8-S	2x2xAWG26	20	400
straight plug M8 on free conductor end				
2171320	IE-EC-5-M8-S-0,5-Y-2-26-7-OE	2x2xAWG26	0.5	10
2171321	IE-EC-5-M8-S-1-Y-2-26-7-OE	2x2xAWG26	1	20
2171322	IE-EC-5-M8-S-2-Y-2-26-7-OE	2x2xAWG26	2	40
2171323	IE-EC-5-M8-S-3-Y-2-26-7-OE	2x2xAWG26	3	60
2171324	IE-EC-5-M8-S-5-Y-2-26-7-OE	2x2xAWG26	5	100
2171325	IE-EC-5-M8-S-7-Y-2-26-7-OE	2x2xAWG26	7	140
2171326	IE-EC-5-M8-S-10-Y-2-26-7-OE	2x2xAWG26	10	200
2171327	IE-EC-5-M8-S-15-Y-2-26-7-OE	2x2xAWG26	15	300
2171328	IE-EC-5-M8-S-20-Y-2-26-7-OE	2x2xAWG26	20	400
angled plug M8 on free conductor end				
2171370	IE-EC-5-M8-A-0,5-Y-2-26-7-OE	2x2xAWG26	0.5	10
2171371	IE-EC-5-M8-A-1-Y-2-26-7-OE	2x2xAWG26	1	20
2171372	IE-EC-5-M8-A-2-Y-2-26-7-OE	2x2xAWG26	2	40
2171373	IE-EC-5-M8D-A-3-Y-2-26-7-OE	2x2xAWG26	3	60
2171374	IE-EC-5-M8-A-5-Y-2-26-7-OE	2x2xAWG26	5	100
2171375	IE-EC-5-M8-A-7-Y-2-26-7-OE	2x2xAWG26	7	140
2171376	IE-EC-5-M8-A-10-Y-2-26-7-OE	2x2xAWG26	10	200
2171377	IE-EC-5-M8-A-15-Y-2-26-7-OE	2x2xAWG26	15	300
2171378	IE-EC-5-M8-A-20-Y-2-26-7-OE	2x2xAWG26	20	400

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

NEW

ETHERLINE® EC FD Cat.5e M8

Industrial Ethernet EC Patchcord M8

Info

- Industrial Ethernet cable
- Suitable for drag chains
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For highly flexible applications
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- AWG 26 (19-wire)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M8 connectors

Technical data

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: 4 x outer diameter

Protection rating
IP 67

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -30°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M8 on straight plug M8				
2171700	IE-EC-5-M8-S-0,5-P-2-26-FD-M8-S	2x2xAWG26	0.5	10
2171701	IE-EC-5-M8-S-1-P-2-26-FD-M8-S	2x2xAWG26	1	20
2171702	IE-EC-5-M8-S-2-P-2-26-FD-M8-S	2x2xAWG26	2	40
2171703	IE-EC-5-M8-S-3-P-2-26-FD-M8-S	2x2xAWG26	3	60
2171704	IE-EC-5-M8-S-5-P-2-26-FD-M8-S	2x2xAWG26	5	100
2171705	IE-EC-5-M8-S-7-P-2-26-FD-M8-S	2x2xAWG26	7	140
2171706	IE-EC-5-M8-S-10-P-2-26-FD-M8-S	2x2xAWG26	10	200
2171707	IE-EC-5-M8-S-15-P-2-26-FD-M8-S	2x2xAWG26	15	300
2171708	IE-EC-5-M8-S-20-P-2-26-FD-M8-S	2x2xAWG26	20	400
angled plug M8 on straight plug M8				
2171718	IE-EC-5-M8-A-0,5-P-2-26-FD-M8-S	2x2xAWG26	0.5	10
2171719	IE-EC-5-M8-A-1-P-2-26-FD-M8-S	2x2xAWG26	1	20
2171720	IE-EC-5-M8-A-2-P-2-26-FD-M8-S	2x2xAWG26	2	40
2171721	IE-EC-5-M8-A-3-P-2-26-FD-M8-S	2x2xAWG26	3	60
2171722	IE-EC-5-M8-A-5-P-2-26-FD-M8-S	2x2xAWG26	5	100
2171723	IE-EC-5-M8-A-7-P-2-26-FD-M8-S	2x2xAWG26	7	140
2171724	IE-EC-5-M8-A-10-P-2-26-FD-M8-S	2x2xAWG26	10	200
2171725	IE-EC-5-M8-A-15-P-2-26-FD-M8-S	2x2xAWG26	15	300
2171726	IE-EC-5-M8-A-20-P-2-26-FD-M8-S	2x2xAWG26	20	400
straight connector on free conductor end				
2171709	IE-EC-5-M8-S-0,5-P-2-26-FD-OE	2x2xAWG26	0.5	10
2171710	IE-EC-5-M8-S-1-P-2-26-FD-OE	2x2xAWG26	1	20
2171711	IE-EC-5-M8-S-2-P-2-26-FD-OE	2x2xAWG26	2	40
2171712	IE-EC-5-M8-S-3-P-2-26-FD-OE	2x2xAWG26	3	60
2171713	IE-EC-5-M8-S-5-P-2-26-FD-OE	2x2xAWG26	5	100
2171714	IE-EC-5-M8-S-7-P-2-26-FD-OE	2x2xAWG26	7	140
2171715	IE-EC-5-M8-S-10-P-2-26-FD-OE	2x2xAWG26	10	200
2171716	IE-EC-5-M8-S-15-P-2-26-FD-OE	2x2xAWG26	15	300
2171717	IE-EC-5-M8-S-20-P-2-26-FD-OE	2x2xAWG26	20	400
Angled connector on free conductor end				
2171727	IE-EC-5-M8-A-0,5-P-2-26-FD-OE	2x2xAWG26	0.5	10
2171728	IE-EC-5-M8-A-1-P-2-26-FD-OE	2x2xAWG26	1	20
2171729	IE-EC-5-M8-A-2-P-2-26-FD-OE	2x2xAWG26	2	40
2171730	IE-EC-5-M8-A-3-P-2-26-FD-OE	2x2xAWG26	3	60
2171731	IE-EC-5-M8-A-5-P-2-26-FD-OE	2x2xAWG26	5	100
2171732	IE-EC-5-M8-A-7-P-2-26-FD-OE	2x2xAWG26	7	140
2171733	IE-EC-5-M8-A-10-P-2-26-FD-OE	2x2xAWG26	10	200
2171734	IE-EC-5-M8-A-15-P-2-26-FD-OE	2x2xAWG26	15	300
2171735	IE-EC-5-M8-A-20-P-2-26-FD-OE	2x2xAWG26	20	400

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

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

NEW

ETHERLINE® EC FD Cat.5e M8-RJ45

Industrial Ethernet Patchcord M8/RJ45

Info

- Industrial Ethernet cable
- Suitable for drag chains
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For highly flexible applications
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- AWG 26 (19-wire)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M8 connector and RJ45 connector

Technical data

Minimum bending radius
Flexing: 8 x outer diameter
Fixed installation: 4 x outer diameter

Protection rating
IP 67

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -30°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
ETHERLINE® EC FD Cat.5e M8-RJ45				
2171757	IE-EC-5-M8-S-0,5-P-2-26-FD-RJ45	2x2xAWG26	0.5	10
2171758	IE-EC-5-M8-S-1-P-2-26-FD-RJ45	2x2xAWG26	1	20
2171759	IE-EC-5-M8-S-2-P-2-26-FD-RJ45	2x2xAWG26	2	40
2171760	IE-EC-5-M8-S-3-P-2-26-FD-RJ45	2x2xAWG26	3	60
2171761	IE-EC-5-M8-S-5-P-2-26-FD-RJ45	2x2xAWG26	5	100
2171762	IE-EC-5-M8-S-10-P-2-26-FD-RJ45	2x2xAWG26	10	200
2171763	IE-EC-5-M8-S-20-P-2-26-FD-RJ45	2x2xAWG26	20	400

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

NEW

ETHERLINE® EC FD Cat.5e M12

Info

- Industrial Ethernet cable
- Suitable for drag chains
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For highly flexible applications
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- AWG 26 (19-wire)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M12 D-coded connectors
- 4 pole M12 connector with vibration protection

Technical data

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: 4 x outer diameter

Protection rating
M12 - IP 67 / IP 69

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -30°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug M12				
2171778	IE-EC-5-M12D-S-0,5-P-2-26-FD-M12D-S	2x2xAWG26	0.5	10
2171779	IE-EC-5-M12D-S-1-P-2-26-FD-M12D-S	2x2xAWG26	1	20
2171780	IE-EC-5-M12D-S-2-P-2-26-FD-M12D-S	2x2xAWG26	2	40
2171781	IE-EC-5-M12D-S-3-P-2-26-FD-M12D-S	2x2xAWG26	3	60
2171782	IE-EC-5-M12D-S-5-P-2-26-FD-M12D-S	2x2xAWG26	5	100
2171783	IE-EC-5-M12D-S-10-P-2-26-FD-M12D-S	2x2xAWG26	10	200
2171784	IE-EC-5-M12D-S-20-P-2-26-FD-M12D-S	2x2xAWG26	20	400
angled plug M12 on straight plug M12				
2171785	IE-EC-5-M12D-A-0,5-P-2-26-FD-M12D-S	2x2xAWG26	0.5	10
2171786	IE-EC-5-M12D-A-1-P-2-26-FD-M12D-S	2x2xAWG26	1	20
2171787	IE-EC-5-M12D-A-2-P-2-26-FD-M12D-S	2x2xAWG26	2	40
2171788	IE-EC-5-M12D-A-3-P-2-26-FD-M12D-S	2x2xAWG26	3	60
2171789	IE-EC-5-M12D-A-5-P-2-26-FD-M12D-S	2x2xAWG26	5	100
2171790	IE-EC-5-M12D-A-10-P-2-26-FD-M12D-S	2x2xAWG26	2	200
2171791	IE-EC-5-M12D-A-20-P-2-26-FD-M12D-S	2x2xAWG26	20	400
straight plug M12 on free conductor end				
2171792	IE-EC-5-M12D-S-0,5-P-2-26-FD-OE	2x2xAWG26	0.5	10
2171793	IE-EC-5-M12D-S-1-P-2-26-FD-OE	2x2xAWG26	1	20
2171794	IE-EC-5-M12D-S-2-P-2-26-FD-OE	2x2xAWG26	2	40
2171795	IE-EC-5-M12D-S-3-P-2-26-FD-OE	2x2xAWG26	3	60
2171796	IE-EC-5-M12D-S-5-P-2-26-FD-OE	2x2xAWG26	5	100
2171797	IE-EC-5-M12D-S-10-P-2-26-FD-OE	2x2xAWG26	10	200
2171798	IE-EC-5-M12D-S-20-P-2-26-FD-OE	2x2xAWG26	20	400
angled plug M12 on free conductor end				
2171870	IE-EC-5-M12D-A-0,5-P-2-26-FD-OE	2x2xAWG26	0.5	10
2171871	IE-EC-5-M12D-A-1-P-2-26-FD-OE	2x2xAWG26	1	20
2171872	IE-EC-5-M12D-A-2-P-2-26-FD-OE	2x2xAWG26	2	40
2171873	IE-EC-5-M12D-A-3-P-2-26-FD-OE	2x2xAWG26	3	60
2171874	IE-EC-5-M12D-A-5-P-2-26-FD-OE	2x2xAWG26	5	100
2171875	IE-EC-5-M12D-A-10-P-2-26-FD-OE	2x2xAWG26	10	200
2171876	IE-EC-5-M12D-A-20-P-2-26-FD-OE	2x2xAWG26	20	400
angled plug M12 on angled plug M12				
2171906	IE-EC-5-M12D-A-0,5-P-2-26-FD-M12D-A	2x2xAWG26	0.5	10
2171907	IE-EC-5-M12D-A-1-P-2-26-FD-M12D-A	2x2xAWG26	1	20
2171908	IE-EC-5-M12D-A-2-P-2-26-FD-M12D-A	2x2xAWG26	2	40
2171909	IE-EC-5-M12D-A-3-P-2-26-FD-M12D-A	2x2xAWG26	3	60
2171910	IE-EC-5-M12D-A-5-P-2-26-FD-M12D-A	2x2xAWG26	5	100
2171911	IE-EC-5-M12D-A-10-P-2-26-FD-M12D-A	2x2xAWG26	10	200
2171913	IE-EC-5-M12D-A-20-P-2-26-FD-M12D-A	2x2xAWG26	20	400

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

NEW

ETHERLINE® EC FD Cat.5e M12-RJ45

Industrial Ethernet EC Patchcord M12/RJ45

Info

- Industrial Ethernet cable
- Suitable for drag chains
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For highly flexible applications
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- AWG 26 (19-wire)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M12 connector, D-coded and RJ45-connector
- 4 pole M12 connector with vibration protection

Technical data

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: 4 x outer diameter

Protection rating
M12 - IP 67 / IP 69
RJ45 - IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -30°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug RJ45				
2171750	IE-EC-5-M12D-S-0,5-P-2-26-FD-RJ45	2x2xAWG26	0.5	10
2171751	IE-EC-5-M12D-S-1-P-2-26-FD-RJ45	2x2xAWG26	1	20
2171752	IE-EC-5-M12D-S-2-P-2-26-FD-RJ45	2x2xAWG26	2	40
2171753	IE-EC-5-M12D-S-3-P-2-26-FD-RJ45	2x2xAWG26	3	60
2171754	IE-EC-5-M12D-S-5-P-2-26-FD-RJ45	2x2xAWG26	5	100
2171755	IE-EC-5-M12D-S-10-P-2-26-FD-RJ45	2x2xAWG26	10	200
2171756	IE-EC-5-M12D-S-20-P-2-26-FD-RJ45	2x2xAWG26	20	400

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

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

NEW

ETHERLINE® EC FD Cat.5e RJ45

Industrial Ethernet EC Patchcord RJ45

Info

- Industrial Ethernet cable
- Suitable for drag chains
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For highly flexible applications
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- AWG 26 (19-wire)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcord with RJ45 connectors

Technical data

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: 4 x outer diameter

Protection rating
RJ45 - IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -30°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug RJ45 on straight plug RJ45				
2171764	IE-EC-5-RJ45-0,5-P-2-26-FD-RJ45	2x2xAWG26	0.5	10
2171765	IE-EC-5-RJ45-1-P-2-26-FD-RJ45	2x2xAWG26	1	20
2171766	IE-EC-5-RJ45-2-P-2-26-FD-RJ45	2x2xAWG26	2	40
2171767	IE-EC-5-RJ45-3-P-2-26-FD-RJ45	2x2xAWG26	3	60
2171768	IE-EC-5-RJ45-5-P-2-26-FD-RJ45	2x2xAWG26	5	100
2171769	IE-EC-5-RJ45-10-P-2-26-FD-RJ45	2x2xAWG26	10	200
2171770	IE-EC-5-RJ45-20-P-2-26-FD-RJ45	2x2xAWG26	20	400
straight plug RJ45 on free conductor end				
2171771	IE-EC-5-RJ45-0,5-P-2-26-FD-OE	2x2xAWG26	0.5	10
2171772	IE-EC-5-RJ45-1-P-2-26-FD-OE	2x2xAWG26	1	20
2171773	IE-EC-5-RJ45-2-P-2-26-FD-OE	2x2xAWG26	2	40
2171774	IE-EC-5-RJ45-3-P-2-26-FD-OE	2x2xAWG26	3	60
2171775	IE-EC-5-RJ45-5-P-2-26-FD-OE	2x2xAWG26	5	100
2171776	IE-EC-5-RJ45-10-P-2-26-FD-OE	2x2xAWG26	10	200
2171777	IE-EC-5-RJ45-20-P-2-26-FD-OE	2x2xAWG26	20	400

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

NEW

ETHERLINE® EC FD Cat.5e M12F

Info

- Industrial Ethernet cable
- Suitable for drag chains
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For highly flexible applications
- Automation technology

Product features

- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- AWG 26 (19-wire)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M12 socket, D-coded
- 4 pole M12 connector with vibration protection

Technical data

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: 4 x outer diameter

Protection rating
M12 - IP 67 / IP 69

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -30°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight socket M12 on straight plug M12				
2171736	IE-EC-5-M12DF-S-0,5-P-2-26-FD-M12D-S	2x2xAWG26	0.5	10
2171737	IE-EC-5-M12DF-S-1-P-2-26-FD-M12D-S	2x2xAWG26	1	20
2171738	IE-EC-5-M12DF-S-2-P-2-26-FD-M12D-S	2x2xAWG26	2	40
2171739	IE-EC-5-M12DF-S-3-P-2-26-FD-M12D-S	2x2xAWG26	3	60
2171740	IE-EC-5-M12DF-S-5-P-2-26-FD-M12D-S	2x2xAWG26	5	100
2171741	IE-EC-5-M12DF-S-10-P-2-26-FD-M12D-S	2x2xAWG26	10	200
2171742	IE-EC-5-M12DF-S-20-P-2-26-FD-M12D-S	2x2xAWG26	20	400
straight socket M12 on angled plug M12				
2171743	IE-EC-5-M12DF-S-0,5-P-2-26-FD-M12D-A	2x2xAWG26	0.5	10
2171744	IE-EC-5-M12DF-S-1-P-2-26-FD-M12D-A	2x2xAWG26	1	20
2171745	IE-EC-5-M12DF-S-2-P-2-26-FD-M12D-A	2x2xAWG26	2	40
2171746	IE-EC-5-M12DF-S-3-P-2-26-FD-M12D-A	2x2xAWG26	3	60
2171747	IE-EC-5-M12DF-S-5-P-2-26-FD-M12D-A	2x2xAWG26	5	100
2171748	IE-EC-5-M12DF-S-10-P-2-26-FD-M12D-A	2x2xAWG26	10	200
2171749	IE-EC-5-M12DF-S-20-P-2-26-FD-M12D-A	2x2xAWG26	20	400
straight socket M12 on straight socket M12				
2171915	IE-EC-5-M12DF-S-0,5-P-2-26-FD-M12DF-S	2x2xAWG26	0.5	10
2171916	IE-EC-5-M12DF-S-1-P-2-26-FD-M12DF-S	2x2xAWG26	1	20
2171917	IE-EC-5-M12DF-S-2-P-2-26-FD-M12DF-S	2x2xAWG26	2	40
2171918	IE-EC-5-M12DF-S-3-P-2-26-FD-M12DF-S	2x2xAWG26	3	60
2171919	IE-EC-5-M12DF-S-5-P-2-26-FD-M12DF-S	2x2xAWG26	5	100
2171920	IE-EC-5-M12DF-S-10-P-2-26-FD-M12DF-S	2x2xAWG26	10	200
2171921	IE-EC-5-M12DF-S-20-P-2-26-FD-M12DF-S	2x2xAWG26	20	400

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

ETHERLINE® PN Cat.5 M12

PROFINET Patchcord M12

Info

- For PROFINET applications (D-coded)
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

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, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)
- UL File Number: E249137

Product Make-up

- Solid and bare copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M12 D-coded connectors
- 4 pole M12 connector with vibration protection

Technical data

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
IP 67 / IP 69

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -20°C to +60°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug M12				
2171001	IE-PNA-5-M12D-S-1-Y-2-22-1-M12D-S	2x2xAWG22	1	30,4
2171002	IE-PNA-5-M12D-S-2-Y-2-22-1-M12D-S	2x2xAWG22	2	60,8
2171003	IE-PNA-5-M12D-S-3-Y-2-22-1-M12D-S	2x2xAWG22	3	91,2
2171004	IE-PNA-5-M12D-S-5-Y-2-22-1-M12D-S	2x2xAWG22	5	152
2171005	IE-PNA-5-M12D-S-10-Y-2-22-1-M12D-S	2x2xAWG22	10	304
2171006	IE-PNA-5-M12D-S-20-Y-2-22-1-M12D-S	2x2xAWG22	20	608
angled plug M12 on straight plug M12				
2171013	IE-PNA-5-M12D-A-1-Y-2-22-1-M12D-S	2x2xAWG22	1	30,4
2171014	IE-PNA-5-M12D-A-2-Y-2-22-1-M12D-S	2x2xAWG22	2	60,8
2171015	IE-PNA-5-M12D-A-3-Y-2-22-1-M12D-S	2x2xAWG22	3	91,2
2171016	IE-PNA-5-M12D-A-5-Y-2-22-1-M12D-S	2x2xAWG22	5	152
2171017	IE-PNA-5-M12D-A-10-Y-2-22-1-M12D-S	2x2xAWG22	10	304
2171018	IE-PNA-5-M12D-A-20-Y-2-22-1-M12D-S	2x2xAWG22	20	608
straight plug M12 on free conductor end				
2171007	IE-PNA-5-M12D-S-1-Y-2-22-1-OE	2x2xAWG22	1	30,4
2171008	IE-PNA-5-M12D-S-2-Y-2-22-1-OE	2x2xAWG22	2	60,8
2171009	IE-PNA-5-M12D-S-3-Y-2-22-1-OE	2x2xAWG22	3	91,2
2171010	IE-PNA-5-M12D-S-5-Y-2-22-1-OE	2x2xAWG22	5	152
2171011	IE-PNA-5-M12D-S-10-Y-2-22-1-OE	2x2xAWG22	10	304
2171012	IE-PNA-5-M12D-S-20-Y-2-22-1-OE	2x2xAWG22	20	608
angled plug M12 on free conductor end				
2171019	IE-PNA-5-M12D-A-1-Y-2-22-1-OE	2x2xAWG22	1	30,4
2171020	IE-PNA-5-M12D-A-2-Y-2-22-1-OE	2x2xAWG22	2	60,8
2171021	IE-PNA-5-M12D-A-3-Y-2-22-1-OE	2x2xAWG22	3	91,2
2171022	IE-PNA-5-M12D-A-5-Y-2-22-1-OE	2x2xAWG22	5	152
2171023	IE-PNA-5-M12D-A-10-Y-2-22-1-OE	2x2xAWG22	10	304
2171024	IE-PNA-5-M12D-A-20-Y-2-22-1-OE	2x2xAWG22	20	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.
Other lengths and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet

NEW

ETHERLINE® PN Cat.5 M12-RJ45

PROFINET Patchcord M12/RJ45

Info

- For PROFINET applications
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

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, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

Product Make-up

- Solid and bare copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M12 connector, D-coded and RJ45-connector
- 4 pole M12 connector with vibration protection

Technical data

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 / IP 69
RJ45 - IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -20°C to +60°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug RJ45				
2171164	IE-PNA-5-M12D-S-0,5-Y-2-22-1-RJ45	2x2xAWG22	0.5	15.2
2171165	IE-PNA-5-M12D-S-1-Y-2-22-1-RJ45	2x2xAWG22	1	30.4
2171166	IE-PNA-5-M12D-S-2-Y-2-22-1-RJ45	2x2xAWG22	2	60.8
2171167	IE-PNA-5-M12D-S-3-Y-2-22-1-RJ45	2x2xAWG22	3	91.2
2171168	IE-PNA-5-M12D-S-5-Y-2-22-1-RJ45	2x2xAWG22	5	152
2171169	IE-PNA-5-M12D-S-10-Y-2-22-1-RJ45	2x2xAWG22	10	304
2171170	IE-PNA-5-M12D-S-20-Y-2-22-1-RJ45	2x2xAWG22	20	608
angled plug M12 on straight plug RJ45				
2171171	IE-PNA-5-M12D-A-0,5-Y-2-22-1-RJ45	2x2xAWG22	0.5	15.2
2171172	IE-PNA-5-M12D-A-1-Y-2-22-1-RJ45	2x2xAWG22	1	30.4
2171173	IE-PNA-5-M12D-A-2-Y-2-22-1-RJ45	2x2xAWG22	2	60.8
2171174	IE-PNA-5-M12D-A-3-Y-2-22-1-RJ45	2x2xAWG22	3	91.2
2171175	IE-PNA-5-M12D-A-5-Y-2-22-1-RJ45	2x2xAWG22	5	152
2171176	IE-PNA-5-M12D-A-10-Y-2-22-1-RJ45	2x2xAWG22	10	304
2171177	IE-PNA-5-M12D-A-20-Y-2-22-1-RJ45	2x2xAWG22	20	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.
Other lengths and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet

NEW

ETHERLINE® PN Cat.5 RJ45

PROFINET Patchcord RJ45

Info

- For PROFINET applications
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

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, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

Product Make-up

- Solid and bare copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)
- Pre-assembled patchcord with RJ45 connectors

Technical data

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 / IP 69
RJ45 - IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -20°C to +60°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug RJ45 on straight plug RJ45				
2171178	IE-PNA-5-RJ45-0,5-Y-2-22-1-RJ45	2x2xAWG22	0.5	15.2
2171179	IE-PNA-5-RJ45-1-Y-2-22-1-RJ45	2x2xAWG22	1	30.4
2171180	IE-PNA-5-RJ45-2-Y-2-22-1-RJ45	2x2xAWG22	2	60.8
2171181	IE-PNA-5-RJ45-3-Y-2-22-1-RJ45	2x2xAWG22	3	91.2
2171182	IE-PNA-5-RJ45-5-Y-2-22-1-RJ45	2x2xAWG22	5	152
2171183	IE-PNA-5-RJ45-10-Y-2-22-1-RJ45	2x2xAWG22	10	304
2171184	IE-PNA-5-RJ45-20-Y-2-22-1-RJ45	2x2xAWG22	20	608
straight plug RJ45 on free conductor end				
2171185	IE-PNA-5-RJ45-0,5-Y-2-22-1-OE	2x2xAWG22	0.5	15.2
2171186	IE-PNA-5-RJ45-1-Y-2-22-1-OE	2x2xAWG22	1	30.4
2171187	IE-PNA-5-RJ45-2-Y-2-22-1-OE	2x2xAWG22	2	60.8
2171188	IE-PNA-5-RJ45-3-Y-2-22-1-OE	2x2xAWG22	3	91.2
2171189	IE-PNA-5-RJ45-5-Y-2-22-1-OE	2x2xAWG22	5	152
2171190	IE-PNA-5-RJ45-10-Y-2-22-1-OE	2x2xAWG22	10	304
2171191	IE-PNA-5-RJ45-20-Y-2-22-1-OE	2x2xAWG22	20	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.
Other lengths and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet

ETHERLINE® PN Flex Cat.5 M12

PROFINET Patchcord M12

Info

- For PROFINET applications (D-coded)
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- For PROFINET applications type B
- Flexible use
- 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, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)
- UL File Number: E249137

Product Make-up

- Flexible fine-wire copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M12 D-coded connectors
- 4 pole M12 connector with vibration protection

Technical data

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
IP 67 / IP 69

Characteristic impedance
100 Ohm +- 15%

Temperature range
Flexing: -20°C to +60°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug M12				
2171025	IE-PNB-5-M12D-S-1-Y-2-22-7-M12D-S	2x2xAWG22	1	31,3
2171026	IE-PNB-5-M12D-S-2-Y-2-22-7-M12D-S	2x2xAWG22	2	62,6
2171027	IE-PNB-5-M12D-S-3-Y-2-22-7-M12D-S	2x2xAWG22	3	93,9
2171028	IE-PNB-5-M12D-S-5-Y-2-22-7-M12D-S	2x2xAWG22	5	156,5
2171029	IE-PNB-5-M12D-S-10-Y-2-22-7-M12D-S	2x2xAWG22	10	313
2171030	IE-PNB-5-M12D-S-20-Y-2-22-7-M12D-S	2x2xAWG22	20	626
angled plug M12 on straight plug M12				
2171037	IE-PNB-5-M12D-A-1-Y-2-22-7-M12D-S	2x2xAWG22	1	31,3
2171038	IE-PNB-5-M12D-A-2-Y-2-22-7-M12D-S	2x2xAWG22	2	62,6
2171039	IE-PNB-5-M12D-A-3-Y-2-22-7-M12D-S	2x2xAWG22	3	93,9
2171040	IE-PNB-5-M12D-A-5-Y-2-22-7-M12D-S	2x2xAWG22	5	156,5
2171041	IE-PNB-5-M12D-A-10-Y-2-22-7-M12D-S	2x2xAWG22	10	313
2171042	IE-PNB-5-M12D-A-20-Y-2-22-7-M12D-S	2x2xAWG22	20	626
straight plug M12 on free conductor end				
2171031	IE-PNB-5-M12D-S-1-Y-2-22-7-OE	2x2xAWG22	1	31,3
2171032	IE-PNB-5-M12D-S-2-Y-2-22-7-OE	2x2xAWG22	2	62,6
2171033	IE-PNB-5-M12D-S-3-Y-2-22-7-OE	2x2xAWG22	3	93,9
2171034	IE-PNB-5-M12D-S-5-Y-2-22-7-OE	2x2xAWG22	5	156,5
2171035	IE-PNB-5-M12D-S-10-Y-2-22-7-OE	2x2xAWG22	10	313
2171036	IE-PNB-5-M12D-S-20-Y-2-22-7-OE	2x2xAWG22	20	626
angled plug M12 on free conductor end				
2171043	IE-PNB-5-M12D-A-1-Y-2-22-7-OE	2x2xAWG22	1	31,3
2171044	IE-PNB-5-M12D-A-2-Y-2-22-7-OE	2x2xAWG22	2	62,6
2171045	IE-PNB-5-M12D-A-3-Y-2-22-7-OE	2x2xAWG22	3	93,9
2171046	IE-PNB-5-M12D-A-5-Y-2-22-7-OE	2x2xAWG22	5	156,5
2171047	IE-PNB-5-M12D-A-10-Y-2-22-7-OE	2x2xAWG22	10	313
2171048	IE-PNB-5-M12D-A-20-Y-2-22-7-OE	2x2xAWG22	20	626

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

NEW

ETHERLINE® PN Flex Cat.5 M12-RJ45

PROFINET Patchcord M12/RJ45

Info

- For PROFINET applications
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- For PROFINET applications type B
- Flexible use
- 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, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

Product Make-up

- Flexible fine-wire copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M12 connector, D-coded and RJ45-connector
- 4 pole M12 connector with vibration protection

Technical data

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 / IP 69
RJ45 - IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
Flexing: -20°C to +60°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug RJ45				
2171214	IE-PNB-5-M12D-S-0,5-Y-2-22-7-RJ45	2x2xAWG22	0.5	15.65
2171215	IE-PNB-5-M12D-S-1-Y-2-22-7-RJ45	2x2xAWG22	1	31.3
2171216	IE-PNB-5-M12D-S-2-Y-2-22-7-RJ45	2x2xAWG22	2	62.6
2171217	IE-PNB-5-M12D-S-3-Y-2-22-7-RJ45	2x2xAWG22	3	93.9
2171218	IE-PNB-5-M12D-S-5-Y-2-22-7-RJ45	2x2xAWG22	5	156.5
2171219	IE-PNB-5-M12D-S-10-Y-2-22-7-RJ45	2x2xAWG22	10	313
2171220	IE-PNB-5-M12D-S-20-Y-2-22-7-RJ45	2x2xAWG22	20	626
angled plug M12 on straight plug RJ45				
2171221	IE-PNB-5-M12D-A-0,5-Y-2-22-7-RJ45	2x2xAWG22	0.5	15.65
2171222	IE-PNB-5-M12D-A-1-Y-2-22-7-RJ45	2x2xAWG22	1	31.3
2171223	IE-PNB-5-M12D-A-2-Y-2-22-7-RJ45	2x2xAWG22	2	62.6
2171224	IE-PNB-5-M12D-A-3-Y-2-22-7-RJ45	2x2xAWG22	3	93.9
2171225	IE-PNB-5-M12D-A-5-Y-2-22-7-RJ45	2x2xAWG22	5	156.5
2171226	IE-PNB-5-M12D-A-10-Y-2-22-7-RJ45	2x2xAWG22	10	313
2171227	IE-PNB-5-M12D-A-20-Y-2-22-7-RJ45	2x2xAWG22	20	626

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

NEW

ETHERLINE® PN Flex Cat.5 RJ45

PROFINET Patchcord RJ45

Info

- For PROFINET applications
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- For PROFINET applications type B
- Flexible use
- 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, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

Product Make-up

- Flexible fine-wire copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC
- Colour: green (based on RAL 6018)
- Pre-assembled patchcord with RJ45 connectors

Technical data

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
RJ45 - IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -20°C to +60°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug RJ45 on straight plug RJ45				
2171228	IE-PNB-5-RJ45-0,5-Y-2-22-7-RJ45	2x2xAWG22	0.5	15.65
2171229	IE-PNB-5-RJ45-1-Y-2-22-7-RJ45	2x2xAWG22	1	31.3
2171230	IE-PNB-5-RJ45-2-Y-2-22-7-RJ45	2x2xAWG22	2	62.6
2171231	IE-PNB-5-RJ45-3-Y-2-22-7-RJ45	2x2xAWG22	3	93.9
2171232	IE-PNB-5-RJ45-5-Y-2-22-7-RJ45	2x2xAWG22	5	156.5
2171233	IE-PNB-5-RJ45-10-Y-2-22-7-RJ45	2x2xAWG22	10	313
2171234	IE-PNB-5-RJ45-20-Y-2-22-7-RJ45	2x2xAWG22	20	626
straight plug RJ45 on free conductor end				
2171235	IE-PNB-5-RJ45-0,5-Y-2-22-7-OE	2x2xAWG22	0.5	15.65
2171236	IE-PNB-5-RJ45-1-Y-2-22-7-OE	2x2xAWG22	1	31.3
2171237	IE-PNB-5-RJ45-2-Y-2-22-7-OE	2x2xAWG22	2	62.6
2171238	IE-PNB-5-RJ45-3-Y-2-22-7-OE	2x2xAWG22	3	93.9
2171239	IE-PNB-5-RJ45-5-Y-2-22-7-OE	2x2xAWG22	5	156.5
2171240	IE-PNB-5-RJ45-10-Y-2-22-7-OE	2x2xAWG22	10	313
2171241	IE-PNB-5-RJ45-20-Y-2-22-7-OE	2x2xAWG22	20	626

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Other lengths and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet

ETHERLINE® PN FD Cat.5 M12

PROFINET Patchcord M12

Info

- For PROFINET applications (D-coded)
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- For directly connecting two electric components
- Non-permanent connections allow for easy change of equipment
- CAT.5-Performance

Application range

- For PROFINET applications type C
- Highly flexible application
- 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, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMX)
- UL File Number: E249137

Product Make-up

- Extra-fine wire, tinned braided conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M12 D-coded connectors
- 4 pole M12 connector with vibration protection

Technical data

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

Protection rating
IP 67 / IP 69

Characteristic impedance
100 Ohm +- 15%

Temperature range
Flexing: -20°C to +60°C
Fixed installation: -30°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug M12 on straight plug M12				
2171049	IE-PNC-5-M12D-S-1-P-2-22-FD-M12D-S	2x2xAWG22	1	31,3
2171050	IE-PNC-5-M12D-S-2-P-2-22-FD-M12D-S	2x2xAWG22	2	62,6
2171051	IE-PNC-5-M12D-S-3-P-2-22-FD-M12D-S	2x2xAWG22	3	93,9
2171052	IE-PNC-5-M12D-S-5-P-2-22-FD-M12D-S	2x2xAWG22	5	156,5
2171053	IE-PNC-5-M12D-S-10-P-2-22-FD-M12D-S	2x2xAWG22	10	313
2171054	IE-PNC-5-M12D-S-20-P-2-22-FD-M12D-S	2x2xAWG22	20	626
angled plug M12 on straight plug M12				
2171061	IE-PNC-5-M12D-A-1-P-2-22-FD-M12D-S	2x2xAWG22	1	31,3
2171062	IE-PNC-5-M12D-A-2-P-2-22-FD-M12D-S	2x2xAWG22	2	62,6
2171063	IE-PNC-5-M12D-A-3-P-2-22-FD-M12D-S	2x2xAWG22	3	93,9
2171064	IE-PNC-5-M12D-A-5-P-2-22-FD-M12D-S	2x2xAWG22	5	156,5
2171065	IE-PNC-5-M12D-A-10-P-2-22-FD-M12D-S	2x2xAWG22	10	313
2171066	IE-PNC-5-M12D-A-20-P-2-22-FD-M12D-S	2x2xAWG22	20	626
straight plug M12 on free conductor end				
2171055	IE-PNC-5-M12D-S-1-P-2-22-FD-OE	2x2xAWG22	1	31,3
2171056	IE-PNC-5-M12D-S-2-P-2-22-FD-OE	2x2xAWG22	2	62,6
2171057	IE-PNC-5-M12D-S-3-P-2-22-FD-OE	2x2xAWG22	3	93,9
2171058	IE-PNC-5-M12D-S-5-P-2-22-FD-OE	2x2xAWG22	5	156,5
2171059	IE-PNC-5-M12D-S-10-P-2-22-FD-OE	2x2xAWG22	10	313
2171060	IE-PNC-5-M12D-S-20-P-2-22-FD-OE	2x2xAWG22	20	626
angled plug M12 on free conductor end				
2171067	IE-PNC-5-M12D-A-1-P-2-22-FD-OE	2x2xAWG22	1	31,3
2171068	IE-PNC-5-M12D-A-2-P-2-22-FD-OE	2x2xAWG22	2	62,6
2171069	IE-PNC-5-M12D-A-3-P-2-22-FD-OE	2x2xAWG22	3	93,9
2171070	IE-PNC-5-M12D-A-5-P-2-22-FD-OE	2x2xAWG22	5	156,5
2171071	IE-PNC-5-M12D-A-10-P-2-22-FD-OE	2x2xAWG22	10	313
2171072	IE-PNC-5-M12D-A-20-P-2-22-FD-OE	2x2xAWG22	20	626

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

NEW

ETHERLINE® PN FD Cat.5 M12-RJ45

PROFINET Patchcord M12/RJ45

Info

- For PROFINET applications
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- For PROFINET applications type C
- Highly flexible application
- 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, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

Product Make-up

- Flexible fine-wire copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcords with M12 connector, D-coded and RJ45-connector
- 4 pole M12 connector with vibration protection

Technical data

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

Protection rating
M12 - IP 67 / IP 69
RJ45 - IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
Flexing: -20°C to +60°C
Fixed installation: -30°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
angled plug M12 on straight plug RJ45				
2171271	IE-PNC-5-M12D-A-0,5-P-2-22-FD-RJ45	2x2xAWG22	0.5	15.65
2171272	IE-PNC-5-M12D-A-1-P-2-22-FD-RJ45	2x2xAWG22	1	31.3
2171276	IE-PNC-5-M12D-A-10-P-2-22-FD-RJ45	2x2xAWG22	10	313
2171273	IE-PNC-5-M12D-A-2-P-2-22-FD-RJ45	2x2xAWG22	2	62.6
2171277	IE-PNC-5-M12D-A-20-P-2-22-FD-RJ45	2x2xAWG22	20	626
2171274	IE-PNC-5-M12D-A-3-P-2-22-FD-RJ45	2x2xAWG22	3	93.9
2171275	IE-PNC-5-M12D-A-5-P-2-22-FD-RJ45	2x2xAWG22	5	156.5
straight plug M12 on straight plug RJ45				
2171264	IE-PNC-5-M12D-S-0,5-P-2-22-FD-RJ45	2x2xAWG22	0.5	15.65
2171265	IE-PNC-5-M12D-S-1-P-2-22-FD-RJ45	2x2xAWG22	1	31.3
2171269	IE-PNC-5-M12D-S-10-P-2-22-FD-RJ45	2x2xAWG22	10	313
2171266	IE-PNC-5-M12D-S-2-P-2-22-FD-RJ45	2x2xAWG22	2	62.6
2171270	IE-PNC-5-M12D-S-20-P-2-22-FD-RJ45	2x2xAWG22	20	626
2171267	IE-PNC-5-M12D-S-3-P-2-22-FD-RJ45	2x2xAWG22	3	93.9
2171268	IE-PNC-5-M12D-S-5-P-2-22-FD-RJ45	2x2xAWG22	5	156.5

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.
Other lengths and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

ETHERLINE® PN FD Cat.5 RJ45

PROFINET Patchcord RJ45

Info

- For PROFINET applications
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.5-Performance

Application range

- For PROFINET applications type C
- Highly flexible application
- 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, ISO/IEC 11801 and EN 50173, Class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

Product Make-up

- Flexible fine-wire copper conductor
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)
- Pre-assembled patchcord with RJ45 connectors

Technical data

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

Protection rating
RJ45 - IP 20

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -20°C to +60°C
Fixed installation: -30°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
straight plug RJ45 on straight plug RJ45				
2171278	IE-PNC-5-RJ45-0,5-P-2-22-FD-RJ45	2x2xAWG22	0.5	15.65
2171279	IE-PNC-5-RJ45-1-P-2-22-FD-RJ45	2x2xAWG22	1	31.3
2171280	IE-PNC-5-RJ45-2-P-2-22-FD-RJ45	2x2xAWG22	2	62.6
2171281	IE-PNC-5-RJ45-3-P-2-22-FD-RJ45	2x2xAWG22	3	93.9
2171282	IE-PNC-5-RJ45-5-P-2-22-FD-RJ45	2x2xAWG22	5	156.5
2171283	IE-PNC-5-RJ45-10-P-2-22-FD-RJ45	2x2xAWG22	10	313
2171284	IE-PNC-5-RJ45-20-P-2-22-FD-RJ45	2x2xAWG22	20	626
straight plug RJ45 on free conductor end				
2171285	IE-PNC-5-RJ45-0,5-P-2-22-FD-OE	2x2xAWG22	0.5	15.65
2171286	IE-PNC-5-RJ45-1-P-2-22-FD-OE	2x2xAWG22	1	31.3
2171287	IE-PNC-5-RJ45-2-P-2-22-FD-OE	2x2xAWG22	2	62.6
2171288	IE-PNC-5-RJ45-3-P-2-22-FD-OE	2x2xAWG22	3	93.9
2171289	IE-PNC-5-RJ45-5-P-2-22-FD-OE	2x2xAWG22	5	156.5
2171290	IE-PNC-5-RJ45-10-P-2-22-FD-OE	2x2xAWG22	10	313
2171291	IE-PNC-5-RJ45-20-P-2-22-FD-OE	2x2xAWG22	20	626

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Other lengths and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet

NEW

ETHERLINE® FD CAT.6$_{A}$ M12

Info

- CAT.6$_{A}$ for drag chain, qualified for 10Gbit/s
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.6$_{A}$ qualified for 10Gbit/s

Application range

- For PROFINET applications type C
- Highly flexible application
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features

- CAT.6$_{A}$ for drag chain, qualified for 10Gbit/s
- Min. 2.5 million bending cycles in the power chain
- Meets the requirements according to CAT.6$_{A}$, ISO/IEC 11801 and EN 50173

Product Make-up

- 7-wire tinned stranded copper conductor
- 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)
- Pre-assembled patchcord with M12 X-coded connectors

Technical data

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

Protection rating
IP 67

Characteristic impedance
100 Ohm +- 15%

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

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
Straight connector on straight connector				
2172000	IE-6A-M12X-S-0,5-P-4-24-FD-M12X-S	4x2xAWG24	0.5	22
2172001	IE-6A-M12X-S-1-P-4-24-FD-M12X-S	4x2xAWG24	1	44
2172002	IE-6A-M12X-S-2-P-4-24-FD-M12X-S	4x2xAWG24	2	88
2172003	IE-6A-M12X-S-3-P-4-24-FD-M12X-S	4x2xAWG24	3	132
2172004	IE-6A-M12X-S-5-P-4-24-FD-M12X-S	4x2xAWG24	5	220
2172005	IE-6A-M12X-S-10-P-4-24-FD-M12X-S	4x2xAWG24	10	440
2172006	IE-6A-M12X-S-20-P-4-24-FD-M12X-S	4x2xAWG24	20	880
straight connector on free conductor end				
2172007	IE-6A-M12X-S-0,5-P-4-24-FD-OE	4x2xAWG24	0.5	22
2172008	IE-6A-M12X-S-1-P-4-24-FD-OE	4x2xAWG24	1	44
2172009	IE-6A-M12X-S-2-P-4-24-FD-OE	4x2xAWG24	2	88
2172010	IE-6A-M12X-S-3-P-4-24-FD-OE	4x2xAWG24	3	132
2172011	IE-6A-M12X-S-5-P-4-24-FD-OE	4x2xAWG24	5	220
2172012	IE-6A-M12X-S-10-P-4-24-FD-OE	4x2xAWG24	10	440
2172013	IE-6A-M12X-S-20-P-4-24-FD-OE	4x2xAWG24	20	880
Straight connector to straight socket				
2172028	IE-6A-M12XF-S-0,5-P-4-24-FD-M12X-S	4x2xAWG24	0.5	22
2172029	IE-6A-M12XF-S-1-P-4-24-FD-M12X-S	4x2xAWG24	1	44
2172030	IE-6A-M12XF-S-2-P-4-24-FD-M12X-S	4x2xAWG24	2	88
2172031	IE-6A-M12XF-S-3-P-4-24-FD-M12X-S	4x2xAWG24	3	132
2172032	IE-6A-M12XF-S-5-P-4-24-FD-M12X-S	4x2xAWG24	5	220
2172033	IE-6A-M12XF-S-10-P-4-24-FD-M12X-S	4x2xAWG24	10	440
2172034	IE-6A-M12XF-S-20-P-4-24-FD-M12X-S	4x2xAWG24	20	880
socket on free conductor end				
2172170	IE-6A-M12XF-S-0,5-P-4-24-FD-OE	4x2xAWG24	0.5	22
2172171	IE-6A-M12XF-S-1-P-4-24-FD-OE	4x2xAWG24	1	44
2172172	IE-6A-M12XF-S-2-P-4-24-FD-OE	4x2xAWG24	2	88
2172173	IE-6A-M12XF-S-3-P-4-24-FD-OE	4x2xAWG24	3	132
2172174	IE-6A-M12XF-S-5-P-4-24-FD-OE	4x2xAWG24	5	220
2172175	IE-6A-M12XF-S-10-P-4-24-FD-OE	4x2xAWG24	10	440
2172176	IE-6A-M12XF-S-20-P-4-24-FD-OE	4x2xAWG24	20	880

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Other lengths and types of connectors are available upon request.
Photographs 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 462
- EPIC® DATA 90 RJ45 Cat.6$_{A}$ refer to page 463
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466

NEW

ETHERLINE® TORSION Cat.6$_A$ M12

Info

- Industrial Ethernet Cable, 4-pair, suitable for torsion stress
- CAT.6$_A$ qualified for 10Gbit/s
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.6$_A$ qualified for 10Gbit/s

Application range

- For PROFINET applications type C
- 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$_A$, ISO/IEC 11801 and EN 50173
- Industrial Ethernet Cable, 4-pair, suitable for torsion stress

Product Make-up

- 7-wire tinned stranded copper conductor
- 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)
- Pre-assembled patchcord with M12 X-coded connectors

Technical data

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

Protection rating
IP 67

Characteristic impedance
100 Ohm +- 15%

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

Article number	Article designation	Number of pairs and AWG per conductor	Length (m)	Copper index (kg/1.000 pieces)
Straight connector on straight connector				
2172100	IE-6A-M12X-S-0,5-P-4-24-T-M12X-S	4x2xAWG24	0.5	22
2172101	IE-6A-M12X-S-1-P-4-24-T-M12X-S	4x2xAWG24	1	44
2172102	IE-6A-M12X-S-2-P-4-24-T-M12X-S	4x2xAWG24	2	88
2172103	IE-6A-M12X-S-3-P-4-24-T-M12X-S	4x2xAWG24	3	132
2172104	IE-6A-M12X-S-5-P-4-24-T-M12X-S	4x2xAWG24	5	220
2172105	IE-6A-M12X-S-10-P-4-24-T-M12X-S	4x2xAWG24	10	440
2172106	IE-6A-M12X-S-20-P-4-24-T-M12X-S	4x2xAWG24	20	880
straight connector on free conductor end				
2172107	IE-6A-M12X-S-0,5-P-4-24-T-OE	4x2xAWG24	0.5	22
2172108	IE-6A-M12X-S-1-P-4-24-T-OE	4x2xAWG24	1	44
2172109	IE-6A-M12X-S-2-P-4-24-T-OE	4x2xAWG24	2	88
2172110	IE-6A-M12X-S-3-P-4-24-T-OE	4x2xAWG24	3	132
2172111	IE-6A-M12X-S-5-P-4-24-T-OE	4x2xAWG24	5	220
2172112	IE-6A-M12X-S-10-P-4-24-T-OE	4x2xAWG24	10	440
2172113	IE-6A-M12X-S-20-P-4-24-T-OE	4x2xAWG24	20	880
Straight connector to straight socket				
2172128	IE-6A-M12XF-S-0,5-P-4-24-T-M12X-S	4x2xAWG24	0.5	22
2172129	IE-6A-M12XF-S-1-P-4-24-T-M12X-S	4x2xAWG24	1	44
2172130	IE-6A-M12XF-S-2-P-4-24-T-M12X-S	4x2xAWG24	2	88
2172131	IE-6A-M12XF-S-3-P-4-24-T-M12X-S	4x2xAWG24	3	132
2172132	IE-6A-M12XF-S-5-P-4-24-T-M12X-S	4x2xAWG24	5	220
2172133	IE-6A-M12XF-S-10-P-4-24-T-M12X-S	4x2xAWG24	10	440
2172134	IE-6A-M12XF-S-20-P-4-24-T-M12X-S	4x2xAWG24	20	880
socket on free conductor end				
2172177	IE-6A-M12XF-S-0,5-P-4-24-T-OE	4x2xAWG24	0.5	22
2172178	IE-6A-M12XF-S-1-P-4-24-T-OE	4x2xAWG24	1	44
2172179	IE-6A-M12XF-S-2-P-4-24-T-OE	4x2xAWG24	2	88
2172180	IE-6A-M12XF-S-3-P-4-24-T-OE	4x2xAWG24	3	132
2172181	IE-6A-M12XF-S-5-P-4-24-T-OE	4x2xAWG24	5	220
2172182	IE-6A-M12XF-S-10-P-4-24-T-OE	4x2xAWG24	10	440
2172183	IE-6A-M12XF-S-20-P-4-24-T-OE	4x2xAWG24	20	880

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Other lengths and types of connectors are available upon request.
Photographs 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 462
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 463
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466

EPIC® DATA PN AX RJ45

Info

- For PROFINET applications
- Installation without tools

Product features
- For PROFINET applications
- 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
- 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
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description: Modular connector (industrial 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	Max. 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 are not to scale and do not represent detailed images of the respective products.
10 pieces in one blister

NEW

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 stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Suitable for use in industrial applications
- 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
ETIM 5.0 Class-ID: EC001121
ETIM 5.0 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	Max. Core diameter in mm	AWG solid	AWG 7-wire
EPIC® DATA PN 90 RJ45							
21700638	ED-IE-90-6$_A$-PN-20-FC	5.5	10	1	1.6	24 - 22	27 - 22

Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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

ETIM 5.0 Class-ID: EC001121
ETIM 5.0 Class-Description: Modular connector

Protection rating
IP 20

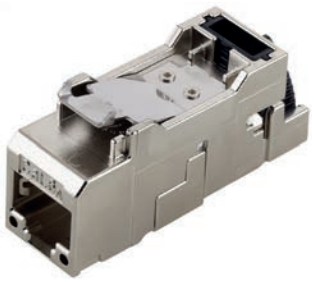
Ambient temperature (operation)
-40°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. Core diameter in mm	Max. Core diameter in mm	AWG solid	AWG 7-wire	AWG 19-wire
RJ45 connector acc. to T568A								
21700600	EPIC® DATA ED-IE-AX-6$_A$-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-6$_A$-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 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

EPIC® DATA RJ45F Cat.6A

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

ETIM 5.0 Class-ID: EC001121
ETIM 5.0 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-6$_A$-A-FC
RJ45 Modul acc. to T568B	
21700612	ED-IE-AX-RJ45F-6$_A$-B-FC

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

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

ETIM 5.0 Class-ID: EC001121
ETIM 5.0 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	Max. Core diameter in mm	AWG solid	AWG 7-wire	AWG 19-wire
RJ45 connector acc. to T568A								
21700636	ED-IE-90-6_A-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-90-6_A-A-20-FD-FC	5.5	10	0.85	1.1	26 - 24	27 - 24	26
RJ45 connector acc. to T568B								
21700637	ED-IE-90-6_A-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-90-6_A-B-20-FD-FC	5.5	10	0.85	1.1	26 - 24	27 - 24	26

Photographs 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

EPIC® DATA AX RJ45 Cat.6_A IP68

RJ45 connector in IP68 housing

Info

- CAT.6_A qualified for 10Gbit/s
- Installation without tools

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
- UL-listed (E-File E353543)

Technical data

ETIM 5.0 Class-ID: EC002635
ETIM 5.0 Class-Description: Circular connector (industrial 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-RJ45-6_A-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-6_A-B-68-FC
dust cap for RJ45 Modul	
21700633	ED-IE-RJ45F-AC-DC

Photographs 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

ETIM 5.0 Class-ID: EC001121
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Data communication systems for ETHERNET technology

LAPP GROUP

EPIC® DATA M12D

M12 D-coded connectors

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
- Insulation displacement contacts for conductor diameter of AWG26 - AWG22; max. outer diameter 8 mm
- Toolfree installation, small and compact design

Norm references / Approvals

- Data transmission is conform to category Cat.5 acc. to ISO 11801

Info

- CAT.5-Performance
- Installation without tools

Technical data

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Article number	Article designation
PROFINET/ETHERNET, 4-pin straight connector, fast-connection	
22260820	AB-C4-M12MSD-SH
PROFINET/ETHERNET, 4-pin straight socket, fast-connection	
22261016	AB-C4-M12FSD-SH

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

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

Technical data

ETIM 5.0 Class-ID: EC002635
ETIM 5.0 Class-Description: Circular connector (industrial 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 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

ETIM 5.0 Class-ID: EC001121
ETIM 5.0 Class-Description: Modular connector

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-mounting, solder contacts, X-coded	
21700618	ED-IE-M12F-X-RM

Photographs are not to scale and do not represent detailed images of the respective products.

Connectors for industrial cabling • Cable coupler

NEW

EPIC® DATA CCR FA

Cable coupler round

Info

- Cable coupler round class F_A
- 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 F_A 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

Technical data

ETIM 5.0 Class-ID: EC000371
ETIM 5.0 Class-Description: Telecommunication terminal strip

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Article number	Article designation
EPIC® DATA CCR FA	
21700623	EPIC® DATA CCR FA

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Data communication systems for ETHERNET technology
LAPP GROUP

Ethernet cable for structured building cabling • Cables for fixed installation

UNITRONIC® LAN 200 - Cat.5e

Fixed installation

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).
- 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
  IEEE 802.5: ISDN; FDDI; ATM

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).

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ohm +- 15%

Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C

Product Make-up

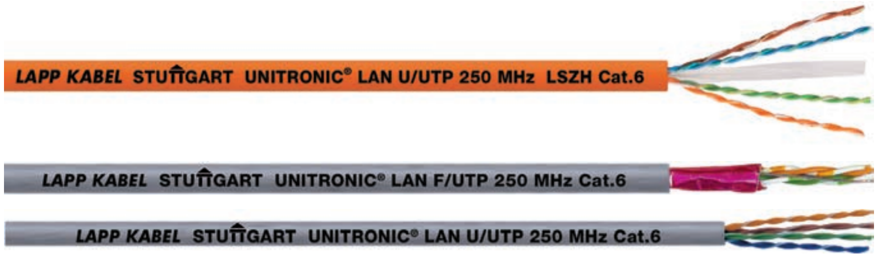
- Solid conductor
- U/UTP: no overall or pair shielding
- F/UTP: foil screening as overall screening
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath either as PVC or LSZH (color grey RAL 7035)

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC version					
2170125	200 U/UTP Cat.5e	4 x 2 x AWG24/1	5.6	17	33
2170126	200 F/UTP Cat.5e	4 x 2 x AWG24/1	6.4	18	39
2170128	200 SF/UTP Cat.5e	4 x 2 x AWG24/1	6.7	32	49
Halogen-free versions					
2170173	200 U/UTP Cat.5e LSZH	4 x 2 x AWG24/1	5.6	17	33
2170138	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG24/1	6.7	32	49

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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 are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LAN 250 - Cat.6

Fixed installation



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).

Product features

- Transfer of digital and analogue data signals
- LAN Cat.6 cables are specified up to 350 MHz
- IEEE 802.3: 10/100/1000Base-T
  IEEE 802.5: ISDN; FDDI; ATM

Norm references / Approvals

- Class E out of the standard ISO/IEC 11801 corresponds to CAT.6
- 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).

Product Make-up

- Solid conductor
- U/UTP: no overall or pair shielding
- F/UTP: foil screening as overall screening
- Outer sheath either as PVC (color grey RAL1015) or LSZH (color orange RAL2003)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ohm +- 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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC versions					
2170186	250 U/UTP Cat.6	4 x 2 x AWG24/1	6.5	18	46
Halogen-free versions					
2170193	250 U/UTP Cat.6 LSZH	4x2xAWG24/1	6,5	18	46
2170194	250 F/UTP Cat.6 LSZH	4x2xAWG24/1	7,5	19	54

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 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs 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 476
- EPIC® DATA AX RJ45 Cat.6_A refer to page 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463

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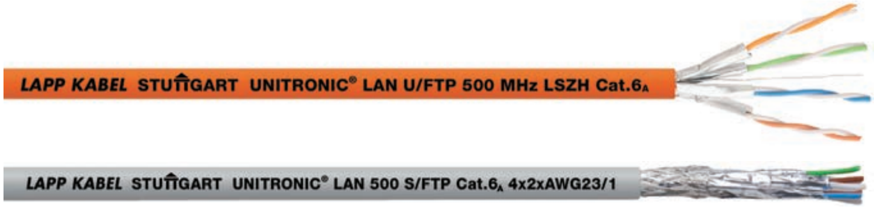
ACCESSORIES
APPENDIX

UNITRONIC® LAN 500 - Cat.6$_A$

Fixed installation



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).
- 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

Norm references / Approvals

- Class E$_A$ out of the standard ISO/IEC 11801 corresponds to Cat.6$_A$
- 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 E$_A$ - permanent link).

Product Make-up

- Solid conductor
- U/FTP: aluminium compound foil as pair screening
- F/FTP: aluminium compound foil as overall screening and pair screening
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath either as PVC (color grey RAL 1015) or LSZH (color orange RAL2003)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ohm +- 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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC version					
2170143	500 S/FTP Cat.6$_A$	4 x 2 x AWG23/1	7.7	27	58
Halogen-free versions					
2170195	500 U/FTP Cat.6$_A$ LSZH	4 x 2 x AWG23/1	7.4	21	52
2170196	500 F/FTP Cat.6$_A$ LSZH	4 x 2 x AWG23/1	7.6	22	56

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
CAT.6a is available as a draft
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs 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 462
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 463
- DATA STRIP stripping tool refer to page 1001

UNITRONIC® LAN 1000 S/FTP Cat.7

Fixed installation

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).
- 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

Norm references / Approvals

- Class F in the ISO/IEC 11801 standard corresponds to CAT.7

Product Make-up

- Solid conductor
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 7032)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ohm +- 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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Halogen-free versions					
2170614	1000 S/FTP Cat.7 LSZH	4 x 2 x AWG23/1	7.7	27	60
2170634	1000 S/FTP Cat.7 duplex	2 x (4 x 2 x AWG23/1)	7.7 x 15.4	54	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 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 are not to scale and do not represent detailed images of the respective products.

Ethernet cable for structured building cabling • Cables for fixed installation

UNITRONIC® LAN 1200 S/FTP Cat.7$_A$

Info

- Complies with the EN 50173 and ISO/IEC 11801 standards

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).
- 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
- The cable is specified for up to 1.2 GHz
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
  IEEE 802.5: ISDN; FDDI; ATM; cable sharing
  IEEE 802.3at: suitable for PoE

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 F$_A$ - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

Product Make-up

- Solid bare copper wire AWG22
- Cellular polyolefin core insulation, max. core diameter 1.6 mm
- Pair screen made of aluminium-lined plastic foil, overall screening made of tinned-copper braiding
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 7032)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ohm +- 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	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LAN 1200 S/FTP Cat.7$_A$					
2170615	1200 S/FTP Cat.7$_A$ LSZH	4 x 2 x AWG22/1	8.1	34	66
2170618	1200 S/FTP Cat.7$_A$ LSZH duplex	4 x 2 x AWG22	16.3	68	132

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
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- LANmark-7A GG45 SnapIn Connector refer to page 478
- Multipurpose shears A and B refer to page 998
- DATA STRIP stripping tool refer to page 1001

UNITRONIC® LAN 1500 S/FTP Cat.7_A

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).

Product features

- Transfer of digital and analogue data signals
- Cable is specified for up to 1.5 GHz
- The characteristic impedance of this cable is 100 Ohm ±15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
  IEEE 802.5: ISDN; FDDI; ATM; cable sharing
  IEEE 802.3at: suitable for PoE, VoIP

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 F_A - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

Product Make-up

- Solid bare copper wire AWG22
- Cellular polyolefin core insulation, max. core diameter 1.6 mm
- Pair screen made of aluminium-lined plastic foil, overall screening made of tinned-copper braiding
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 7032)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ohm +- 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	Max. outer diameter (mm)	Copper index (kg/km)
UNITRONIC® LAN 1500 S/FTP Cat.7_A				
2170199	1500 S/FTP Cat.7A LSZH	4 x 2 x AWG22/1	8.5	42

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 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- LANmark-7A GG45 SnapIn Connector refer to page 478

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ACCESSORIES
APPENDIX

UNITRONIC® LAN OUTDOOR

Fixed installation

Info

- Data cable for primary, secondary and tertiary cabling with PE outer sheath for outdoor applications
- Suitable for direct burial

Benefits

- Suitable for outdoor use and direct burial
- UV-resistant
  longitudinally and laterally watertight
- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

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)

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

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
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Core insulation: foamed polyolefin
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Minimum bending radius
During installation: 10 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ohm +- 15%

Temperature range
During installation: -15 °C to +60 °C
Operation: -40 °C to +70 °C

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Suitable for direct burial					
2170198	1000 S/FTP Cat.7 (L)PE	4 x 2 x AWG23/1	10.0	34	90
Suitable for direct routing underground, not transversely waterproof					
2170197	1000 S/FTP Cat.7 PE	4 x 2 x AWG23/1	9.6	34	75

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 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LAN FLEX

Flexible use

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

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

ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ohm +- 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	Max. 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.
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 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 476
- EPIC® DATA AX RJ45 Cat.6_A refer to page 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463

Patchcable RJ45 CAT.5e

Application range
- Indoor applications
- Building Installation

Product features
- F/UTP patch cable CAT.5e
- Foil screening, 300 MHz, grey, FRNC, with Hirose TM 11 connector, also available in different colours, allocation according to TIA/EIA 568B
- S/FTP patch cable CAT.5e
- Foil and braid screening, 300 MHz, grey, FRNC, with Hirose TM 11 connector, also available in different colours, allocation according to TIA/EIA 568B

Technical data
ETIM 5.0 Class-ID: EC000309
ETIM 5.0 Class-Description:
Module for active network component/network unit

Article number	Article designation	Colour	Length (m)
F/UTP patch cable CAT.5e			
CE6547	F/UTP Patch Cable CAT.5e 0,5m GY	grey	0.5
CE6548	F/UTP Patch Cable CAT.5e 1m GY	grey	1
CE6549	F/UTP Patch Cable CAT.5e 1,5m GY	grey	1.5
CE6550	F/UTP Patch Cable CAT.5e 2m GY	grey	2
CE6551	F/UTP Patch Cable CAT.5e 3m GY	grey	3
CE6552	F/UTP Patch Cable CAT.5e 5m GY	grey	5
CE6553	F/UTP Patch Cable CAT.5e 7,5m GY	grey	7.5
CE6554	F/UTP Patch Cable CAT.5e 10m GY	grey	10
CE6555	F/UTP Patch Cable CAT.5e 15m GY	grey	15
CE6556	F/UTP Patch Cable CAT.5e 20m GY	grey	20
S/FTP patch cable CAT.5e			
CE6647	SF/UTP Patch Cable CAT.5e 0,5m GY	grey	0.5
CE6648	Patchcable RJ45 CAT.5e S-FTP 1.0m	grey	1
CE6649	SF/UTP Patch Cable CAT.5e 1,5m GY	grey	1.5
CE6650	SF/UTP Patch Cable CAT.5e 2m GY	grey	2
CE6651	SF/UTP Patch Cable CAT.5e 3m GY	grey	3
CE6652	SF/UTP Patch Cable CAT.5e 5m GY	grey	5
CE6653	SF/UTP Patch Cable CAT.5e 7,5m GY	grey	7.5
CE6654	SF/UTP Patch Cable CAT.5e 10m GY	grey	10
CE6655	SF/UTP Patch Cable CAT.5e 15m GY	grey	15
CE6656	SF/UTP Patch Cable CAT.5e 20m GY	grey	20

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other colours are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

Patchcable RJ45 CAT.6 S/FTP

Application range
- Indoor applications
- For use in the workplace (tertiary area) to connect various devices within the scope of “Structured Cabling”

Product features
- PiMF 500 MHz, with Hirose TM21 connector
- Halogen-free
- Configuration is in accordance with TIA/EIA 568B
- Colour: grey; other colours are available upon request

Technical data
ETIM 5.0 Class-ID: EC000309
ETIM 5.0 Class-Description:
Module for active network component/network unit

Article number	Article designation	Colour	Length (m)
S-STP patch cable CAT.6			
CE6847	S/FTP Patchcable CAT.6 0,5m GY	grey	0.5
CE6848	S/FTP Patchcable CAT.6 1m GY	grey	1
CE6849	S/FTP Patchcable CAT.6 1,5m GY	grey	1.5
CE6850	S/FTP Patchcable CAT.6 2m GY	grey	2
CE6851	S/FTP Patchcable CAT.6 3M GY	grey	3
CE6852	S/FTP Patchcable CAT.6 5m GY	grey	5
CE6853	S/FTP Patchcable CAT.6 7,5m GY	grey	7.5
CE6854	S/FTP Patchcable CAT.6 10m GY	grey	10
CE6855	S/FTP Patchcable CAT.6 15m GY	grey	15
CE6856	S/FTP Patchcable CAT.6 20m GY	grey	20

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other colours are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

LANmark-6 RJ45 Patchcord

Product features

- 10Gigabit Ethernet
- The patchcord fully complies to Category 6, maximising the channel performance and exceeding the requirements of ISO/IEC 11801:2002 as part of a LANmark-6 wiring of Class E. This offers an improved data transmission rates and enables the inclusion of consolidation points for maximum system flexibility.
- Halogen-free, flame-retardant sheath with lower smoke development
- Screened version

Technical data

ETIM 5.0 Class-ID: EC000309
ETIM 5.0 Class-Description:
Module for active network component/network unit

Article number	Article designation	Colour	Length (m)
LANmark-6 RJ45 Patchcord			
CE6147	LANmark-6 RJ45 Patchcord 0.5m	orange	0.5
CE6148	LANmark-6 RJ45 Patchcord 1.0m	orange	1
CE6149	LANmark-6 RJ45 Patchcord 1.5m	orange	1.5
CE6150	LANmark-6 RJ45 Patchcord 2.0m	orange	2
CE6151	LANmark-6 RJ45 Patchcord 3.0m	orange	3
CE6152	LANmark-6 RJ45 Patchcord 5.0m	orange	5
CE6154	LANmark-6 RJ45 Patchcord 10.0m	orange	10
CE6155	LANmark-6 RJ45 Patchcord 15.0m	orange	15

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

S-FTP Patchcable Crossover RJ45 CAT.5e

Info

- Cat.5e

Product features

- For interconnecting two computers without the use of a central active component (hub, switch...).
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath: halogen-free, flame-retardant compound
- Hirose TM 11 connector
- Outer sheath and anti-kink sleeve colour: red

Technical data

ETIM 5.0 Class-ID: EC000309
ETIM 5.0 Class-Description:
Module for active network component/network unit

Article number	Article designation	Colour	Length (m)
Crossover patch cable			
CE6660	Crossover Patchcable RJ45 CAT.5e S-FTP 2.0m	red	2
CE6661	Crossover Patchcable RJ45 CAT.5e S-FTP 3.0m	red	3
CE6662	Crossover Patchcable RJ45 CAT.5e S-FTP 5.0m	red	5
CE6664	Crossover Patchcable RJ45 CAT.5e S-FTP 10.0m	red	10

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

Connector RJ45 CAT.5 Hirose TM 11

Product features
- Screened version
- Suitable for stranded conductors (AWG26)
- Included: bend protection and guide plate
- Anti-kink protection: beige
- Max. outer sheath diameter: 5.8 mm

Technical data
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Article number	Article designation
Connector RJ45 CAT.5 Hirose TM 11	
CE6321	Connector RJ45 CAT.5 Hirose TM 11

Hirose is a registered trademark of the HIROSE ELECTRIC Group
Other colours are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- Crimping tool RJ45 Hirose refer to page 478

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
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Crimping tool RJ45 Stewart refer to page 479

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
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 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 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 5.0 Class-ID: EC002641
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- Crimping tool RJ45 Hirose refer to page 478

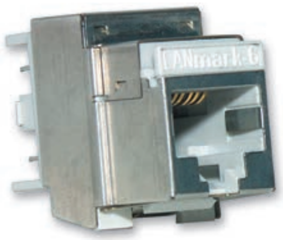
LANmark-6 EVO SnapIn Connector

Product features

- CAT.6 socket screened incl. EMC cover
- Colour-coded in accordance with EIA/TIA 568A and B
- Fast and optimised termination of all 8 cores
- Suitable for modular components
- All services of CAT.6/Class E according to EN 50173:2002 and ISO/IEC 11801:2002 are supported:
- 10BaseT

Technical data

ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)



Article number	Article designation
LANmark-6 EVO SnapIn Connector	
62104	LANmark-6 EVO SnapIn Connector

Photographs are not to scale and do not represent detailed images of the respective products.

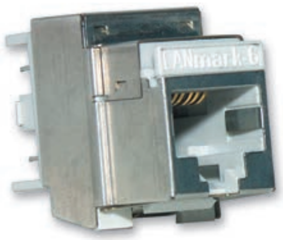
LANmark-6 EVO SnapIn Connector AWG26

Product features

- CAT.6 socket screened incl. EMC cover
- Colour-coded in accordance with EIA/TIA 568A and B
- Fast and optimised termination of all 8 cores
- Suitable for modular components
- All services of CAT.6/Class E according to EN 50173:2002 and ISO/IEC 11801:2002 are supported:

Technical data

ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)



Article number	Article designation
LANmark-6 EVO SnapIn Connector AWG26	
62105	LANmark-6 EVO SnapIn Connector AWG26

Photographs are not to scale and do not represent detailed images of the respective products.

LANmark-6 EVO SnapIn Connector 10G

Product features

- Suitable for AWG 22, 23 and 24
- Colour-coded in accordance with EIA/TIA 568A and B
- Fast and optimised termination of all 8 cores
- Suitable for modular components
- All services of CAT.6/Class E according to EN 50173:2002 and ISO/IEC 11801:2002, as well as for 10 Gigabit Ethernet according to IEEE 802.3an draft 1.11, are supported:

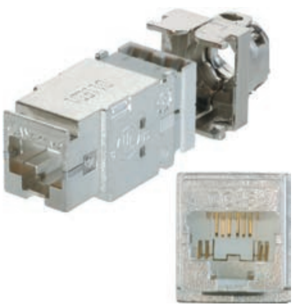
Technical data

ETIM 5.0 Class-ID: EC001121
ETIM 5.0 Class-Description:
Modular connector

Article number	Article designation
LANmark-6 EVO SnapIn Connector 10G	
62106	LANmark-6 EVO SnapIn Connector 10G

Photographs are not to scale and do not represent detailed images of the respective products.

LANmark-7$_A$ GG45 SnapIn Connector



Product features

- CAT.7 GG45 socket screened incl. EMC cover
- Suitable for AWG 22, 23 and 24
- Colour-coded in accordance with EIA/TIA 568A and B
- Fast and optimised termination of all 8 cores
- Suitable for modular components
- All applications defined for CAT.5 / 6 and 7 are supported:

Technical data

ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Article number	Article designation
LANmark-7$_A$ GG45 SnapIn Connector	
63104	LANmark-7A, 1000 MHz Snap-In GG45 Conn.

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Keystone Clips for SnapIn Connectors refer to page 481

Crimping tool RJ45 Hirose

Product features

- Crimping tool for RJ45 connector Hirose TM11 and TM21

Technical data

ETIM 5.0 Class-ID: EC000385
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- Connector RJ45 CAT.5 Hirose TM11 refer to page 476
- Connector RJ45 CAT.6 Hirose TM21 refer to page 477

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 5.0 Class-ID: EC000385
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Connector RJ45 CAT.5 Stewart SS37 refer to page 476

Comfort Tool

Product features
- This tool is recommended for quick, easy and reliable installation of SnapIn connectors. All 8 cores are terminated in one simple step.
- The marking on the pliers defines the correct stripping dimension.

Technical data
ETIM 5.0 Class-ID: EC000385
ETIM 5.0 Class-Description: Special tool for telecommunication technique

Article number	Article designation
Comfort Tool	
60501	Comfort Tool

Photographs are not to scale and do not represent detailed images of the respective products.

Easy Termination Tool

Product features
- Precise and fast removal of pair screening in PiMF cables.
- All foils are removed at exactly the same length, ensuring that the distances of the four foil screens match the available space on the GG45.
- The integrated holder for the wire manager simplifies insertion of the cores. Simple handling for quick and reproducible stripping results.
- An application sheet is included. The piercing terminals are adjustable and replaceable.

Technical data
ETIM 5.0 Class-ID: EC000385
ETIM 5.0 Class-Description: Special tool for telecommunication technique

Article number	Article designation
Easy Termination Tool	
60503	Easy Termination Tool

Caution! The Easy Termination Tools are meant for GG45 installation.
Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

Patchpanel Modular extendable

Product features
- 19” modular patch panel, extendable
- Front screen can be pulled out and swivelled at an angle of 45°, allowing simple and fast installation, as well as simple maintenance (sliding mechanism)
- 24 connections with integrated dust-protection caps
- Compatible with all Snap-In Connectors
- Stable metal structure
- Flexible label for the numbering system
- Dimensions: 19” - 1RU - 125 mm
- Colour: grey-white (RAL 9002)

Technical data

ETIM 5.0 Class-ID: EC002601
ETIM 5.0 Class-Description: Box/housing for built-in mounting in the wall/ceiling

Article number	Article designation
Patchpanel Modular extendable	
60124	Patchpanel Modular extendable

Delivered without snap-in connectors!
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Frontplate 19” 1HE Cat.6_A

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 5.0 Class-ID: EC002601
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- EPIC® DATA RJ45F Cat.6A refer to page 462

Keystone Clips for EVO SnapIn Connectors

Product features
- Red keystone clips for LANmark EVO SnapIn with keystone format (wall thickness 1.5 - 1.75 mm)
- Suitable for EVO SnapIn Connectors
- Not suitable for GG45 connectors

Technical data

ETIM 5.0 Class-ID: EC002601
ETIM 5.0 Class-Description: Box/housing for built-in mounting in the wall/ceiling

Article number	Article designation
Keystone Clips for EVO SnapIn Connectors	
61203	Keystone Clips for EVO SnapIn Connectors

Photographs are not to scale and do not represent detailed images of the respective products.

Keystone Clips for SnapIn Connectors

Product features

- Keystone clips for LANmark SnapIn with keystone format
- Suitable for GG45 Connectors
- Not suitable for EVO SnapIn Connectors

Technical data

ETIM 5.0 Class-ID: EC002601
ETIM 5.0 Class-Description: Box/housing for built-in mounting in the wall/ceiling

Article number	Article designation
Keystone Clips for SnapIn Connectors	
61201	Keystone Clips for SnapIn Connectors

Photographs are not to scale and do not represent detailed images of the respective products.

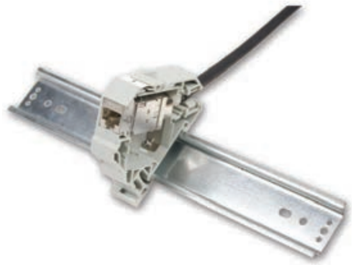
SnapIn rail mount Adapter

Product features

- Plastic housing including CAT.6 SnapIn Connector
- Suitable for use in industrial applications
- Angled outlet at 45°
- Several adapters can be connected in series
- Covers packed in pairs (right/left)
- Side cover for SnapIn rail adapter (60797)
- Colour: pure white (RAL 9010)

Technical data

ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description: Modular connector (industrial connector)



Article number	Article designation
SnapIn rail mount Adapter	
60795	SnapIn rail mount Adapter

Photographs are not to scale and do not represent detailed images of the respective products.

Flush-Mounted Outlet LSA+

Suitable housing

- Surface-Mounted Case (84x84 mm) and coverplate

Product features

- Flush-mounted outlet 80 x 80 LSA+ CAT.6
- 2x RJ45 angled outlet
- Colour-coded in accordance with EIA/TIA 568A and B
- Suitable for cable types (AWG 22, 23 and 24)
- Colour: pure white (RAL 9010)

Technical data

ETIM 5.0 Class-ID: EC000371
ETIM 5.0 Class-Description: Telecommunication terminal strip

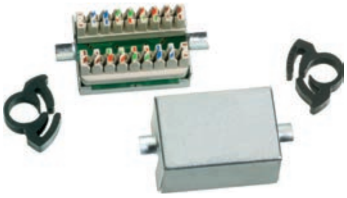
Article number	Article designation
Flush-Mounted Outlet LSA+	
62722	Flush-mounted outlet 80 x 80 LSA+ CAT.6

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Punch down tool LSA+ refer to page 482

Data Binder LSA+



Product features

- A data connector allows installation cables to be easily extended and damaged cables to be replaced, without having to reinstall the entire cable network.
- Cable inlet 7.5 mm
- Screw-adjustable strain relief
- Adhesive strips for fastening

Technical data

ETIM 5.0 Class-ID: EC000309
ETIM 5.0 Class-Description:
Module for active network component/network unit

Article number	Article designation
Data Binder LSA+	
CE6382	Data Binder LSA+ CAT.6

Photographs are not to scale and do not represent detailed images of the respective products.

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 5.0 Class-ID: EC000385
ETIM 5.0 Class-Description: Special tool for telecommunication technique

Article number	Article designation
Punch down tool LSA+	
CE5076	Punch down tool LSA+

Photographs are not to scale and do not represent detailed images of the respective products.

HITRONIC®

Optical transmission systems

HITRONIC® fibre optic cables make transmitting large data volumes easy: fault free, bug proof and at almost light speed. Even electro-magnetic 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

POF - Polymer optical fibre accessories

PCF - Plastic Cladded Fibre Cable

PCF - Plastic Cladded Fibre Accessories

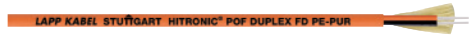
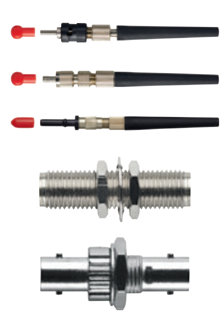
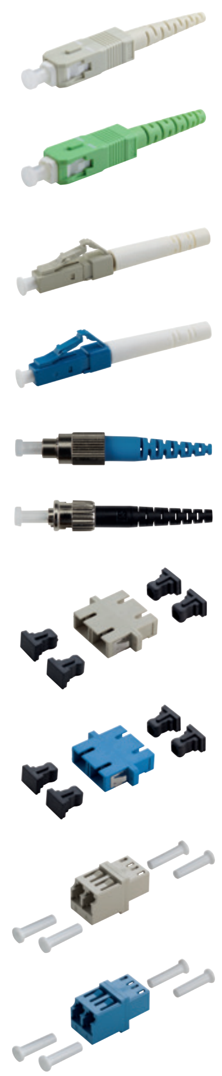
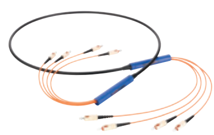
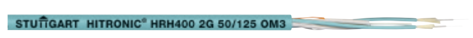
GOF - Glass Optical Fibre

GOF - Fibre optic accessories


U268
KABEL STUTTGART
KABEL STUTTGART HITRONIC®

HITRONIC® Product Overview

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

Type of fibre	Cables		Connectors and adapters	Accessories
POF	POF SIMPLEX PE			  
	POF DUPLEX PE			
	POF SIMPLEX PE-PUR			
	POF DUPLEX PE-PUR			
	POF DUPLEX Heavy			
	POF SIMPLEX/DUPLEX FD PE-PUR			
	POF DUPLEX for PROFINET® applications			
PCF	PCF SIMPLEX Outdoor			
	PCF DUPLEX Outdoor			
	PCF DUPLEX Indoor			
	PCF DUPLEX FD Universal			
	PCF DUPLEX for PROFINET® applications			
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			
	HDH Mini Breakout			

Photographs are not to scale and do not represent detailed images of the respective products.

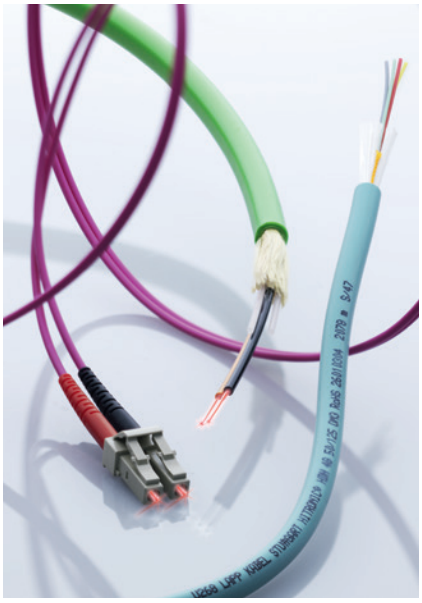
Fibre optic technology – General

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

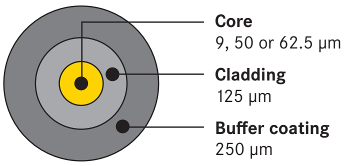
- P980/1000

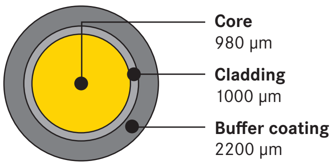
A distinction is made between the following application cases

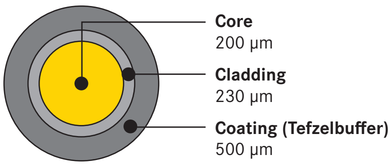
- SIMPLEX (one buffered fibre)
- DUPLEX (two buffered fibres)

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 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.

HITRONIC® POF SIMPLEX BUFFERED FIBRE

Info
- J-V2Y 1P 980/1000
- Simplex polymer fibre-optic cable 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
ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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 are not to scale and do not represent detailed images of the respective products.

Similar products
- HITRONIC® POF SIMPLEX CABLE refer to page 489

Accessories
- POF Connector and Adapter HFBR refer to page 493
- POF Cutting Tools refer to page 496
- POF Connector F05 Simplex refer to page 494
- UNIVERSAL STRIP stripping tool refer to page 1006

HITRONIC® POF SIMPLEX CABLE

Info

- J-V2Y(ZN)11Y 1P 980/1000
- Simplex POF cable with strain relief and PUR outer sheath
- FD - Highly flexible (power chains)

Benefits

- Optical data transmission 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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- POF Assembly Sets refer to page 496
- POF Cutting Tools refer to page 496
- POF Connector F-SMA and ST(BFOC) refer to page 494
- STAR STRIP stripping tool refer to page 1000
- SMART STRIP stripping tool

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

HITRONIC® POF DUPLEX BUFFERED FIBRES

Info
- J-V2Y 2x1P 980/1000
- Duplex polymer fibre-optic cable 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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description:
Fibre optic cable

Dimensions
Twin cable
2x2.2mm

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 are not to scale and do not represent detailed images of the respective products.

Similar products
- HITRONIC® POF SIMPLEX BUFFERED FIBRE refer to page 488

Accessories
- POF Connector and Adapter HFBR refer to page 493
- POF Cutting Tools refer to page 496
- UNIVERSAL STRIP stripping tool refer to page 1006

HITRONIC® POF DUPLEX CABLE

Info

- J-V2Y(ZN)11Y 2P 980/1000
- Duplex plastic fibre optic cable with strain relief and PUR outer sheath
- FD - Highly flexible (power chains)

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 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- POF Assembly Sets refer to page 496
- POF Cutting Tools refer to page 496
- POF Connector F-SMA and ST(BFOC) refer to page 494
- POF Connector SC-RJ refer to page 495
- STAR STRIP stripping tool refer to page 1000

NEW

HITRONIC® POF cables for PROFINET Applications

Info

- PROFINET compliant
  - Type B or Type C
- J-V4Y(ZN)11Y 2P980/1000
  J-V4Y(ZN)Y 2P980/1000
  J-V4Y(ZN)11Y 2P980/1000 flex

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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description:
Fibre optic cable

Dimensions
Buffered fibre: 2.2mm
Cable: see table

Core identification code
Black, orange (with arrow printing)

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- POF Assembly Sets refer to page 496
- POF Cutting Tools refer to page 496
- POF Connector F-SMA and ST(BFOC) refer to page 494
- POF Connector SC-RJ refer to page 495
- EPIC® DATA PB Sub-D FO refer to page 351
- STAR STRIP stripping tool refer to page 1000

POF Connector and Adapter HFBR

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 5.0 Class-ID: EC001122
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- POF Cutting Tools refer to page 496
- POF Polishing tools and accessories refer to page 497

POF Connector F05 Simplex

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

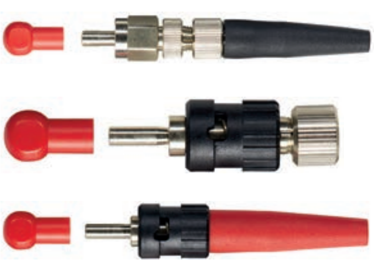
Technical data
ETIM 5.0 Class-ID: EC001122
ETIM 5.0 Class-Description: Fibre optic connector

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 are not to scale and do not represent detailed images of the respective products.

Accessories
- POF Cutting Tools refer to page 496
- POF Polishing tools and accessories refer to page 497

POF Connector F-SMA 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 5.0 Class-ID: EC001122
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- POF Assembly Sets refer to page 496
- POF Cutting Tools refer to page 496
- POF Polishing tools and accessories refer to page 497
- POF Measurement Equipment refer to page 498

NEW

POF Connector SC-RJ

Benefits
- 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 5.0 Class-ID: EC001122
ETIM 5.0 Class-Description: Fibre optic connector

Article number	Article designation	PU
POF Connector SC-RJ		
29161097	POF Connector SC-RJ Crimp 2.2	1 piece

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- POF Assembly Sets refer to page 496
- POF Cutting Tools refer to page 496
- POF Polishing tools and accessories refer to page 497
- POF Measurement Equipment refer to page 498

POF Adapter F-SMA

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 5.0 Class-ID: EC000752
ETIM 5.0 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

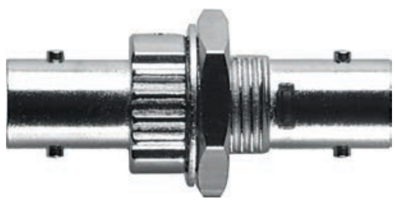
Photographs are not to scale and do not represent detailed images of the respective products.

POF Adapter ST (BFOC)

Product features
- ST(BFOC) adapter with flange, fixing nuts and lock washer

Info
- Can be used for POF and PCF connector types

Technical data
ETIM 5.0 Class-ID: EC000752
ETIM 5.0 Class-Description: Fibre optic coupler



Article number	Article designation	PU
ST(BFOC) Adaptera		
29420099	POF Adapter ST (BFOC) /4PC	4 piece

Photographs are not to scale and do not represent detailed images of the respective products.

POF Assembly Sets

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 5.0 Class-ID: EC001122
ETIM 5.0 Class-Description:
Fibre optic connector

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 are not to scale and do not represent detailed images of the respective products.

POF Cutting Tools






Technical data
ETIM 5.0 Class-ID: EC001126
ETIM 5.0 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
- 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- POF Assembly Sets refer to page 496

POF Polishing tools and 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 5.0 Class-ID: EC001126
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- POF Assembly Sets refer to page 496

POF Measurement Equipment




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

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 are not to scale and do not represent detailed images of the respective products.

HITRONIC® PCF SIMPLEX Cable

Info

- A-V(ZN)11Y
- Simplex plastic cladded fibre (PCF) cable 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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

Minimum bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Permissible tensile force
Fixed installation: 200 N

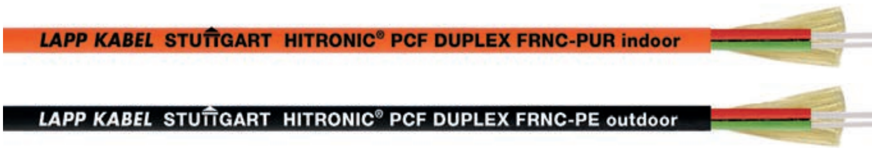
Temperature range
Operation: -10°C to +60°C
Installation: -10°C to +50°C

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 are not to scale and do not represent detailed images of the respective products.

Accessories
- PCF Assembly Sets refer to page 504
- PCF Connector HFBR refer to page 503
- PCF Connector F-SMA and ST(BFOC) refer to page 503
- PCF Cutting Tools refer to page 505

HITRONIC® PCF DUPLEX Cable



Info

- PCF DUPLEX Indoor: J-V(ZN)H11Y 2K200/230
- PCF DUPLEX Outdoor: A-VQ(ZN)HB2Y 2K200/230
- Plastic-cladded fibre (PCF) cable compatible with all BUS systems

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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

Minimum bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

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 are not to scale and do not represent detailed images of the respective products.

Similar products

- HITRONIC® PCF DUPLEX FD cables refer to page 501
- HITRONIC® PCF cables for PROFINET Applications refer to page 502

Accessories

- PCF Assembly Sets refer to page 504
- PCF Connector HFBR refer to page 503
- PCF Connector F-SMA and ST(BFOC) refer to page 503
- PCF Connector SC-RJ refer to page 504
- STAR STRIP stripping tool refer to page 1000
- SMART STRIP stripping tool

HITRONIC® PCF DUPLEX FD cables

Info

- A/J-V(ZN)H11Y
- 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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

Minimum bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

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.
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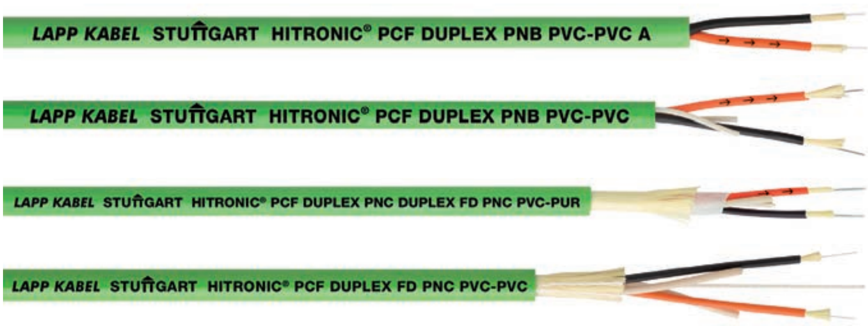
Accessories

- PCF Assembly Sets refer to page 504
- PCF Connector HFBR refer to page 503
- PCF Connector F-SMA and ST(BFOC) refer to page 503
- PCF Cutting Tools refer to page 505
- PCF Connector SC-RJ refer to page 504
- STAR STRIP stripping tool refer to page 1000

NEW

HITRONIC® PCF cables for PROFINET Applications



Info

- PROFINET compliant
  - Type B or Type C
- J-V(ZN)YY 2K200/230
  J-V(ZN)Y(ZN)11Y 2K200/230 flex
  J-V(ZN)Y(ZN)Y 2K200/230 flex

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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description:
Fibre optic cable

Dimensions
Sub cable outer diameter: 2.2mm
Cable: see table

Core identification code
Black, orange (with arrow printing)

Minimum bending radius
see data sheet

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- PCF Assembly Sets refer to page 504
- PCF Connector F-SMA and ST(BFOC) refer to page 503
- PCF Cutting Tools refer to page 505
- PCF Connector SC-RJ refer to page 504
- EPIC® DATA PB Sub-D FO refer to page 351
- STAR STRIP stripping tool refer to page 1000

PCF Connector HFBR

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 5.0 Class-ID: EC001122
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

PCF Connector F-SMA 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 5.0 Class-ID: EC001122
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- POF Adapter F-SMA refer to page 495
- POF Adapter ST (BFOC) refer to page 495

Accessories

- PCF Assembly kit
- PCF Cutting Tools refer to page 505

PCF Connector SC-RJ

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
ETIM 5.0 Class-ID: EC001122
ETIM 5.0 Class-Description: Fibre optic connector

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 are not to scale and do not represent detailed images of the respective products.

Accessories
- PCF Assembly kit
- PCF Cutting Tools refer to page 505

PCF Assembly Sets

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

Technical data
ETIM 5.0 Class-ID: EC001122
ETIM 5.0 Class-Description: Fibre optic connector

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 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 503
- PCF Cutting Tools refer to page 505
- PCF Connector SC-RJ refer to page 504

PCF Cutting Tools

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

Technical data
ETIM
ETIM 5.0 Class-ID: EC001122
ETIM 5.0 Class-Description:
Fibre optic connector

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 are not to scale and do not represent detailed images of the respective products.

Similar products
- PCF Assembly Sets refer to page 504

PCF Measurement Equipment

Benefits
- Inspection Microscope with 100x magnification for connector inspection
- Easy to handle

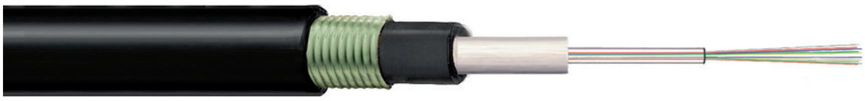
Product features
- Interchangeable adapter for PCF connector types FSMA, ST(BFOC), HFBR
- Interchangeable adapters are not included in microscope, please order separately
- Other adapters available on request

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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

HITRONIC® FIRE



Info

- A/J-DQ(ZN)BH(SR)H or U-DQ(ZN)BH(SR)H
- Fire-resistant for at least 180 minutes in the event of fire

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)

Technical data

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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 are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

Accessories

- STAR STRIP stripping tool refer to page 1000
- SMART STRIP stripping tool

HITRONIC® TORSION

Info

- A/J-V(ZN)H11Y
- Breakout cable designed to withstand high torsional stresses
- 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

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

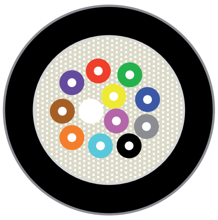
Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
26310302	HITRONIC® TORSION 2G 50/125 OM3	50/125 OM3	2	8.4	54
26310304	HITRONIC® TORSION 4G 50/125 OM3	50/125 OM3	4	8.4	54
26310308	HITRONIC® TORSION 8G 50/125 OM3	50/125 OM3	8	11.6	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 are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

Accessories

- STAR STRIP stripping tool refer to page 1000

HITRONIC® HDM Cable



Info

- A/J-V(ZN)11Y
- Mini breakout/distribution cable designed for frequent reeling and unreeling use
- 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 flame-retardant and 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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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

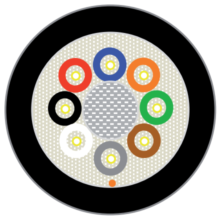
Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM4					
26610404	HITRONIC® HDM600 4G 50/125 OM4	50/125 OM4	4	5.5	24
26610406	HITRONIC® HDM600 6G 50/125 OM4	50/125 OM4	6	5.6	29
26610408	HITRONIC® HDM700 8G 50/125 OM4	50/125 OM4	8	6.2	36
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 are not to scale and do not represent detailed images of the respective products.

HITRONIC® HRM-FD Cable

Info

- A/J-V(ZN)H(ZN)11Y
- Flexible breakout cable designed for use in power chain applications



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)

Technical data

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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					
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 are not to scale and do not represent detailed images of the respective products.

NEW

HITRONIC® HMDC Micro Cable

Info
- A-D(ZN)2Y
- Micro special cable designed for installation by air-blowing systems (Micro Ducts)

Benefits
- Suitable for blowing into micro-ducts
- Very compact dimensions (between 2mm to 2.5mm diameter)
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range
- FTTH applications
- House connection
- Telecommunications network
- For installations by blowing
- Methods of deployment: for blowing or pulling into micro ducts

Product features
- Colour-coded fibres
- High reduced dimensions (cable diameter ≤ 2.5mm)
- Halogen-free, low-friction outer sheath
- UV-resistant

Product Make-up
- Central mini subunit with up to 12 fibres
- Standard with single-mode fibre type G.657.A1 (low macrobending sensitive fibre)
- Aramid yarns as strain relief
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

Fibre type
Single-mode
ITU-T G657.A1

Standard designation
A-D(ZN)2Y

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
≥ 25 x outer diameter

Permissible tensile force
Installation: 200N

Temperature range
Fixed installation: -40°C to +80°C
During installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
HITRONIC® HMDC Micro Cable					
27009802	HITRONIC® HMDC 2E9/125 G.657.A1	9/125 G.657.A1	2	2	5
27009804	HITRONIC® HMDC 4E9/125 G.657.A1	9/125 G.657.A1	4	2	5
27009806	HITRONIC® HMDC 6E9/125 G.657.A1	9/125 G.657.A1	6	2.2	5
27009808	HITRONIC® HMDC 8E9/125 G.657.A1	9/125 G.657.A1	8	2.3	5
27009812	HITRONIC® HMDC 12E9/125 G.657.A1	9/125 G.657.A1	12	2.5	5

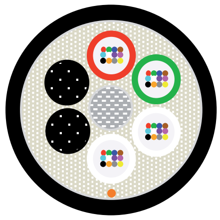
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products
- HITRONIC® HQN Outdoor Cable refer to page 512
- HITRONIC® HVN-Mini Cable refer to page 511

HITRONIC® HVN-Mini Cable

Info

- A-DQ(ZN)2Y
- Mini outdoor cable designed for installation by air-blowing systems (Ducts)



Benefits

- Suitable for blowing into ducts
- Compact dimensions
- 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 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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

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ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

HITRONIC® HQN Outdoor Cable

Info

- A-DQ(ZN)B2Y
- Outdoor cable with central loose tube 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
- 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

- 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)

Technical data

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
27600304	HITRONIC® HQN1500 4G 50/125 OM3	50/125 OM3	4	7.3	40
27600308	HITRONIC® HQN1500 8G 50/125 OM3	50/125 OM3	8	7.3	40
27600312	HITRONIC® HQN1500 12G 50/125 OM3	50/125 OM3	12	7.3	40
27600324	HITRONIC® HQN1500 24G 50/125 OM3	50/125 OM3	24	8.3	65
Multimode G 50 OM2					
27600204	HITRONIC® HQN1500 4G 50/125 OM2	50/125 OM2	4	7.3	40
27600208	HITRONIC® HQN1500 8G 50/125 OM2	50/125 OM2	8	7.3	40
27600212	HITRONIC® HQN1500 12G 50/125 OM2	50/125 OM2	12	7.3	40
27600224	HITRONIC® HQN1500 24G 50/125 OM2	50/125 OM2	24	8.3	65
Multimode G 62.5 OM1					
27600104	HITRONIC® HQN1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3	40
27600108	HITRONIC® HQN1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3	40
27600112	HITRONIC® HQN1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3	40
27600124	HITRONIC® HQN1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3	65
Single-mode E 9 OS2					
27600904	HITRONIC® HQN1500 4E 9/125 OS2	9/125 OS2	4	7.3	40
27600908	HITRONIC® HQN1500 8E 9/125 OS2	9/125 OS2	8	7.3	40
27600912	HITRONIC® HQN1500 12E 9/125 OS2	9/125 OS2	12	7.3	40
27600924	HITRONIC® HQN1500 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 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 519
- HITRONIC® HVN Outdoor Cable refer to page 513
- HITRONIC® HQW Armoured Outdoor Cable refer to page 514

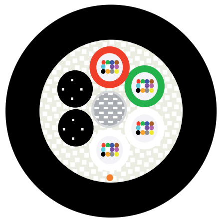
Accessories

- GOF SIMPLEX Pigtail refer to page 524
- DATA STRIP stripping tool refer to page 1001

HITRONIC® HVN Outdoor Cable

Info

- A-DQ(ZN)B2Y
- 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
- 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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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

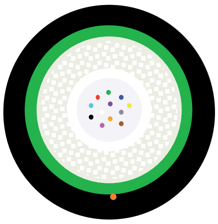
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs are not to scale and do not represent detailed images of the respective products.
Other models are available upon request.

Similar products

- HITRONIC® HVN-Mini Cable refer to page 511
- HITRONIC® HVW Armoured Outdoor Cable refer to page 515

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

HITRONIC® HQW Armoured Outdoor Cable



Info
- A-DQ(ZN)(SR)2Y
- Double-sheathed outdoor cable with corrugated steel tape armour, and non-metallic strength elements

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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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

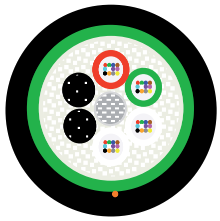
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- STAR STRIP stripping tool refer to page 1000
- SMART STRIP stripping tool

HITRONIC® HVW Armoured Outdoor Cable

Info

- A-DQ(ZN)(SR)2Y
- Outdoor cable with corrugated steel tape armour, stranded loose tubes and non-metallic strain relief



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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

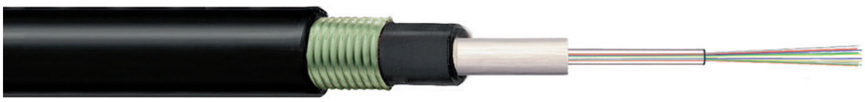
Permissible tensile force
Fixed installation: 3000 N
Short-term: 5000 N

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 are not to scale and do not represent detailed images of the respective products.

HITRONIC® HQW-Plus Armoured Outdoor Cable



Info

- A-DQ(ZN)B2Y(SR)2Y
- Double-sheathed outdoor cable with corrugated steel tape armour, and non-metallic strength elements

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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description:
Fibre optic cable

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

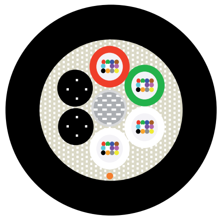
Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
27920304	HITRONIC® HQW-Plus3000 4G 50/125 OM3	50/125 OM3	4	9.6	95
27920308	HITRONIC® HQW-Plus3000 8G 50/125 OM3	50/125 OM3	8	9.6	95
27920312	HITRONIC® HQW-Plus3000 12G 50/125 OM3	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 are not to scale and do not represent detailed images of the respective products.

HITRONIC® HQA Aerial Cable

Info

- A-DQ(ZN)2Y - ADSS
- Outdoor self-supporting aerial cable with stranded loose tubes and non-metallic strain relief



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

Product features

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- 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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

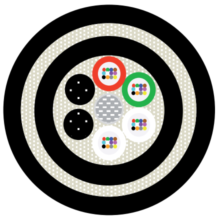
Permissible tensile force
MAT: 2000 N
EDS: 800 N

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 are not to scale and do not represent detailed images of the respective products.

HITRONIC® HQA-Plus Aerial Cable



Info

- A-DQ2Y(ZN)2Y ADSS
- Double-sheathed, self-supporting aerial cable with stranded loose tubes and non-metallic strain relief

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

Product features

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- 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

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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

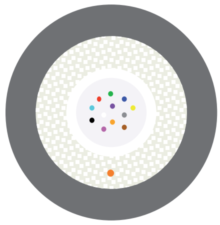
Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Single-mode E 9 OS2					
26644912	HITRONIC® HQA-Plus3200 6x2E 9/125 OS2	9/125 OS2	12	12.8	132
26644924	HITRONIC® HQA-Plus3200 6x4E 9/125 OS2	9/125 OS2	24	12.8	132
26644948	HITRONIC® HQA-Plus3200 6x8E 9/125 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 are not to scale and do not represent detailed images of the respective products.

HITRONIC® HUN Universal Cable

Info

- A/J-DQ(ZN)BH or U-DQ(ZN)BH
- Universal cable with central or stranded loose tube and non-metallic strain relief



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

Technical data

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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

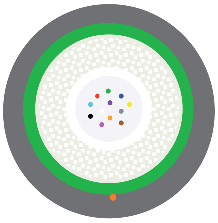
Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM3					
27400304	HITRONIC® HUN1500 4G 50/125 OM3	50/125 OM3	4	7.3	53
27400308	HITRONIC® HUN1500 8G 50/125 OM3	50/125 OM3	8	7.3	53
27400312	HITRONIC® HUN1500 12G 50/125 OM3	50/125 OM3	12	7.3	53
27400324	HITRONIC® HUN1500 24G 50/125 OM3	50/125 OM3	24	8.3	60
26400324	HITRONIC® HUN1500 2x12G 50/125 OM3	50/125 OM3	24	10.1	84
26400348	HITRONIC® HUN1500 4x12G 50/125 OM3	50/125 OM3	48	11	109
Multimode G 50 OM2					
27400204	HITRONIC® HUN1500 4G 50/125 OM2	50/125 OM2	4	7.3	53
27400208	HITRONIC® HUN1500 8G 50/125 OM2	50/125 OM2	8	7.3	53
27400212	HITRONIC® HUN1500 12G 50/125 OM2	50/125 OM2	12	7.3	53
27400224	HITRONIC® HUN1500 24G 50/125 OM2	50/125 OM2	24	8.3	60
Multimode G 62.5 OM1					
27400104	HITRONIC® HUN1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3	53
27400108	HITRONIC® HUN1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3	53
27400112	HITRONIC® HUN1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3	53
27400124	HITRONIC® HUN1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3	60
Single-mode E 9 OS2					
27400904	HITRONIC® HUN1500 4E 9/125 OS2	9/125 OS2	4	7.3	53
27400908	HITRONIC® HUN1500 8E 9/125 OS2	9/125 OS2	8	7.3	53
27400912	HITRONIC® HUN1500 12E 9/125 OS2	9/125 OS2	12	7.3	53
27400924	HITRONIC® HUN1500 24E 9/125 OS2	9/125 OS2	24	8.3	60
26400924	HITRONIC® HUN1500 2x12E 9/125 OS2	9/125 OS2	24	10.1	84
26400948	HITRONIC® HUN1500 4x12E 9/125 OS2	9/125 OS2	48	11	109
26400972	HITRONIC® HUN2000 6x12E 9/125 OS2	9/125 OS2	72	12.6	148
26400996	HITRONIC® HUN2000 8x12E 9/125 OS2	9/125 OS2	96	14.3	190
26400944	HITRONIC® HUN2000 12x12E 9/125 OS2	9/125 OS2	144	17	221

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 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 524
- DATA STRIP stripping tool refer to page 1001

HITRONIC® HUW Armoured Universal Cable



Info

- A/J-DQ(ZN)(SR)H or U-DQ(ZN)(SR)H
- Universal cable with corrugated steel tape armour, central loose tube and non-metallic strain relief

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)

Technical data

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)	Weight (kg/km)
Multimode G 50 OM4					
27500404	HITRONIC® HUW1500 4G 50/125 OM4	50/125 OM4	4	9.6	88
27500408	HITRONIC® HUW1500 8G 50/125 OM4	50/125 OM4	8	9.6	88
27500412	HITRONIC® HUW1500 12G 50/125 OM4	50/125 OM4	12	9.6	88
27500424	HITRONIC® HUW1500 24G 50/125 OM4	50/125 OM4	24	9.6	88
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

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The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- STAR STRIP stripping tool refer to page 1000
- SMART STRIP stripping tool

HITRONIC® HRH Breakout Cable

Info
- J-V(ZN)HH
- Breakout cable for direct connector assembly

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

Technical data

ETIM 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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

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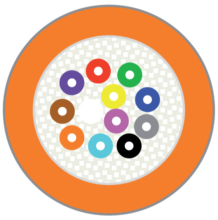
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

Accessories
- DATA STRIP stripping tool refer to page 1001

HITRONIC® HDH Mini-Breakout Cable



Info

- J-V(ZN)H
- 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 5.0 Class-ID: EC000034
ETIM 5.0 Class-Description: Fibre optic cable

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- DATA STRIP stripping tool refer to page 1001

GOF DUPLEX Patchcord

Info

- J-VH 2x1G/E
- Pre-terminated tight buffered duplex cable with durable ceramic ferrules
- Other types are available on www.lappgroup.com/assemblyfinder or upon request

Benefits

- “Plug & Play” connection between any optical devices
- Non-permanent connections allow for easy change of equipment
- Direct connection between two active optical components
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

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

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

Technical data

ETIM 5.0 Class-ID: EC001263
ETIM 5.0 Class-Description:
Fibre optic patch cord

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 are not to scale and do not represent detailed images of the respective products.

GOF SIMPLEX Pigtail

Info

- J-VH 1G/E
- Pre-terminated tight-buffered simplex cable with
  one durable ceramic ferrule

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

- Outer sheath flame-retardant and halogen-free
- High flexibility
- Cable termination with durable ceramic ferrules
- Set consisting of 12 colour-coded pigtails

Product Make-up

- Tight-buffered simplex fibre with LSZH outer sheath
- Connector: LC, SC or ST
- Colour-coded primary and secondary coatings
- Standard length: 2 m

Technical data

ETIM 5.0 Class-ID: EC000748
ETIM 5.0 Class-Description: Pigtail

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 are not to scale and do not represent detailed images of the respective products.

GOF Connector

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

ETIM 5.0 Class-ID: EC001122
ETIM 5.0 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

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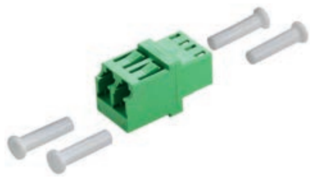
GOF Adapters






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 5.0 Class-ID: EC000752
ETIM 5.0 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

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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)

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 are not to scale and do not represent detailed images of the respective products.

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
- Dimensions (WxHxD): 483 x 44.5 x 170 mm
- Material: steel plate, 1.5 mm
- Colour: light grey (RAL 7035)

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 are not to scale and do not represent detailed images of the respective products.

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)

Article number	Article designation	PU
Splice Box Compact		
CE9147	Splice Box Compact	1 piece

Photographs are not to scale and do not represent detailed images of the respective products.

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)

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 are not to scale and do not represent detailed images of the respective products.

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

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

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EPIC®

Industrial connectors

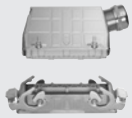
EPIC® industrial connectors can be found everywhere in industrial machinery and plant engineering, for measuring, control and drives. EPIC® is a flexible system of housings, inserts and contacts: all extremely robust, absolutely safe and simplicity itself to assemble.

Application range

- Electronics and telecommunications
- Measurement, testing and control technology
- Industrial machinery and appliances
- Drive technology and industrial automation
- Photovoltaic plants

Rectangular connectors

At a glance



Properties	Connection type					Connection cross section	Rated voltage according to standards			Rated current for largest connection cross section according to standards			Approvals
	Screw	Crimp	Spring	Push-In	Solder	in mm² depending on connection type	IEC	UL/USR	CSA/CNR	IEC	UL/USR	CSA/CNR	International
Rectangular – inserts fixed													
EPIC® H-A 3, 4	●					0.5 – 2.5	400 V	600 V	600 V	23 A	10 A	10 A	VDE, UR, CSA
EPIC® H-A 10, 16, 32, 48	●					0.5 – 2.5	250 V	600 V	600 V	16 A	14 A	16 A	VDE, UR, CSA
EPIC® STA 6, 14, 20	●				●	0.5 – 1.5/ max. 1.5	24 VAC/60 VDC	48 V	48 V	10 A	10 A	10 A	UR, CSA
EPIC® H-Q 5		●				0.14 – 4.0	230 V/400 V	600 V	600 V	16 A	16 A	16 A	UR, CSA
EPIC® H-D 7, 8		●				0.14 – 2.5	H*	250 V	–	10 A	10 A	–	UR
EPIC® H-D 15, 25, 40, 64		●				0.14 – 2.5	250 V	250 V	–	10 A	10 A	–	UR
EPIC® H-DD 24, 42, 72, 108		●				0.14 – 2.5	250 V	600 V	600 V	10 A	8.5 A	10 A	UR, CSA
EPIC® H-BE 6, 10, 16, 24, 32, 48	●	●	●	●		0.5 – 2.5/ 0.14 – 4.0	500 V	600 V	600 V	16 A	16 A	16 A	VDE, cURus
EPIC® H-EE 10, 18, 32, 46		●				0.14 – 4.0	500 V	600 V	600 V	16 A	16 A	16 A	UR, CSA
EPIC® H-BS 6, 12	●					0.5 – 6.0	500 V	600 V	600 V	35 A	35 A	35 A	UR, CSA
EPIC® H-BVE 3, 6, 10	●					0.5 – 2.5	630 V	600 V	600 V	16 A	16 A	16 A	VDE, cURus
POWER H-S 4	●					2.5 – 10.0	1000 V	–	–	65 A	–	–	–
EPIC® POWER K 4/0, 4/2	●					1.5 – 16.0	830 V	–	–	80 A	–	–	–
EPIC® TB-H-BE 16, 24	●					0.5 – 4.0	500 V	600 V	600 V	16 A	16 A	16 A	UR, CSA
Rectangular – inserts modular													
High voltage 1+PE, 2	●					10.0 – 25.0	1000 V	600 V	–	82 A	82 A	–	VDE, cURus
EPIC® POWER HC2		●				16	1000 V	–	–	65 A	–	–	–
POWER HHC2		●				16.0 – 35.0	1000 V	–	–	150 A	–	–	–
POWER HHC1		●				50.0 – 95.0	1000 V	–	–	220 A	–	–	–
High voltage 3-pin		●				1.5 – 10.0	1000 V	–	–	50 A	–	–	–
High voltage 4+PE		●				0.5 – 2.5	1000 V	–	–	16 A	–	–	–
3-pin		●				1.5 – 10.0	630 V	600 V	600 V	40 A	40 A	35 A	UR, CSA
HE 4-pin		●				0.5 – 4.0	630 V	–	–	25 A	–	–	–
Cage clamp 4-pin			●			0.5 – 2.5	400 V	–	–	14 A	–	–	–
5-pin		●				0.5 – 4.0	400 V	400 V	400 V	20 A	20 A	16 A	UR, CSA
10-pin		●				0.14 – 2.5	250 V	250 V	240 V	10 A	10 A	10 A	UR, CSA
10-pin stamped		●				0.14 – 2.5	250 V	–	–	10 A	–	–	–
20-pin		●				0.08 – 0.56	100 V	100 V	100 V	4 A	4 A	4 A	UR, CSA
Blind						–	–	–	–	–	–	–	–
Coaxial		●				Coaxial	250 V	–	–	–	–	–	–
PROFIBUS® DP	●					0.08 – 1.5	30 V	–	–	1 A	–	–	–
Universal bus	●					0.08 – 1.5	30 V	–	–	1 A	–	–	–
RJ45		●				0.14 – 2.5/ 0.12 – 0.2	600 V/ 125 V	–	–	P*: 10 A S*: 1.5 A	–	–	–
Pneumatic 1, 2-pin				●		⌀ 2.5/4.0 mm ⌀ 2.5/4.0 mm	–	–	–	–	–	–	–
Round													
EPIC® POWER M12 3+PE	●					0.75 – 1.5	630 V	600 V		12 A	12 A	12 A	cURus
EPIC® SIGNAL M17 8, 17		●				0.06 – 0.56/ 0.06 – 1.0	60 V	–	–	3.6 A	–	–	–
EPIC® POWER M17 3+PE		●				0.5 – 2.5	630 V	–	–	20 A	–	–	–
EPIC® POWER M17 5+PE, 6+PE, 7+PE		●				0.06 – 1.0	630 V	–	–	14 A	–	–	–
EPIC® POWER M17 3+PE+5		●				0.06 – 1.0/ 0.06 – 0.56	630 V/ 60 V	–	–	P*: 14 A S*: 3.6 A	–	–	–
EPIC® SIGNAL M23 6, 7		●			●	0.06 – 2.5	150 V	150 V	150 V	18A	15 A	15 A	VDE, cURus
EPIC® SIGNAL M23 8+1		●			●	0.06 – 1.0/ 0.06 – 2.5	150 V	150 V	150 V	P*: 20 A S*: 7 A	P*: 20 A S*: 7 A	P*: 20 A S*: 7 A	VDE, cURus
EPIC® SIGNAL M23 9		●			●	0.06 – 1.0	150 V	150 V	150 V	7 A	7 A	6 A	VDE, cURus
EPIC® SIGNAL M23 12, 16		●			●	0.06 – 1.0	100 V	100 V	100 V	7 A	7 A	6 A	VDE, cURus
EPIC® SIGNAL M23 17		●			●	0.06 – 1.0	50 V	50 V	50 V	7 A	7 A	7 A	VDE, cURus
EPIC® SIGNAL R3.0					●	0.06 – 1.0	24 VAC/60 VDC	–	–	7.5 A	–	–	–
EPIC® POWER LS1 5+PE		●				0.5 – 4.0	630 V	600 V	600 V	25 A	22 A	17 A	VDE, cURus
EPIC® POWER LS1 3+PE+4		●				0.5 – 4.0/ 0.4 – 1.0	630 V/250 V	600 V/ 250 V	600 V/ 250 V	P*: 26 A S*: 7 A	P*: 22 A S*: 7 A	P*: 17 A S*: 7 A	VDE, cURus
EPIC® POWER LS1.5 3+PE+2, 3+PE+4		●				0.75 – 10.0/ 0.14 – 4.0	630 V/250 V	–	–	P*: 70 A S*: 30 A	–	–	–
EPIC® POWER LS3 3+PE+2, 3+PE+4		●				10.0 – 50.0/ 0.75 – 1.5	630 V/250 V	–	–	P*: 150 A S*: 12 A	–	–	–
EPIC® POWERLOCK S	●					50.0 – 120.0	1000 V	–	–	400 A	–	–	VDE
EPIC® POWERLOCK C		●				35.0 – 240.0	1000 V	–	–	660 A	–	–	VDE
SOLAR													
EPIC® SOLAR 4		●				2.5 – 6.0	1000 V	–	–	30 A	–	–	TÜV

P*: Power S*: Signal H*: In metal housing: 24 VAC/60 VDC; in plastic housing: 250 V

EPIC® rectangular connectors

Flexible, robust connectors for mechanical engineering

EPIC® circular connectors

Compact connectors for motion control and energy transfer

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

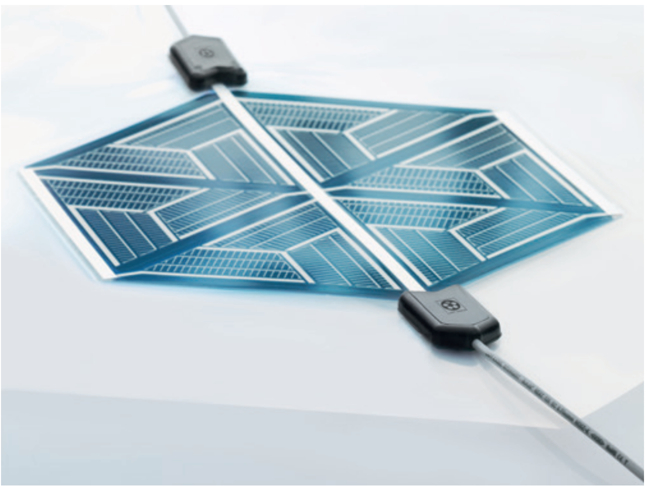
EPIC® inserts are available in a fixed pin design and as a modular system
- EPIC® fixed pin inserts are easy to handle and come in a wide variety of designs
- EPIC® modular inserts offer flexibility with modules for data, signals, power, fibre-optics and pneumatics. This means every insert is individually tailor-made for the relevant modul configuration

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

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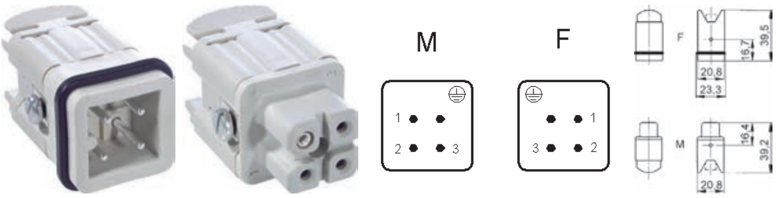
EPIC® H-A 3

H-A inserts with screw termination up to 2.5 mm² wire cross section

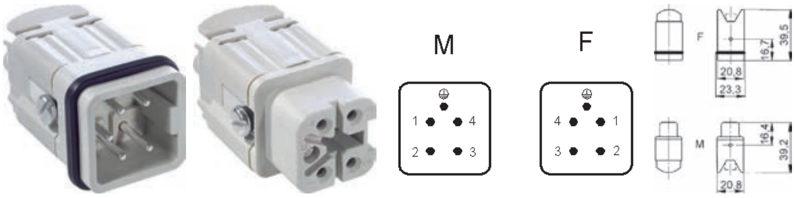


Info

- Small power connector for single- or three-phase current
- Easy to assemble due to straight entry of conductors

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

Suitable housing

- EPIC® H-A 3 Housings
- Refer to Selection Table A10 to select the required inserts and housings

Benefits

- 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

- Machine and equipment manufacturing
- Control engineering
- Apparatus construction

Suitable tools

- PEW 8.186 crimping pliers refer to page 1015
- MULTICRIMP 6 crimping pliers
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

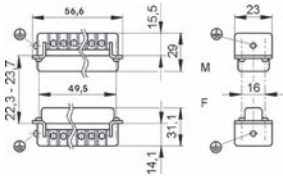
Photographs are not to scale and do not represent detailed images of the respective products.

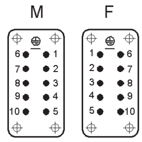
EPIC® H-A 10

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



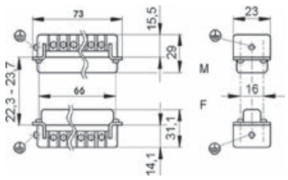


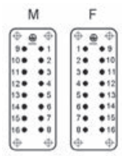
EPIC® H-A 16

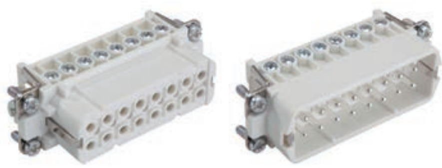
H-A inserts with screw termination up to 2.5 mm² wire cross section

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 10 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

- PEW 8.186 crimping pliers refer to page 1015
- MULTICRIMP 6 crimping pliers
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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 are not to scale and do not represent detailed images of the respective products.

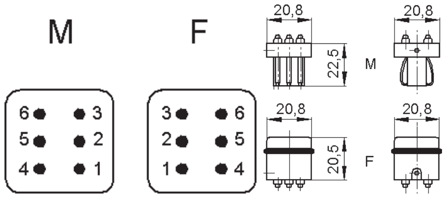
Similar products

- Further products with higher numbering in the internet. (H-A 32, H-A 48)

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® STA 6 Screw termination

The proven STA inserts with spring contacts

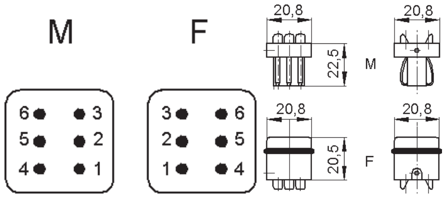


Info

- 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® 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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

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	male	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

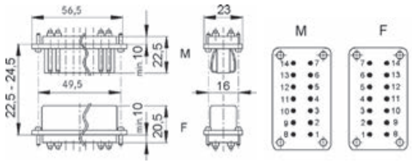
Photographs are not to scale and do not represent detailed images of the respective products.

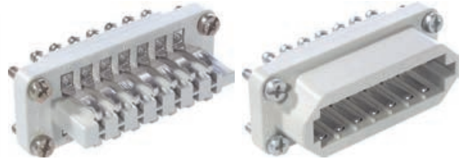
EPIC® STA 14 Screw termination

The proven STA inserts with spring contacts

Info

- For reliable signal transmission in harsh environmental conditions
- Mechanically robust spring contacts



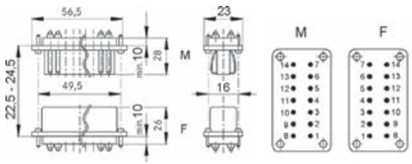


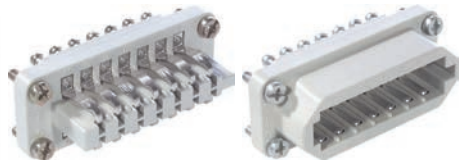
EPIC® STA 14 Solder termination

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

UL-tested:
UL File Number: E75770

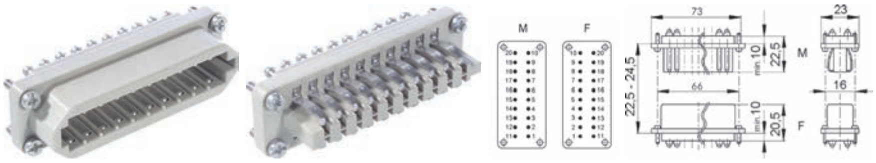
Temperature range
-40°C up to +80°C

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 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

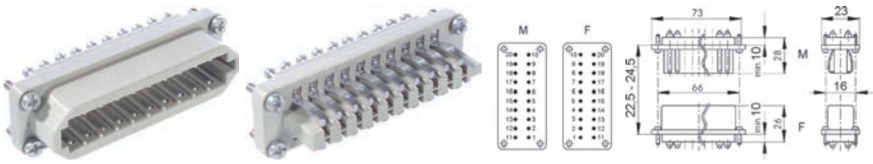


Info

- 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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

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

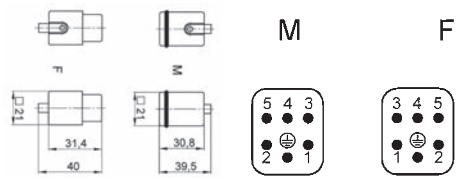
Photographs are not to scale and do not represent detailed images of the respective products.

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



Suitable housing

- EPIC® 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 581

Benefits

- High performance crimping contacts
- PE contact with screw connection

Application range

- Machine and equipment manufacturing
- Control engineering

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
3

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

Cycle of mechanical operation
100

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-Q 5 crimp termination				
10431500	H-Q 5 SC	male	1 - 5	10
10432500	H-Q 5 BC	female	1 - 5	10

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

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

Suitable housing

- EPIC® 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 578

Benefits

- High performance crimping contacts
- PE contact with screw connection

Application range

- Machine and equipment manufacturing
- Control engineering

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
3

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

Cycle of mechanical operation
200

CSA-tested:
CSA File Number: 262771
UL-tested:
UL File Number: E75770

Temperature range
-40°C to +120°C

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 are not to scale and do not represent detailed images of the respective products.

Accessories

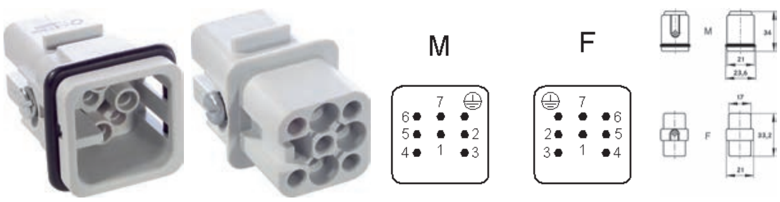
- EPIC® Coding parts refer to page 659

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® H-D 7 machined

multi-pole inserts for machined crimp contacts

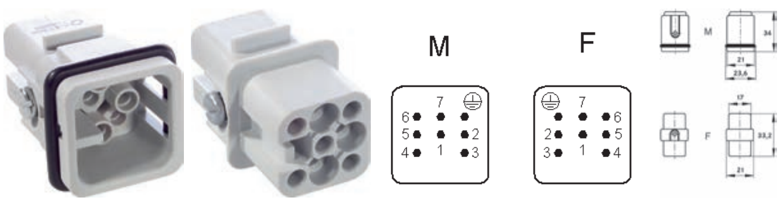


Info

- 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® 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 578

EPIC® H-D 7 stamped

- EPIC® H-D 1.6 machined contacts Page 578
- EPIC® H-D 1.6 stamped contacts-on-reel Page 580

Benefits

- Small, high-performance connector
- High performance crimping contacts
- PE contact with screw connection

Application range

- Machine and equipment manufacturing
- Control engineering

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
3

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

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-D 7 crimp termination					
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

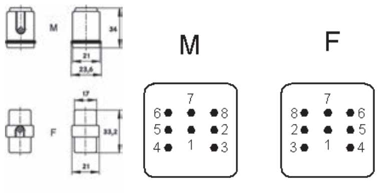
Photographs are not to scale and do not represent detailed images of the respective products.

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® 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 578

Benefits

- Small, high-performance connector
- High performance crimping contacts
- PE contact with screw connection

Application range

- Machine and equipment manufacturing
- Control engineering

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver/gold-plated

Number of contacts
8

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

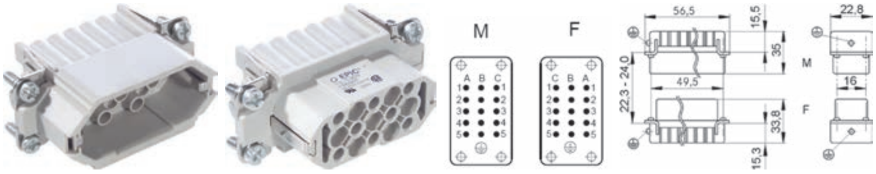
Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
H-D 8 crimp termination				
11252500	H-D 8 SCM	male	1 - 8	10
11253500	H-D 8 BCM	female	1 - 8	10

Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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-D 15 machined

- EPIC® H-A 10 Housings
- EPIC® H-D 1.6 machined contacts Page 578

EPIC® H-D 15 stamped

- EPIC® H-A 10 Housings
- EPIC® H-D 1.6 machined contacts Page 578
- EPIC® H-D 1.6 stamped contacts-on-reel Page 580
- 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 578

EPIC® H-D 15 stamped

- EPIC® H-D 1.6 machined contacts Page 578
- EPIC® H-D 1.6 stamped contacts-on-reel Page 580

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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
H-D 15 crimp termination					
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

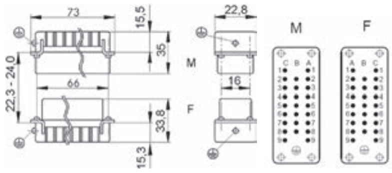
Photographs are not to scale and do not represent detailed images of the respective products.

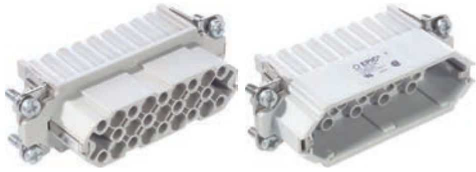
EPIC® H-D 25 machined

multi-pole inserts for machined crimp contacts

Info

- For machined contacts for fast processing with the crimping tool



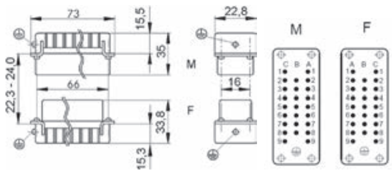


EPIC® H-D 25 stamped

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-D 25 machined

- EPIC® H-A 16 Housings
- EPIC® H-D 1.6 machined contacts Page 578

EPIC® H-D 25 stamped

- 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 578

EPIC® H-D 25 stamped

- EPIC® H-D 1.6 machined contacts Page 578
- EPIC® H-D 1.6 stamped contacts-on-reel Page 580

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

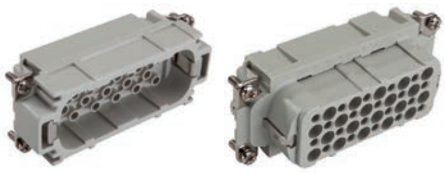
Temperature range
-40°C to +100°C,
short-term up to +125°C

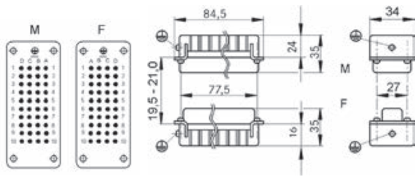
Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
H-D 25 crimp termination					
11283300	H-D 25 SCM	male	machined	1 - 25	5
11282300	H-D 25 BCM	female	machined	1 - 25	5
EPIC® H-D 25 stamped					
11260000	H-D 25 SCG	male	stamped	1 - 25	5
11261000	H-D 25 BCG	female	stamped	1 - 25	5

Photographs 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



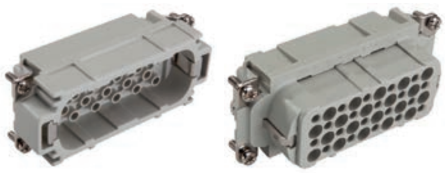


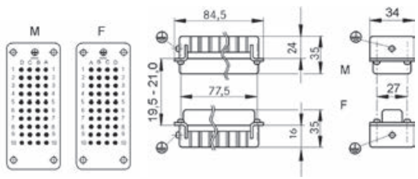
Info

- 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 578

EPIC® H-D 40 stamped

- EPIC® H-D 1.6 machined contacts
  Page 578
- EPIC® H-D 1.6 stamped contacts-on-reel
  Page 580

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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
H-D 40 crimp termination					
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

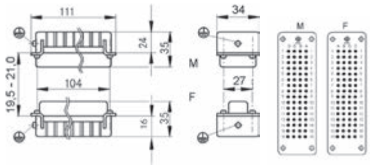
Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® H-D 64 machined

multi-pole inserts for machined crimp contacts

Info

- For machined contacts for fast processing with the crimping tool

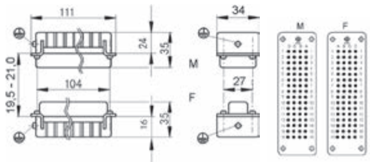


EPIC® H-D 64 stamped

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 578

EPIC® H-D 64 stamped

- EPIC® H-D 1.6 machined contacts Page 578
- EPIC® H-D 1.6 stamped contacts-on-reel Page 580

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

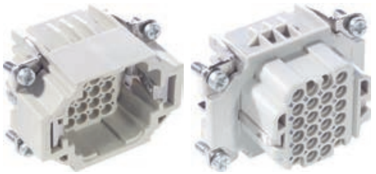
Temperature range
-40°C to +100°C,
short-term up to +125°C

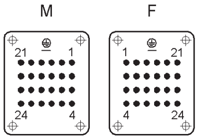
Article number	Article description	Contact type	Article designation	Number of operating contacts	Pieces / PU
H-D 64 crimp termination					
11272000	H-D 64 SCM	male	machined	1 - 64	10
11273000	H-D 64 BCM	female	machined	1 - 64	10
EPIC® H-D 64 stamped					
11270000	H-D 64 SCG	male	stamped	1 - 64	5
11271000	H-D 64 BCG	female	stamped	1 - 64	5

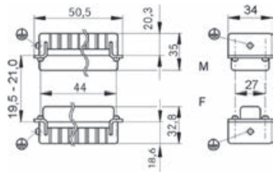
Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® H-DD 24

The H-DD series with machined crimp contacts - for a high number of pin in very tight spaces.





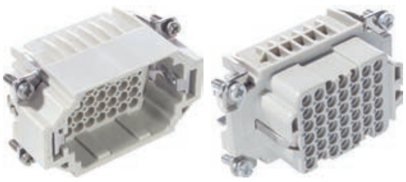


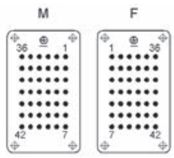
Info

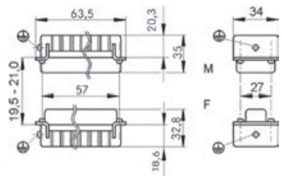
- Highest packing density for compact connectors

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 6
- EPIC® H-B 6 Housings
- EPIC® QUICK & EASY Mounting system

Suitable contacts:

- EPIC® H-D 1.6 machined contacts
  Page 578

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

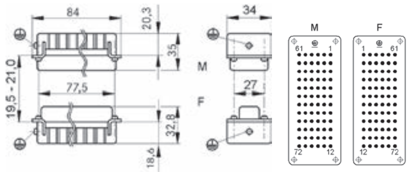
Photographs are not to scale and do not represent detailed images of the respective products.

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

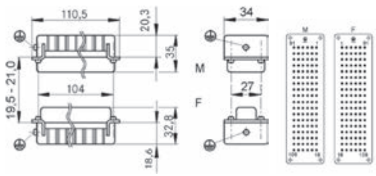
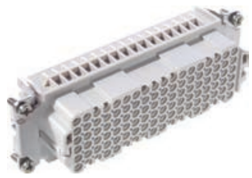


EPIC® H-DD 108

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 16
- EPIC® H-B 16 Housings
- EPIC® QUICK & EASY Mounting system

Suitable contacts:

- EPIC® H-D 1.6 machined contacts Page 578

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

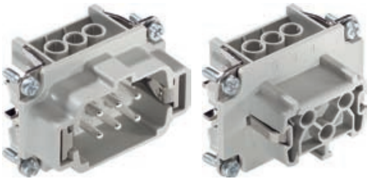
Photographs are not to scale and do not represent detailed images of the respective products.

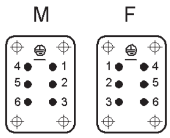
Similar products

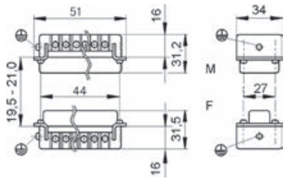
- Further products with higher numbering in the internet. (H-DD 144, H-DD 216)

EPIC® H-BE 6 Screw termination

The proven standard inserts for easy assembly





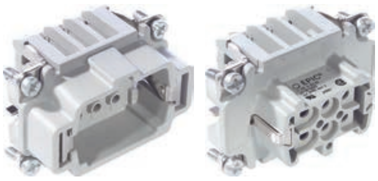


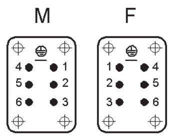
Info

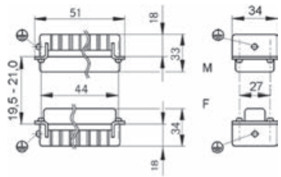
- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable

EPIC® H-BE 6 Crimp termination

The proven standard inserts for easy assembly





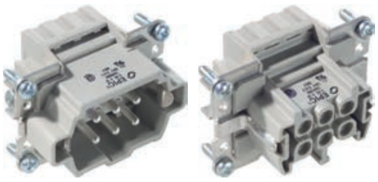


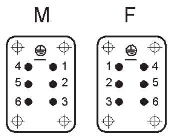
Info

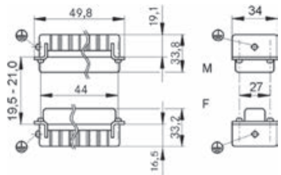
- For wire connection up to 4 mm²
- Screw, crimp, cage clamp and Push-In version - freely combinable

EPIC® H-BE 6 Cage clamp

The proven standard inserts for easy assembly





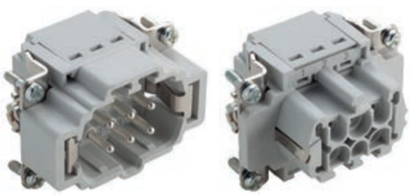


Info

- 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
- EPIC® QUICK & EASY Mounting system
- Refer to Selection Table A10 to select the required inserts and housings

Suitable contacts:

EPIC® H-BE 6 Crimp termination

- EPIC® H-BE 2.5 machined contacts Page 581

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 Crimp termination
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

Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

Suitable tools

EPIC® H-BE 6 Screw termination

- PEW 8.186 crimping pliers refer to page 1015
- MULTICRIMP 6 crimping pliers
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078
- Recommended crimping tool when conductor end-sleeves are used: MULTICRIMP 6

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
EPIC® H-BE 6 Screw termination
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-BE 6 Crimp termination
IEC: 16 A
UL: 16 A
CSA: 16 A
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

Degree of soiling
3

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

Cycle of mechanical operation
100

VDE-tested
EPIC® H-BE 6 Screw termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770
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

Temperature range
-40°C to +100°C,
short-term up to +125°C

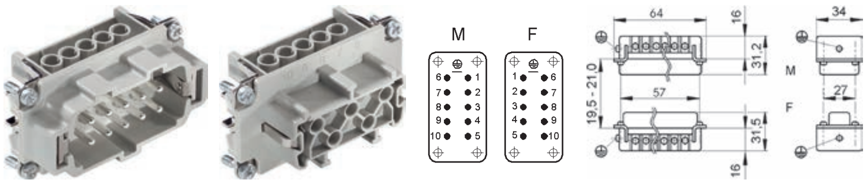
Article number	Article description	Contact type	Wire protection	Number of operating contacts	Pieces / PU
H-BE 6 screw termination					
10190000	EPIC® H-BE 6 SS	male	yes	1 - 6	10
10191000	EPIC® H-BE 6 BS	female	yes	1 - 6	10
10190100	EPIC® H-BE 6 SS	male		1 - 6	10
10191100	EPIC® H-BE 6 BS	female		1 - 6	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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® H-BE 10 Screw termination

The proven standard inserts for easy assembly

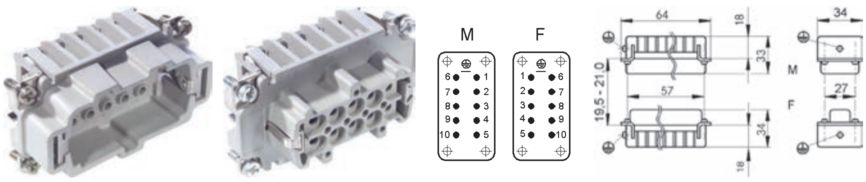


Info

- Proven screw for easy installation
- Screw, crimp, cage clamp and Push-In version - freely combinable

EPIC® H-BE 10 Crimp termination

The proven standard inserts for easy assembly

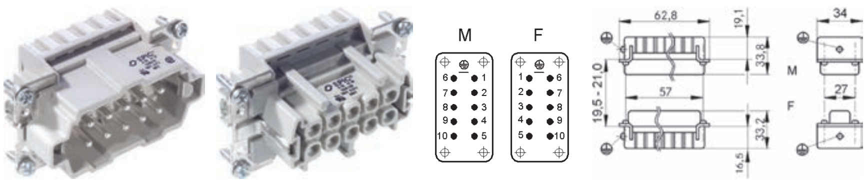


Info

- 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 581

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 10 Crimp terminationEPIC® 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

Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

Suitable tools

EPIC® H-BE 10 Screw termination

- PEW 8.186 crimping pliers refer to page 1015
- MULTICRIMP 6 crimping pliers

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078
- Recommended crimping tool when conductor end-sleeves are used: MULTICRIMP 6

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
EPIC® H-BE 10 Screw termination
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-BE 10 Crimp termination
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-BE 10 Cage clamp
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-BE 10 Push-In termination
IEC: 16 A
UL: 13 A
CSA: 13 A

Degree of soiling
3

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 mm^2
EPIC® H-BE 10 Crimp termination
Crimp termination: 0.5 - 4.0 mm^2
EPIC® H-BE 10 Cage clamp
Cage clamp termination: 0.5 - 2.5 mm^2
EPIC® H-BE 10 Push-In termination
Push-In termination: 0.14 - 2.5mm^2

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

Cycle of mechanical operation
100

VDE-tested
EPIC® H-BE 10 Screw termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770
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

Temperature range
-40°C to +100°C,
short-term up to +125°C

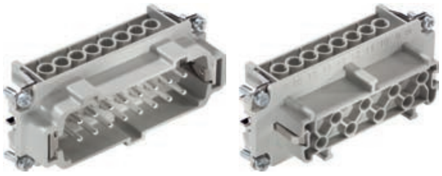
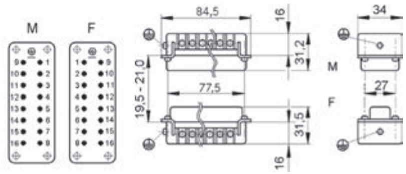
Article number	Article description	Contact type	Wire protection	Number of operating contacts	Pieces / PU
H-BE 10 screw termination					
10192000	EPIC® H-BE 10 SS	male	yes	1 - 10	10
10193000	EPIC® H-BE 10 BS	female	yes	1 - 10	10
10192100	EPIC® H-BE 10 SS	male		1 - 10	10
10193100	EPIC® H-BE 10 BS	female		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 are not to scale and do not represent detailed images of the respective products.

LAPP GROUP

EPIC® H-BE 16 Screw termination

The proven standard inserts for easy assembly

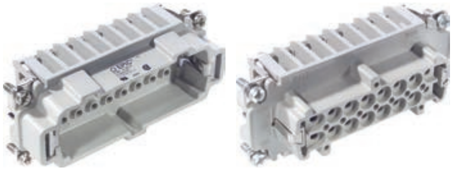
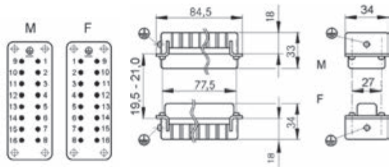



Info

- 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

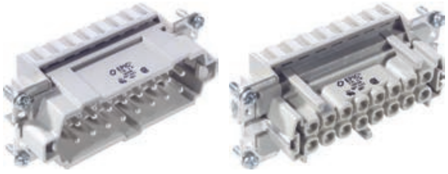
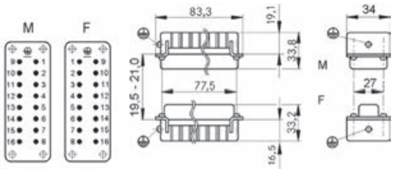



Info

- 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

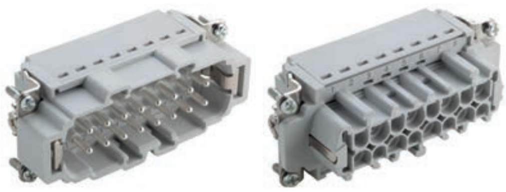



Info

- 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 581

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 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

Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

Suitable tools

EPIC® H-BE 16 Screw termination

- PEW 8.186 crimping pliers refer to page 1015
- MULTICRIMP 6 crimping pliers
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078
- Recommended crimping tool when conductor end-sleeves are used: MULTICRIMP 6

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
EPIC® H-BE 16 Screw termination
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-BE 16 Crimp termination
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-BE 16 Cage clamp
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-BE 16 Push-In termination
IEC: 16 A
UL: 13 A
CSA: 13 A

Degree of soiling
3

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

Cycle of mechanical operation
100

VDE-tested
EPIC® H-BE 16 Screw termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770
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

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 are not to scale and do not represent detailed images of the respective products.

Similar products

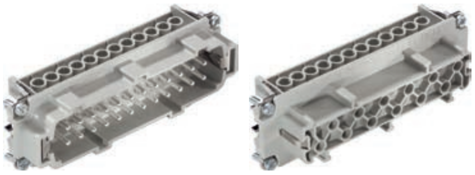
EPIC® H-BE 16 Screw termination
- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

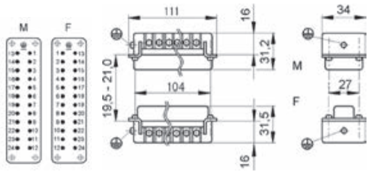
EPIC® H-BE 16 Crimp termination
- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

EPIC® H-BE 16 Käfigzugfeder
- 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



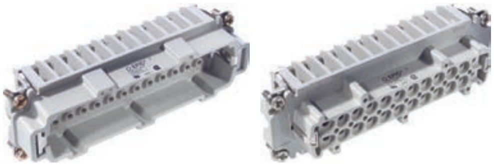


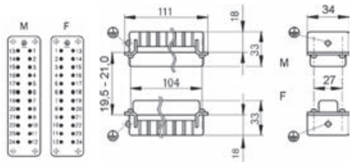
Info

- 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



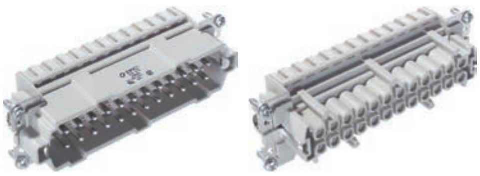


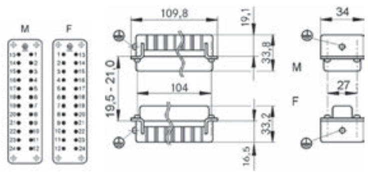
Info

- 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 applications
- 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 applications

Suitable housing

EPIC® H-BE 24 Screw termination

- 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 581

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 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

Application range

- Mechanical engineering
- Light & sound technology
- Plastics industry

Suitable tools

EPIC® H-BE 24 Screw termination

- PEW 8.186 crimping pliers refer to page 1015
- MULTICRIMP 6 crimping pliers
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078
- Recommended crimping tool when conductor end-sleeves are used: MULTICRIMP 6

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
EPIC® H-BE 24 Screw termination
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-BE 24 Crimp termination
IEC: 16 A
UL: 16 A
CSA: 16 A
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

Degree of soiling
3

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

Cycle of mechanical operation
100

VDE-tested
EPIC® H-BE 24 Screw termination
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770
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

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 are not to scale and do not represent detailed images of the respective products.

Similar products

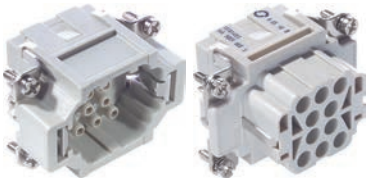
EPIC® H-BE 24 Screw termination
- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

EPIC® H-BE 24 Crimp termination
- Further products with higher numbering in the internet. (H-BE 32, H-BE 48)

EPIC® H-BE 24 Käfigzugfeder
- 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.



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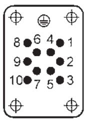

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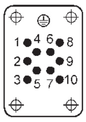
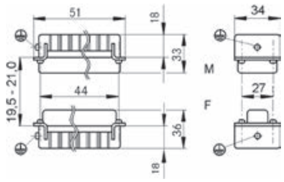


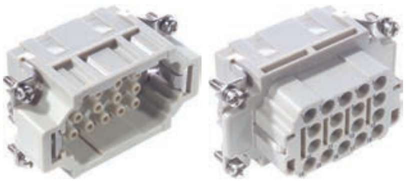


Info

- 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.



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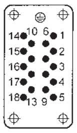

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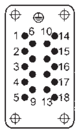
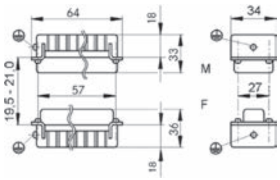




Info

- 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 contacts Page 581

EPIC® H-EE 18

- EPIC® ULTRA H-B 6
- EPIC® H-B 6 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 581

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 16 A
UL: 16 A
CSA: 16 A

Degree of soiling
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

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

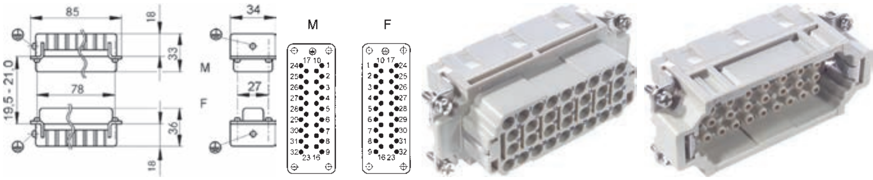
Photographs are not to scale and do not represent detailed images of the respective products.

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

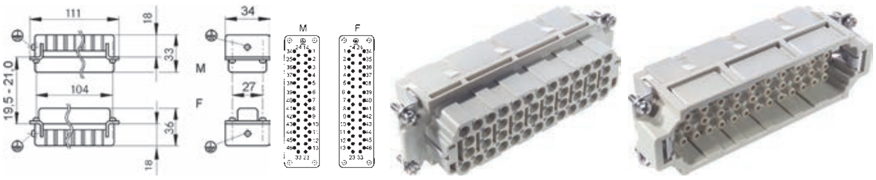


EPIC® H-EE 46

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 contacts Page 581

EPIC® H-EE 46

- 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 2.5 machined contacts Page 581

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 16 A
UL: 16 A
CSA: 16 A

Degree of soiling
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

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 are not to scale and do not represent detailed images of the respective products.

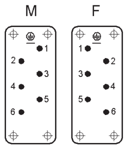
Similar products

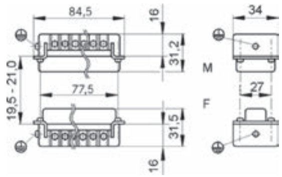
- Further products with higher numbering in the internet. (H-EE 64, H-EE 92)

EPIC® H-BS 6

Inserts for high currents.





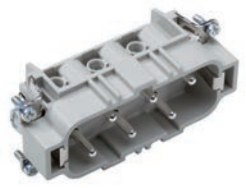


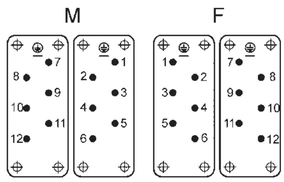
Info

- Standard insert for currents up to 35A

EPIC® H-BS 12

Inserts for high currents.





Info

- Standard insert for currents up to 35A

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® ULTRA H-B 16
- 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

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.

Application range

- Plant engineering
- Mechanical engineering
- Drive systems

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 V
UL: 600 V
CSA: 600 V
Conductor - conductor: 690 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 35 A
UL: 35 A
CSA: 35 A

Degree of soiling
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

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	male	yes	7 - 12	5
10171600	H-BS 6 BS	female	yes	7 - 12	5

Photographs are not to scale and do not represent detailed images of the respective products.

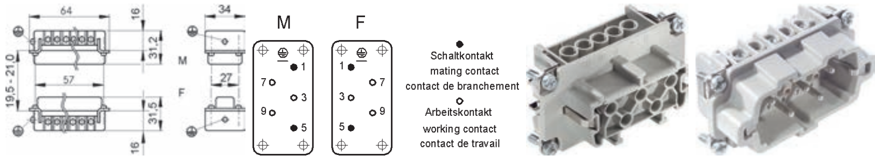
ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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

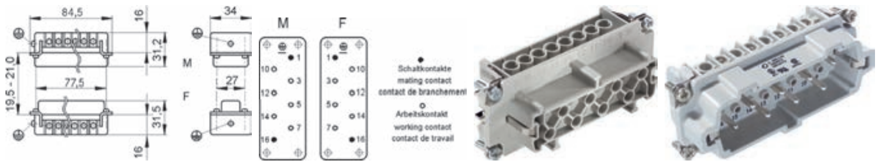


EPIC® H-BVE 6

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® H-BVE 3
- EPIC® ULTRA H-B 10
- EPIC® H-B 10 Housings
- EPIC® QUICK & EASY Mounting system

EPIC® H-BVE 6
- EPIC® ULTRA H-B 10
- EPIC® H-B 10 Housings
- EPIC® QUICK & EASY Mounting system

EPIC® H-BVE 10
- EPIC® ULTRA H-B 10
- EPIC® H-B 10 Housings
- EPIC® QUICK & EASY Mounting system

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078

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

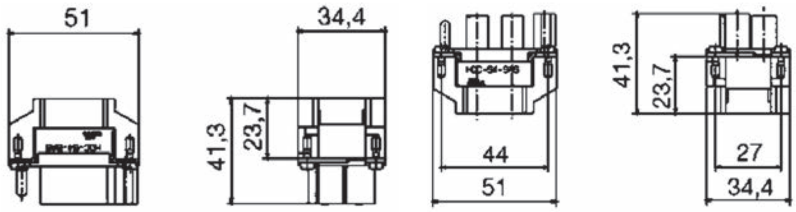
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
1000

Rated impulse voltage
8 kV

Rated current (A)
65

Degree of soiling
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 ... +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

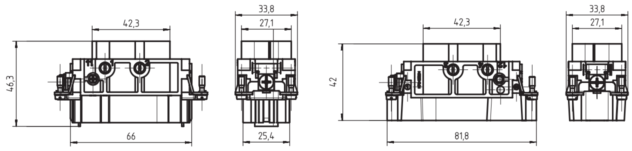
Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® Power K 4/0

Combination insert Power

Info

- Combination insert Power

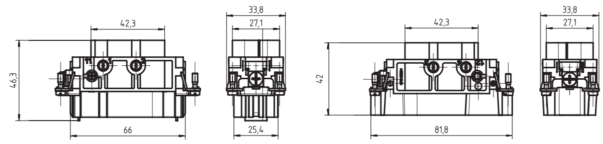


EPIC® Power K 4/2

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
3

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 mm^2

Stripping length (mm)
16
6

Material
PC, polycarbonate

Cycle of mechanical operation
500

Temperature range
-40°C ... +125°C

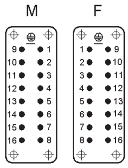
Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
EPIC® 4/0 screw termination				
44424041	EPIC® K 4/0 SS	male	4 + PE	10
44424042	EPIC® K 4/0 BS	female	4 + PE	10
EPIC® K 4/2 screw termination				
44424043	EPIC® K 4/2 SS	male	4 + 2 + PE	10
44424044	EPIC® K 4/2 BS	female	4 + 2 + PE	10

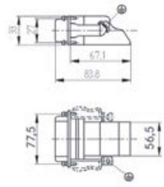
PE connection with a 16 mm^2 wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® TB-H-BE 16

For convenient, clear wiring in control cabinets.
Assembly in panel-mount base housings.







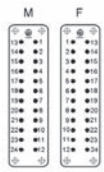
Info

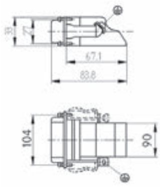
- Plug connection for control cabinets

EPIC® TB-H-BE 24

For convenient, clear wiring in control cabinets.
Assembly in panel-mount base housings.







Info

- Plug connection for control cabinets

Suitable housing

EPIC® TB-H-BE 16
- EPIC® ULTRA H-B 16 AG QB Page 609
- EPIC® H-B 16 AG-LB Page 635
- EPIC® H-B 16 AD-LB Page 635
- EPIC® H-B 16 AG Page 635
- EPIC® H-B 16 AD-BO Page 631
- EPIC® H-B 16 AG-ZR

EPIC® TB-H-BE 24
- EPIC® ULTRA H-B 16 AG QB Page 609
- EPIC® H-B 16 AG-LB Page 635
- EPIC® H-B 16 AD-LB Page 635
- EPIC® H-B 16 AG Page 635
- EPIC® H-B 16 AD-BO Page 631
- EPIC® H-B 16 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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
IEC: 500 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
6 kV

Rated current (A)
IEC: 16 A
UL: 16 A
CSA: 16 A

Degree of soiling
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)
12

Cycle of mechanical operation
200

UL-tested:
UL File Number: E75770

Temperature range
-40°C to +100°C,
short-term up to +125°C

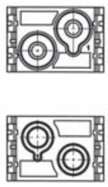
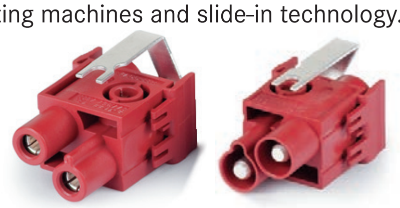
Article number	Article description	Contact type	Fastening on side	Number of operating contacts	Pieces / PU
16-pin terminal adapter					
70315100	TB-H-BE 16 BRE	female	right	1 - 16	10
70314100	TB-H-BE 16 BLI	female	left	1 - 16	10
24-pin terminal adapter					
70317100	TB-H-BE 24 BRE	female	right	1 - 24	10
70316100	TB-H-BE 24 BLI	female	left	1 - 24	10

Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® MC Module: High Current 1+PE

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

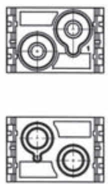
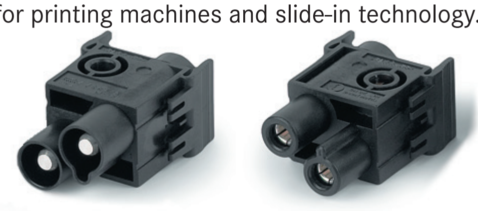
Info
- High power module with screw connection and reinforced protection earth
- Lever for rapid removal of the module

M
F



EPIC® MC Module: High Current 2pole

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

M
F



Suitable housing
- EPIC® MCR Frames
- Higher housing
- The suitable connector housings depend on the modular frame used

Benefits
EPIC® MC Module: High Current 1+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: High Current 2pole
- 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
- PEW 12 universal tool refer to page 1034
- When connecting 25 mm² cables, please use the special crimping die (11147500) for the cable-end sleeves

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
IEC: 1000 V
UL: 600 V
CSA: 600 V

Rated current (A)
82 A

Degree of soiling
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver-plated

Number of contacts
EPIC® MC Module: High Current 1+PE
1 + PE
EPIC® MC Module: High Current 2pole
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 (occupies 2 slots in the MCR frame)					
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 (occupies 2 slots in the MCR frame)					
10344100	MCS-HC 2	male	2	2	5
10345100	MCB-HC 2	female	2	2	5

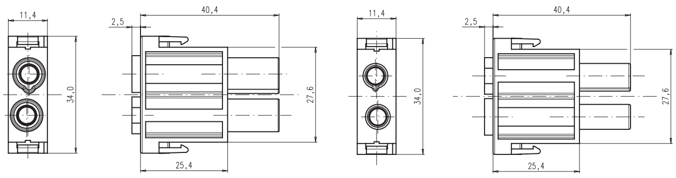
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- EPIC® MC Module removal tool refer to page 575

NEW

EPIC® 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

Suitable housing

- EPIC® MCR Frames
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® Modular 3.6 machined contacts 16 mm² Page 586
- Use only EPIC® MC 3.6 contacts 16mm²

Benefits

- High current transfer
- Only one slot needed in the frame
- The mix of different functions in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contact

Application range

- Plant engineering
- Robotics industry
- Control engineering
- Mechanical engineering

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
65

Degree of soiling
3

Number of contacts
2

Termination methods
Crimp termination: 16.0 mm²

Material
PA6

Cycle of mechanical operation
500

Temperature range
-40°C ... +125°C

Article number	Article description	Contact type	Slots	Pieces / PU
EPIC® Power Module HC2				
44424012	EPIC® MCS HC2	male	1	10
44424013	EPIC® MCB HC2	female	1	10

PE connection with a 16mm² wire only with the recommended ring lug 44424029
The inserts must be used with the appropriate housings
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

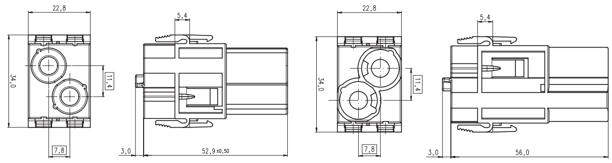
- EPIC® MCR Frames

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



Suitable housing

- EPIC® MCR Frames
- EPIC® H-B housing use in high version

Suitable contacts:

- Modular 6.0 machined contacts
  Page 586

Benefits

- Very high current transfer
- The mix of different functions in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contact

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
1000

Rated impulse voltage
8 kV

Rated current (A)
150

Degree of soiling
3

Number of contacts
2

Termination methods
Crimp termination: 16 mm² ... 35 mm²

Material
PA6

Cycle of mechanical operation
500

Temperature range
-40°C ... +125°C

Article number	Article description	Contact type	Slots	Pieces / PU
Power Module HHC2				
44424017	MCS HHC2	male	2	10
44424018	MCB HHC2	female	2	10

* Trade product, no Lapp product
Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s).
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

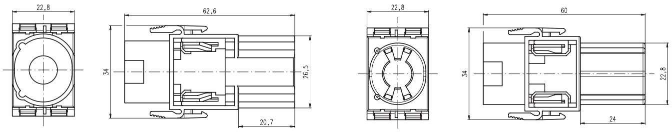
- EPIC® MCR Frames

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

NEW

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 Frames
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® Modular 10.0 machined contacts Page 587

Benefits

- Extremely high current transfer
- The mix of different functions in one plug guarantees high flexibility
- Crimp connection for permanent vibration proof contact

Application range

- Robotics industry
- Renewable energy
- Plant engineering
- Mechanical engineering

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
1000

Rated impulse voltage
8 kV

Rated current (A)
220

Degree of soiling
3

Number of contacts
1

Termination methods
Crimp termination: 50 mm² ... 95mm²

Material
PA6

Cycle of mechanical operation
500

Temperature range
-40°C ... +125°C

Article number	Article description	Contact type	Slots	Pieces / PU
Power Module HHC1				
44424030	MCS HHC1	male	2	1
44424031	MCB HHC1	female	2	1

* Trade product, no Lapp product
Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s).
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

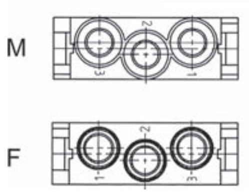
- EPIC® MCR Frames

EPIC® MC Module: High Voltage 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



Suitable housing

- EPIC® MCR Frames
- The suitable connector housings depend on the modular frame used

Suitable contacts:

- EPIC® Modular 3.6 machined contacts Page 585

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
1000 V

Rated current (A)
50 A

Degree of soiling
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver-plated

Number of contacts
3

Termination methods
Crimp termination: 1.5 - 10 mm²

Cycle of mechanical operation
100

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

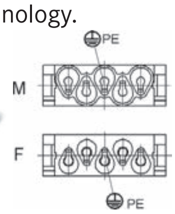
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® MC Module removal tool refer to page 575

EPIC® MC Module: High Voltage 4+PE

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

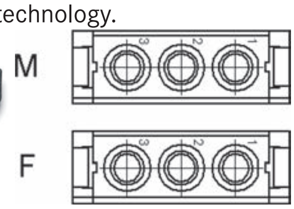


Info

- 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.

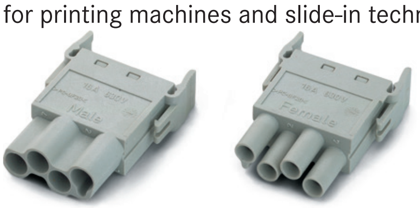


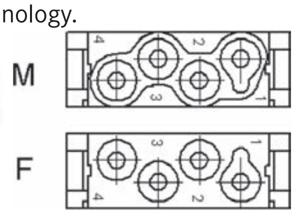
Info

- 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 Frames
- The suitable connector housings depend on the modular frame used

Suitable contacts:

EPIC® MC Modul: High Voltage 4+PE

- EPIC® MC 2.5 stamped contacts Page 583
- EPIC® MC 2.5 stamped contacts-on-reel Page 584

EPIC® MC Module: 3pol.

- EPIC® MC 2.5 stamped contacts Page 583

EPIC® MC Module: HE 4pol.

- EPIC® MC 2.5 stamped contacts Page 583

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
EPIC® MC Module: High Voltage 4+PE
1000 V
EPIC® MC Module: 3pole
630 V
EPIC® MC Module: HE 4pole
630 V

Rated current (A)
EPIC® MC Module: High Voltage 4+PE
16 A
EPIC® MC Module: 3pole
40 A
EPIC® MC Module: HE 4pole
25 A

Degree of soiling
3

Contact resistance
< 2 mOhm

Contacts
Copper alloy, hard silver-plated

Number of contacts
EPIC® MC Module: High Voltage 4+PE
4 + PE
EPIC® MC Module: 3pole
3
EPIC® MC Module: HE 4pole
4

Termination methods
EPIC® MC Module: High Voltage 4+PE
Crimp termination: 0.5 - 2.5 mm²
EPIC® MC Module: 3pole
Crimp termination: 1.5 - 10 mm²
EPIC® MC Module: HE 4pole
Crimp termination: 0.5 - 4.0 mm²

Cycle of mechanical operation
100

EPIC® MC Module: High Voltage 4+PE
UL-tested:
UL File Number: E75770
EPIC® MC Module: 3pole
UL-tested:
UL File Number: E75770

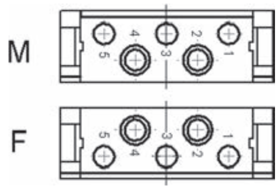
Temperature range
-40°C to +100°C,
short-term up to +125°C

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 are not to scale and do not represent detailed images of the respective products.

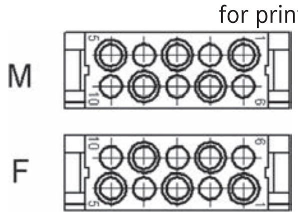
EPIC® MC Module: 5pole

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 Frames
- The suitable connector housings depend on the modular frame used

Suitable contacts:

EPIC® MC Module: 5pol.

- EPIC® MC 2.5 machined contacts Page 582

EPIC® MC Module: 10pol.

- EPIC® MC 2.5 machined contacts Page 582

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
400 V

Rated current (A)
EPIC® MC Module: 5pole
20 A
EPIC® MC Module: 10pole
max. 10 A

Degree of soiling
3

Contact resistance
EPIC® MC Module: 5pole
< 2 mOhm
EPIC® MC Module: 10pole
< 2 mOhm

Contacts
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: 5pole
5
EPIC® MC Module: 10pole
10

Termination methods
EPIC® MC Module: 5pole
Crimp termination: 0.5 - 4.0 mm²
EPIC® MC Module: 10pole
Crimp termination: 0.14 - 2.5 mm²

Cycle of mechanical operation
100

EPIC® MC Module: 5pole
UL-tested:
UL File Number: E75770
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: 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 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

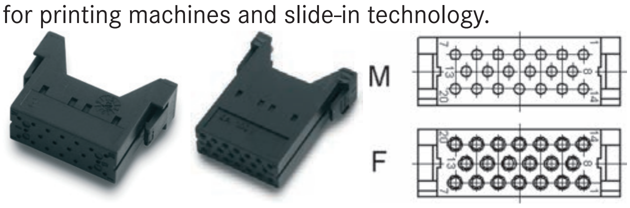
The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

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 Frames
- 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 579
- EPIC® H-D 1.6 stamped contacts-on-reel
  Page 580

EPIC® MC Module: 20pole

- EPIC® H-D 1.6 stamped contacts
  Page 579

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

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

Degree of soiling
EPIC® MC Module: 10pole stamped
3
EPIC® MC Module: 20pole
3

Contact resistance
EPIC® MC Module: 10pole stamped
< 2 mOhm

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

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 are not to scale and do not represent detailed images of the respective products.

Accessories

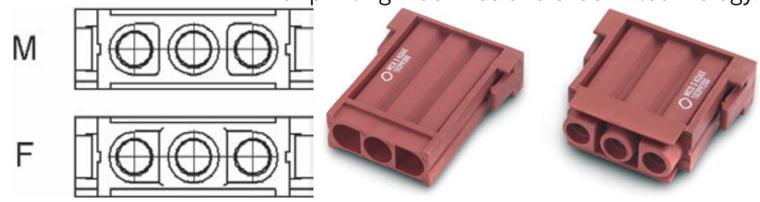
- EPIC® MC Module removal tool refer to page 575

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

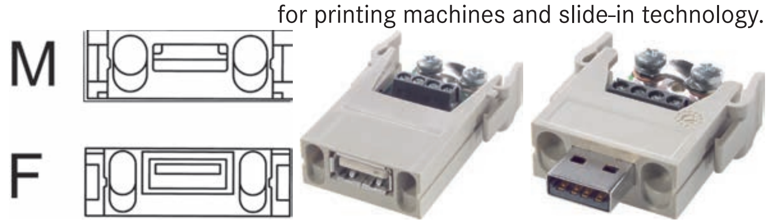
- Profibus DP module for uniterruptible fieldbus operation
- Lever for rapid removal of the module

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 Frames
- Higher housing
- The suitable connector housings depend on the modular frame used

Suitable contacts:

EPIC® MC Modul: Koax 3pol.

- EPIC® MC Coax-Contacts Page 588

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
EPIC® MC Module: Koax 3pole
250 V
EPIC® MC Module: PROFIBUS DP
30 V
EPIC® MC Module: Universal Bus
30 V

Amp.
EPIC® MC Module: PROFIBUS DP
1 A
EPIC® MC Module: Universal Bus
1 A

Degree of soiling
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

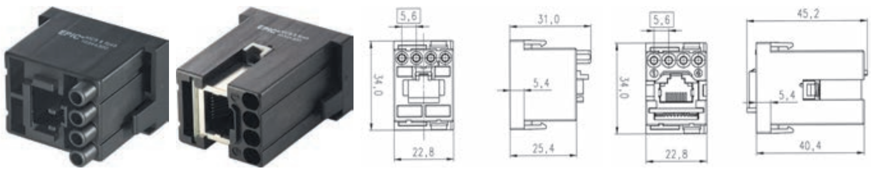
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® MC Module removal tool refer to page 575

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 Frames
- Higher housing
- The suitable connector housings depend on the modular frame used

Suitable contacts:

- EPIC® H-D 1.6 machined contacts Page 578

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

Rated voltage (V)
max. 600 V/max. 125 V

Rated current (A)
max. 10 A/max. 1.5 A

Degree of soiling
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® MC Module removal tool refer to page 575

EPIC® CE6326 Connector RJ45

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- RJ45 connector suitable for RJ45 module

Suitable housing

- EPIC® MCR Frames
- The suitable connector housings depend on the modular frame used

Benefits

- RJ45 connector for use in the module MCS 8 RJ45

Application range

- Plant engineering
- Control engineering

Suitable cables

- ETHERLINE® 4-pairs flexible/high flexible CAT.5e

Suitable tools

- Crimping tool RJ45 Stewart refer to page 479
- Use crimping tool type CE5092

Technical data

ETIM 5.0 Class-ID: EC000309
ETIM 5.0 Class-Description:
Module for active network component/network unit

Rated voltage (V)
max. 125 V

Rated current (A)
max. 1.5 A

Degree of soiling
3

Contacts
Copper alloy, gold-plated

Number of contacts
8

Termination methods
IDC/piercing termination:
Cat 5, AWG 24-26

Cycle of mechanical operation
100

Temperature range
-20 °C ... +85 °C

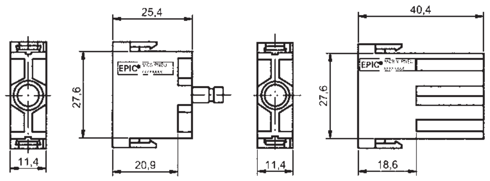
Article number	Article description	Contact type	Number of operating contacts	Pieces / PU
RJ45 connector for MCS 8 RJ45				
CE6326	CE6326	male	8	10

Photographs 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.





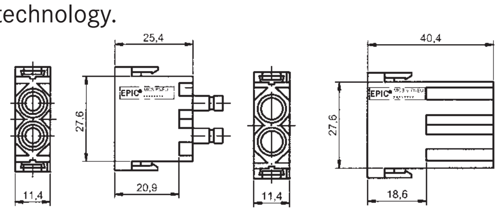
Info

- Pneumatic modules with valve for 2.5 und 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 und 4mm tubings

Suitable housing

- EPIC® MCR Frames
- 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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 Class-Description: Contact insert for industrial connectors

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® MC Module removal tool refer to page 575

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

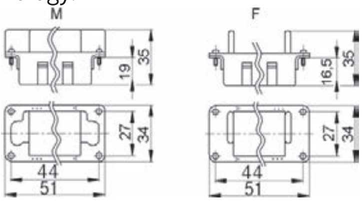
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article description	Pieces / PU
MC module removal tool		
11171200	MC module removal tool	1

Photographs 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.

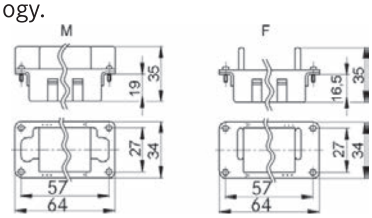


Info

- 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.

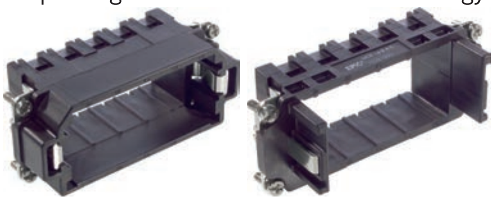


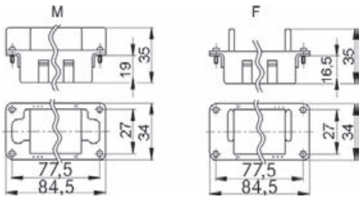
Info

- 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.



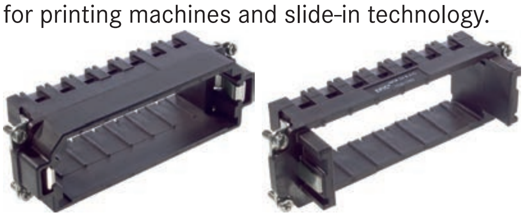


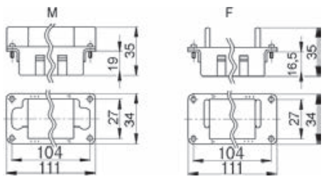
Info

- 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® MCR 6
- EPIC® ULTRA H-B 6
- EPIC® H-B 6 Housings
- EPIC® QUICK & EASY Mounting system

EPIC® MCR 10
- EPIC® ULTRA H-B 6
- EPIC® H-B 6 Housings
- EPIC® QUICK & EASY Mounting system

EPIC® MCR 16
- EPIC® ULTRA H-B 6
- EPIC® H-B 6 Housings
- EPIC® QUICK & EASY Mounting system

EPIC® MCR 24
- EPIC® ULTRA H-B 6
- EPIC® H-B 6 Housings
- EPIC® QUICK & EASY Mounting system

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 5.0 Class-ID: EC002310
ETIM 5.0 Class-Description: Fixing frame industrial connectors

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 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 5.0 Class-ID: EC000796
ETIM 5.0 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 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 577



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 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 578
- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Technical data

ETIM 5.0 Class-ID: EC000796
ETIM 5.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Conductor cross-section (mm²)	Cross-section ratio	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 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	Version	Note	Pieces / PU
Tools				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147100	Crimping dies	For crimping tools 11147000, 11147001	For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined	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		For contacts: H-D 1.6 machined, H-D 1.6 stamped	1

Photographs 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 5.0 Class-ID: EC000796
ETIM 5.0 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 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

11147001

Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article description	Version	Note	Pieces / PU
Tools				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	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		For contacts: H-D 1.6 machined, H-D 1.6 stamped	1

Photographs 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 single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Technical data

ETIM 5.0 Class-ID: EC000796
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

EPIC® Tools for contacts-on-reel H-D 1.6 stamped

For inserts and modules of the EPIC® rectangular connectors

Article number	Article description	Note	Pieces / PU
EPIC® Tools for contacts-on-reel H-D 1.6 stamped			
11161000	Removal tool	For contacts: H-D 1.6 machined, H-D 1.6 stamped	1
11147004	EPIC® TOOL H-D, MC 2,5 reel 0.14 ... 0.5mm²	inclusive crimping die and locator	1
11147005	EPIC® TOOL H-D, MC 2,5 reel 0.5 ... 1.5mm²	inclusive crimping die and locator	1
11147006	EPIC® TOOL H-D, MC 2,5 reel 1.5 ... 2.5mm²	inclusive crimping die and locator	1

Photographs 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 5.0 Class-ID: EC000796
ETIM 5.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Contact type	Conductor cross-section (mm²)	Cross-section ratio	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
11190301	H-BE 2.5 machined	male	0,14 - 0,37		Au	7.4	100
11190302	H-BE 2.5 machined	female	0,14 - 0,37		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

Photographs 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	Version	Note	Pieces / PU
Tools				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147100	Crimping dies	For crimping tools 11147000, 11147001	For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined	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		For contacts: H-BE 2.5 machined	1

Photographs 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

- 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 5.0 Class-ID: EC000796
ETIM 5.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Version	Contact type	Conductor cross-section (mm²)	Cross-section ratio	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 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	Version	Note	Pieces / PU
Tools				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147100	Crimping dies	For crimping tools 11147000, 11147001	For contacts: H-D 1.6 machined, H-BE 2.5 machined, MC 2.5 machined	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 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

- 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 5.0 Class-ID: EC000796
ETIM 5.0 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 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

11147001

Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

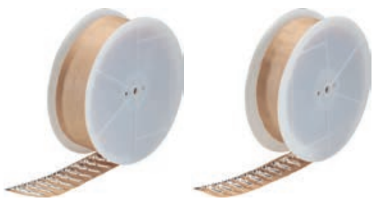
Article number	Article description	Version	Note	Pieces / PU
Tools				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	1
11147180	Crimping dies	For crimping tools 11147000, 11147001	For 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 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

- 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 single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Technical data

ETIM 5.0 Class-ID: EC000796
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

EPIC® Tools for contacts-on-reel MC 2.5 stamped

For inserts and modules of the EPIC® rectangular connectors

Article number	Article description	Note	Pieces / PU
EPIC® Tools for contacts-on-reel MC 2.5 stamped			
11160000	Removal tool	For contacts: MC 2.5 stamped	1

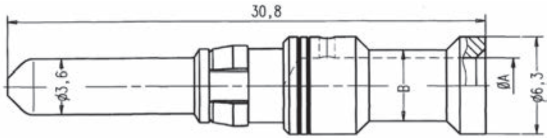
Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® Modular 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 5.0 Class-ID: EC000796
ETIM 5.0 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 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

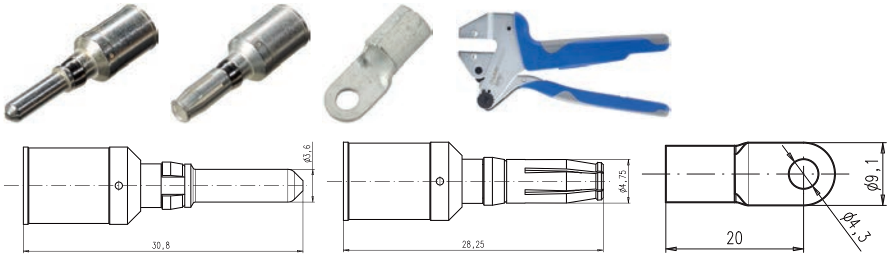
- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article description	Version	Note	Pieces / PU
Tools				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	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 are not to scale and do not represent detailed images of the respective products.

EPIC® Modular 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

ETIM 5.0 Class-ID: EC000796
ETIM 5.0 Class-Description: Contact for industrial connectors

Contact resistance
< 1 mOhm

Contacts
Copper alloy, hard silver-plated

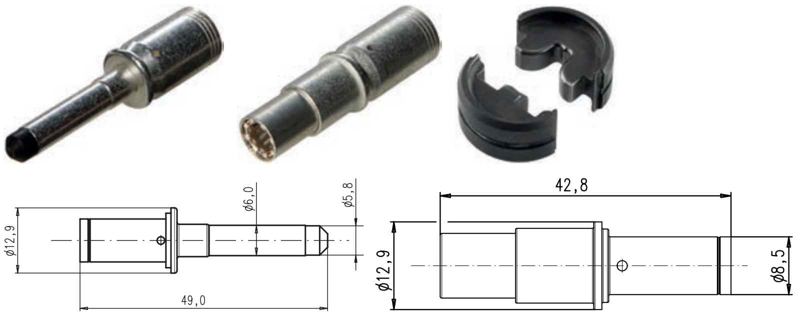
Cycle of mechanical operation
500

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
Tools						
11147000	Crimping tool		In tool case			1
Crimping die for contacts of HC2 modules						
11147111	EPIC® TOOL DIE D=3.6/16 mm²	Crimping dies		16		1

Photographs are not to scale and do not represent detailed images of the respective products.

Modular 6.0 machined contacts

For inserts and modules of the EPIC® rectangular connectors



Info

- Silver plated and passivated contacts

Suitable tools

- For use in pneumatic crimping tool Klauke type EK 60/22-L

Technical data

ETIM 5.0 Class-ID: EC000796
ETIM 5.0 Class-Description: Contact for industrial connectors

Contact resistance
< 1 mOhm

Material
Copper alloy, hard silver-plated

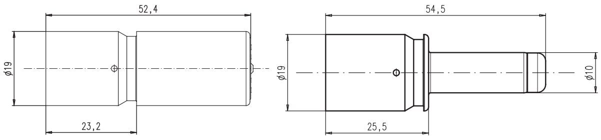
Cycle of mechanical operation
500

Article number	Article description	Inserts	Version	Cross-section (mm²)	Cross-section ratio	Surface	Pieces / PU
Contacts							
44424019	EPIC® Modular SCEM AG 16 D=3.6	Crimping contacts for HHC2 modules	male	16	1	Ag	20
44424022	Modular BCEM AG 16 D=6.0	Crimping contacts for HHC2 modules	female	16	1	Ag	20
44424020	Modular SCEM AG 25 D=6.0	Crimping contacts for HHC2 modules	male	25	2	Ag	20
44424023	Modular BCEM AG 25 D=6.0	Crimping contacts for HHC2 modules	female	25	2	Ag	20
44424021	Modular SCEM AG 35 D=6.0	Crimping contacts for HHC2 modules	male	35	3	Ag	20
44424024	Modular 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 are not to scale and do not represent detailed images of the respective products.

EPIC® Modular 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 pneumatic crimping tool Klauke type EK 120/42-L

Technical data

ETIM 5.0 Class-ID: EC000796
ETIM 5.0 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	Contact type	Cross-section (mm²)	Surface	Pieces / PU
Contacts							
44424032	Modular SCEM AG 50 D=10.0	Crimping contacts for HHC1 modules		male	50	Ag	1
44424035	Modular BCEM AG 50 D=10.0	Crimping contacts for HHC1 modules	female	female	50	Ag	1
44424033	Modular SCEM AG 70 D=10.0	Crimping contacts for HHC1 modules	male	male	70	Ag	1
44424036	Modular BCEM AG 70 D=10.0	Crimping contacts for HHC1 modules	female	female	70	Ag	1
44424034	Modular SCEM AG 95 D=10.0	Crimping contacts for HHC1 modules	male	male	95	Ag	1
44424037	Modular BCEM AG 95 D=10.0	Crimping contacts for HHC1 modules	female	female	95	Ag	1
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 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

Product features

- Solder termination: the inner conductor and the outer sleeve of the COAX cable are terminated by soldering

Suitable cables

- UNITRONIC® VIDEO FLAT
- UNITRONIC® VIDEO RL BK
- UNITRONIC® Combi cable

Suitable tools

- Pneumatic crimping machine for single contacts
- Crimping tool for single contacts
- Crimping dies for single contacts
- Locator
- Removal tool

Info

- Selection between 50 and 75 ohms contacts
- All contacts are high quality gold plated

Technical data

ETIM 5.0 Class-ID: EC000796
ETIM 5.0 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 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

11147001

Product features

- Locator and crimping dies fit together with the crimping tool 11147000 and the crimping machine 11147001

Article number	Article description	Version	Note	Pieces / PU
Tools				
11147000	Crimping tool	In tool case	without crimping dies, without locator	1
11147001	Crimping machine	Pneumatic, 5 - 10 bar	without crimping dies, without locator	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 are not to scale and do not represent detailed images of the respective products.

EPIC® H-A 3 MTG

Innovative metal and plastic housing design

EPIC® H-A 3 TG

Innovative metal and plastic housing design

Info

- Lightweight chemically resistant plastic housing

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
- Bolts for single lever
- Straight cable entry
- Versions with / without cable gland

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
EPIC® H-A 3 MTG
Housing: powder-coated zinc die-casting, grey
Lever: zinc-plated steel
EPIC® H-A 3 TG
Housing: grey thermoplastic, black
Lever: zinc-plated steel

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

Article number	Article description	M	PG	Material	Colour	Cable gland	Cable clamping range	Dimensions incl. cable gland	Pieces / PU
H-A housing: hood (straight cable entry)									
10512100	H-A 3 MTgv		11	Zinc die-casting	grey				10
10426500	H-A 3 MTgv		11	Zinc die-casting	grey	yes	6.5 - 12.0	57	10
19512100	H-A 3 MTgv M20	20		Zinc die-casting	grey				10
19426500	H-A 3 MTgv M20	20		Zinc die-casting	grey	yes	3.0 - 13.5	57	10
EPIC® H-A 3 TG									
10425500	H-A 3 Tgv		11	Thermoplastic	black				10
10426000	H-A 3 Tgv		11	Thermoplastic	grey				10
10426700	H-A 3 Tgv		11	Thermoplastic	black	yes	6.5 - 12.0	62	10
10426400	H-A 3 Tgv		11	Thermoplastic	grey	yes	6.5 - 12.0	62	10
19425500	H-A 3 Tgv M20	20		Thermoplastic	black				10
19426000	H-A 3 Tgv M20	20		Thermoplastic	grey				10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

EPIC® H-A 3 MTG

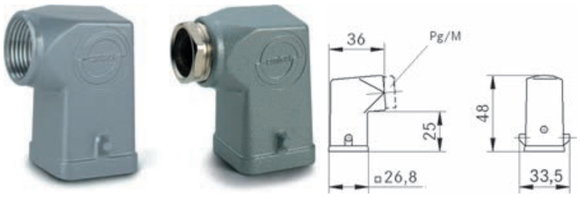
- EPIC® Protective cover H-A 3 refer to page 660
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724

EPIC® H-A 3 TG

- EPIC® Protective cover H-A 3 refer to page 660
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724

EPIC® H-A 3 MTS

Innovative metal and plastic housing design



EPIC® H-A 3 TS

Innovative metal and plastic housing design

Info

- Lightweight chemically resistant plastic housing

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
- Bolts for single lever
- Side cable entry
- Versions with / without cable gland

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
EPIC® H-A 3 MTS
Housing: powder-coated zinc die-casting, grey
Lever: zinc-plated steel
EPIC® H-A 3 TS
Housing: grey thermoplastic, black
Lever: zinc-plated steel

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

Article number	Article description	M	PG	Material	Colour	Cable gland	Cable clamping range	Dimensions incl. cable gland	Pieces / PU
H-A housing: hood (side cable entry)									
10512300	H-A 3 MTs		11	Zinc die-casting	grey				10
10427500	H-A 3 MTs		11	Zinc die-casting	grey	yes	6.5 - 12.0	43	10
19512300	H-A 3 Ts M20	20		Zinc die-casting	grey				10
19427500	H-A 3 Ts M20	20		Zinc die-casting	grey	yes	3.0 - 13.5	43	10
EPIC® H-A 3 TS									
10427300	H-A 3 Ts		11	Thermoplastic	black				10
10427000	H-A 3 Ts		11	Thermoplastic	grey				10
10620600	H-A 3 Ts		11	Thermoplastic	black	yes	6.5 - 12.0	48	10
10427100	H-A 3 Ts		11	Thermoplastic	grey	yes	6.5 - 12.0	48	10
19427300	H-A 3 Ts M20	20		Thermoplastic	black				10
19427000	H-A 3 Ts M20	20		Thermoplastic	grey				10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

EPIC® H-A 3 MTS
- EPIC® Protective cover H-A 3 refer to page 660
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724

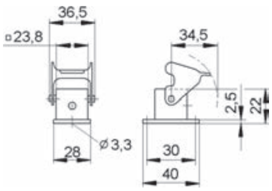
EPIC® H-A 3 TS
- EPIC® Protective cover H-A 3 refer to page 660
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724

EPIC® H-A 3 AG

Innovative metal and plastic housing design

Info

- Lightweight chemically resistant plastic housing

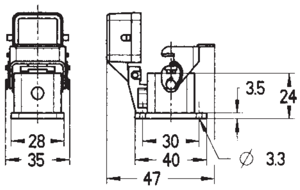


EPIC® H-A 3 MAGD

Innovative metal and plastic housing design

Info

- Metal lid with sturdy hinge

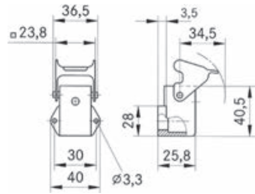


EPIC® H-A 3 AGS

Innovative metal and plastic housing design

Info

- Lightweight chemically resistant plastic housing



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

EPIC® H-A 3 AG
- Panel-mount base
- 1 lever
- Included: flat gasket

EPIC® H-A 3 MAGD
- Panel-mount base
- 1 lever
- Metal cover
- Included: flat gasket

EPIC® H-A 3 AGS
- Panel-mount base
- 1 lever
- Angled version
- Included: flat gasket

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
EPIC® H-A 3 AG
Housing: powder-coated zinc die-casting, grey
Lever: zinc-plated steel
Sealing: NBR
Housing: grey thermoplastic, black
Lever: zinc-plated steel
Sealing: NBR
EPIC® H-A 3 MAGD
Housing: powder-coated zinc die-casting, grey
Lever: zinc-plated steel
Sealing: NBR
Metal cover
EPIC® H-A 3 AGS
Housing: powder-coated zinc die-casting, grey
Lever: zinc-plated steel
Sealing: NBR
Housing: grey thermoplastic, black
Lever: zinc-plated steel
Sealing: NBR

Protection rating
EPIC® H-A 3 AG
IP 65 (latched)
EPIC® H-A 3 MAGD
IP 65 (latched)
IP 44 (Cover latched)
EPIC® H-A 3 AGS
IP 65 (latched)

VDE-tested
EPIC® H-A 3 AG
Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770
EPIC® H-A 3 MAGD
UL-tested:
UL File Number: E75770
EPIC® H-A 3 AGS
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	Colour	Material	Pieces / PU
H-A housing: panel-mount base (straight)				
10422500	H-A 3 Mag	grey	Zinc die-casting	10
10422200	H-A 3 Ag	black	Thermoplastic	10
10422000	H-A 3 Ag	grey	Thermoplastic	10
H-A housing: panel-mount base with cover (with sealing, for female inserts)				
44429015	H-A 3 MAGD	grey	Aluninium die-casting	10
H-A housing: panel-mount base (angled)				
10423500	H-A 3 Mags	grey	Zinc die-casting	10
10423100	H-A 3 Ags	black	Thermoplastic	10
10423000	H-A 3 Ags	grey	Thermoplastic	10

Photographs are not to scale and do not represent detailed images of the respective products.

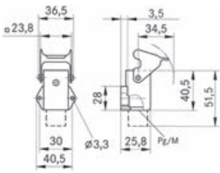
Accessories

- EPIC® Protective cover H-A 3 refer to page 660

LAPP GROUP

EPIC® H-A 3 AGSV

Innovative metal and plastic housing design

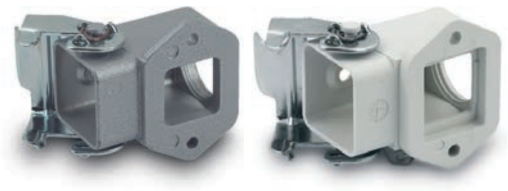


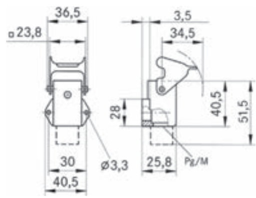
Info

- Lightweight chemically resistant plastic housing

EPIC® H-A 3 AGSV open bottom

Innovative metal and plastic housing design





Info

- Lightweight chemically resistant plastic housing

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

EPIC® H-A 3 AGSV

- Surface-mount base
- 1 lever
- 1 cable entry
- Versions with / without cable gland

EPIC® H-A 3 AGSV open bottom

- Surface-mount base
- 1 lever
- 2 cable entries
- Housing type: with open base
- Included: flat gasket

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated zinc die-casting, grey
Lever: zinc-plated steel
Sealing: NBR
Housing: grey thermoplastic, black
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

Article number	Article description	M	PG	Material	Colour	Cable gland	Cable clamping range	Dimensions incl. cable gland	Pieces / PU
H-A housing: surface-mount base									
10512700	H-A 3 MAgsv		11	Zinc die-casting	grey			51.5	10
10424000	H-A 3 Agsv		11	Thermoplastic	grey			56	10
10424500	H-A 3 MAgsv		11	Zinc die-casting	grey	yes	6.5 - 12.0	57.5	10
10424200	H-A 3 Agsv		11	Thermoplastic	grey	yes	6.5 - 12.0	65	10
19512700	H-A 3 MAgsv M20	20		Zinc die-casting	grey			54.5	10
19421900	H-A 3 Agsv M20	20		Thermoplastic	grey	yes	3.0 - 13.5	56	10
19424500	H-A 3 MAgsv M20	20		Zinc die-casting	grey	yes	3.0 - 13.5	60.5	10
H-A housing: surface-mount base (with open base)									
19517200	H-A 3 MAgsv M20	20		Zinc die-casting	grey				10
19515200	H-A 3 Agsv M20	20		Thermoplastic	grey				10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

EPIC® H-A 3 AGSV

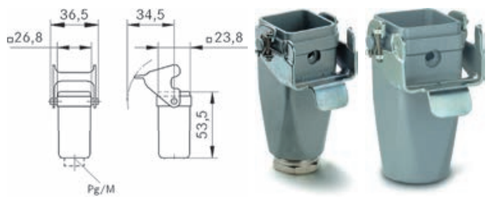
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® ST refer to page 788
- SKINTOP® ST-M refer to page 712
- EPIC® Protective cover H-A refer to page 660

EPIC® H-A 3 AGSV Boden offen

- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® ST refer to page 788
- SKINTOP® ST-M refer to page 712
- EPIC® Protective cover H-A refer to page 660

EPIC® H-A 3 MTGVB

Innovative metal and plastic housing design



EPIC® H-A 3 TGVB

Innovative metal and plastic housing design

Info

- Lightweight chemically resistant plastic housing

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

- Cable coupler hood
- 1 lever
- Straight cable entry
- Versions with / without cable gland

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
EPIC® H-A 3 MTGVB
Housing: powder-coated zinc die-casting, grey
Lever: zinc-plated steel
EPIC® H-A 3 TGVB
Housing: grey thermoplastic, black
Lever: zinc-plated steel

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

Article number	Article description	M	PG	Material	Colour	Cable gland	Cable clamping range	Dimensions incl. cable gland	Pieces / PU
H-A housing: cable coupler hood (straight cable entry)									
10512900	H-A 3 MTgvb		11	Zinc die-casting	grey				10
10429500	H-A 3 MTgvb		11	Zinc die-casting	grey	yes	6.5 - 12.0	60	10
19512900	H-A 3 MTgvb M20	20		Zinc die-casting	grey				10
EPIC® H-A 3 TGVB									
10429200	H-A 3 Tgvb		11	Thermoplastic	black				10
10429000	H-A 3 Tgvb		11	Thermoplastic	grey				10
10620300	H-A 3 Tgvb		11	Thermoplastic	black	yes	6.5 - 12.0	65	10
10429100	H-A 3 Tgvb		11	Thermoplastic	grey	yes	6.5 - 12.0	65	10
19429200	H-A 3 Tgvb M20	20		Thermoplastic	black				10
19429000	H-A 3 Tgvb M20	20		Thermoplastic	grey				10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

EPIC® H-A 3 MTGVB

- EPIC® Protective cover H-A 3 refer to page 660
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724

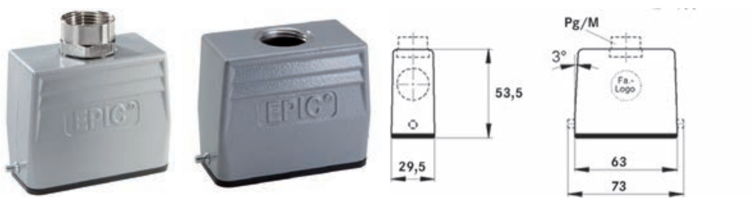
EPIC® H-A 3 TGVB

- EPIC® Protective cover H-A 3 refer to page 660
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® H-A 10 TG

These connectors are attractive because of their compact housing.

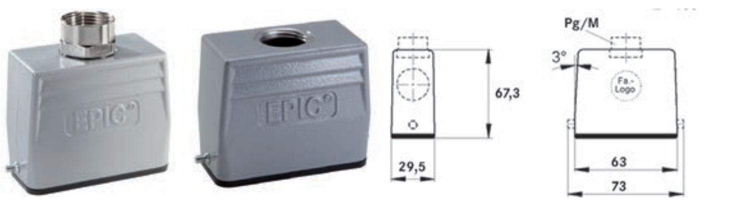


Info

- Non-slip ridges for comfortable disconnecting

EPIC® H-A 10 TGH

These connectors are attractive because of their compact housing.



Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

Benefits

- Small and space-saving for narrow available space

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

EPIC® H-A 10 TG

- Hood, low version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-A 10 TGH

- Hood, high version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-A housing: hood (straight cable entry, bolts for single lever)					
10446000	H-A 10 TG 13,5		13.5	yes	5
10446100	H-A 10 TG 16		16	yes	5
19446000	H-A 10 TG M20	20			5
19446100	H-A 10 TG M25	25			5
H-A housing: hood (straight cable entry, bolts for single lever, high version)					
70460200	H-A 10 TGH 16		16	yes	5
70460400	H-A 10 TGH 21		21	yes	5
79460200	H-A 10 TGH M20	20			5
79460400	H-A 10 TGH M25	25			5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

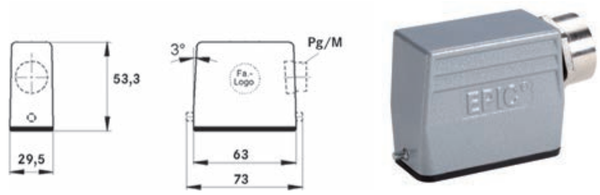
- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724
- EPIC® Protective cover H-A refer to page 660

EPIC® H-A 10 TS

These connectors are attractive because of their compact housing.

Info

- Non-slip ridges for comfortable disconnecting

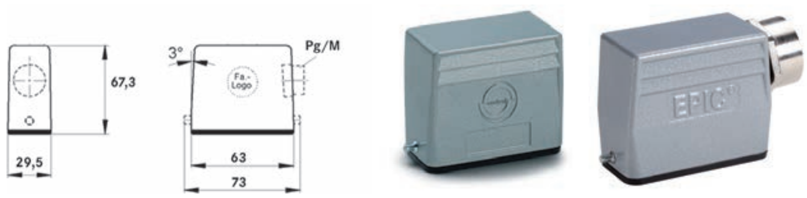


EPIC® H-A 10 TSH

These connectors are attractive because of their compact housing.

Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring



Benefits

- Small and space-saving for narrow available space

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

EPIC® H-A 10 TS

- Hood, low version
- Bolts for single lever
- Side cable entry
- Versions with neck

EPIC® H-A 10 TSH

- Hood, high version
- Bolts for single lever
- Side cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-A housing: hood (side cable entry, bolts for single lever)					
10445000	H-A 10 TS 16		16	yes	5
10445500	H-A 10 TS 21		21	yes	5
19445000	H-A 10 TS M20	20		yes	5
19445500	H-A 10 TS M25	25		yes	5
H-A housing: hood (side cable entry, bolts for single lever, high version)					
70462200	H-A 10 TSH 16		16	yes	5
70462400	H-A 10 TSH 21		21	yes	5
79462200	H-A 10 TSH M20	20			5
79462400	H-A 10 TSH M25	25			5

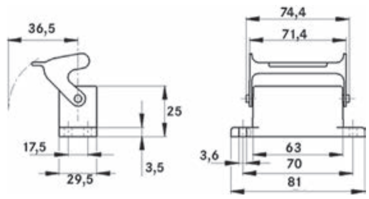
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724
- EPIC® Protective cover H-A refer to page 660

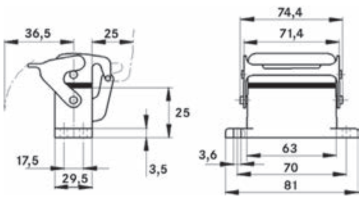
EPIC® H-A 10 AG-LB

These connectors are attractive because of their compact housing.

EPIC® H-A 10 AD-LB

These connectors are attractive because of their compact housing.

Info

- Metal lid with sturdy hinge

Benefits

- Small and space-saving for narrow available space

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

EPIC® H-A 10 AG-LB

- Panel-mount base
- Single lever
- Included: flat gasket

EPIC® H-A 10 AD-LB

- Panel-mount base
- Single lever
- Metal cover
- Included: flat gasket

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	Pieces / PU
H-A housing: panel-mount base (single lever)		
10442000	H-A 10 AG-LB	5
H-A housing: panel-mount base (cover, single lever)		
70444000	H-A 10 AD-LB	5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

EPIC® H-A 10 AG-LB

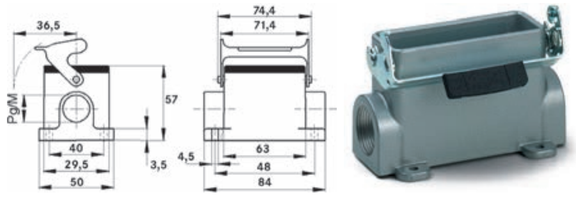
- EPIC® Protective cover H-A refer to page 660

EPIC® H-A 10 AD-LB

- EPIC® Protective cover H-A refer to page 660

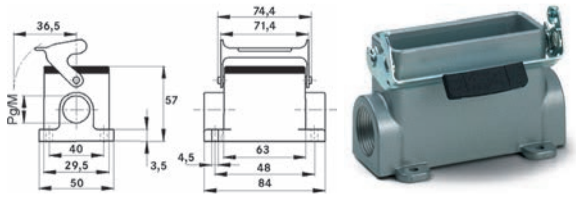
EPIC® H-A 10 SGR-LB

These connectors are attractive because of their compact housing.



EPIC® H-A 10 SGRL-LB

These connectors are attractive because of their compact housing.



Info

- For easy introduction of two cables

Benefits

- Small and space-saving for narrow available space

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

EPIC® H-A 10 SGR-LB

- Surface-mount base
- Single lever
- 1 cable entry

EPIC® H-A 10 SGRL-LB

- Surface-mount base
- Single lever
- 2 cable entries

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-A housing: surface-mount base (1 cable entry, single lever)				
10448100	H-A 10 SGR-LB 16		16	5
10448000	H-A 10 SGR-LB 21		21	5
19448100	H-A 10 SGR-LB M20	20		5
19448000	H-A 10 SGR-LB M25	25		5
H-A housing: surface-mount base (2 cable entries, single lever)				
10450100	H-A 10 SGRL-LB 16		16	5
19450100	H-A 10 SGRL-LB M20	20		5

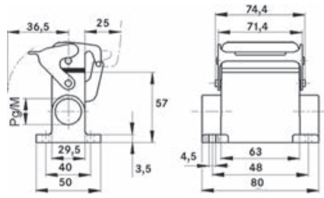
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724
- EPIC® Protective cover H-A refer to page 660

EPIC® H-A 10 SDR-LB

These connectors are attractive because of their compact housing.

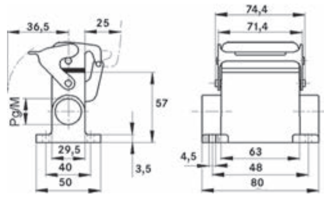


Info

- Metal lid with sturdy hinge

EPIC® H-A 10 SDRL-LB

These connectors are attractive because of their compact housing.



Info

- Metal lid with sturdy hinge
- For easy introduction of two cables

Benefits

- Small and space-saving for narrow available space

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

EPIC® H-A 10 SDR-LB

- Surface-mount base
- Single lever
- 1 cable entry
- Metal cover

EPIC® H-A 10 SDRL-LB

- Surface-mount base
- Single lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-A housing: surface-mount base (cover, 1 cable entry, single lever)				
70455200	H-A 10 SDR-LB 16		16	5
70455400	H-A 10 SDR-LB 21		21	5
79455200	H-A 10 SDR-LB M20	20		5
79455400	H-A 10 SDR-LB M25	25		5
H-A housing: surface-mount base (cover, 2 cable entries, single lever)				
70456200	H-A 10 SDRL-LB 16		16	5
70456400	H-A 10 SDRL-LB 21		21	5
79456200	H-A 10 SDRL-LB M20	20		5
79456400	H-A 10 SDRL-LB M25	25		5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724
- EPIC® Protective cover H-A refer to page 660

EPIC® H-A 10 TBF-LB

These connectors are attractive because of their compact housing.

EPIC® H-A 10 TBFH-LB

These connectors are attractive because of their compact housing.

Info

- More interior space for wiring

Benefits

- Small and space-saving for narrow available space

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

EPIC® H-A 10 TBF-LB

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-A 10 TBFH-LB

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-A housing: cable coupler hood (straight cable entry, single lever)					
10439000	H-A 10 TBF-LB 13,5		13.5	yes	5
70450000	H-A 10 TBF-LB 16		16	yes	5
19439000	H-A 10 TBF-LB M20	20			5
79450000	H-A 10 TBF-LB M25	25			5
H-A housing: cable coupler hood (straight cable entry, single lever, high version)					
70450400	H-A 10 TBFH-LB 21		21	yes	5
79450400	H-A 10 TBFH-LB M25	25			5

Photographs are not to scale and do not represent detailed images of the respective products.

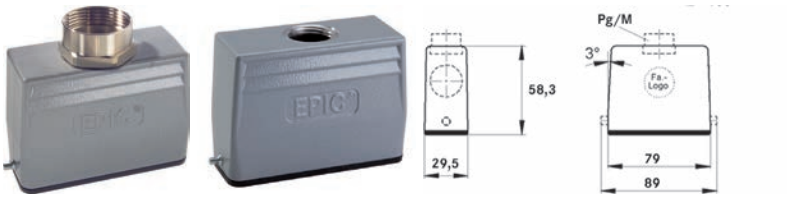
Accessories

- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® H-A 16 TG

These connectors are attractive because of their compact housing.

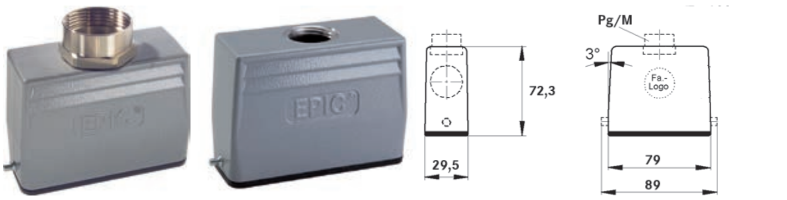


Info

- Non-slip ridges for comfortable disconnecting

EPIC® H-A 16 TGH

These connectors are attractive because of their compact housing.



Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

Benefits

- Small and compact, for applications with high number of contacts

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

EPIC® H-A 16 TG

- Hood, low version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-A 16 TGH

- Hood, high version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-A housing: hood (straight cable entry, bolts for single lever)					
10565000	H-A 16 TG 16		16	yes	5
10565300	H-A 16 TG 21		21	yes	5
19565000	H-A 16 TG M20	20			5
19565300	H-A 16 TG M25	25			5
H-A housing: hood (straight cable entry, bolts for single lever, high version)					
70490200	H-A 16 TGH 16		16	yes	5
70490400	H-A 16 TGH 21		21	yes	5
79490200	H-A 16 TGH M20	20			5
79490400	H-A 16 TGH M25	25			5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

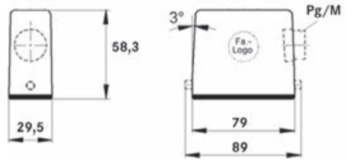
- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724
- EPIC® Protective cover H-A refer to page 660

EPIC® H-A 16 TS

These connectors are attractive because of their compact housing.

Info

- Non-slip ridges for comfortable disconnecting

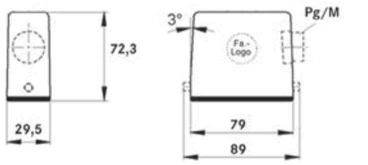


EPIC® H-A 16 TSH

These connectors are attractive because of their compact housing.

Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring



Benefits
- Small and compact, for applications with high number of contacts

Application range
- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features
EPIC® H-A 16 TS
- Hood, low version
- Bolts for single lever
- Side cable entry
- Versions with neck

EPIC® H-A 16 TSH
- Hood, high version
- Bolts for single lever
- Side cable entry
- Versions with / without neck

Suitable inserts
- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Sealing: NBR

Protection rating
IP 65 (latched)

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

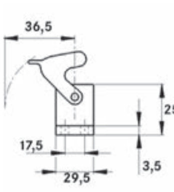
Article number	Article description	M	PG	Neck	Pieces / PU
H-A housing: hood (side cable entry, bolts for single lever)					
10564000	H-A 16 TS 16		16	yes	5
10564500	H-A 16 TS 21		21	yes	5
19564000	H-A 16 TS M20	20		yes	5
19564500	H-A 16 TS M25	25		yes	5
H-A housing: hood (side cable entry, bolts for single lever, high version)					
70492200	H-A 16 TSH 16		16	yes	5
70492400	H-A 16 TSH 21		21	yes	5
79492200	H-A 16 TSH M20	20			5
79492400	H-A 16 TSH M25	25			5

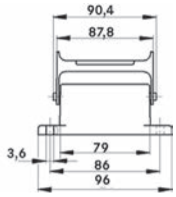
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724
- EPIC® Protective cover H-A refer to page 660

EPIC® H-A 16 AG-LB

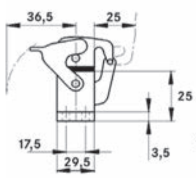
These connectors are attractive because of their compact housing.

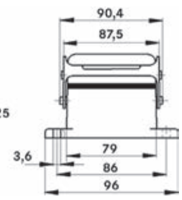





EPIC® H-A 16 AD-LB

These connectors are attractive because of their compact housing.



Info

- Metal lid with sturdy hinge

Benefits
- Small and compact, for applications with high number of contacts

Application range
- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features
EPIC® H-A 16 AG-LB
- Panel-mount base
- Single lever
- Included: flat gasket

EPIC® H-A 16 AD-LB
- Panel-mount base
- Single lever
- Metal cover
- Included: flat gasket

Suitable inserts
- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	Pieces / PU
H-A housing: panel-mount base (single lever)		
10462000	H-A 16 AG-LB	5
H-A housing: panel-mount base (cover, single lever)		
70474000	H-A 16 AD-LB	5

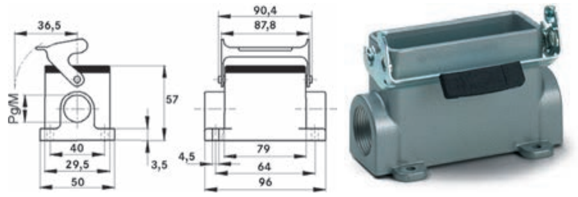
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
EPIC® H-A 16 AG-LB
- EPIC® Flat gaskets for housings H-A and H-B refer to page 659
- EPIC® Protective cover H-A refer to page 660

EPIC® H-A 16 AD-LB
- EPIC® Flat gaskets for housings H-A and H-B refer to page 659

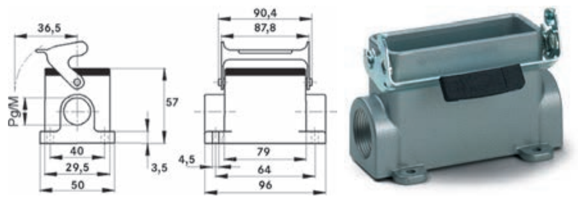
EPIC® H-A 16 SGR-LB

These connectors are attractive because of their compact housing.



EPIC® H-A 16 SGRL-LB

These connectors are attractive because of their compact housing.



Info

- For easy introduction of two cables

Benefits

- Small and compact, for applications with high number of contacts

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

EPIC® H-A 16 SGR-LB

- Surface-mount base
- Single lever
- 1 cable entry

EPIC® H-A 16 SGRL-LB

- Surface-mount base
- Single lever
- 2 cable entries

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-A housing: surface-mount base (1 cable entry, single lever)				
10567100	H-A 16 SGR-LB 16		16	5
10567000	H-A 16 SGR-LB 21		21	5
19567100	H-A 16 SGR-LB M20	20		5
19567000	H-A 16 SGR-LB M25	25		5
H-A housing: surface-mount base (2 cable entries, single lever)				
10568100	H-A 16 SGRL-LB 16		16	5
10568000	H-A 16 SGRL-LB 21		21	5
19568100	H-A 16 SGRL-LB M20	20		5
19568000	H-A 16 SGRL-LB M25	25		5

Photographs are not to scale and do not represent detailed images of the respective products.

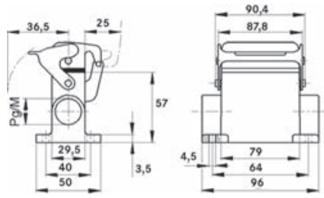
Accessories

- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724
- EPIC® Protective cover H-A refer to page 660

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® H-A 16 SDR-LB

These connectors are attractive because of their compact housing.

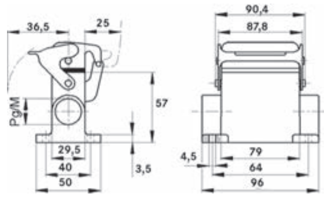


Info

- Metal lid with sturdy hinge

EPIC® H-A 16 SDRL-LB

These connectors are attractive because of their compact housing.



Info

- Metal lid with sturdy hinge
- For easy introduction of two cables

Benefits

- Small and compact, for applications with high number of contacts

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

EPIC® H-A 16 SDR-LB

- Surface-mount base
- Single lever
- 1 cable entry
- Metal cover

EPIC® H-A 16 SDRL-LB

- Surface-mount base
- Single lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-A housing: surface-mount base (cover, 1 cable entry, single lever)				
70485200	H-A 16 SDR-LB 16		16	5
70485400	H-A 16 SDR-LB 21		21	5
79485200	H-A 16 SDR-LB M20	20		5
79485400	H-A 16 SDR-LB M25	25		5
H-A housing: surface-mount base (cover, 2 cable entries, single lever)				
70486200	H-A 16 SDRL-LB 16		16	5
70486400	H-A 16 SDRL-LB 21		21	5
79486400	H-A 16 SDRL-LB M25	25		5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

EPIC® H-A 16 SDR-LB

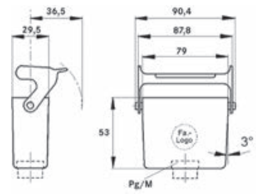
- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724

EPIC® H-A 16 SDRL-LB

- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724

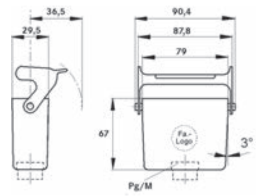
EPIC® H-A 16 TBF-LB

These connectors are attractive because of their compact housing.




EPIC® H-A 16 TBFH-LB

These connectors are attractive because of their compact housing.




Info

- More interior space for wiring

Benefits

- Small and compact, for applications with high number of contacts

Application range

- Machine and equipment manufacturing
- Control engineering
- Electronic laboratory

Product features

EPIC® H-A 16 TBF-LB

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-A 16 TBFH-LB

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-A housing: cable coupler hood (straight cable entry, single lever)					
10563000	H-A 16 TBF-LB 16		16	yes	5
19563000	H-A 16 TBF-LB M20	20			5
19563200	H-A 16 TBF-LB M25	25			5
H-A housing: cable coupler hood (straight cable entry, single lever, high version)					
70480200	H-A 16 TBFH-LB 16		16	yes	5
70480400	H-A 16 TBFH-LB 21		21	yes	5
79480200	H-A 16 TBFH-LB M20	20			5
79480400	H-A 16 TBFH-LB M25	25			5

Photographs are not to scale and do not represent detailed images of the respective products.

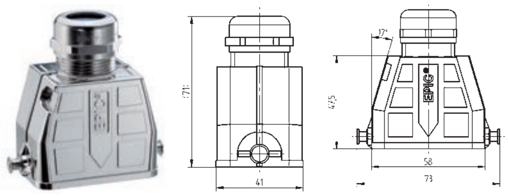
Accessories

- SKINTOP® for industrial connectors
- SKINTOP® MS refer to page 792
- SKINTOP® MS-M refer to page 724
- SKINTOP® MSR refer to page 792
- SKINTOP® MSR-M refer to page 724
- EPIC® Protective cover H-A refer to page 660

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® ULTRA H-B 6 TG LB

Housing H-B ULTRA: for higher functional reliability

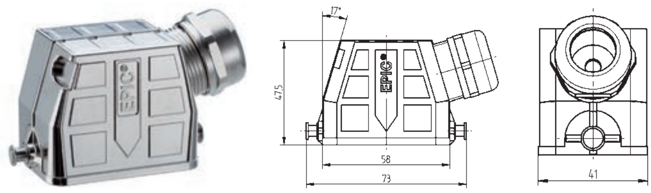


Info

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

EPIC® ULTRA H-B 6 TS LB

Housing H-B ULTRA: for higher functional reliability



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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 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

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
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
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

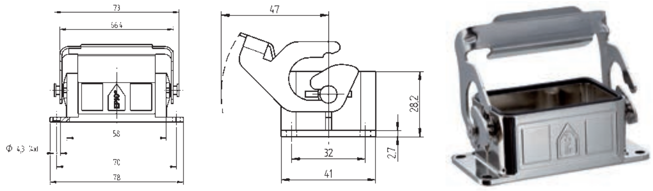
Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® ULTRA H-B 6 AG LB

Housing H-B ULTRA: for higher functional reliability

Info

- EMC protection
- Corrosion-resistant

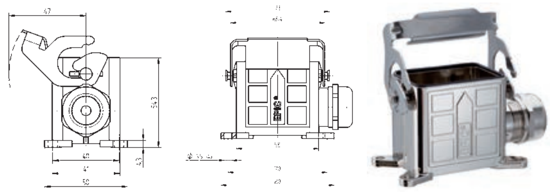


EPIC® ULTRA H-B 6 SGR LB

Housing H-B ULTRA: for higher functional reliability

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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 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

Temperature range
-40°C to +100°C

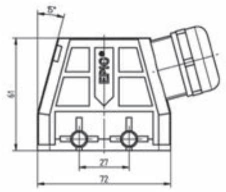
Article number	Article description	Clamping range in mm	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: panel-mount base (single lever)				
70250206	ULTRA H-B 6 AG LB			1
H-B housing: surface-mount base (1 cable entry, single lever)				
70250207	ULTRA H-B 6 SGR LB 6-13	6 - 13		1
70250208	ULTRA H-B 6 SGR LB 9-17	9 - 17		1
70250209	ULTRA H-B 6 SGR LB 9-17 BRUSH	9 - 17	6	1

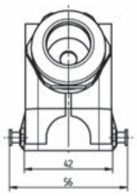
Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® ULTRA H-B 10 TS QB

Housing H-B ULTRA: for higher functional reliability



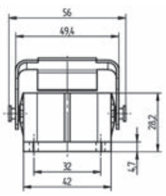


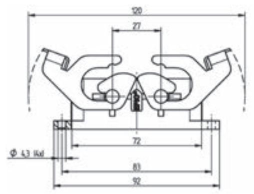
Info

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

EPIC® ULTRA H-B 10 AG QB

Housing H-B ULTRA: for higher functional reliability





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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 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

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
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

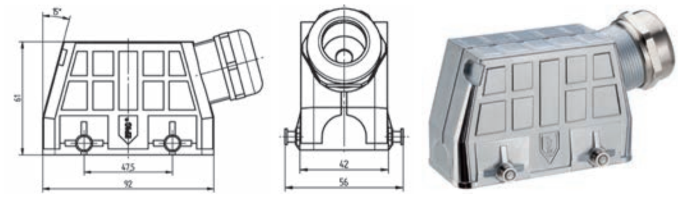
Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® ULTRA H-B 16 TS QB

Housing H-B ULTRA: for higher functional reliability

Info

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

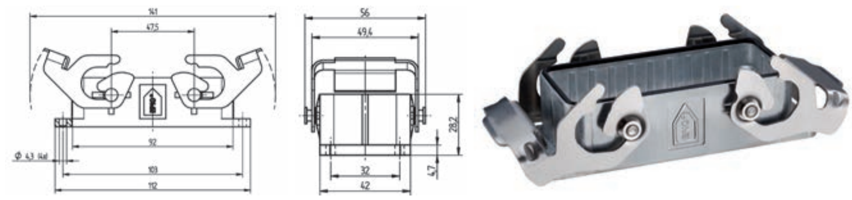


EPIC® ULTRA H-B 16 AG QB

Housing H-B ULTRA: for higher functional reliability

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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 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

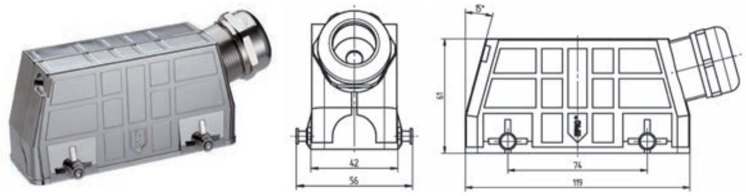
Temperature range
-40°C to +100°C

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
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 are not to scale and do not represent detailed images of the respective products.

EPIC® ULTRA H-B 24 TS QB

Housing H-B ULTRA: for higher functional reliability

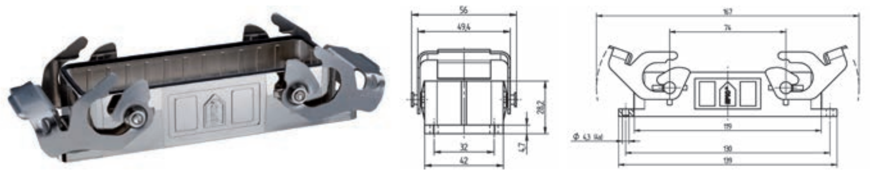


Info

- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

EPIC® ULTRA H-B 24 AG QB

Housing H-B ULTRA: for higher functional reliability



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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 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

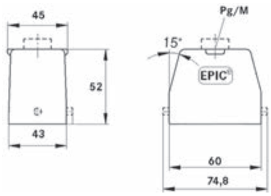
Temperature range
-40°C to +100°C

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
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 are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 6 TG

Housing design H-B. The industry standard.

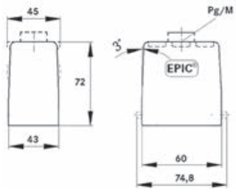


Info

- Non-slip ridges for comfortable disconnecting

EPIC® H-B 6 TGH

Housing design H-B. The industry standard.

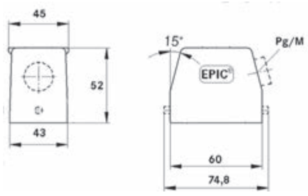


Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 6 TS

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting

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

EPIC® H-B 6 TG

- Hood, low version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 6 TGH

- Hood, high version
- Bolts for single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 6 TS

- Hood, low version
- Bolts for single lever
- Side cable entry
- Versions with neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (straight cable entry, bolts for single lever)					
10011000	H-B 6 TG 13,5		13.5	yes	10
10021000	H-B 6 TG 16		16	yes	10
19011000	H-B 6 TG M20	20			10
19021000	H-B 6 TG M25	25			10
H-B housing: hood (straight cable entry, bolts for single lever, high version)					
70020200	H-B 6 TGH 21		21	yes	10
70020400	H-B 6 TGH 29		29	yes	10
79020200	H-B 6 TGH M25	25			10
79020400	H-B 6 TGH M32	32			10
H-B housing: hood (side cable entry, bolts for single lever)					
10012000	H-B 6 TS 13,5		13.5	yes	10
10022000	H-B 6 TS 16		16	yes	10
19012000	H-B 6 TS M20	20		yes	10
19022000	H-B 6 TS M25	25		yes	10

Photographs are not to scale and do not represent detailed images of the respective products.

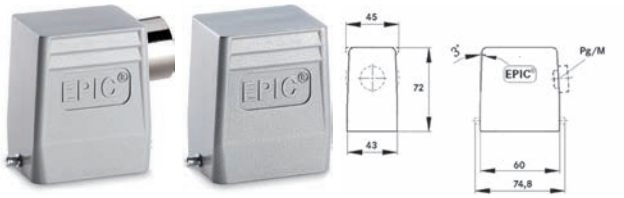
Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® H-B 6 TSH

Housing design H-B. The industry standard.

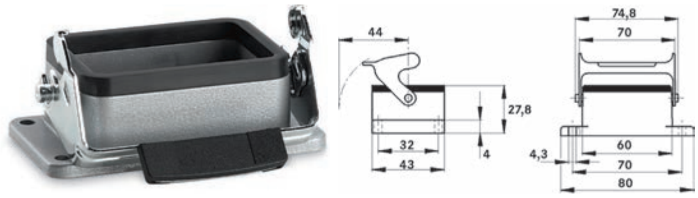


Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

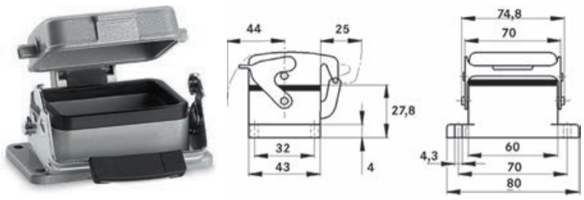
EPIC® H-B 6 AG-LB

Housing design H-B. The industry standard.



EPIC® H-B 6 AD-LB

Housing design H-B. The industry standard.



Info

- Metal lid with sturdy hinge

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

EPIC® H-B 6 TSH

- Hood, high version
- Bolts for single lever
- Side cable entry
- Versions with / without neck

EPIC® H-B 6 AG-LB

- Panel-mount base
- Single lever
- Included: flat gasket

EPIC® H-B 6 AD-LB

- Panel-mount base
- Single lever
- Metal cover
- Included: flat gasket

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (side cable entry, bolts for single lever, high version)					
70022200	H-B 6 TSH 21		21	yes	10
70022400	H-B 6 TSH 29		29	yes	10
79022200	H-B 6 TSH M25	25			10
79022400	H-B 6 TSH M32	32			10
H-B housing: panel-mount base (single lever)					
10003000	H-B 6 AG-LB				10
H-B housing: panel-mount base (cover, single lever)					
10004000	H-B 6 AD-LB				10

Photographs are not to scale and do not represent detailed images of the respective products.

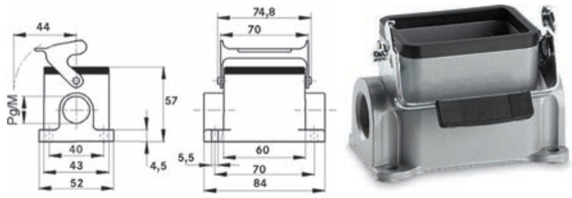
Accessories

EPIC® H-B 6 TSH

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 6 SGR-LB

Housing design H-B. The industry standard.

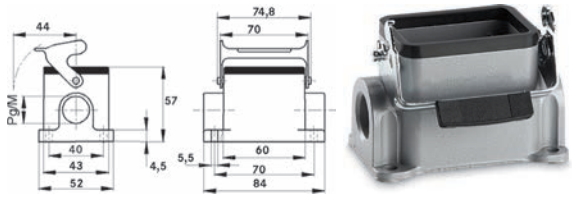


EPIC® H-B 6 SGRL-LB

Housing design H-B. The industry standard.

Info

- For easy introduction of two cables

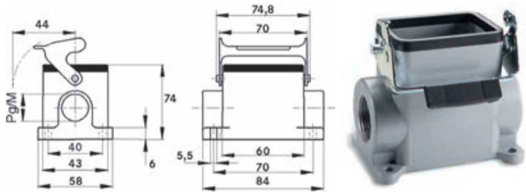


EPIC® H-B 6 SGRH-LB

Housing design H-B. The industry standard.

Info

- 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

EPIC® H-B 6 SGR-LB

- Surface-mount base, low version
- Single lever
- 1 cable entry

EPIC® H-B 6 SGRL-LB

- Surface-mount base, low version
- Single lever
- 2 cable entries

EPIC® H-B 6 SGRH-LB

- Surface-mount base, high version
- Single lever
- 1 cable entry

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (1 cable entry, single lever)				
10005000	H-B 6 SGR 16		16	10
19005000	H-B 6 SGR M20	20		10
79005600	H-B 6 SGR M25	25		10
H-B housing: surface-mount base (2 cable entries, single lever)				
10006000	H-B 6 SGRL 16		16	10
19006000	H-B 6 SGRL M20	20		10
79006600	H-B 6 SGRL M25	25		10
H-B housing: surface-mount base (1 cable entry, single lever, high version)				
70005200	H-B 6 SGRH-LB 21		21	10
70005400	H-B 6 SGRH-LB 29		29	10
79005200	H-B 6 SGRH-LB M25	25		10
79005400	H-B 6 SGRH-LB M32	32		10

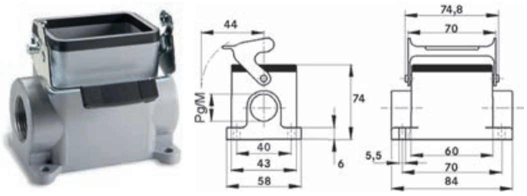
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 6 SGRLH-LB

Housing design H-B. The industry standard.

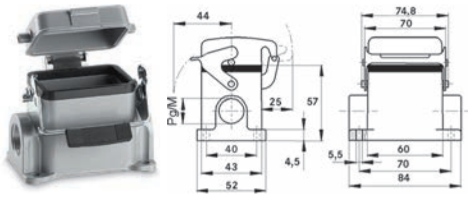


Info

- More interior space for wiring
- For easy introduction of two cables

EPIC® H-B 6 SDR-LB

Housing design H-B. The industry standard.

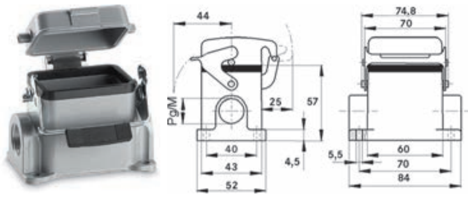


Info

- Metal lid with sturdy hinge

EPIC® H-B 6 SDRL-LB

Housing design H-B. The industry standard.



Info

- Metal lid with sturdy hinge
- Metal lid with sturdy hinge

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

EPIC® H-B 6 SGRLH-LB

- Surface-mount base, high version
- Single lever
- 2 cable entries

EPIC® H-B 6 SDR-LB

- Surface-mount base, low version
- Single lever
- 1 cable entry
- Metal cover

EPIC® H-B 6 SDRL-LB

- Surface-mount base, low version
- Single lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (2 cable entries, single lever, high version)				
70006200	H-B 6 SGRLH 21		21	10
79006200	H-B 6 SGRLH M25	25		10
79006400	H-B 6 SGRLH M32	32		10
H-B housing: surface-mount base (cover, 1 cable entry, single lever)				
10007000	H-B 6 SDR 16		16	10
19007000	H-B 6 SDR M20	20		10
79015600	H-B 6 SDR M25	25		10
H-B housing: surface-mount base (cover, 2 cable entries, single lever)				
10009000	H-B 6 SDRL-LB 16		16	10
19009000	H-B 6 SDRL-LB M20	20		10
79016600	H-B 6 SDRL-LB M25	25		10

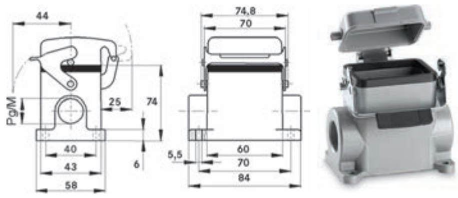
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 6 SDRH-LB

Housing design H-B. The industry standard.

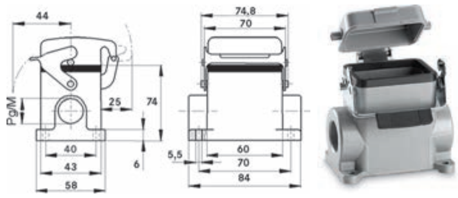


Info

- More interior space for wiring
- Metal lid with sturdy hinge

EPIC® H-B 6 SDRLH-LB

Housing design H-B. The industry standard.



Info

- More interior space for wiring
- Metal lid with sturdy hinge
- For easy introduction of two cables

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

EPIC® H-B 6 SDRH-LB

- Surface-mount base, high version
- Single lever
- 1 cable entry
- Metal cover

EPIC® H-B 6 SDRLH-LB

- Surface-mount base, high version
- Single lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (cover, 1 cable entry, single lever, high version)				
70015200	H-B 6 SDRH-LB 21		21	10
79015200	H-B 6 SDRH-LB M25	25		10
79015400	H-B 6 SDRH-LB M32	32		10
H-B housing: surface-mount base (cover, 2 cable entries, single lever, high version)				
70016200	H-B 6 SDRLH-LB 21		21	10
79016200	H-B 6 SDRLH-LB M25	25		10
79016400	H-B 6 SDRLH-LB M32	32		10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

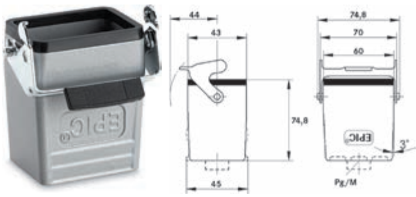
ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® H-B 6 TBF-LB

Housing design H-B. The industry standard.

EPIC® H-B 6 TBFH-LB

Housing design H-B. The industry standard.



Info
- 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
EPIC® H-B 6 TBF-LB
- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 6 TBFH-LB
- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

Suitable inserts
- Refer to Selection Table A10 to select the required inserts and housings

Technical data
ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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

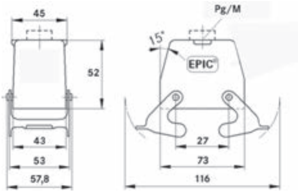
Article number	Article description	M	PG	Neck	Pieces / PU
H-B housing: cable coupler hood (1 straight cable entry, single lever)					
10014000	H-B 6 TBF 13,5		13.5	yes	10
10024000	H-B 6 TBF 16		16	yes	10
19014000	H-B 6 TBF M20	20			10
19024000	H-B 6 TBF M25	25			10
H-B housing: cable coupler hood (1 straight cable entry, single lever, high version)					
70010200	H-B 6 TBFH 21		21	yes	10
70010400	H-B 6 TBFH 29		29	yes	10
79010200	H-B 6 TBFH M25	25			10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

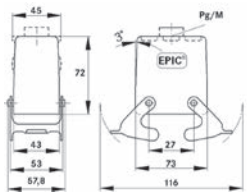
EPIC® H-B 10 TGB
Housing design H-B. The industry standard.

Info
- Non-slip ridges for comfortable disconnecting
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover



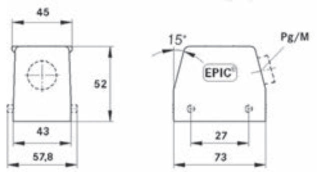

EPIC® H-B 10 TGBH
Housing design H-B. The industry standard.

Info
- More interior space for wiring
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover




EPIC® H-B 10 TS
Housing design H-B. The industry standard.

Info
- Non-slip ridges for comfortable disconnecting



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
EPIC® H-B 10 TGB
- Hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

EPIC® H-B 10 TGBH
- Hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

EPIC® H-B 10 TS
- Hood, low version
- Bolts for double lever
- Side cable entry
- Versions with neck

Suitable inserts
- Refer to Selection Table A10 to select the required inserts and housings

Technical data
ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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

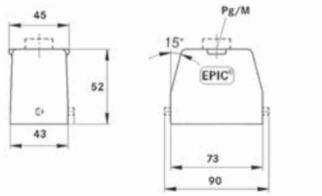
Article number	Article description	M	PG	Neck	Pieces / PU
H-B housing: hood (straight cable entry, double lever)					
10041000	H-B 10 TGB 16		16	yes	10
19041000	H-B 10 TGB M20	20			10
79055700	H-B 10 TGB M25	25			10
H-B housing: hood (straight cable entry, double lever, high version)					
70055200	H-B 10 TGBH 21		21	yes	10
70055400	H-B 10 TGBH 29		29	yes	10
79055200	H-B 10 TGBH M25	25			10
79055400	H-B 10 TGBH M32	32			10
H-B housing: hood (side cable entry, bolts for double lever)					
10042000	H-B 10 TS 16		16	yes	10
10042100	H-B 10 TS 21		21	yes	10
19042000	H-B 10 TS M20	20		yes	10
19042100	H-B 10 TS M25	25		yes	10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 10 TG-RO

Housing design H-B. The industry standard.

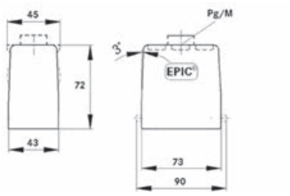


Info

- Non-slip ridges for comfortable disconnecting

EPIC® H-B 10 TGH-RO

Housing design H-B. The industry standard.

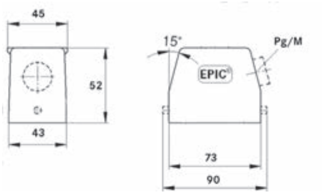


Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 10 TS-RO

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting

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

EPIC® H-B 10 TG-RO
- Hood, low version
- Reels for single lever
- Versions with / without neck

EPIC® H-B 10 TGH-RO
- Hood, high version
- Reels for single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 10 TS-RO
- Hood, low version
- Reels for single lever
- Side cable entry
- Versions with neck

Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (straight cable entry, bolts for single lever)					
10040900	H-B 10 TG-RO 16		16	yes	10
10040700	H-B 10 TG-RO 21		21	yes	10
19040900	H-B 10 TG-RO M20	20			10
19040700	H-B 10 TG-RO M25	25			10
H-B housing: hood (straight cable entry, bolts for single lever, high version)					
70044200	H-B 10 TGH-RO 21		21	yes	10
70044400	H-B 10 TGH-RO 29		29	yes	10
79044200	H-B 10 TGH-RO M25	25			10
79044400	H-B 10 TGH-RO M32	32			10
H-B housing: hood (side cable entry, bolts for single lever)					
10042900	H-B 10 TS-RO 16		16	yes	10
10042800	H-B 10 TS-RO 21		21	yes	10
19042900	H-B 10 TS-RO M20	20		yes	10
19042800	H-B 10 TS-RO M25	25		yes	10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 10 TSH

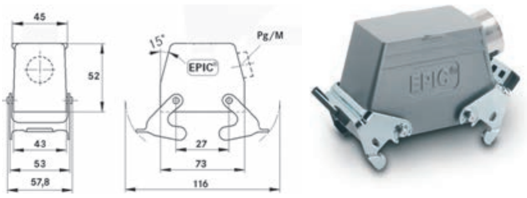
Housing design H-B. The industry standard.

Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 10 TSB

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover

EPIC® H-B 10 TSBH

Housing design H-B. The industry standard.

Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover

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

EPIC® H-B 10 TSH
- Hood, high version
- Bolts for double lever
- Side cable entry
- Versions with / without neck

EPIC® H-B 10 TSB
- Hood, low version
- Dual levers
- Side cable entry
- Versions with neck

EPIC® H-B 10 TSBH
- Hood, high version
- Dual levers
- Side cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (side cable entry, bolts for double lever, high version)					
70052400	H-B 10 TSH 21		21	yes	10
70052600	H-B 10 TSH 29		29	yes	10
79052400	H-B 10 TSH M25	25			10
79052600	H-B 10 TSH M32	32			10
H-B housing: hood (side cable entry, double lever)					
10045000	H-B 10 TSB 16		16	yes	10
19045000	H-B 10 TSB M20	20		yes	10
79057700	H-B 10 TSB M25	25		yes	10
H-B housing: hood (side cable entry, double lever, high version)					
70057200	H-B 10 TSBH 21		21	yes	10
70057400	H-B 10 TSBH 29		29	yes	10
79057200	H-B 10 TSBH M25	25			10

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Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

LAPP GROUP

EPIC® H-B 10 TSH-RO

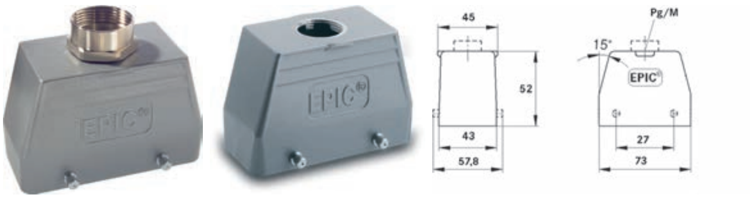
Housing design H-B. The industry standard.

Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 10 TG

Housing design H-B. The industry standard.

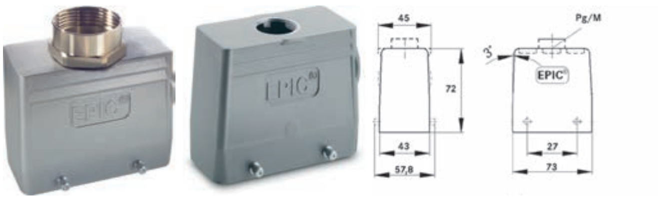


Info

- Non-slip ridges for comfortable disconnecting

EPIC® H-B 10 TGH

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring
- For connection with counterpart with integrated cover

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

EPIC® H-B 10 TSH-RO

- Hood, high version
- Reels for single lever
- Side cable entry
- Versions with / without neck

EPIC® H-B 10 TG

- Hood, low version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 10 TGH

- Hood, high version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (side cable entry, bolts for single lever, high version)					
70054200	H-B 10 TSH-RO 21		21	yes	10
70054400	H-B 10 TSH-RO 29		29	yes	10
79054200	H-B 10 TSH-RO M25	25			10
79054400	H-B 10 TSH-RO M32	32			10
H-B housing: hood (straight cable entry, bolts for double lever)					
10040000	H-B 10 TG 16		16	yes	10
10040100	H-B 10 TG 21		21	yes	10
19040000	H-B 10 TG M20	20			10
19040100	H-B 10 TG M25	25			10
H-B housing: hood (straight cable entry, bolts for double lever, high version)					
70050400	H-B 10 TGH 21		21	yes	10
70050600	H-B 10 TGH 29		29	yes	10
79050400	H-B 10 TGH M25	25			10
79050600	H-B 10 TGH M32	32			10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

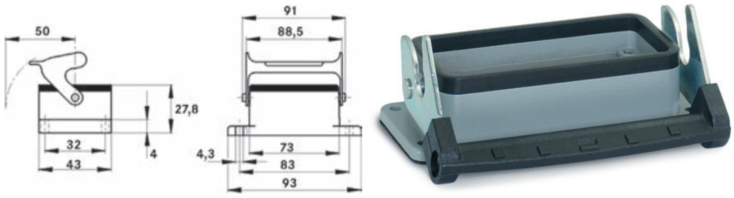
- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 10 AG-LB

Housing design H-B. The industry standard.

Info

- Single Lever version for quick locking and simple unlocking with lifting aid

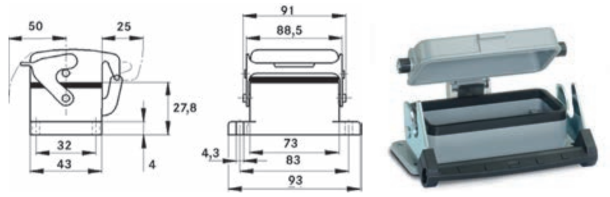


EPIC® H-B 10 AD-LB

Housing design H-B. The industry standard.

Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- Metal lid with sturdy hinge

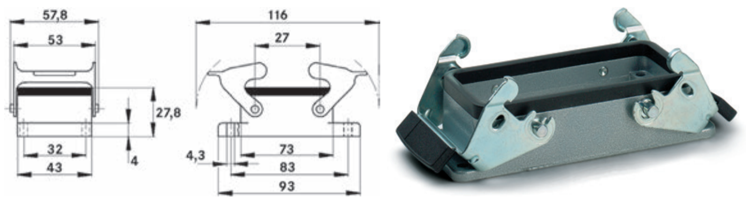


EPIC® H-B 10 AG

Housing design H-B. The industry standard.

Info

- Double lever version with 2 levers for increased safety

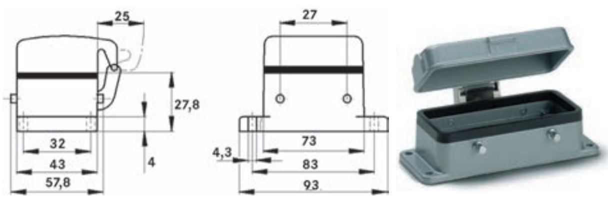


EPIC® H-B 10 AD-BO

Housing design H-B. The industry standard.

Info

- Metal lid with sturdy hinge



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

EPIC® H-B 10 AG-LB

- Panel-mount base
- Single lever
- Included: flat gasket

EPIC® H-B 10 AD-LB

- Metal cover
- Panel-mount base
- Single lever
- Included: flat gasket

EPIC® H-B 10 AG

- Panel-mount base
- Dual levers
- Included: flat gasket

EPIC® H-B 10 AD-BO

- Panel-mount base
- Bolts for double lever
- Metal cover
- Included: flat gasket

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

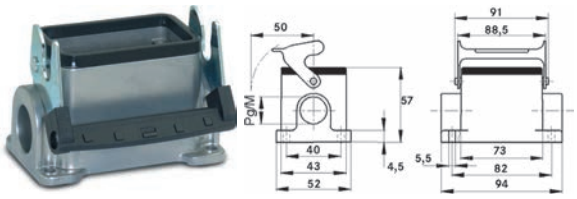
Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Pieces / PU
H-B housing: panel-mount base (single lever)		
10032900	H-B 10 AG-LB	10
H-B housing: panel-mount base (cover, single lever)		
10033900	H-B 10 AD-LB	10
H-B housing: panel-mount base (double lever)		
10032000	H-B 10 AG	10
H-B housing: panel-mount base (cover, bolts for double lever)		
10033000	H-B 10 AD-BO	10

Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 10 SGR-LB

Housing design H-B. The industry standard.

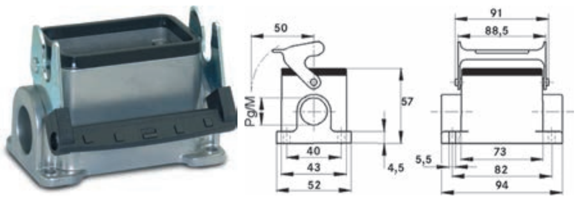


Info

- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 10 SGRL-LB

Housing design H-B. The industry standard.



Info

- Single Lever version for quick locking and simple unlocking with lifting aid

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

EPIC® H-B 10 SGR-LB

- Surface-mount base, low version
- Single lever
- 1 cable entry

EPIC® H-B 10 SGRL-LB

- Surface-mount base, low version
- Single lever
- 2 cable entries

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (1 cable entry, single lever)				
10034900	H-B 10 SGR-LB 16		16	10
10034700	H-B 10 SGR-LB 21		21	10
19034900	H-B 10 SGR-LB M20	20		10
19034700	H-B 10 SGR-LB M25	25		10
H-B housing: surface-mount base (2 cable entries, single lever)				
10035900	H-B 10 SGRL-LB 16		16	10
19035900	H-B 10 SGRL-LB M20	20		10
79061600	H-B 10 SGRL-LB M25	25		10

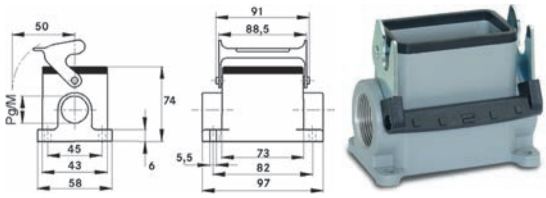
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 10 SGRH-LB

Housing design H-B. The industry standard.

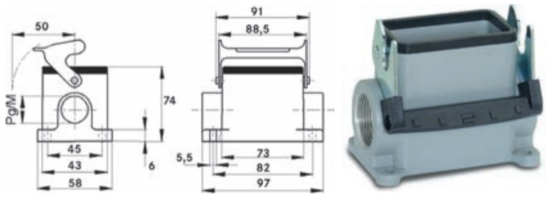


Info

- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 10 SGRLH-LB

Housing design H-B. The industry standard.

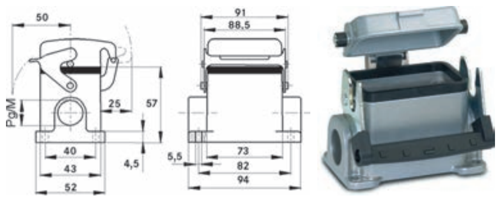


Info

- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 10 SDR-LB

Housing design H-B. The industry standard.



Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- Metal lid with sturdy hinge

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

EPIC® H-B 10 SGRH-LB

- Surface-mount base, high version
- Single lever
- 1 cable entry

EPIC® H-B 10 SGRLH-LB

- Surface-mount base, high version
- Single lever
- 2 cable entries

EPIC® H-B 10 SDR-LB

- Surface-mount base, low version
- Single lever
- 1 cable entry
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (1 cable entry, single lever, high version)				
70060200	H-B 10 SGRH-LB 21		21	10
70060400	H-B 10 SGRH-LB 29		29	10
79060200	H-B 10 SGRH-LB M25	25		10
79060400	H-B 10 SGRH-LB M32	32		10
H-B housing: surface-mount base (2 cable entries, single lever, high version)				
70061200	H-B 10 SGRLH-LB 21		21	10
70061400	H-B 10 SGRLH-LB 29		29	10
79061200	H-B 10 SGRLH-LB M25	25		10
79061400	H-B 10 SGRLH-LB M32	32		10
H-B housing: surface-mount base (cover, 1 cable entry, single lever)				
10036900	H-B 10 SDR-LB 16		16	10
19036900	H-B 10 SDR-LB M20	20		10
79064600	H-B 10 SDR-LB M25	25		10

Photographs are not to scale and do not represent detailed images of the respective products.

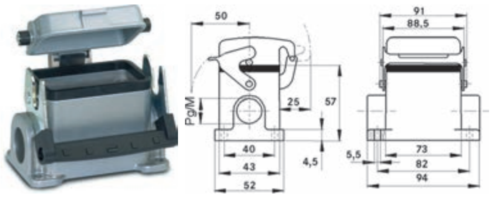
Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES | APPENDIX

EPIC® H-B 10 SDRL-LB

Housing design H-B. The industry standard.

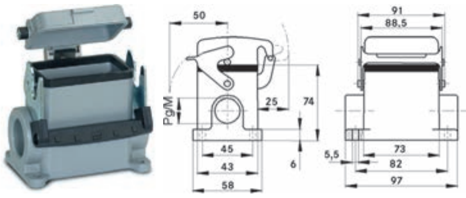


Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- Metal lid with sturdy hinge

EPIC® H-B 10 SDRH-LB

Housing design H-B. The industry standard.

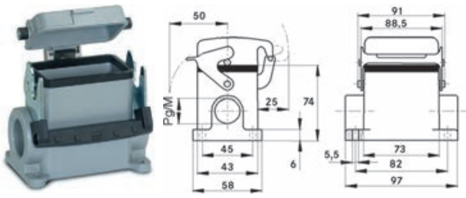


Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- Metal lid with sturdy hinge

EPIC® H-B 10 SDRLH-LB

Housing design H-B. The industry standard.



Info

- More interior space for wiring
- Metal lid with sturdy hinge
- For easy introduction of two cables

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

EPIC® H-B 10 SDRL-LB

- Surface-mount base, low version
- Single lever
- 2 cable entries
- Metal cover

EPIC® H-B 10 SDRH-LB

- Surface-mount base, high version
- Single lever
- 1 cable entry
- Metal cover

EPIC® H-B 10 SDRLH-LB

- Surface-mount base, high version
- Single lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (cover, 2 cable entries, single lever)				
10038900	H-B 10 SDRL-LB 16		16	10
19038900	H-B 10 SDRL-LB M20	20		10
79065600	H-B 10 SDRL-LB M25	25		10
H-B housing: surface-mount base (cover, 1 cable entry, single lever, high version)				
70064200	H-B 10 SDRH-LB 21		21	5
70064400	H-B 10 SDRH-LB 29		29	5
79064200	H-B 10 SDRH-LB M25	25		5
79064400	H-B 10 SDRH-LB M32	32		5
H-B housing: surface-mount base (cover, 2 cable entries, single lever, high version)				
70065200	H-B 10 SDRLH-LB 21		21	5
70065400	H-B 10 SDRLH-LB 29		29	5
79065200	H-B 10 SDRLH-LB M25	25		5
79065400	H-B 10 SDRLH-LB M32	32		5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

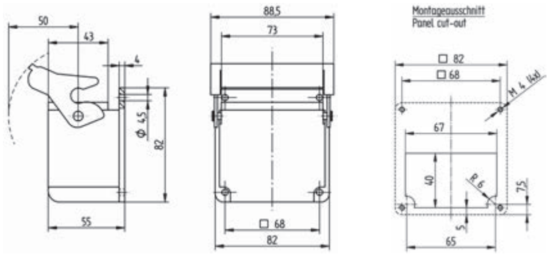
NEW

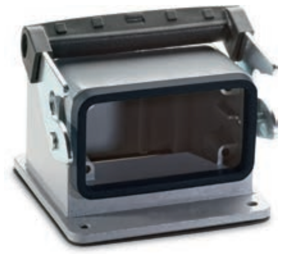
EPIC® H-B 10 AGS-LB

Housing design H-B. The industry standard.

Info

- Housing for motor termination
- Single Lever version for quick locking and simple unlocking with lifting aid





Benefits

- Small angle housing for drives and control cabinets with single lever

Application range

- Plant engineering
- Drive systems
- Light & sound technology
- Plastics industry

Product features

- Panel-mount base
- Single lever
- Angled version
- Included: flat gasket

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	Pieces / PU
H-B housing: panel-mount base (angled, single lever)		
44423026	H-B 10 AGS-LB	5

Photographs are not to scale and do not represent detailed images of the respective products.

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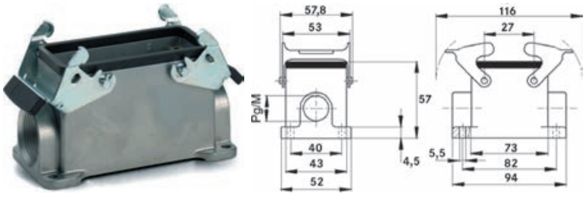
EPIC® H-B 10 SGR

Housing design H-B. The industry standard.

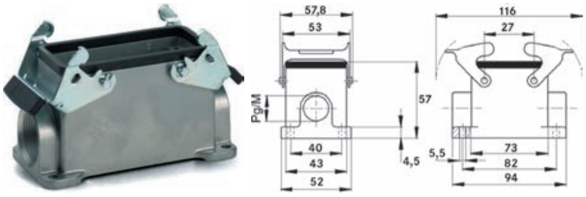


Info

- Double lever version with 2 levers for increased safety

EPIC® H-B 10 SGRL

Housing design H-B. The industry standard.

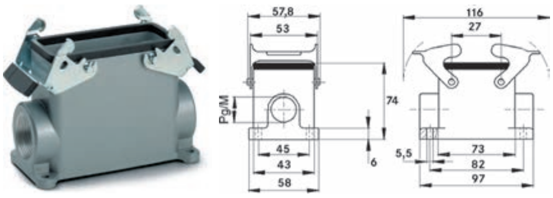


Info

- Double lever version with 2 levers for increased safety
- For easy introduction of two cables

EPIC® H-B 10 SGRH

Housing design H-B. The industry standard.



Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety
- For easy introduction of two cables

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

EPIC® H-B 10 SGR

- Surface-mount base, low version
- Dual levers
- 1 cable entry

EPIC® H-B 10 SGRL

- Surface-mount base, low version
- Dual levers
- 2 cable entries

EPIC® H-B 10 SGRH

- Surface-mount base, high version
- Dual levers
- 1 cable entry

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (1 cable entry, double lever)				
10034000	H-B 10 SGR 16		16	10
19034000	H-B 10 SGR M20	20		10
19034100	H-B 10 SGR M25	25		10
H-B housing: surface-mount base (2 cable entries, double lever)				
10035000	H-B 10 SGRL 16		16	10
19035000	H-B 10 SGRL M20	20		10
19035100	H-B 10 SGRL M25	25		10
H-B housing: surface-mount base (1 cable entry, double lever, high version)				
70035200	H-B 10 SGRH 21		21	10
70035400	H-B 10 SGRH 29		29	10
79035200	H-B 10 SGRH M25	25		10
79035400	H-B 10 SGRH M32	32		10

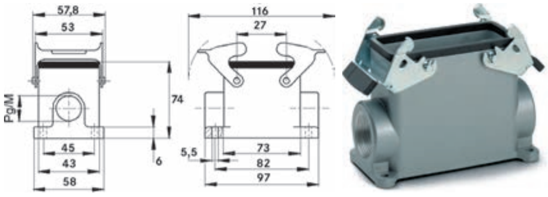
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 10 SGRLH

Housing design H-B. The industry standard.

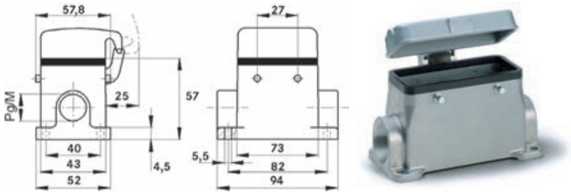


Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety

EPIC® H-B 10 SDR-BO

Housing design H-B. The industry standard.

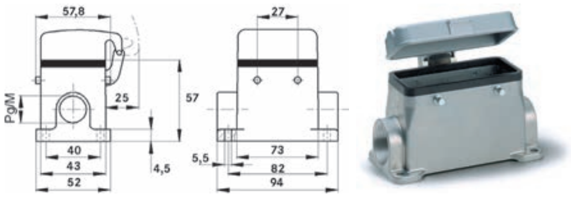


Info

- Metal lid with sturdy hinge

EPIC® H-B 10 SDRL-BO

Housing design H-B. The industry standard.



Info

- Metal lid with sturdy hinge
- For easy introduction of two cables

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

EPIC® H-B 10 SGRLH

- Surface-mount base, high version
- Dual levers
- 2 cable entries

EPIC® H-B 10 SDR-BO

- Surface-mount base, low version
- Bolts for double lever
- 1 cable entry
- Metal cover

EPIC® H-B 10 SDRL-BO

- Surface-mount base, low version
- Bolts for double lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (2 cable entries, double lever, high version)				
70036200	H-B 10 SGRLH 21		21	10
70036400	H-B 10 SGRLH 29		29	10
79036200	H-B 10 SGRLH M25	25		10
79036400	H-B 10 SGRLH M32	32		10
H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever)				
10036000	H-B 10 SDR-BO 16		16	10
19036000	H-B 10 SDR-BO M20	20		10
19036100	H-B 10 SDR-BO M25	25		10
H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever)				
10038000	H-B 10 SDRL-BO 16		16	10
19038000	H-B 10 SDRL-BO M20	20		10
79046600	H-B 10 SDRL-BO M25	25		10

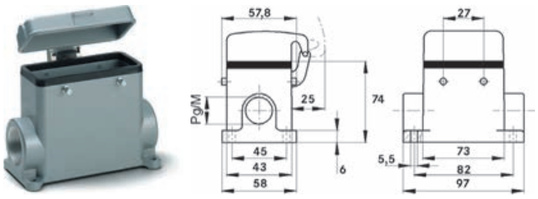
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 10 SDRH-BO

Housing design H-B. The industry standard.

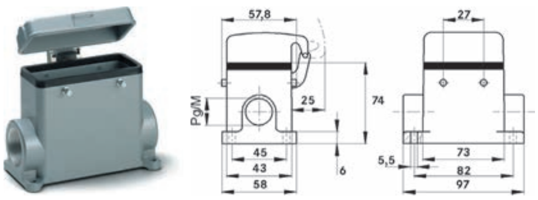


Info

- More interior space for wiring
- Metal lid with sturdy hinge

EPIC® H-B 10 SDRLH-BO

Housing design H-B. The industry standard.



Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety
- For easy introduction of two cables

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

EPIC® H-B 10 SDRH-BO

- Surface-mount base, high version
- Bolts for double lever
- 1 cable entry
- Metal cover

EPIC® H-B 10 SDRLH-BO

- Surface-mount base, high version
- Bolts for double lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever, high version)				
70045200	H-B 10 SDRH-BO 21		21	5
70045400	H-B 10 SDRH-BO 29		29	5
79045200	H-B 10 SDRH-BO M25	25		5
H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever, high version)				
70046200	H-B 10 SDRLH-BO 21		21	5
79046200	H-B 10 SDRLH-BO M25	25		5
79046400	H-B 10 SDRLH-BO M32	32		5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

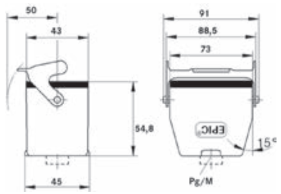
- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 10 TBF-LB

Housing design H-B. The industry standard.

Info

- Single Lever version for quick locking and simple unlocking with lifting aid

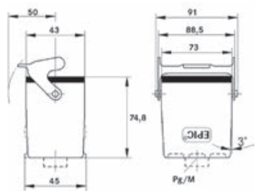


EPIC® H-B 10 TBFH-LB

Housing design H-B. The industry standard.

Info

- More interior space for wiring
- Single Lever version for quick locking and simple unlocking with lifting aid

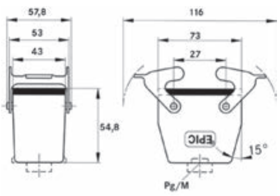


EPIC® H-B 10 TBF

Housing design H-B. The industry standard.

Info

- Double lever version with 2 levers for increased safety



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

EPIC® H-B 10 TBF-LB

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 10 TBFH-LB

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 10 TBF

- Cable coupler hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: cable coupler hood (1 straight cable entry, single lever)					
10046900	H-B 10 TBF-LB 16		16	yes	10
70042200	H-B 10 TBF-LB 21		21	yes	10
19046900	H-B 10 TBF-LB M20	20			10
79042200	H-B 10 TBF-LB M25	25			10
H-B housing: cable coupler hood (1 straight cable entry, single lever, high version)					
70042400	H-B 10 TBFH-LB 21		21	yes	10
70042600	H-B 10 TBFH-LB 29		29	yes	10
79042400	H-B 10 TBFH-LB M25	25			10
79042600	H-B 10 TBFH-LB M32	32			10
H-B housing: cable coupler hood (straight cable entry, double lever)					
10046000	H-B 10 TBF 16		16	yes	10
70040200	H-B 10 TBF 21		21	yes	10
19046000	H-B 10 TBF M20	20			10
79040200	H-B 10 TBF M25	25			10

Photographs are not to scale and do not represent detailed images of the respective products.

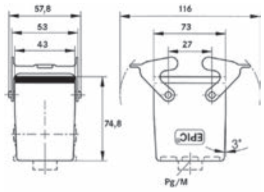
Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® H-B 10 TBFH

Housing design H-B. The industry standard.



Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety

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

- Cable coupler hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: cable coupler hood (straight cable entry, double lever, high version)					
70040400	H-B 10 TBFH 21		21	yes	10
70040600	H-B 10 TBFH 29		29	yes	10
79040400	H-B 10 TBFH M25	25			10
79040600	H-B 10 TBFH M32	32			10

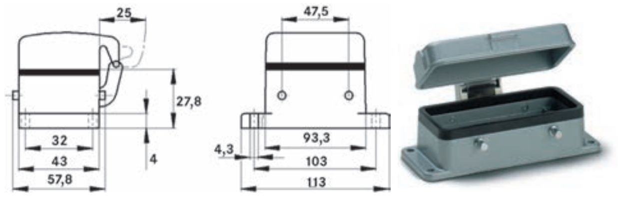
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 16 AD-BO

Housing design H-B. The industry standard.

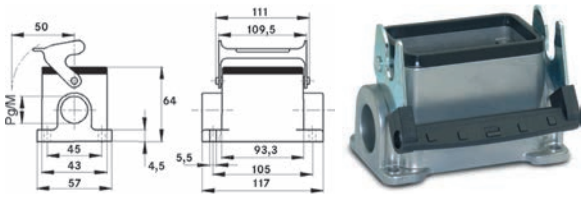


Info

- Double lever version with 2 levers for increased safety
- Metal lid with sturdy hinge

EPIC® H-B 16 SGR-LB

Housing design H-B. The industry standard.

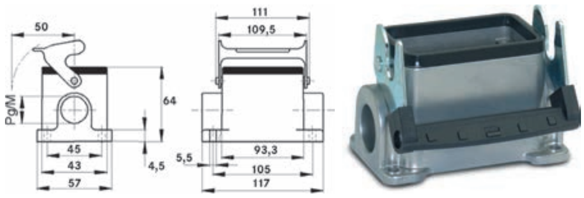


Info

- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 16 SGRL-LB

Housing design H-B. The industry standard.



Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- For easy introduction of two cables

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 AD-BO

- Panel-mount base
- Bolts for double lever
- Metal cover
- Included: flat gasket

EPIC® H-B 16 SGR-LB

- Surface-mount base, low version
- Single lever
- 1 cable entry

EPIC® H-B 16 SGRL-LB

- Surface-mount base, low version
- Single lever
- 2 cable entries

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: panel-mount base (cover, bolts for double lever)				
10073000	H-B 16 AD-BO			5
H-B housing: surface-mount base (1 cable entry, single lever)				
10074900	H-B 16 SGR-LB 21		21	5
19074900	H-B 16 SGR-LB M25	25		5
H-B housing: surface-mount base (2 cable entries, single lever)				
10075900	H-B 16 SGRL-LB 21		21	5
19075900	H-B 16 SGRL-LB M25	25		5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

EPIC® H-B 16 SGR-LB

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

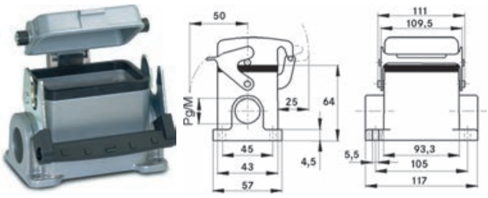
EPIC® H-B 16 SGRL-LB

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® H-B 16 SDRL-LB

Housing design H-B. The industry standard.

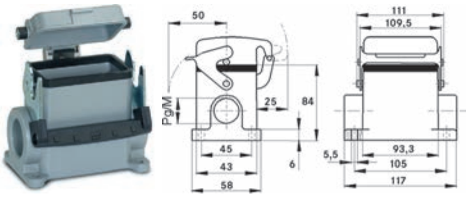


Info

- Metal lid with sturdy hinge
- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 16 SDRH-LB

Housing design H-B. The industry standard.

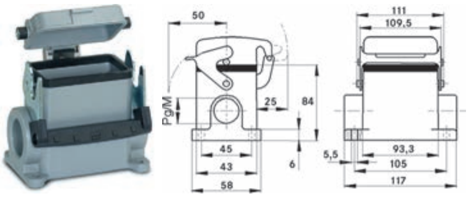


Info

- Metal lid with sturdy hinge
- Single Lever version for quick locking and simple unlocking with lifting aid
- More interior space for wiring

EPIC® H-B 16 SDRLH-LB

Housing design H-B. The industry standard.



Info

- Metal lid with sturdy hinge
- Single Lever version for quick locking and simple unlocking with lifting aid

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 SDRL-LB

- Surface-mount base, low version
- Single lever
- 2 cable entries
- Metal cover

EPIC® H-B 16 SDRH-LB

- Surface-mount base, high version
- Single lever
- 1 cable entry
- Metal cover

EPIC® H-B 16 SDRLH-LB

- Surface-mount base, high version
- Single lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (cover, 2 cable entries, single lever)				
10078900	H-B 16 SDRL-LB 21		21	5
19078900	H-B 16 SDRL-LB M25	25		5
H-B housing: surface-mount base (cover, 1 cable entry, single lever, high version)				
70114200	H-B 16 SDRH-LB 21		21	5
70114400	H-B 16 SDRH-LB 29		29	5
79114200	H-B 16 SDRH-LB M25	25		5
79114400	H-B 16 SDRH-LB M32	32		5
H-B housing: surface-mount base (cover, 2 cable entries, single lever, high version)				
70115200	H-B 16 SDRLH-LB 21		21	5
70115400	H-B 16 SDRLH-LB 29		29	5
79115200	H-B 16 SDRLH-LB M25	25		5
79115400	H-B 16 SDRLH-LB M32	32		5

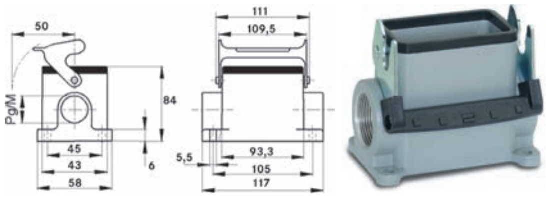
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 16 SGRH-LB

Housing design H-B. The industry standard.

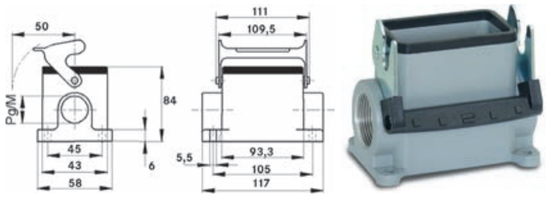


Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- More interior space for wiring

EPIC® H-B 16 SGRLH-LB

Housing design H-B. The industry standard.

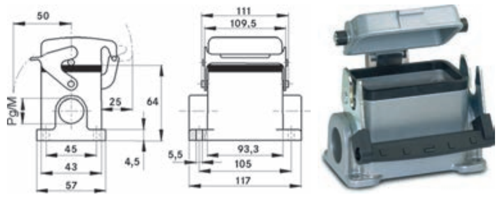


Info

- More interior space for wiring
- Single Lever version for quick locking and simple unlocking with lifting aid
- For easy introduction of two cables

EPIC® H-B 16 SDR-LB

Housing design H-B. The industry standard.



Info

- Metal lid with sturdy hinge
- Single Lever version for quick locking and simple unlocking with lifting aid

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 SGRH-LB

- Surface-mount base, high version
- Single lever
- 1 cable entry

EPIC® H-B 16 SGRLH-LB

- Surface-mount base, high version
- Single lever
- 2 cable entries

EPIC® H-B 16 SDR-LB

- Surface-mount base, low version
- Single lever
- 1 cable entry
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (1 cable entry, single lever, high version)				
70110200	H-B 16 SGRH-LB 21		21	5
70110400	H-B 16 SGRH-LB 29		29	5
79110200	H-B 16 SGRH-LB M25	25		5
79110400	H-B 16 SGRH-LB M32	32		5
H-B housing: surface-mount base (2 cable entries, single lever, high version)				
70111200	H-B 16 SGRLH-LB 21		21	5
70111400	H-B 16 SGRLH-LB 29		29	5
79111200	H-B 16 SGRLH-LB M25	25		5
79111400	H-B 16 SGRLH-LB M32	32		5
H-B housing: surface-mount base (cover, 1 cable entry, single lever)				
10076900	H-B 16 SDR-LB 21		21	5
19076900	H-B 16 SDR-LB M25	25		5

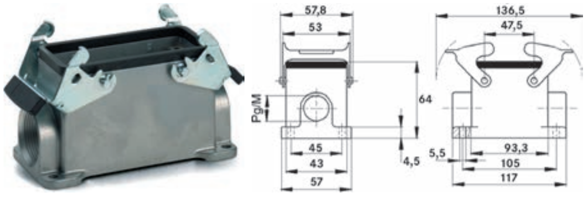
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 16 SGR

Housing design H-B. The industry standard.

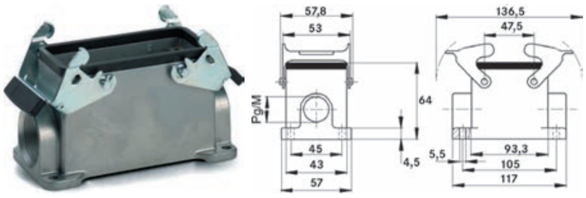


Info

- Double lever version with 2 levers for increased safety

EPIC® H-B 16 SGRL

Housing design H-B. The industry standard.

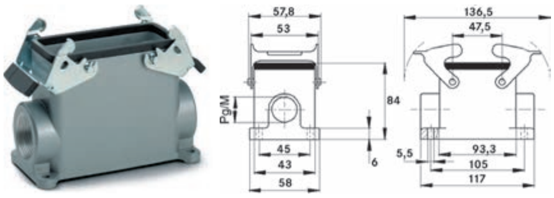


Info

- Double lever version with 2 levers for increased safety
- For easy introduction of two cables

EPIC® H-B 16 SGRH

Housing design H-B. The industry standard.



Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 SGR

- Surface-mount base, low version
- Dual levers
- 1 cable entry

EPIC® H-B 16 SGRL

- Surface-mount base, low version
- Dual levers
- 2 cable entries

EPIC® H-B 16 SGRH

- Surface-mount base, high version
- Dual levers
- 1 cable entry

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (1 cable entry, double lever)				
10074000	H-B 16 SGR 21		21	5
19074000	H-B 16 SGR M25	25		5
H-B housing: surface-mount base (2 cable entries, double lever)				
10075000	H-B 16 SGRL 21		21	5
19075000	H-B 16 SGRL M25	25		5
H-B housing: surface-mount base (1 cable entry, double lever, high version)				
70085200	H-B 16 SGRH 21		21	5
70085400	H-B 16 SGRH 29		29	5
79085200	H-B 16 SGRH M25	25		5
79085400	H-B 16 SGRH M32	32		5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

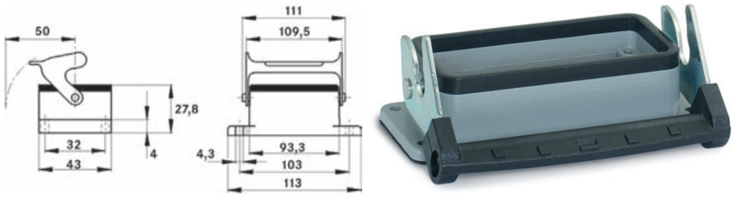
- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 16 AG-LB

Housing design H-B. The industry standard.

Info

- Single Lever version for quick locking and simple unlocking with lifting aid

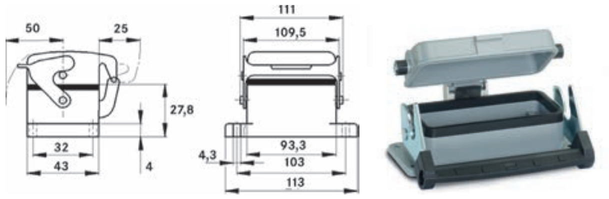


EPIC® H-B 16 AD-LB

Housing design H-B. The industry standard.

Info

- Metal lid with sturdy hinge
- Single Lever version for quick locking and simple unlocking with lifting aid

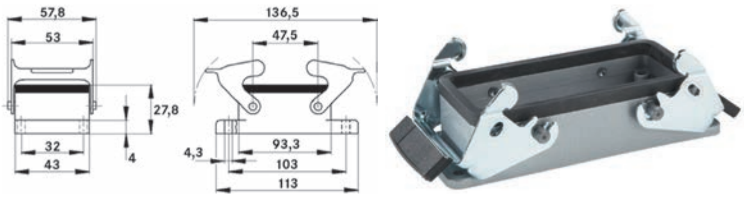


EPIC® H-B 16 AG

Housing design H-B. The industry standard.

Info

- Double lever version with 2 levers for increased safety



Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 AG-LB

- Panel-mount base
- Single lever
- Included: flat gasket

EPIC® H-B 16 AD-LB

- Panel-mount base
- Single lever
- Metal cover
- Included: flat gasket

EPIC® H-B 16 AG

- Panel-mount base
- Dual levers
- Included: flat gasket

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

Certified production control:
VDE-REG. no.: B437
UL-tested:
UL File Number: E75770

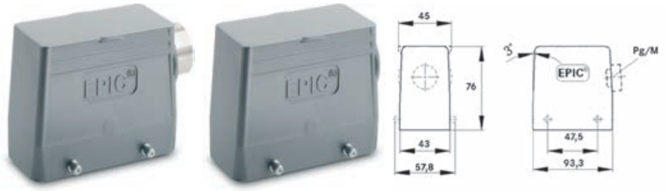
Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	Pieces / PU
H-B housing: panel-mount base (single lever)		
10072900	H-B 16 AG-LB	5
H-B housing: panel-mount base (cover, single lever)		
10073900	H-B 16 AD-LB	5
H-B housing: panel-mount base (double lever)		
10072000	H-B 16 AG	5

Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 16 TSH

Housing design H-B. The industry standard.

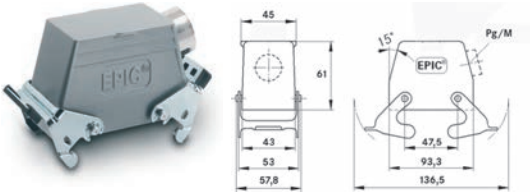


Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 16 TSB

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover

EPIC® H-B 16 TSBH

Housing design H-B. The industry standard.

Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 TSH

- Hood, high version
- Bolts for double lever
- Side cable entry
- Versions with / without neck

EPIC® H-B 16 TSB

- Hood, low version
- Dual levers
- Side cable entry
- Versions with neck

EPIC® H-B 16 TSBH

- Hood, high version
- Dual levers
- Side cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (side cable entry, bolts for double lever, high version)					
70102200	H-B 16 TSH 21		21	yes	5
70102400	H-B 16 TSH 29		29	yes	5
79102200	H-B 16 TSH M25	25			5
79102400	H-B 16 TSH M32	32			5
79102800	H-B 16 TSH M40	40			5
H-B housing: hood (side cable entry, double lever)					
10083000	H-B 16 TSB 21		21	yes	5
19083000	H-B 16 TSB M25	25		yes	5
H-B housing: hood (side cable entry, double lever, high version)					
70107200	H-B 16 TSBH 21		21	yes	5
70107400	H-B 16 TSBH 29		29	yes	5
79107200	H-B 16 TSBH M25	25			5
79107400	H-B 16 TSBH M32	32			5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

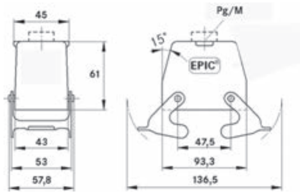
- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

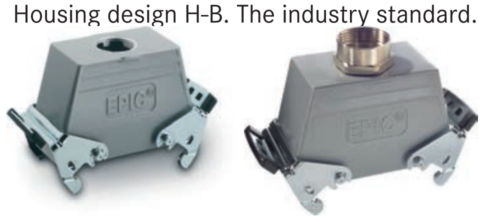
EPIC® H-B 16 TGB

Housing design H-B. The industry standard.

Info

- Non-slip ridges for comfortable disconnecting
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover



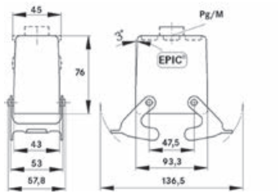


EPIC® H-B 16 TGBH

Housing design H-B. The industry standard.

Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover

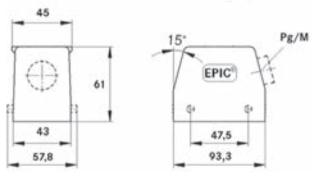


EPIC® H-B 16 TS

Housing design H-B. The industry standard.

Info

- Non-slip ridges for comfortable disconnecting



Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 TGB

- Hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

EPIC® H-B 16 TGBH

- Hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

EPIC® H-B 16 TS

- Hood, low version
- Bolts for double lever
- Side cable entry
- Versions with neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (straight cable entry, double lever)					
10081000	H-B 16 TGB 21		21	yes	5
19081000	H-B 16 TGB M25	25			5
H-B housing: hood (straight cable entry, double lever, high version)					
70105200	H-B 16TGBH 21		21	yes	5
70105400	H-B 16TGBH 29		29	yes	5
79105200	H-B 16TGBH M25	25			5
79105400	H-B 16TGBH M32	32			5
H-B housing: hood (side cable entry, bolts for double lever)					
10082000	H-B 16 TS 21		21	yes	5
10092000	H-B 16 TS 29		29	yes	5
19082000	H-B 16 TS M25	25		yes	5
19092000	H-B 16 TS M32	32		yes	5

Photographs are not to scale and do not represent detailed images of the respective products.

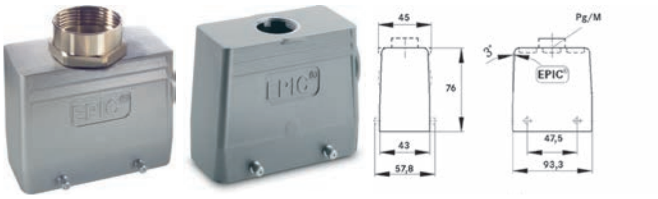
Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES | APPENDIX

EPIC® H-B 16 TGH

Housing design H-B. The industry standard.

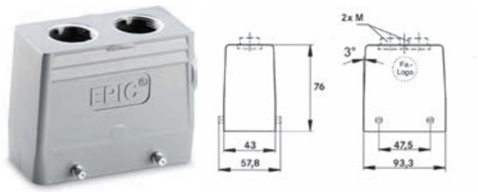


Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 16 TGH 2X

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring
- For easy introduction of two cables

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 TGH

- Hood, high version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 16 TGH 2X

- Hood, high version
- Bolts for double lever
- 2 straight cable entries
- Versions without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (straight cable entry, bolts for double lever, high version)					
70100200	H-B 16 TGH 21		21	yes	5
70100400	H-B 16 TGH 29		29	yes	5
79100200	H-B 16 TGH M25	25			5
79100400	H-B 16 TGH M32	32			5
79100800	H-B 16 TGH M40	40			5
H-B housing: hood (2 straight cable entries, bolts for double lever, high version)					
44422018	H-B 16 TGH 2XM25	2 x 25			5
79128600	H-B 16 TGH 2XM32	2 x 32			5

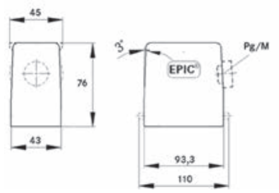
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 16 TSH-RO

Housing design H-B. The industry standard.

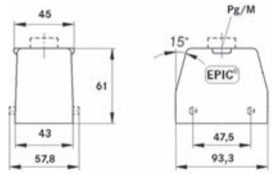


Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 16 TG

Housing design H-B. The industry standard.

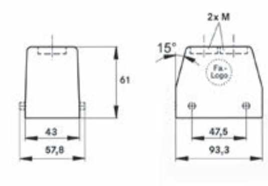


Info

- Non-slip ridges for comfortable disconnecting

EPIC® H-B 16 TG 2X

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting
- For easy introduction of two cables

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 TSH-RO

- Hood, high version
- Reels for single lever
- Side cable entry
- Versions with / without neck

EPIC® H-B 16 TG

- Hood, low version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 16 TG 2X

- Hood, low version
- Bolts for double lever
- 2 straight cable entries
- Versions with neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (side cable entry, bolts for single lever, high version)					
70104200	H-B 16 TSH-RO 21		21	yes	5
70104400	H-B 16 TSH-RO 29		29	yes	5
79104200	H-B 16 TSH-RO M25	25			5
79104400	H-B 16 TSH-RO M32	32			5
79104800	H-B 16 TSH-RO M40	40			5
H-B housing: hood (straight cable entry, bolts for double lever)					
10080000	H-B 16 TG 21		21	yes	5
10090000	H-B 16 TG 29		29	yes	5
19080000	H-B 16 TG M25	25			5
19090000	H-B 16 TG M32	32			5
H-B housing: hood (2 straight cable entries, bolts for double lever)					
19080500	H-B 16 TG 2XM25	2 x 25		yes	5

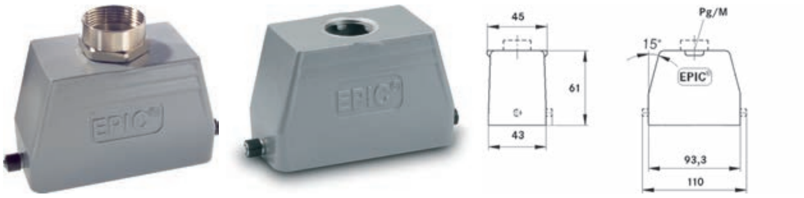
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 16 TG-RO

Housing design H-B. The industry standard.

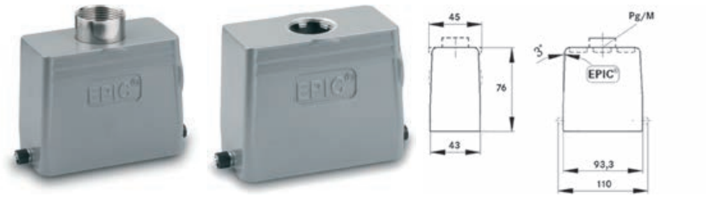


Info

- Non-slip ridges for comfortable disconnecting

EPIC® H-B 16 TGH-RO

Housing design H-B. The industry standard.

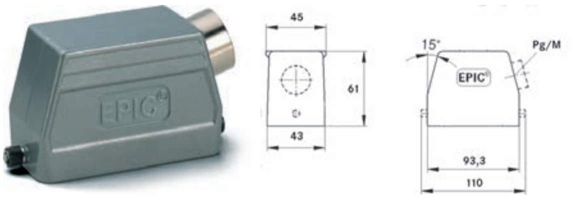


Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 16 TS-RO

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 TG-RO

- Hood, low version
- Reels for single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 16 TGH-RO

- Hood, high version
- Reels for single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 16 TS-RO

- Hood, low version
- Reels for single lever
- Side cable entry
- Versions with neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (straight cable entry, bolts for single lever)					
10080900	H-B 16 TG-RO 21		21	yes	5
19080900	H-B 16 TG-RO M25	25			5
H-B housing: hood (straight cable entry, bolts for single lever, high version)					
70094200	H-B 16 TGH-RO 21		21	yes	5
70094400	H-B 16 TGH-RO 29		29	yes	5
79094200	H-B 16 TGH-RO M25	25			5
79094400	H-B 16 TGH-RO M32	32			5
79094600	H-B 16 TGH-RO M40	40			5
H-B housing: hood (side cable entry, bolts for single lever)					
10082900	H-B 16 TS-RO 21		21	yes	5
10092900	H-B 16 TS-RO 29		29	yes	5
19082900	H-B 16 TS-RO M25	25		yes	5
19092900	H-B 16 TS-RO M32	32		yes	5

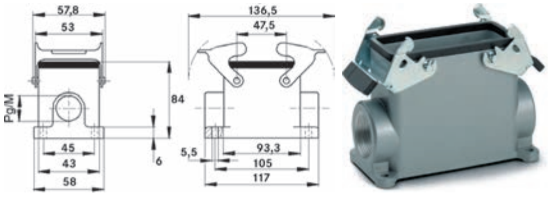
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 16 SGRLH

Housing design H-B. The industry standard.

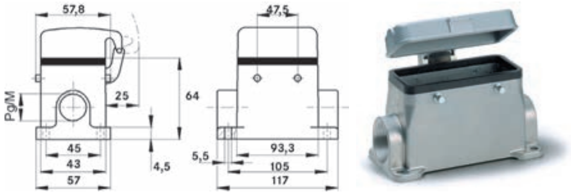


Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety
- For easy introduction of two cables

EPIC® H-B 16 SDR-BO

Housing design H-B. The industry standard.

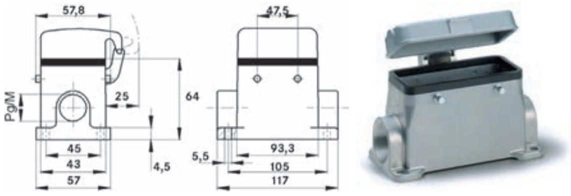


Info

- Metal lid with sturdy hinge

EPIC® H-B 16 SDRL-BO

Housing design H-B. The industry standard.



Info

- Metal lid with sturdy hinge
- For easy introduction of two cables

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 SGRLH

- Surface-mount base, high version
- Dual levers
- 2 cable entries

EPIC® H-B 16 SDR-BO

- Surface-mount base, low version
- Bolts for double lever
- 1 cable entry
- Metal cover

EPIC® H-B 16 SDRL-BO

- Surface-mount base, low version
- Bolts for double lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (2 cable entries, double lever, high version)				
70086200	H-B 16 SGRLH 21		21	5
70086400	H-B 16 SGRLH 29		29	5
79086200	H-B 16 SGRLH M25	25		5
79086400	H-B 16 SGRLH M32	32		5
H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever)				
10076000	H-B 16 SDR-BO 21		21	5
19076000	H-B 16 SDR-BO M25	25		5
H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever)				
70096000	H-B 16 SDRL-BO 21		21	5
79096000	H-B 16 SDRL-BO M25	25		5

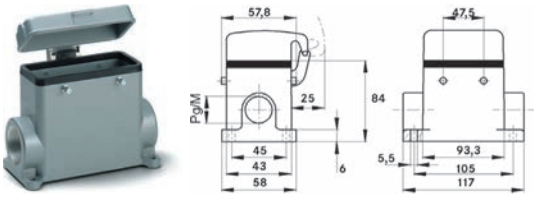
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 16 SDRH-BO

Housing design H-B. The industry standard.

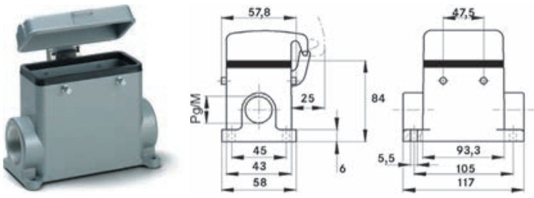


Info

- More interior space for wiring
- Metal lid with sturdy hinge

EPIC® H-B 16 SDRLH-BO

Housing design H-B. The industry standard.



Info

- More interior space for wiring
- Metal lid with sturdy hinge
- For easy introduction of two cables

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 SDRH-BO

- Surface-mount base, high version
- Bolts for double lever
- 1 cable entry
- Metal cover

EPIC® H-B 16 SDRLH-BO

- Surface-mount base, high version
- Bolts for double lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever, high version)				
70095200	H-B 16 SDRH-BO 21		21	5
70095400	H-B 16 SDRH-BO 29		29	5
79095200	H-B 16 SDRH-BO M25	25		5
79095400	H-B 16 SDRH-BO M32	32		5
H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever, high version)				
70096200	H-B 16 SDRLH-BO 21		21	5
79096200	H-B 16 SDRLH-BO M25	25		5
79096400	H-B 16 SDRLH-BO M32	32		5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

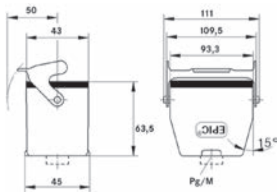
- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 16 TBF-LB

Housing design H-B. The industry standard.

Info

- Single Lever version for quick locking and simple unlocking with lifting aid

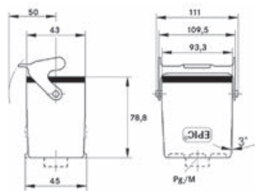


EPIC® H-B 16 TBFH-LB

Housing design H-B. The industry standard.

Info

- More interior space for wiring
- Single Lever version for quick locking and simple unlocking with lifting aid

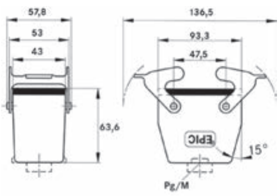


EPIC® H-B 16 TBF

Housing design H-B. The industry standard.

Info

- Double lever version with 2 levers for increased safety



Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 16 TBF-LB

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 16 TBFH-LB

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 16 TBF

- Cable coupler hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: cable coupler hood (1 straight cable entry, single lever)					
10086900	H-B 16 TBF-LB 21		21	yes	5
19086900	H-B 16 TBF-LB 25	25			5
H-B housing: cable coupler hood (1 straight cable entry, single lever, high version)					
70092200	H-B 16 TBFH-LB 21		21	yes	5
70092400	H-B 16 TBFH-LB 29		29	yes	5
79092200	H-B 16 TBFH-LB M25	25			5
79092400	H-B 16 TBFH-LB M32	32			5
H-B housing: cable coupler hood (straight cable entry, double lever)					
10086000	H-B 16 TBF 21		21	yes	5
19086000	H-B 16 TBF M25	25			5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

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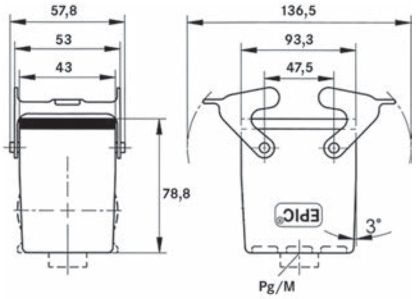
EPIC® H-B 16 TBFH

Housing design H-B. The industry standard.



Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety

Benefits

- The housing standard. Wide choice for all applications

Application range

- Plant engineering
- Plastics industry
- Light & sound technology

Product features

- Cable coupler hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: cable coupler hood (straight cable entry, double lever, high version)					
70090200	H-B 16 TBFH 21		21	yes	5
70090400	H-B 16 TBFH 29		29	yes	5
79090200	H-B 16 TBFH M25	25			5
79090400	H-B 16 TBFH M32	32			5
79090401	H-B 16 TBFH 2xM32	2 x 32			5

Photographs are not to scale and do not represent detailed images of the respective products.

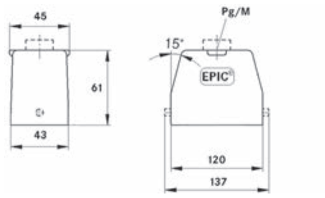
Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 TG-RO

Housing design H-B. The industry standard.

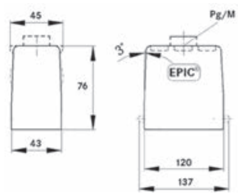
Info
- Non-slip ridges for comfortable disconnecting



EPIC® H-B 24 TGH-RO

Housing design H-B. The industry standard.

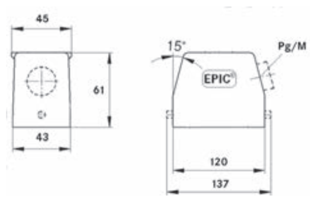
Info
- Non-slip ridges for comfortable disconnecting
- More interior space for wiring



EPIC® H-B 24 TS-RO

Housing design H-B. The industry standard.

Info
- Non-slip ridges for comfortable disconnecting



Similar products

EPIC® H-B 24 TG-RO
- Further products for two inserts in the internet. (H-B 32, H-B 48)

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

EPIC® H-B 24 TG-RO
- Hood, low version
- Reels for single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 24 TGH-RO
- Hood, high version
- Reels for single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 24 TS-RO
- Hood, low version
- Reels for single lever
- Side cable entry
- Versions with neck

Suitable inserts
- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (straight cable entry, bolts for single lever)					
10121900	H-B 24 TG-RO 21		21	yes	5
10111900	H-B 24 TG-RO 29		29	yes	5
19121900	H-B 24 TG-RO M25	25			5
19111900	H-B 24 TG-RO M32	32			5
H-B housing: hood (straight cable entry, bolts for single lever, high version)					
70144400	H-B 24 TGH-RO 21		21	yes	5
70144600	H-B 24 TGH-RO 29		29	yes	5
79144400	H-B 24 TGH-RO M25	25			5
79144600	H-B 24 TGH-RO M32	32			5
79144800	H-B 24 TGH-RO M40	40			5
H-B housing: hood (side cable entry, bolts for single lever)					
10113900	H-B 24 TS-RO 21		21	yes	5
10123900	H-B 24 TS-RO 29		29	yes	5
19113900	H-B 24 TS-RO M25	25		yes	5
19123900	H-B 24 TS-RO M32	32		yes	5

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

EPIC® H-B 24 TG-RO
- Further products for two inserts in the internet. (H-B 32, H-B 48)

Accessories
- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 TSH-RO

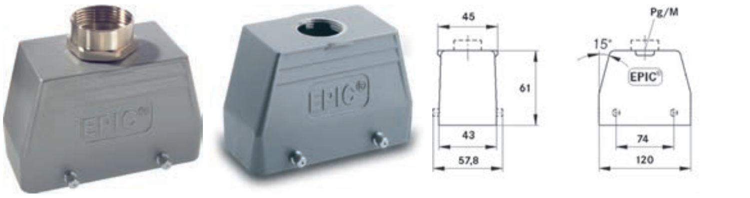
Housing design H-B. The industry standard.

Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 24 TG

Housing design H-B. The industry standard.

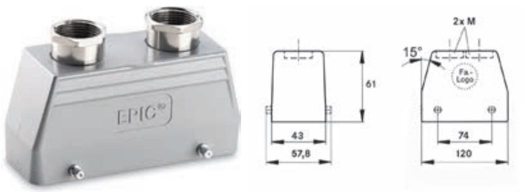


Info

- Non-slip ridges for comfortable disconnecting

EPIC® H-B 24 TG 2X

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting
- For easy introduction of two cables

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

EPIC® H-B 24 TSH-RO

- Hood, high version
- Reels for single lever
- Side cable entry
- Versions with / without neck

EPIC® H-B 24 TG

- Hood, low version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 24 TG 2X

- Hood, low version
- Bolts for double lever
- 2 straight cable entries
- Versions with neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (side cable entry, bolts for single lever, high version)					
70154400	H-B 24 TSH-RO 21		21	yes	5
70154600	H-B 24 TSH-RO 29		29	yes	5
79154400	H-B 24 TSH-RO M25	25			5
79154600	H-B 24 TSH-RO M32	32			5
79154800	H-B 24 TSH-RO M40	40			5
H-B housing: hood (straight cable entry, bolts for double lever)					
10121000	H-B 24 TG 21		21	yes	5
10111000	H-B 24 TG 29		29	yes	5
19121000	H-B 24 TG M25	25			5
19111000	H-B 24 TG M32	32			5
H-B housing: hood (2 straight cable entries, bolts for double lever)					
44422019	H-B 24 TG 2XM25	2 x 25		yes	5
44422020	H-B 24 TG 2XM32	2 x 32		yes	5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 TGH

Housing design H-B. The industry standard.

Info

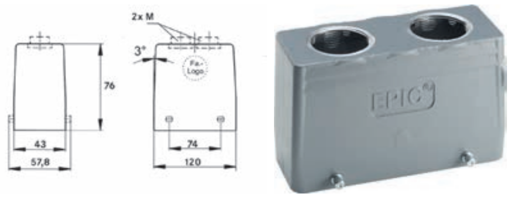
- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 24 TGH 2X

Housing design H-B. The industry standard.

Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring
- For easy introduction of two cables



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

EPIC® H-B 24 TGH

- Hood, high version
- Bolts for double lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 24 TGH 2X

- Hood, high version
- Bolts for double lever
- 2 straight cable entries
- Versions without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (straight cable entry, bolts for double lever, high version)					
70150400	H-B 24 TGH 21		21	yes	5
70150600	H-B 24 TGH 29		29	yes	5
79150400	H-B 24 TGH M25	25			5
79150600	H-B 24 TGH M32	32			5
79150800	H-B 24 TGH M40	40			5
H-B housing: hood (2 straight cable entries, bolts for double lever, high version)					
44422021	H-B 24 TGH 2XM25	2 x 25			5
79178500	H-B 24 TGH 2XM32	2 x 32			5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

LAPP GROUP

ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES | APPENDIX

EPIC® H-B 24 TGB

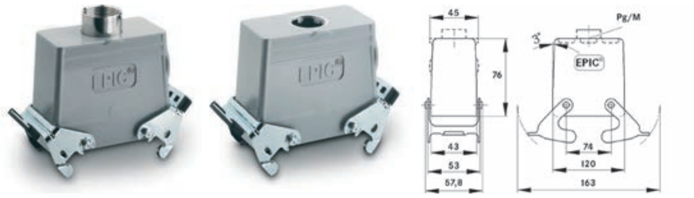
Housing design H-B. The industry standard.

Info

- Non-slip ridges for comfortable disconnecting
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover

EPIC® H-B 24 TGBH

Housing design H-B. The industry standard.

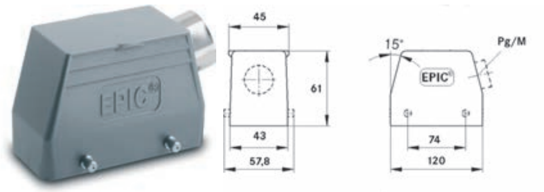


Info

- Non-slip ridges for comfortable disconnecting
- For connection with counterpart with integrated cover
- More interior space for wiring

EPIC® H-B 24 TS

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting

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

EPIC® H-B 24 TGB

- Hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

EPIC® H-B 24 TGBH

- Hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

EPIC® H-B 24 TS

- Hood, low version
- Bolts for double lever
- Side cable entry
- Versions with neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (straight cable entry, double lever)					
10122000	H-B 24 TGB 21		21	yes	5
10112000	H-B 24 TGB 29		29	yes	5
19122000	H-B 24 TGB M25	25			5
19112000	H-B 24 TGB M32	32			5
H-B housing: hood (straight cable entry, double lever, high version)					
70155400	H-B 24 TGBH 21		21	yes	5
70155600	H-B 24 TGBH 29		29	yes	5
79155400	H-B 24 TGBH M25	25			5
79155600	H-B 24 TGBH M32	32			5
H-B housing: hood (side cable entry, bolts for double lever)					
10113000	H-B 24 TS 21		21	yes	5
10123000	H-B 24 TS 29		29	yes	5
19113000	H-B 24 TS M25	25		yes	5
19123000	H-B 24 TS M32	32		yes	5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 TSH

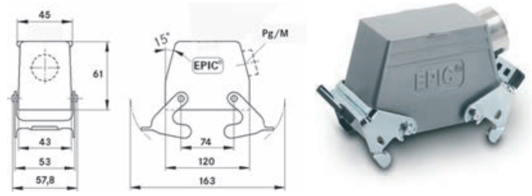
Housing design H-B. The industry standard.

Info

- Non-slip ridges for comfortable disconnecting
- More interior space for wiring

EPIC® H-B 24 TSB

Housing design H-B. The industry standard.



Info

- Non-slip ridges for comfortable disconnecting
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover

EPIC® H-B 24 TSBH

Housing design H-B. The industry standard.

Info

- Non-slip ridges for comfortable disconnecting
- Double lever version with 2 levers for increased safety
- For connection with counterpart with integrated cover

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

EPIC® H-B 24 TSH
- Hood, high version
- Bolts for double lever
- Side cable entry
- Versions with / without neck

EPIC® H-B 24 TSB
- Hood, low version
- Dual levers
- Side cable entry
- Versions with neck

EPIC® H-B 24 TSBH
- Hood, high version
- Dual levers
- Side cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: hood (side cable entry, bolts for double lever, high version)					
70152400	H-B 24 TSH 21		21	yes	5
70152600	H-B 24 TSH 29		29	yes	5
79152400	H-B 24 TSH M25	25			5
79152600	H-B 24 TSH M32	32			5
79152800	H-B 24 TSH M40	40			5
H-B housing: hood (side cable entry, double lever)					
10114000	H-B 24 TSB 21		21	yes	5
10124000	H-B 24 TSB 29		29	yes	5
19114000	H-B 24 TSB M25	25		yes	5
19124000	H-B 24 TSB M32	32		yes	5
H-B housing: hood (side cable entry, double lever, high version)					
70157400	H-B 24 TSBH 21		21	yes	5
70157600	H-B 24 TSBH 29		29	yes	5
79157400	H-B 24 TSBH M25	25			5
79157600	H-B 24 TSBH M32	32			5

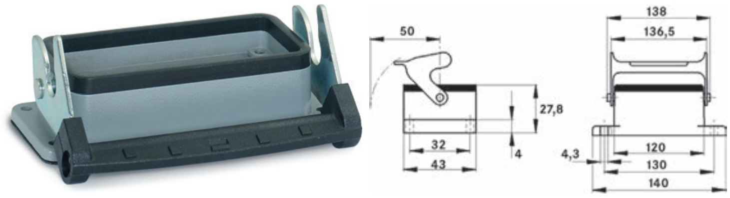
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 AG-LB

Housing design H-B. The industry standard.

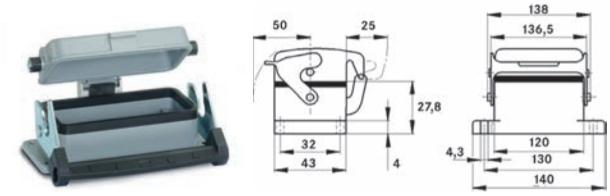


Info

- Universal, robust metal housings size H-B 24
- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 24 AD-LB

Housing design H-B. The industry standard.

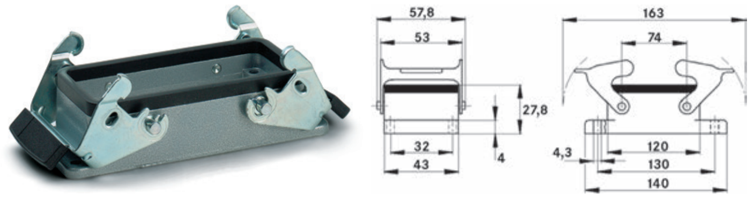


Info

- Metal lid with sturdy hinge
- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 24 AG

Housing design H-B. The industry standard.

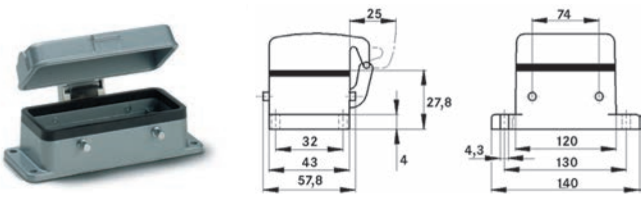


Info

- Double lever version with 2 levers for increased safety

EPIC® H-B 24 AD-BO

Housing design H-B. The industry standard.



Info

- Metal lid with sturdy hinge
- Double lever version with 2 levers for increased safety

Benefits

- Safe fixing with 4 screws

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 24 AG-LB

- Panel-mount base
- Single lever
- Included: flat gasket

EPIC® H-B 24 AD-LB

- Panel-mount base
- Single lever
- Metal cover
- Included: flat gasket

EPIC® H-B 24 AG

- Panel-mount base
- Dual levers
- Included: flat gasket

EPIC® H-B 24 AD-BO

- Panel-mount base
- Bolts for double lever
- Metal cover
- Included: flat gasket

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	Pieces / PU
H-B housing: panel-mount base (single lever)		
10102900	H-B 24 AG-LB	5
H-B housing: panel-mount base (cover, single lever)		
10103900	H-B 24 AD-LB	5
H-B housing: panel-mount base (double lever)		
10102000	H-B 24 AG	5
H-B housing: panel-mount base (cover, bolts for double lever)		
10103000	H-B 24 AD-BO	5

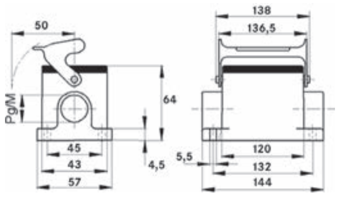
Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® H-B 24 SGR-LB

Housing design H-B. The industry standard.

Info

- Single Lever version for quick locking and simple unlocking with lifting aid

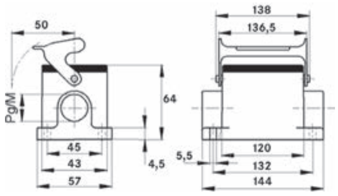


EPIC® H-B 24 SGRL-LB

Housing design H-B. The industry standard.

Info

- For easy introduction of two cables
- Single Lever version for quick locking and simple unlocking with lifting aid



Benefits

- Safe fixing with 4 screws
- Casted neck for easy assembly of the cable gland

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 24 SGR-LB

- Surface-mount base, low version
- Single lever
- 1 cable entry

EPIC® H-B 24 SGRL-LB

- Surface-mount base, low version
- Single lever
- 2 cable entries

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (1 cable entry, single lever)				
10104900	H-B 24 SGR-LB 21		21	5
19104900	H-B 24 SGR-LB M25	25		5
H-B housing: surface-mount base (2 cable entries, single lever)				
10105900	H-B 24 SGRL-LB 21		21	5
19105900	H-B 24 SGRL-LB M25	25		5

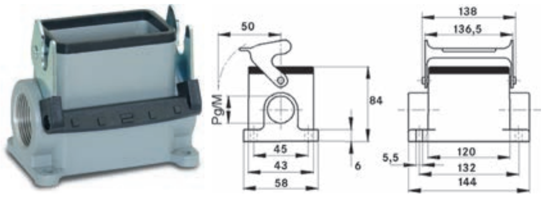
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 SGRH-LB

Housing design H-B. The industry standard.

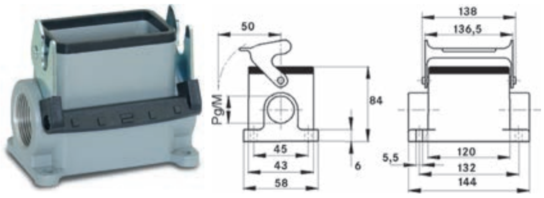


Info

- More interior space for wiring
- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 24 SGRLH-LB

Housing design H-B. The industry standard.

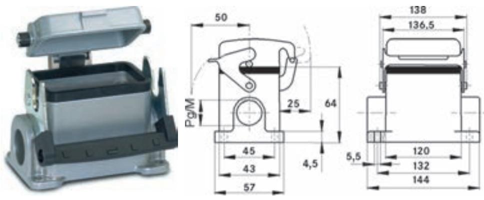


Info

- More interior space for wiring
- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 24 SDR-LB

Housing design H-B. The industry standard.



Info

- Single Lever version for quick locking and simple unlocking with lifting aid
- Metal lid with sturdy hinge

Benefits

- Safe fixing with 4 screws
- Casted neck for easy assembly of the cable gland

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 24 SGRH-LB

- Surface-mount base, high version
- Single lever
- 1 cable entry

EPIC® H-B 24 SGRLH-LB

- Surface-mount base, high version
- Single lever
- 2 cable entries

EPIC® H-B 24 SDR-LB

- Surface-mount base, low version
- Single lever
- 1 cable entry
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (1 cable entry, single lever, high version)				
70160200	H-B 24 SGRH-LB 21		21	5
70160400	H-B 24 SGRH-LB 29		29	5
79160200	H-B 24 SGRH-LB M25	25		5
79160400	H-B 24 SGRH-LB M32	32		5
H-B housing: surface-mount base (2 cable entries, single lever, high version)				
70161200	H-B 24 SGRLH-LB 21		21	5
70161400	H-B 24 SGRLH-LB 29		29	5
79161200	H-B 24 SGRLH-LB M25	25		5
79161400	H-B 24 SGRLH-LB M32	32		5
H-B housing: surface-mount base (cover, 1 cable entry, single lever)				
10107900	H-B 24 SDR-LB 21		21	5
19107900	H-B 24 SDR-LB M25	25		5

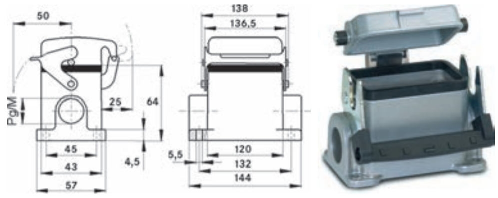
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 SDRL-LB

Housing design H-B. The industry standard.

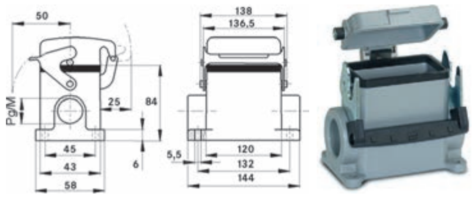


Info

- For easy introduction of two cables
- Single Lever version for quick locking and simple unlocking with lifting aid
- Metal lid with sturdy hinge

EPIC® H-B 24 SDRH-LB

Housing design H-B. The industry standard.

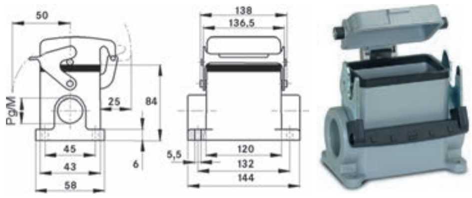


Info

- More interior space for wiring
- Single Lever version for quick locking and simple unlocking with lifting aid
- Metal lid with sturdy hinge

EPIC® H-B 24 SDRLH-LB

Housing design H-B. The industry standard.



Info

- More interior space for wiring
- Single Lever version for quick locking and simple unlocking with lifting aid
- Metal lid with sturdy hinge

Benefits

- Safe fixing with 4 screws
- Casted neck for easy assembly of the cable gland

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 24 SDRL-LB

- Surface-mount base, low version
- Single lever
- 2 cable entries
- Metal cover

EPIC® H-B 24 SDRH-LB

- Surface-mount base, high version
- Single lever
- 1 cable entry
- Metal cover

EPIC® H-B 24 SDRLH-LB

- Surface-mount base, high version
- Single lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (cover, 2 cable entries, single lever)				
10109900	H-B 24 SDRL-LB 21		21	5
19109900	H-B 24 SDRL-LB M25	25		5
H-B housing: surface-mount base (cover, 1 cable entry, single lever, high version)				
70164200	H-B 24 SDRH-LB 21		21	5
70164400	H-B 24 SDRH-LB 29		29	5
79164200	H-B 24 SDRH-LB M25	25		5
79164400	H-B 24 SDRH-LB M32	32		5
H-B housing: surface-mount base (cover, 2 cable entries, single lever, high version)				
70165200	H-B 24 SDRLH-LB 21		21	5
70165400	H-B 24 SDRLH-LB 29		29	5
79165200	H-B 24 SDRLH-LB M25	25		5
79165400	H-B 24 SDRLH-LB M32	32		5

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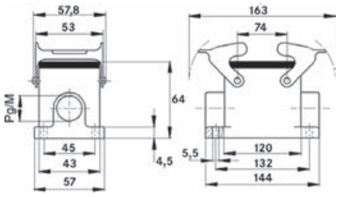
Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 SGR

Housing design H-B. The industry standard.

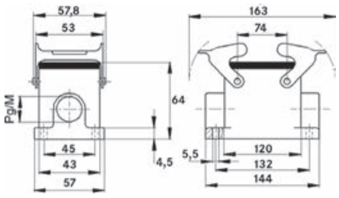


Info

- Double lever version with 2 levers for increased safety

EPIC® H-B 24 SGRL

Housing design H-B. The industry standard.

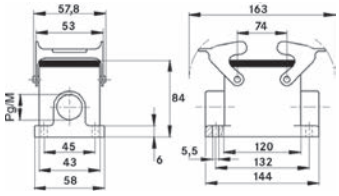


Info

- Double lever version with 2 levers for increased safety

EPIC® H-B 24 SGRH

Housing design H-B. The industry standard.



Info

- Double lever version with 2 levers for increased safety

Benefits

- Safe fixing with 4 screws
- Casted neck for easy assembly of the cable gland

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 24 SGR

- Surface-mount base, low version
- Dual levers
- 1 cable entry

EPIC® H-B 24 SGRL

- Surface-mount base, low version
- Dual levers
- 2 cable entries

EPIC® H-B 24 SGRH

- Surface-mount base, high version
- Dual levers
- 1 cable entry

Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (1 cable entry, double lever)				
10104000	H-B 24 SGR 21		21	5
19104000	H-B 24 SGR M25	25		5
H-B housing: surface-mount base (2 cable entries, double lever)				
10105000	H-B 24 SGRL 21		21	5
19105000	H-B 24 SGRL M25	25		5
H-B housing: surface-mount base (1 cable entry, double lever, high version)				
70135200	H-B 24 SGRH 21		21	5
70135400	H-B 24 SGRH 29		29	5
79135200	H-B 24 SGRH M25	25		5
79135400	H-B 24 SGRH M32	32		5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

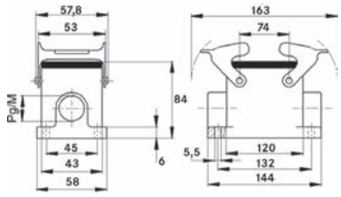
- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 SGRLH

Housing design H-B. The industry standard.

Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety

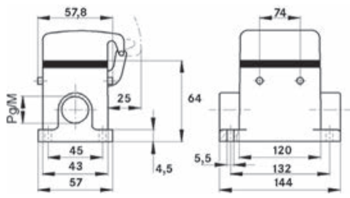


EPIC® H-B 24 SDR-BO

Housing design H-B. The industry standard.

Info

- Metal lid with sturdy hinge

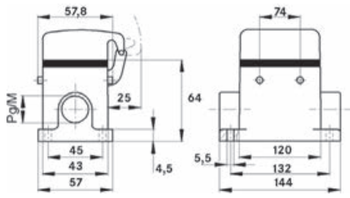


EPIC® H-B 24 SDRL-BO

Housing design H-B. The industry standard.

Info

- For easy introduction of two cables
- Metal lid with sturdy hinge



Benefits

- Safe fixing with 4 screws
- Casted neck for easy assembly of the cable gland

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 24 SGRLH

- Surface-mount base, high version
- Dual levers
- 2 cable entries

EPIC® H-B 24 SDR-BO

- Surface-mount base, low version
- Bolts for double lever
- 1 cable entry
- Metal cover

EPIC® H-B 24 SDRL-BO

- Surface-mount base, low version
- Bolts for double lever
- 2 cable entries
- Metal cover

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (2 cable entries, double lever, high version)				
70136200	H-B 24 SGRLH 21		21	5
70136400	H-B 24 SGRLH 29		29	5
79136200	H-B 24 SGRLH M25	25		5
79136400	H-B 24 SGRLH M32	32		5
H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever)				
10107000	H-B 24 SDR-BO 21		21	5
19107000	H-B 24 SDR-BO M25	25		5
H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever)				
10109000	H-B 24 SDRL-BO 21		21	5
19109000	H-B 24 SDRL-BO M25	25		5

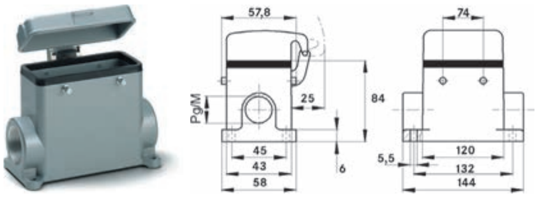
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 SDRH-BO

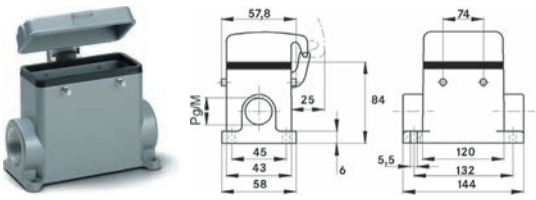
Housing design H-B. The industry standard.



Info
- More interior space for wiring
- Metal lid with sturdy hinge

EPIC® H-B 24 SDRLH-BO

Housing design H-B. The industry standard.



Info
- More interior space for wiring
- For easy introduction of two cables
- Metal lid with sturdy hinge

Benefits
- Safe fixing with 4 screws
- Casted neck for easy assembly of the cable gland

Application range
- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 24 SDRH-BO
- Surface-mount base, high version
- Bolts for double lever
- 1 cable entry
- Metal cover

EPIC® H-B 24 SDRLH-BO
- Surface-mount base, high version
- Bolts for double lever
- 2 cable entries
- Metal cover

Suitable inserts
- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Pieces / PU
H-B housing: surface-mount base (cover, 1 cable entry, bolts for double lever, high version)				
70145200	H-B 24 SDRH-BO 21		21	5
70145400	H-B 24 SDRH-BO 29		29	5
79145400	H-B 24 SDRH-BO M32	32		5
H-B housing: surface-mount base (cover, 2 cable entries, bolts for double lever, high version)				
70146200	H-B 24 SDRLH-BO 21		21	5
70146400	H-B 24 SDRLH-BO 29		29	5
79146400	H-B 24 SDRLH-BO M32	32		5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 TBF-LB

Housing design H-B. The industry standard.

Info

- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 24 TBFH-LB

Housing design H-B. The industry standard.

Info

- More interior space for wiring
- Single Lever version for quick locking and simple unlocking with lifting aid

EPIC® H-B 24 TBF

Housing design H-B. The industry standard.

Info

- Double lever version with 2 levers for increased safety

Benefits

- Safe fixing with 4 screws
- Casted neck for easy assembly of the cable gland

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

EPIC® H-B 24 TBF-LB

- Cable coupler hood, low version
- Single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 24 TBFH-LB

- Cable coupler hood, high version
- Single lever
- Straight cable entry
- Versions with / without neck

EPIC® H-B 24 TBF

- Cable coupler hood, low version
- Dual levers
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: cable coupler hood (1 straight cable entry, single lever)					
10127900	H-B 24 TBF-LB 21		21	yes	5
10117900	H-B 24 TBF-LB 29		29	yes	5
19127900	H-B 24 TBF-LB M25	25			5
19117900	H-B 24 TBF-LB M32	32			5
H-B housing: cable coupler hood (1 straight cable entry, single lever, high version)					
70142400	H-B 24 TBFH-LB 21		21	yes	5
79142400	H-B 24 TBFH-LB M25	25			5
79142600	H-B 24 TBFH-LB M32	32			5
H-B housing: cable coupler hood (straight cable entry, double lever)					
10127000	H-B 24 TBF 21		21	yes	5
10117000	H-B 24 TBF 29		29	yes	5
19127000	H-B 24 TBF M25	25			5
19117000	H-B 24 TBF M32	32			5

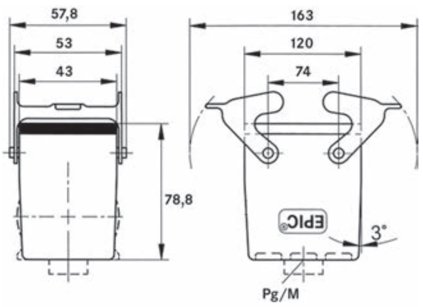
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

EPIC® H-B 24 TBFH

Housing design H-B. The industry standard.



Info

- More interior space for wiring
- Double lever version with 2 levers for increased safety

Benefits

- Safe fixing with 4 screws
- Casted neck for easy assembly of the cable gland

Application range

- Plant engineering
- Light & sound technology
- Plastics industry

Product features

- Cable coupler hood, high version
- Dual levers
- Straight cable entry
- Versions with / without neck

Suitable inserts

- Refer to Selection Table A10 to select the required inserts and housings

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: powder-coated aluminium alloy, grey
Lever: zinc-plated steel
Sealing: NBR

Protection rating
IP 65 (latched)

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	M	PG	Neck	Pieces / PU
H-B housing: cable coupler hood (straight cable entry, double lever, high version)					
70140400	H-B 24 TBFH 21		21	yes	5
70140600	H-B 24 TBFH 29		29	yes	5
79140400	H-B 24 TBFH M25	25			5
79140600	H-B 24 TBFH M32	32			5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® MS-M
- SKINTOP® for industrial connectors
- Easy to install

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 5.0 Class-ID: EC002636
ETIM 5.0 Class-Description: Rectangular connector (industrial connector)

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
Fastening screws		
44423017	Screw with O-ring for EPIC H-A 3/4, H-D7/8, H-Q 5	10
44423018	EPIC® STA Screw	10

Photographs 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 5.0 Class-ID: EC002636
ETIM 5.0 Class-Description: Rectangular connector (industrial connector)

Article number	Article description	Pieces / PU
EPIC® H-A 3/4 Code pin		
10451400	EPIC® H-A 3/4 Code pin (50)	50
Key pin		
10019000	EPIC® Key pin (50)	50
Guide pin, guide socket		
11281000	EPIC® Guide socket (50)	50
11280000	EPIC® Guide pin (50)	50
EPIC® H-Q 12 Codepin		
44424052	EPIC® H-Q 12 Key Pin (20)	20

Photographs 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 5.0 Class-ID: EC002314
ETIM 5.0 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 cable lug		Plastic	10
10047000	H-B 10 KDB	for housing H-B 10	4	with cable lug		Plastic	10
10087000	H-B 16 KDB	for housing H-B 16	4	with cable lug		Plastic	5
10118000	H-B 24 KDB	for housing H-B 24	4	with cable lug		Plastic	5
with lever for H-B 6-24 hood with bolts							
10016500	H-B 6 KDT	for H-B 6 hood		with loop	2 snap-in hooks	Plastic	10
10048500	H-B 10 KDT	for H-B 10 hood		with loop	4 snap-in hooks	Plastic	10
10088500	H-B 16 KDT	for H-B 16 hood		with loop	4 snap-in hooks	Plastic	5
10119500	H-B 24 KDT	for H-B 24 hood		with loop	4 snap-in hooks	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	2 snap-in hooks	Plastic	10
10088600	H-B 16 KDTF	for H-B 16 hood		with loop	2 snap-in hooks	Plastic	10
10118600	H-B 24 KDTF	for H-B 24 hood		with loop	2 snap-in hooks	Plastic	10

Photographs 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

Product features

EPIC® Cover plates
- For coverage of panel cut-outs for panel-mount base housings type 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
- Locking levers as spare parts for H-A and H-B housings

Technical data

ETIM
ETIM 5.0 Class-ID: EC002636
ETIM 5.0 Class-Description:
Rectangular connector
(industrial connector)

Article number	Article description	Version	Material	Pieces / PU
Cover plates for mounting cut-out H-B				
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
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-B 10 - 24 housing	Stainless steel	10

Photographs are not to scale and do not represent detailed images of the respective products.

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

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

Rated voltage (V)
630 V

Rated impulse voltage
6 kV

Rated current (A)
12 A

Degree of soiling
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 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

ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

Rated voltage (V)
630 V

Rated impulse voltage
6 kV

Rated current (A)
12 A

Degree of soiling
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

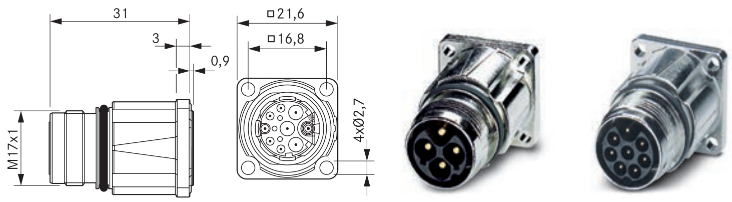
Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® POWER M 17 A1

Circular connectors for servomotors and power supply

Info

- High Power with smallest space requirements

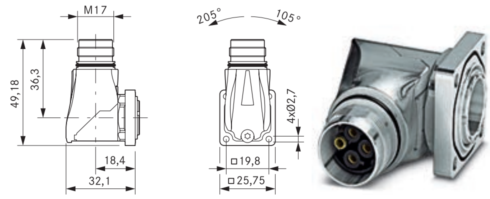


EPIC® POWER M 17 A3

Circular connectors for servomotors and power supply

Info

- Rotateable with 310° cable outlet

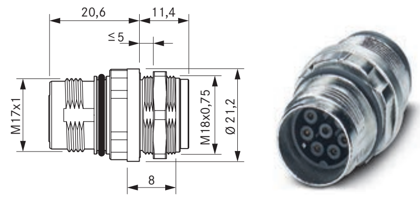


EPIC® POWER M 17 G4

Circular connectors for servomotors and power supply

Info

- For installation in existing hole



Suitable contacts:

- EPIC® M 17 Contacts Page 668
- The contacts have to be ordered separately

Benefits

- Version with less contacts for higher current
- Compact design: small space requirements
- EMC protection

Application range

- Servo drives and servo assemblies
- Plant engineering, machinery manufacturing

Technical data

ETIM 5.0 Class-ID: EC002635
ETIM 5.0 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

Degree of soiling
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

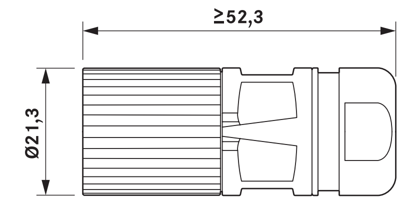
Article number	Article description	Fastening type	Pin configuration	Pieces / PU
Type M 17 A 1, front wall mounting				
44423075	EPIC® M 17 female	Ø 2.7 mm (4x)	3+PE	5
44423070	EPIC® M 17 male	Ø 2.7 mm (4x)	3+PE	5
44423076	EPIC® M 17 female	Ø 2.7 mm (4x)	5+PE	5
44423071	EPIC® M 17 male	Ø 2.7 mm (4x)	5+PE	5
44423077	EPIC® M 17 female	Ø 2.7 mm (4x)	6+PE	5
44423072	EPIC® M 17 male	Ø 2.7 mm (4x)	6+PE	5
44423078	EPIC® M 17 female	Ø 2.7 mm (4x)	7+PE	5

Article number	Article description	Fastening type	Pin configuration	Pieces / PU
44423073	EPIC® M 17 male	Ø 2.7 mm (4x)	7+PE	5
44423079	EPIC® M 17 female	Ø 2.7 mm (4x)	3+PE+5	5
44423074	EPIC® M 17 male	Ø 2.7 mm (4x)	3+PE+5	5
Type M 17 A3, angled and rotateable				
44423085	EPIC® M 17 female	Ø 2.7 mm (4x)	3+PE	5
44423080	EPIC® M 17 male	Ø 2.7 mm (4x)	3+PE	5
44423086	EPIC® M 17 female	Ø 2.7 mm (4x)	5+PE	5
44423081	EPIC® M 17 male	Ø 2.7 mm (4x)	5+PE	5
44423087	EPIC® M 17 female	Ø 2.7 mm (4x)	6+PE	5
44423082	EPIC® M 17 male	Ø 2.7 mm (4x)	6+PE	5
44423088	EPIC® M 17 female	Ø 2.7 mm (4x)	7+PE	5
44423083	EPIC® M 17 male	Ø 2.7 mm (4x)	7+PE	5
44423089	EPIC® M 17 female	Ø 2.7 mm (4x)	3+PE+5	5
44423084	EPIC® M 17 male	Ø 2.7 mm (4x)	3+PE+5	5
Type M 17 G4, front wall mounting				
44423095	EPIC® M 17 female	M 18x0,75 (with counternut)	3+PE	5
44423090	EPIC® M 17 male	M 18x0,75 (with counternut)	3+PE	5
44423098	EPIC® M 17 female	M 18x0,75 (with counternut)	3+PE+5	5
44423093	EPIC® M 17 male	M 18x0,75 (with counternut)	3+PE+5	5
44423099	EPIC® M 17 female	M 18x0,75 (with counternut)	5+PE	5
44423094	EPIC® M 17 male	M 18x0,75 (with counternut)	5+PE	5
44423096	EPIC® M 17 female	M 18x0,75 (with counternut)	6+PE	5
44423092	EPIC® M 17 male	M 18x0,75 (with counternut)	7+PE	5
44423091	EPIC® M 17 male	M 18x0,75 (with counternut)	6+PE	5
44423097	EPIC® M 17 female	M 18x0,75 (with counternut)	7+PE	5

Photographs are not to scale and do not represent detailed images of the respective products.

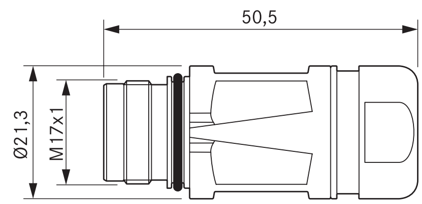
EPIC® POWER M 17 D6

Circular connectors for servomotors and power supply



EPIC® POWER M 17 F6

Circular connectors for servomotors and power supply



Info

- High Power with smallest space requirements

Suitable contacts:

- EPIC® M 17 Contacts Page 668
- The contacts have to be ordered separately

Benefits

- Compact design: small space requirements
- Version with less contacts for higher current
- EMC protection

Application range

- Servo drives and servo assemblies
- Plant engineering, machinery manufacturing

Technical data

ETIM 5.0 Class-ID: EC002635
ETIM 5.0 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

Degree of soiling
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 M 17 D6, cable connector				
44423050	EPIC® M 17 female	3.5 - 11	3+PE	5
44423055	EPIC® M 17 male	3.5 - 11	3+PE	5
44423051	EPIC® M 17 female	3.5 - 11	5+PE	5
44423056	EPIC® M 17 male	3.5 - 11	5+PE	5
44423052	EPIC® M 17 female	3.5 - 11	6+PE	5
44423057	EPIC® M 17 male	3.5 - 11	6+PE	5
44423053	EPIC® M 17 female	3.5 - 11	7+PE	5
44423058	EPIC® M 17 male	3.5 - 11	7+PE	5
44423054	EPIC® M 17 female	3.5 - 11	3+PE+5	5
44423059	EPIC® M 17 male	3.5 - 11	3+PE+5	5
Type M 17 F6, cable coupler				
44423065	EPIC® M 17 female	3.5 - 11	3+PE	5
44423060	EPIC® M 17 male	3.5 - 11	3+PE	5
44423066	EPIC® M 17 female	3.5 - 11	5+PE	5
44423061	EPIC® M 17 male	3.5 - 11	5+PE	5
44423067	EPIC® M 17 female	3.5 - 11	6+PE	5
44423062	EPIC® M 17 male	3.5 - 11	6+PE	5
44423068	EPIC® M 17 female	3.5 - 11	7+PE	5
44423063	EPIC® M 17 male	3.5 - 11	7+PE	5
44423069	EPIC® M 17 female	3.5 - 11	3+PE+5	5
44423064	EPIC® M 17 male	3.5 - 11	3+PE+5	5

Photographs 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 668
- The contacts have to be ordered separately

Benefits

- Compact design: small space requirements
- EMC protection

Application range

- Feedback / signal cables

Technical data

ETIM 5.0 Class-ID: EC002635
ETIM 5.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
60 V

Rated impulse voltage
1.5 kV

Rated current (A)
3.6 A

Degree of soiling
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
EPIC® SIGNAL M17 A1				
44423110	EPIC® M17 female	Ø 2.7 mm (4x)	8	5
44423108	EPIC® M17 male	Ø 2.7 mm (4x)	8	5
Type M17 A1, front wall mounting				
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 (with counternut)	8	5
44423116	EPIC® M17 male	M18x0,75 (with counternut)	8	5
44423119	EPIC® M17 female	M18x0,75 (with counternut)	17	5
44423117	EPIC® M17 male	M18x0,75 (with counternut)	17	5

Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® SIGNAL M 17 D6

Circular connectors for servomotors and power supply

Info

- Connector for shielded data cables

EPIC® SIGNAL M 17 F6

Circular connectors for servomotors and power supply

Suitable contacts:

- EPIC® M 17 Contacts Page 668
- The contacts have to be ordered separately

Benefits

- Compact design: small space requirements
- EMC protection

Application range

- Feedback / signal cables

Technical data

ETIM 5.0 Class-ID: EC002635
ETIM 5.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
60 V

Rated impulse voltage
1.5 kV

Rated current (A)
3.6 A

Degree of soiling
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 M 17 D6, cable connector				
44423100	EPIC® M 17 female	3.5 - 11	8	5
44423102	EPIC® M 17 male	3.5 - 11	8	5
44423101	EPIC® M 17 female	3.5 - 11	17	5
44423103	EPIC® M 17 male	3.5 - 11	17	5
Type M 17 F6, cable coupler				
44423106	EPIC® M 17 female	3.5 - 11	8	5
44423104	EPIC® M 17 male	3.5 - 11	8	5
44423107	EPIC® M 17 female	3.5 - 11	17	5
44423105	EPIC® M 17 male	3.5 - 11	17	5

Photographs 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 5.0 Class-ID: EC002635
ETIM 5.0 Class-Description: Circular connector (industrial connector)

Article number	Article description	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	Crimpzange with Locator for EPIC® M 17	for EPIC® M 17 POWER and SIGNAL	1

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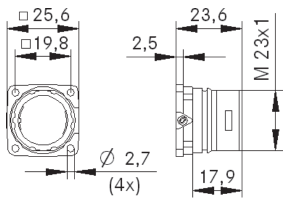
EPIC® SIGNAL M23 A1

Circular connectors for Servo Cables and encoders

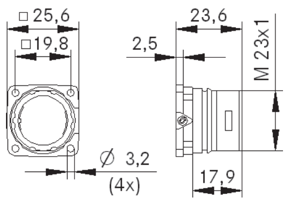
Info

- Coulour coding for easy connecting



EPIC® SIGNAL M23 A1 D3.2

Circular connectors for Servo Cables and encoders

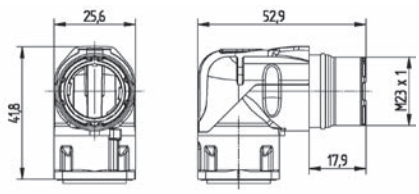


EPIC® SIGNAL M23 A3

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
- Housings are very flexible - cable connectors with wide clamping range, receptacle housings for assembling the inserts from the front and rear
- Permanent vibration protection

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

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

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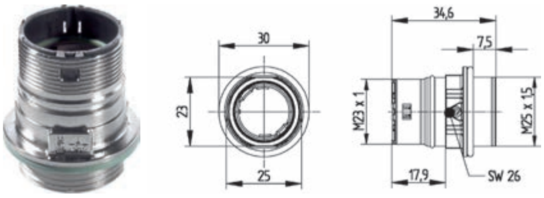
EPIC® SIGNAL M23 G4

Circular connectors for Servo Cables and encoders

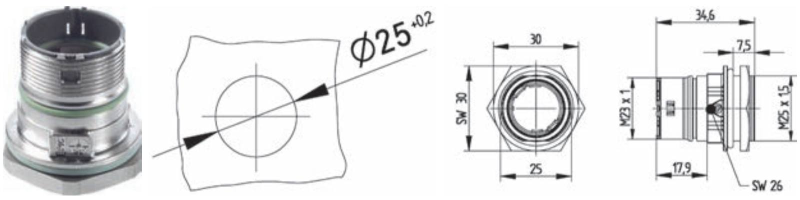


Info

- For mounting in existing M25 threads or boreholes

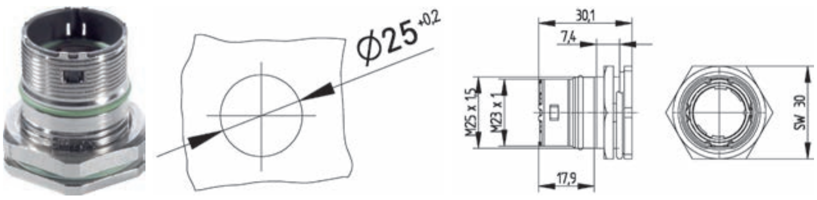
EPIC® SIGNAL M23 G5

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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: nickel-plated zinc die-casting
Sealing: FPM

Protection rating
IP68 (10h / 1m)

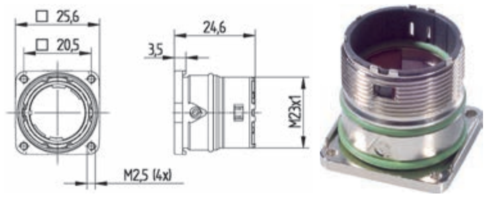
VDE-tested
Certified production control:
VDE-REG. no. C24 (according to EN 61984, SELV according to DIN VDE 0100-410 has to be guaranteed)
UL File Number: E249137

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
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

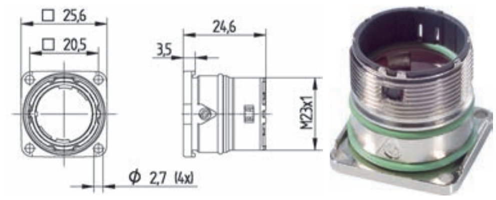
Photographs are not to scale and do not represent detailed images of the respective products.

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
ETIM 5.0 Class-ID: EC000437
ETIM 5.0 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

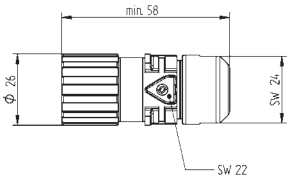
Temperature range
-25°C up to +125°C

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 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

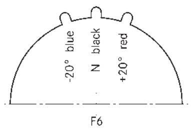


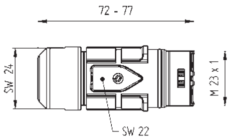
Info

- Robust metal connector with integrated EMC cable gland

EPIC® SIGNAL M23 F6

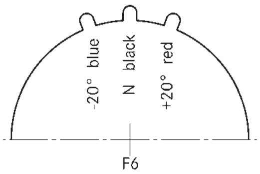
Circular connectors for Servo Cables and encoders

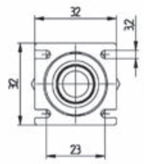


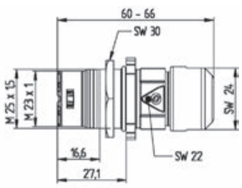


EPIC® SIGNAL M23 F7

Circular connectors for Servo Cables and encoders







Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 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 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

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

Suitable housing

- EPIC® SIGNAL M23 A1 Page 669
- EPIC® SIGNAL M23 A1 D3.2 Page 669
- EPIC® SIGNAL M23 A3 Page 669
- EPIC® SIGNAL M23 G4 Page 670
- EPIC® SIGNAL M23 G5 Page 670
- EPIC® SIGNAL M23 G6 Page 670
- EPIC® SIGNAL M23 B1 Page 671
- EPIC® SIGNAL M23 B2 Page 671
- EPIC® SIGNAL M23 O1
- EPIC® SIGNAL M23 D6 Page 672
- EPIC® SIGNAL M23 F6 Page 672
- EPIC® SIGNAL M23 F7 Page 672
- All inserts fit into all housings

Suitable contacts:

- EPIC® SIGNAL M23 Contacts male Page 678
- EPIC® SIGNAL M23 Contacts female Page 678
- 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

Article number	Article description	Inserts	Contacts included	Pin configuration	Pieces / PU
6-pin inserts, P-part = rotation to the left (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 (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 (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 (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 are not to scale and do not represent detailed images of the respective products.

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EPIC® SIGNAL M23 Inserts 8+1 pole

Inserts for M23 circular connectors

EPIC® SIGNAL M23 Inserts 9 pole

Inserts for M23 circular connectors

Technical data

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

Suitable housing

- EPIC® SIGNAL M23 A1 Page 669
- EPIC® SIGNAL M23 A1 D3.2 Page 669
- EPIC® SIGNAL M23 A3 Page 669
- EPIC® SIGNAL M23 G4 Page 670
- EPIC® SIGNAL M23 G5 Page 670
- EPIC® SIGNAL M23 G6 Page 670
- EPIC® SIGNAL M23 B1 Page 671
- EPIC® SIGNAL M23 B2 Page 671
- EPIC® SIGNAL M23 O1
- EPIC® SIGNAL M23 D6 Page 672
- EPIC® SIGNAL M23 F6 Page 672
- EPIC® SIGNAL M23 F7 Page 672
- All inserts fit into all housings

Suitable contacts:

- EPIC® SIGNAL M23 Contacts male Page 678
- EPIC® SIGNAL M23 Contacts female Page 678

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

Article number	Article description	Inserts	Contacts included	Pin configuration	Pieces / PU
8+1-pin inserts, P-part = rotation to the left (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 (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 (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 (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 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

Suitable housing

- EPIC® SIGNAL M23 A1 Page 669
- EPIC® SIGNAL M23 A1 D3.2 Page 669
- EPIC® SIGNAL M23 A3 Page 669
- EPIC® SIGNAL M23 G4 Page 670
- EPIC® SIGNAL M23 G5 Page 670
- EPIC® SIGNAL M23 G6 Page 670
- EPIC® SIGNAL M23 B1 Page 671
- EPIC® SIGNAL M23 B2 Page 671
- EPIC® SIGNAL M23 O1
- EPIC® SIGNAL M23 D6 Page 672
- EPIC® SIGNAL M23 F6 Page 672
- EPIC® SIGNAL M23 F7 Page 672
- All inserts fit into all housings

Suitable contacts:

- EPIC® SIGNAL M23 Contacts male Page 678
- EPIC® SIGNAL M23 Contacts female Page 678

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
3

Contact resistance
< 4 mOhm

Contacts
Gold-plated brass

Number of contacts
EPIC® SIGNAL M23 Inserts 12 pole
12
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

Article number	Article description	Inserts	Contacts included	Pin configuration	Pieces / PU
12-pin inserts, P-part = rotation to the left (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 (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 (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 (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 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 669
- EPIC® SIGNAL M23 A1 D3.2 Page 669
- EPIC® SIGNAL M23 A3 Page 669
- EPIC® SIGNAL M23 G4 Page 670
- EPIC® SIGNAL M23 G5 Page 670
- EPIC® SIGNAL M23 G6 Page 670
- EPIC® SIGNAL M23 B1 Page 671
- EPIC® SIGNAL M23 B2 Page 671
- EPIC® SIGNAL M23 O1
- EPIC® SIGNAL M23 D6 Page 672
- EPIC® SIGNAL M23 F6 Page 672
- EPIC® SIGNAL M23 F7 Page 672
- All inserts fit into all housings

Suitable contacts:

- EPIC® SIGNAL M23 Contacts male Page 678
- EPIC® SIGNAL M23 Contacts female Page 678

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Degree of soiling
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

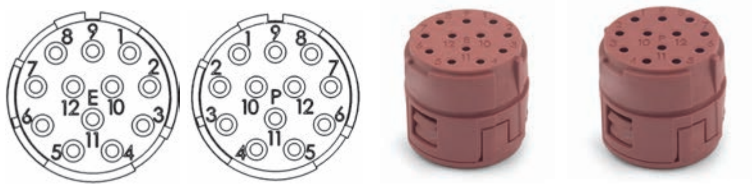
Article number	Article description	Inserts	Contacts included	Pin configuration	Pieces / PU
17-pin inserts, P-part = rotation to the left (anticlockwise)					
73008000	P-part	Unpopulated		17	5
73008010	P-part	Unpopulated		17	20
73028000	P-part	+ male contacts, solder	17	17	5
73028010	P-part	+ male contacts, 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 (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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® SIGNAL M23 Inserts 12 pole D-Sub

Inserts for M23 circular connectors

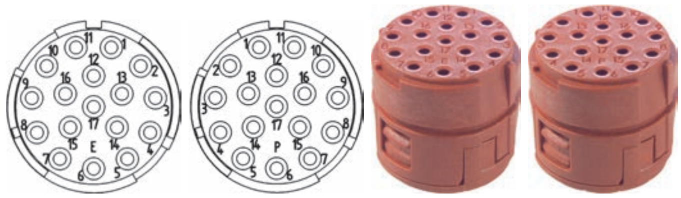


Info

- 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 669
- EPIC® SIGNAL M23 A1 D3.2 Page 669
- EPIC® SIGNAL M23 A3 Page 669
- EPIC® SIGNAL M23 G4 Page 670
- EPIC® SIGNAL M23 G5 Page 670
- EPIC® SIGNAL M23 G6 Page 670
- EPIC® SIGNAL M23 B1 Page 671
- EPIC® SIGNAL M23 B2 Page 671
- EPIC® SIGNAL M23 O1
- EPIC® SIGNAL M23 D6 Page 672
- EPIC® SIGNAL M23 F6 Page 672
- EPIC® SIGNAL M23 F7 Page 672

Suitable contacts:

- EPIC® M-D 1.0 D-Sub stamped contacts-on-reel Page 577

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

ETIM 5.0 Class-ID: EC000438
ETIM 5.0 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

Amp.
Rated current (A)
4 A

Degree of soiling
3

Contact resistance
< 4 mOhm

Contacts
Partly gold-plated brass

Number of contacts
EPIC® SIGNAL M23 Inserts 12 pole D-Sub
12
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 (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 (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 (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 (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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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	EPIC® M23 SCEM 1 mm AU 0,14 - 1,0 (10)	1 mm male crimp	M23 inserts (not D-Sub)	10
72400000	EPIC® M23 SCEM 1 mm AU 0,14 - 1,0 (100)	1 mm male crimp	M23 inserts (not D-Sub)	100
72402001	EPIC® M23 SLEM 1 mm AU 1.0 (10)	1 mm male solder	M23 inserts (not D-Sub)	10
72402000	EPIC® M23 SLEM 1 mm AU 1.0 (100)	1 mm male solder	M23 inserts (not D-Sub)	100
2mm contacts male				
72401000	EPIC® M23 SCEM 2 mm AU 1,0 - 2,5 (100)	2 mm male crimp	M23 inserts (not D-Sub)	100
72403100	EPIC® M23 SLEM 2 mm AU (10)	2 mm male solder	M23 inserts (not D-Sub)	10
72403000	EPIC® M23 SLEM 2 mm AU (100)	2 mm male solder	M23 inserts (not D-Sub)	100
1mm contacts female				
74020601	EPIC® M23 BCEMS 1 mm AU 0.14 - 1.0 (10)	1 mm female slot 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, A6	10
74200600	EPIC® M23 BCEMS 1 mm AU 0.14 - 1.0 (100)	1 mm female slot 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, A6	100
72402601	EPIC® M23 BLEMS 1 mm 1.0 AU (10)	1 mm female slot solder	M23 inserts (not D-Sub)	10
72402600	EPIC® M23 BLEMS 1 mm 1.0 AU (100)	1 mm female slot solder	M23 inserts (not D-Sub)	100
74034500	LS1 D BCEMS 1 mm AU 0.14 - 1.0 (100)	1 mm female hyperboloid 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, A6	100
74034501	LS1 D BCEMS 1 mm AU 0.14 - 1.0 (10)	1 mm female hyperboloid 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, A6	10
2mm contacts female				
72401601	EPIC® M23 BCEMS 2 mm AU 1,0 - 2,5 (10)	2 mm female crimp	M23 inserts (not D-Sub)	10
72401600	EPIC® M23 BCEMS 2 mm AU 1,0 - 2,5 (100)	2 mm female crimp	M23 inserts (not D-Sub)	100
72404100	EPIC® M23 BLEMS 2 mm AU 1,0 - 2,5 (10)	2 mm female solder	M23 inserts (not D-Sub)	10
72404000	EPIC® M23 BLEMS 2 mm AU 1,0 - 2,5 (100)	2 mm female solder	M23 inserts (not D-Sub)	100

Photographs 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
- Revolver 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 EPIC® CIRCON		1
44420078	M23 removal tool for inserts	For housing type A, B, G	1

Photographs 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

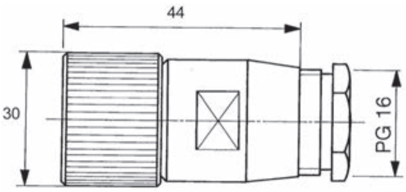
- Simple protective cover as transport protection
- Metall screw cap for safe covering
- SYLVIN® adapter for mounting a cable conduit or an additional cable gland

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 protective cap, plastic cord with cable lug	Metal cap for A1, A3, B1, B2	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 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

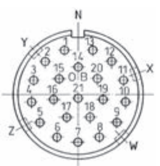
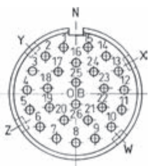
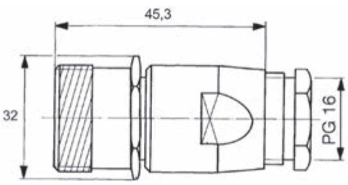



Info

- Compact and reliable connector for multicore signal cables

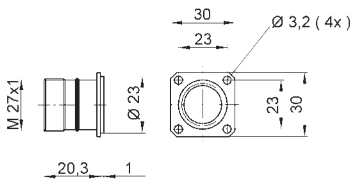
EPIC® SIGNAL R 3.0 F PG16

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

ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents

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

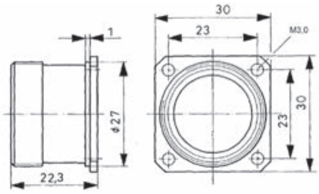
Temperature range
-40°C to +100°C,
short-term up to +125°C

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 contact
Photographs are not to scale and do not represent detailed images of the respective products.

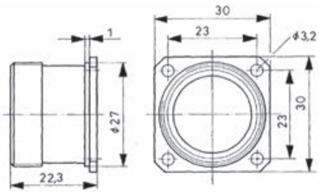
EPIC® SIGNAL R 3.0 B1

Circular connectors with solder termination, 21-pin and 26-pin



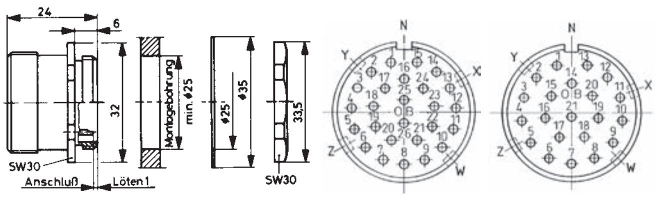
EPIC® SIGNAL R 3.0 B2

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



Info

- Compact and reliable connector for multicore signal cables

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

ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents

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 contact
Photographs 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

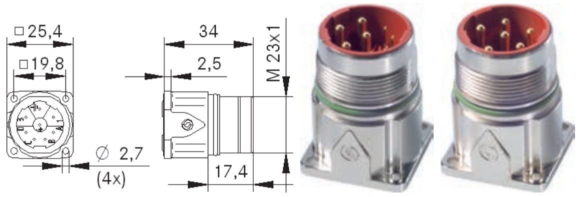
EPIC® SIGNAL R 3.0 Tools
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection
EPIC® SIGNAL R 3.0 Accessories
ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents

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 are not to scale and do not represent detailed images of the respective products.

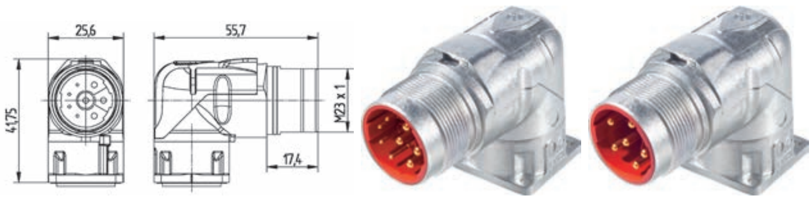
EPIC® POWER LS1 A1

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 687
- 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

ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents

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)

Degree of soiling
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

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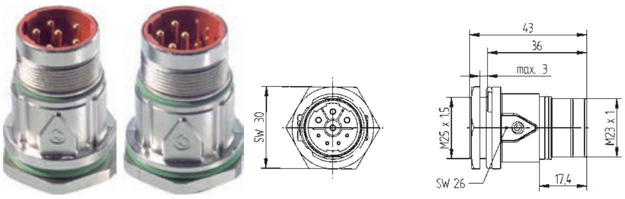
ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

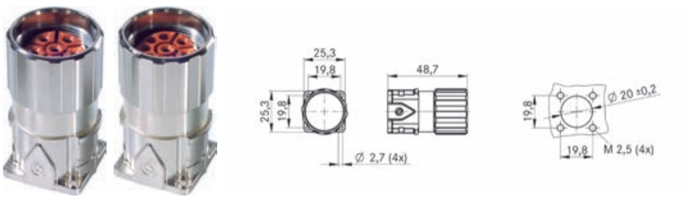
EPIC® POWER LS1 G5

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 687

EPIC® POWER LS1 A6

- EPIC® POWER LS1 Contacts male Page 687
- 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

ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents

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)

Degree of soiling
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 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 687
- 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

ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents

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)

Degree of soiling
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

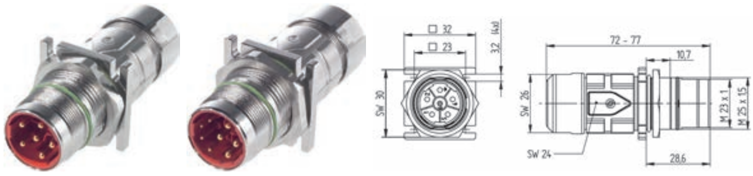
Photographs are not to scale and do not represent detailed images of the respective products.

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 687
- 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

ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents

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)

Degree of soiling
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 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	LS1 A SCEM 1 mm AU 0.14 - 1.0 (10)	1 mm male 0.14 - 1.0 mm²	LSI A1, A3, G5	10
74033000	LS1 A SCEM 1 mm AU 0.14 - 1.0 (100)	1 mm male 0.14 - 1.0 mm²	LSI A1, A3, G5	100
74034001	LS1 F SCEM 1 mm AU 0.14 - 1.0 (10)	1 mm male 0.14 - 1.0 mm²	LS1 F6, F7	10
74034000	LS1 F SCEM 1 mm AU 0.14 - 1.0 (100)	1 mm male 0.14 - 1.0 mm²	LS1 F6, F7	100
2mm contacts male				
74033101	LS1 A SCEM 2 mm AU 0.5 - 2.5 (10)	2 mm male 0.5 - 2.5 mm²	LSI A1, A3, G5	10
74033100	LS1 A SCEM 2 mm AU 0.5 - 2.5 (100)	2 mm male 0.5 - 2.5 mm²	LSI A1, A3, G5	100
74034101	LS1 F SCEM 2 mm AU 0.5 - 2.5 (10)	2 mm male 0.5 - 2.5 mm²	LS1 F6, F7	10
74034100	LS1 F SCEM 2 mm AU 0.5 - 2.5 (100)	2 mm male 0.5 - 2.5 mm²	LS1 F6, F7	100
44420103	LS1 F SCEM 2 mm AU 4,0 (100)	2 mm male 4.0 mm²	LS1 F6, F7	100
1mm contacts female				
74020601	EPIC® M23 BCEMS 1 mm AU 0.14 - 1.0 (10)	1 mm female slot 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, A6	10
74200600	EPIC® M23 BCEMS 1 mm AU 0.14 - 1.0 (100)	1 mm female slot 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, A6	100
74034501	LS1 D BCEMS 1 mm AU 0.14 - 1.0 (10)	1 mm female hyperboloid 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, A6	10
74034500	LS1 D BCEMS 1 mm AU 0.14 - 1.0 (100)	1 mm female hyperboloid 0.14 - 1.0 mm²	per inserts M23 (not D-Sub), LS1 D6, A6	100
2mm contacts female				
44429371	LS1 D BCEMF 2 mm AU 0.5 - 2.5 (10)	2 mm female spring 0,5-2,5mm²	LS1 D6, A6	10
44429370	LS1 D BCEMF 2 mm AU 0.5 - 2.5 (100)	2 mm female spring 0,5-2,5mm²	LS1 D6, A6	100
44420104	LS1 D BCEMD 2 mm AU 4,0 (10)	2 mm female hyperboloid 4 mm²	LS1 D6	10
44420105	LS1 D BCEMD 2 mm AU 4,0 (100)	2 mm female hyperboloid 4 mm²	LS1 D6	100
44429001	EPIC CIRCON BCBG 2MM 1.0-2.5 (3000) RE	2 mm female crimp	LS1 D6, A6	1

Photographs 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 EPIC® CIRCON		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 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
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

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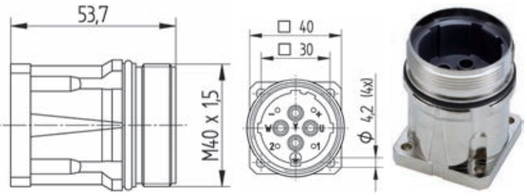
FLEXIMARK®
ACCESSORIES
APPENDIX

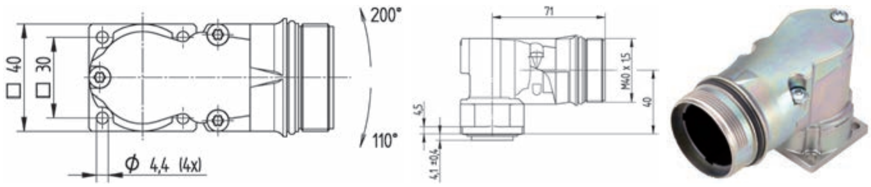
EPIC® POWER LS1.5 A1

Circular connectors for servomotors and power supply



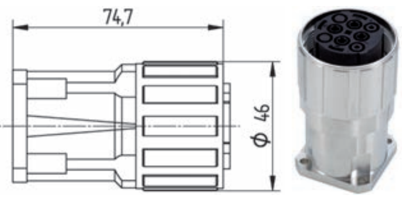
EPIC® POWER LS1.5 A3

Circular connectors for servomotors and power supply



EPIC® POWER LS1.5 A6

Circular connectors for servomotors and power supply



Info

- Rotateable with 310° cable outlet

Suitable contacts:

EPIC® POWER LS1.5 A1

- EPIC® POWER LS1.5 Contacts male Page 691

EPIC® POWER LS1.5 A3

- EPIC® POWER LS1.5 Contacts male Page 691

EPIC® POWER LS1.5 A6

- EPIC® POWER LS1.5 Contacts male Page 691
- 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 691

Technical data

ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents

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

Degree of soiling
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
IP67

Cycle of mechanical operation
50

Temperature range
-20 °C to +125 °C

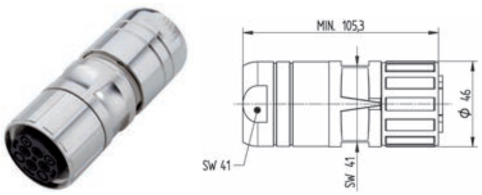
Article number	Article description	Fastening type	Pin configuration	Pieces / PU
Type LS1.5 A1 for male contacts				
44429308	EPIC® POWER LS1.5 A1	Ø 4.2 mm (4x)	3+PE+2	1
44429309	EPIC® POWER LS1.5 A1	Ø 4.2 mm (4x)	3+PE+4	1
Type LS1.5 A3 for male contacts				
44429306	EPIC® POWER LS1.5 A3	Ø 4.2 mm (4x)	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 are not to scale and do not represent detailed images of the respective products.

LAPP GROUP

EPIC® POWER LS 1.5 D6

Circular connectors for servomotors and power supply

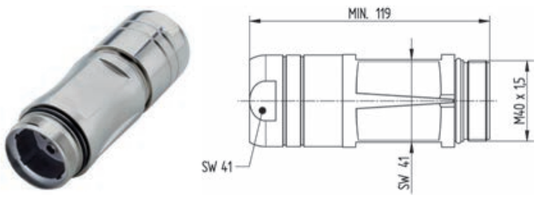


Info

- EMC protection

EPIC® POWER LS 1.5 F6

Circular connectors for servomotors and power supply



Suitable contacts:

EPIC® POWER LS 1.5 D6

- EPIC® POWER LS 1.5 Contacts female Page 691

EPIC® POWER LS 1.5 F6

- EPIC® POWER LS 1.5 Contacts female Page 691
- 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 LS 1.5 Tools refer to page 691

Technical data

ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents

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

Degree of soiling
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
IP67

Cycle of mechanical operation
50

Temperature range
-20 °C to +125 °C

Article number	Article description	Clamping range in mm	Pin configuration	Pieces / PU
Type LS 1.5 D6 for female contacts				
44429310	EPIC® POWER LS 1.5 D6	9 - 14	3+PE+2	1
44429311	EPIC® POWER LS 1.5 D6	14 - 20.5	3+PE+2	1
44429312	EPIC® POWER LS 1.5 D6	20.5 - 26.5	3+PE+2	1
44429313	EPIC® POWER LS 1.5 D6	9 - 14	3+PE+4	1
44429314	EPIC® POWER LS 1.5 D6	14 - 20.5	3+PE+4	1
44429315	EPIC® POWER LS 1.5 D6	20.5 - 26.5	3+PE+4	1
Type LS 1.5 F6 for male contacts				
44429300	EPIC® POWER LS 1.5 F6	9 - 14	3+PE+2	1
44429301	EPIC® POWER LS 1.5 F6	14 - 20.5	3+PE+2	1
44429302	EPIC® POWER LS 1.5 F6	20.5 - 26.5	3+PE+2	1
44429303	EPIC® POWER LS 1.5 F6	9 - 14	3+PE+4	1
44429304	EPIC® POWER LS 1.5 F6	14 - 20.5	3+PE+4	1
44429305	EPIC® POWER LS 1.5 F6	20.5 - 26.5	3+PE+4	1

Photographs 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

Technical data

EPIC® POWER LS1.5 Contacts male
ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents
EPIC® POWER LS1.5 Contacts female
ETIM 5.0 Class-ID: EC001322
ETIM 5.0 Class-Description: Round socket/plug for high currents
EPIC® POWER LS1.5 Tools
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Suitable tools

EPIC® POWER LS1.5 Contacts female

- Crimping tool for termination of 16 mm² wires are available upon request

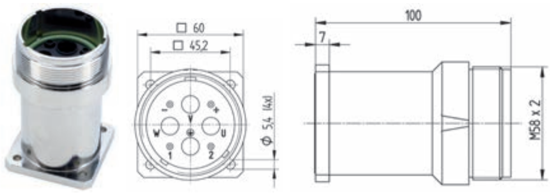
Article number	Article designation	Description	Version	For design	Pieces / PU
3.6 mm male contacts					
44429334	LS1.5 A SCEM 3,6MM AU 0,75-1,5		3.6 mm male 0.75 - 1.5	for type A1, A3	10
44429335	LS1.5 A SCEM 3,6MM AU 1,0-2,5		3.6 mm male 1.0 - 2.5 mm²	for type A1, A3	10
44429336	LS1.5 A SCEM 3,6MM AU 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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

EPIC® POWER LS3 A1

Circular connectors for servomotors and power supply

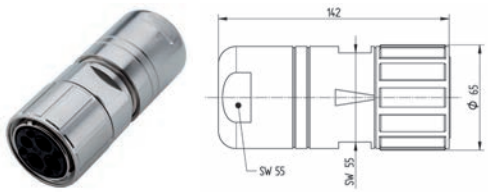


Info

- Robust power supply connector

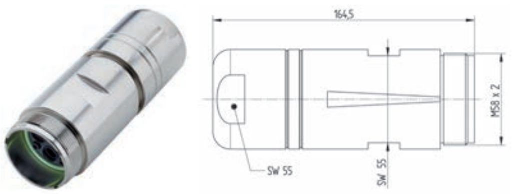
EPIC® POWER LS3 D6

Circular connectors for servomotors and power supply



EPIC® POWER LS3 F6

Circular connectors for servomotors and power supply



Suitable contacts:

EPIC® POWER LS3 A1

- EPIC® POWER LS3 male contacts
  Page 693

EPIC® POWER LS3 D6

- EPIC® POWER LS3 male contacts
  Page 693

EPIC® POWER LS3 F6

- EPIC® POWER LS3 male contacts
  Page 693
- 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 693

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

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

Degree of soiling
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 - +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 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 44429339 is used

Technical data

EPIC® POWER LS3 male contacts
ETIM 5.0 Class-ID: EC000796
ETIM 5.0 Class-Description:
Contact for industrial connectors
EPIC® POWER LS3 female contacts
ETIM 5.0 Class-ID: EC000796
ETIM 5.0 Class-Description:
Contact for industrial connectors
EPIC® POWER LS3 Tools
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 50 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 are not to scale and do not represent detailed images of the respective products.

LAPP GROUP

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 697
- 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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
Screw max. 400 A

Degree of soiling
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
Type POWERLOCK A1, panel-mount box, drain for contact with M12 threaded post				
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
L1/red for direct current applications in conjunction with L2/black				
44420320	POWERLOCK A1 L1/RD	Ø 5.5 mm (4x)	L1, Red	1
Type POWERLOCK A6, panel-mount box, source for contact with M12 threaded post				
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
L1/red for direct current applications in conjunction with L2/black				
44420321	POWERLOCK A6 L1/RD	Ø 5.5 mm (4x)	L1, Red	1

Photographs 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 697
- 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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
Screw max. 400 A

Degree of soiling
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
Type POWERLOCK D6, cable connector, source for screw contact				
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
L1/red for direct current applications in conjunction with L2/black				
44420305	POWERLOCK D6 L1/RD	40	L1, Red	1
Type POWERLOCK F6, coupling connector, drain for screw contact				
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
L1/red for direct current applications in conjunction with L2/black				
44420301	POWERLOCK F6 L1/RD	40	L1, Red	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® Standard

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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Rated voltage (V)
1000 V

Rated current (A)
Screw max. 400 A

Degree of soiling
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 A1, panel-mount base, drain with M12 threaded post				
44420282	POWERLOCK BOX A1 S	Ø 6.5 mm (4x)	4+PE	1
POWERLOCK BOX A1, panel-mount base with cover, drain with M12 threaded post				
44420283	POWERLOCK BOX A1 SD	Ø 6.5 mm (4x)	4+PE	1
POWERLOCK BOX A6, panel-mount base, source with M12 threaded post				
44420286	POWERLOCK BOX A6 S	Ø 6.5 mm (4x)	4+PE	1
POWERLOCK BOX A6, panel-mount base with cover, source with M12 threaded post				
44420287	POWERLOCK BOX A6 SD	Ø 6.5 mm (4x)	4+PE	1

* Trade product, no Lapp product
Photographs 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)

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Article number	Article description	Version	Version	PU
Drain - contact with M12 threaded post for type POWERLOCK A1 S, contact retaining pin included				
44420241	POWERLOCK SP M12	for type A1	Contact Drain, M12 Thread for cable lugs	1
Source - contact with M12 threaded post for type POWERLOCK A6 S, contact retaining pin included				
44420242	POWERLOCK QP M12	for type A6	Lamella contact source, M12 thread for cable lug	1
Source - screw contact for type POWERLOCK D6 S, contact retaining pin included				
44420237	POWERLOCK QS 120	for type D6	120 mm²	1
Drain - screw contact for type POWERLOCK F6 S, contact retaining pin included				
44420232	POWERLOCK SS 120	for type F6	120 mm²	1

Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® POWERLOCK Tools

Contacts, tools, accessories for circular connectors

Technical data

ETIM 5.0 Class-ID: EC000149
ETIM 5.0 Class-Description: Tool set

Article number	Article description	Version	PU
Tools			
44420243	POWERLOCK DISCONNECTION TOOL	for mated connection	1

Photographs 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	95 mm²	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 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 701
- 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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
Max. crimp 660 A

Degree of soiling
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
Type POWERLOCK A1, panel-mount box, drain for contact with M12 threaded post				
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
L1/red for direct current applications in conjunction with L2/black				
44420316	POWERLOCK A1 L1/RD	Ø 5.5 mm (4x)	L1, Red	1
Type POWERLOCK A6, panel-mount box, source for contact with M12 threaded post				
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
L1/red for direct current applications in conjunction with L2/black				
44420317	POWERLOCK A6 L1/RD	Ø 5.5 mm (4x)	L1, Red	1

Photographs 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 701
- 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

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
Max. crimp 660 A

Degree of soiling
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
Type POWERLOCK D6, cable connector, source for crimp contact				
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
L1/red for direct current applications in conjunction with L2/black				
44420319	POWERLOCK D6 L1/RD	40	L1, Red	1
Type POWERLOCK F6, coupling connector, drain for crimp contact				
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
L1/red for direct current applications in conjunction with L2/black				
44420318	POWERLOCK F6 L1/RD	40	L1, Red	1

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Accessories

- SKINTOP® Standard

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

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Rated voltage (V)
1000 V

Rated current (A)
Max. crimp 660 A

Degree of soiling
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

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

Article number	Article description	Fastening type	Pin configuration	Pieces / PU
POWERLOCK BOX A1, panel-mount base, drain with M12 threaded post				
44420288	POWERLOCK BOX A1 C	Ø 6.5 mm (4x)	4+PE	1
POWERLOCK BOX A1, panel-mount base with cover, drain with M12 threaded post				
44420289	POWERLOCK BOX A1 CD	Ø 6.5 mm (4x)	4+PE	1
POWERLOCK BOX A6, panel-mount base, source with M12 threaded post				
44420284	POWERLOCK BOX A6 C	Ø 6.5 mm (4x)	4+PE	1
POWERLOCK BOX A6, panel-mount base with cover, source with M12 threaded post				
44420285	POWERLOCK BOX A6 CD	Ø 6.5 mm (4x)	4+PE	1

* Trade product, no Lapp product
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EPIC® POWERLOCK Accessories

Contacts, tools, accessories for circular connectors

Technical data

ETIM 5.0 Class-ID: EC002635
ETIM 5.0 Class-Description: Circular connector (industrial connector)

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

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EPIC® POWERLOCK Crimp contacts

Contacts, tools, accessories for circular connectors

Info

- Max. crimp 660 A
- Do not plug with screw-type (400 A)

Technical data

ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Article number	Article description	Version	Version	PU
Drain - contact with M 12 threaded post, for type POWERLOCK A 1 C, contact retaining pin included				
44420260	POWERLOCK SP M 12		Contact Drain, M 12 Thread for cable lugs	1
Source - contact with M 12 threaded post for type POWERLOCK A6 C, contact retaining pin included				
44420261	POWERLOCK QP M 12		Lamella contact source, M 12 thread for cable lug	1
Source - crimp contact for type POWERLOCK D6 C, contact retaining pin included				
44420290	POWERLOCK QCM 35	for type D6, A6	35 mm²	1
44420291	POWERLOCK QCM 50		50 mm²	1
44420292	POWERLOCK QCM 70		70 mm²	1
44420236	POWERLOCK QCM 95		95 mm²	1
44420238	POWERLOCK QCM 120		120 mm²	1
44420257	POWERLOCK QCM 150		150 mm²	1
44420239	POWERLOCK QCM 185		185 mm²	1
44420240	POWERLOCK QCM 240		240 mm²	1
Drain - Crimp contact, for type POWERLOCK F6 C, contact retaining pin included				
44420293	POWERLOCK SCM 35		35 mm²	1
44420294	POWERLOCK SCM 50		50 mm²	1
44420295	POWERLOCK SCM 70		70 mm²	1
44420231	POWERLOCK SCM 95		95 mm²	1
44420233	POWERLOCK SCM 120		120 mm²	1
44420256	POWERLOCK SCM 150		150 mm²	1
44420234	POWERLOCK SCM 185		185 mm²	1
44420235	POWERLOCK SCM 240		240 mm²	1

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EPIC® POWERLOCK Tools

Contacts, tools, accessories for circular connectors

Technical data

ETIM 5.0 Class-ID: EC000149
ETIM 5.0 Class-Description: Tool set

Article number	Article description	Version	PU
Tools			
44420243	POWERLOCK DISCONNECTION TOOL	for mated connection	1
44420337	Crimping pliers		1
44420330	Crimping die for crimping pliers	50 mm²	1
44420331	Crimping die for crimping pliers	70 mm²	1
44420332	Crimping die for crimping pliers	95 mm²	1
44420333	Crimping die for crimping pliers	120 mm	1
44420334	Crimping die for crimping pliers	150 mm²	1
44420335	Crimping die for crimping pliers	185 mm²	1
44420336	Crimping die for crimping pliers	240 mm²	1

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® SOLAR PL008

Pre-assembled solar cables for weatherproof cabling of photovoltaic systems

Info

- Plastic junction box for ambient resistant cabling and connecting of photovoltaic systems

Benefits

- Cable variations and 4 diodes version on request
- Cost-efficient plastic junction box
- Factory assembled and tested
- Traceability of every junction box ensured by barcode

Application range

- Photovoltaic plants

Product features

- Robust junction box for cabling of photovoltaic modules
- Version with 3 diodes for three-string modules
- PTFE membrane equalize the pressure balance and enables humidity to stay out of the junction box
- Assembled with EPIC® SOLAR 4 connector and ÖLFLEX® SOLAR cable 4mm²

Technical data

ETIM 5.0 Class-ID: EC002637
ETIM 5.0 Class-Description:
Printed circuit board connector

Rated voltage (V)
1000 V

Rated current (A)
11 A

Protection rating
IP 65

Protection class
II

Temperature range
-40°C ... +105°C

Article number	Article description	PU
EPIC® SOLAR PL008		
44428214	EPIC® SOLAR PL008/3/11 4THIN 4/1	1

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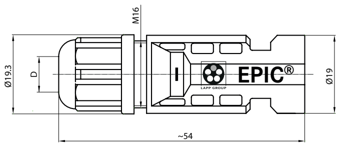
ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

EPIC® SOLAR 4 M

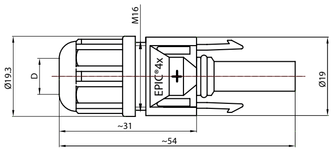
Info
- 4 mm connector system with double hook
- Field-mountable solar connector





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
EPIC® SOLAR 4 M
- 4 mm connector system with double hook
- TÜV Rheinland certified
- Inclusive contacts

EPIC® SOLAR 4 F
- 4 mm connector system with double hook
- TÜV Rheinland certified
- UL pending
- Inclusive contacts

Suitable cables
- ÖLFLEX® SOLAR XLR-R Page 151
- ÖLFLEX® SOLAR XLR WP Page 153
- ÖLFLEX® SOLAR XLS-R Page 152
- ÖLFLEX® SOLAR XLR 1,5kV
- ÖLFLEX® SOLAR XLR 1,5kV WP
- ÖLFLEX® SOLAR XLc

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 THIN
- EPIC® SOLAR 4 M Page 703
- EPIC® SOLAR 4Plus F

Technical data
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
1000 V AC/DC

Rated impulse voltage
8 kV

Degree of soiling
3

Contact resistance
< 0.5 mOhm

Protection rating
IP 67

Protection class
II

Temperature range
-40°C ... +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 male contacts as spare part					
44428217	EPIC® SOLAR 4 PIN M 2.5mm²	2.5			100
44428219	EPIC® SOLAR 4 PIN M 4mm² ... 6mm²	4 - 6			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	5.0 - 7.2	30	100
EPIC® SOLAR 4 female contacts without as spare part					
44428218	EPIC® SOLAR 4 PIN F 2.5mm²	2.5			100
44428220	EPIC® SOLAR 4 PIN F 4mm² ... 6mm²	4 - 6			100
EPIC® SOLAR 4 assembly tool					
44428224	EPIC® SOLAR 4 Assembly Tool Set				1

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NEW

EPIC® CRIMPTOOL

For inserts and modules of the EPIC® rectangular connectors

EPIC® SOLAR TOOL CSC

Cutting, stripping and crimping with just one tool

Info

- Cutting, stripping and crimping with just one tool

EPIC® SOLAR TOOL

3 cross section in one tool

Info

- 3 cross section in one tool

Application range

EPIC® SOLAR TOOL CSC

- For crimping of the photovoltaic connector EPIC® SOLAR 4 in the field
- For EPIC® SOLAR 4 and MC4 suitable

EPIC® SOLAR TOOL

- 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 for the safe and accurate positioning of the crimping contacts

EPIC® SOLAR TOOL

- Crimping die for the cable cross sections of 2.5mm², 4mm² and 6mm²
- Locator for the safe and accurate positioning of the crimping contacts

Suitable cables

EPIC® SOLAR TOOL CSC

- ÖLFLEX® SOLAR XLR-R Page 151
- ÖLFLEX® SOLAR XLR WP Page 153
- ÖLFLEX® SOLAR XLS-R Page 152
- ÖLFLEX® SOLAR XLR 1,5kV
- ÖLFLEX® SOLAR XLR 1,5kV WP
- ÖLFLEX® SOLAR XLc

Suitable connectors

EPIC® SOLAR TOOL CSC

- EPIC® SOLAR 4

EPIC® SOLAR TOOL

- EPIC® SOLAR 4

Article number	Article description	Cross-section (min) in mm²	Cross-section (max) in mm²	PU
Tools				
11147000	Crimping tool			1
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 are not to scale and do not represent detailed images of the respective products.

NEW

EPIC® SOLAR 4 Splitter

Pre-assembled solar cables 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 4 THIN
- EPIC® SOLAR 4Plus
- EPIC® SOLAR 4 Built in socket

Technical data

ETIM 5.0 Class-ID: EC002314
ETIM 5.0 Class-Description:
Cap for industrial connectors

Rated voltage (V)
1000 V AC/DC

Rated impulse voltage
8 kV

Rated current (A)
30 A

Degree of soiling
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

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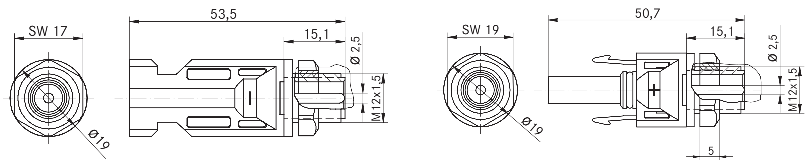
NEW

EPIC® SOLAR 4 Built in socket

Pre-assembled solar cables for weatherproof cabling of photovoltaic systems



Info

- 4 mm connector system with double hook
- Built in socket for use in inverters

Benefits

- Built in fitting for inverters, PV string circuit breakers and fuse boxes

Application range

- Photovoltaic plants
- Inverters
- PV string circuit breakers

Product features

- PV panel connector to be screwed in directly or fastening with the included plastic locknut
- Internal plug connector diameter 2.5mm, flush connector pin
- Installation hole: drilling diameter 12mm
- Other types of connection on request

Suitable connectors

- EPIC® SOLAR 4
- EPIC® SOLAR 4 THIN
- EPIC® SOLAR 4Plus
- EPIC® SOLAR 4 Splitter

Technical data

ETIM 5.0 Class-ID: EC002640
ETIM 5.0 Class-Description: I/O connector

Rated voltage (V)
1000 V AC/DC

Rated impulse voltage
8 kV

Rated current (A)
30 A

Degree of soiling
3

Contact resistance
< 0.5 mOhm

Protection rating
IP 67

Cycle of mechanical operation
100

Protection class
II

Temperature range
-40°C ... +105°C

Article number	Article designation	PU
EPIC® SOLAR 4 built in socket with counter nut		
44428222	EPIC® SOLAR 4 AD M Pin 2.5	100
44428223	EPIC® SOLAR 4 AD F Pin 2.5	100

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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

At a glance

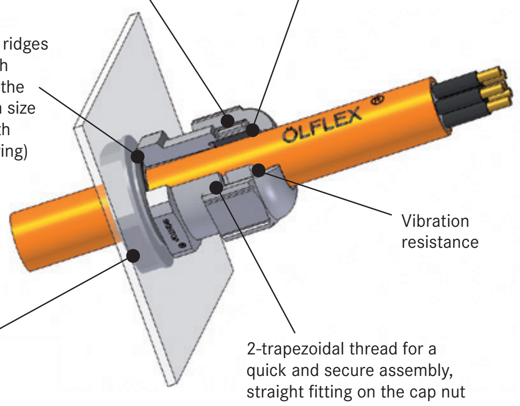
Characteristics	Page	Protection class IP/NEMA	Connection thread metric	Connection thread PG	Connection thread NPT	For round cables	For flat cables	Metal	Plastic	Angle	Strain relief	Vibration protection	Antikink protection	Screen connection	Use for hazardous areas	Halogen free	Approvals
Cable glands																	
SKINTOP® ST-M/STR-M/ST(R) M ISO	712	68/69	●			●			●		●	●					cULus, cURus, TÜV, VDE, DNV-GL
SKINTOP® CLICK/CLICK-R	715	68				●			●		●	●					VDE, cULus, cURus, DNV-GL
SKINTOP® CLICK BS	720	68				●		●			●	●	●				VDE, cULus, cURus, DNV-GL
SKINTOP® COLD/COLD-R	727	68	●			●		●			●						VDE
SKINTOP® CUBE and CUBE MULTI	743/745	64/NEMA 12				●			●		●	●					
SKINTOP® ST and STR	788	68		●		●			●		●	●					cURus, cULus, TÜV
SKINTOP® ST (NPT) and STR (NPT)	784	68			●	●			●		●	●					cURus, cULus
SKINTOP® ST-HF-M	718	68	●			●			●		●	●				●	VDE
SKINTOP® SOLAR (plus)	717	68	●			●			●		●	●					cULus, cURus
SKINTOP® BS-M/BS M ISO	719	68	●			●			●		●	●	●				cULus, cURus, VDE, DNV-GL
SKINTOP® BS	790	68		●		●			●		●	●	●				cURus, cULus
SKINTOP® BS (NPT)	784	68			●	●			●		●	●	●				
SKINTOP® BT and BT-M	791/721	68	●	●		●			●		●	●	●				
SKINTOP® MS-M and MSR-M/ MS-M-XL and MSR-M-XL	724/725	68/69 NEMA 4x/6	●			●		●			●						cULus, cURus, VDE, DNV-GL
SKINTOP® MS and MSR	792	68		●		●		●			●						
SKINTOP® BS-M METAL	726	68/69	●			●		●			●		●				
SKINTOP® MS (NPT) and MSR (NPT)	785	68			●	●		●			●						cURus, cULus
SKINTOP® MS-IS-M	728	68	●			●		●			●						
SKINTOP® MS-SC-M	732	68	●			●		●			●			●			cULus, cURus, DNV-GL
SKINTOP® MS-M BRUSH/BRUSH plus	733	68/69	●			●		●			●			●			VDE, cULus, DNV-GL
SKINTOP® BRUSH ADD-ON	734	68	●			●		●			●			●			
SKINTOP® INOX	735	68/69	●			●		●			●						ECOLAB®
SKINTOP® HYGIENIC	737	68/69	●			●		●			●	●					ECOLAB®, EHEDG, FDA
SKINTOP® MS-SC/MS-SC NPT	794/786	68		●	●	●		●			●			●			
SKINTOP® MS-NPT BRUSH	787	68			●	●		●			●			●			cULus
SKINTOP® K-M ATEX plus/plus blue	722/723	68	●			●			●		●	●			●		DNV-GL, ATEX, IECex, EAC
SKINTOP® KR-M ATEX plus/plus blue	722/723	68	●			●			●		●	●			●		DNV-GL, ATEX, IECex, EAC
SKINTOP® MS-M ATEX/MS-M-XL ATEX	729	68	●			●		●			●				●		cULus, cURus, DNV-GL, ATEX, IECex, EAC
SKINTOP® MSR-M ATEX	729	68	●			●		●			●				●		cULus, cURus, DNV-GL, ATEX, IECex, EAC
SKINTOP® MS-M BRUSH ATEX/ SKINDICHT® SHVE-M ATEX	730	68	●			●		●			●			●	●		ATEX, DNV-GL, IECex, EAC
SKINDICHT® MINI	758	68	●			●		●			●						
SKINDICHT® CN and CN-M	809/759	68	●	●		●		●			●						
SKINDICHT® SHV-M	756	68	●			●		●			●						
SKINDICHT® SHV	807	68		●		●		●			●						
SKINDICHT® SHV-M-Viton®	757	68	●			●		●			●						
SKINDICHT® SHV-Viton®	808	68		●		●		●			●						
SKINDICHT® SHVE-M	754	68	●			●		●			●			●			
SKINDICHT® SHVE	805	68		●		●		●			●			●			
SKINDICHT® SR-SV-M	753	65	●			●		●			●		●				
SKINDICHT® SR-SV	804	65		●		●		●			●		●				
SKINDICHT® FL	798	65					●	●									
SKINDICHT® SRE-M	755	65	●			●		●			●		●	●			
SKINDICHT® SRE	806	65		●		●		●			●		●	●			
SKINDICHT® SR-M	752	65	●			●		●			●		●				
SKINDICHT® SR	803	65		●		●		●			●		●				
SKINDICHT® KW-M	760	55	●			●			●	●							
SKINDICHT® SE and SE-M	811/761	55	●	●		●		●		●							
SKINDICHT® SE-M 220/320	762	55	●	●		●		●		●							
SKINDICHT® RWV-M	760	55	●			●		●		●							
SKINDICHT® RWV	810	55		●		●		●		●							
SKINDICHT® SKZ-M	750	55	●			●		●			●						
SKINDICHT® SKZ	802	55		●		●		●			●						
SKINDICHT® SHZ-M	751	55	●			●		●			●						
SKINDICHT® SHZ	800	55		●		●		●			●						
SKINDICHT® SVF and SVF-M	797/749	54	●	●			●	●									
SKINDICHT® SVFK	796	54		●			●		●								
SKINDICHT® SVRE-M	746	54	●			●		●			●						
SKINDICHT® SVRE	795	54		●		●		●			●						
SKINDICHT® SVRN-M	746	54	●			●		●			●						
SKINDICHT® SVRN	795	54		●		●		●			●						
SKINDICHT® SVRX-W	747	54	●			●		●			●						
SKINDICHT® SVRX-Z	747	54	●			●		●			●			●			
SKINDICHT® SK	801	20		●		●		●			●						
SKINDICHT® SH	799	20		●		●		●			●						

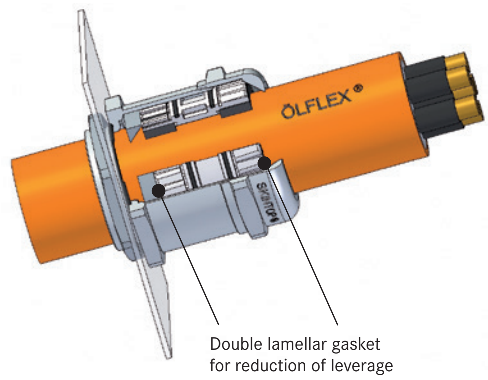
VITON® is a registered rademark of DuPont de Nemour

SKINTOP® Single entry system

Secured by a single turn of the hand

With SKINTOP® you can fix the cable in an instant. Just feed it in, turn till tight – ready. So 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 that this remains so, SKINTOP® quality is continuously monitored. A quality which has brought us a great many international approvals.

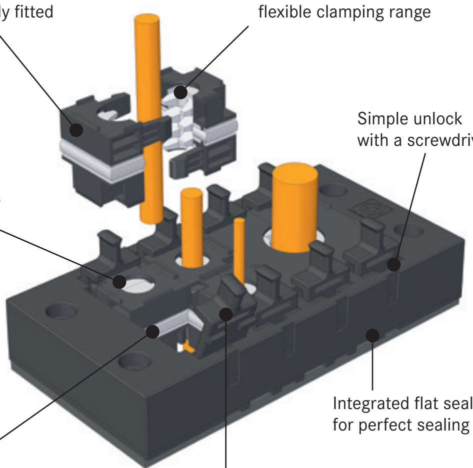


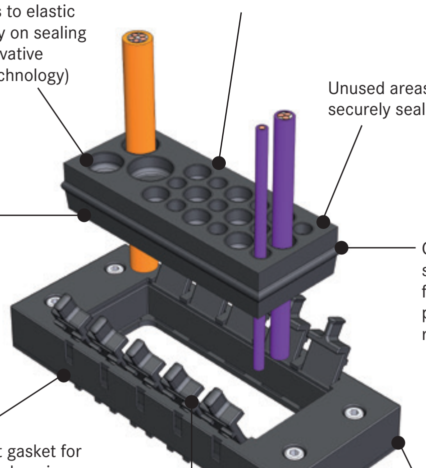


SKINTOP® Multi cable entry systems

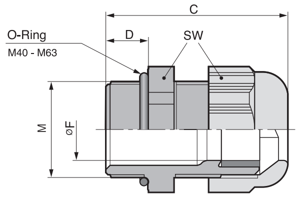
Modular system for harnessed cables

The multi-cable entry system SKINTOP® CUBE MULTI, with its elastic soft component, stands out thanks to its large, variable clamping ranges, high packing density and the optimum strain relief. The gel adjusts perfectly to the surface contours of the cable.





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 cables and wires need to be safely inserted into housings
- Machine and equipment manufacturing
- Photovoltaic
- 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 EN 50262

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

- The following cables are recommended for IP 69 applications:
  ÖLFLEX® ROBUST 200
  H07RN8-F
  H07RN-F

Suitable tools

- SKINMATIC® QUICK Set 1 refer to page 782
- SKINMATIC® RZ refer to page 783
- SKINMATIC® MH Set refer to page 782

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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

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	ST-M 12 x 1,5	3,5-7	15	30.0	8	100
53111010	ST-M 16 x 1,5	4,5-10	19	34.0	8	100
53111020	ST-M 20 x 1,5	7-13	25	37.0	9	100
53111030	ST-M 25 x 1,5	10-17	30	40.0	10	50
53111040	ST-M 32 x 1,5	11-21	36	47.0	10	25
53111050	ST-M 40 x 1,5	19-28	46	52.0	10	10
53111060	ST-M 50 x 1,5	27-35	55	62.0	12	5
53111070	ST-M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST-M black						
53111200	ST-M 12 x 1,5	3,5-7	15	30.0	8	100
53111210	ST-M 16 x 1,5	4,5-10	19	34.0	8	100
53111220	ST-M 20 x 1,5	7-13	25	37.0	9	100
53111230	ST-M 25 x 1,5	10-17	30	40.0	10	50
53111240	ST-M 32 x 1,5	11-21	36	47.0	10	25
53111250	ST-M 40 x 1,5	19-28	46	52.0	10	10
53111260	ST-M 50 x 1,5	27-35	55	62.0	12	5
53111270	ST-M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST-M light grey						
53111400	ST-M 12 x 1,5	3,5-7	15	30.0	8	100
53111410	ST-M 16 x 1,5	4,5-10	19	34.0	8	100
53111420	ST-M 20 x 1,5	7-13	25	37.0	9	100
53111430	ST-M 25 x 1,5	10-17	30	40.0	10	50
53111440	ST-M 32 x 1,5	11-21	36	47.0	10	25
53111450	ST-M 40 x 1,5	19-28	46	52.0	10	10
53111460	ST-M 50 x 1,5	27-35	55	62.0	12	5
53111470	ST-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	ST M 16 x 1,5	3,5-8	19	40.0	12	100
53017030	ST M 20 x 1,5	5-12	24	45.0	13	100
53017040	ST M 25 x 1,5	9-14	27	47.0	13	50
SKINTOP® ST M ISO black (with long metric connecting thread)						
53010000	ST-M 12 x 1,5	3,5-7	15	36.7	15	100
53017210	ST M 16 x 1,5	3,5-8	19	40.0	12	100
53017230	ST M 20 x 1,5	5-12	24	45.0	13	100
53017240	ST M 25 x 1,5	9-14	27	47.0	13	50
SKINTOP® STR-M silver grey						
53111100	STR-M 12 x 1,5	1-5	15	30.0	8	100
53111110	STR-M 16 x 1,5	2-7	19	34.0	8	100
53111120	STR-M 20 x 1,5	5-10	25	37.0	9	100
53111130	STR-M 25 x 1,5	6-13	30	40.0	10	50
53111140	STR-M 32 x 1,5	7-15	36	47.0	10	25
53111150	STR-M 40 x 1,5	15-23	46	52.0	10	10
53111160	STR-M 50 x 1,5	22-29	55	62.0	12	5
53111170	STR-M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR-M black						
53111300	STR-M 12 x 1,5	1-5	15	30.0	8	100
53111310	STR-M 16 x 1,5	2-7	19	34.0	8	100
53111320	STR-M 20 x 1,5	5-10	25	37.0	9	100
53111330	STR-M 25 x 1,5	6-13	30	40.0	10	50
53111340	STR-M 32 x 1,5	7-15	36	47.0	10	25
53111350	STR-M 40 x 1,5	15-23	46	52.0	10	10
53111360	STR-M 50 x 1,5	22-29	55	62.0	12	5
53111370	STR-M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR-M light grey						
53111500	STR-M 12 x 1,5	1-5	15	30.0	8	100
53111510	STR-M 16 x 1,5	2-7	19	34.0	8	100
53111520	STR-M 20 x 1,5	5-10	25	37.0	9	100
53111530	STR-M 25 x 1,5	6-13	30	40.0	10	50
53111540	STR-M 32 x 1,5	7-15	36	47.0	10	25
53111550	STR-M 40 x 1,5	15-23	46	52.0	10	10
53111560	STR-M 50 x 1,5	22-29	55	62.0	12	5
53111570	STR-M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR M ISO silver-grey (with long metric connecting thread)						
53017110	STR M 16 x 1,5	2-6	19	40.0	12	100
53017130	STR M 20 x 1,5	4-9	24	45.0	13	100
53017140	STR M 25 x 1,5	6-12	27	47.0	13	50
SKINTOP® STR M ISO black (with long metric connecting thread)						
53017310	STR M 16 x 1,5	2-6	19	40.0	12	100
53017330	STR M 20 x 1,5	4-9	24	45.0	13	100
53017340	STR M 25 x 1,5	6-12	27	47.0	13	50

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

SKINTOP® ST-M

- SKINTOP® DIX-M refer to page 740
- SKINTOP® GMP-GL-M refer to page 738
- SKINTOP® DIX-M AUTOMATION refer to page 741
- SKINTOP® SDV-M ATEX refer to page 731
- SKINTOP® SD-M refer to page 742
- SKINTOP® DV-M refer to page 742

SKINTOP® STR-M

- SKINTOP® DIX-M refer to page 740
- SKINTOP® GMP-GL-M refer to page 738
- SKINTOP® DIX-M AUTOMATION refer to page 741

NEW

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
- Easy to install
- 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 EN 50262

Note
- To refill standard packaging units are available

Included
- Delivery in SORTIMO® T-BOXX
- Inclusive counter nuts SKINTOP® GMP-GL-M
- Assembly instructions
- 50 Pcs. SKINTOP® ST-M M12
  Art.No. 53111400
  50 Pcs. SKINTOP® ST-M M16
  Art.No. 53111410
  40 Pcs. SKINTOP® ST-M M20
  Art.No. 53111420
  25 Pcs. SKINTOP® ST-M M25
  Art.No. 53111430
  9 Pcs. SKINTOP® ST-M M32
  Art.No. 53111440

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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

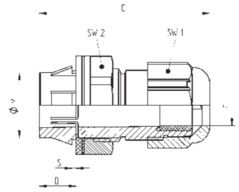
Other colours are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

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

- 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

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 5.0 Class-ID: EC000441
ETIM 5.0 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
SKINTOP® CLICK
IP 68 - 4 bar (M 12)
IP 68 - 5 bar (M 16 - 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	12.3 (-0.2)	15 / 18	40.0	8	1.0 - 4.0	50
53112686	CLICK 16	5 - 9	16.3 (-0.2)	19 / 22	42.0	8	1.0 - 4.0	50
53112687	CLICK 20	7 - 13	20.3 (-0.2)	25 / 27	45.5	8	1.0 - 4.0	25
53112688	CLICK 25	9 - 17	25.3 (-0.2)	30 / 34	48.5	8	1.0 - 4.0	25
53112694	CLICK 32	11 - 21	32.3 (-0.2)	36 / 40	55.0	8	1.0 - 4.0	25
SKINTOP® CLICK silver grey								
53112921	CLICK 12	4.5 - 7	12.3 (-0.2)	15 / 18	40.0	8	1.0 - 4.0	50
53112876	CLICK 16	5 - 9	16.3 (-0.2)	19 / 22	42.0	8	1.0 - 4.0	50
53112877	CLICK 20	7 - 13	20.3 (-0.2)	25 / 27	45.5	8	1.0 - 4.0	25
53112878	CLICK 25	9 - 17	25.3 (-0.2)	30 / 34	48.5	8	1.0 - 4.0	25
53112922	CLICK 32	11 - 21	32.3 (-0.2)	36 / 40	55.0	8	1.0 - 4.0	25
SKINTOP® CLICK black								
53112923	CLICK 12	4.5 - 7	12.3 (-0.2)	15 / 18	40.0	8	1.0 - 4.0	50
53112882	CLICK 16	5 - 9	16.3 (-0.2)	19 / 22	42.0	8	1.0 - 4.0	50
53112883	CLICK 20	7 - 13	20.3 (-0.2)	25 / 27	45.5	8	1.0 - 4.0	25
53112884	CLICK 25	9 - 17	25.3 (-0.2)	30 / 34	48.5	8	1.0 - 4.0	25
53112924	CLICK 32	11 - 21	32.3 (-0.2)	36 / 40	55.0	8	1.0 - 4.0	25
SKINTOP® CLICK-R light grey								
53112925	CLICK-R 12	3.5 - 5	12.3 (-0.2)	15 / 18	40.0	8	1.0 - 4.0	50
53112689	CLICK-R 16	4 - 7	16.3 (-0.2)	19 / 22	42.0	8	1.0 - 4.0	50
53112690	CLICK-R 20	5 - 10	20.3 (-0.2)	25 / 27	45.5	8	1.0 - 4.0	25
53112691	CLICK-R 25	6 - 13	25.3 (-0.2)	30 / 34	48.5	8	1.0 - 4.0	25
53112926	CLICK-R 32	7 - 15	32.3 (-0.2)	36 / 40	55.0	8	1.0 - 4.0	25
SKINTOP® CLICK-R silver grey								
53112927	CLICK-R 12	3.5 - 5	12.3 (-0.2)	15 / 18	40.0	8	1.0 - 4.0	50
53112879	CLICK-R 16	4 - 7	16.3 (-0.2)	19 / 22	42.0	8	1.0 - 4.0	50
53112880	CLICK-R 20	5 - 10	20.3 (-0.2)	25 / 27	45.5	8	1.0 - 4.0	25
53112881	CLICK-R 25	6 - 13	25.3 (-0.2)	30 / 34	48.5	8	1.0 - 4.0	25
53112928	CLICK-R 32	7 - 15	32.3 (-0.2)	36 / 40	55.0	8	1.0 - 4.0	25
SKINTOP® CLICK-R black								
53112929	CLICK-R 12	3.5 - 5	12.3 (-0.2)	15 / 18	40.0	8	1.0 - 4.0	50
53112885	CLICK-R 16	4 - 7	16.3 (-0.2)	19 / 22	42.0	8	1.0 - 4.0	50
53112886	CLICK-R 20	5 - 10	20.3 (-0.2)	25 / 27	45.5	8	1.0 - 4.0	25
53112887	CLICK-R 25	6 - 13	25.3 (-0.2)	30 / 34	48.5	8	1.0 - 4.0	25
53112931	CLICK-R 32	7 - 15	32.3 (-0.2)	36 / 40	55.0	8	1.0 - 4.0	25

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

SKINTOP® CLICK

- SKINTOP® DIX-M refer to page 740
- SKINTOP® DIX-M AUTOMATION refer to page 741
- SKINTOP® SDV-M ATEX refer to page 731
- SKINTOP® SD-M refer to page 742
- SKINTOP® DV-M refer to page 742

SKINTOP® CLICK-R

- SKINTOP® DIX-M refer to page 740

NEW

SKINTOP® CLICK SORTIMO® T-BOXX

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.
- Optimal order in the practical SORTIMO® T-BOXX

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 5.0 Class-ID: EC000441
ETIM 5.0 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 - 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 are not to scale and do not represent detailed images of the respective products.

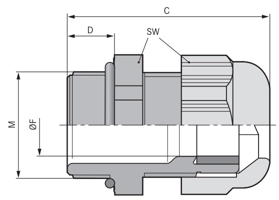
Accessories
- SKINTOP® CLICK refer to page 715

SKINTOP® SOLAR / SKINTOP® SOLAR plus

SKINTOP® for photovoltaics

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 EN 50262

Note
SKINTOP® SOLAR plus
- 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 5.0 Class-ID: EC000441
ETIM 5.0 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	SOLAR M12x1,5	3,5-7	15	36.0	15	100
53113310	SOLAR M16x1,5	7-9	19	34.0	8	100
SKINTOP® SOLAR plus						
53113321	SOLAR plus M12x1,5	3,5-7	15	36.0	15	100
53113331	SOLAR plus M16x1,5	7-9	19	34.0	8	100

Photographs are not to scale and do not represent detailed images of the respective products.

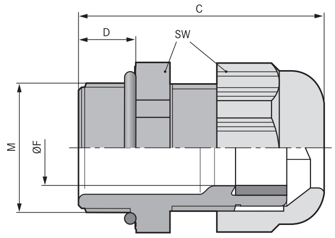
Accessories

SKINTOP® SOLAR
- SKINTOP® GMP-GL-M refer to page 738

NEW

SKINTOP® ST-HF-M

SKINTOP® halogen-free



Info

- Cable gland for railway applications
  - Fire protection on railway vehicles
  Approval according to
  DIN EN 45545-2:2013

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

- When the protection of people and property is a priority.
- Public buildings
- Ventilation systems
- Tunnel construction
- Underground railways and trains

Norm references / Approvals

- DIN EN 45545-2:2013

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Colour delivered
Light grey (RAL 7035)

Material
Polyamide UL 94V-0 - halogen-free
Sealing ring: LSE 1 - halogen-free
O-ring: LSE 1 - halogen-free

Tests
Filament wire test
EN 60695-2-1/1
+960°C

Protection rating
IP 68 - 5 bar

Temperature range
-20°C to +100°C

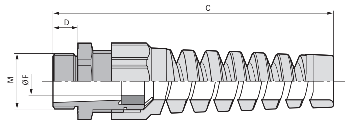
Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® ST-HF-M						
53111407	ST-HF-M 12 x 1,5	3,5-7	15	30.0	8	100
53111417	ST-HF-M 16 x 1,5	4,5-9	19	34.0	8	100
53111427	ST-HF-M 20 x 1,5	7-13	25	37.0	9	100
53111437	ST-HF-M 25 x 1,5	9-17	30	40.0	10	50
53111447	ST-HF-M 32 x 1,5	11-21	36	47.0	10	25
53111457	ST-HF-M 40 x 1,5	19-28	46	52.0	10	10
53111467	ST-HF-M 50 x 1,5	27-35	55	62.0	12	5
53111477	ST-HF-M 63 x 1,5	34-45	66	71.0	12	5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® GMP-HF-M refer to page 739

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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 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

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	BS-M 12x1,5	3,5-7	15	64.0	8	100
53111610	BS-M 16x1,5	4,5-10	19	86.0	8	100
53111620	BS-M 20x1,5	7-13	25	101.0	8	50
53111630	BS-M 25x1,5	9-17	30	125.0	9	25
53111640	BS-M 32x1,5	11-21	36	149.0	10	25
SKINTOP® BS-M black						
53111700	BS-M 12x1,5	3,5-7	15	64.0	8	100
53111710	BS-M 16x1,5	4,5-10	19	86.0	8	100
53111720	BS-M 20x1,5	7-13	25	101.0	8	50
53111730	BS-M 25x1,5	9-17	30	125.0	9	25
53111740	BS-M 32x1,5	11-21	36	149.0	10	25
SKINTOP® BS-M light grey						
53111800	BS-M 12x1,5	3,5-7	15	64.0	8	100
53111810	BS-M 16x1,5	4,5-10	19	86.0	8	100
53111820	BS-M 20x1,5	7-13	25	101.0	8	50
53111830	BS-M 25x1,5	9-17	30	125.0	9	25
53111840	BS-M 32x1,5	11-21	36	149.0	10	25
SKINTOP® BS M ISO silver-grey (with long metric connecting thread)						
53017610	BS M 16 x 1,5 ISO	3,5-8	19	77.5	12	100
53017630	BS M 20 x 1,5 ISO	5-12	24	102.0	13	50
53017640	BS M 25 x 1,5 ISO	9-14	27	114.5	13	50
SKINTOP® BS M ISO black (with long metric connecting thread)						
53017810	BS M 16 x 1,5 ISO	3,5-8	19	77.5	12	100
53017830	BS M 20 x 1,5 ISO	5-12	24	102.0	13	50
53017840	BS M 25 x 1,5 ISO	9-14	27	114.5	13	50

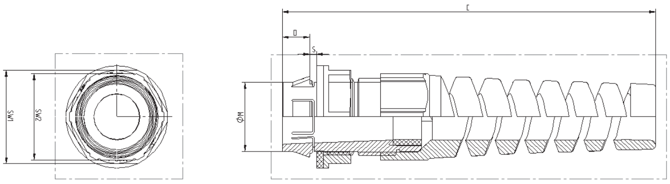
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® GMP-GL-M refer to page 738

NEW

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 5.0 Class-ID: EC000441
ETIM 5.0 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

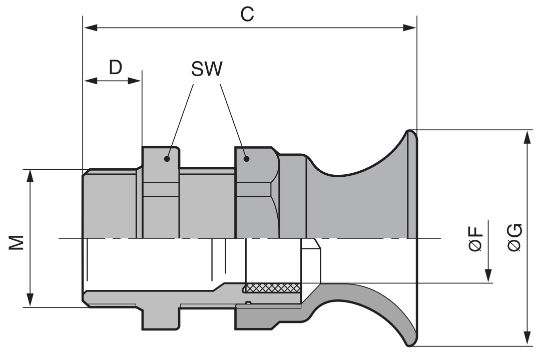
Protection rating
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M32)

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 / 15	74.0	8	1.0 - 4.0	50
53112888	CLICK BS 16	5-9	16.3 (-0.2)	22 / 19	94.0	8	1.0 - 4.0	50
53112889	CLICK BS 20	7-13	20.3 (-0.2)	27 / 25	108.0	8	1.0 - 4.0	25
53112890	CLICK BS 25	9-17	25.3 (-0.2)	32 / 30	127.0	8	1.0 - 4.0	25
53112933	CLICK BS 32	11-21	32.3 (-0.2)	40 / 36	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 / 15	74.0	8	1.0 - 4.0	50
53112906	CLICK BS 16	5-9	16.3 (-0.2)	22 / 25	94.0	8	1.0 - 4.0	50
53112907	CLICK BS 20	7-13	20.3 (-0.2)	27 / 25	108.0	8	1.0 - 4.0	25
53112908	CLICK BS 25	9-17	25.3 (-0.2)	32 / 30	127.0	8	1.0 - 4.0	25
53112935	CLICK BS 32	11-21	32.3 (-0.2)	40 / 36	155.0	8	1.0 - 4.0	25
SKINTOP® CLICK BS black								
53112936	CLICK BS 12	4,5-7	12.3 (-0.2)	18 / 15	74.0	8	1.0 - 4.0	50
53112909	CLICK BS 16	5-9	16.3 (-0.2)	22 / 19	94.0	8	1.0 - 4.0	50
53112911	CLICK BS 20	7-13	20.3 (-0.2)	27 / 25	108.0	8	1.0 - 4.0	25
53112912	CLICK BS 25	9-17	25.3 (-0.2)	32 / 30	127.0	8	1.0 - 4.0	25
53112937	CLICK BS 32	11-21	32.3 (-0.2)	40 / 36	155.0	8	1.0 - 4.0	25

Photographs are not to scale and do not represent detailed images of the respective products.

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 EN 50262

Note
- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	16 x 1,5	3,5-8	19	45.0	12	100
53017430	20 x 1,5	5-12	24	54.0	13	50
53017440	25 x 1,5	9-14	27	57.0	13	50

Photographs are not to scale and do not represent detailed images of the respective products.

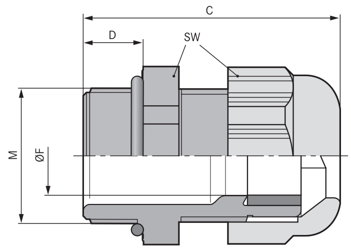
Accessories
- SKINTOP® GMP-GL-M refer to page 738

NEW

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

SKINTOP® KR-M ATEX plus
- For the benefits, refer to SKINTOP® K-M ATEX plus

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 EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	26.5 - 30.0	8	50
54115210	K-M 16 ATEX plus	7-9	16 x 1.5	19	29.0 - 34.0	8	50
54115220	K-M 20 ATEX plus	7-13	20 x 1.5	25	34.0 - 37.0	9	50
54115230	K-M 25 ATEX plus	11-17	25 x 1.5	30	35.0 - 40.0	10	25
54115240	K-M 32 ATEX plus	12-21	32 x 1.5	36	39.0 - 47.0	10	25
54115250	K-M 40 ATEX plus	19-28	40 x 1.5	46	43.0 - 52.0	10	10
54115260	K-M 50 ATEX plus	27-35	50 x 1.5	55	54.0 - 62.0	12	5
54115270	K-M 63 ATEX plus	36-45	63 x 1.5	66	59.0 - 71.0	12	5
SKINTOP® KR-M ATEX plus							
54115205	KR-M 12 ATEX plus	2-4	12 x 1.5	15	26.5 - 30.0	8	50
54115215	KR-M 16 ATEX plus	4-6	16 x 1.5	19	29.0 - 34.0	8	50
54115225	KR-M 20 ATEX plus	5-10	20 x 1.5	25	34.0 - 37.0	9	50
54115235	KR-M 25 ATEX plus	6-13	25 x 1.5	30	35.0 - 40.0	10	25
54115245	KR-M 32 ATEX plus	9-15	32 x 1.5	36	39.0 - 47.0	10	25
54115255	KR-M 40 ATEX plus	16-23	40 x 1.5	46	43.0 - 52.0	10	10
54115265	KR-M 50 ATEX plus	22-29	50 x 1.5	55	54.0 - 62.0	12	5
54115275	KR-M 63 ATEX plus	29-39	63 x 1.5	66	59.0 - 71.0	12	5

Photographs 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 731

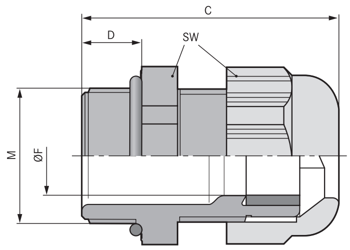
SKINTOP® KR-M ATEX plus
- SKINTOP® SDV-M ATEX refer to page 731

NEW

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

SKINTOP® KR-M ATEX plus blue

- For the benefits, refer to SKINTOP® K-M ATEX plus blue

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 EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	26.5 - 30.0	8	50
54115410	K-M 16 ATEX plus blue	7-9	16 x 1.5	19	29.0 - 34.0	8	50
54115420	K-M 20 ATEX plus blue	7-13	20 x 1.5	25	34.0 - 37.0	9	50
54115430	K-M 25 ATEX plus blue	11-17	25 x 1.5	30	35.0 - 40.0	10	25
54115440	K-M 32 ATEX plus blue	12-21	32 x 1.5	36	39.0 - 47.0	10	25
54115450	K-M 40 ATEX plus blue	19-28	40 x 1.5	46	43.0 - 52.0	10	10
54115460	K-M 50 ATEX plus blue	27-35	50 x 1.5	55	54.0 - 62.0	12	5
54115470	K-M 63 ATEX plus blue	36-45	63 x 1.5	66	59.0 - 71.0	12	5
SKINTOP® KR-M ATEX plus blue							
54115405	KR-M 12 ATEX plus blue	2-4	12 x 1.5	15	26.5 - 30.0	8	50
54115415	KR-M 16 ATEX plus blue	4-6	16 x 1.5	19	29.0 - 34.0	8	50
54115425	KR-M 20 ATEX plus blue	5-10	20 x 1.5	25	34.0 - 37.0	9	50
54115435	KR-M 25 ATEX plus blue	6-13	25 x 1.5	30	35.0 - 40.0	10	25
54115445	KR-M 32 ATEX plus blue	9-15	32 x 1.5	36	39.0 - 47.0	10	25
54115455	KR-M 40 ATEX plus blue	16-23	40 x 1.5	46	43.0 - 52.0	10	10
54115465	KR-M 50 ATEX plus blue	22-29	50 x 1.5	55	54.0 - 62.0	12	5
54115475	KR-M 63 ATEX plus blue	29-39	63 x 1.5	66	59.0 - 71.0	12	5

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

SKINTOP® K-M ATEX plus blau

- SKINTOP® SDV-M ATEX refer to page 731

SKINTOP® KR-M ATEX plus blau

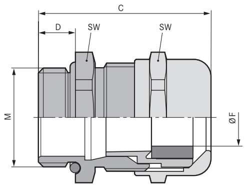
- SKINTOP® SDV-M ATEX refer to page 731

NEW

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!

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 EN 50262

Note

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 ring: CR
O-ring: NBR

Protection rating
IP 68
IP 69 (M12 - M63)

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/SKINTOP® MSR-M						
53112000	12 x 1,5	3-7	16	26.5	6.5	100
53112010	16 x 1,5	4,5-10	20	32.0	7	100
53112020	20 x 1,5	7-13	24	35.5	8	50
53112030	25 x 1,5	9-17	29	37.5	8	25
53112040	32 x 1,5	11-21	36	42.2	9	25
53112050	40 x 1,5	19-28	45	49.5	9	10
53112060	50 x 1,5	27-35	54	52.0	10	5
53112070	63 x 1,5	34-45	67	61.3	15	5
53112080	63 x 1,5 plus	44-55	75	65.5	15	5
53112510	75 x 1,5	58-68	95	105.0	15	1
53112512	90 x 2	66-78	115	136.0	20	1
53112514	110 x 2	86-98	135	154.0	25	1
SKINTOP® MSR-M						
53112100	12 x 1,5	1-5	16	26.5	6.5	100
53112110	16 x 1,5	2-7	20	32.0	7	100
53112120	20 x 1,5	5-10	24	35.5	8	50
53112130	25 x 1,5	6-13	29	37.5	8	25
53112140	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	63 x 1,5	28-39	67	61.3	15	5
53112511	75 x 1,5	53-63	95	105.0	15	1
53112515	110 x 2	76-88	135	154.0	25	1

Photographs are not to scale and do not represent detailed images of the respective products.

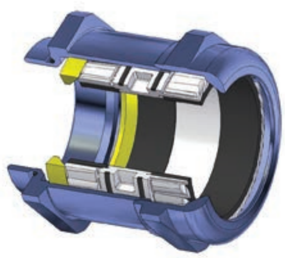
Accessories

SKINTOP® MS-M

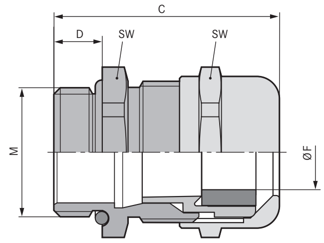
- SKINDICHT® SM-M refer to page 763
- SKINTOP® DIX-M refer to page 740
- SKINMATIC® MH Set refer to page 782
- SKINTOP® DIX-M AUTOMATION refer to page 741
- SKINTOP® SDV-M ATEX refer to page 731
- SKINTOP® SD-M refer to page 742
- SKINTOP® DV-M refer to page 742

SKINTOP® MSR-M

- SKINDICHT® SM-M refer to page 763
- SKINTOP® DIX-M refer to page 740
- SKINMATIC® MH Set refer to page 782



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

SKINTOP® MSR-M-XL

- For the benefits, refer to SKINTOP® MS-M-XL

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 EN 50262

Note

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: CR
O-ring: NBR

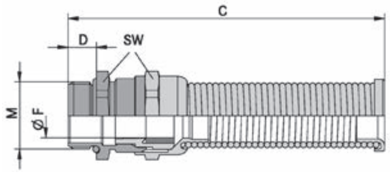
Protection rating
IP 68 - 10 bar
IP 69

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	12 x 1,5	3-7	16	32.8	12	100
53112015	16 x 1,5	4,5-10	20	37.0	12	50
53112025	20 x 1,5	7-13	24	39.5	12	50
53112035	25 x 1,5	9-17	29	41.5	12	25
53112045	32 x 1,5	11-21	36	48.2	15	25
53112055	40 x 1,5	19-28	45	53.5	15	10
53112065	50 x 1,5	27-35	54	57.0	15	5
SKINTOP® MSR-M-XL						
53112105	12 x 1,5	1-5	16	32.8	12	100
53112115	16 x 1,5	2-7	20	37.0	12	50
53112125	20 x 1,5	5-10	24	39.5	12	50
53112135	25 x 1,5	6-13	29	41.5	12	25
53112145	32 x 1,5	7-15	36	48.2	15	25
53112155	40 x 1,5	15-23	45	53.5	15	10
53112165	50 x 1,5	22-29	54	57.0	15	5

Photographs 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 EN 50262

Note

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: 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	12 x 1,5	3,5-7	6.5	16	65.0	25
53806760	16 x 1,5	4,5-10	7	20	79.0	25
53806761	20 x 1,5	7-13	8.5	24	95.0	25
53806762	25 x 1,5	9-17	8	29	109.0	25
SKINTOP® BSR-M METAL						
53806769	12 x 1,5	1-5	6.5	16	65.0	25
53806770	16 x 1,5	2-7	7	20	79.0	25
53806771	20 x 1,5	5-10	8.5	24	95.0	25
53806772	25 x 1,5	6-13	8	29	109.0	25

Photographs are not to scale and do not represent detailed images of the respective products.

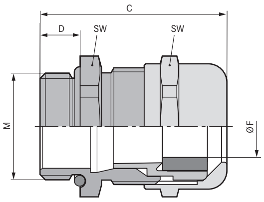
Accessories

- SKINDICHT® SM-M refer to page 763
- SKINTOP® DIX-M refer to page 740
- SKINMATIC® MH Set refer to page 782
- SKINTOP® DIX-M AUTOMATION refer to page 741

SKINTOP® COLD / SKINTOP® COLD-R

Info

- For extreme sub-zero temperatures



SKINTOP® COLD

SKINTOP® COLD-R

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 EN 50262

Note

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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)
SKINTOP® COLD-R
IP 68 - 5 bar (M25 - M63)

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						
53113500	12 x 1,5	3-7	16	26.5	6.5	100
53113510	16 x 1,5	4,5-10	20	32.0	7	100
53113520	20 x 1,5	7-13	24	35.5	8	50
53113530	25 x 1,5	9-17	29	37.5	8	25
53113540	32 x 1,5	11-21	36	42.2	9	25
53113550	40 x 1,5	19-28	45	49.5	9	10
53113560	50 x 1,5	27-35	54	52.0	10	5
53113570	63 x 1,5	34-45	67	61.3	15	5
SKINTOP® COLD-R						
53113600	12 x 1,5	1-5	16	26.5	6.5	100
53113610	16 x 1,5	2-7	20	32.0	7	100
53113620	20 x 1,5	5-10	24	35.5	8	50
53113630	25 x 1,5	6-13	29	37.5	8	25
53113640	32 x 1,5	7-15	36	42.2	9	25
53113650	40 x 1,5	15-23	45	49.5	9	10
53113660	50 x 1,5	22-29	54	52.0	10	5
53113670	63 x 1,5	28-39	67	61.3	15	5

Photographs are not to scale and do not represent detailed images of the respective products.

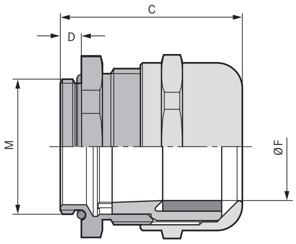
Accessories

SKINTOP® COLD

- SKINDICHT® SM-M refer to page 763

SKINTOP® metric nickel-plated brass cable glands • SKINTOP® for industrial connectors

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 EN 50262

Note
- For suitable multiple seal inserts please see SKINTOP® DIX PG 21 (25 x 1.5) and DIX PG 29 (32 x 1.5)

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: 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	25 x 1,5	11-18	30	37.0	5	25
53112790	32 x 1,5	16-25	40	43.0	5	25

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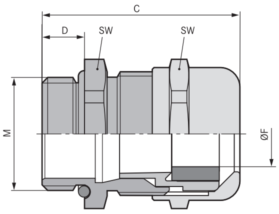
SKINTOP® MS-M ATEX / SKINTOP® MSR-M ATEX



SKINTOP® MS-M ATEX

SKINTOP® MSR-M ATEX

Benefits

SKINTOP® MS-M ATEX

- Cold impact resistance
- High strain relief
- Wide, variable clamping ranges
- Anti-static
- 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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 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 ring: CR
O-ring: NBR

Tests
DIN EN 60079-0
DIN EN 60079-7
DIN EN 60079-31

Protection rating
IP 68 - 10 bar

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	12 x 1,5	3 - 7	16	26.5	6.5	100
53112710	16 x 1,5	4.5 - 10	20	33.0	7	100
53112720	20 x 1,5	7 - 13	24	37.0	8	50
53112730	25 x 1,5	9 - 17	29	38.5	8	25
53112740	32 x 1,5	11 - 21	36	45.5	9	25
53112750	40 x 1,5	19 - 28	45	48.0	9	10
53112760	50 x 1,5	26 - 35	54	55.5	10	5
53112770	63 x 1,5	34 - 45	67	67.0	15	5
53112779	63 x 1,5 plus	44 - 55	75	65.5	15	1
SKINTOP® MS-M-XL ATEX						
53112800	12 x 1,5	3 - 7	16	32.8	12	100
53112810	16 x 1,5	4.5 - 10	20	37.0	12	100
53112820	20 x 1,5	7 - 13	24	39.5	12	50
53112830	25 x 1,5	9 - 17	29	41.5	12	25
53112840	32 x 1,5	11 - 21	36	48.2	15	25
53112850	40 x 1,5	19 - 28	45	53.5	15	10
53112860	50 x 1,5	26 - 35	54	57.5	15	5
SKINTOP® MSR-M ATEX						
53112705	12 x 1,5	2 - 5	16	26.5	6.5	100
53112715	16 x 1,5	4 - 7	20	33.0	7	100
53112725	20 x 1,5	5 - 10	24	37.0	8	50
53112735	25 x 1,5	6 - 13	29	38.5	8	25
53112745	32 x 1,5	7 - 15	36	45.5	9	25
53112755	40 x 1,5	16 - 23	45	48.0	9	10
53112765	50 x 1,5	19 - 29	54	55.5	10	5
53112775	63 x 1,5	32 - 39	67	67.0	15	5

Photographs 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 731
- SKINDICHT® SM-M refer to page 763
- SKINDICHT® SM-PE-M refer to page 763

SKINTOP® MSR-M ATEX

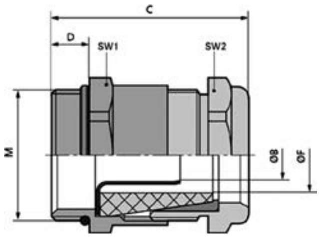
- SKINTOP® SDV-M ATEX refer to page 731
- SKINDICHT® SM-M refer to page 763
- SKINDICHT® SM-PE-M refer to page 763

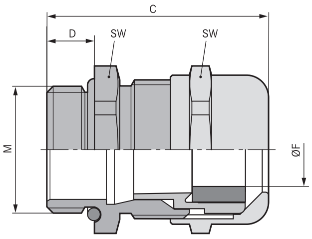
NEW

SKINTOP® MS-M ATEX BRUSH

SKINTOP® SDV-M ATEX

SKINTOP® SDV-M ATEX





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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Certifications
DNV for SKINDICHT® SHVE-M ATEX pending
SKINDICHT® SHVE-M ATEX is not IECex certified

Note
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	20 x 1,5	6.9 - 8.9	5	22	6	10
SKINTOP® MS-M ATEX BRUSH						
52110023	25 x 1,5	9.0 - 17.0	6	29	8	10
52110024	32 x 1,5	11.0 - 21.0	8	36	9	5
52110025	40 x 1,5	19.0 - 28.0	10	45	9	5
52110026	50 x 1,5	27.0 - 35.0	14	54	10	5
52110027	63 x 1,5	34.0 - 45.0	20	67	15	1
52110028	63 x 1,5 plus	44.0 - 55.0	25	75	15	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 763
- SKINDICHT® SM-PE-M refer to page 763

SKINTOP® SDV-M ATEX / SKINTOP® SDVR-M ATEX

SKINTOP® SDV-M ATEX

Benefits

- Permanent and secure sealing for areas with risks of explosion
- Easy to assemble
- High degree of protection

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 5.0 Class-ID: EC000032
ETIM 5.0 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	12 ATEX	SDV-M ATEX 3	50
54113012	16 ATEX	SDV-M ATEX 3	50
54113022	20 ATEX	SDV-M ATEX 3	50
54113032	25 ATEX	SDV-M ATEX 3	50
54113042	32 ATEX	SDV-M ATEX 4	25
54113052	40 ATEX	SDV-M ATEX 4	25
54113062	50 ATEX	SDV-M ATEX 4	10
54113072	63 ATEX	SDV-M ATEX 4	5
SKINTOP® SDVR-M ATEX			
54113013	16 ATEX	SDVR-M ATEX 4	50
54113023	20 ATEX	SDVR-M ATEX 5	50
54113033	25 ATEX	SDVR-M ATEX 5	50
54113043	32 ATEX	SDVR-M ATEX 5	25

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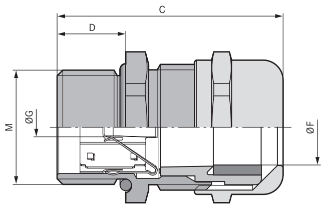
SKINTOP® MS-SC-M



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
- 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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: CR
O-ring: NBR

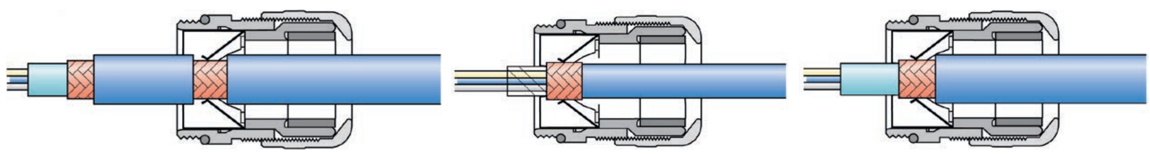
Protection rating
IP 68 - 10 bar

Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

Article number	Article designation / size	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	12 x 1,5	3.5 - 7.0	2	16	6.5	50
53112620	16 x 1,5	4.5 - 9.0	4	20	7	50
53112630	20 x 1,5	7.0 - 12.5	5	24	8	25
53112640	25 x 1,5	9.0 - 16.5	7.5	29	8	25
53112650	32 x 1,5	11.0 - 21.0	9	36	9	25
53112660	40 x 1,5	19.0 - 28.0	15	45	9	10
53112670	50 x 1,5	27.0 - 35.0	21	54	10	5
SKINTOP® MS-SC-M-XL						
53112625	16 x 1,5	4.5 - 9.0	4	20	12	50
53112635	20 x 1,5	7.0 - 12.5	5	24	12	25
53112645	25 x 1,5	9.0 - 16.5	7.5	29	12	25
53112655	32 x 1,5	11.0 - 21.0	9	36	15	25
53112665	40 x 1,5	19.0 - 28.0	15	45	15	10
53112675	50 x 1,5	27.0 - 35.0	21	54	15	5

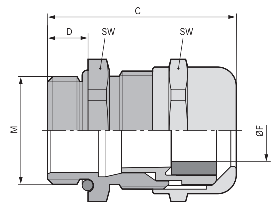
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-PE-M refer to page 763



NEW

SKINTOP® MS-M 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 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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Certifications
VDE, UL, CSA, DNV approval for size M90 x 2 and 110 x 2 pending
SKINTOP® MSR-M BRUSH 25 x 1,5 approvals pending

Material
Body: nickel-plated brass
EMC brush: brass
Sealing ring: special elastomer
O-ring: special elastomer

Protection rating
IP 68 - 10 bar (M12 - M50)
IP 68 - 5 bar (M63)
IP 68 - 1 bar (M63 plus - M75)
IP 69 (M12 - M63)

Temperature range
dynamic -25°C up to + 100°C
Fixed: -40°C to +100°C

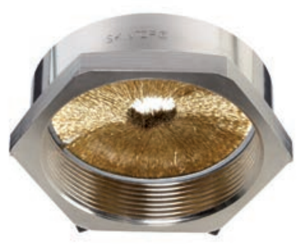
Article number	Article designation / size	Outer Ø (mm), from - to	Minimum Ø above braiding (mm)	SW wrench size mm	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-M BRUSH						
53112676	25 x 1,5	9.0 - 17.0	6	29	8	10
53112677	32 x 1,5	11.0 - 21.0	8	36	9	5
53112678	40 x 1,5	19.0 - 28.0	10	45	9	5
53112679	50 x 1,5	27.0 - 35.0	14	54	10	5
53112680	63 x 1,5	34.0 - 45.0	20	67	15	1
53112681	63 x 1,5 plus	44.0 - 55.0	25	75	15	1
53112501	75 x 1,5	53.0 - 63.0	35	95	15	1
53112500	75 x 1,5 plus	58.0 - 68.0	35	95	15	1
53112503	90 x 2	66.0 - 78.0	45	115	20	1
53112505	110 x 2	76.0 - 88.0	55	135	25	1
53112504	110 x 2 plus	86.0 - 98.0	55	135	25	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-PE-M refer to page 763

NEW

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 EN 50262

Info

- Innovative EMC add-on for SKINTOP® ST(R)-M polyamide cable glands.
- Worlds first patented active EMC lock-nut!

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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

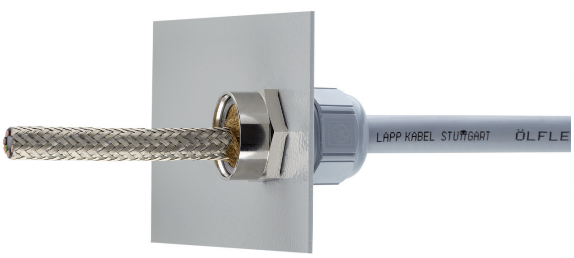
Temperature range
Dynamic: -20°C to +100°C
Depending on the combination of the used cable gland

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® BS-M refer to page 719
- SKINTOP® ST-M refer to page 712
- SKINTOP® STR-M refer to page 712
- SKINTOP® ST-HF-M refer to page 718
- SKINTOP® COLD refer to page 727
- SKINTOP® COLD-R refer to page 727

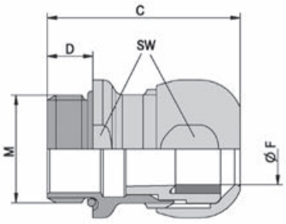


NEW

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
- **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 EN 50262

Note

- Size M 40x1,5 available on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Material
Body: Stainless steel - V4A (1.4404 / 316L)
Insert: Polyamide
Sealing ring: Silicone
O-Ring: Silicone

Protection rating
IP 68 - 10 bar (M12 - M20)
IP 68 - 5 bar (M25 - M32)
IP 69

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	12x1,5	4-7	6.5	16	29.3	5
53806740	16x1,5	6-10	7	20	32.4	5
53806741	20x1,5	7-13	8	24	35.8	5
53806742	25x1,5	9-17	8	29	37.8	5
53806743	32x1,5	11-21	9	36	43.3	5
SKINTOP® INOX-R						
53806749	12x1,5	3-5	6.5	16	29.3	5
53806750	16x1,5	5-7	7	20	32.4	5
53806751	20x1,5	5-10	8	24	35.8	5
53806752	25x1,5	7-13	8	29	37.8	5
53806753	32x1,5	7-15	9	36	43.3	5

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- SKINDICHT® CN-M refer to page 759
- SKINTOP® HYGIENIC

Accessories

- Suitable counter nut SKINDICHT® SM CrNi M

NEW

SKINTOP® INOX SC / SKINTOP® INOX-R 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

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information EN 50262

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
- Size M 40x1,5 available on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Material
Body: Stainless steel - V4A (1.4404 / 316L)
Insert: Polyamide
Sealing ring: Silicone
O-Ring: Silicone

Protection rating
IP 68 - 10 bar (M12 - M20)
IP 68 - 5 bar (M25 - M32)
IP 69

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 are not to scale and do not represent detailed images of the respective products.

Similar products

- SKINDICHT® CN-M refer to page 759
- SKINTOP® HYGIENIC

Accessories

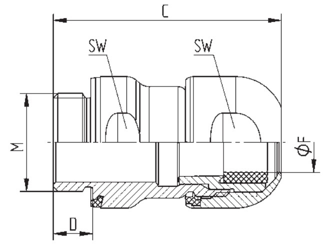
- Suitable counter nut SKINDICHT® SM CrNi M

NEW

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
- **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 EN 50262

Note

- Other sizes are available upon request
- EMC version is available upon request
- Installation wrench for very high packing density on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Material
Body: Stainless steel - V4A
(1.4404 / 316L)
Insert: Polyamide
Sealing material: Special Elastomer

Protection rating
IP 68 - 10 bar
IP 69

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	39.9	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	2-4,5	6.5	16	39.9	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 are not to scale and do not represent detailed images of the respective products.

Similar products

- SKINTOP® INOX / SKINTOP® INOX-R refer to page 735
- SKINTOP® INOX SC / SKINTOP® INOX-R SC refer to page 736

Accessories

- Suitable counter nut SKINDICHT® SM CrNi M

LAPP GROUP

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 EN 50262

Note
- UL approval only when used with the UL-approved SKINTOP® polyamide cable glands
- Designed for use with metric SKINTOP® plastic cable glands

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	12 x 1,5	17	100
53119010	16 x 1,5	22	100
53119020	20 x 1,5	27	100
53119030	25 x 1,5	34	100
53119040	32 x 1,5	41	100
53119050	40 x 1,5	50	25
53119060	50 x 1,5	60	25
53119070	63 x 1,5	75	25
SKINTOP® GMP-GL-M black			
53119100	12 x 1,5	17	100
53119110	16 x 1,5	22	100
53119120	20 x 1,5	27	100
53119130	25 x 1,5	34	100
53119140	32 x 1,5	41	100
53119150	40 x 1,5	50	25
53119160	50 x 1,5	60	25
53119170	63 x 1,5	75	25
SKINTOP® GMP-GL-M light grey			
53119003	12 x 1,5	17	100
53119013	16 x 1,5	22	100
53119023	20 x 1,5	27	100
53119033	25 x 1,5	34	100
53119043	32 x 1,5	41	100
53119053	40 x 1,5	50	25
53119063	50 x 1,5	60	25
53119073	63 x 1,5	75	25

Photographs are not to scale and do not represent detailed images of the respective products.

SKINTOP® GMP-HF-M

Info

- Cable gland for railway applications
  - Fire protection on railway vehicles
  Approval according to
  DIN EN 45545-2:2013

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 EN 50262

Note
- Designed for use with SKINTOP® ST-HF-M

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
Polyamide UL 94V-0 - halogen-free

Temperature range
-20°C to +100°C

Article number	Article designation / size	SW wrench size mm	PU
SKINTOP® GMP-HF-M			
53119200	12 x 1,5	17	100
53119210	16 x 1,5	22	100
53119220	20 x 1,5	27	100
53119230	25 x 1,5	34	100
53119240	32 x 1,5	41	100
53119250	40 x 1,5	50	25
53119260	50 x 1,5	60	25
53119270	63 x 1,5	75	25

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® ST-HF-M refer to page 718

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 VITON® is resistant to oil, water, alkaline solutions, acids, solvents etc.

Technical data

Classification
ETIM 5.0 Class-ID: EC000032
ETIM 5.0 Class-Description:
Plug for cable screw gland

On request
Special shapes

Colour delivered
Black, RAL 9005

Material
NBR
VITON®

Protection rating
IP 54

Temperature range
-40°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 VITON®				
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

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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 5.0 Class-ID: EC000032
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® CLICK refer to page 715
- SKINTOP® MS-M refer to page 724
- SKINTOP® ST-M refer to page 712
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726

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

Classification
ETIM 5.0 Class-ID: EC000032
ETIM 5.0 Class-Description: Plug for cable screw gland

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

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	100
53100004	DIX-DV 4 x 9	4.0	9	100
53100005	DIX-DV 5 x 11	5.0	11	100
53100055	DIX-DV 5,5 x 11	5.5	11	100
53100006	DIX-DV 6 x 14	6.0	14	100
53100007	DIX-DV 7 x 14	7.0	14	100
53100008	DIX-DV 8 x 14	8.0	14	100
53100009	DIX-DV 9 x 14	9.0	14	100
SKINTOP® SD-M				
54113100	12	11.5	2	100
54113110	16	15.0	2	100
54113120	20	20.0	2	100
54113130	25	25.0	2	50
54113140	32	30.0	2	50
54113150	40	40.0	2	25
54113160	50	49.0	2	25
54113170	63	58.0	2	25
SKINTOP® DV-M				
54113000	12	7.2	7	500
54113010	16	10.0	8	500
54113020	20	13.2	8.4	250
54113030	25	17.2	9.5	250
54113040	32	21.2	12	250
54113050	40	28.2	14.5	100
54113060	50	35.8	18	100
54113070	63	45.6	20	50

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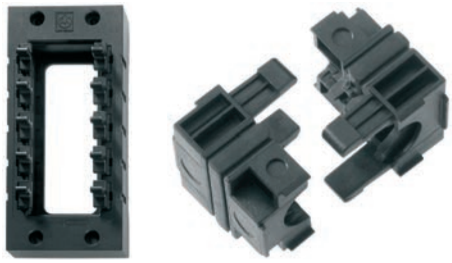
Accessories

SKINTOP® DIX-DV
- SKINTOP® CLICK refer to page 715
- SKINTOP® DIX-M refer to page 740
- SKINTOP® MS-M refer to page 724
- SKINTOP® ST-M refer to page 712
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to page 726

NEW

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 range of clamping force
- 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 cables and wires need to be safely inserted into housings
- Apparatus and switch cabinet construction
- Electronic installations
- Automation technology

Norm references / Approvals

- UL File Nr. 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

Included

- SKINTOP® CUBE FRAME including mounting material

Suitable tools

- Kraftform Kompakt® 10

Technical data

Classification
ETIM 5.0 Class-ID: EC000240
ETIM 5.0 Class-Description:
Cable entry

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 - 3		5
52220002	SKINTOP® CUBE MODULE 20x20 SMALL	4 - 6		5
52220003	SKINTOP® CUBE MODULE 20x20 LARGE	6 - 9		5
52220040	SKINTOP® CUBE MODULE 20x20 AS-I BUS			5
52220005	SKINTOP® CUBE MODULE 40x40 SMALL	9 - 12		5
52220006	SKINTOP® CUBE MODULE 40x40 LARGE	12 - 16		5
52220007	SKINTOP® CUBE MODULE 40x40 BLIND			5

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- SKINTOP® CUBE MULTI refer to page 745

Accessories

- FLEXIMARK® LB-10 W

LAPP GROUP

NEW

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 range of clamping force
- 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 cables and wires need to be safely inserted into housings
- 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

Norm references / Approvals

- UL File Nr. 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 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 5.0 Class-ID: EC000240
ETIM 5.0 Class-Description:
Cable entry

Certifications
UL pending

Material
Frame: glass fibre-reinforced polyamide
Frame seal: CR
Clip module: special polypropylene
Clip module seal: LSE 2

Protection rating
IP 64
NEMA 12

Temperature range
-20°C to +80°C

Article number	Article designation / size	Pieces / PU
SKINTOP® CUBE SORTIMO® T-BOXX		
53110031	SKINTOP® CUBE SORTIMO® T-BOXX	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Kraftform Kompakt® 10
- FLEXIMARK® LB-10 W

NEW

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 by elastic gel technology at the sealing element (innovative membrane technology)
- Easy installation by high packing density
- Optimum strain relief on the entire cable bundle
- Simplified servicing due to easy assembling and disassembling
- Not used holes remain securely sealed

Application range

- Used in areas where cables and wires need to be safely inserted into housings
- For installation of not harnessed cables and media hoses
- For cut-outs for 24-pin industrial connectors (36 x 112 mm)
- 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

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

Note

- For better strain relief, the cable bundle can be fixed with help of a cable tie

Included

- SKINTOP® CUBE FRAME including mounting material

Technical data

Classification
ETIM 5.0 Class-ID: EC000240
ETIM 5.0 Class-Description:
Cable entry system

Certifications
UL pending

Note
Colour: black
Individual hole configuration availabele on request

Material
Frame: Glass fiber reinforced polyamide
Frame seal: CR
Gel insert: PC / Gel
Fire behaviour according to UL 94V-2

Protection rating
IP 65
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 are not to scale and do not represent detailed images of the respective products.

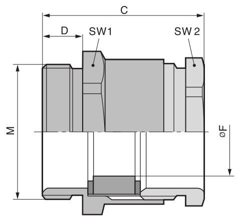
Similar products

- SKINTOP® CUBE

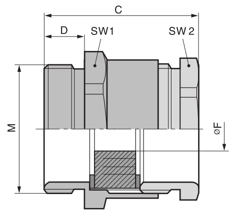
Accessories

- Kraftform Kompakt® 10
- FLEXIMARK® LB-10 W


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 EN 50262

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

Product Make-up

SKINDICHT® SVRN-M
- For connection thread M 50 x 1.5 and M 63 x 1.5, refer to SKINDICHT® SVRE-M

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 VITON® 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
SKINDICHT® SVRN-M
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	12 x 1,5			7	14 / 13	20.6	5	5	100
52104810	12 x 1,5			7	14 / 13	20.6	5	6	100
52104820	12 x 1,5			7	14 / 13	20.6	5	7	100
52104830	16 x 1,5			9	18 / 15	21.6	5	7	100
52104840	16 x 1,5			9	18 / 15	21.6	5	8	100
52104850	16 x 1,5			9	18 / 15	21.6	5	9	100
52104860	20 x 1,5			11	22 / 18	23.6	6	10	50
52104870	20 x 1,5			11	22 / 18	23.6	6	11	50
52104890	20 x 1,5			13.5	22 / 20	25.6	6	12	50
52104900	20 x 1,5			16	24 / 22	26.6	6	13	50
52104910	20 x 1,5			16	24 / 22	26.6	6	14	50
52104920	25 x 1,5			21	30 / 28	29.6	7	18	50
52104930	32 x 1,5			29	40 / 37	32.6	8	27	50
52104940	40 x 1,5			36	50 / 47	37.6	8	34	20
SKINDICHT® SVRE-M									
52104980	16 x 1,5	5/8	10	9	18 / 15	21.6	5		100
52104990	20 x 1,5	7/10/12.5	12	11	22 / 18	23.6	6		50
52105000	20 x 1,5	7/10.5/13/16	14	13.5	22 / 20	25.6	6		50
52105010	20 x 1,5	8/10.5/13.5/16	15	16	24 / 22	26.6	6		50
52105002	25 x 1,5	11/15/18/20	20	21	30 / 28	29.6	7		50
52105003	32 x 1,5	19/23/27/31	27	29	40 / 37	32.6	8		50
52105004	40 x 1,5	25/28/31/35	34	36	50 / 47	37.6	8		20
52105005	50 x 1,5	35.5/39/42.5/46	43	42	57 / 54	42.6	9		5
52105006	63 x 1,5	40.5/44/47/50.5	48	48	66 / 60	45.1	10		5

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SKINDICHT® SVRX

SKINDICHT® SVRE-M

SKINDICHT® SVRE-M

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 5.0 Class-ID: EC000441
ETIM 5.0 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
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
52006564	SVRX 8059	M 80 x 2	85	56 - 59	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

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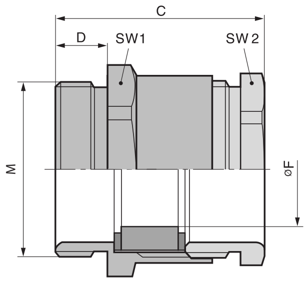
SKINDICHT® SVFK-M



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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 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	SVFK-M 25 x 1,5	- / 15.0	- - 5.0	27 / 23	41.0	11	25
52107901	SVFK-M 32 x 1,5	10.0 / 21.0	3.0 - 8.0	36 / 30	39.0	10	25
52107902	SVFK-M 40 x 1,5	16.0 / 28.0	4.0 - 11.5	42 / 40	44.0	11	25
52107903	SVFK-M 50 x 1,5	26.0 / 35.0	4.0 - 11.5	53 / 50	50.5	11	5
52107904	SVFK-M 50 x 1,5	30.0 / 40.0	5.0 - 12.0	60 / 55	53.5	11	5
52107905	SVFK-M 63 x 1,5	36.0 / 45.0	5.0 - 12.0	65 / 60	54.5	11	5

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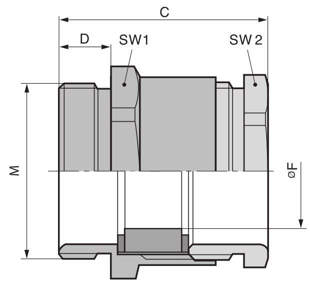
SKINDICHT® SVF-M



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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 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	Min./max. cable thickness (mm)	Pieces / PU
SKINDICHT® SVF-M				
52107320	M 20/16	- / 15.0	- / 5	25
52107340	M 25/21	9.0 / 20.0	3 / 8	25
52107350	M 32/29	14.0 / 27.0	4 / 11	10
52107360	M 40/36	24.0 / 34.0	4 / 11	10
52107370	M 50/42	29.0 / 44.0	5 / 12	5
52107380	M 63/48	34.0 / 50.0	5 / 12	5

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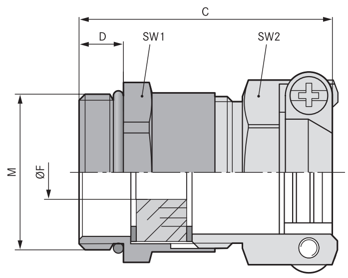
SKINDICHT® SKZ-M



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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 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	16 x 1,5	5.0 - 8.0	24	9	18 / 17	29.0	5	50
52106810	20 x 1,5	7.0 - 12.0	27	11	22 / 20	30.0	6	50
52106820	20 x 1,5	11.0 - 13.0	30	13.5	22 / 22	33.5	6	25
52106830	20 x 1,5	13.0 - 15.0	33	16	24 / 24	34.5	6	25
52106840	25 x 1,5	16.0 - 19.3	42	21	30 / 30	41.0	7	25
52106850	32 x 1,5	19.0 - 27.0	58	29	40 / 41	46.0	8	10
SKINDICHT® SKZ-M-XL								
52106805	16 x 1,5	5.0 - 8.0	24	9	18 / 17	34.0	10	50
52106815	20 x 1,5	7.0 - 12.0	27	11	22 / 20	34.0	10	50
52106825	20 x 1,5	11.0 - 13.0	30	13.5	22 / 22	37.5	10	25
52106835	20 x 1,5	13.0 - 15.0	33	16	24 / 24	38.5	10	25
52106845	25 x 1,5	16.0 - 19.3	42	21	30 / 30	45.0	11	25
52106855	32 x 1,5	19.0 - 27.0	58	29	40 / 41	51.0	13	10

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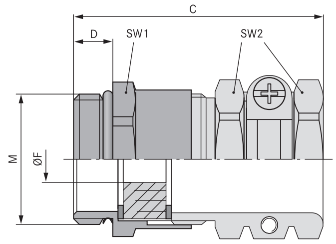
Accessories

- SKINDICHT® E refer to page 826
- SKINDICHT® EV refer to page 827

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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 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	12 x 1,5	5.5 - 6.5	21	7	14 / 15	30.0	5	50
52106710	16 x 1,5	5.0 - 8.0	25	9	18 / 17	33.0	5	50
52106720	20 x 1,5	8.0 - 12.0	28	11	22 / 20	35.0	6	25
52106730	20 x 1,5	8.5 - 13.0	32	13.5	22 / 22	39.5	6	25
52106740	20 x 1,5	8.0 - 15.0	35	16	24 / 24	41.5	6	25
52106750	25 x 1,5	14.0 - 19.3	46	21	30 / 30	47.0	7	25
52106760	32 x 1,5	19.0 - 27.0	58	29	40 / 41	53.0	8	10
52106770	40 x 1,5	27.0 - 34.0	70	36	50 / 50	60.0	8	10
52106780	50 x 1,5	35.0 - 43.0	78	42	57 / 57	65.0	9	5
52106790	63 x 1,5	40.0 - 47.5	86	48	66 / 64	68.0	10	5
SKINDICHT® SHZ-M-XL								
52106705	12 x 1,5	5.5 - 6.5	21	7	14 / 15	35.0	10	50
52106715	16 x 1,5	5.0 - 8.0	25	9	18 / 17	38.0	10	50
52106725	20 x 1,5	8.0 - 12.0	28	11	22 / 20	39.0	10	25
52106735	20 x 1,5	8.5 - 13.0	32	13.5	22 / 22	43.5	10	25
52106745	20 x 1,5	9.0 - 14.5	35	16	24 / 24	45.5	10	25
52106755	25 x 1,5	14.0 - 19.3	46	21	30 / 30	51.0	11	25
52106765	32 x 1,5	19.0 - 27.0	58	29	40 / 41	58.0	13	10
52106775	40 x 1,5	27.0 - 34.0	70	36	50 / 50	67.0	13	10
52106785	50 x 1,5	35.0 - 43.0	78	42	57 / 57	70.0	14	5
52106795	63 x 1,5	40.0 - 47.5	86	48	66 / 64	73.0	14	5

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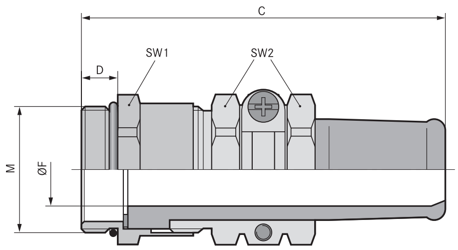
Accessories

- SKINDICHT® E refer to page 826
- SKINDICHT® EV refer to page 827

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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 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	12 x 1,5	4 - 5	23	7	14 / 15	49.0	5	5	50
52106420	16 x 1,5	5.5 - 7	25	9	18 / 17	50.0	5	7	50
52106430	20 x 1,5	5.5 - 7	28	11	22 / 20	55.0	6	7	25
52106440	20 x 1,5	7.5 - 9	28	11	22 / 20	55.0	6	9	25
52106450	20 x 1,5	7.5 - 9	32	13.5	22 / 22	60.0	6	9	25
52106460	20 x 1,5	9 - 11	32	13.5	22 / 22	60.0	6	11	25
52106470	20 x 1,5	11 - 13	32	13.5	22 / 22	60.0	6	13	25
52106480	20 x 1,5	12 - 13	35	16	24 / 24	65.0	6	13	25
52106481	20 x 1,5	13 - 15	35	16	24 / 24	66.0	6	15	25
52106490	25 x 1,5	12.5 - 15	46	21	30 / 30	78.5	7	15	25
52106500	25 x 1,5	14 - 17	46	21	30 / 30	78.5	7	17	25
52106510	25 x 1,5	17 - 19	46	21	30 / 30	78.5	7	19	25
52106520	25 x 1,5	17 - 20	46	21	30 / 30	78.5	7	20	25
52106530	32 x 1,5	19 - 20	59	29	40 / 41	90.5	8	20	10
52106540	32 x 1,5	22 - 23	59	29	40 / 41	90.5	8	23	10
52106550	32 x 1,5	23 - 25	59	29	40 / 41	90.5	8	25	10
52106560	40 x 1,5	24 - 26	70	36	50 / 50	108.0	8	26	5
52106570	40 x 1,5	28 - 30	70	36	50 / 50	108.0	8	30	5
52106580	40 x 1,5	31 - 33	70	36	50 / 50	108.0	8	33	5
52106590	40 x 1,5	33 - 34.5	70	36	50 / 50	108.0	8	35	5
52106600	50 x 1,5	31 - 34.5	75	42	57 / 57	111.0	9	35	5
52106610	50 x 1,5	32 - 38	75	42	57 / 57	111.0	9	38	5
52106620	50 x 1,5	37 - 40	75	42	57 / 57	111.0	9	40	5
52106630	63 x 1,5	32 - 40	83	48	66 / 64	118.0	10	40	1
52106640	63 x 1,5	36 - 44	83	48	66 / 64	118.0	10	44	1

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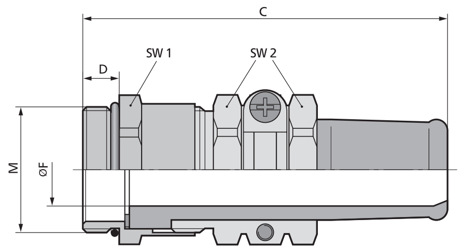
Accessories

- SKINDICHT® SM-M refer to page 763
- SKINDICHT® SNR refer to page 832

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 VITON® anti-kink sleeve. Our own reinforced acid-resistant VITON® 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 EN 50262

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

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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)	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	20 x 1,5	5.5 - 7	28	11	22 / 20	56.0	6	7	25
52105830	20 x 1,5	7.5 - 9	28	11	22 / 20	56.0	6	9	25
52105840	20 x 1,5	7.5 - 9	32	13.5	22 / 22	61.5	6	9	25
52105850	20 x 1,5	8.5 - 11	32	13.5	22 / 22	61.5	6	11	25
52105860	20 x 1,5	10.5 - 13	32	13.5	22 / 22	61.5	6	13	25
52105870	20 x 1,5	11 - 13	35	16	24 / 24	66.5	6	13	10
52105880	20 x 1,5	12 - 15	35	16	24 / 24	66.5	6	15	10
52105890	25 x 1,5	13.5 - 15	40	21	30 / 30	79.0	7	15	10
52105900	25 x 1,5	15.5 - 17	46	21	30 / 30	79.0	7	17	10
52105910	25 x 1,5	16.5 - 19	46	21	30 / 30	79.0	7	19	10

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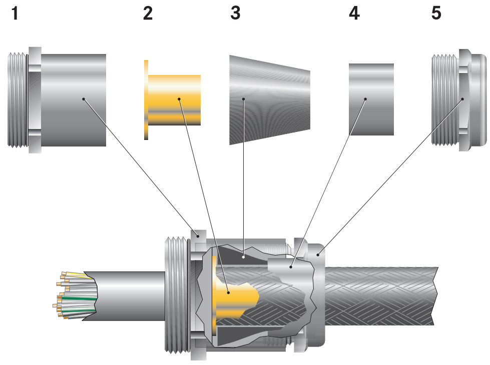
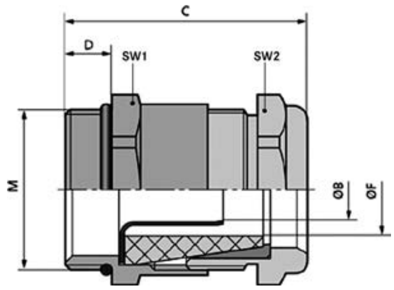
Accessories

- SKINDICHT® SM-M refer to page 763

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
- 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 5.0 Class-ID: EC000441
ETIM 5.0 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

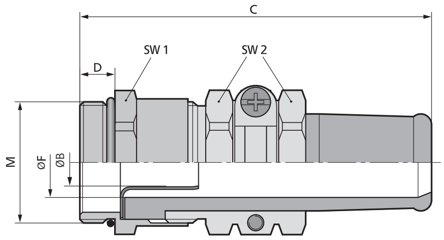
Temperature range
-20°C to +80°C

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	16 x 1,5	9	4,5 - 5,8	2,2 - 3,11	18 / 17	26.5	5	3.2	6	25
52106870	16 x 1,5	9	4,5 - 6,8	2,2 - 3,23	18 / 17	26.5	5	3.2	7	25
52106880	16 x 1,5	9	5,5 - 5,8	2,6 - 3,17	18 / 17	26.5	5	3.6	6	25
52106890	16 x 1,5	9	5,5 - 6,8	2,6 - 3,67	18 / 17	26.5	5	3.6	7	25
52106910	20 x 1,5	11	3 - 6,8	3,5 - 4,52	22 / 20	31.0	6	4.5	7	25
52106920	20 x 1,5	11	6 - 8,8	3,5 - 4,45	22 / 20	31.0	6	4.5	9	25
52106930	20 x 1,5	13.5	6,5 - 8,8	3,5 - 5	22 / 22	32.0	6	5	9	25
52106940	20 x 1,5	13.5	6 - 8,8	4,5 - 5,95	22 / 22	32.0	6	6	9	25
52106950	20 x 1,5	13.5	8 - 10,8	5,5 - 6,92	22 / 22	32.0	6	7	11	25
52106960	20 x 1,5	16	8,5 - 10,8	6 - 7,93	24 / 24	34.5	6	8	11	25
52106970	20 x 1,5	16	10 - 12,8	7 - 9	24 / 24	34.5	6	9	13	25
52106980	20 x 1,5	16	10 - 12,8	8 - 10	24 / 24	34.5	6	10	13	25
52106990	20 x 1,5	16	12,5 - 14,8	9 - 11,03	24 / 24	34.5	6	11	15	25
52107000	25 x 1,5	21	13 - 15,8	10 - 12,15	30 / 30	39.0	7	12	16	25
52107010	25 x 1,5	21	13 - 15,8	11 - 13	30 / 30	39.0	7	13	16	25
52107020	25 x 1,5	21	15,5 - 17,8	12 - 14	30 / 30	39.0	7	14	18	25
52107030	25 x 1,5	21	15 - 17,8	13 - 15	30 / 30	39.0	7	15	18	25
52107040	25 x 1,5	21	17,5 - 19,8	14 - 16	30 / 30	39.0	7	16	20	25
52107050	32 x 1,5	29	19 - 21,8	15 - 17,02	40 / 40	45.5	8	17	22	10
52107060	32 x 1,5	29	18 - 23,8	16 - 18	40 / 40	45.5	8	18	22	10
52107070	32 x 1,5	29	20 - 23,8	17 - 19	40 / 40	45.5	8	19	24	10
52107080	32 x 1,5	29	23 - 25,8	17 - 19	40 / 40	45.5	8	19	26	10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-M refer to page 763
- SKINDICHT® SM-PE-M refer to page 763

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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 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	20 x 1,5	13.5	7,5 - 9	4,5 - 6	22 / 22	59.5	6	6	9	25
52105610	20 x 1,5	13.5	9 - 11	5,5 - 7	22 / 22	59.5	6	7	11	25
52105620	20 x 1,5	16	11 - 13	7 - 9	24 / 24	64.5	6	9	13	25
52105630	20 x 1,5	16	11 - 13	8 - 10	24 / 24	64.5	6	10	13	25
52105640	20 x 1,5	16	13,5 - 15	9 - 11	24 / 24	64.5	6	11	15	25
52105650	25 x 1,5	21	13,5 - 15	10 - 12	30 / 30	78.0	7	12	15	25
52105660	25 x 1,5	21	15 - 17	12 - 14	30 / 30	78.0	7	14	17	25
52105670	25 x 1,5	21	17 - 19	13 - 15	30 / 30	78.0	7	15	19	25
52105680	25 x 1,5	21	18 - 20	14 - 16	30 / 30	78.0	7	16	20	25
52105690	32 x 1,5	29	18 - 20	15 - 17	40 / 40	90.0	8	17	20	10
52105700	32 x 1,5	29	21 - 23	17 - 19	40 / 40	90.0	8	19	23	10
52105710	40 x 1,5	36	23,5 - 26	20 - 22	50 / 50	108.0	8	22	26	5
52105720	40 x 1,5	36	27 - 30	22 - 24	50 / 50	108.0	8	24	30	5
52105730	40 x 1,5	36	30 - 33	26 - 28	50 / 50	108.0	8	28	33	5
52105740	40 x 1,5	36	32 - 35	28 - 30	50 / 50	108.0	8	30	35	5

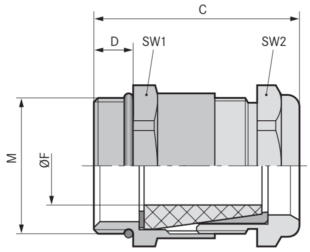
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-PE-M refer to page 763
- SKINDICHT® SNR refer to page 832

CE

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 EN 50262

Note

- 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 5.0 Class-ID: EC000441
ETIM 5.0 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

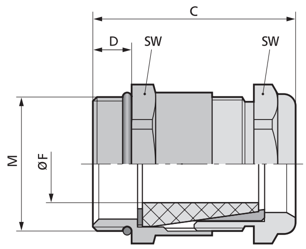
Article number	Article designation / size	Clamping range ØF (mm)	Function thread PG	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Clear opening seal	Pieces / PU
SKINDICHT® SHV-M								
52105270	12 x 1,5	3 - 4,8	7	14 / 14	26.0	5	5	50
52105280	16 x 1,5	4,5 - 5,8	9	18 / 17	26.5	5	6	50
52105290	16 x 1,5	4,5 - 6,8	9	18 / 17	26.5	5	7	50
52105300	20 x 1,5	6 - 6,8	11	22 / 20	31.0	6	7	25
52105310	20 x 1,5	6,5 - 8,8	11	22 / 20	31.0	6	9	25
52105320	20 x 1,5	6,5 - 8,8	13.5	22 / 22	32.5	6	9	25
52105330	20 x 1,5	9 - 10,8	13.5	22 / 22	32.5	6	11	25
52105340	20 x 1,5	9 - 10,8	16	24 / 24	34.5	6	11	25
52105350	20 x 1,5	9,5 - 12,8	16	24 / 24	34.5	6	13	25
52105360	20 x 1,5	13 - 14,8	16	24 / 24	34.5	6	15	25
52105370	25 x 1,5	13,5 - 15,8	21	30 / 30	38.5	7	16	25
52105380	25 x 1,5	15 - 17,8	21	30 / 30	38.5	7	18	25
52105390	25 x 1,5	17,5 - 19,8	21	30 / 30	38.5	7	20	25
52105400	32 x 1,5	17,5 - 21,8	29	40 / 40	42.5	8	22	10
52105410	32 x 1,5	19 - 23,8	29	40 / 40	42.5	8	24	10
52105420	32 x 1,5	23 - 25,8	29	40 / 40	42.5	8	26	10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 763

SKINDICHT® SHV-M-VITON®



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 VITON® sealing element
- Brickworks
- Sewage treatment plants
- Car wash sites

Product Make-up

- 1 fitting
- 2 washers
- 3 VITON® sealing cone
- 4 brass cones
- 5 compression screws

Note

- Counter nut to be used: SKINDICHT® SM-M
- Example description:
  SHV-M-Viton® 20/11/7
  20 = metric connection thread
  11 = PG function thread
  7 = clear opening of sealing cone

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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-VITON®								
52105430	12 x 1,5	3,8 - 4,8	7	14 / 14	26.0	5	5	50
52105440	16 x 1,5	4,8 - 5,8	9	18 / 17	27.5	5	6	50
52105450	16 x 1,5	5,8 - 6,8	9	18 / 17	27.5	5	7	50
52105460	20 x 1,5	5,8 - 6,8	11	22 / 20	31.0	6	7	25
52105470	20 x 1,5	6,8 - 8,8	11	22 / 20	31.0	6	9	25
52105480	20 x 1,5	8,5 - 10,8	13.5	22 / 22	32.5	6	11	25
52105490	20 x 1,5	6,8 - 8,8	13.5	22 / 22	32.5	6	9	25
52105500	20 x 1,5	10,8 - 12,8	16	24 / 24	34.5	6	13	25
52105510	20 x 1,5	13,8 - 14,8	16	24 / 24	34.5	6	15	25
52105520	25 x 1,5	15,8 - 17,8	21	30 / 30	38.0	7	18	25
52105530	25 x 1,5	17,5 - 19,8	21	30 / 30	38.0	7	20	25
52105540	32 x 1,5	19,5 - 21,8	29	40 / 40	44.5	8	22	10

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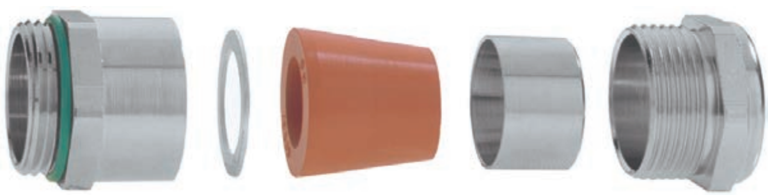
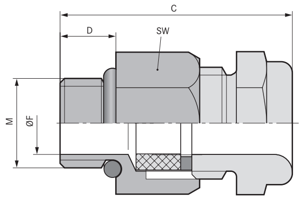
Accessories

- SKINDICHT® SM-M refer to page 763



SKINDICHT® MINI



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
- Measuring technology

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Caution
Recommendation of torque wrench
M 6 x 1 1,2 Nm
M 8 x 1 1,5 Nm

Material
Body: nickel-plated brass
Seal: CR/NBR

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
SKINDICHT® MINI						
52001860	MINI 6 x 1	2 - 3	9	19.5	5	50
52001880	MINI 8 x 1	3,5 - 5,5	11	20.5	5	50
SKINDICHT® MINI counter nut						
52102998	MINI 6 x 1	-	10	11.0	2.5	50
52102997	MINI 8 x 1	-	12	13.5	2.5	50

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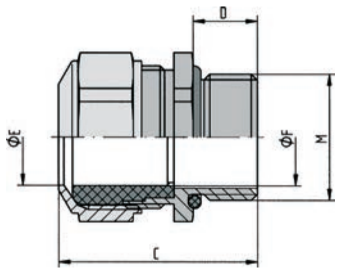
SKINDICHT® CN-M



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 VITON® 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 EN 50262

Note

- Refer to the chart to find a suitable counter-nut for SKINDICHT® SM CrNi M

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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

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	12 x 1,5/1	3,5 - 5	17	27.0	10	5
52032590	12 x 1,5/2	5 - 6,5	17	27.0	10	5
52032600	12 x 1,5/3	6,5 - 8	17	27.0	10	5
52032610	16 x 1,5	8 - 10,5	18	30.0	10	5
52032620	20 x 1,5	11 - 15	24	31.0	10	5
52032630	25 x 1,5	16 - 20,5	30	36.0	11	5
52032640	32 x 1,5	21 - 25,5	36	41.0	13	5
52032650	40 x 1,5	28,5 - 33	46	44.0	13	1
52032660	50 x 1,5	37 - 42	55	48.0	14	1
52032670	63 x 1,5	46 - 52	70	51.0	14	1
SKINDICHT® SM CrNi M counter nuts						
52032585	12 x 1,5	-	17	3.0	3	10
52032615	16 x 1,5	-	19	3.0	3	10
52032625	20 x 1,5	-	24	3.5	3.5	10
52032635	25 x 1,5	-	30	3.5	3.5	10
52032645	32 x 1,5	-	36	4.5	4.5	10
52032655	40 x 1,5	-	46	4.5	4.5	10
52032665	50 x 1,5	-	55	5.5	5.5	10
52032675	63 x 1,5	-	70	6.0	6	10

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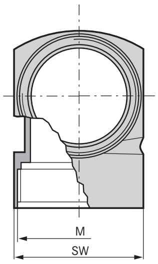
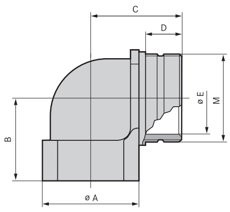
SKINDICHT® KW-M





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 EN 50262

Note
- Refer to SKINDICHT® O-ring Perbunan® 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
- In combination with SKINTOP® ST-M the degree of protection is IP 68 (acc. technical description)

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	16 x 1,5	19	21.5	11	19	24.0	13	25
52106220	20 x 1,5	25	24.5	15	25	29.5	15	25
52106230	25 x 1,5	30	28	20	30	33.5	16	25
52106240	32 x 1,5	36	31.5	26	36	38.0	17	10

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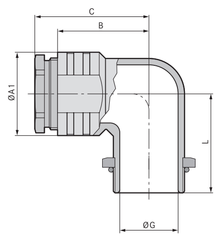
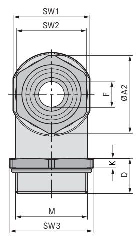
SKINDICHT® RWV-M





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 EN 50262

Note
- Counter nut to be used: SKINDICHT® SM-M

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	12 x 1,5	5	20.5	14	16	12	13.2	8	5	26.1	11.5	17	25
52107810	16 x 1,5	9 - 3	23.5	18	20	16	17.6	12	5	28.6	11.5	22	25
52107820	20 x 1,5	13 - 4	28.5	22	24	20	22.2	15	5	35.1	12.5	27	25
52107830	25 x 1,5	17.5 - 8.5	31	27	29	25	27.5	20	5	38.1	13.5	32	10
52107840	32 x 1,5	25 - 16	33	34	36	32	35.2	27	5	44.6	13.5	41	10
52107850	40 x 1,5	32 - 23	43	42	45	40	43.5	35	5	53.1	15.5	46	5

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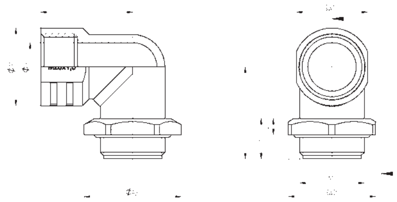
CE

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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 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	12 x 1,5	21	11.5	5	21	8	14	16	17	18.9	25
52107811	16 x 1,5	23	11.5	5	24	12	18	20	22	24.5	25
52107821	20 x 1,5	28.5	12.5	5	29	15	22	24	27	30.1	25
52107831	25 x 1,5	30	13.5	5	31	20	27	29	32	35.7	10
52107841	32 x 1,5	33.5	13.5	5	33	27	34	33.5	41	45.6	10
52107851	40 x 1,5	43	15.5	5	43	35	42	43	46	50.6	5

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CE

SKINDICHT® SE-M

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
- 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
- Drawing on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Material
Body: zinc die-casting, grey, hammer tone finish
Compression screw: 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	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

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SKINDICHT® metric plastic or metal cable glands • SKINDICHT® angle cable glands

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
- Drawing on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	20 x 1,5	31	42	42.0	10
52108011	25 x 1,5	40	60	60.0	5
52108021	32 x 1,5	51.5	66	76.0	1

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SKINDICHT® SE-M 220/320

Benefits

- 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

Note

- 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

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Material
Body: zinc die-casting, hammer tone finish
Compression screw: nickel-plated brass
Incised sealing ring: CR/NBR
Flat sealing ring: SBR

Protection rating
IP 55

Temperature range
-20°C to +80°C

- The protection class is dependent on the combination with the various special glands. The minimum standard is IP 55.
- Drawing on request

Article number	Article designation / size	Incised sealing ring ØF (mm)	Pieces / PU
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

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CE

SKINDICHT® SM-M

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 EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000940
ETIM 5.0 Class-Description: Locknut for cable screw gland

Material
Nickel-plated brass

Temperature range
-20°C to +100°C

Article number	Article designation / size	Thickness (mm)	SW wrench size mm	Outer Ø (mm)	Pieces / PU
SKINDICHT® SM-M					
52103000	12 x 1,5	3.0	15	16.5	100
52103010	16 x 1,5	3.0	19	20.9	100
52103020	20 x 1,5	3.5	24	26.4	100
52103030	25 x 1,5	4.0	30	33.0	100
52103040	32 x 1,5	4.0	36	39.6	100
52103050	40 x 1,5	5.0	46	50.6	50
52103060	50 x 1,5	5.0	60	65.0	50
52103070	63 x 1,5	5.0	70	77.0	25
52103071	75 x 1,5	8.0	85	95.0	5
52103072	90 x 2	10.0	102	114.0	1
52103073	110 x 2	12.0	124	135.0	1

Photographs are not to scale and do not represent detailed images of the respective products.

CE

SKINDICHT® SM-PE-M

Benefits

- 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

- For lacquered, anodised or powder-coated housings.

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000940
ETIM 5.0 Class-Description: Locknut for cable screw gland

Material
Nickel-plated brass

Temperature range
-20°C to +100°C

Article number	Article designation / size	Thickness (mm)	SW wrench size mm	Outer Ø (mm)	Pieces / PU
SKINDICHT® SM-PE-M					
52103300	12 x 1,5	3.5	15	16.5	100
52103310	16 x 1,5	3.5	19	20.9	100
52103320	20 x 1,5	3.7	24	26.4	100
52103330	25 x 1,5	4.2	30	33.0	50
52103340	32 x 1,5	4.7	36	39.6	50
52103350	40 x 1,5	5.5	46	50.6	25
52103360	50 x 1,5	5.5	60	66.0	10
52103370	63 x 1,5	7.0	70	77.0	10
52103371	75 x 1,5	8.0	85	95.0	5
52103372	90 x 2	10.0	102	114.0	1
52103373	110 x 2	12.0	124	135.0	1

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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 EN 50262

Note

SKINDICHT® BLK-M
- Drawing on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000032
ETIM 5.0 Class-Description:
Plug for cable screw gland

On request
SKINDICHT® BLK-M
BLK-M with O-ring,
black RAL 9005

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	12 x 1,5	6	100
52006610	16 x 1,5	6	100
52006620	20 x 1,5	6	100
52006630	25 x 1,5	8	100
52006640	32 x 1,5	8	50
52006650	40 x 1,5	8	25
52006660	50 x 1,5	10	25
52006670	63 x 1,5	12	25
SKINDICHT® BLK-GL-M silver-grey			
52006101	12 x 1,5	6	100
52006111	16 x 1,5	6	100
52006121	20 x 1,5	6	100
52006131	25 x 1,5	8	100
52006141	32 x 1,5	8	50
52006151	40 x 1,5	8	25
52006161	50 x 1,5	10	25
52006171	63 x 1,5	12	25
SKINDICHT® BLK-GL-M light grey			
52006100	12 x 1,5	6	100
52006110	16 x 1,5	6	100
52006120	20 x 1,5	6	100
52006130	25 x 1,5	8	100
52006140	32 x 1,5	8	50
52006150	40 x 1,5	8	25
52006160	50 x 1,5	10	25
52006170	63 x 1,5	12	25
SKINDICHT® BLK-GL-M black			
52006103	12 x 1,5	6	100
52006113	16 x 1,5	6	100
52006123	20 x 1,5	6	100
52006133	25 x 1,5	8	100
52006143	32 x 1,5	8	50
52006153	40 x 1,5	8	25
52006163	50 x 1,5	10	25
52006173	63 x 1,5	12	25

Article number	Article designation / size	Thread length, D (mm)	Pieces / PU
SKINDICHT® BLK-GL-M silver-grey mounted with O-ring			
52006109	12 x 1,5	6	100
52006119	16 x 1,5	6	100
52006129	20 x 1,5	6	100
52006139	25 x 1,5	8	100
52006149	32 x 1,5	8	50
52006159	40 x 1,5	8	25
52006169	50 x 1,5	10	25
52006179	63 x 1,5	12	25
SKINDICHT® BLK-GL-M light grey mounted with O-ring			
52006107	12 x 1,5	6	100
52006117	16 x 1,5	6	100
52006127	20 x 1,5	6	100
52006137	25 x 1,5	8	100
52006147	32 x 1,5	8	50
52006157	40 x 1,5	8	25
52006167	50 x 1,5	10	25
52006177	63 x 1,5	12	25
SKINDICHT® BLK-GL-M black mounted with O-ring			
52006106	12 x 1,5	6	100
52006116	16 x 1,5	6	100
52006126	20 x 1,5	6	100
52006136	25 x 1,5	8	100
52006146	32 x 1,5	8	50
52006156	40 x 1,5	8	25
52006166	50 x 1,5	10	25
52006176	63 x 1,5	12	25

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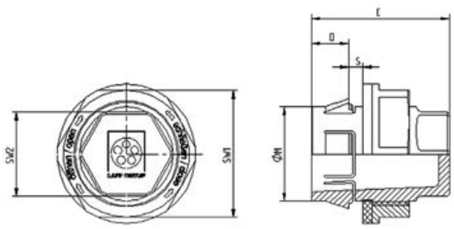
NEW

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

Included

- Included: disassembly tool

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 / 22	28.5	8	1.0 - 4.0	50
52109014	CLICK BLK 20	20.3 (-0.2)	18 / 27	29.5	8	1.0 - 4.0	25
52109015	CLICK BLK 25	25.3 (-0.2)	22 / 14	30.5	8	1.0 - 4.0	25

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LAPP GROUP

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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 EN 50262

Note
- Drawing on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000032
ETIM 5.0 Class-Description:
Plug for cable screw gland

On request
Fitted with FKM O-ring

Material
Body: nickel-plated brass
Sea water-resistant

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	12 x 1,5	14.0	100
52103110	16 x 1,5	18.0	100
52103120	20 x 1,5	22.0	100
52103130	25 x 1,5	28.0	100
52103140	32 x 1,5	35.0	50
52103150	40 x 1,5	44.0	25
52103160	50 x 1,5	54.0	10
52103170	63 x 1,5	70.0	10
SKINDICHT® BL-M with O-ring			
52103105	12 x 1,5	14.0	100
52103115	16 x 1,5	18.0	100
52103125	20 x 1,5	22.0	100
52103135	25 x 1,5	28.0	100
52103145	32 x 1,5	35.0	50
52103155	40 x 1,5	44.0	25
52103165	50 x 1,5	54.0	10
52103175	63 x 1,5	70.0	10
52103190	75 x 1,5	80.0	1

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SKINDICHT® BL-M hexagonal

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 EN 50262

Note
- Dummy plug made of chromium nickel steel on request

Technical data
Classification
ETIM 5.0 Class-ID: EC000032
ETIM 5.0 Class-Description: Plug for cable screw gland

On request
VITON® 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	12 x 1,5	16	17.8	50
52103415	16 x 1,5	20	22.0	50
52103425	20 x 1,5	24	26.4	50
52103435	25 x 1,5	29	31.9	50
52103445	32 x 1,5	36	39.6	25
52103455	40 x 1,5	45	49.5	25
52103465	50 x 1,5	54	59.0	10
52103475	63 x 1,5	67	73.5	10

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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 EN 50262

Technical data
Classification
ETIM 5.0 Class-ID: EC000032
ETIM 5.0 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 - 10 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	12 x 1,5	16	5	17.8	50
52103113	16 x 1,5	20	5	22.0	50
52103123	20 x 1,5	24	6	26.4	50
52103133	25 x 1,5	29	7	31.9	50
52103143	32 x 1,5	36	8	39.6	25
52103153	40 x 1,5	45	8	49.5	25
52103163	50 x 1,5	54	9	59.0	10
52103173	63 x 1,5	67	10	73.5	10

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NEW

SKINDICHT® VENT STAINLESS STEEL

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
- Simple installation in devices (e.g. cabinet)
- Manufacturing of control cabinets and equipment
- Measuring technology

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
- Drawing on request

Technical data

ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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
IP 66
IP 67 - 0,1 bar
IP 68 - 1 bar (just standard type with flat sealing)

Temperature range
Fixed: -40°C to +100°C

Article number	Article designation / size	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
Not certified version				
51730204	SKINDICHT® VENT CN 12x1,5	21.0	10	10
cURus certified version				
51730205	SKINDICHT® VENT CN 12x,15 plus	21.0	10	10

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NEW

SKINDICHT® VENT PLASTIC

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
- Simple installation in devices (e.g. cabinet)
- Manufacturing of control cabinets and equipment
- Measuring technology

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
- Drawing on request

Technical data

ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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
IP 66
IP 67 - 0,1 bar
IP 68 - 1 bar (just standard type with flat sealing)

Temperature range
Fixed: -40°C to +100°C

Article number	Article designation / size	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
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
Not certified version				
51730200	SKINDICHT® VENT 12x1,5 BK	17.3	10	25
51730202	SKINDICHT® VENT 12x1,5 LGY	17.3	10	25

Photographs 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 EN 50262

Note
- Drawing on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 light grey				
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 are not to scale and do not represent detailed images of the respective products.

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 EN 50262

Note
- Drawing on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	Overall length, C (mm)	Thread length, D (mm)	Outer Ø (mm)	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
SKINDICHT® MR-M, blank brass						
52006579	80 x 2	75 x 1.5	19.0	12	86.0	1
SKINDICHT® MR-M, nickel-plated brass						
52006575	72 x 2	63 x 1.5	19.0	12	78.0	1

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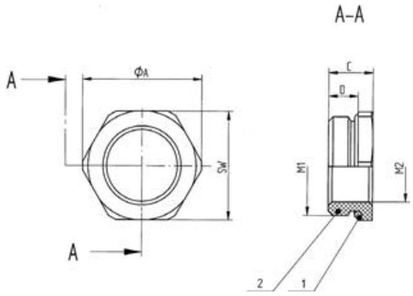
NEW

SKINDICHT® MR-M hexagonal



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 EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

On request
VITON® 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	Buiten ø (mm)	Overall length, C (mm)	Thread length, D (mm)	Outer Ø (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								
52006572	80 x 2	63 x 1.5	85		23.0	15	93.5	1

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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 EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 60079-7
DIN 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)	Thread length, D (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® MR-M ATEX						
52104570	16 x 1.5	12 x 1.5	10.5	5	19.0	50
52104571	20 x 1.5	16 x 1.5	13	6	24.5	50
52104572	25 x 1.5	20 x 1.5	15	7	30.1	25
52104573	32 x 1.5	25 x 1.5	16.5	8	37.2	25
52104574	40 x 1.5	32 x 1.5	16.5	8	45.6	10
52104575	50 x 1.5	40 x 1.5	19.5	10	55.3	5
52104576	63 x 1.5	50 x 1.5	18.5	8.5	71.3	5

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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 EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

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 EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

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 EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 60079-7
DIN 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 are not to scale and do not represent detailed images of the respective products.

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 EN 50262

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

On request
with O-ring fitted

Material
Nickel-plated brass

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 are not to scale and do not represent detailed images of the respective products.

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 EN 50262

Note
- SKINDICHT® ZS-M-XL offers a long metric connection thread

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Material
Nickel-plated brass

Article number	Thread, male M1	Thread, female PG/NPT	SW wrench size mm	Outer thread length (mm)	Pieces / PU
SKINDICHT® ZS-M					
52104330	12 x 1.5	7	14	5	100
52104340	16 x 1.5	9	18	5	100
52104010	16 x 1.5	11	20	5	100
52104360	20 x 1.5	11	22	6	100
52104370	20 x 1.5	13.5	22	6	100
52104380	20 x 1.5	16	24	6	50
52104400	25 x 1.5	21	30	7	50
52104410	32 x 1.5	29	40	8	25
52104420	40 x 1.5	36	50	8	10
52104430	50 x 1.5	42	57	9	10
52104440	63 x 1.5	48	66	10	10
SKINDICHT® ZS-M-XL					
52104335	12 x 1.5	7	14	10	100
52104345	16 x 1.5	9	18	10	100
52104365	20 x 1.5	11	22	10	100
52104375	20 x 1.5	13.5	22	10	100
52104385	20 x 1.5	16	24	10	50
52104405	25 x 1.5	21	30	11	50
52104415	32 x 1.5	29	40	13	25
52104425	40 x 1.5	36	50	13	10
52104435	50 x 1.5	42	57	14	10
52104445	63 x 1.5	48	66	14	10

Photographs are not to scale and do not represent detailed images of the respective products.

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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Material
Body: nickel-plated brass

Article number	Thread, male M1	Thread, female PG/NPT	SW wrench size mm	Outer thread length (mm)	Pieces / PU
SKINDICHT® ZSE-M					
52106000	12 x 1.5	7	14	5	100
52106010	16 x 1.5	9	18	5	100
52106020	20 x 1.5	11	22	6	100
52106030	20 x 1.5	13.5	22	6	100
52106040	20 x 1.5	16	24	6	50
52104050	20 x 1.5	21	30	8	50
52106050	25 x 1.5	21	30	7	50
52106060	32 x 1.5	29	40	8	25
52106070	40 x 1.5	36	50	8	10
52106080	50 x 1.5	42	57	9	10
52106090	63 x 1.5	48	66	10	10
SKINDICHT® ZSE-M-XL					
52106005	12 x 1.5	7	14	10	100
52106015	16 x 1.5	9	18	10	100
52106025	20 x 1.5	11	22	13	100
52106035	20 x 1.5	13.5	22	13	100
52106045	20 x 1.5	16	24	13	50
52106055	25 x 1.5	21	30	13	50
52106065	32 x 1.5	29	40	13	25

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SKINDICHT® D-M

Application range

- SKINDICHT® D-M compression screws with thread in accordance with EN 50262.

Technical data

Classification
ETIM 5.0 Class-ID: EC000814
ETIM 5.0 Class-Description: Threaded bush

Material
Nickel-plated brass

Article number	Article designation / size	SW wrench size mm	Pieces / PU
SKINDICHT® D-M			
52100600	12 x 1,5	12	100
52100601	16 x 1,5	16	100
52100602	20 x 1,5	20	100
52100603	25 x 1,5	25	50
52100604	32 x 1,5	32	25
52100605	40 x 1,5	40	25
52100606	50 x 1,5	50	10
52100607	63 x 1,5	65	10

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SKINDICHT® U-M / U-PG

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 5.0 Class-ID: EC000098
ETIM 5.0 Class-Description: Washer

Material
Steel, galvanized

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

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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 5.0 Class-ID: EC001181
ETIM 5.0 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	14.0	50
52100627	E-M 63	60.60 x 36/39/42/45	14.0	50

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SKINDICHT® O-Ring Perbunan® 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-M12/16/20 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 5.0 Class-ID: EC001181
ETIM 5.0 Class-Description: Sealing ring

Colour delivered
Black

Material
NBR
Ozone and UV-resistant
silicone-free

Temperature range
-30°C to +100°C

Article number	Article designation / size	Inner Ø (mm)	Cable thickness (mm)	Pieces / PU
SKINDICHT® O-Ring Perbunan®				
53102001	O M 12 x 1,5	9.0	1.5	100
53102000	O M 12 x 2,0	9.0	2	100
53102010	O M 16 x 2,0	13.0	2	100
53102021	O M 20 x 1,5	17.0	1.5	100
53102020	O M 20 x 2,0	17.0	2	100
53102030	O M 25 x 2,0	22.0	2	100
53102040	O M 32 x 2,0	28.0	2	50
53102050	O M 40 x 2,0	36.0	2	50
53102060	O M 50 x 2,0	46.0	2	25
53102070	O M 63 x 2,0	57.0	2	25

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SKINDICHT® O-ring VITON® 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 5.0 Class-ID: EC001181
ETIM 5.0 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 VITON® metric				
52122000	OV M 12 x 2,0	9.0	2	100
52122001	OV M 12 x 1,5	9.0	1.5	100
52122010	OV M 16 x 2,0	13.0	2	100
52122020	OV M 20 x 2,0	17.0	2	100
52122021	OV M 20 x 1,5	17.0	1.5	100
52122030	OV M 25 x 2,0	22.0	2	100
52122040	OV M 32 x 2,0	28.0	2	50
52122050	OV M 40 x 2,0	36.0	2	50
52122060	OV M 50 x 2,0	46.0	2	25
52122070	OV M 63 x 2,0	57.0	2	25

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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 5.0 Class-ID: EC001181
ETIM 5.0 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	JT M 12	12.1	2.0	16.6	100
53801040	JT M 16	16.1	2.0	21.1	100
53801050	JT M 20	20.1	2.0	27.5	100
53801060	JT M 25	25.1	3.0	33.4	50
53801070	JT M 32	32.1	3.0	40.3	50
53801080	JT M 40	40.2	3.0	51.5	25
53801090	JT M 50	50.2	3.0	61.6	25
53801100	JT M 63	63.2	3.0	73.9	25

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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 EN 50262

Technical data
Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
PE

Protection rating
IP 54

Article number	Article designation / size	Opening (mm)	SW wrench size mm	Thread length, D (mm)	Outer Ø (mm)	Pieces / PU
SKINDICHT® WN-M						
52020513	16 x 1,5	5 - 10	15	10	20.0	200
52020523	20 x 1,5	8 - 13.5	19	12	24.0	200
52020533	25 x 1,5	9 - 16	24	12	28.0	100
52020543	32 x 1,5	11 - 22	30	14	37.0	50
52020553	40 x 1,5	17 - 34	37	16	45.0	50
52020563	50 x 1,5	22 - 35	46	18	55.5	20
52020573	63 x 1,5	24 - 43	56	20	68.5	10

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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 5.0 Class-ID: EC000879
ETIM 5.0 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 - 9	2.5	16	9	50
52105030	DTN 2	7 - 12	2.5	19	12	50
52105040	DTN 3	12 - 17.5	2.5	25	18	50
52105050	DTN 4	18 - 23	2.5	32	25	25
52105060	DTN 5	25 - 29	3.0	38	32	25

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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 5.0 Class-ID: EC000879
ETIM 5.0 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

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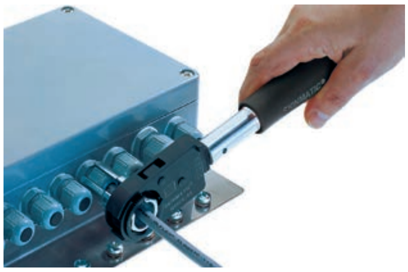
SKINMATIC® mounting tools • SKINMATIC® metric mounting tools

NEW

SKINMATIC® QUICK Set 1





Benefits
- Easy installation by 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 N 15 PA M 12
- Open nut N 16 MS M 12
- Open nut N 19 PA M 16
- Open nut N 20 (extension) MS M 16
- Open nut N 25 PA M 20 / MS M 20
- Open nut N 30 PA M 25 / MS M 25

Technical data
Classification
ETIM 5.0 Class-ID: EC000149
ETIM 5.0 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 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:
- SW 16/20 mm (M12/M16)
- SW 24/29 mm (M20/M25)
- SW 36/45 mm (M32/M40)

Technical data
Classification
ETIM 5.0 Class-ID: EC000149
ETIM 5.0 Class-Description: Tool set

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

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Photographs are not to scale and do not represent detailed images of the respective products.

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

Classification
ETIM 5.0 Class-ID: EC000945
ETIM 5.0 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	12 x 1,5	30	130.0	1
61791275	16 x 1,5	35	150.0	1
61791276	20 x 1,5	40	165.0	1
61791277	25 x 1,5	45	185.0	1
SKINMATIC® SB-M				
61791278	32 x 1,5	180	301.0	1
61791279	40 x 1,5	200	349.0	1
61791280	50 x 1,5	220	369.0	1
SKINMATIC® GB-M				
61791282	32 x 1,5	28	150.0	1
61791283	40 x 1,5	28	170.0	1
61791284	50 x 1,5	32	190.0	1

Not subjected to RoHS directive.
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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 mounting of cable and conduit glands
- Suitable for polyamide and brass 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

Classification
ETIM 5.0 Class-ID: EC002132
ETIM 5.0 Class-Description: Momentum wrench

Article number	Article designation / size	Width of flat surface (mm)	Overall length (mm)	Pieces / PU
SKINMATIC® RZ				
61791260	SKINMATIC® RZ	14 - 33	250.0	1

Not subjected to RoHS directive.
Photographs are not to scale and do not represent detailed images of the respective products.

SKINTOP® NPT

Benefits
- Conical NPT thread
- Permanent vibration protection
- Optimum strain relief
- Wide, variable clamping ranges
- Maximum reliability

Application range
- Used in areas where cables and wires need to be safely inserted into housings
- Machine and equipment manufacturing
- Automation technology
- Devices
- Housings

Norm references / Approvals
- UL File Nr. E79903

Product Make-up
- NPT connection thread acc. to ANSI B1.20.2 - 1983

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

Product Make-up
- SKINTOP® STR NPT is equipped with a reduction seal insert to seal cables and wires with small outer diameters.

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 silver grey						
53016010	ST 3/8 NPT"	3,5 - 8	19	43.0	15	100
53016030	ST 1/2 NPT"	5 - 12	24	45.0	15	100
53016050	ST 3/4 NPT"	13 - 18	33	53.0	15	50
53016060	ST 1 NPT"	19 - 25,4	42	60.0	15	25
SKINTOP® ST black						
53016210	ST 3/8 NPT"	3,5 - 8	19	43.0	15	100
53016230	ST 1/2 NPT"	5 - 12	24	45.0	15	100
53016250	ST 3/4 NPT"	13 - 18	33	53.0	15	50
53016260	ST 1 NPT"	19 - 25,4	42	60.0	15	25
SKINTOP® STR silver grey						
53016110	STR 3/8 NPT"	2 - 6	19	43.0	15	100
53016130	STR 1/2 NPT"	4 - 9	24	45.0	15	100
53016150	STR 3/4 NPT"	9 - 16	33	53.0	15	50
SKINTOP® STR black						
53016310	STR 3/8 NPT"	2 - 6	19	43.0	15	100
53016330	STR 1/2 NPT"	4 - 9	24	45.0	15	100
53016350	STR 3/4 NPT"	9 - 16	33	53.0	15	50
SKINTOP® BS silver grey						
53016610	BS 3/8 NPT"	3,5 - 8	19	82.0	15	100
53016630	BS 1/2 NPT"	5 - 12	24	104.0	15	100
53016650	BS 3/4 NPT"	13 - 18	33	133.0	15	50
SKINTOP® BS black						
53016810	BS 3/8 NPT"	3,5 - 8	19	82.0	15	100
53016830	BS 1/2 NPT"	5 - 12	24	104.0	15	100
53016850	BS 3/4 NPT"	13 - 18	33	133.0	15	50

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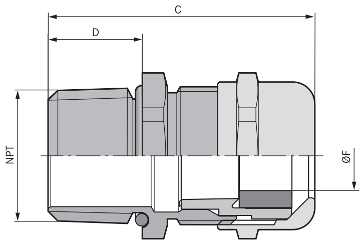
SKINTOP® MS NPT



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 ANSI B1.20.2 - 1983

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

Product Make-up
- SKINTOP® MSR NPT is equipped with a reduction seal insert to seal cables and wires with small outer diameters

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: 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	1/4”	3,5 - 7	16	36.0	15	100
53112014	3/8”	4,5 - 10	20	39.7	15	100
53112024	1/2”	7 - 13	24	42.5	15	50
53112034	3/4”	9 - 17	29	44.5	15	25
53112044	1”	11 - 21	36	49.0	15	25
53112054	1 1/4”	19 - 28	45	57.5	17	10
53112064	1 1/2”	27 - 35	54	61.5	17	5
53112074	2”	34 - 45	67	63.5	17	5
SKINTOP® MSR-NPT						
53112006	1/4”	1 - 5	16	36.0	15	100
53112016	3/8”	2 - 7	20	39.7	15	100
53112026	1/2”	5 - 10	24	42.5	15	50
53112036	3/4”	6 - 13	29	44.5	15	25
53112046	1”	7 - 15	36	49.0	15	25
53112056	1 1/4”	15 - 23	45	57.5	17	10
53112066	1 1/2”	22 - 29	54	61.5	17	5
53112076	2”	28 - 39	67	63.5	17	5

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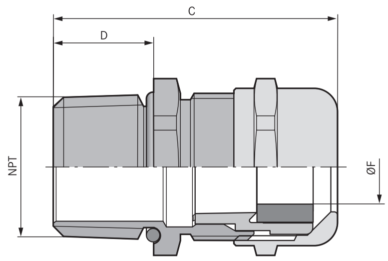
ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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 ANSI B1.20.2 - 1983

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: 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	3/8”	4,5 - 10	20	39.7	15	100
53112920	1/2”	7 - 13	24	42.5	15	50
53112930	3/4”	9 - 17	29	44.5	15	25
53112940	1”	11 - 21	36	49.0	15	25
53112950	1 1/4”	19 - 28	45	57.5	17	10
53112960	1 1/2”	27 - 35	54	61.5	17	5

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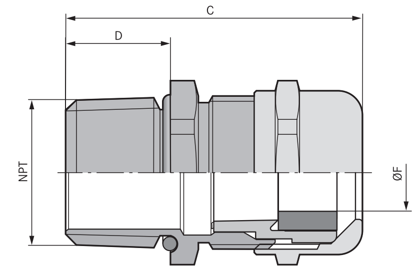
SKINTOP® MS-NPT BRUSH



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 ANSI B1.20.2 - 1983

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Material
Body: nickel-plated brass
EMC brush: brass
Sealing ring: special elastomer
O-ring: special 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	3/4”	9 - 17	29	43.0	15	10
53112047	1”	11 - 21	36	48.0	15	1
53112057	1 1/4”	19 - 28	45	57.5	17	1
53112067	1 1/2”	27 - 35	54	59.0	17	1
53112077	2”	34 - 45	67	63.0	17	1
53112087	2” plus	44 - 55	75	72.0	17	1

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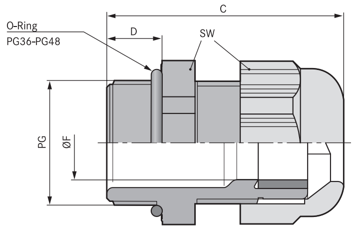
SKINTOP® PG polyamide cable glands • Easy to install

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
- Used in areas where cables and wires need to be safely inserted into housings
- 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
- PG connection thread

Note
- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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
IP 68 - 5 bar

Temperature range
SKINTOP® ST
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 silver grey						
53015000	ST 7	2,5 - 6,5	15	32.0	8	100
53015010	ST 9	3,5 - 8	19	36.0	8	100
53015020	ST 11	4 - 10	22	38.0	8	100
53015030	ST 13,5	6 - 12	24	41.0	9	100
53015040	ST 16	9 - 14	27	44.0	10	50
53015050	ST 21	13 - 18	33	49.0	11	50
53015060	ST 29	14 - 25	42	56.0	11	25
53015070	ST 36	24 - 32	53	66.0	13	10
53015080	ST 42	35 - 38	60	68.0	13	5
53015090	ST 48	39 - 44	65	69.0	14	5
SKINTOP® ST black						
53015200	ST 7	2,5 - 6,5	15	32.0	8	100
53015210	ST 9	3,5 - 8	19	36.0	8	100
53015220	ST 11	4 - 10	22	38.0	8	100
53015230	ST 13,5	6 - 12	24	41.0	9	100
53015240	ST 16	9 - 14	27	44.0	10	50
53015250	ST 21	13 - 18	33	49.0	11	50
53015260	ST 29	14 - 25	42	56.0	11	25
53015270	ST 36	24 - 32	53	66.0	13	10
53015280	ST 42	35 - 38	60	68.0	13	5
53015290	ST 48	39 - 44	65	69.0	14	5
SKINTOP® ST light grey						
53018000	ST 7	2,5 - 6,5	15	32.0	8	100
53018010	ST 9	3,5 - 8	19	36.0	8	100
53018020	ST 11	4 - 10	22	38.0	8	100
53018030	ST 13,5	6 - 12	24	41.0	9	100
53018040	ST 16	9 - 14	27	44.0	10	50
53018050	ST 21	13 - 18	33	49.0	11	50
53018060	ST 29	14 - 25	42	56.0	11	25
53018070	ST 36	24 - 32	53	66.0	13	10
53018080	ST 42	35 - 38	60	68.0	13	5
53018090	ST 48	39 - 44	65	69.0	14	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® STR silver grey						
53015100	STR 7	1,5 - 5	15	32.0	8	100
53015110	STR 9	2 - 6	19	36.0	8	100
53015120	STR 11	2 - 7	22	38.0	8	100
53015130	STR 13,5	4 - 9	24	41.0	9	100
53015140	STR 16	6 - 12	27	44.0	10	50
53015150	STR 21	9 - 16	33	49.0	11	50
53015160	STR 29	11 - 20	42	56.0	11	25
53015170	STR 36	17 - 26	53	66.0	13	10
53015180	STR 42	22 - 31	60	68.0	13	5
53015190	STR 48	26 - 35	65	69.0	14	5
SKINTOP® STR black						
53015300	STR 7	1,5 - 5	15	32.0	8	100
53015310	STR 9	2 - 6	19	36.0	8	100
53015320	STR 11	2 - 7	22	38.0	8	100
53015330	STR 13,5	4 - 9	24	41.0	9	100
53015340	STR 16	6 - 12	27	44.0	10	50
53015350	STR 21	9 - 16	33	49.0	11	50
53015360	STR 29	11 - 20	42	56.0	11	25
53015370	STR 36	17 - 26	53	66.0	13	10
53015380	STR 42	22 - 31	60	68.0	13	5
53015390	STR 48	26 - 35	65	69.0	14	5
SKINTOP® STR light grey						
53018100	STR 7	1,5 - 5	15	32.0	8	100
53018110	STR 9	2 - 6	19	36.0	8	100
53018120	STR 11	2 - 7	22	38.0	8	100
53018130	STR 13,5	4 - 9	24	41.0	9	100
53018140	STR 16	6 - 12	27	44.0	10	50
53018150	STR 21	9 - 16	33	49.0	11	50
53018160	STR 29	11 - 20	42	56.0	11	25
53018170	STR 36	17 - 26	53	66.0	13	10
53018180	STR 42	22 - 31	60	68.0	13	5
53018190	STR 48	26 - 35	65	69.0	14	5

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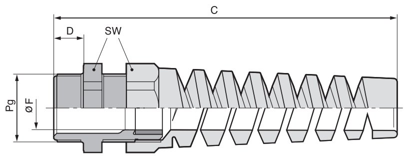
SKINTOP® PG polyamide cable glands • SKINTOP® bending protection

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

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 5.0 Class-ID: EC000441
ETIM 5.0 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 silver grey						
53015600	BS 7	2,5 - 6,5	15	62.0	8	100
53015610	BS 9	3,5 - 8	19	73.5	8	100
53015620	BS 11	4 - 10	22	86.0	8	100
53015630	BS 13,5	6 - 12	24	98.0	9	50
53015640	BS 16	9 - 14	27	111.5	10	25
53015650	BS 21	13 - 18	33	129.0	11	25
SKINTOP® BS black						
53015800	BS 7	2,5 - 6,5	15	62.0	8	100
53015810	BS 9	3,5 - 8	19	73.5	8	100
53015820	BS 11	4 - 10	22	86.0	8	100
53015830	BS 13,5	6 - 12	24	98.0	9	50
53015840	BS 16	9 - 14	27	111.5	10	25
53015850	BS 21	13 - 18	33	129.0	11	25

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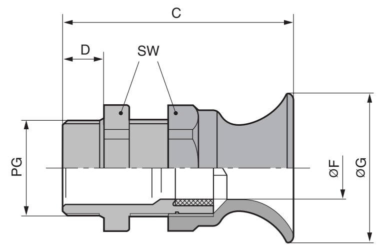
SKINTOP® BT



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

Note
- Refer to SKINTOP® PG accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	9	3,5 - 8	19	42.9	8	100
53015420	11	4 - 10	22	47.7	8	100
53015430	13,5	5 - 12	24	52.0	9	50
53015440	16	9 - 14	27	55.9	10	50
53015450	21	13 - 18	33	64.4	11	50

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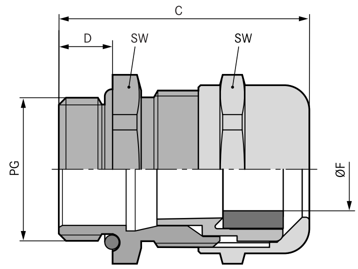
SKINTOP® PG nickel-plated brass cable glands • Easy to install

SKINTOP® MS / SKINTOP® MSR



Benefits
- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges

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

Note
- Counter nut to be used: SKINDICHT® SM
- Refer to SKINTOP® PG accessories for suitable accessories

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: 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	MS 7	2 - 6.5	14	25.0	5	100
52015710	MS 9	4 - 8	17	29.0	6	100
52015720	MS 11	4 - 10	20	32.0	6	50
52015730	MS 13,5	5 - 12	22	34.0	6.5	50
52015740	MS 16	8 - 14	24	35.0	6.5	50
52015750	MS 21	11 - 18	30	40.0	7	25
52015760	MS 29	16 - 25	40	48.0	8	25
52015765	MS 36	19 - 32	50	62.0	15	10
52015766	MS 42	28 - 38	57	62.0	15	5
52015767	MS 48	34 - 44	64	62.0	15	5
SKINTOP® MSR						
52015770	MSR 7	2 - 5	14	25.0	5	100
52015780	MSR 9	2 - 6	17	29.0	6	100
52015790	MSR 11	3 - 7	20	32.0	6	50
52015800	MSR 13,5	4 - 9	22	34.0	6.5	50
52015810	MSR 16	6 - 13	24	35.0	6.5	50
52015820	MSR 21	8 - 16	30	40.0	7	25
52015830	MSR 29	10.5 - 20	40	48.0	8	25
52015831	MSR 36	19 - 26	50	62.0	15	10
52015832	MSR 42	24 - 31	57	62.0	15	5
52015833	MSR 48	28 - 35	64	62.0	15	5

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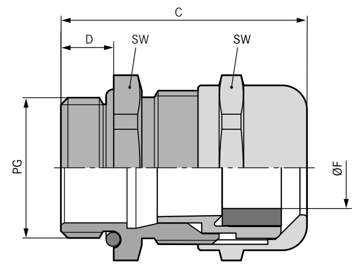
SKINTOP® MS-XL / SKINTOP® MSR-XL



Benefits

- Especially for thick walls
- Maximum reliability
- Wide, variable clamping ranges
- Optimum strain relief

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

Note

- Counter nut to be used: SKINDICHT® SM
- Refer to SKINTOP® PG accessories for suitable accessories

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: 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	MS 7 XL	2 - 6.5	14	32.0	12	100
52115710	MS 9 XL	4 - 8	17	35.0	12	100
52115720	MS 11 XL	4 - 10	20	38.0	12	50
52115730	MS 13,5 XL	5 - 12	22	39.5	12	50
52115740	MS 16 XL	8 - 14	24	40.5	12	50
52115750	MS 21 XL	11 - 18	30	45.0	12	25
52115760	MS 29 XL	16 - 25	40	52.0	15	25
SKINTOP® MSR-XL						
52115770	MSR 7	2 - 5	14	32.0	12	100
52115780	MSR 9	2 - 6	17	35.0	12	100
52115790	MSR 11	3 - 7	20	38.0	12	50
52115800	MSR 13,5	4 - 9	22	39.5	12	50
52115810	MSR 16	6 - 13	24	40.5	12	50
52115820	MSR 21	8 - 16	30	45.0	12	25
52115830	MSR 29	10.5 - 20	40	52.0	15	25

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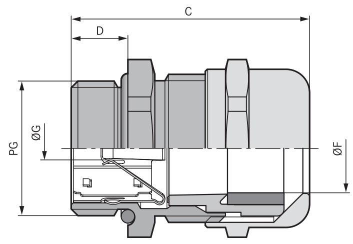
SKINTOP® PG nickel-plated brass cable glands • Easy to install

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

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 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: 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)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-SC				
53112210	MS-SC 9	3 - 8	6	50
53112220	MS-SC 11	4 - 10	6	50
53112230	MS-SC 13,5	5 - 12	6.5	25
53112240	MS-SC 16	8 - 14	6.5	25
53112250	MS-SC 21	11 - 17.5	7	25
53112260	MS-SC 29	16 - 25	8	10
53112270	MS-SC 36	19 - 32	15	5
SKINTOP® MS-SC XL				
53112310	MS-SC XL 9	3 - 8	12	50
53112320	MS-SC XL 11	4 - 10	12	50
53112330	MS-SC XL 13,5	5 - 12	12	25
53112340	MS-SC XL 16	8 - 14	12	25
53112350	MS-SC XL 21	11 - 17.5	12	25
53112360	MS-SC XL 29	16 - 25	15	10

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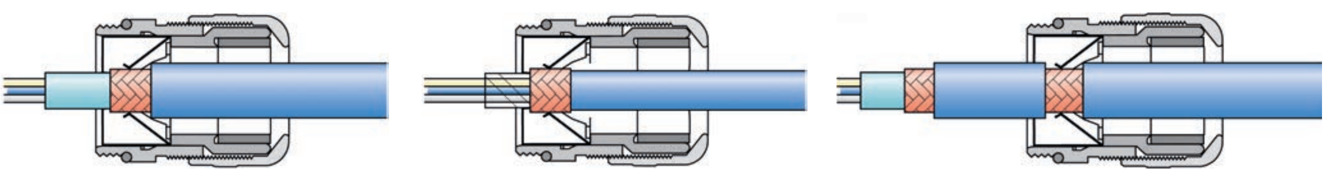
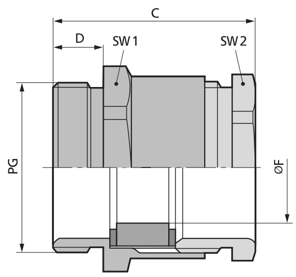
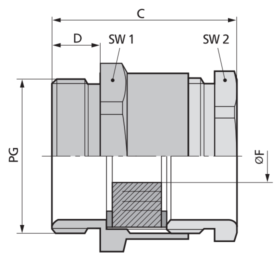


SKINDICHT® SVRN / SKINDICHT® SVRE



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 5.0 Class-ID: EC000441
ETIM 5.0 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 VITON® 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 / 13	20.6	5	100
52020300	SVRN 7006/N		7	6	14 / 13	20.6	5	100
52020310	SVRN 7007/N		7	7	14 / 13	20.6	5	100
52020320	SVRN 9007/N		9	7	17 / 15	22.6	6	100
52020330	SVRN 9008/N		9	8	17 / 15	22.6	6	100
52000220	SVRN 9009/N		9	9	17 / 15	22.6	6	100
52020341	SVRN 11010/N		11	10	20 / 18	23.6	6	50
52000240	SVRN 13011/N		13.5	11	22 / 20	26.1	6.5	50
52000241	SVRN 13012/N		13.5	12	22 / 20	26.1	6.5	50
52000251	SVRN 16014/N		16	14	24 / 22	27.1	6.5	50
52000260	SVRN 21018/N		21	18	30 / 28	29.6	7	50
52000270	SVRN 29027/N		29	27	40 / 37	32.6	8	50
52000280	SVRN 36034/N		36	34	50 / 47	38.6	9	20
SKINDICHT® SVRE								
52005540	SVRE 9	5/8			17 / 15	22.6	6	100
52000310	SVRE 11	7/10/12.5			20 / 18	22.6	6	50
52000320	SVRE 13,5	7/10.5/13/16			22 / 20	26.1	6.5	50
52000330	SVRE 16	8/10.5/13.5/16			24 / 22	27.1	6.5	50
52000340	SVRE 21	11/15/18/20			30 / 28	29.6	7	50
52000350	SVRE 29	19/23/27/31			40 / 37	32.6	8	50
52000360	SVRE 36	25/28/31/35			50 / 47	38.6	9	20
52005550	SVRE 42	35.5/39/42.5/46			57 / 54	43.6	10	10
52005560	SVRE 48	40.5/44/47/50.5			64 / 60	45.1	10	10

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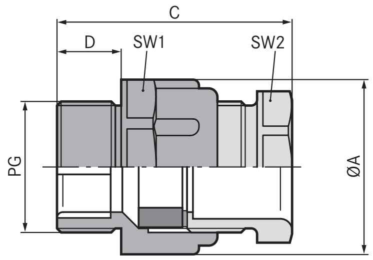
ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

LAPP GROUP

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
- For suitable flat cables, refer to ÖLFLEX® LIFT F for indoor applications or ÖLFLEX® CRANE F for outdoor applications

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	SVFK 16	- - 15.0	- - 5.0	27 / 23	39.5	10	25
52005680	SVFK 21	10.0 - 20.5	3.0 - 8.0	32 / 30	43.0	11	25
52005690	SVFK 29	15.0 - 27.0	4.0 - 11.5	42 / 41	45.0	11	25
52005700	SVFK 36	25.0 - 34.0	4.0 - 11.5	53 / 50	51.0	13	10
52005710	SVFK 42	30.0 - 40.0	5.0 - 12.0	60 / 55	54.0	13	5
52005720	SVFK 48	35.0 - 45.0	5.0 - 12.0	65 / 60	55.0	15	5

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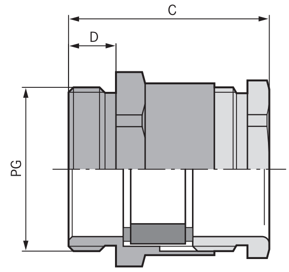
Accessories
- SKINDICHT® GMK refer to page 816

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 / 22	27.5	6.5	25
52005490	PG 21	9.0 - 21.0	3.0 - 8.0	30 / 28	30.0	7	25
52005500	PG 29	14.0 - 30.0	4.0 - 11.5	40 / 37	31.5	8	10
52005510	PG36	24.0 - 40.0	4.0 - 11.5	50 / 47	36.0	9	10
52005520	PG 42	29.0 - 45.0	5.0 - 12.0	57 / 54	40.0	10	5
52005530	PG 48	34.0 - 50.0	5.0 - 12.0	64 / 60	41.5	10	5

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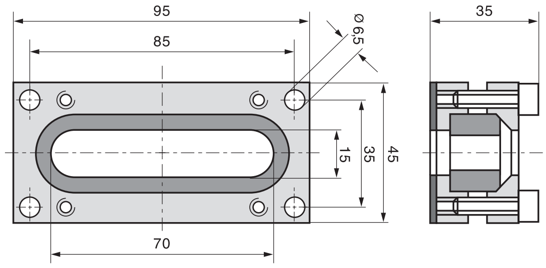
Accessories
- SKINDICHT® SM refer to page 817
- SKINDICHT® SM-PE refer to page 817

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 5.0 Class-ID: EC000441
ETIM 5.0 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 x 35 x 95	1
52008020	FL 2	49 x 4,5	45 x 35 x 95	1
52008030	FL 3	49 x 4,5 + 49 x 4,5 (49 x 11,5)	45 x 35 x 95	1
52008040	FL 4	63 x 12,0 (+0,2)	45 x 35 x 95	1
52008050	FL 5	70 x 12	45 x 35 x 95	1

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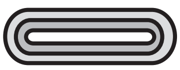
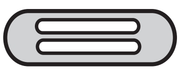


FL 1
1 x 70 x 12 mm
1 x 63 x 7 mm

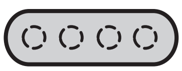
FL 4
63 x 12 mm

FL 2
49 x 4,5 mm

FL 5
70 x 12 mm

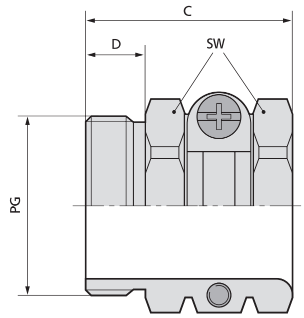


FL 3
2 x 49 x 4,5 mm
1 x 49 x 11,5 mm



e.g. 4 x ÖLFLEX® CLASSIC 110
3 x 1,5 mm^2 / 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 5.0 Class-ID: EC000441
ETIM 5.0 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 to +80°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	SH 7	8 - 10	15	22	17.5	5.5	50
52000840	SH 9	10 - 12,5	17	25	20.5	6	50
52000850	SH 11	11 - 15	20	28	21.5	6	50
52000860	SH 13,5	14 - 16,5	22	32	24.0	7.5	25
52000870	SH 16	15 - 18	24	35	26.0	7.5	25
52000880	SH 21	18 - 23,5	30	46	29.0	8	25
52000890	SH 29	23 - 31	41	58	33.0	8	10
52000900	SH 36	29 - 40,5	50	70	36.5	9.5	10
52000910	SH 42	34 - 45	57	78	38.0	10	5
52000920	SH 48	39 - 50	64	86	39.5	11.5	5

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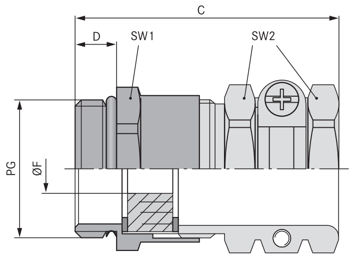
SKINDICHT® SHZ



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

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	SHZ 7	5 - 6	21	14 / 15	30.0	5	50
52005600	SHZ 9	7,5 - 8,5	25	17 / 17	34.0	6	50
52000930	SHZ 11	9,5 - 12	28	20 / 20	35.0	6	25
52000940	SHZ 13,5	12,5 - 14	32	22 / 22	40.0	6.5	25
52000950	SHZ 16	13,5 - 16	35	24 / 24	42.0	6.5	25
52000960	SHZ 21	15,5 - 21	46	30 / 30	47.0	7	25
52000970	SHZ 29	21,5 - 27,5	58	40 / 41	53.0	8	10
52000980	SHZ 36	27 - 34	70	50 / 50	61.0	9	10
52005610	SHZ 42	34 - 43	78	57 / 57	66.0	10	5
52005620	SHZ 48	38 - 48	86	64 / 64	68.0	10	5
52023717	SHZ 9	7,5 - 8,5	25	17 / 17	43.0	10	50
52023718	SHZ 11	9,5 - 12	28	20 / 20	44.0	10	25
52023719	SHZ 13,5	12,5 - 14	32	22 / 22	48.5	10	25
52023720	SHZ 16	13,5 - 16	35	24 / 24	50.5	10	25
52024840	SHZ 21	15,5 - 21	46	30 / 30	55.0	11	25
52025530	SHZ 29	21,5 - 27,5	58	40 / 41	60.0	13	10
52023721	SHZ 36	27 - 34	70	50 / 50	67.0	13	10
52023722	SHZ 42	34 - 43	78	57 / 57	71.0	14	5
52023723	SHZ 48	38 - 48	86	64 / 64	73.0	14	5

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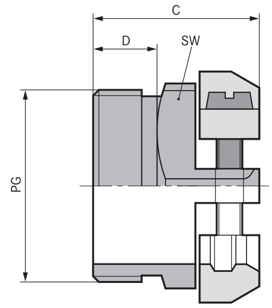
Accessories

- SKINDICHT® SM refer to page 817

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

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 to +80°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	SK 9	6 - 12	19	24	16.5	6	50
52004240	SK 11	7 - 15	21	27	16.5	6	50
52004250	SK 13,5	12 - 16,5	22	30	18.5	7.5	25
52004260	SK 16	13 - 18	24	33	19.0	7.5	25
52004270	SK 21	15 - 23	30	42	22.5	8	25
51712740	SK 29	20 - 31	41	58	26.0	8	10

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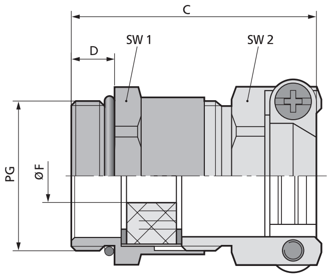
Accessories
- SKINDICHT® SM refer to page 817

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
- Refer to SKINDICHT® EV for additional accessories

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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
-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® SKZ							
52004280	SKZ 9	6 - 10	24	17 / 17	30.0	6	50
52004290	SKZ 11	7 - 13	27	20 / 21	30.0	6	50
52004300	SKZ 13,5	12 - 14	30	22 / 22	34.0	6.5	25
52004310	SKZ 16	13 - 16	33	24 / 24	35.0	6.5	25
52004320	SKZ 21	15 - 21	42	30 / 30	41.0	7	25
52005570	SKZ 29	20 - 29	58	40 / 41	46.0	8	10
SKINDICHT® SKZ-XL							
52005575	SKZ 9	6 - 10	24	17 / 17	39.0	15	50
52005576	SKZ 11	7 - 13	27	20 / 21	39.0	15	50
52005577	SKZ 13,5	12 - 14	30	22 / 22	42.5	15	25
54000043	SKZ 16	13 - 16	33	24 / 24	43.5	15	25
54000011	SKZ 21	15 - 21	42	30 / 30	49.0	15	25
54000098	SKZ 29	20 - 29	58	40 / 41	53.0	15	10

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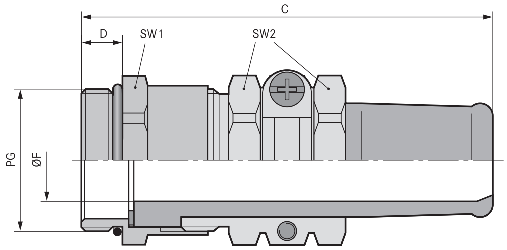
Accessories
- SKINDICHT® SM refer to page 817

MAX.

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
- For EMC version, refer to SKINDICHT® SRE

Technical data

ETIM

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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

IP

Protection rating
IP 65

Temperature range
-20°C to +80°C

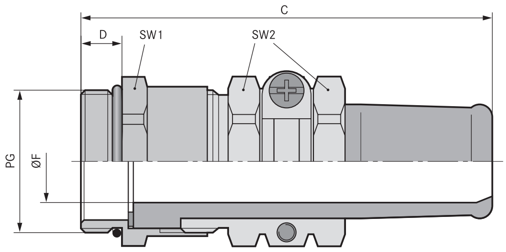
Article number	Article designation / size	Clamping range ØF (mm)	Max. fitting size for installation (mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SR							
52000990	SR 07/05	3,5 - 5	23	14 / 15	50.0	5	50
52001000	SR 09/07	5,5 - 7	25	17 / 17	52.0	6	50
52001010	SR 11/07	5,5 - 7	28	20 / 20	56.0	6	25
52001020	SR 11/09	7,5 - 9	28	20 / 20	56.0	6	25
52001030	SR 13/09	7,5 - 9	32	22 / 22	62.0	6.5	25
52001040	SR 13/11	9 - 11	32	22 / 22	62.0	6.5	25
52001050	SR 13/13	11 - 13	32	22 / 22	62.0	6.5	25
52001060	SR 16/13	11,5 - 13	35	24 / 24	67.0	6.5	25
52001070	SR 16/15	13 - 15	35	24 / 24	67.0	6.5	25
52001080	SR 21/15	13,5 - 15	46	30 / 30	79.0	7	25
52001090	SR 21/17	15 - 17	46	30 / 30	79.0	7	25
52001100	SR 21/19	17 - 19	46	30 / 30	79.0	7	25
52001110	SR 21/20	18 - 20	46	30 / 30	79.0	7	25
52001120	SR 29/20	18 - 20	59	40 / 41	91.0	8	10
52001130	SR 29/23	21 - 23	59	40 / 41	91.0	8	10
52001140	SR 29/25	23 - 25	59	40 / 41	91.0	8	10
52001150	SR 36/26	23 - 26	70	50 / 50	110.0	9	5
52001160	SR 36/30	27 - 30	70	50 / 50	110.0	9	5
52001170	SR 36/33	30 - 33	70	50 / 50	110.0	9	5
52001180	SR 36/35	32 - 35	70	50 / 50	110.0	9	5
52001190	SR 42/35	32 - 35	75	57 / 57	114.0	10	5
52001200	SR 42/38	35 - 38	75	57 / 57	114.0	10	5
52001210	SR 42/40	36 - 40	75	57 / 57	114.0	10	5
52001220	SR 48/40	36 - 40	83	64 / 64	119.0	10	1
52001230	SR 48/44	40 - 44	83	64 / 64	119.0	10	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 817
- SKINDICHT® SNR refer to page 832

SKINDICHT® plastic or metal PG cable glands • SKINDICHT® strain relief/bending protection

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 VITON® anti-kink sleeve. Our own reinforced acid-resistant VITON® 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

- EMC version is available upon request

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 / 20	56.0	6	25
52023621	SR-SV 11/09	7,5 - 9	28	20 / 20	56.0	6	25
52023622	SR-SV 13/09	7,5 - 9	32	22 / 22	62.0	6.5	25
52023623	SR-SV 13/11	9 - 11	32	22 / 22	62.0	6.5	25
52023624	SR-SV 13/13	11 - 13	32	22 / 22	62.0	6.5	25
52023625	SR-SV 16/13	11,5 - 13	35	24 / 24	67.0	6.5	10
52023626	SR-SV 16/15	13 - 15	35	24 / 24	67.0	6.5	10
52023627	SR-SV 21/15	13,5 - 15	40	30 / 30	79.0	7	10
52023628	SR-SV 21/17	15 - 17	46	30 / 30	79.0	7	10
52023629	SR-SV 21/19	17 - 19	46	30 / 30	79.0	7	10

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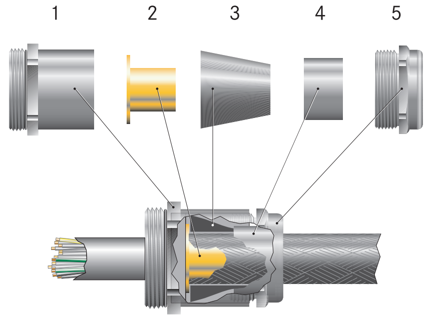
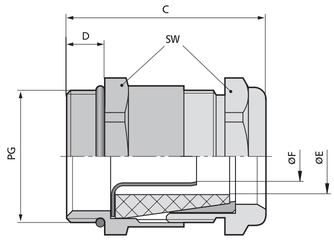
Accessories

- SKINDICHT® SM refer to page 817

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
- 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 5.0 Class-ID: EC000441
ETIM 5.0 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

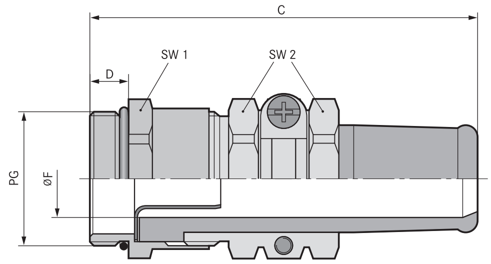
Article number	Article designation / size	Outer sheath Ø, min./ max. (mm)	Min./max. inner sheath Ø (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SHVE							
52010400	9/9/6/3,2	4.0 / 5,8	2,2 / 3,2	17	28.5	6	25
52010405	9/9/7/3,2	5.0 / 6,8	2,2 / 3,2	17	28.5	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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 817
- SKINDICHT® SM-PE refer to page 817

SKINDICHT® plastic or metal PG cable glands • SKINDICHT® EMC/earthing

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

- EMC counter nut, SKINDICHT® SM nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
- PVC sheath

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 / 22	60.0	5.5	25
52010790	13,5/9/11/7	9.0 / 11.0	5,5 / 7.0	22 / 22	60.0	5.5	25
52010800	13,5/11/9/6	7,5 / 9.0	4,5 / 6.0	22 / 22	60.0	5.5	25
52010810	13,5/11/11/7	9.0 / 11.0	5,5 / 7.0	22 / 22	60.0	5.5	25
52005310	13,5/13,5/9/6	7,5 / 9.0	4,5 / 6.0	22 / 22	60.0	6.5	25
52005320	13,5/13,5/11/7	9.0 / 11.0	5,5 / 7.0	22 / 22	60.0	6.5	25
52010820	16/11/13/9	11.0 / 13.0	7.0 / 9.0	24 / 24	65.0	5.5	25
52010830	16/11/13/10	11.0 / 13.0	8.0 / 10.0	24 / 24	65.0	5.5	25
52010840	16/11/15/11	13.0 / 15.0	9.0 / 11.0	24 / 24	65.0	5.5	25
52010850	16/13,5/13/9	11.0 / 13.0	7.0 / 9.0	24 / 24	67.0	6	25
52010860	16/13,5/13/10	11.0 / 13.0	8.0 / 10.0	24 / 24	67.0	6	25
52010870	16/13,5/15/11	13.0 / 15.0	9.0 / 11.0	24 / 24	67.0	6	25
52005330	16/16/13/9	11.0 / 13.0	7.0 / 9.0	24 / 24	65.0	6.5	25
52005340	16/16/13/10	11.0 / 13.0	8.0 / 10.0	24 / 24	65.0	6.5	25
52005350	16/16/15/11	13,5 / 15.0	9.0 / 11.0	24 / 24	65.0	6.5	25
52010880	21/16/15/12	13,5 / 15.0	10.0 / 12.0	30 / 30	78.0	6.5	25
52010890	21/16/17/14	15.0 / 17.0	12.0 / 14.0	30 / 30	78.0	6.5	25
52010900	21/16/19/15	17.0 / 19.0	13.0 / 15.0	30 / 30	78.0	6.5	25
52010910	21/16/20/16	18.0 / 20.0	14.0 / 16.0	30 / 30	78.0	6.5	25
52005360	21/21/15/12	13.0 / 15.0	10.0 / 12.0	30 / 30	78.0	7	25
52005370	21/21/17/14	15.0 / 17.0	12.0 / 14.0	30 / 30	78.0	7	25
52005380	21/21/19/15	17.0 / 19.0	13.0 / 15.0	30 / 30	78.0	7	25
52005390	21/21/20/16	18.0 / 20.0	14.0 / 16.0	30 / 30	78.0	7	25
52005400	29/29/20/17	19.0 / 20.0	15.0 / 17.0	40 / 41	90.0	8	10
52005410	29/29/23/19	22.0 / 23.0	17.0 / 19.0	40 / 41	90.0	8	10
52005411	36/36/26/22	23,5 / 26.0	20.0 / 22.0	50 / 50	109.0	9	5
52005412	36/36/30/24	27.0 / 30.0	22.0 / 24.0	50 / 50	109.0	9	5
52003585	36/36/30/26	27.0 / 30.0	24.0 / 26.0	50 / 50	109.0	9	5
52005414	36/36/33/28	30.0 / 33.0	26.0 / 28.0	50 / 50	109.0	9	5
52023586	36/36/35/30	32.0 / 35.0	28.0 / 30.0	50 / 50	109.0	9	5

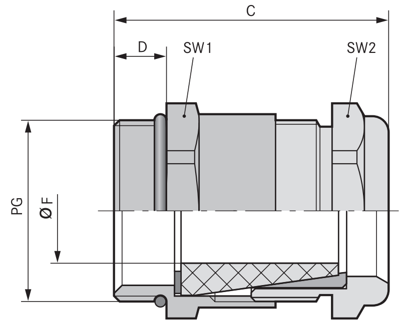
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 817
- SKINDICHT® SNR refer to page 832
- SKINDICHT® SM-PE refer to page 817

CE

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

- 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 5.0 Class-ID: EC000441
ETIM 5.0 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

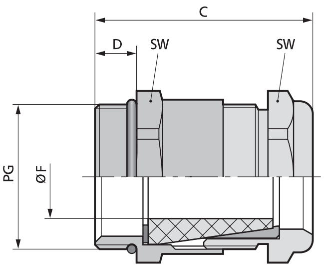
Article number	Article designation / size	Clamping range ØF (mm)	SW 1/2 mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SHV						
52002530	SHV 7/7/5	3,8 - 4,8	14	26.0	5	50
52002550	SHV 9/9/6	4,8 - 5,8	17	28.5	6	50
52002540	SHV 9/9/7	5,8 - 6,8	17	28.5	6	50
52002570	SHV 11/11/7	5,8 - 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM refer to page 817

SKINDICHT® SHV VITON®



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 VITON® sealing element
- Brickworks
- Sewage treatment plants
- Car wash sites

Product Make-up
- 1 fitting
- 2 washers
- 3 VITON® sealing cone
- 4 brass cones
- 5 compression screws

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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 VITON®						
52024934	SHV-V 7/7/5	3,8 - 4,8	14	26.0	5	50
54000015	SHV-V 9/9/6	4,8 - 5,8	17	28.5	6	50
52024935	SHV-V 9/9/7	5,8 - 6,8	17	28.5	6	50
52024936	SHV-V 11/11/7	5,8 - 6,8	20	31.0	6	25
52024937	SHV-V 11/11/9	6,8 - 8,8	20	31.0	6	25
52024970	SHV-VITON® 13,5/9/11	8,5 - 10,8	22	33.0	6.5	25
52024968	SHV-V 13,5/11/9	6,8 - 8,8	22	33.0	6.5	25
52024969	SHV-V 13,5/11/11	8,5 - 10,8	22	33.0	6.5	25
52024961	SHV-V 13,5/13,5/9	6,8 - 8,8	22	33.0	6.5	25
52024962	SHV-V 13,5/13,5/11	8,5 - 10,8	22	33.0	6.5	25
52024971	SHV-V 16/11/13	10,8 - 12,8	24	35.0	6.5	25
52024973	SHV-V 16/13,5/13	10,8 - 12,8	24	35.0	6.5	25
52024964	SHV-V 16/16/13	10,8 - 12,8	24	35.0	6.5	25
52024965	SHV-V 16/16/15	13,8 - 14,8	24	35.0	6.5	25
52024966	SHV-V 21/21/18	15,8 - 17,8	30	38.0	7	25
52024967	SHV-V 21/21/20	17,5 - 19,8	30	38.0	7	25
52024974	SHV-V 29/29/22	19,5 - 21,8	40	44.5	8	10

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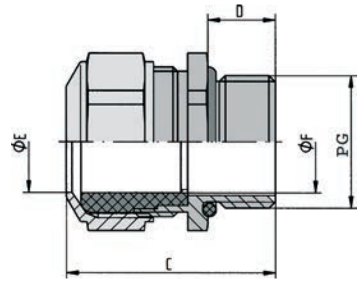
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 817

SKINDICHT® CN

Info
- Flexible down to -40°C



Benefits
- For high temperatures up to +200 °C
- Resistant to oils, solvents, acids and chemicals
- Seawater-resistant
- For high mechanical stress
- High corrosion-resistance

Application range
- Chromium nickel steel cable gland with VITON® 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 CrNi

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	CN 9	6 - 10	18	28.0	10	5
52032525	CN 11	5 - 12	22	32.0	10	5
52032540	CN 13,5	8 - 15	24	34.0	10	5
52032550	CN 16	8 - 15	24	34.0	10	5
52032560	CN 21	12,5 - 20,5	30	42.0	12	5
52032570	CN 29	19 - 27,5	41	53.0	12	5

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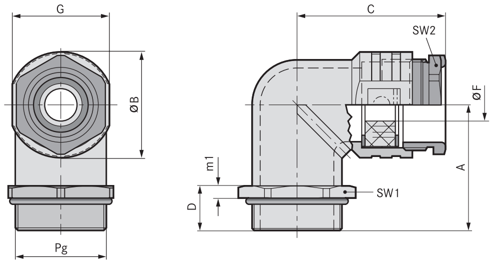
SKINDICHT® RWV



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
- 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 5.0 Class-ID: EC000441
ETIM 5.0 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	RWV 7	20.5	14	15.3	5	26.0	8.5	15.0 / 13.0	25
52004190	RWV 9	23.5	17	18.3	5/8	28.0	9.5	18.0 / 15.0	25
52004200	RWV 11	26	20	21.9	7/10/12.5	31.5	10	21.0 / 18.0	25
52004210	RWV 13,5	28.5	22	24	7/10.5/13/16	34.5	10.5	23.0 / 20.0	25
52004220	RWV 16	31	24	26.1	8/10.5/13.5/16	35.5	11	26.0 / 22.0	10
52005420	RWV 21	33.5	30	32.5	11/15/18/20	42.5	11.5	32.0 / 28.0	10
52004225	RWV 29	43	40	42	19/23/27/31	49.0	13	41.0 / 37.0	10
SKINDICHT® RWV without E+D									
52024020	RWV 7	20.5	14	15.3		20.2	8.5	15.0 / 13.0	25
52023970	RWV 9	23.5	17	18.3		21.8	9.5	18.0 / 15.0	25
52023980	RWV 11	26	20	21.9		24.9	10	21.0 / 18.0	25
52023990	RWV 13,5	28.5	22	24		27.4	10.5	23.0 / 20.0	25
52024000	RWV 16	31	24	26.1		28.5	11	26.0 / 22.0	10
52024010	RWV 21	33.5	30	32.5		34.8	11.5	32.0 / 28.0	10
52024015	RWV 29	43	40	42		41.2	13	41.0 / 37.0	10

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Accessories
- SKINDICHT® SM refer to page 817

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 and compression screw

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 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	SE 16	8/10.5/13.5/16	22	49.2	42	36.0	10
52004140	SE 21	11/15/18/20	28	68.1	60	52.5	10
52005430	SE 29	19/23/27/31	37	83.6	66	54.0	5
52004150	SE 36	25/28/31/35	47	99.6	85	73.0	1
SKINDICHT® SE without E+D							
52024090	SE 16			42.0	42	36.0	10
52024100	SE 21			60.0	60	52.5	10
52024110	SE 29			76.0	66	54.0	5
52024120	SE 36			90.0	85	73.0	1

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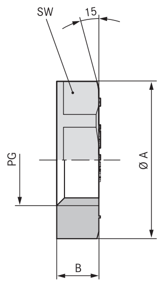
LAPP GROUP

SKINDICHT® PG cable gland accessories • SKINTOP® counter nuts

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 5.0 Class-ID: EC000441
ETIM 5.0 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	GMP-GL 7	19	100
53019010	GMP-GL 9	22	100
53019020	GMP-GL 11	24	100
53019030	GMP-GL 13,5	27	100
53019040	GMP-GL 16	30	100
53019050	GMP-GL 21	36	50
53019060	GMP-GL 29	46	50
53019070	GMP-GL 36	60	25
53019080	GMP-GL 42	65	25
53019090	GMP-GL 48	70	25
SKINTOP® GMP-GL black with collar			
53019200	GMP-GL 7	19	100
53019210	GMP-GL 9	22	100
53019220	GMP-GL 11	24	100
53019230	GMP-GL 13,5	27	100
53019240	GMP-GL 16	30	100
53019250	GMP-GL 21	36	50
53019260	GMP-GL 29	46	50
53019270	GMP-GL 36	60	25
53019280	GMP-GL 42	65	25
53019290	GMP-GL 48	70	25
SKINTOP® GMP-GL light grey with collar			
53019001	GMP-GL 7	19	100
53019011	GMP-GL 9	22	100
53019021	GMP-GL 11	24	100
53019031	GMP-GL 13,5	27	100
53019041	GMP-GL 16	30	100
53019051	GMP-GL 21	36	50
53019061	GMP-GL 29	46	50
53019071	GMP-GL 36	60	25
53019081	GMP-GL 42	65	25
53019091	GMP-GL 48	70	25

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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 5.0 Class-ID: EC000032
ETIM 5.0 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	100
53611225	DIX 11225	11	2 x 2.5	100
53611330	DIX 11330	11	3 x 3	100
53611240	DIX 11240	11	2 x 4	100
53611430	DIX 11430	11	4 x 3	100
53613250	DIX 13250	13.5	2 x 5	100
53613340	DIX 13340	13.5	3 x 4	100
53613440	DIX 13440	13.5	4 x 4	100
53616140	DIX 16140	16	1 x 4	50
53616225	DIX 16225	16	2 x 2.5	50
53616240	DIX 16240	16	2 x 4	50
53616340	DIX 16340	16	3 x 4	50
53616350	DIX 16350	16	3 x 5	50
53616440	DIX 16440	16	4 x 4	50
53616540	DIX 16540	16	5 x 4	50
53616450	DIX 16450	16	4 x 5	50
53616356	DIX 16356	16	3 x 5.6	50
53616260	DIX 16260	16	2 x 6	50
53616360	DIX 16360	16	3 x 6	50
53621550	DIX 21550	21	5 x 5	50
53621460	DIX 21460	21	4 x 6	50
53621640	DIX 21640	21	6 x 4	50
53621270	DIX 21270	21	2 x 7	50
53621370	DIX 21370	21	3 x 7	50
53621280	DIX 21280	21	2 x 8	50
53621380	DIX 21380	21	3 x 8	50
53629556	DIX 29556	29	5 x 5.6	50
53629470	DIX 29470	29	4 x 7	50
53629570	DIX 29570	29	5 x 7	50
53629480	DIX 29480	29	4 x 8	50
53629290	DIX 29290	29	2 x 9	50
53629390	DIX 29390	29	3 x 9	50
53629490	DIX 29490	29	4 x 9	50
53629675	DIX 29675	29	6 x 7.5	50

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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 5.0 Class-ID: EC000032
ETIM 5.0 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

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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

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	100
53100004	DIX-DV 4 x 9	4.0	9	100
53100005	DIX-DV 5 x 11	5.0	11	100
53100055	DIX-DV 5,5 x 11	5.5	11	100
53100006	DIX-DV 6 x 14	6.0	14	100
53100007	DIX-DV 7 x 14	7.0	14	100
53100008	DIX-DV 8 x 14	8.0	14	100
53100009	DIX-DV 9 x 14	9.0	14	100
SKINTOP® SD				
52025235	SD 7	10.5	2	500
52025240	SD 9	13.5	2	500
52025250	SD 11	17.0	2	250
52025260	SD 13,5	18.5	2	250
52025270	SD 16	20.5	2	250
52025280	SD 21	26.0	2	100
52025290	SD 29	34.5	2	100
52025291	SD 36	44.5	2	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	250
53800643	DV 21	18.5	11	100

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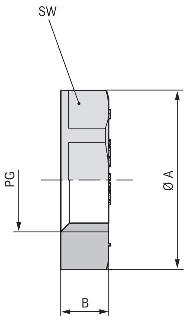
SKINDICHT® GMK



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

Classification
ETIM 5.0 Class-ID: EC000940
ETIM 5.0 Class-Description: Locknut for cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
Polystyrene

Temperature range
-20°C to +70°C

Article number	Article designation / size	B in mm	SW wrench size mm	Pieces / PU
SKINDICHT® GMK				
52000110	GMK 7	5	19	100
52000120	GMK 9	5	22	100
52000130	GMK 11	5	24	100
52000140	GMK 13,5	6	27	100
52000150	GMK 16	6	30	100
52000160	GMK 21	7	36	50
52000170	GMK 29	7	46	50
52000180	GMK 36	8	60	25
52000190	GMK 42	8	65	25
52000200	GMK 48	8	70	25

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CE

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
- Suitable for all metric glands used in earthing and EMC applications

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

ETIM

Classification
ETIM 5.0 Class-ID: EC000940
ETIM 5.0 Class-Description:
Locknut for cable screw gland

Material
Nickel-plated brass

Article number	Article designation / size	Height (mm)	SW wrench size mm	Far corner dimension	Pieces / PU
SKINDICHT® SM					
52003490	SM 7	2.8	15	16.6	100
52003500	SM 9	2.8	18	20	100
52003510	SM 11	3	21	23.5	100
52003520	SM 13,5	3	23	25.5	100
52003530	SM 16	3	26	29	100
52003540	SM 21	3.5	32	35.5	50
52003550	SM 29	4	41	45	50
52003560	SM 36	5	51	56	25
52003570	SM 42	5	60	65	25
52003580	SM 48	5.5	64	69	25
SKINDICHT® SM-PE					
52103200	SM-PE 7	4.7	15		100
52103210	SM-PE 9	4.7	18		100
52103220	SM-PE 11	4.7	21		100
52103230	SM-PE 13,5	4.7	23		100
52103240	SM-PE 16	4.7	26		100
52103250	SM-PE 21	5.2	32		50
52103260	SM-PE 29	5.7	41		50
52103270	SM-PE 36	6.7	51		50

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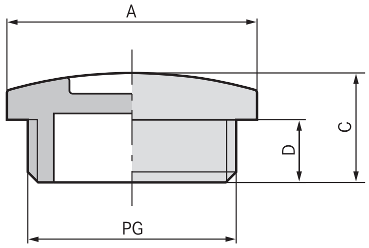
SKINDICHT® BLK / BLK-GL



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 5.0 Class-ID: EC000032
ETIM 5.0 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 - 5 bar (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	BLK 7	6	100
52005950	BLK 9	6	100
52005960	BLK 11	6	100
52005970	BLK 13,5	6	100
52005980	BLK 16	6	100
52005990	BLK 21	8	50
52006000	BLK 29	8	50
52006010	BLK 36	10	25
52006020	BLK 42	10	25
52006030	BLK 48	12	25
SKINDICHT® BLK-GL			
52024848	BLK - GL 7	6	100
52024849	BLK - GL 9	6	100
52024850	BLK - GL 11	6	100
52024851	BLK - GL 13,5	6	100
52024852	BLK - GL 16	6	100
52024853	BLK - GL 21	8	50
52024854	BLK - GL 29	8	50
52024855	BLK - GL 36	10	25
52024856	BLK - GL 42	10	25
52024857	BLK - GL 48	12	25

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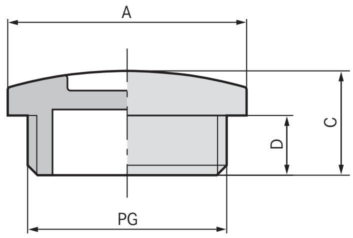
SKINDICHT® BL



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 5.0 Class-ID: EC000032
ETIM 5.0 Class-Description:
Plug for cable screw gland

Material
Body: nickel-plated brass
O-ring: NBR

Protection rating
IP 54
IP 68 - 5 bar (with O-Ring)

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	BL 7	100
52003390	BL 9	100
52003400	BL 11	100
52003410	BL 13,5	100
52003420	BL 16	100
52003430	BL 21	50
52003440	BL 29	50
52003450	BL 36	25
52003460	BL 42	10
52002790	BL 48	10
SKINDICHT® BL with O-ring		
54001610	BL 7 m. O-Ring	100
54000071	BL 9 m. O-Ring	100
54000040	BL 11 m. O-Ring	100
54001630	BL 13,5 m. O-Ring	100
54001640	BL 16 m. O-Ring	100
54001660	BL 21 m. O-Ring	50
54001620	BL 29 m. O-Ring	50
54001650	BL 36 m. O-Ring	25
54001670	BL 42 m. O-Ring	10
54001680	BL 48 m. O-Ring	10

Photographs 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
- SKINDICHT® KUS with hexagon and larger height
- SKINDICHT® KUK with knurled heads

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Colour delivered
Light grey (RAL 7035)

Material
Polyamide, glass fibre-reinforced

Temperature range
KU, KUS: -40°C to +100°C
KUK: -20°C to +80°C

Article number	Article designation / sizeOuter / inner	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

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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 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Material
Nickel-plated brass

Article number	Article designation / sizeOuter / inner	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 are not to scale and do not represent detailed images of the respective products.

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 5.0 Class-ID: EC000441
ETIM 5.0 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 / sizeOuter / inner	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

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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 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Material
Nickel-plated brass

Article number	Article designation / sizeOuter / inner	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

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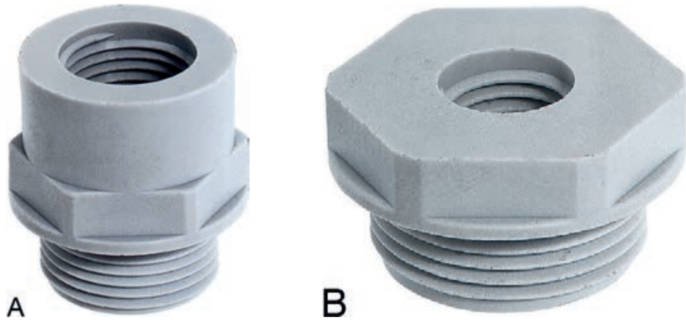
SKINDICHT® A-PG/M



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 5.0 Class-ID: EC000441
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

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 top: knurl
- Form B bottom: smooth

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Material
Nickel-plated brass

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

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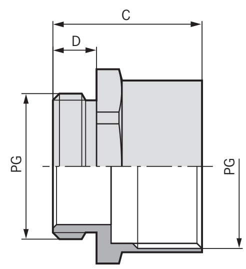
SKINDICHT® ZS/ZS-XL



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 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Material
Nickel-plated brass

Article number	Article designation / size	SW wrench size mm	Thread length, D (mm)	Pieces / PU
SKINDICHT® ZS				
52100010	ZS 7	14	5	100
52100020	ZS 9	17	6	100
52100030	ZS 11	20	6	100
52100040	ZS 13,5	22	6.5	100
52100050	ZS 16	24	6.5	50
52100060	ZS 21	30	7	50
52100070	ZS 29	40	8	25
52100080	ZS 36	50	9	10
52100090	ZS 42	57	10	10
52100100	ZS 48	64	10	10
52020940	ZS 9	17	15	100
52020930	ZS 11	20	15	100
52020950	ZS 13,5	22	15	100
52020960	ZS 16	24	15	50
52020970	ZS 21	30	15	50
52020980	ZS 29	40	15	25
52020990	ZS 36	50	15	10
52021000	ZS 42	57	15	10
52021010	ZS 48	64	15	10

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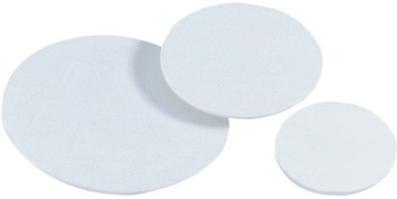
SKINDICHT® STK



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 5.0 Class-ID: EC000032
ETIM 5.0 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

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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 5.0 Class-ID: EC001181
ETIM 5.0 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)	Pieces / PU
SKINDICHT® E				
52005780	E 9	13.5 x 5/8	5.5	250
52003690	E 11	16.5 x 7/10/12.5	6.0	250
52003700	E 13,5	18.5 x 7/10.5/13/16	6.5	250
52003710	E 16	20.5 x 8/10.5/13.5/16	7.5	250
52003720	E 21	26.0 x 11/15/18/20	8.0	100
52003730	E 29	35.0 x 19/23/27/31	9.5	100
52003740	E 36	45.0 x 25/28/31/35	12.0	50
52005790	E 42	52.0 x 35.5/39/42.5/46	14.0	50
52005800	E 48	57.0 x 40.5/44/47/50.5	14.0	50

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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 VITON® 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 5.0 Class-ID: EC001181
ETIM 5.0 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)	Pieces / PU
SKINDICHT® EV				
52010340	EV 11	7/10/12.5	6.0	50
52010350	EV 13,5	7/10.5/13/16	6.5	50
52010360	EV 16	8/10.5/13.5/16	7.5	50
52010370	EV 21	11/15/18/20	8.0	25
52010380	EV 29	19/23/27/31	9.5	25
52010390	EV 36	25/28/31/35	12.0	25
52010410	EV 42	35.5/39/42.5/46	14.0	25

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SKINDICHT® O-Ring Perbunan® 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 5.0 Class-ID: EC001181
ETIM 5.0 Class-Description:
Sealing ring

Colour delivered
Black

Material
NBR
Ozone and UV-resistant

Temperature range
-20°C to +100°C

Article number	Article designation / size	Inner Ø x thickness Ø (mm)	Pieces / PU
SKINDICHT® O-Ring Perbunan®			
53001010	O 7	10.0 x 1.5	100
53102011	O 9	13.0 x 1.5	100
53001020	O 11	16.0 x 1.5	100
52005740	O 13,5	18.0 x 1.5	100
53001030	O 16	20.0 x 1.5	100
52005750	O 21	26.0 x 2.0	100
53001040	O 29	34.0 x 2.0	50
52005760	O 36	44.0 x 2.0	50
53001050	O 42	50.0 x 2.0	50
52005770	O 48	55.0 x 2.0	50

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SKINDICHT® O-Ring VITON® 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 5.0 Class-ID: EC001181
ETIM 5.0 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 VITON®			
52023607	O 7	10.0 x 1.5	100
52122011	O 9	13.0 x 1.5	100
52023602	O 11	16.0 x 1.5	100
52023601	O 13,5	18.0 x 1.5	100
52023603	O 16	20.0 x 1.5	50
52023604	O 21	26.0 x 2.0	50
52023606	O 29	34.0 x 2.0	50
52023608	O 36	44.0 x 2.0	25
52023609	O 42	50.0 x 2.0	25
52023611	O 48	55.0 x 2.0	25

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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 5.0 Class-ID: EC001181
ETIM 5.0 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)	Pieces / PU
SKINDICHT® JT PTFE				
53801035	JT 7	12 / 16	2.0	100
53801045	JT 9	15 / 19	2.0	100
53801055	JT 11	18 / 22	2.0	100
53801065	JT 13,5	20 / 25	2.0	100
53801075	JT 16	22 / 27	2.0	100
53801085	JT 21	28 / 33	3.0	50
53801095	JT 29	37 / 43	3.0	50
53801105	JT 36	47 / 55	3.0	25
53801115	JT 42	54 / 63	3.0	25
53801125	JT 48	59 / 69	3.0	25

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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® EH13.5/5 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 5.0 Class-ID: EC002317
ETIM 5.0 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

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ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES | APPENDIX

SKINDICHT® SHV cone seal


Benefits
- SKINDICHT® SHV Neoprene® resistant to oil, dust and water
- SKINDICHT® SHV VITON® for high temperatures
- SKINDICHT® SHV VITON® 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 5.0 Class-ID: EC000451
ETIM 5.0 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 Neoprene®				
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 VITON®				
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

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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 5.0 Class-ID: EC000451
ETIM 5.0 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)	Suitable SKINDICHT® gland	Suitable SKINDICHT® gland	Pieces / PU
SKINDICHT® SNR						
52001970	SNR 7/5	5	3.5	SH 7	SR 7005	100
52001980	SNR 9/7	7	5.5	SH 9	SR 9007	100
52001990	SNR 11/7	7	5.5	SH 11	SR 1107	100
52002000	SNR 11/9	9	7.5	SH 11	SR 1109	100
52002010	SNR 13/9	9	7.5	SH 13,5	SR 1309	100
52002020	SNR 13/11	11	9	SH 13,5	SR 1311	100
52002030	SNR 13/13	13	11	SH 13,5	SR 1313	100
52002040	SNR 16/13	13	11.5	SH 16	SR 1613	100
52002050	SNR 16/15	15	13	SH 16	SR 1615	100
52002060	SNR 21/15	15	13.5	SH 21	SR 2115	50
52002070	SNR 21/17	17	15	SH 21	SR 2117	50
52002080	SNR 21/19	19	17	SH 21	SR 2119	50
52002090	SNR 21/20	20	18	SH 21	SR 2120	50
52002100	SNR 29/20	20	18	SH 29	SR 2920	25
52002110	SNR 29/23	23	21	SH 29	SR 2923	25
52002120	SNR 29/25	25	23	SH 29	SR 2925	25
52002130	SNR 36/26	26	23	SH 36	SR 3626	25
52002140	SNR 36/30	30	27	SH 36	SR 3630	25
52002150	SNR 36/33	33	30	SH 36	SR 3633	25
52002160	SNR 36/35	35	32	SH 36	SR 3635	25
52002170	SNR 42/35	35	32	SH 42	SR 4235	10
52002180	SNR 42/38	38	35	SH 42	SR 4238	10
52002190	SNR 42/40	40	36	SH 42	SR 4240	10
52002200	SNR 48/40	40	36	SH 48	SR 4840	10
52002210	SNR 48/44	44	40	SH 48	SR 4244	10

Photographs are not to scale and do not represent detailed images of the respective products.

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

Parallel corrugated protective cable conduit systems

Metal protective cable conduit systems

Liquid-tight conduits

SILVYN® processing tools

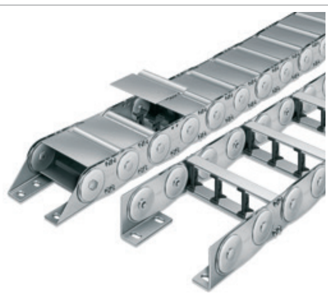
Selection Table

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	840	4.0 – 32.0	-55 °C to +125 °C	Polyamide 6.6	◑	○	◔	◔	●	◔	○	◕	◕	●	●	–
SILVYN® SNAP PET	840	25.0	-55 °C to +150 °C	Polyester – PET	◑	○	◔	◔	◔	◔	○	◔	◔	○	◔	–
SILVYN® SHRINK BRAID PET	840	6.0 – 35.0	-55 °C to +125 °C	Polyester – PET	◔	○	◔	◔	◑	◔	○	◑	◔	○	◔	–
SILVYN® SI	841	7.0 – 32.0	-5 °C to +80 °C	Soft PVC	◔	○	◔	◔	◑	◔	○	◔	◔	○	◔	–
SILVYN® SP	842	10.0 – 50.0	-20 °C to +60 °C	Soft PVC with Hard PVC Spiral	◔	◑	◑	◔	◑	◔	○	◔	◔	○	◔	–
SILVYN® SP-PU	843	10.0 – 38.0	-20 °C to +90 °C	PUR with Hard PVC Spiral	◔	◑	◑	◔	●	◑	○	◔	◑	○	●	–
SILVYN® EL	849	10.0 – 50.0	-20 °C to +70 °C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◑	◔	○	◔	◔	○	◔	cURus
SILVYN® ELU	850	10.0 – 50.0	-20 °C to +70 °C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◑	◔	○	◔	◔	○	●	cURus
SILVYN® ELÖ	851	10.0 – 50.0	-20 °C to +70 °C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◕	◔	○	◔	◔	○	◔	cURus
SILVYN® ELT	852	10.0 – 50.0	-20 °C to +90 °C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◔	◔	○	◔	◑	○	◔	cURus
SILVYN® FPS	857	7.0 – 48.0	-20 °C to +80 °C	Soft PVC with insul. Spring Steel Wire	●	◑	◑	●	◑	◑	○	●	◔	○	◑	VDE
SILVYN® FD-PU	858	7.0 – 48.0	-40 °C to +80 °C	PUR with insul. Spring Steel Wire	●	◑	◑	●	●	◑	○	●	◑	○	●	VDE
Protective corrugated																
SILVYN® RILL PA 6	862	6.5 – 48.0	-40 °C to +115 °C	Polyamide 6	◑	◑	◑	◕	●	◑	○	◕	●	●	●	cURus, VDE, GGVS, DNV-GL, Lloyds, DB, EN 45545
SILVYN® RILL PA12	863	6.5 – 48.0	-50 °C to +100 °C	Polyamide 12	●	◑	◑	◕	●	◕	○	●	◕	●	●	VDE, Lloyds, DB
SILVYN® FPAS	875	6.3 – 56.3	-40 °C to +120 °C	Polyamide 6	◑	◕	◕	◕	●	◑	○	◕	◕	●	●	cURus, Lloyds, Link up
SILVYN® HCC	888	8.9 – 52.5	-25 °C to +100 °C	Polyamide 6	◑	◑	◑	◕	●	◔	○	◕	◑	●	●	–
SILVYN® TC	892	6.6 – 45.6	-40 °C to +120 °C	Polyamide 6	◑	◑	◑	◑	●	◑	○	◕	◔	●	●	–
SILVYN® SPLIT PA 6	893	6.3 – 87.5	-40 °C to +120 °C	Polyamide 6	◑	◑	◔	◕	●	◑	○	◕	◕	●	●	–
SILVYN® SPLIT PP	893	6.3 – 87.5	-40 °C to +135 °C	Polypropylene	◑	◑	◔	◑	◑	◑	○	◑	◕	○	●	–
SILVYN® SINUS PA 6	895	6.7 – 23.2	-40 °C to +140 °C	Polyamide 6	◑	○	◑	◕	●	◑	○	◕	◕	●	●	–
SILVYN® MAXI PA 6	890	66.5 – 91.0	-40 °C to +115 °C	Polyamide 6	◔	◑	◑	◔	●	◑	○	◔	◔	●	●	cURus
Protective conduits metal																
SILVYN® AS	896	8.0 – 51.0	to +220 °C	Galvanized Steel Strip	◕	◑	◑	●	●	●	◕	◔	●	●	●	VDE
SILVYN® AS-P	897	7.0 – 49.0	-25 °C to +80 °C	Galvanized Steel, Coating PVC	◕	◑	◑	◕	◑	◔	○	◑	◔	○	◔	VDE
SILVYN® EDU-AS	898	7.0 – 49.0	to +220 °C	Galvanized Steel, Braiding: galvanized steel wire	◕	◑	◕	●	●	●	●	◕	●	●	●	VDE
SILVYN® EMC AS-CU	899	7.0 – 49.0	to +220 °C	Galvanized Steel, Braiding: tinned copper	◕	◑	◕	●	●	●	◕	◕	●	●	●	VDE
SILVYN® FPS-EDU	900	9.0 – 48.0	-25 °C to +80 °C	PVC-insulated steel spring wire Soft PVC outer sheath Galvanised steel wire braiding	●	◑	◑	●	◑	◑	◕	●	◔	○	◑	–
SILVYN® SSUE	908	6.8 – 48.0	-100 °C to +400 °C	Stainless Steel AISI 316	●	●	◕	●	●	●	●	●	●	●	●	Link up
SILVYN® UI 511	912	9.5 – 52.0	-100 °C to +600 °C	Stainless Steel AISI 304	●	●	●	●	●	●	●	●	●	●	●	–
Protective conduits liquidtight																
SILVYN® HIPROJACKET	914	6.0 – 102.0	-55 °C to +1640 °C	Fibre glass with iron oxide silicone coat	●	○	◔	●	◕	◑	●	●	●	●	◕	EN 45545
SILVYN® CNP	916	12.6 – 40.7	-20 °C to +60 °C	PVC Mix with Nylon Braid	◑	○	◔	◑	◑	◔	○	◑	◔	○	◕	cULus
SILVYN® HTDL	917	12.6 – 51.6	-40 °C to +105 °C	Galvanized Steel, Copper wire, Coating PVC Mix	◑	●	◕	◑	◑	◔	○	◔	◑	○	●	cULus
SILVYN® EF	918	10.1 – 51.6	-25 °C to +70 °C	Galvanized Steel, Coating PVC Mix	◔	●	◕	◔	◑	◔	○	◔	◔	○	◔	–
SILVYN® OR	918	12.6 – 51.6	-20 °C to +100 °C	Galvanized Steel, Coating PVC Mix	◔	●	◕	◔	◕	◔	○	◔	◔	○	●	–
SILVYN® HCX	919	12.6 – 51.6	-55 °C to +145 °C	Galvanized Steel, Coating Elastomer plastic	◑	●	◕	◕	◑	◔	○	◑	◑	○	●	–
SILVYN® HFX	919	10.1 – 51.6	-45 °C to +105 °C	Galvanized Steel, Coating PUR	◔	●	◕	◔	◕	◔	○	◔	◔	●	●	–
SILVYN® FG	923	12.6 – 51.6	-20 °C to +80 °C	Galvanized Steel, PVC-mix special sheath	◔	●	◕	◔	◕	◔	○	◔	◔	○	●	FDA, NSF
SILVYN® FG NM	924	12.6 – 51.6	-20 °C to +60 °C	Hard PVC inner spiral PVC-mix special sheath	◔	◑	◑	◔	◕	◔	○	◑	◔	○	◔	FDA, NSF
SILVYN® LCC-2	926	6.8 – 70.0	-15 °C to +70 °C	Galvanized Steel, Coating PVC	◕	◕	◑	●	◑	◔	○	◕	◔	○	◕	–
SILVYN® LCCH-2	927	10.2 – 70.0	-25 °C to +90 °C	Galvanized Steel, Coating plastic halogen-free	◕	◕	◑	●	◑	◔	○	◕	●	●	◕	Lloyds, Link up
SILVYN® LTP	932	7.0 – 51.6	-20 °C to +105 °C	Galvanized Steel, Coating Soft PVC	◑	●	●	◕	◕	◔	○	◔	◔	○	●	Lloyds

● = very high ◕ = high ◑ = medium ◔ = low ○ = none

SILVYN® CHAIN overview power 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
SILVYN® CHAIN Serie Light		• Light applications • Simple bolt system • Inner hight 12 – 39 mm • Inner width 12 – 150 mm • 7 types	• Automation • Smaller robot gantries • Textile equipment with long travel • Printing equipment
SILVYN® CHAIN Serie Medium		• Standard applications • Tongue/groove system with yellow pin • Inner hight 18 – 75.5 mm • Inner width 14 – 498 mm • 12 types	• Automation • Handling equipment • CNC machines • Medium sliding applications
SILVYN® CHAIN Serie Heavy		• Superior applications • Tongue/groove system with yellow tripple pin • Inner hight 30 – 112 mm • Inner width 38 – 600 mm • 12 types, many frame versions: Nylon, Aluminium, Inox	• Automation with high travel frequency • Outdoor equipment • Movement with high lateral acceleration
SILVYN® CHAIN Serie Sliding		• Long sliding distances • Tongue/groove system with yellow tripple pin • Inner hight 30 – 80.5 mm • Inner width 61 – 539 mm • 15 types, many frame versions: Nylon, Aluminium, Inox	• Sliding with high speed and high charge weight • Long life-cycle applications (very long lifetime)
SILVYN® CHAIN Serie Protection		• Standard applications • Tongue/groove system with yellow pin • Inner hight 25 – 75.5 mm • Inner width 40 – 488 mm • 12 types, many withs	• Automation • Dirty environment • Machine tool centers
SILVYN® CHAIN Serie Robot		• Rotative applications • Tongue/groove system patented element construction • Inner hight 35 – 59 mm • Inner width 45 – 210 mm • Standard rotation angle up to 200° • Guided rotation angle up to 400° • 6 types	• Welding robots • Painting robots • Handling robots
SILVYN® CHAIN Serie Steel		• Highest load capacity • Highest chemical resistance • Tongue/groove system in metal • Inner hight 32 – 182 mm • Inner width 79 – 600 mm • 11 standard types • Customised versions with bigger widths, combination of different materials (e.g. polyamide and steel)	• Steel mills/steel works • Off-Shore • Long-travel machining centers • Heavy duty environment

Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® SKINTOP® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

ÖLFLEX® CONNECT

Systems Solutions made by Lapp

ÖLFLEX® CONNECT CHAIN

Drag chain assembly

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

- **Reliable cutting-edge technology**
  The ÖLFLEX® CONNECT CHAIN reliability is based on high-quality components, assembled to deliver minimum maintenance and maximum service life.
- **Guaranteed brand quality**
  Our systems are rigorously tested to guarantee full and faultless functionality.
- **Closer to you**
  With multiple manufacturing sites in Europe, Asia and the Americas we can support you wherever you are.
- **Competent system supplier**
  With Lapp, you receive everything from one source: Ranging from individual drag chain assemblies to a whole integrated system.

Our drag chain service

We design and manufacture connectivity components which allows us to provide innovative, reliable and quality chain solutions.

Full engineering service:
1. Technical evaluation
2. Initial CAD design of the drag chain system (including cable layout)
3. Complete project management
4. Completion of chain system design

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

What can be included in a system chain package:

- Cable drag chains in nylon or steel design in accordance to 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)

Our productlines

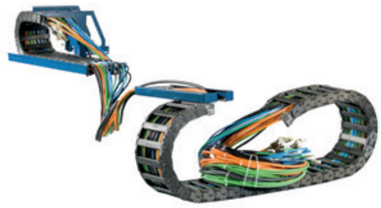
We offer you **three distinct system packages** according to your application needs – the choice is yours:

basic chain	core chain	extended chain

basic chain
- Drag chains made of nylon or steel with highly flexible cables, cable protection conduits, hydraulic hoses or pneumatic hoses **with no termination** such as connectors or fittings

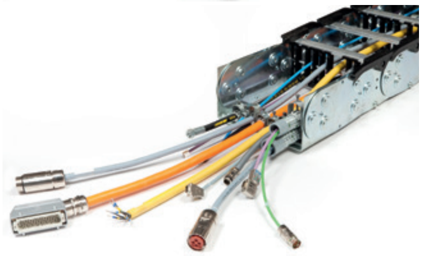
core chain
- Drag chains made of nylon or steel with highly flexible cables, cable protection conduits, hydraulic hoses or pneumatic hoses **including termination** (connectors, fittings)

extended chain
- Drag chains made of nylon or steel with highly flexible cables, cable protection conduits, hydraulic hoses or pneumatic hoses **including termination** (connectors, fittings) **and functional units** such as towing arms or supporting structures.



Possible drag chain types

Nylon power chains
- Drag chains made from NYLON (polyamide PA 6) for self-supporting or sliding applications or applications with circular motion
- Open or fully closed design available



Steel power chains
- Drag chains made of steel (galvanized steel or stainless steel) for standard self-supporting, sliding applications or applications with circular motion
- Open or fully closed design available

Combined power chains
- Drag chains made of combined materials (e.g. nylon sidebands with aluminum frames or aluminum covers, etc.) for extraordinary requirements
- Open or fully closed design available

SILVYN® BRAID PA6 / SILVYN® SNAP PET / SILVYN® SHRINK BRAID PET

SILVYN® BRAID PA6

SILVYN® SNAP PET

SILVYN® SHRINK BRAID PET

Info

- Simple, fast cable bundling

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 refer to page 998

Technical data

ETIM 5.0 Class-ID: EC001182
ETIM 5.0 Class-Description: Braided hose

On request
Bulk containers on rolls
More sizes available

Note
SILVYN® BRAID PA6
Halogen and cadmium-free
Self-extinguishing according to DIN 75200/FMVSS302 and DIN5510
SILVYN® SNAP PET
Halogen and cadmium-free
Self extinguishing acc. to UL94 V2
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
Polyamide 6.6 - halogen-free

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

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 - 44.0		black	5
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	5
61721274	70/35		70.0 - 35.0	black	5

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

SILVYN® SNAP PET
- KW plastic coil refer to page 1054
- Cable-Eater bunched cable conduit refer to page 1055

SILVYN® SHRINK BRAID PET
- KW plastic coil refer to page 1054

Accessories

SILVYN® BRAID PA6
- Basic Tie cable tie refer to page 1057

CE

SILVYN® SI


SILVYN® SSV/SSV-M + SCH
IP 54


SILVYN®
SSVZ/SSVZ-M + SCH
IP 54


SILVYN® SCH

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

ETIM 5.0 Class-ID: EC001177
ETIM 5.0 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

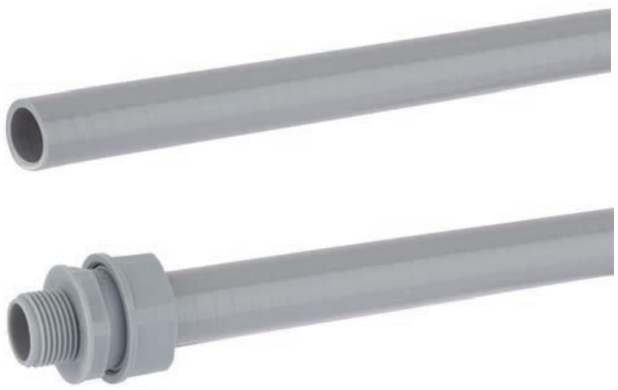
Temperature range
-5°C to +80°C

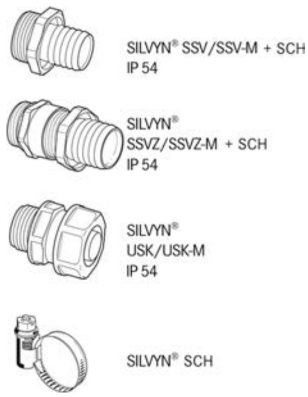
Article number	ID x OD mm	Suitable for SILVYN® SSV-M/SSVZ-M	Suitable for SILVYN® SSV/SSVZ	Suitable for SILVYN® SCH	PU ring (m)
SILVYN® SI					
61713210	7.0 x 9.0	12/1 / -		10 - 16 S	50
61713240	9.0 x 12.0	12/2 / -		10 - 16 S	50
61713270	11.0 x 14.0	16/1 / -		10 - 16 S	50
61713300	13.0 x 16.0	16/2 / -		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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® SSV-M refer to page 844
- SILVYN® SSVZ-M refer to page 844
- SILVYN® SSV refer to page 847
- SILVYN® SSVZ refer to page 847
- SILVYN® SCH refer to page 848

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

ETIM 5.0 Class-ID: EC001177
ETIM 5.0 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
61714090	49.0 x 56.0	250	63 x 1,5	50 x 1,5	48	48	40 - 60 S	25

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® SP-PU refer to page 843

Accessories
- SILVYN® SSV-M refer to page 844
- SILVYN® SSVZ-M refer to page 844
- SILVYN® USK-M refer to page 845
- SILVYN® MPC-M refer to page 854
- SILVYN® MPC 90° M refer to page 854
- SILVYN® MPC refer to page 856
- SILVYN® MPC 90° refer to page 856
- SILVYN® USK refer to page 846
- SILVYN® SSV refer to page 847
- SILVYN® SSVZ refer to page 847
- SILVYN® SCH refer to page 848

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

ETIM 5.0 Class-ID: EC001177
ETIM 5.0 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

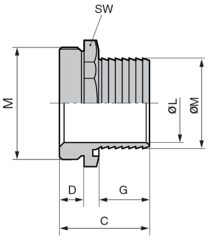
Temperature range
-20°C to +90°C

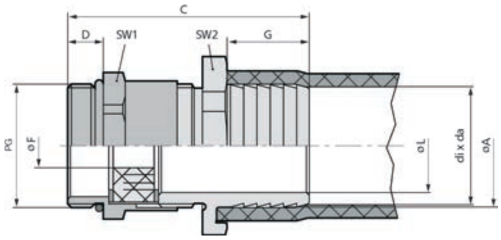
Article number	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® SSV-M/SSVZ-M	Suitable for SILVYN® USK-M	Suitable for SILVYN® SSV/SSVZ	Suitable for SILVYN® USK	Suitable for SILVYN® SCH	PU ring (m)
SILVYN® SP-PU								
61793620	10.0 x 14.0	50	16 x 1,5/1	12 x 1,5	9/1	9	10 - 16 S	25
61793630	12.0 x 16.0	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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® SSV-M refer to page 844
- SILVYN® SSVZ-M refer to page 844
- SILVYN® USK-M refer to page 845
- SILVYN® MPC-M refer to page 854
- SILVYN® MPC 90° M refer to page 854
- SILVYN® MPC refer to page 856
- SILVYN® MPC 90° refer to page 856
- SILVYN® USK refer to page 846
- SILVYN® SSV refer to page 847
- SILVYN® SSVZ refer to page 847
- SILVYN® SCH refer to page 848

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 841
- SILVYN® SP Page 842
- SILVYN® SP-PU Page 843

Technical data

SILVYN® SSV-M
ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

SILVYN® SSVZ-M
ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic hose

Material

SILVYN® SSV-M
Body: nickel-plated brass
O-ring: NBR

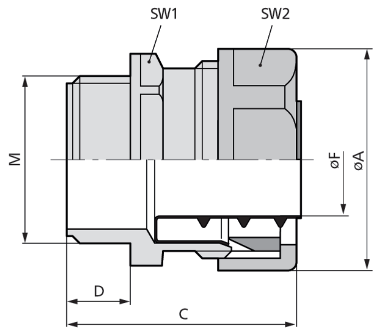
SILVYN® SSVZ-M
Body: nickel-plated brass
Incised sealing ring: CR
O-ring: NBR

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
55501960	63 x 1.5		64 / 66	71.6	10	46	40 - 60 S		50 x 56		5

Photographs are not to scale and do not represent detailed images of the respective products.

SILVYN® USK-M



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

- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

Note

- Included: SILVYN® EE-K inner sleeve

Suitable conduits

- SILVYN® FPS Page 857
- SILVYN® FD-PU Page 858
- SILVYN® SP Page 842
- SILVYN® SP-PU Page 843

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description:
Screw connection for protective plastic hose

Colour delivered
Silver grey (RAL 7001)

Material
PP

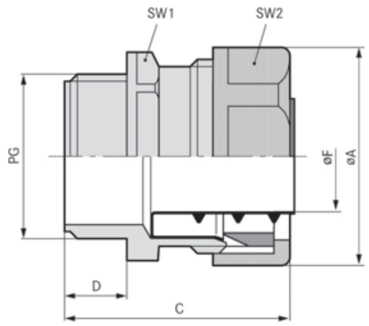
Protection rating
IP 54

Temperature range
-10°C to +110°C

Article number	Metric size	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

Photographs are not to scale and do not represent detailed images of the respective products.

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
- PG connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut

Note
- Included: SILVYN® EE-K inner sleeve

Suitable conduits
- SILVYN® FPS Page 857
- SILVYN® FD-PU Page 858
- SILVYN® SP Page 842
- SILVYN® SP-PU Page 843

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Colour delivered
Silver grey (RAL 7001)

Material
PP

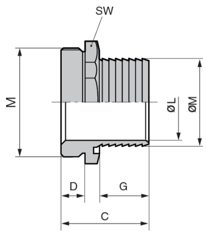
Protection rating
IP 54

Temperature range
-10°C to +110°C

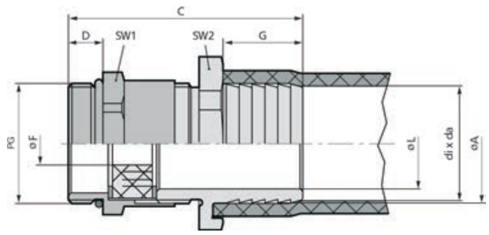
Article number	PG size	SW 1/2 mm	Overall length mm	Thread length mm	Clear opening (mm)	Suitable for SILVYN® FD-PU/FPS	Suitable for SILVYN® SP/SP-PU	Pieces / PU
SILVYN® USK								
52005810	7	16 / 18	40	10	6	7 x 10		50
52005820	9	21 / 23	41	10	9	10 x 14	10 x 14	50
52005830	11	24 / 27	41	10	11	13 x 17	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 are not to scale and do not represent detailed images of the respective products.

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 841
- SILVYN® SP Page 842
- SILVYN® SP-PU Page 843

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic 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 are not to scale and do not represent detailed images of the respective products.

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 range of clamping force

Product Make-up
- Galvanized steel ring
- Worm gear drive

Suitable conduits
- SILVYN® SI Page 841
- SILVYN® SP Page 842
- SILVYN® SP-PU Page 843

Technical data
ETIM 5.0 Class-ID: EC001172
ETIM 5.0 Class-Description:
Coupler for corrugated plastic hoses

Material
Steel, galvanized

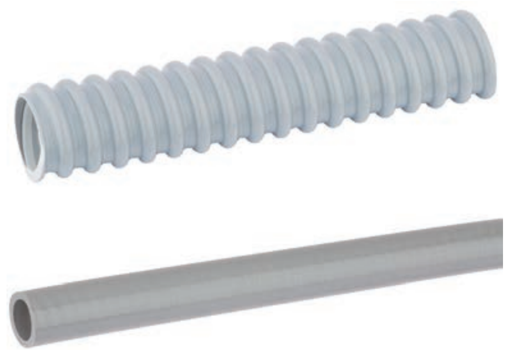
Article number	Article designation	Clamping range in mm	Suitable for SILVYN® SI/SP/SP-PU	Pieces / PU
SILVYN® SCH				
52003130	10 - 16 S	10.0 - 16.0	10 x 14 / 11 x 14	100
52003140	12 - 20 S	12.0 - 20.0	12 x 16 / 13 x 16 / 14 x 18	100
52003160	16 - 25 S	16.0 - 25.0	16 x 20 / 18 x 22 / 18 x 23	100
52003170	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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® SSV-M refer to page 844
- SILVYN® SSVZ-M refer to page 844
- SILVYN® SSV refer to page 847
- SILVYN® SSVZ refer to page 847

NEW

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

ETIM 5.0 Class-ID: EC001177
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® ELU refer to page 850
- SILVYN® ELT refer to page 852
- SILVYN® ELR refer to page 853

Accessories
- SILVYN® MPC-M refer to page 854
- SILVYN® MPC 45° M refer to page 855
- SILVYN® MPC 90° M refer to page 854
- SILVYN® MPC refer to page 856
- SILVYN® MPC 90° refer to page 856

NEW

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

Note
- Smooth version is not UL recognized

Technical data

ETIM 5.0 Class-ID: EC001177
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® MPC-M refer to page 854
- SILVYN® MPC 45° M refer to page 855
- SILVYN® MPC 90° M refer to page 854
- SILVYN® MPC refer to page 856
- SILVYN® MPC 90° refer to page 856

NEW

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
ETIM 5.0 Class-ID: EC001177
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® EL refer to page 849
- SILVYN® ELU refer to page 850
- SILVYN® ELT refer to page 852
- SILVYN® ELR refer to page 853

Accessories
- SILVYN® MPC-M refer to page 854
- SILVYN® MPC 45° M refer to page 855
- SILVYN® MPC 90° M refer to page 854
- SILVYN® MPC refer to page 856
- SILVYN® MPC 90° refer to page 856

NEW

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

Product Make-up
- Integrated hard PVC spiral
- Modified soft PVC sheath

Technical data

ETIM 5.0 Class-ID: EC001177
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® EL refer to page 849
- SILVYN® ELU refer to page 850
- SILVYN® ELR refer to page 853

Accessories

- SILVYN® MPC-M refer to page 854
- SILVYN® MPC 45° M refer to page 855
- SILVYN® MPC 90° M refer to page 854
- SILVYN® MPC refer to page 856
- SILVYN® MPC 90° refer to page 856

NEW

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

ETIM 5.0 Class-ID: EC001177
ETIM 5.0 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							
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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® MPC-M refer to page 854
- SILVYN® MPC 45° M refer to page 855
- SILVYN® MPC 90° M refer to page 854
- SILVYN® MPC refer to page 856
- SILVYN® MPC 90° refer to page 856

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 849
- SILVYN® ELÖ Page 851
- SILVYN® SP Page 842
- SILVYN® ELT Page 852
- SILVYN® SP-PU Page 843

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 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		12	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		12	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 are not to scale and do not represent detailed images of the respective products.

NEW

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 849

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 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	2
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	2

Photographs are not to scale and do not represent detailed images of the respective products.

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 849
- SILVYN® ELU Page 850
- SILVYN® ELÖ Page 851
- SILVYN® ELT Page 852
- SILVYN® ELR Page 853

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 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		12	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	2
SILVYN® MPC grey						
55502496	9	9	11 x 14		12	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	2
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® GMP-GL refer to page 812

SILVYN® FPS

SILVYN® MSK-M

SILVYN® USK/USK-M
IP54

SILVYN® US/US-M + EE-K
IP54

SILVYN® LKI/LKI-M
IP54

SILVYN® EE-K

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

Product Make-up
- PVC-insulated steel spring wire
- Soft PVC outer sheath

Note
- PU = 50 m (on request)

Technical data

ETIM 5.0 Class-ID: EC001177
ETIM 5.0 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

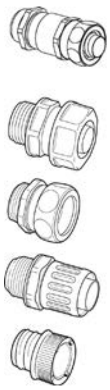
Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® USK-M/US-M	Suitable for SILVYN® LKI-M/MSK-M	Suitable for SILVYN® USK/US/LKI/EE-K	PU ring (m)
SILVYN® FPS							
61711550	10	7.0 x 10.0	8	10 x 1,0	12 x 1,5	7	25
61711590	14	10.0 x 14.0	10	12 x 1,5	16 x 1,5	9	25
61711630	17	13.0 x 17.0	13	16 x 1,5	20 x 1,5	11	25
61711670	19	15.0 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	22.0 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	13.0 x 17.0	13	16 x 1,5	20 x 1,5	11	10
61721720	19	15.0 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	22.0 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® FD-PU refer to page 858

Accessories
- SILVYN® MSK-M EE refer to page 859
- SILVYN® US-M refer to page 905
- SILVYN® LKI-M refer to page 860
- SILVYN® US refer to page 906
- SILVYN® USK-M refer to page 845
- SILVYN® LKI refer to page 860
- SILVYN® EE-K refer to page 861

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

ETIM 5.0 Class-ID: EC001177
ETIM 5.0 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 UL 94V-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	13.0 x 17.0	13	16 x 1,5	20 x 1,5	11	10
64453690	19	15.0 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	22.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® MSK-M EE refer to page 859
- SILVYN® US-M refer to page 905
- SILVYN® LKI-M refer to page 860
- SILVYN® US refer to page 906
- SILVYN® USK-M refer to page 845
- SILVYN® LKI refer to page 860
- SILVYN® EE-K refer to page 861

SILVYN® MSK-M EE

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 857
- SILVYN® FD-PU Page 858

Technical data
ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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	Suitable for SILVYN® FPS/FD-PU	Pieces / PU
SILVYN® MSK-M for SILVYN® FPS/FD-PU			
55506070	12 x 1.5	7 x 10	5
55506071	16 x 1.5	10 x 14	5
55506072	20 x 1.5	13 x 17	5
55506073	25 x 1.5	16 x 21	5
55506074	32 x 1.5	22 x 27	5
55506075	40 x 1.5	29 x 36	1
55506076	50 x 1.5	38 x 45	1
55506077	63 x 1.5	48 x 56	1
SILVYN® MSK-SC-M for SILVYN® FPS/FD-PU			
55506100	12 x 1.5	7 x 10	5
55506101	16 x 1.5	10 x 14	5
55506102	20 x 1.5	13 x 17	5
55506103	25 x 1.5	16 x 21	5
55506104	32 x 1.5	22 x 27	5
55506105	40 x 1.5	29 x 36	1
55506106	50 x 1.5	38 x 45	1

Other variations with multiple SKINTOP® DIX-M sealing inserts are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-M refer to page 763
- SKINTOP® DIX-M refer to page 740
- SKINTOP® DIX-DV refer to page 742

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 857
- SILVYN® FD-PU Page 858

Technical data
ETIM 5.0 Class-ID: EC001178
ETIM 5.0 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

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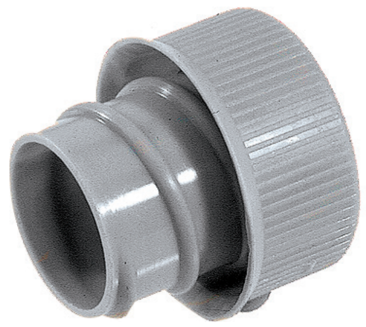
SILVYN® EE-K



Benefits
- Cable damage can be prevented

Application range
- In combination with protective conduit:
- SILVYN® FPS/ FD-PU
- SILVYN® SP/SP-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 857
- SILVYN® FD-PU Page 858
- SILVYN® SP Page 842
- SILVYN® SP-PU Page 843

Technical data

ETIM 5.0 Class-ID: EC000519
ETIM 5.0 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

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SILVYN® RILL PA 6

Info
- Maximum safety in the event of a fire

Technical data

ETIM 5.0 Class-ID: EC001175
ETIM 5.0 Class-Description:
Corrugated plastic hose

Certifications
IEC EN 61386-23
UL File No. E308201
DNV, Lloyd's Register
Rail:
DB DIN 5510 Part 2 (S4/SR2/ST2)
EN 45545-2 (HL-3)
SNCF NFF16 101 / 102 (I2/f2)
UNDERGROUND BS 6853

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

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

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	9/9	16x1,5/9	50
61746950	16	12.0 x 15.8	35	16 x 1,5/20 x 1,5	11/11	20x1,5/11	50
61747010	18	14.3 x 18.5	40		13,5/13,5	-/13,5	50
61746960	21	16.5 x 21.2	45	20 x 1,5	16/16	25x1,5/16	50
61746970	28	23.0 x 28.5	55	25 x 1,5	21/21	32x1,5/21	50
61746980	34	29.0 x 34.5	65	32 x 1,5	29/29	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	9/9	16x1,5/9	50
61746955	16	12.0 x 15.8	35	16 x 1,5/20 x 1,5	11/11	20x1,5/11	50
61747015	18	14.3 x 18.5	40		13,5/13,5	-/13,5	50
61746965	21	16.5 x 21.2	45	20 x 1,5	16/16	25x1,5/16	50
61746975	28	23.0 x 28.5	55	25 x 1,5	21/21	32x1,5/21	50
61746985	34	29.0 x 34.5	65	32 x 1,5	29/29	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 are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® FPAS refer to page 875
- SILVYN® RILL PA 12 refer to page 863

Accessories
- SILVYN® KLICK-M refer to page 864
- SILVYN® KLICK 90° M refer to page 865
- SILVYN® KLICK GPZ-M refer to page 866
- SILVYN® KSE refer to page 867
- SILVYN® KLICK PG refer to page 868
- SILVYN® KLICK 90° PG refer to page 869
- SILVYN® KLICK-GPZ refer to page 870
- SILVYN® KLICK-Y refer to page 871
- SILVYN® KLICK-RH refer to page 873
- SILVYN® K-EM refer to page 874

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
- Railway: DB, SNCF

Product Make-up
- Fine-profile corrugated polyamide 12 conduit

Note
- UV and weather-resistant in black

Technical data
ETIM 5.0 Class-ID: EC001175
ETIM 5.0 Class-Description: Corrugated plastic hose

Certifications
IEC EN 61386-23
Lloyd's Register
Rail:
DB DIN 5510 Part 2 (S4/SR2/ST2)
SNCF NFF 16-101 / 102 (I3/F2)

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 bis +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	9/9	16x1,5/9	50
61815120	16	12.0 x 15.8	22	16 x 1,5/20 x 1,5	11/11	20x1,5/11	50
61815180	18	14.3 x 18.5	27		13,5/13,5	-/13,5	50
61815130	21	16.5 x 21.2	35	20 x 1,5	16/16	25x1,5/16	50
61815140	28	23.0 x 28.5	45	25 x 1,5	21/21	32x1,5/21	50
61815150	34	29.0 x 34.5	50	32 x 1,5	29/29	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	9/9	16x1,5/9	50
61815125	16	12.0 x 15.8	22	16 x 1,5/20 x 1,5	11/11	20x1,5/11	50
61815185	18	14.3 x 18.5	27		13,5/13,5	-/13,5	50
61815135	21	16.5 x 21.2	35	20 x 1,5	16/16	25x1,5/16	50
61815145	28	23.0 x 28.5	45	25 x 1,5	21/21	32x1,5/21	50
61815155	34	29.0 x 34.5	50	32 x 1,5	29/29	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 are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® FPAS refer to page 875
- SILVYN® RILL PA 6 refer to page 862

Accessories
- SILVYN® KLICK-M refer to page 864
- SILVYN® KLICK 90° M refer to page 865
- SILVYN® KLICK GPZ-M refer to page 866
- SILVYN® KSE refer to page 867
- SILVYN® KLICK PG refer to page 868
- SILVYN® KLICK 90° PG refer to page 869
- SILVYN® KLICK-GPZ refer to page 870
- SILVYN® KLICK-Y refer to page 871
- SILVYN® KLICK-RH refer to page 873
- SILVYN® K-EM refer to page 874

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 PA6
- SILVYN® RILL PA12
- 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 862
- SILVYN® RILL PA 12 Page 863

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69 according to DIN 40050 T.9

Temperature range
-40 °C to +115 °C

Article number	Metric size	SW wrench size 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	17	12	6	10.0	10	50
55501010	12 x 1.5	20	12	7	13.0	13	50
55501020	16 x 1.5/1	20	12	10	13.0	13	50
55501030	16 x 1.5/2	23	12	11	15.8	16	50
55501040	20 x 1.5/1	23	13	12	15.8	16	50
55501050	20 x 1.5/2	29.5	13	16	21.2	21	50
55501060	25 x 1.5	37	13	17	28.5	28	25
55501070	32 x 1.5	44	15	25.5	34.5	34	25
55501080	40 x 1.5	51.5	17	32	42.5	42	25
55501090	50 x 1.5	65.5	17	42.5	54.5	54	10
55500990	63 x 1.5	59	17	49	54.5	54	10
SILVYN® KLICK-M black							
55501005	10 x 1.0	17	12	6	10.0	10	50
55501015	12 x 1.5	20	12	7	13.0	13	50
55501025	16 x 1.5/1	20	12	10	13.0	13	50
55501035	16 x 1.5/2	23	12	11	15.8	16	50
55501045	20 x 1.5/1	23	13	12	15.8	16	50
55501055	20 x 1.5/2	29.5	13	16	21.2	21	50
55501065	25 x 1.5	37	13	20.5	28.5	28	25
55501075	32 x 1.5	44	15	25.5	34.5	34	25
55501085	40 x 1.5	51.5	15	32	42.5	42	25
55501095	50 x 1.5	65.5	15.3	42.5	54.5	54	10
55500995	63 x 1.5	59	16	49	54.5	54	10

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® KLICK GPZ-M refer to page 866

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 PA6
- SILVYN® RILL PA12
- 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 862
- SILVYN® RILL PA 12 Page 863

Technical data
ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69 according to DIN 40050 T.9

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 are not to scale and do not represent detailed images of the respective products.

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 PA6
- SILVYN® RILL PA12
- 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 862
- SILVYN® RILL PA 12 Page 863

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

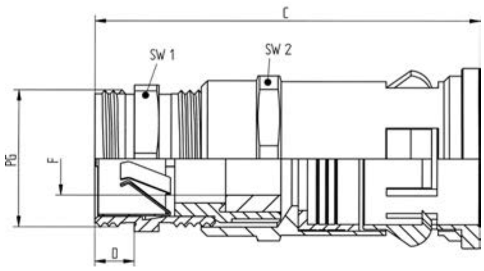
Protection rating
IP 68
IP 69 according to DIN 40050 T.9

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	21	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	11	18	28.5	28	10
55500850	40 x 1.5	16.0 - 26.0	40	12	25	34.5	34	10
55500860	50 x 1.5	27.0 - 35.0	49	13	32	42.5	42	10
55500870	63 x 1.5	32.0 - 42.0	60	14	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	21	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	11	18	28.5	28	10
55500855	40 x 1.5	16.0 - 26.0	40	12	25	34.5	34	10
55500865	50 x 1.5	27.0 - 35.0	49	13	32	42.5	42	10
55500875	63 x 1.5	32.0 - 42.0	60	14	44	54.5	54	10

Photographs are not to scale and do not represent detailed images of the respective products.

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 PA6
- SILVYN® RILL PA12
- 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 862
- SILVYN® RILL PA 12 Page 863

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective 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

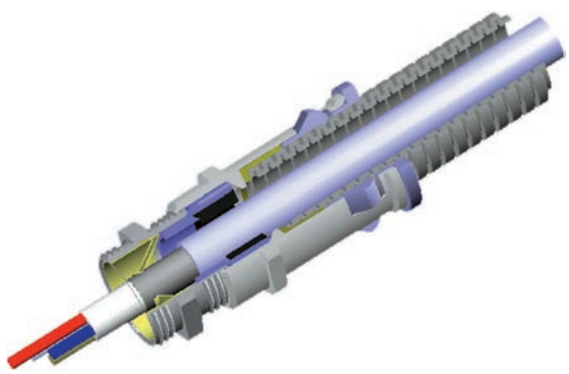
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® MSK-M EE refer to page 859
- SILVYN® MSK-M US refer to page 901
- SILVYN® KSE-M refer to page 881

Accessories

- SKINDICHT® SM-PE refer to page 817



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 PA6
- SILVYN® RILL PA12
- 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 862
- SILVYN® RILL PA 12 Page 863

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69 according to DIN 40050 T.9

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	15.5	10	10	7	10.0	10	50
61800870	9	18	10	10	10	13.0	13	50
61800880	11	21	10	10	12.5	15.8	16	50
61800850	13.5	24	11	11	13.5	18,5	18	50
61800890	16	27	12	12	17	21.2	21	50
61800900	21	34	12	12	23.5	28.5	28	25
61800910	29	40	12	12	30	34.5	34	25
61800920	36	49	12	12	36	42.5	42	25
61800930	48	60	15	15	47.5	54.5	54	10
SILVYN® KLICK PG black								
61800865	7	15.5	10	10	7	10.0	10	50
61800875	9	18	10	10	10	13.0	13	50
61800885	11	21	10	10	12.5	15.8	16	50
61800855	13.5	24	11	11	13.5	18,5	18	50
61800895	16	27	12	12	17	21.2	21	50
61800905	21	34	12	12	23.5	28.5	28	25
61800915	29	40	12	12	30	34.5	34	25
61800925	36	49	12	12	36	42.5	42	25
61800935	48	60	15	15	47.5	54.5	54	10

Photographs are not to scale and do not represent detailed images of the respective products.

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 PA6
- SILVYN® RILL PA12
- 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 862
- SILVYN® RILL PA 12 Page 863

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69 according to DIN 40050 T.9

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	13.5	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	13.5	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

Photographs are not to scale and do not represent detailed images of the respective products.

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 PA6
- SILVYN® RILL PA12
- 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 862
- SILVYN® RILL PA 12 Page 863

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69 according to DIN 40050 T.9

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	27	8	11	15.8	16	20
61801202	13.5	6.0 - 12.0	27	8	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	12	25	34.5	34	10
61801180	36	22.0 - 32.0	49	13	32	42.5	42	10
61801190	48	34.0 - 44.0	60	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	27	8	11	15.8	16	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	12	25	34.5	34	10
61801185	36	22.0 - 32.0	49	13	32	42.5	42	10
61801195	48	34.0 - 44.0	60	14	44	54.5	54	10

Photographs 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 PA6
- SILVYN® RILL PA12
- Y-distributor for SILVYN® RILL conduits

SILVYN® KLICK-Y (TPE)
- In combination with protective conduit:
- SILVYN® RILL PA6
- SILVYN® RILL PA12
- 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® KLICK-Y
- SILVYN® RILL PA 6 Page 862
- SILVYN® RILL PA 12 Page 863

SILVYN® KLICK-Y (TPE)
- SILVYN® RILL PA 6 Page 862

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

On request
SILVYN® KLICK-Y
More sizes / combinations

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
SILVYN® KLICK-Y
PA6
SILVYN® KLICK-Y (TPE)
TPE

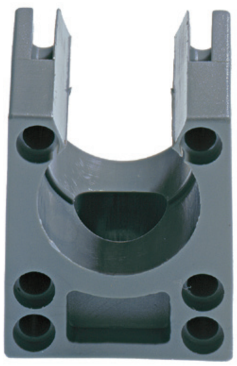
Protection rating
SILVYN® KLICK-Y
IP 68
IP 69 according to DIN 40050 T.9
SILVYN® KLICK-Y (TPE)
IP 66

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 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 PA6
- SILVYN® RILL PA12
- 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 862

Technical data

ETIM 5.0 Class-ID: EC001171
ETIM 5.0 Class-Description:
Holder for protective hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Temperature range
SILVYN® KLICK-S
-30°C to +70°C
SILVYN® KLICK-D
-40 °C to +115 °C
SILVYN® KLICK-V
-40 °C to +115 °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-D grey			
61811200	10/13		100
61811260	16		50
61811210	21		50
61811220	28		50
61811230	34		30
61811240	42		20
61811250	54		20
SILVYN® KLICK-D black			
61811205	13		100
61811265	16		50
61811215	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

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NEW

SILVYN® KLICK-RH

Info

- New design

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 PA6
- SILVYN® RILL PA12
- 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

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- One-piece conduit holder with M5/M6 borehole for fixation

Suitable conduits
- SILVYN® RILL PA 6 Page 862
- SILVYN® RILL PA 12 Page 863

Technical data
ETIM 5.0 Class-ID: EC001171
ETIM 5.0 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

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ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

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 PA6
- SILVYN® RILL PA12
- Intersection or end sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 862
- SILVYN® RILL PA 12 Page 863

Technical data

ETIM 5.0 Class-ID: EC000519
ETIM 5.0 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

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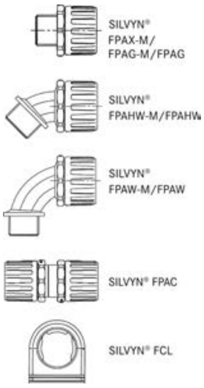
NEW

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

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

- Fine-profile corrugated polyamide 6 conduit

Technical data

ETIM 5.0 Class-ID: EC001175
ETIM 5.0 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 UL 94V-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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® FPAX-M refer to page 876
- SILVYN® FPAX 90° M refer to page 877
- SILVYN® FPAG-M refer to page 879
- SILVYN® FPAG 45° M
- SILVYN® FPAG 90° M refer to page 880
- SILVYN® KSE-M refer to page 881
- SILVYN® FPAG PG refer to page 884
- SILVYN® FPAG 90° PG refer to page 884
- SILVYN® FLEXILOK M refer to page 882
- SILVYN® FLEXILOK 90° M refer to page 882
- SILVYN® FLEXILOK PG refer to page 883
- SILVYN® FLEXILOK 90° PG refer to page 883
- SILVYN® FCL refer to page 885
- SILVYN® FPAC refer to page 886

NEW

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 875

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Certifications
IEC EN 61386-23

On request
PG or NPT connection thread

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 10	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
SILVYN® FPAX-M grey			
55506235	16 x 1.5/1	FPAS 10	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

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 738

NEW

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 875

Technical data
ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective 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 10	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	2
55507307	50 x 1.5/1	FPAS 42	2
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 10	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	2
55507317	50 x 1.5/1	FPAS 42	2
55507318	50 x 1.5/2	FPAS 54	1
55507319	63 x 1.5	FPAS 54	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 738

NEW

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

RAL **Colour delivered**
SILVYN® FPAX T
Black (RAL 9005), UV-resistant

Material
PA66
Halogen-free
Polyester Elastomer

IP **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 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 875

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective 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 1.5/1	13.0	13	10
55506325	16 x 1.5/2	15.8	16	10
55506335	20 x 1.5/1	15.8	16	10
55506345	20 x 1.5/2	21.2	21	10
55507055	20 x 1.5/3	18.5	18	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 1.5/1	42.5	42	2
55506395	50 x 1.5/2	54.5	54	2
55506405	63 x 1,5/1	54.5	54	2
55506475	63 x 1,5/2	67.2	67	2
SILVYN® FPAG-M grey				
55506300	12 x 1.5	10.0	10	10
55506310	16 x 1.5/1	13.0	13	10
55506320	16 x 1.5/2	15.8	16	10
55506330	20 x 1.5/1	15.8	16	10
55506340	20 x 1.5/2	21.2	21	10
55507050	20 x 1.5/3	18.5	18	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 1.5/1	42.5	42	2
55506390	50 x 1.5/2	54.5	54	2
55506400	63 x 1,5/1	54.5	54	2
55506470	63 x 1,5/2	67.2	67	2

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® FPAX-M refer to page 876
- SILVYN® KSE-M refer to page 881

Accessories
- SKINTOP® GMP-GL-M refer to page 738

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 875

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective 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 1.5/1	13	10
55506505	16 x 1.5/2	16	10
55506515	20 x 1.5/1	16	10
55506525	20 x 1.5/2	21	10
55507075	20 x 1.5/3	18	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 1.5/1	42	1
55506565	50 x 1.5/2	54	1
55506575	63 x 1,5/1	54	1
55507095	63 x 1,5/2	67	1
SILVYN® FPAG 90° M grey			
55506480	12 x 1.5	10	10
55506490	16 x 1.5/1	13	10
55506500	16 x 1.5/2	16	10
55506510	20 x 1.5/1	16	10
55506520	20 x 1.5/2	21	10
55507070	20 x 1.5/3	18	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 1.5/1	42	1
55506560	50 x 1.5/2	54	1
55506570	63 x 1,5/1	54	1
55507090	63 x 1,5/2	67	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 738

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 875

Technical data
ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Certifications
IEC EN 61386-23

On request
With 45° elbow
With 90° elbow

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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-PE-M refer to page 763

NEW

SILVYN® FLEXILOK M / SILVYN® FLEXILOK 90° M

SILVYN® FLEXILOK M

SILVYN® FLEXILOK 90° M

Info
- Extremely economical
- New purchasing unit

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 875

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective 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 1.5/1	12	FPAS 10	13,0	10
65500425	16 x 1.5/2	12	FPAS 16	15,8	10
65500415	20 x 1.5/1	14	FPAS 10	13,0	10
65500435	20 x 1.5/2	14	FPAS 16	15,8	10
65500445	20 x 1.5/3	14	FPAS 21	21,2	10
65500455	25 x 1.5	15	FPAS 28	28,5	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 1.5/1	12	FPAS 10	13,0	10
65500420	16 x 1.5/2	12	FPAS 16	15,8	10
65500410	20 x 1.5/1	14	FPAS 10	13,0	10
65500430	20 x 1.5/2	14	FPAS 16	15,8	10
65500440	20 x 1.5/3	14	FPAS 21	21,2	10
65500610	25 x 1.5	15	FPAS 28	28,5	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 1.5/1	14	FPAS 16	15,8	10
68100110	20 x 1.5/2	14	FPAS 21	21,2	10
68100115	25 x 1.5	15	FPAS 28	28,5	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 1.5/1	14	FPAS 16	15,8	10
68100135	20 x 1.5/2	14	FPAS 21	21,2	10
68100140	25 x 1.5	15	FPAS 28	28,5	10
68100145	32 x 1.5	16	FPAS 34	34,5	10

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL-M refer to page 738

NEW

SILVYN® FLEXILOK PG / SILVYN® FLEXILOK 90° PG

Info

- Extremely economical
- New purchasing unit

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 875

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective 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 10	13,0	10
65500495	9 / 2	10	FPAS 16	15,8	10
65500485	11 / 1	10	FPAS 10	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 10	13,0	10
65500490	9 / 2	10	FPAS 16	15,8	10
65500480	11 / 1	10	FPAS 10	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 are not to scale and do not represent detailed images of the respective products.

Accessories

SILVYN® FLEXILOK PG
- SKINTOP® GMP-GL refer to page 812

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 875

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Certifications
IEC EN 61386-23

On request
SILVYN® FPAG PG
IP68 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	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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® GMP-GL refer to page 812

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 875

SILVYN® FPAS Page 875

Technical data
ETIM 5.0 Class-ID: EC001171
ETIM 5.0 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
55506955	34	6	34	10
55506965	42	6	42	5
55506975	54	6	54	5
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
55506950	34	6	34	10
55506960	42	6	42	5
55506970	54	6	54	5

Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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 875

Technical data

ETIM 5.0 Class-ID: EC001171
ETIM 5.0 Class-Description:
Holder for protective hose

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	5
55507006	20	20	5
55507015	21	21	5
55507016	25	25	5
55507025	28	28	5
55507035	34	34	5
55507036	42	42	2
55507037	54	54	2
SILVYN® FPAC grey			
55507000	16	16	5
55507001	20	20	5
55507010	21	21	5
55507011	25	25	5
55507020	28	28	5
55507030	34	34	5
55507031	42	42	2
55507032	54	54	2

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

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

ETIM 5.0 Class-ID: EC000519
ETIM 5.0 Class-Description:
Terminal sleeve for protective hose

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 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

ETIM 5.0 Class-ID: EC001175
ETIM 5.0 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	Article designation	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® FPAG-M / FLEXILOK-M	Suitable for SILVYN® HG-M / HW-M	PU ring (m)
SILVYN® HCC							
61793970	12	12	8,9 x 13.0	25	12		50
61793980	16	16	11,1 x 16.0	30	16		50
61793990	20	20	13,5 x 20.0	40	20		50
61794000	25	25	17,7 x 25.0	50	25		50
61794010	32	32	24,3 x 32.0	65		32	25
61794020	40	40	30,2 x 40.0	85		40	25
61794030	50	50	40,1 x 50.0	110		50	25
61794035	63	63	52,5 x 63.0	130		63	25

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® FPAG-M refer to page 879
- SILVYN® HG-M refer to page 889
- SILVYN® HW-M refer to page 889
- SILVYN® FLEXILOK M refer to page 882
- SILVYN® FCL refer to page 885

SILVYN® HG-M / SILVYN® HW-M


SILVYN® HG-M


SILVYN® HW-M

Benefits

SILVYN® HG-M
- Easy to disassemble
- High-tensile
- Sealing

SILVYN® HW-M
- 90° elbow allows easy installation
- Easy to disassemble
- High-tensile
- Sealing

Application range

SILVYN® HG-M
- In combination with protective conduit
- SILVYN® HCC

SILVYN® HW-M
- In combination with protective conduit
- SILVYN® HCC
- For applications with limited space

Product Make-up

SILVYN® HG-M
- Metric connection thread
- Body with sealing and clamping ring
- Cap nut

SILVYN® HW-M
- Metric connection thread
- 90° elbow
- Body with sealing and clamping ring
- Cap nut

Note

SILVYN® HG-M
- In black colour UV-resistant and weather-proofed

SILVYN® HW-M
- UV-resistant and weather-resistant

Suitable conduits

- SILVYN® HCC Page 888

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective 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					
55501640	32 x 1,5	47	15	32	30
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
SILVYN® HW-M					
55501720	32 x 1,5		15	32	10

Photographs 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

ETIM 5.0 Class-ID: EC001175
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® AFG-PA refer to page 891
- SILVYN® AFW-PA refer to page 891

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

SILVYN® AFG-PA
- In combination with protective conduit
- SILVYN® MAXI PA
- Mechanical engineering
- Bundling and guiding of cables and wires

SILVYN® gasket AFG-PA / AFW-PA
- In combination with protective conduit
- SILVYN® MAXI PA
- SILVYN® AFG-PA
- SILVYN® AFW-PA

SILVYN® AFW-PA
- In combination with protective conduit
- SILVYN® MAXI PA
- Mechanical engineering
- Bundling and guiding of cables and wires

Norm references / Approvals

SILVYN® AFG-PA
- UL FILENUMBER E308201

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 890

Technical data

ETIM 5.0 Class-ID: EC000781
ETIM 5.0 Class-Description:
Sealing for hose screw connection

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6
Halogen-free

Protection rating
IP 54
IP 66 with AFG-PA/AFW-PA seal

Temperature range
-40 °C to +115 °C

Article number	Nominal size	Overall length, C (mm)	Pieces / PU
SILVYN® AFG-PA grey			
55001080	70	60.5	1
55001081	95	74	1
SILVYN® AFG-PA black			
55001085	70	60.5	1
55001086	95	74	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 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 891

SILVYN® Dichtung AFG-PA / AFW-PA
- SILVYN® gasket AFG-PA / AFW-PA refer to page 891
- SILVYN® AFW-PA refer to page 891

SILVYN® AFW-PA
- SILVYN® gasket AFG-PA / AFW-PA refer to page 891

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

NEW

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

ETIM 5.0 Class-ID: EC001175
ETIM 5.0 Class-Description: Corrugated plastic hose

Colour delivered
Black (RAL 9005), UV-resistant

Material
PA 6
Halogen-free
Fire behaviour according to UL 94 HB

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 are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® FPAS refer to page 875
- SILVYN® RILL PA 6 refer to page 862

Accessories

- SILVYN® Conduit scissor refer to page 936
- SKINTOP® GMP-GL-M refer to page 738
- SILVYN® SPLIT COS refer to page 894
- SILVYN® SEALING WASHER refer to page 935
- SKINDICHT® JT PTFE metric refer to page 780

NEW

SILVYN® SPLIT

Info

- New sizes are available

Benefits

- Dimensionally stable
- Flexible
- Crush-resistant
- Subsequent cable protection after cable installation
- 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

Technical data

ETIM 5.0 Class-ID: EC001175
ETIM 5.0 Class-Description: Corrugated plastic hose

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	8.4 x 13.4	15	M16/PG9	50
61806631	11	11.0 x 16.1	15		50
61806630	14	12.5 x 18.5	15	M20/PG13,5	50
61806641	16	16.0 x 21.5	20		50
61806640	20	19.2 x 25.3	25	M25/PG21	50
61806650	23	23.4 x 30.8	35	M32/PG29	50
61806651	29	27.3 x 35.5	35		50
61806660	37	31.0 x 41.4	40	M40/PG29	25
61806670	45	42.7 x 54.0	70	M50	25
61806671	70	67.5 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® SINUS

Accessories

- SILVYN® SPLIT COV refer to page 894
- SILVYN® SPLIT GMP-M refer to page 894
- SILVYN® SPLIT COS refer to page 894
- Spare tool Cable - Eater refer to page 1057

SILVYN® SPLIT COV / SILVYN® SPLIT GMP-M / SILVYN® SPLIT COS

SILVYN® SPLIT GMP-M

SILVYN® SPLIT COV

SILVYN® SPLIT COS

Benefits

SILVYN® SPLIT COV
- 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
- 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
- Included: divisable counter nut

SILVYN® SPLIT COS
- One-piece conduit holder

Note
- UV-resistant and weather-resistant

Suitable conduits
- SILVYN® SPLIT Page 893

Technical data

ETIM 5.0 Class-ID: EC001176
ETIM 5.0 Class-Description: Screw connection for corrugated plastic hose

Colour delivered
Black (RAL 9005), UV-resistant

Material
Halogen-free PA

Temperature range
-40°C to +120°C

Article number	Nominal size	Metric size	PG size	Hole Ø (mm)	Suitable for SILVYN® SPLIT	Pieces / PU
SILVYN® SPLIT COV (counter nut included)						
61806760			9		10	100
61806770			13.5		14	100
61806780			21		20	50
61806790			29		23	50
61806800			29		37	25
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 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

Norm references / Approvals

- NFR-13-903 from 8.4 x 11.4

Product Make-up

- Fine-profile corrugated polyamide 6 conduit with sinusodial slit

Note

- On request
- SILVYN® RILL PA6 SINUS PP (polypropylene)

Technical data

ETIM 5.0 Class-ID: EC001175
ETIM 5.0 Class-Description: Corrugated plastic hose

Certifications
GGVS, NFR-13-903
from 8.4 x 11.4

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	SPLIT COS 20 / 6180 6710	50
61806580	23,2 x 28,3	FCL 28 / 5550 6945	50

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® SPLIT refer to page 893

Accessories

- SILVYN® SPLIT GMP-M refer to page 894
- SILVYN® SPLIT COS refer to page 894
- SILVYN® FCL refer to page 885
- STKP tool of the cable eater serves as an insertion tool

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

SILVYN® AS

Benefits
- High-tensile
- High crush-resistance
- Flexible
- High mechanical resistance
- Heat-resistant

Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Rolling stock
- 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
- Spirally-wound metal protective conduit with roughened profile

Note
- PU = 10m (on request)

Technical data
ETIM 5.0 Class-ID: EC001179
ETIM 5.0 Class-Description: Protective metallic hose

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 are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® EDU-AS refer to page 898

Accessories
- SILVYN® MSK-M US refer to page 901
- SILVYN® US-M refer to page 905
- SILVYN® US refer to page 906
- SILVYN® US-AS refer to page 907

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

- Spirally-wound metal protective conduit with roughened profile
- PVC sheath

Technical data

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 Class-Description: Protective metallic hose

Colour delivered
Grey

Material
Inner conduit: steel, galvanised
Outer sheath: PVC

Temperature range
-25°C to +80°C
Short-term: up to +100°C

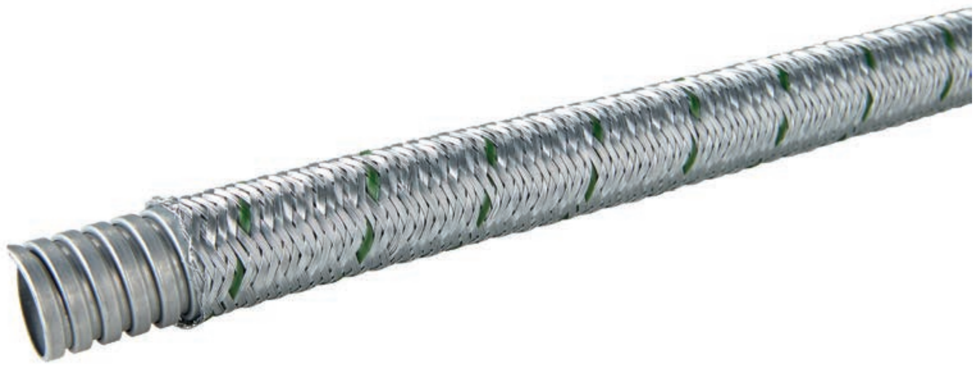
Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for SILVYN® MSK-M	Suitable for SILVYN® US-M	Suitable for SILVYN® US	PU ring (m)
SILVYN® AS-P							
64400010	10	7.0 x 10.0	32	12 x 1,5	10 x 1,0	7	50
64400020	14	10.0 x 14.0	40	16 x 1,5	12 x 1,5	9	50
64400030	17	13.0 x 17.0	45	20 x 1,5	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 10M							
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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® MSK-M US refer to page 901
- SILVYN® US-M refer to page 905
- SILVYN® US refer to page 906
- SILVYN® US-AS refer to page 907
- SILVYN® US-EDU-AS refer to page 907

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

- Spirally-wound metal protective conduit with roughened profile
- Galvanised steel wire braiding

Note

- PU = 10m (on request)

Technical data

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 Class-Description: Protective metallic hose

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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® MSK-M US refer to page 901
- SILVYN® US-M refer to page 905
- SILVYN® US refer to page 906
- SILVYN® US-EDU-AS refer to page 907
- SILVYN® US-MS-DR

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

- Spirally-wound metal protective conduit with roughened profile
- Tinned-copper braiding

Technical data

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 Class-Description: Protective metallic hose

Material
Inner conduit: galvanized steel
Braiding: tinned copper wire

Temperature range
Up to +150°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
64400503	19	15.0 x 19.0	45			13,5	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- 3M Scotch™ 1183 screening tape refer to page 1044
- SILVYN® MSK-M US refer to page 901
- SILVYN® US-M refer to page 905
- SILVYN® US refer to page 906
- SILVYN® US-EDU-AS refer to page 907
- SILVYN® US-MS-DR

NEW

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

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 Class-Description: Protective metallic hose

Material
insulated spring steel wire with Soft PVC and galvanized steel braid

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® 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® FPS refer to page 857
- SILVYN® FD-PU refer to page 858
- SILVYN® EDU-AS refer to page 898

Accessories

- SILVYN® MSK-M US refer to page 901
- SILVYN® US-M refer to page 905
- SILVYN® US refer to page 906

SILVYN® MSK-M US

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 896
- SILVYN® AS-P Page 897
- SILVYN® EDU-AS Page 898
- SILVYN® EMC AS-CU Page 899

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® MSK-M for SILVYN® AS			
55506080	12 x 1.5	10	5
55506081	16 x 1.5	14	5
55506082	20 x 1.5	17	5
55506083	25 x 1.5	21	5
55506084	32 x 1.5	27	5
55506085	40 x 1.5	36	1
55506086	50 x 1.5	45	1
55506087	63 x 1.5	56	1
SILVYN® MSK-M for SILVYN® AS-P / EDU-AS / EMC AS-CU			
55506090	12 x 1.5	10	5
55506091	16 x 1.5	14	5
55506092	20 x 1.5	17	5
55506093	25 x 1.5	21	5
55506094	32 x 1.5	27	5
55506095	40 x 1.5	36	1
55506096	50 x 1.5	45	1
55506097	63 x 1.5	56	1
SILVYN® MSK-SC-M for SILVYN® AS			
55506110	12 x 1.5	10	5
55506111	16 x 1.5	14	5
55506112	20 x 1.5	17	5
55506113	25 x 1.5	21	5
55506114	32 x 1.5	27	5
55506115	40 x 1.5	36	1
55506116	50 x 1.5	45	1
SILVYN® MSK-SC-M for SILVYN® AS-P / EDU-AS / EMC AS-CU			
55506120	12 x 1.5	10	5
55506121	16 x 1.5	14	5
55506122	20 x 1.5	17	5
55506123	25 x 1.5	21	5
55506124	32 x 1.5	27	5
55506125	40 x 1.5	36	1
55506126	50 x 1.5	45	1

Other variations with multiple SKINTOP® DIX-M sealing inserts are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-M refer to page 763
- SKINTOP® DIX-M refer to page 740
- SKINTOP® DIX-M AUTOMATION refer to page 741
- SKINTOP® DIX-DV refer to page 742

LAPP GROUP

NEW

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 896
- SILVYN® AS-P Page 897
- SILVYN® EDU-AS Page 898
- SILVYN® EMC AS-CU Page 899

Technical data
ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® MSK-M for SILVYN® AS			
55506020	25 x 1.5	21	10
55506021	32 x 1.5	27	1
55506022	40 x 1.5	36	1
55506023	50 x 1.5	45	1
55506024	63 x 1.5	56	1
SILVYN® MSK-M for SILVYN® AS-P / EDU-AS / EMC AS-CU			
55506025	25 x 1.5	21	10
55506026	32 x 1.5	27	1
55506027	40 x 1.5	36	1
55506028	50 x 1.5	45	1
55506029	63 x 1.5	56	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM-M refer to page 763
- SKINTOP® DIX-M refer to page 740
- SKINTOP® DIX-M AUTOMATION refer to page 741
- SKINTOP® DIX-DV refer to page 742

NEW

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 896
- SILVYN® EDU-AS Page 898
- SILVYN® EMC AS-CU Page 899

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® MSK-M ATEX for SILVYN® AS			
55506010	12 x 1.5	10	5
55506011	16 x 1.5	14	5
55506012	20 x 1.5	17	5
55506013	25 x 1.5	21	5
55506014	32 x 1.5	27	5
55506015	40 x 1.5	36	1
55506016	50 x 1.5	45	1
55506017	63 x 1.5	56	1
SILVYN® MSK-M ATEX for SILVYN® EDU-AS / EMC AS-CU			
55506018	12 x 1.5	10	5
55506019	16 x 1.5	14	5
55506036	20 x 1.5	17	5
55506037	25 x 1.5	21	5
55506038	32 x 1.5	27	5
55506039	40 x 1.5	36	1
55506040	50 x 1.5	45	1
55506041	63 x 1.5	56	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINMATIC® MH Set refer to page 782

NEW

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 896
- SILVYN® EDU-AS Page 898
- SILVYN® EMC AS-CU Page 899

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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	Suitable for conduit OØ (mm)	Pieces / PU
SILVYN® MSK-M ATEX BRUSH for SILVYN® AS			
55506042	25 x 1.5	21	10
55506043	32 x 1.5	27	1
55506044	40 x 1.5	36	1
55506045	50 x 1.5	45	1
55506030	63 x 1.5	56	1
SILVYN® MSK-M ATEX BRUSH for SILVYN® EDU-AS / EMC AS-CU			
55506031	25 x 1.5	21	10
55506032	32 x 1.5	27	1
55506033	40 x 1.5	36	1
55506034	50 x 1.5	45	1
55506035	63 x 1.5	56	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINMATIC® MH Set refer to page 782

NEW

SILVYN® US-M

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
- SILVYN® FPS/FD-PU/FPS-EDU
- 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® FPS Page 857
- SILVYN® FD-PU Page 858
- SILVYN® AS-P Page 897
- SILVYN® EDU-AS Page 898
- SILVYN® EMC AS-CU Page 899
- SILVYN® FPS-EDU Page 900

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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 54 (with SILVYN® FPS, FD-PU, FPS-EDU)
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® 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-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
55502632	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
55502637	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
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

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® MSK-M EE refer to page 859
- SILVYN® MSK-M US refer to page 901

Accessories
- SKINDICHT® SM-M refer to page 763

NEW

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
- SILVYN® FPS/FD-PU/FPS-EDU
- 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 896
- SILVYN® FPS Page 857
- SILVYN® FD-PU Page 858
- SILVYN® AS-P Page 897
- SILVYN® EDU-AS Page 898
- SILVYN® EMC AS-CU Page 899
- SILVYN® FPS-EDU Page 900

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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 54 (with SILVYN® FPS, FD-PU, FPS-EDU)
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® 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
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
55502681	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
55502686	29	27.5	36	20
55502687	36	36.5	45	20
55502688	48	47.5	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

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINDICHT® SM refer to page 817

SILVYN® US-AS / SILVYN® US-EDU-AS

SILVYN® US-AS

SILVYN® US-EDU-AS

Benefits
- Cable damage can be prevented

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

Product features
- All-round collar completely covers the protective conduit end

Product Make-up
- Threaded sleeve

Suitable conduits
SILVYN® US-AS
- SILVYN® AS Page 896

SILVYN® US-EDU-AS
- SILVYN® AS Page 896
- SILVYN® EDU-AS Page 898
- SILVYN® EMC AS-CU Page 899

Technical data

ETIM 5.0 Class-ID: EC000519
ETIM 5.0 Class-Description:
Terminal sleeve for protective hose

Material
SILVYN® US-AS
Nickel-plated brass
SILVYN® US-EDU-AS
Brass

Temperature range
-40 °C to +250 °C

Article number	Nominal size	Pieces / PU
SILVYN® US-AS for SILVYN® AS		
61802180	10	50
61802190	14	50
61802200	17	50
61802210	19	50
61802220	21	50
61802230	27	25
61802240	36	25
61802250	45	20
61802270	56	10
SILVYN® US-EDU-AS for SILVYN® AS-P / EDU-AS / EMC AS-CU		
61802480	10	50
61802490	14	50
61802500	17	50
61802510	19	50
61802520	21	50
61802530	27	25
61802540	36	25
61802550	45	20
61802570	56	10

Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

SILVYN® SSUE

Benefits
- High-tensile
- Corrosion-resistant
- Flexible
- For high mechanical stress
- Heat-resistant

Application range
- Offshore applications
- Measuring technology
- Plant engineering
- Outdoors
- Applications with high mechanical stress

Product features
- Stainless steel AISI 316

Product Make-up
- Spirally-wound stainless steel protective conduit

Note
- Sizes 10, 12 with double-interlocked Agraff profile

Technical data

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 Class-Description: Protective metallic hose

Certifications
IEC EN 61386-23

Note
Sizes 10, 12 with double-interlocked Agraff profile

Material
Stainless steel AISI 316
DW Nr. 1.4404

Protection rating
IP 40

Temperature range
-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® SSUE					
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 1,5/1	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 are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® UI 511 refer to page 912

Accessories
- SILVYN® LGES-M refer to page 909
- SILVYN® LGEF-M refer to page 910

SILVYN® LGES-M

Info
- Swivelling upper part with integrated inner sleeve

Benefits
- Corrosion-resistant
- For rotating applications
- High tensile strength
- Space-saving

Application range
- In combination with protective conduit:
- SILVYN® SSUE
- Offshore applications
- Outdoors
- Applications with high mechanical stress

Product features
- Stainless steel AISI 316

Product Make-up
- Metric connection thread
- Hexagonal collar with torsion element
- Cap nut

Suitable conduits
- SILVYN® SSUE Page 908

Technical data
ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic hose

Certifications
IEC EN 61386-23

Material
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® SSUE	Pieces / PU
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
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	10
55503496	40 x 1.5	48	51.2	14	40	10
55503497	50 x 1.5	58	54.2	15	50	10
55503498	63 x 1.5	70	63.2	18	63	10

Photographs are not to scale and do not represent detailed images of the respective products.

SILVYN® LGEF-M

Benefits
- Corrosion-resistant
- For fixed applications
- High tensile strength
- Space-saving

Application range
- In combination with protective conduit:
- SILVYN® SSUE
- Offshore applications
- Outdoors
- Applications with high mechanical stress

Product Make-up
- Metric connection thread
- Hexagonal collar
- Cap nut

Suitable conduits
- SILVYN® SSUE Page 908

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic hose

Certifications
IEC EN 61386-23

Material
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® SSUE	Pieces / PU
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
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	10
55503175	40 x 1.5	48	39	14	40	10
55503176	50 x 1.5	58	42	15	50	10
55503177	63 x 1.5	70	50	18	63	10
55503178	75 x 1,5	84	60	20	75	10

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

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® SSUE
- Conduit end cover
- If no conduit fitting is used
- Applications with high mechanical stress

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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® SSUE	Pieces / PU
SILVYN® LGEP			
55503179	10	10	10
55503180	12	12	10
55503181	16	16	10
55503182	20	20	10
55503183	25	25	10
55503184	32	32	10
55503185	40	40	10
55503186	50	50	10
55503187	63	63	10
55503188	75	75	10

Photographs 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

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 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 16.5	65.0/80.0	30
61799817	1/2”	17.0 x 20.3	75.0/100.0	30
61799818	3/4”	22.0 x 25.3	90.0/125.0	30
61799819	1”	25.8 x 31.0	120.0/160.0	30
61799820	1 1/4”	34.2 x 39.5	175.0/220.0	30
61799822	2”	52.0 x 58.0	285.0/340.0	15

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® SSUE

Accessories
- SILVYN® UI COMPACT M refer to page 913

NEW

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
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 are not to scale and do not represent detailed images of the respective products.

SILVYN® HIPROJACKET / SILVYN® HIPROSILTAPE

SILVYN® HIPROJACKET

SILVYN® HIPROSILTAPE

Info

- Outstanding protection for extreme impact of heat

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 refer to page 998

Technical data

SILVYN® HIPROJACKET
ETIM 5.0 Class-ID: EC001175
ETIM 5.0 Class-Description: Corrugated plastic hose
SILVYN® HIPROSILTAPE
ETIM 5.0 Class-ID: EC000128

Certifications
SILVYN® HIPROJACKET
NFF 16-101 I2 (French railway system)

On request
SILVYN® HIPROJACKET
Other sizes, lengths and colours are available upon request

Colour delivered
Red

Material
SILVYN® HIPROJACKET
Glass fibre with iron oxide silicone coat
LOI 42.5
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.
+1090°C for approx. 10 minutes
+1640°C for approx. 15-30 seconds
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 are not to scale and do not represent detailed images of the respective products.

Accessories

SILVYN® HIPROJACKET
- Multipurpose shears A and B refer to page 998

NEW

SILVYN® HIPROJACKET AMG

Info

- Suitable fitting for use with SILVYN® HIPROJACKET

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

Technical data

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 are not to scale and do not represent detailed images of the respective products.

SILVYN® CNP / SILVYN® CNP conduit gland

SILVYN® CNP

SILVYN® CNP conduit gland

Benefits

SILVYN® CNP
- Protection against mechanical stress
- Protects against liquids
- Bendable
- Highly oil and acid-resistant

SILVYN® CNP conduit gland
- 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 conduit gland
- 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

SILVYN® CNP
ETIM 5.0 Class-ID: EC001177
ETIM 5.0 Class-Description:
Protective plastic hose
SILVYN® CNP conduit gland
ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description:
Screw connection for protective metallic hose

RAL

Colour delivered
SILVYN® CNP
Orange

Material
SILVYN® CNP
PVC compound with nylon fabric
SILVYN® CNP conduit gland
Body: cast steel with zinc-plated surface
Inner sleeve: PA

IP

SILVYN® CNP conduit gland
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 conduit gland
-45°C to +105°C

Article number	Nominal size	ID x OD mm	NPT size	Static/dynamic bending radius in mm	SW wrench size mm	Overall length mm	ID mm	For conduit with outer Ø (mm)	Internal Ø	Suitable for SILVYN® CNP-G	PU ring (m)
SILVYN® CNP											
61712930	3/8"	12.6 x 19.4		70.0/100.0			12.6	19.4	12.6	1/2"	76
61722330	1/2"	16.1 x 23.4		90.0/125.0			16.1	23.4	16.1	1/2"	60
61722340	3/4"	21.0 x 29.5		115.0/160.0			21	29.5	21	3/4"	53
61712460	1"	26.5 x 36.3		170.0/200.0			26.5	36.3	26.5	1"	30
61712910	1 1/4"	31.5 x 46.0		200.0/240.0			31.5	46.0	31.5	1 1/4"	15
61722270	1 1/2"	40.4 x 52.4		230.0/290.0			40.4	52.4	40.4	1 1/2"	15
61722320	2"	52,4 x 66,6		260.0/350.0			52.4	66,6	52.4	2"	15
SILVYN® CNP 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 are not to scale and do not represent detailed images of the respective products.

Accessories

SILVYN® CNP
- SILVYN® CNP conduit gland refer to page 916

SILVYN® HTDL

Benefits
- Protects against liquids
- High-tensile
- Robust
- High crush-resistance

Application range
- Mechanical engineering
- Plant engineering
- Transformer construction
- Railway applications
- Exporters

Norm references / Approvals
- NEC 501-4B

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
ETIM 5.0 Class-ID: EC001179
ETIM 5.0 Class-Description: Protective metallic hose

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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® COMPACT M refer to page 920
- SILVYN® COMPACT PG refer to page 921
- SILVYN® COMPACT NPT refer to page 922
- SILVYN® LTP-E refer to page 934

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

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Similar products

SILVYN® EF

- SILVYN® LTP refer to page
- SILVYN® HTDL refer to page 917
- SILVYN® OR refer to page 918

SILVYN® OR

- SILVYN® LTP refer to page
- SILVYN® HTDL refer to page 917

Accessories

- SILVYN® COMPACT M refer to page 920
- SILVYN® COMPACT PG refer to page 921
- SILVYN® COMPACT NPT refer to page 922
- SILVYN® LTP-E refer to page 934

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
- High crush-resistance
- Robust
- Abrasion protection
- Protection against chemicals
- Protects against liquids

Application range

- Mechanical engineering
- Paper industry
- Measurement and control technology
- Railway applications
- Outdoors

Product features

- UV-resistant

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

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 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
-45 °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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® COMPACT M refer to page 920
- SILVYN® COMPACT PG refer to page 921
- SILVYN® COMPACT NPT refer to page 922
- SILVYN® LTP-E refer to page 934

NEW

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 917
- SILVYN® EF Page 918
- SILVYN® OR Page 918
- SILVYN® HCX Page 919
- SILVYN® HFX Page 919

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic hose

Material
Body: nickel-plated brass
Sealing: polyamide
O-ring: NBR

Protection rating
IP 66 + IP 67
NEMA 4X

Temperature range
-45°C to +105°C

Article number	Metric size	Suitable for SILVYN® HTDL/EF/OR/HCX/HFX	Pieces / PU
SILVYN® COMPACT M			
61803800	16 x 1.5	3/8"	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			
61803850	16 x 1.5	3/8"	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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 763

NEW

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 917
- SILVYN® EF Page 918
- SILVYN® OR Page 918
- SILVYN® HCX Page 919
- SILVYN® HFX Page 919

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic hose

Material
Body: nickel-plated brass
Sealing: polyamide
O-ring: NBR

Protection rating
IP 66 + IP 67
NEMA 4X

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 are not to scale and do not represent detailed images of the respective products.

NEW

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 917
- SILVYN® EF Page 918
- SILVYN® OR Page 918
- SILVYN® HCX Page 919
- SILVYN® HFX Page 919

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic hose

Material
Body: nickel-plated brass
Sealing: polyamide
O-ring: NBR

Protection rating
IP 66 + IP 67
NEMA 4X

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 are not to scale and do not represent detailed images of the respective products.

FDA NSF

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

Suitable tools

- SILVYN® vice refer to page 936

Technical data

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 Class-Description: Protective metallic hose

Colour delivered
White

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				
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

* Trade product, no Lapp product
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Detectable Cable ties refer to page 1059
- SILVYN® HYGIENIC refer to page 925
- SILVYN® LTP-E refer to page 934

NEW

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

Product Make-up

- Hard PVC inner spiral
- Special, FDA-approved plastic sheath

Technical data

ETIM 5.0 Class-ID: EC001177
ETIM 5.0 Class-Description: Protective plastic hose

Certifications
FDA CFR 21
NSF 51

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 are not to scale and do not represent detailed images of the respective products.

Similar products

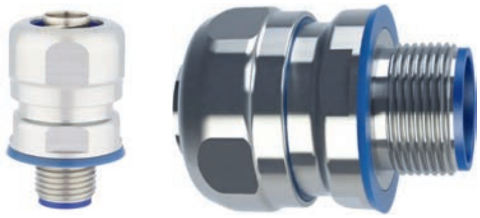
- SILVYN® FG refer to page 923

Accessories

- SILVYN® HYGIENIC refer to page 925

NEW

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

Note

- Please note: for size M63x1,5 there is **SILVYN® AMG FG** with a different construction and design

Suitable conduits

- SILVYN® FG NM Page 924

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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 for SILVYN® FG NM	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

Photographs 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
- Spirally-wound metal protective conduit with roughened profile
- PVC sheath

Technical data

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 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	Suitable for SILVYN® LGS-2	PU ring (m)
SILVYN® LCC-2						
61804702	10	6.8 x 10.0	25	M12x1,5	7	30
61804712	12	10.2 x 14.0	30	M16x1,5/1	9	30
61804722	16	13.0 x 17.0	40	M16x1,5/2 + M20x1,5/1	11	30
61804732	20	16.9 x 21.5	45	M20x1,5/2	13,5 + 16	30
61804742	25	21.1 x 26.0	55	M25x1,5	21	30
61804752	32	28.1 x 34.0	60	M32x1,5	29	30
61804762	40	37.6 x 44.5	80	M40x1,5	36	10
61804772	50	48.4 x 55.0	90	M50x1,5		10
61804792	63	57.5 x 64.5	115	M63x1,5	48	10
61804787	75	70.0 x 79.0	150	M75x1,5		10

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® LCCH-2 refer to page 927
- SILVYN® LCC-E refer to page 931

Accessories
- SILVYN® LGF-2-M refer to page 928
- SILVYN® LGS-2-M refer to page 928
- SILVYN® LGS-2 refer to page 928
- SILVYN® LCG-M refer to page 929
- SILVYN® LCW-M refer to page 929
- SILVYN® LCS-M refer to page 929
- SILVYN® LCC coupler refer to page 930

SILVYN® LCCH-2

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
- Spirally-wound metal protective conduit with roughened profile
- Plastic outer sheath

Technical data

ETIM 5.0 Class-ID: EC001179
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SILVYN® LGF-2-M refer to page 928
- SILVYN® LGS-2-M refer to page 928
- SILVYN® LGS-2 refer to page 928
- SILVYN® LCG-M refer to page 929
- SILVYN® LCW-M refer to page 929
- SILVYN® LCS-M refer to page 929
- SILVYN® LCC coupler refer to page 930
- SILVYN® LCC-E refer to page 931

SILVYN® LGF-2-M / SILVYN® LGS-2-M / SILVYN® LGS-2


SILVYN® LGF-2-M


SILVYN® LGS-2-M


SILVYN® LGS-2

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

SILVYN® LGS-2
- 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

SILVYN® LGS-2
- PG connection thread
- Hexagonal collar with torsion element
- Cap nut

Suitable conduits

- SILVYN® LCC-2 Page 926
- SILVYN® LCCH-2 Page 927

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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
SILVYN® LGS-2						
55502710	7	13	32	7	10	10
55502720	9	17	38	10	12	10
55502730	11	22	38	10	16	10
55502740	13.5	24	39	12	20	10
55502750	16	24	44	12	20	10
55502760	21	29	50	12	25	10
55502770	29	36	56	12	32	10
55502780	36	48	59	12	40	4
55502790	48	70	61.2	16	63	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 763

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 926
- SILVYN® LCCH-2 Page 927

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINDICHT® SM-M refer to page 763

NEW

SILVYN® LCC coupler

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 926
- SILVYN® LCCH-2 Page 927

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic hose

Certifications
IEC EN 61386-23

Material
Nickel-plated brass

Protection rating
IP 65

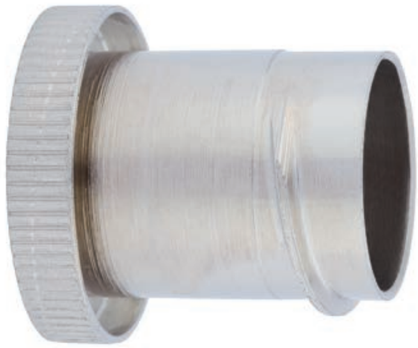
Temperature range
-50°C to +135°C

Article number	Nominal size	Suitable for SILVYN® LCC-2/LCCH-2	Pieces / PU
SILVYN® LCC coupler			
55503476	16	16	2
55503477	20	20	2
55503478	25	25	2
55503479	32	32	2

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

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 926
- SILVYN® LCCH-2 Page 927

Technical data
ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic 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	12	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 are not to scale and do not represent detailed images of the respective products.

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

Suitable conduits
- SILVYN® FG Page 923

Technical data
ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- SILVYN® HTDL refer to page 917
- SILVYN® OR refer to page 918

Accessories
- SILVYN® LTPG-M refer to page 933
- SILVYN® LTPS-M refer to page 933
- SILVYN® LTP 45° M refer to page 933
- SILVYN® LTP 90° M refer to page 933

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 932

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 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 1/2 mm	Overall length mm	Thread length mm	Suitable for SILVYN® LTP	Pieces / PU
SILVYN® LTPG-M						
55510200	12 x 1.5	20 / 20	29.8	10	10	10
55510210	16 x 1.5/1	20 / 22	29.8	10	12	10
55510220	16 x 1.5/2	24 / 26	33	10	16	10
55510230	20 x 1.5/1	24 / 26	33	12	16	10
55510240	20 x 1.5/2	26 / 29	33.5	12	20	10
55510250	25 x 1.5	33 / 35	40.5	14	25	10
55510260	32 x 1.5	40 / 42	45.8	15	32	2
55510270	40 x 1.5	50 / 52	47.5	16	40	1
55510280	50 x 1.5	58 / 58	51	16	50	1
55510290	63 x 1.5	70 / 70	58.8	20	63	1
SILVYN® LTPS-M						
55510600	16 x 1.5/1	20 / 22	39	10	12	10
55510610	16 x 1.5/2	24 / 26	40.9	10	16	10
55510620	20 x 1.5/1	24 / 26	41	10	16	10
55510630	20 x 1.5/2	26 / 29	41.8	10	20	10
55510640	25 x 1.5	33 / 35	50.7	12	25	10
55510650	32 x 1.5	40 / 42	56.9	13	32	2
SILVYN® LTP 45° M						
55510300	20 x 1.5/1	24 / 26	44.8	13	16	10
55510301	20 x 1.5/2	24 / 29	49.5	13	20	10
55510302	25 x 1.5	30 / 35	63	14	25	10
55510303	32 x 1.5	36 / 42	76.6	15	32	2
55510304	40 x 1.5	47 / 57	86.9	18	40	1
55510305	50 x 1.5	61 / 62	93.4	18	50	1
55510306	63 x 1.5	67 / 76	111	20	63	1
SILVYN® LTP 90° M						
55510400	16 x 1.5/1	20 / 24	27.5	10	12	10
55510410	16 x 1.5/2	20 / 26	27.5	10	16	10
55510420	20 x 1.5/1	24 / 26	33	13	16	10
55510430	20 x 1.5/2	24 / 29	33	13	20	10
55510440	25 x 1.5	30 / 35	39.3	14	25	10
55510450	32 x 1.5	36 / 42	46	15	32	2
55510460	40 x 1.5	46 / 52	56.9	18	40	1
55510470	50 x 1.5	57 / 58	66.5	18	50	1
55510480	63 x 1.5	72 / 70	81.8	20	63	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® SEALING WASHER refer to page 935

NEW

SILVYN® LTP coupler

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 932

Technical data
Certifications
IEC EN 61386-23

Material
Nickel-plated brass

Protection rating
IP66
IP67
IP68 (5 bar)
IP69

Temperature range
-50°C to +135°C

Article number	Nominal size	Suitable for SILVYN® LTP	Pieces / PU
SILVYN® LTP coupler			
55510310	16	16	2
55510311	20	20	2
55510312	25	25	2
55510313	32	32	2

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

SILVYN® LTP-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® HTDL Page 917
- SILVYN® LTP Page 932
- SILVYN® EF Page 918
- SILVYN® OR Page 918
- SILVYN® HCX Page 919
- SILVYN® HFX Page 919
- SILVYN® FG Page 923

Technical data
ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic hose

Material
Nickel-plated brass

Temperature range
-50°C to +135°C

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 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

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

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SILVYN® LTPG-M
- SILVYN® LTPS-M
- SILVYN® LTP 90° M

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
- SILVYN® EL/ELU/ELO/ELT
- SILVYN® HIPROJACKET Page 914
- SILVYN® FPAS Page 875
- SILVYN® HCC Page 888
- SILVYN® RILL PA 6 Page 862
- SILVYN® SI Page 841
- SILVYN® SINUS PA6 Page 895
- SILVYN® SPLIT Page 893
- SILVYN® RILL PA 12 Page 863
- SILVYN® SP Page 842
- SILVYN® SP-PU Page 843

Article number	Article designation	Cutting range Ø (mm)	Pieces / PU
SILVYN® Conduit scissor			
61722285	CC01	0 - 34	1
61722286	CC02	0 - 67	1

Photographs 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 917
- SILVYN® SSUE Page 908
- SILVYN® UI 511 Page 912
- SILVYN® EF Page 918
- SILVYN® OR Page 918
- SILVYN® HCX Page 919
- SILVYN® HFX Page 919
- SILVYN® AS-P Page 897
- SILVYN® EDU-AS Page 898
- SILVYN® EMC AS-CU Page 899
- SILVYN® FPS-EDU Page 900
- SILVYN® FG Page 923

Article number	Article designation	Saw range Ø (mm)	Pieces / PU
SILVYN® vice			
61722280	SAWING DEVICE WZ	18 - 45	1

Photographs 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 protective conduit
- All metric conduit glands

Technical data

ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic hose

On request
M75
PG sizes

Material
Nickel-plated brass

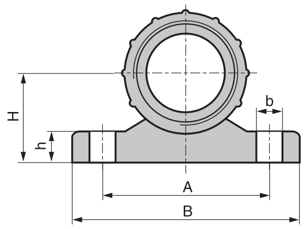
Temperature range
Dependent on the glands used

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	22.0	10
55510010	20	M20 x 1.5	24	25	26.4	10
55510020	25	M25 x 1.5	29	30	31.9	10
55510030	32	M32 x 1.5	35	32.5	38.5	10
55510040	40	M40 x 1.5	48	34	53.0	2
55510050	50	M50 x 1.5	58	38	63.8	1
55510060	63	M63 x 1.5	70	45	77.0	1
55510070	75	M75 x 1,5	84	45	93,0	

Photographs are not to scale and do not represent detailed images of the respective products.

SILVYN® BW-K-M

SILVYN® BW-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

ETIM 5.0 Class-ID: EC001458
ETIM 5.0 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	Overall length, C (mm)	D (mm)	E mm	h mm	H	Hole Ø (mm)	Pieces / PU
SILVYN® BW-K-M											
55000911		20 x 1.5	37.5	50				7.5	20	5.7	50
55000921		25 x 1.5	43	57				8	25	5.7	50
55000931		32 x 1.5	53.5	67				8	27	6.7	50
55000941		40 x 1.5	65.5	79.5				9	33	6.7	50
55000951		50 x 1.5	69.5	86				9.5	36.5	6.7	50
SILVYN® BW-M											
55000531	16		20	50	33.2	40	17				25
55000541	20		20	50	38	40	21				25
55000551	25		20	60	46.9	50	26				25
55000561	32		20	70	56.9	60	33				25
55000571	40		20	80	67	70	41				25
55000572	50		20	90	78.4	80	51				25

Photographs 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

ETIM 5.0 Class-ID: EC001172
ETIM 5.0 Class-Description:
Coupler for corrugated plastic hoses

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)	Support length (mm)	Pieces / PU
SILVYN® RKS 1							
61825170	6/12	12	15 x 1,2	6	5.3 (M5)	16	100
61825180	8/12	12	15 x 1,2	8	5.3 (M5)	17	100
61825190	10/12	12	15 x 1,2	10	5.3 (M5)	18	100
61825200	12/12	12	15 x 1,2	12	5.3 (M5)	19	100
61825210	13/15	15	18,5 x 1,5	13	6.4 (M6)	23.7	100
61825355	14/15	15	18,5 x 1,5	14	6.4 (M6)	24.2	100
61825365	15/15	15	18,5 x 1,5	15	6.4 (M6)	24.7	100
61825375	16/15	15	18,5 x 1,5	16	6.4 (M6)	25.2	100
61825040	18/15	15	18,5 x 1,5	18	6.4 (M6)	26.2	100
61825052	19/15	15	18,5 x 1,5	19	6.4 (M6)	26.7	100
61825380	20/15	15	18,5 x 1,5	20	6.4 (M6)	27.2	100
61825382	21/15	15	18,5 x 1,5	21	6.4 (M6)	27.7	100
61825050	22/15	15	18,5 x 1,5	22	6.4 (M6)	28.2	100
61825390	23/15	15	18,5 x 1,5	23	6.4 (M6)	28.7	100
61825392	24/20	20	25 x 1,5	24	8.4 (M8)	35	100
61825400	25/15	15	18,5 x 1,5	25	6.4 (M6)	29.7	100
61825402	26/15	15	18,5 x 1,5	26	6.4 (M6)	30.2	100
61825250	28/15	15	18,5 x 1,5	28	6.4 (M6)	31.2	100
61825255	30/15	15	18,5 x 1,5	30	6.4 (M6)	32.2	100
61825257	32/15	15	18,5 x 1,5	32	6.4 (M6)	33.2	100
61825259	34/15	15	18,5 x 1,5	34	6.4 (M6)	34.2	100
61825260	35/15	15	18,5 x 1,5	35	6.4 (M6)	34.7	100
61825262	36/20	20	25 x 1,5	36	8.4 (M8)	41	100
61825264	38/20	20	25 x 1,5	38	8.4 (M8)	42	100
61825295	40/20	20	25 x 1,5	40	8.4 (M8)	43	100

Photographs are not to scale and do not represent detailed images of the respective products.

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
FLEXIMARK

Marking Guide

ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES | APPENDIX

How? / What?

Customized system – **Your demand – we deliver**

Basic system – **Ready made to deliver for each environment**

Cable – Outdoor & Indoor

Customized system

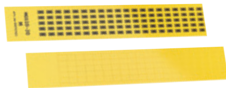

Stainless Steel FCC 944

Cablelabel FCC 946


Marking tags TMB FCC

Cablelabel PUR FCC 945

Basic system


MINI character strips


Stainless Steel Marking 956


Collars 987


Marking kit DYMO® PL 150 990

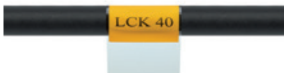
Cable – Indoor

Customized system


Shrink tube FCC 947

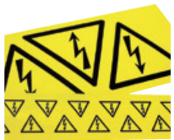
Cable Marker FCC 946

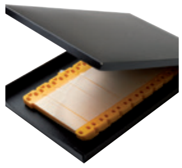

Cable tie marking FKBB FCC



Wrapping labels LCK FCC

Basic system


Label cards & Label blocks


Cablelabel LAM 961

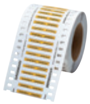

Handheld Printers 990

Wire – before mounting the wire

Customized system


Shrink tube FCC 947


Flexiprint FCC 962

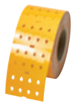

Organized shrink tube FCC 963


Marking tags TMB FCC

Basic system


Marking rings 966


Collars 986


Flexiprint 965

Wire – after mounting the wire

Customized system


Marking tags TMB FCC

Basic system


Snap-On collars 985

Component – Device marking

Customized system


BMK FCC


Stainless steel component marking FCC 944

Basic system


Character holders MLM


Character holders PGS 984

Component – Terminal

Customized system


Terminal block marking

Basic system


Handheld Printers 990

Component – Sensor

Customized system


Marking tags TMB FCC

Basic system

Clip-On collars

Accessories

Customized system


Pliers FL 52 ERA 988


Manual embossing machine 992

Basic system


Stainless steel cable ties 1066


Stainless steel tie gun HT-338 1068

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Data marking

Laser office printers

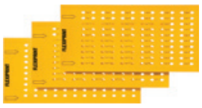

Flexilabel LFL 950


Labels LMB 951


Wrapping labels LCK 948

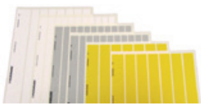

Labels LA 977

Cablelabel LFL 949


Flexiprint LF 964


Labels LMB 951


Labels LMB 951


Labels LA 977

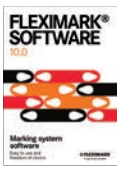

Flexilabel LFL 950


Labels LA 977


Labels LMB 951

FLEXIMARK® SOFTWARE 10.0 979

- Print your own labels & signs
- Work with Excel files
- Print barcodes & sequences



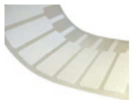
Thermal transfer printer

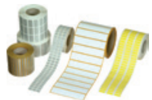

Flexilabel TFL


Cablelabel PUR 952


Cablelabel MTFL


Marking tags TMB


Flaglabels


Labels TA


Wrapping labels TCK 955


Cablelabel TFL


Organized shrink tube 953

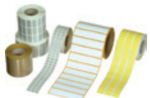

Shrink tube 954


Flexiprint TF 965


Organized shrink tube 953


Marking tags TMB


Marking tags TMB


Labels TA


TA Foam labels 978


Flexilabel TFL


Terminal block marking


TA Foam labels 978


Marking tags TMB

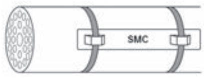
Thermal transfer printer 980

Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

FLEXIMARK® Stainless steel marking FCC





Info

- Contained in FLEXIMARK® sample bag (article number M3251010)

Benefits
- Customised stainless steel cable and component marking
- Markers are sorted prior to delivery
- No time-consuming preparation and installation
- Acid-resistant
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

Application range
- Cable and component marking system
- Markers will be delivered with the desired text (printing service is included in the price)
- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)

Product features
- For fastening with cable ties (LS) up to a width of 7.9 mm
- Included cable ties in article no.83251406, 83251456, 83251426, 83251468: Stainless steel cable ties LS 4,6-200 (article no.61812950)

Norm references / Approvals
- Achilles JQS certified

Note
- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text
- Length of the markers is depending on the number of characters
- The column “number of characters” refers to the quanity in one line (the maximum amount of characters e.g. for article no. 83251426 is 30-max.15 per line)
- All characters are printed in capital letters

Included
- 1 PU= 1 marker, there is no mimimum purchase quantity

Suitable tools
- STEEL GUN HT-338 cable tie pliers refer to page 1068

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Dimensions
Character size (height): 4.5 mm
Diameter borehole: 3,2 mm

On request
Blank version available upon request

Note
Gap between characters: approximately 1 mm

Info
Available characters:
A-Ö, 0-9, ,+-/:;= -.
X Earthing 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	Number of markers per PU
One line embossing/with cable tie brackets					
83251406	FLEXIMARK® Stainless SMC FCC LS200 0-15	9.9	with cable tie	0-15	1
83251456	FLEXIMARK® Stainless SMC FCC LS200 16-25	9.9	with cable tie	16-25	1
83251402	FLEXIMARK® Stainless SMC FCC 0-15	9.9	without cable tie	0-15	1
83251454	FLEXIMARK® Stainless SMC FCC 16-25	9.9	without cable tie	16-25	1
One line embossing/with screw hole					
83251450	FLEXIMARK® Stainless SM FCC 0-15	9.9	with screw hole	0-15	1
83251478	FLEXIMARK® Stainles SM FCC 16-25	9.9	with screw hole	16-25	1
Two-line embossing/with cable tie brackets*					
83251426	FLEXIMARK® Stainless SMC2R FCC LS200 0-15	13.9	with cable tie	0-15	1
83251468	FLEXIMARK® Stainless SMC2R FCC LS200 16-25	13.9	with cable tie	16-25	1
83251422	FLEXIMARK® Stainless SMC2R FCC 0-15	13.9	without cable tie	0-15	1
83251466	FLEXIMARK® Stainless SMC2R FCC 16-25	13.9	without cable tie	16-25	1
Two-line embossing/with screw hole					
83251451	FLEXIMARK® Stainless SM2R FCC 0-15	13.9	with screw hole	0-15	1
83251479	FLEXIMARK® Stainless SM2R FCC 16-25	13.9	with screw hole	16-25	1

Photographs 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 und 83251576).

Similar products
- FLEXIMARK® Stainless steel kit refer to page 956
- SP Metal print refer to page 992

Accessories
- STEEL GUN HT-338 cable tie pliers refer to page 1068
- LS steel cable ties refer to page 1066

NEW

FLEXIMARK® Cablelabel PUR FCC

Info

- PUR 60-10 contained in FLEXIMARK® sample bag (article number M3251010)

Benefits
- Halogen-free and flame-retardant cable marking
- Good UV-resistance
- Good chemical resistance
- Highly flexible material

Application range
- For cable and conduit marking
- Can be mounted directly on the cable together with plastic cable ties
- Markers will be delivered with the desired text (printing service is included in the price)
- Food and beverage industry
- Can be used in many applications from different industries due to its mechanical, thermal and chemical properties

Product features
- One or two-line printing possible
- Text is automatically centered if not explicitly asked for another text alignment
- Extremely flame-retardant according to UL 94 V0
- No fixed maximum number of characters, but text size adpats according to the characters

Norm references / Approvals
- MIL 81531 and MIL-STD-202G

Note
- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text
- Please specify the desired text colour and other requirements (e.g. text alignments) with your order

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Colour delivered
Standard is black text
(black labels: white text)

Material
Halogen-free polyurethane

Temperature range
-50°C to +80°C
Could also withstand higher temperatures in the short run

Article number	Article designation	Colour	Halogen-free	Width x length (mm)	Number of markers per PU	Contents (unit)
FLEXIMARK® Cablelabel PUR FCC						
61800391	FLEXIMARK® Cablelabel PUR 60-10 YE FCC	yellow	no	60.0 x 10.0	1	1
61800392	FLEXIMARK® Cablelabel PUR 75-15 YE FCC	yellow	no	75.0 x 15.0	1	1
61800393	FLEXIMARK® Cablelabel PUR 75-25 YE FCC	yellow	no	75.0 x 25.0	1	1
61800394	FLEXIMARK® Cablelabel PUR 60-10 WH FCC	white	no	60.0 x 10.0	1	1
61800395	FLEXIMARK® Cablelabel PUR 75-15 WH FCC	white	no	75.0 x 15.0	1	1
61800396	FLEXIMARK® Cablelabel PUR 75-25 WH FCC	white	no	75.0 x 25.0	1	1
61800397	FLEXIMARK® Cablelabel PUR 60-10 RD FCC	red	no	60.0 x 10.0	1	1
61800398	FLEXIMARK® Cablelabel PUR 75-15 RD FCC	red	no	75.0 x 15.0	1	1
61800399	FLEXIMARK® Cablelabel PUR 75-25 RD FCC	red	no	75.0 x 25.0	1	1
61800400	FLEXIMARK® Cablelabel PUR 60-10 OG FCC	orange	no	60.0 x 10.0	1	1
61800401	FLEXIMARK® Cablelabel PUR 75-15 OG FCC	orange	no	75.0 x 15.0	1	1
61800402	FLEXIMARK® Cablelabel PUR 75-25 OG FCC	orange	no	75.0 x 25.0	1	1
61800403	FLEXIMARK® Cablelabel PUR 60-10 BU FCC	blue	no	60.0 x 10.0	1	1
61800404	FLEXIMARK® Cablelabel PUR 75-15 BU FCC	blue	no	75.0 x 15.0	1	1
61800412	FLEXIMARK® Cablelabel PUR 75-25 BU FCC	blue	no	75.0 x 25.0	1	1
61800406	FLEXIMARK® Cablelabel PUR 60-10 BK FCC	black	no	60.0 x 10.0	1	1
61800407	FLEXIMARK® Cablelabel PUR 75-15 BK FCC	black	no	75.0 x 15.0	1	1
61800413	FLEXIMARK® Cablelabel PUR 75-25 BK FCC	black	no	75.0 x 25.0	1	1

Photographs 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 952

FLEXIMARK® Cable marking FCC

Benefits
- Customised plastic cable labelling
- Markers are sorted prior to delivery
- No time-consuming preparation and installation
- Good UV-resistance
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A 15)

Application range
- For Cable Marking
- Markers will be delivered with the desired text (printing service is included in the price)

Product features
- One or two-line printing possible
- Text is automatically centered if not explicitly asked for another text alignment
- Holder for up to 46 characters
- No fixed maximum number of characters, but text size adpats according to the characters

Note
- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text

Included
- Markers (including cable ties) are pre-assembled prior to delivery
- Marking consists of FLEXIMARK® character holder PTEF printed FLEXIMARK® plastic markers (not-halogenfree) or Flexilabel LFL (halogen-free) und two standard cable ties in PA 6.6 (black)
- 1 PU= 1 marker, there is no mimimum purchase quantity

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Dimensions
Length text: 35 mm
Length plate: 50 mm
Max. length: 200 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
-25°C to +70°C

Article number	Article designation	Colour	Height (mm)	Halogen-free	Number of markers per PU	PU
With yellow PVC markers (not halogenfree)						
83251300	FLEXIMARK® Cable marker FCC 6 YE	yellow	6.0	no	1	1
83251320	FLEXIMARK® Cable marker FCC 9.5 YE	yellow	9.5	no	1	1
83251350	FLEXIMARK® Cable marker FCC 19 YE	yellow	19.0	no	1	1
With yellow LFL labels made of polyester (halogenfree)						
83274670	FLEXIMARK Cable Marker LFL 9,5-35 YE FCC	yellow	9.5	yes	1	1
With white PVC markers (not halogenfree)						
83251301	FLEXIMARK® Cable marker FCC 6 WH	white	6.0	no	1	1
83251321	FLEXIMARK® Cablemarker FCC 9,5 WH	white	9.5	no	1	1
83251351	FLEXIMARK® Cablemarker FCC 19 WH	white	19.0	no	1	1

Photographs 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 983

FLEXIMARK® Shrink Mark FCC

Info

- Shrink Mark FK 12,7 RD 5-7 contained in FLEXIMARK® sample bag (article number M3251010)

Benefits

- Personalised printing of the shrinking tube segments according to customer specifications
- Markers are sorted prior to delivery
- Flame retardant according to ASTM D635-HB

Application range

- For Cable Marking
- Markers will be delivered with the desired text (printing service is included in the price)
- Protection of the cable insulation
- For applications where space is tight
- For the wind energy market

Product features

- One or two-line printing possible
- Text is automatically centered if not explicitly asked for another text alignment
- Delivery either in cutted pieces or in one piece (already perforated)
- No fixed maximum number of characters, but text size adpats according to the characters

Design

- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text
- Please specify the desired text colour, mode of delivery (perforation or cut, lengths) and other requirements (e.g. text alignments) with your order

Included

- 1 PU= 1 marker, there is no mimimum purchase quantity

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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	Number of markers per PU	PU
FLEXIMARK® Shrink Mark FCC							
83280029	FLEXIMARK® Shrink Mark FCC-FK 3,2	black	3.2	1.6	1-7	1	1
83280030	FLEXIMARK® Shrink Mark FCC-FK 3,2	black	3.2	1.6	8-12	1	1
83280031	FLEXIMARK® Shrink Mark FCC-FK 3,2	black	3.2	1.6	13-17	1	1
83280032	FLEXIMARK® Shrink Mark FCC-FK 4,8	black	4.8	2.4	1-7	1	1
83280033	FLEXIMARK® Shrink Mark FCC-FK 4,8	black	4.8	2.4	8-12	1	1
83280034	FLEXIMARK® Shrink Mark FCC-FK 4,8	black	4.8	2.4	13-17	1	1
83280035	FLEXIMARK® Shrink Mark FCC-FK 6,4	black	6.4	3.2	1-7	1	1
83280036	FLEXIMARK® Shrink Mark FCC-FK 6,4	black	6.4	3.2	8-12	1	1
83280037	FLEXIMARK® Shrink Mark FCC-FK 6,4	black	6.4	3.2	13-17	1	1
83280038	FLEXIMARK® Shrink Mark FCC-FK 9,5	black	9.5	4.75	1-7	1	1
83280039	FLEXIMARK® Shrink Mark FCC-FK 9,5	black	9.5	4.75	8-12	1	1
83280040	FLEXIMARK® Shrink Mark FCC-FK 9,5	black	9.5	4.75	13-17	1	1
83280041	FLEXIMARK® Shrink Mark FCC-FK 12,7	black	12.7	6.35	1-7	1	1
83280042	FLEXIMARK® Shrink Mark FCC-FK 12,7	black	12.7	6.35	8-12	1	1
83280043	FLEXIMARK® Shrink Mark FCC-FK 12,7	black	12.7	6.35	13-17	1	1
83280044	FLEXIMARK® Shrink Mark FCC-FK 19,1	black	19.1	9.55	1-7	1	1
83280045	FLEXIMARK® Shrink Mark FCC-FK 19,1	black	19.1	9.55	8-12	1	1
83280046	FLEXIMARK® Shrink Mark FCC-FK 19,1	black	19.1	9.55	13-17	1	1

Photographs 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 953
- FLEXIMARK® Heat shrinkable tubing refer to page 954

Accessories

- HG 2320 hot-air pistol refer to page 1052

FLEXIMARK®Wrapping labels LCK

Info

- LCK 32 YE contained in FLEXIMARK® sanple bag (article number M3251010)

Benefits

- A transparent foil is wrapped around the cable and pasted over the printed field, that the printing is protected against abrasion and pollution
- Resistant to chemicals, UV-radiation, moisture and some oils
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A 15)

Application range

- For Cable Marking
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)

Note

- Insert sheet in manual paper feed compartment
- The use of the cartridges of the printer supplier is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up

Included

- 10 or 100 perforated DINA 4 label sheets (dependent on the chosen packaging size)

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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)	Labelling surface (mm)	For outer Ø (mm)	Number of markers per PU	Labels per side	PU
Small packaging- 10 sheets								
83256143	FLEXIMARK® Label LCK 32 WH	white	25.0 x 33.5	25 x 12	4 - 7	640	64	1
83256142	FLEXIMARK® Label LCK 32 YE	yellow	25.0 x 33.5	25 x 12	4 - 7	640	64	1
83256145	FLEXIMARK® Label LCK 35 WH	white	25.0 x 55.0	25 x 19	6 - 12	400	40	1
83256144	FLEXIMARK® Label LCK 35 YE	yellow	25.0 x 55.0	25 x 19	6 - 12	400	40	1
83256147	FLEXIMARK® Label LCK 40 WH	white	25.0 x 94.0	25 x 25	8 - 21	240	24	1
83256146	FLEXIMARK® Label LCK 40 YE	yellow	25.0 x 94.0	25 x 25	8 - 21	240	24	1
83256149	FLEXIMARK® Label LCK 45 WH	white	25.0 x 142.5	25 x 25	8 - 36	160	16	1
83256148	FLEXIMARK® Label LCK 45 YE	yellow	25.5 x 142.5	25 x 25	8 - 36	160	16	1
83256160	FLEXIMARK® Label LCK 48 WH	white	34.0 x 93.0	34 x 25	8 - 21	180	18	1
83256161	FLEXIMARK® Label LCK 48 YE	yellow	34.0 x 93.0	34 x 25	8 - 21	180	18	1
83256151	FLEXIMARK® Label LCK 60 WH	white	50.0 x 56.0	50 x 19	6 - 12	200	20	1
83256150	FLEXIMARK® Label LCK 60 YE	yellow	50.0 x 56.0	50 x 19	6 - 12	200	20	1
83256153	FLEXIMARK® Label LCK 65 WH	white	50.0 x 94.0	50 x 25	8 - 21	120	12	1
83256152	FLEXIMARK® Label LCK 65 YE	yellow	50.0 x 94.0	50 x 25	8 - 21	120	12	1
83256155	FLEXIMARK® Label LCK 70 WH	white	50.0 x 142.5	50 x 25	8 - 36	80	8	1
83256154	FLEXIMARK® Label LCK 70 YE	yellow	50.0 x 142.5	50 x 25	8 - 36	80	8	1
Large packaging- 100 sheets								
83256542	FLEXIMARK® Label LCK 32 YE-100	yellow	25.0 x 33.5	25 x 12	4 - 7	6400	64	1
83256545	FLEXIMARK® Label LCK 35 WH-100	white	25.0 x 55.0	25 x 19	6 - 12	4000	40	1
83256544	FLEXIMARK® Label LCK 35 YE-100	yellow	25.0 x 55.0	25 x 19	6 - 12	4000	40	1
83256546	FLEXIMARK® Label LCK 40 YE-100	yellow	25.0 x 94.0	25 x 25	8 - 21	2400	24	1
83256549	FLEXIMARK® Label LCK 45 WH-100	white	25.0 x 142.5	25 x 25	8 - 36	1600	16	1
83256548	FLEXIMARK® Label LCK 45 YE-100	yellow	25.0 x 142.5	25 x 25	8 - 36	1600	16	1
83256551	FLEXIMARK® Label LCK 60 WH-100	white	50.0 x 56.0	50 x 19	6 - 12	2000	20	1
83256550	FLEXIMARK® Label LCK 60 YE-100	yellow	50.0 x 56.0	50 x 19	6 - 12	2000	20	1
83256553	FLEXIMARK® Label LCK 65 WH-100	white	50.0 x 94.0	50 x 25	8 - 21	1200	12	1
83256555	FLEXIMARK® Label LCK 70 WH-100	white	50.0 x 142.5	50 x 25	8 - 36	800	8	1

Photographs 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 955

Accessories

- FLEXIMARK® Software 10.0 refer to page 979

FLEXIMARK® Cablelabel LFL

Benefits

- Can be mounted directly on the cable together with plastic cable ties
- No character holder necessary
- Printable on both sides
- Resistant to chemicals, UV-radiation, moisture and some oils
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

Application range

- For Cable Marking
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)

Note

- Insert sheet in manual paper feed compartment
- The use of the cartridges of the printer supplier is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up
- Dimensions refer to the marking area of the labels

Product Make-up

- One (LFL1H) or two-sided (LFL2H) fastening with cable ties (up to 4.5 mm in width)

Included

- Label sheets for laser printers

Info

- LFL2H 9,9-26 contained in FLEXIMARK® sample bag (article number M3251010)

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description:
Labelling material

Colour delivered
Yellow/White (could be printed on both sides)

Material
Halogen-free polyester
Thickness: 0.175 mm

Temperature range
-40°C to +125°C

Article number	Article designation	Width x length (mm)	Labelling surface (mm)	Number of markers per PU	Labels per side	PU
FLEXIMARK® Cablelabel LFL						
83254750	FLEXIMARK® Label LFL2H9.9-26 YEWH	9,9 x 48.0	9,9 x 26	400	40	1
83254760	FLEXIMARK® Label LFL1H9.9-35 YEWH	9,9 x 48.0	9,9 x 35	400	40	1
83254765	FLEXIMARK® Label LFL2H 66-9.9 YEWH	9,9 x 89.0	9,9 x 66	560	56	1

Photographs 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 refer to page 961
- Basic Tie cable tie refer to page 1057
- FLEXIMARK® Software 10.0 refer to page 979
- TY - FAST® cable ties refer to page 1058

FLEXIMARK® Flexilabel LFL

Benefits
- Suitable labels for PTE, PTEF and CAB character holders (see chapter "Character holders and accessories")
- Printable on both sides
- Resistant to chemicals, UV-radiation, moisture and some oils
- Halogen-free

Application range
- For Cable Marking
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)

Note
- Insert sheet in manual paper feed compartment
- The use of the cartridges of the printer supplier is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up

Included
- Perforated DINA 4 sheets (please check out the quantities per label in the table)

Info
- LFL 9,5-28 contained in FLEXIMARK® sample bag (article number M3251010)

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Colour delivered
Yellow/White (could be printed on both sides)

Material
Halogen-free polyester
Thickness: 0.175 mm

Temperature range
-40°C to +125°C

Article number	Article designation	Width x height (mm)	Number of markers per PU	Labels per side	PU
FLEXIMARK® Flexilabel LFL					
83254620	FLEXIMARK® Label LFL 6-35 YEWH	35.0 x 6.0	2350	235	1
83254650	FLEXIMARK® Label LFL 9.5-17.5 YEWH	17.5 x 9.5	3190	319	1
83254660	FLEXIMARK® Label LFL 9.5-28 YEWH	28.0 x 9.5	2030	203	1
83254670	FLEXIMARK® Label LFL 9.5-35 YEWH	35.0 x 9.5	1450	145	1
83254701	FLEXIMARK® Label LFL 9.9-66 YEWH	66.0 x 9.9	840	84	1
83254690	FLEXIMARK® Label LFL 9,5-196 YEWH	196.0 x 9.5	290	29	1
83254710	FLEXIMARK® Label LFL 12-38 YEWH	38.0 x 12.0	1150	115	1
83254714	FLEXIMARK® Label LFL 15-45 YEWH	45.0 x 15.0	720	72	1
83254718	FLEXIMARK® Label LFL 19-50 YEWH	50.0 x 19.0	560	56	1
83254719	FLEXIMARK® Label LFL 19-100 YEWH	100.0 x 19.0	280	28	1

Photographs 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 982
- FLEXIMARK® PTEF/ CAB refer to page 983
- FLEXIMARK® Character holders PGS refer to page 984
- FLEXIMARK® Software 10.0 refer to page 979

FLEXIMARK® Label LMB

Benefits

- Suitable labels for SNAP ON collar, collars halogenfree and collars for cable ties (see chapter "Character holders and accessories")
- Printable on both sides
- Resistant to chemicals, UV-radiation, moisture and some oils
- Halogen-free

Application range

- For Cable Marking
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)

Note

- Insert sheet in manual paper feed compartment
- The use of the cartridges of the printer supplier is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up

Included

- Perforated DINA 5 sheets (please check out the quantities per label in the table)

Info

- Contained in FLEXIMARK® sample bag (article number M3251010)

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

On request
Also available as rolls for thermal transfer printers (TMB)

Colour delivered
Standard colour: Yellow/White

Material
Halogen-free polyester
Thickness: 0.175 mm

Temperature range
-40°C to +125°C

Article number	Article designation	Colour	Number of markers per PU	PU
Suitable labels				
83254680	FLEXIMARK® Label LMB 30-4,7 YEWH	yellow/white	480	1

Photographs 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 979

NEW

FLEXIMARK® Cablelabel PUR

Info

- PUR 60-10 contained in FLEXIMARK® sample bag (article number M3251010)

Benefits

- Halogen-free and flame-retardant cable marking
- Good UV-resistance
- Good chemical resistance
- Highly flexible material

Application range

- For cable and conduit marking
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)
- Can be used in many applications from different industries due to its mechanical, thermal and chemical properties
- Can be mounted directly on the cable together with plastic cable ties

Product features

- Recommended ribbon: FLEXIMARK® Ribbon FTI-X 60-360 BK (article no, 83260206), but could be also printed with FTI-Y 60-360 BK (article no. 83260201)
- Extremely flame-retardant according to UL 94 V0

Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0
- MIL 81531 and MIL-STD-202G

Note

- Customised printing is available upon request

Product Make-up

- Delivered as a roll of labels

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Colour delivered
Standard colour: Yellow/White
also available in red, orange, bue, green and black

Material
Halogen-free polyurethane

Temperature range
-25°C to +80°C

Article number	Article designation	Colour	Width x length (mm)	Number of markers per PU	PU
FLEXIMARK® Cablelabel PUR					
83260191	FLEXIMARK® Cablelabel PUR 60-10 YE	yellow	10.0 x 60.0	1000	1
83260192	FLEXIMARK® Cablelabel PUR 75-15 YE	yellow	15.0 x 75.0	1000	1
83260193	FLEXIMARK® Cablelabel PUR 75-25 YE	yellow	25.0 x 75.0	500	1
83260194	FLEXIMARK® Cablelabel PUR 60-10 WH	white	10.0 x 60.0	1000	1
83260195	FLEXIMARK® Cablelabel PUR 75-15 WH	white	15.0 x 75.0	1000	1
83260196	FLEXIMARK® Cablelabel PUR 75-25 WH	white	25.0 x 75.0	500	1

Photographs 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 1057
- FLEXIMARK® Software 10.0 refer to page 979
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 980

NEW

FLEXIMARK® Organized shrink tube

Benefits

- Covers a wide range of cable diameters, even applicable for single core marking
- Already cut to the exact length
- Reduced working time
- UV-resistant, resistant against fluids (SAE-AMS-DTL-23053 tested)

Application range

- For single core and cable marking
- Railway applications
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)

Product features

- Recommended ribbon: FLEXIMARK® Ribbon FTI-X 60-360 BK (article no, 83260206), but could be also printed with FTI-Y 60-360 BK (article no. 83260201)

Norm references / Approvals

- UL 224 approved- E file number: E 228117

Product Make-up

- Delivered as a roll of labels

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

On request
Also available as halogen-free und diesel-resistant (with SNCF-NF F00-608 approval) version

Colour delivered
Yellow
White and other colours available on request
Also available in white

Material
Polyolefin
Shrinking ratio: 3:1

Temperature range
-55°C to +135°C

Article number	Article designation	Colour	Shrinkage range (mm)	Length (mm)	Amount in width	Number of markers per PU	PU
FLEXIMARK® Organized shrink tube							
83260026	FLEXIMARK® Org.shr. 2.4/0.8-50(1) YE	yellow	0.8 - 2.4	50	1	1000	1
83260027	FLEXIMARK® Org.shr. 3.2/1.0-50(1) YE	yellow	1.0 - 3.2	50	1	1000	1
83260028	FLEXIMARK® Org.shr. 4.8/1.6-50(1) YE	yellow	1.6 - 4.8	50	1	1000	1
83260029	FLEXIMARK® Org.shr. 6.4/2.0-50(1) YE	yellow	2.0 - 6.4	50	1	1000	1
83260030	FLEXIMARK® Org.shr. 9.5/3.0-50(1) YE	yellow	3.0 - 9.5	50	1	500	1
83260031	FLEXIMARK® Org.shr.12.7/4.0-50(1)YE	yellow	4.0 - 12.7	50	1	500	1
83260032	FLEXIMARK® Org.shr.19.0/6.0-50(1)YE	yellow	6.0 - 19.0	50	1	500	1
83260033	FLEXIMARK® Org.shr. 25.4/8.0-50(1)YE	yellow	8.0 - 25.4	50	1	300	1
83260034	FLEXIMARK® Org.shr. 38.1/12.7-75(1)YE	yellow	12.7 - 38.1	75	1	100	1
83260035	FLEXIMARK® Org.shr. 2.4/0.8-38(1) YE	yellow	0.8 - 2.4	38	1	1000	1
83260036	FLEXIMARK® Org.shr. 3.2/1.0-38(1) YE	yellow	1.0 - 3.2	38	1	1000	1
83260037	FLEXIMARK® Org.shr. 4.8/1.6-38(1) YE	yellow	1.6 - 4.8	38	1	1000	1
83260038	FLEXIMARK® Org.shr. 6.4/2.0-38(1) YE	yellow	2.0 - 6.4	38	1	1000	1
83260039	FLEXIMARK® Org.shr. 9.5/3.0-38(1) YE	yellow	3.0 - 9.5	38	1	500	1
83260040	FLEXIMARK® Org.shr.12.7/4.0-38(1)YE	yellow	4.0 - 12.7	38	1	500	1
83260041	FLEXIMARK® Org.shr. 19.0/6.0-38(1)YE	yellow	6.0 - 9.0	38	1	500	1
83260042	FLEXIMARK® Org.shr.25.4/8.0-38(1)YE	yellow	8.0 - 25.4	38	1	300	1
83260043	FLEXIMARK® Org.shr. 38.1/12.7-38(1)YE	yellow	12.7 - 38.1	38	1	100	1
83260044	FLEXIMARK® Org.shr. 2.4/0.8-25(2) YE	yellow	0.8 - 2.4	25	2	2000	1
83260045	FLEXIMARK® Org.shr. 3.2/1.0-25(2) YE	yellow	1.0 - 3.2	25	2	2000	1
83260046	FLEXIMARK® Org.shr. 4.8/1.6-25(2) YE	yellow	1.6 - 4.8	25	2	2000	1
83260047	FLEXIMARK® Org.shr. 6.4/2.0-25(2) YE	yellow	2.0 - 6.4	25	2	2000	1
83260048	FLEXIMARK® Org.shr. 9.5/3.0-25(2) YE	yellow	3.0 - 9.5	25	2	1000	1
83260049	FLEXIMARK® Org.shr. 12.7/4.0-25(2)YE	yellow	4.0 - 12.7	25	2	1000	1
83260050	FLEXIMARK® Org. shr.19.0/6.0-25(2)YE	yellow	6.0 - 19.0	25	2	1000	1
83260051	FLEXIMARK® Org.shr. 5.4/8.0-25(2)YE	yellow	8.0 - 25.4	25	2	600	1

Photographs 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 FCC refer to page 963

Accessories

- HG 2320 hot-air pistol refer to page 1052

FLEXIMARK® Heat shrinkable tubing

Benefits

- Flat shrink tube can be cut individually to the required length
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4

Application range

- For Cable Marking
- For applications where space is tight
- Protection of the cable insulation
- Especially suitable for repair purposes
- Indoor applications

Product features

- Recommended ribbon: FLEXIMARK® Ribbon FTI-X 60-360 BK (article no, 83260206), but could be also printed with FTI-Y 60-360 BK (article no. 83260201)

Norm references / Approvals

- UL 224 approved- E file number: E 228117

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

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)	Contents (m)	PU
FLEXIMARK® Heat shrinkable tubing					
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 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 953

Accessories

- FLEXIMARK® Software 10.0 refer to page 979
- HG 2320 hot-air pistol refer to page 1052

NEW

FLEXIMARK® Wrapping labels TCK

Benefits
- A transparent foil is wrapped around the cable and pasted over the printed field, that the printing is protected against abrasion and pollution
- Resistant to chemicals, UV-radiation, moisture and some oils

Application range
- For Cable Marking
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)

Note
- Attention: The sizes changes and are now corresponding with the wrapping labels LCK

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Label rolls
Core diameter: 38 mm

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)	Number of markers per PU	PU
White edition							
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 edition							
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 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 refer to page 961
- FLEXIMARK® Software 10.0 refer to page 979
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 980

FLEXIMARK® Stainless steel kit

Benefits
- The basic equipment of the FLEXIMARK® stainless steel system in a handy box
- Recommended for harsh environments
- Acid-resistant

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 pieces (2 strips of each character containing 20 characters)
- Special characters +-/:.ü and sign for earthing: 40 pieces (2 strips with 20 markers for each sign)
- Characters blank: 40 pieces (2 character strips with 20 markers)
- 10 character holders (5 for cable ties and 5 with boreholes) with lengths of 286; 109; 83.1, 60.4; und 48.8 mm
- Stainless Steel Cable ties: 10 pieces LS 4.6x200

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Dimensions
Character strips: 9.5 x 6 x 0.75 mm
Box: 400 x 300 x 45 mm

Material
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)

Temperature range
-80°C to +500°C

Article number	Article designation	Version	Contents (unit)	PU
FLEXIMARK® Stainless steel kit				
83254222	FLEXIMARK® Kit Stainless Steel without pliers	without pliers	1	1
83254223	FLEXIMARK® Kit Stainless Steel with special pliers	with special pliers for´preventing the signs falling off	1	1
83254224	FLEXIMARK® Kit Stainless Steel with cable tie pliers	With cable tie pliers	1	1

Photographs 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® NM Stainless steel - character holders refer to page 958
- FLEXIMARK® MR Stainless steel character refer to page 957
- STEEL GUN HT-338 cable tie pliers refer to page 1068

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ACCESSORIES
APPENDIX

FLEXIMARK® MR Stainless steel character/FLEXIMARK® Stainless steel - character Set

Info

- Contained in FLEXIMARK® sample bag (article number M3251010)


Benefits
- For assembly, the character strips are pushed into the NM stainless steel character holders

Norm references / Approvals
- Achilles JQS certified

Note
- MR stainless steel character strips are also available with Cyrillic characters upon request.

Included
FLEXIMARK® MR Stainless steel character
- Every character strip containts 20 pre-stamped single markers

FLEXIMARK® Stainless steel - character Set
- Set contains 200 markers of each character

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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	Number of markers per PU	Contents (unit)	PU
Numbers				
83254179	FLEXIMARK® Character Strip MR 10-20 1	20	10	1
83254180	FLEXIMARK® Character Strip MR 10-20 2	20	10	1
83254181	FLEXIMARK® Character Strip MR 10-20 3	20	10	1
83254182	FLEXIMARK® Character Strip MR 10-20 4	20	10	1
83254183	FLEXIMARK® Character Strip MR 10-20 5	20	10	1
83254184	FLEXIMARK® Character Strip MR 10-20 6/9	20	10	1
83254185	FLEXIMARK® Character Strip MR 10-20 7	20	10	1
83254186	FLEXIMARK® Character Strip MR 10-20 8	20	10	1
Letters				
83254150	FLEXIMARK® Character Strip MR 10-20 A	20	10	1
83254151	FLEXIMARK® Character Strip MR 10-20 B	20	10	1
83254152	FLEXIMARK® Character Strip MR 10-20 C	20	10	1
83254153	FLEXIMARK® Character Strip MR 10-20 D	20	10	1
83254154	FLEXIMARK® Character Strip MR 10-20 E	20	10	1
83254155	FLEXIMARK® Character Strip MR 10-20 F	20	10	1
83254156	FLEXIMARK® Character Strip MR 10-20 G	20	10	1
83254157	FLEXIMARK® Character Strip MR 10-20 H	20	10	1
83254158	FLEXIMARK® Character Strip MR 10-20 I	20	10	1
83254159	FLEXIMARK® Character Strip MR 10-20 J	20	10	1
83254160	FLEXIMARK® Character Strip MR 10-20 K	20	10	1
83254161	FLEXIMARK® Character Strip MR 10-20 L	20	10	1
83254162	FLEXIMARK® Character Strip MR 10-20 M	20	10	1
83254163	FLEXIMARK® Character Strip MR 10-20 N	20	10	1
83254164	FLEXIMARK® Character Strip MR 10-20 O/0	20	10	1
83254165	FLEXIMARK® Character Strip MR 10-20 P	20	10	1
83254166	FLEXIMARK® Character Strip MR 10-20 Q	20	10	1
83254167	FLEXIMARK® Character Strip MR 10-20 R	20	10	1
83254168	FLEXIMARK® Character Strip MR 10-20 S	20	10	1
83254169	FLEXIMARK® Character Strip MR 10-20 T	20	10	1
83254170	FLEXIMARK® Character Strip MR 10-20 U	20	10	1
83254171	FLEXIMARK® Character Strip MR 10-20 V	20	10	1
83254172	FLEXIMARK® Character Strip MR 10-20 W	20	10	1
83254173	FLEXIMARK® Character Strip MR 10-20 X	20	10	1
83254174	FLEXIMARK® Character Strip MR 10-20 Y	20	10	1
83254175	FLEXIMARK® Character Strip MR 10-20 Z	20	10	1
83254177	FLEXIMARK® Character Strip MR 10-20 Ä	20	10	1
83254178	FLEXIMARK® Character Strip MR 10-20 Ö	20	10	1
83254201	FLEXIMARK® Character Strip MR 10-20 Ü	20	10	1
Symbols				
83254192	FLEXIMARK® Character Strip MR 10-20 +	20	10	1
83254191	FLEXIMARK® Character Strip MR 10-20 -	20	10	1
83254194	FLEXIMARK® Character Strip MR 10-20 /	20	10	1
83254195	FLEXIMARK® Character Strip MR 10-20 .	20	10	1
83254199	FLEXIMARK® Character Strip MR 10-20 :	20	10	1
83254198	FLEXIMARK® Character Strip MR 10-20 ~	20	10	1
83254193	FLEXIMARK® Character Strip MR 10-20 =	20	10	1
83254200	FLEXIMARK® Character Strip MR 10-20 Earth	20	10	1
83254196	FLEXIMARK® Character Strip MR 10-20 .	20	10	1
83254202	FLEXIMARK® Character Strip MR 10-20 (	20	10	1
83254189	FLEXIMARK® Character Strip MR 10-20P blank	20	10	1
Sets				
83254122	FLEXIMARK® Character strip MR SET 0-9	20	100	1
83254120	FLEXIMARK® Character strip MR SET A-Z	20	260	1

Photographs 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® NM Stainless steel - character holders

Benefits
- For mounting MR stainless steel characters
- Mounted with cable ties (maximum 7.9 mm width) or screws (up to 3 mm Ø)
- Acid-resistant

Application range
- Cable and component marking system
- For outdoor applications
- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)

Product features
- Holder for up to 46 characters

Norm references / Approvals
- Achilles JQS certified

Info
- PR 10 NM 7 contained in FLEXIMARK® sample bag(article number M3251010)

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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)	Number of markers per PU	Characters/unit	PU
FLEXIMARK® NM Stainless steel - character holders					
83254214	FLEXIMARK® PR10 NM4	48,8	50	4	1
83254213	FLEXIMARK® PR10 NM5	60,4	50	8	1
83254212	FLEXIMARK® PR10 NM7	84	50	12	1
83254211	FLEXIMARK® PR10 NM9	109	50	16	1
83254210	FLEXIMARK® PR10 NM24	286	50	46	1

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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® MR Stainless steel character refer to page 957
- LS steel cable ties refer to page 1066

NEW

FLEXIMARK® Micro Kit

Technical data

Dimensions
Micro Kit: 170 x 210 x 75 mm
Width of the TRASP™ strips: 2,3 mm

On request
Further collars available on request

Colour delivered
Character strips: White
On request: Yellow character strips

Temperature range
-50°C to +80°C

Benefits

- One system for different applications
- Quick, effective and user-friendly, with vast reductions in stock holding
- Durable PVC sleeves protect character elements from wear and degradation
- Reduced installation time
- Possibility to switch marking text without removing the marker

Application range

- For single core and cable marking
- Marking before and after assembly
- Quick and easy on-site assembly
- Indoor applications

Product features

- Pre-printed alphanumeric character elements are loaded into clear sleeves to mark wire, cable assemblies, terminal blocks and devices inside panels
- Fire behaviour according to UL 94V-0

Note

- Marking elements can be added or removed as required with removal hook (article no. 83290201)

Included

- Micro Kit:
  1x character strip with the text 1-9 und A B C E L N R S T V + -/ (1 character strip contains 24 markers)
  1x blank character strip in white and red
  50x transparent marking collars 3-4/15 mm
  20x transparent marking collars 8-10/15 mm
  50x transparent collars for cable tie 23 mm
  50x snap-on marking collars 2-3,5/15 mm
  50x snap-on marking collars 2,8-5/15 mm
  50x spark pins 1,5 mm^2,9 mm, red
  20x spark pins 2,5 mm^2,12 mm, blue
  20x spark pins 4 mm^2, 12 mm, green
  50x self-adhesive component marking collar, 15 mm
  1x mounting tool (article no. 83290199)
- Each Trasp™ contains 50 strips with 24 single markers (so in total there are 1.200 markers in one PU)

Article number	Article designation	Number of markers per PU	PU
FLEXIMARK® Micro Kit			
83290100	FLEXIMARK® Micro Kit WH		1
Trasp™ strips letters			
83290120	Trasp strips A WH	1200	1
83290121	Trasp strips B WH	1200	1
83290122	Trasp strips C WH	1200	1
83290123	Trasp strips D WH	1200	1
83290124	Trasp strips E WH	1200	1
83290125	Trasp strips F WH	1200	1
83290126	Trasp strips G WH	1200	1
83290127	Trasp strips H WH	1200	1
83290128	Trasp strips I WH	1200	1
83290129	Trasp strips J WH	1200	1
83290130	Trasp strips K WH	1200	1
83290131	Trasp strips L WH	1200	1
83290132	Trasp strips M WH	1200	1
83290133	Trasp strips N WH	1200	1
83290134	Trasp strips O WH	1200	1
83290135	Trasp strips P WH	1200	1
83290136	Trasp strips Q WH	1200	1
83290137	Trasp strips R WH	1200	1
83290138	Trasp strips S WH	1200	1
83290139	Trasp strips T WH	1200	1
83290140	Trasp strips U WH	1200	1
83290141	Trasp strips V WH	1200	1
83290142	Trasp strips W WH	1200	1
83290143	Trasp strips X WH	1200	1
83290144	Trasp strips Y WH	1200	1
83290145	Trasp strips Z WH	1200	1
Trasp™ strips numbers			
83290102	Trasp™ strips 0 WH	1200	1
83290103	Trasp strips 1 WH	1200	1
83290104	Trasp strips 2 WH	1200	1
83290105	Trasp strips 3 WH	1200	1
83290106	Trasp strips 4 WH	1200	1
83290107	Trasp strips 5 WH	1200	1
83290108	Trasp strips 6 WH	1200	1
83290109	Trasp strips 7 WH	1200	1
83290110	Trasp strips 8 WH	1200	1
83290111	Trasp strips 9 WH	1200	1
Trasp™ strips symbols			
83290112	Trasp™ strips + WH	1200	1
83290113	Trasp strips - WH	1200	1
83290116	Trasp strips . WH	1200	1
83290115	Trasp strips / WH	1200	1
83290118	Trasp strips Ø WH	1200	1
83290114	Trasp strips earthing symbol WH	1200	1
83290117	Trasp strips*WH	1200	1
83290119	Trasp strips : WH	1200	1

Trasp TM ist ein eingetragenes Warenzeichen der Firma 3M.
Photographs are not to scale and do not represent detailed images of the respective products.

FLEXIMARK® Marking Kit MINI

Benefits
- The basic equipment of the FLEXIMARK® MINI system in a handy box

Application range
- Cable and component marking system
- Quick and easy on-site assembly

Included
- Characters A-Ö/0-9: 40 pieces (2 strips of each character containing 20 characters)
- Special characters +-/:.ü and sign for earthing: 40 pieces (2 strips with 20 markers for each sign)
- Characters blank: 40 pieces (2 character strips with 20 markers)
- Charachter holder: 1 pc. of PGS 10-285 in black and white, 8 pc of PTE 9,5-285
- 40 pc clamping poppets, 20 pc end pieces, punching tool FL52-ERA (article number 83252047), 100 pc plastic cable ties

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Dimensions
Box: 400 x 300 x 45 mm
Character strips: 9.5 x 6 x 0,5 mm

Temperature range
-20°C to +65°C

Article number	Article designation	Contents (unit)	PU
FLEXIMARK® Marking Kit MINI			
83251995	FLEXIMARK® Marking Kit Mini with pliers F52-ERA	1	1

Photographs are not to scale and do not represent detailed images of the respective products.

WM BW Blank cable marker

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
- Indoor applications
- The designations can be written with a pencil, a ballpoint, pen, or other marker on the white writing area
- **Outer diameter:**
  BW 3: 25,4-127 mm
  BW 15: 19,1- 57,1 mm
  BW 12: 15,85-15,9 mm
  BW 14:15,85-15,9 mm
  BW 34: 12,7-31,57 mm

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Material
Vinyl strips, silicone-treated lining, halogen-free

Temperature range
-35°C to +70°C

Article number	Article designation	Labelling surface (mm)	For cable Ø (mm)	Number of markers per brochure	Contents (unit)
WM BW Blank cable marker					
61726150	WM brochure BW 3	25 x 25	8 - 40	30	1
61726160	WM brochure BW 5	25 x 20	6 - 18.1	50	1
61726170	WM brochure BW 12	12 x 15	5 - 5.4	200	1
61726180	WM brochure BW 14	6 x 15	5 - 5.4	400	1
61726190	WM brochure BW 34	18 x 14	5 - 10	140	1

Photographs 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 refer to page 961

NEW

FLEXIMARK® Cablelabel LAM

Benefits

- Laminated foil protects text area against different strains
- Could be used in different ways e.g. in combination with our marking pens or in combination with DYMO® ID1 tapes (width: 6 or 9 mm)
- Delivered in a handy box with 100 marking labels in each package.The box can also be attached onto your belt.

Application range

- For Cable Marking
- For marking on site
- Indoor applications
- Can be mounted directly on the cable together with plastic cable ties

Product features

- Long-term heat-and/or UV-exposure may result in discoloration of the product

Technical data

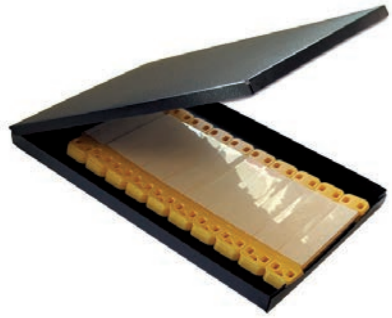
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Adhesive
Acrylic-based permanent adhesive

Colour delivered
yellow

Material
Label: UV Stabilized halogen-free polypropylene (PP)
Laminated foil:Halogen-free and 'UV-resistant polyester (0-PET)

Temperature range
-10°C to +60°C
Minimum working temperature: +10°C



Article number	Article designation	Colour	Width x length (mm)	Number of markers per PU	PU
FLEXIMARK® Cablelabel LAM					
83260197	FLEXIMARK® Cablelabel LAM 48-10 YE	yellow	48.0 x 10.0	100	1
83260198	FLEXIMARK® Cablelabel LAM 55-15 YE	yellow	55.0 x 15.0	100	1
83260199	FLEXIMARK® Cablelabel LAM 85-15 YE	yellow	85.0 x 15.0	100	1

Photographs 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 refer to page 961
- Basic Tie cable tie refer to page 1057
- DYMO® ID1 - Industry tape D1 refer to page 991

MS Marker pens

Benefits

- For individual, durable marking of blank MINI character and text strips and labels

Product features

- The marking is water, smudge and weather-resistant.
- For CD, glass, plastic, metal, foil and more
- Line width: 0.4 mm
- Integrated eraser

Technical data

ETIM 5.0 Class-ID: EC000610
ETIM 5.0 Class-Description: Label maker

Article number	Article designation	Colour	Contents (unit)
MS Marker pens			
61784650	MS-S marker pen	black	10
61784660	MS-R marker pen	red	10
61784670	MS-B marker pen	blue	10

Photographs 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

- KMK Label holders refer to page 989
- ETB Label holders refer to page 989
- Basic Tie Ident BTI-I Cable tie

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

FLEXIMARK® Flexiprint TF FCC

Benefits
- FLEXIMARK® single core marking system for individual application areas
- Customised printed labels in various sizes
- Easy to install
- Resistant to UV radiation

Application range
- For Single core marking
- Marking of optical fibre cables
- Marking before assembly
- Markers will be delivered with the desired text (printing service is included in the price)

Note
- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text
- Normal version: Up to 7 characters
- Dimensions are the same as for Flexiprint LF/TF

Included
- 1 PU= 1 marker, there is no mimimum purchase quantity

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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	Marking	For mm²	Number of markers per PU	PU
FLEXIMARK® Flexiprint TF FCC					
83251101	FLEXIMARK® TF FC F0 0,25-0,75 WH	customised	0.25 - 0.75	1	1
83251111	FLEXIMARK® TF FCC F1 0,75-1,5 WH	customised	0.75 - 1.5	1	1
83251121	FLEXIMARK® TF FCC F1B1,5-2,5 WH	customised	1.5 - 2.5	1	1
83251131	FLEXIMARK® TF FCC F2 2,5-6 WH	customised	2.5 - 6	1	1
83251141	FLEXIMARK® TF FCC F3 6-16 WH	customised	6 - 16	1	1

Photographs 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 LF/TF 953

NEW

FLEXIMARK® Organized shrink tube FCC

Benefits

- Halogenfree 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

Application range

- For Single core marking
- Marking before assembly
- Markers will be delivered with the desired text (printing service is included in the price)

Note

- **Ordering process:** Customised data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  - Column A: Text for the first row
  - Column B: Text for the second row
  - Column B or C: Amount of each text

Included

- 1 PU= 1 marker, there is no mimimum purchase quantity

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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	Min. diameter	Max. diameter	Length (mm)	Number of markers per PU	PU
FLEXIMARK® Organized shrink tube FCC						
83280249	FLEXIMARK® O.shr FCC 2.4/1.2-12.5 YE	1.2	2.4	12.5	1	1
83280250	FLEXIMARK® O.shr FCC 3,2/1.6-12.5 YE	1.6	3.2	12.5	1	1
83280251	FLEXIMARK® O.shr FCC 4,8/1,6- 12,5 YE	2.4	4.8	12.5	1	1
83280252	FLEXIMARK® O.shr FCC 2,4/0,8-16,6 YE	1.2	2.4	16.6	1	1
83280253	FLEXIMARK® O.shr FCC 3,2/1-16,6 YE	1.6	3.2	16.6	1	1
83280254	FLEXIMARK® O.shr FCC 4,8/1,6-16,6 YE	2.4	4.8	16.6	1	1

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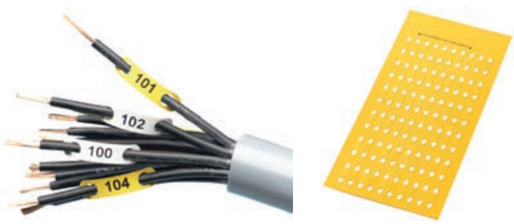
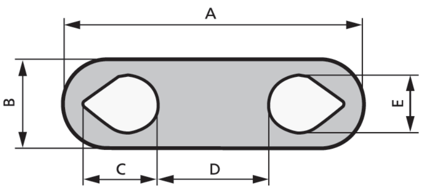
FLEXIMARK® Flexiprint LF





Info

- LF1 contained in FLEXIMARK® sample bag (article number M3251010)

Benefits
- Easy to install
- Resistant to acids, alkali, distilled water, salt water and transformer oil according to SP 2171 Methode
- Resistant to UV radiation
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

Application range
- For Single core marking
- Marking of optical fibre cables
- Marking before assembly
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)

Note
- Insert sheet in manual paper feed compartment
- The use of the cartridges of the printer supplier is recommended
- For cable cross-sections over 16.00 mm², cable ties can be used for installing single markers
- Normal version: Up to 7 characters
- L Version (e.g. LF1**L**): Up to 15 characters

Included
- 1 PU contains 75 label sheets
- One label sheet consists of 20-60 perforated markers, depending on the size

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Note
Dimensions of the label sheet: 80-100 x 210 mm

Colour delivered
yellow
also available in green, blue and red in two different packaging sizes (10 or 75 sheets)

Material
Halogen-free polyester
Thickness: 0.175 mm

Temperature range
-40°C to +125°C

Article number	Article designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	For mm²	Number of markers per PU	PU
Yellow edition									
83280005	FLEXIMARK® Flexiprint LF0 YE	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	4500	1
83254420	FLEXIMARK® Flexiprint LF1 YE	23	5.2	4.9	11.2	3.5	0.75 - 1.5	4500	1
83254440	FLEXIMARK® Flexiprint LF1L YE	34	5.2	5	22	3.5	0.75 - 1.5	2250	1
83254460	FLEXIMARK® Flexiprint LF1B YE	25	5.7	5.9	11.2	4.2	1.5 - 2.5	4500	1
83254480	FLEXIMARK® Flexiprint LF1BL YE	36	5.7	6	22	4.2	1.5 - 2.5	2250	1
83254500	FLEXIMARK® Flexiprint LF2 YE	26	7	6.5	11	5.5	2.5 - 6	4500	1
83254520	FLEXIMARK® Flexiprint LF3 YE	41	11	10.5	17	8.4	6 - 16	1500	1
White edition									
83254406	FLEXIMARK® Flexiprint LF0 WH	22.9	5.2	3.9	13.1	2.4	0.25 - 0.75	4500	1
83254426	FLEXIMARK® Flexiprint LF1 WH	23	5.2	4.9	11.2	3.5	0.75 - 1.5	4500	1
83254446	FLEXIMARK® Flexiprint LF1L WH	34	5.2	5	22	3.5	0.75 - 1.5	2250	1
83254466	FLEHXIMARK® Flexiprint LF1B WH	25	5.7	5.9	11.2	4.2	1.5 - 2.5	4500	1
83254486	FLEXIMARK® Flexiprint LF1BL WH	36	5.7	6	22	4.2	1.5 - 2.5	2250	1
83254506	FLEXIMARK® Flexiprint LF2 WH	26	7	6.5	11	5.5	2.5 - 6	4500	1
83254526	FLEXIMARK® Flexiprint LF3 YE	41	11	10.5	17	8.4	6 - 16	1500	1

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Accessories
- Basic Tie cable tie refer to page 1057
- FLEXIMARK® Software 10.0 refer to page 979

FLEXIMARK® Flexiprint TF

Benefits
- Easy to install
- Resistant to acids, alkali, distilled water, salt water and transformer oil according to SP 2171 Methode
- Resistant to UV radiation

Application range
- For Single core marking
- Marking of optical fibre cables
- Marking before assembly
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)

Note
- Normal version: Up to 7 characters
- L Version (e.g.TF1**L**): Up to 15 characters

Info
- TF 1 contained in FLEXIMARK® sample bag (article number M3251010)

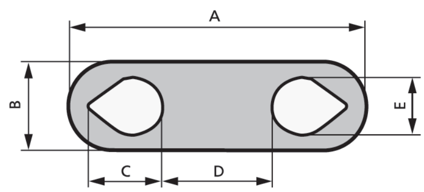
Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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	For mm²	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Number of markers per PU	PU
FLEXIMARK® Flexiprint TF									
83254372	FLEXIMARK® Flexiprint TF0 YE	0.25 - 0.75	22.9	5.2	3.9	13.1	2.4	2000	1
83255011	FLEXIMARK® Flexiprint TF0 0.25-0.75 WH	0.25 - 0.75						600	1
83254378	FLEXIMARK® Flexiprint TF1 YE	0.75 - 1.5	23	5.2	4.9	11.2	3.5	2000	1
83255012	FLEXIMARK® Flexiprint TF1 0.75-1.5 WH	0.75 - 1.5						600	1
83254354	FLEXIMARK® Flexiprint TF1L YE	0.75 - 1.5	34	5.2	5	22	3.5	2000	
83254374	FLEXIMARK® Flexiprint TF1B YE	1.5 - 2.5	25	5.7	5.9	11.2	4.2	2000	1
83255013	FLEXIMARK® Flexiprint TF1B 1.5-2.5 WH	1.5 - 2.5						600	1
83254359	FLEXIMARK® Flexiprint TF1BL YE	1.5 - 2.5	36	5.7	6	22	4.2	2000	
83254375	FLEXIMARK® Flexiprint TF2 YE	2.5 - 6	26	7	6.5	11	5.5	2000	1
83255014	FLEXIMARK® Flexiprint TF2 2.5-6.0 WH	2.5 - 6						600	1
83254376	FLEXIMARK® Flexiprint TF3 YE	6 - 16	41	11	10.5	17	8.4	1000	1
83255015	FLEXIMARK® Flexiprint TF3 6.0-16.0 WH	6 - 16						200	1

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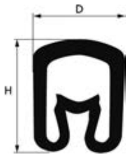
Accessories
- FLEXIMARK® Software 10.0 refer to page 979
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 980

Marking rings PA

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
- Resistant to UV radiation

Application range
- For Single core marking
- Marking before assembly
- These closed collars are intended for cables that are not connected yet
- Cross-section in mm²:
  PA 02: 0,75 mm²
  PA 1: 0,75-4 mm²
  PA 2: 2,5-16 mm²
  PA 3: 16-70 mm²

Product features
- Extremely flame-retardant according to UL 94 V0

Note
Marking rings PA02
- Also available as collector's box (article number 61833050, contains 600 rings with inscription 0-9)

Marking rings PA 1
- Also available as collector's box (article number 61833060, contains 500 rings with inscription 0-9)

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
PA 02					
61817800	PA 02 / 0	3.5 x 3.6	3	1.3 - 3.0	200
61817820	PA 02 / 2	3.5 x 3.6	3	1.3 - 3.0	200
61817830	PA 02 / 3	3.5 x 3.6	3	1.3 - 3.0	200
61817840	PA 02 / 4	3.5 x 3.6	3	1.3 - 3.0	200
61817850	PA 02 / 5	3.5 x 3.6	3	1.3 - 3.0	200
61817860	PA 02 / 6	3.5 x 3.6	3	1.3 - 3.0	200
61817870	PA 02 / 7	3.5 x 3.6	3	1.3 - 3.0	200
61817880	PA 02 / 8	3.5 x 3.6	3	1.3 - 3.0	200
61817890	PA 02 / 9	3.5 x 3.6	3	1.3 - 3.0	200
61817900	PA 02/blank	3.5 x 3.6	3	1.3 - 3.0	200
61817910	PA 02 / A	3.5 x 3.6	3	1.3 - 3.0	200
61817920	PA 02 / B	3.5 x 3.6	3	1.3 - 3.0	200
61817930	PA 02 / C	3.5 x 3.6	3	1.3 - 3.0	200
61817940	PA 02 / D	3.5 x 3.6	3	1.3 - 3.0	200
61817950	PA 02 / E	3.5 x 3.6	3	1.3 - 3.0	200
61817960	PA 02 / F	3.5 x 3.6	3	1.3 - 3.0	200
61817970	PA 02 / G	3.5 x 3.6	3	1.3 - 3.0	200
61817980	PA 02 / H	3.5 x 3.6	3	1.3 - 3.0	200
61817990	PA 02 / I	3.5 x 3.6	3	1.3 - 3.0	200
61818000	PA 02 / J	3.5 x 3.6	3	1.3 - 3.0	200
61818011	PA 02 / K	3.5 x 3.6	3	1.3 - 3.0	200
61818020	PA 02 / L	3.5 x 3.6	3	1.3 - 3.0	200
61818030	PA 02 / M	3.5 x 3.6	3	1.3 - 3.0	200
61818040	PA 02 / N	3.5 x 3.6	3	1.3 - 3.0	200
61818050	PA 02 / O	3.5 x 3.6	3	1.3 - 3.0	200
61818060	PA 02 / P	3.5 x 3.6	3	1.3 - 3.0	200
61818070	PA 02 / Q	3.5 x 3.6	3	1.3 - 3.0	200
61818080	PA 02 / R	3.5 x 3.6	3	1.3 - 3.0	200
61818090	PA 02 / S	3.5 x 3.6	3	1.3 - 3.0	200
61819100	PA 02 / T	3.5 x 3.6	3	1.3 - 3.0	200
61819110	PA 02 / U	3.5 x 3.6	3	1.3 - 3.0	200
61819120	PA 02 / V	3.5 x 3.6	3	1.3 - 3.0	200
61819130	PA 02 / W	3.5 x 3.6	3	1.3 - 3.0	200
61819140	PA 02 / X	3.5 x 3.6	3	1.3 - 3.0	200
61819150	PA 02 / Y	3.5 x 3.6	3	1.3 - 3.0	200
61819160	PA 02 / Z	3.5 x 3.6	3	1.3 - 3.0	200
61819170	PA 02 / /	3.5 x 3.6	3	1.3 - 3.0	200
61819180	PA 02 / .	3.5 x 3.6	3	1.3 - 3.0	200
61819190	PA 02 / ,	3.5 x 3.6	3	1.3 - 3.0	200
61819200	PA 02 / :	3.5 x 3.6	3	1.3 - 3.0	200
61819210	PA 02 / =	3.5 x 3.6	3	1.3 - 3.0	200
61819220	PA 02/earth	3.5 x 3.6	3	1.3 - 3.0	200
61819260	PA 02 / +	3.5 x 3.6	3	1.3 - 3.0	200
61819270	PA 02 / -	3.5 x 3.6	3	1.3 - 3.0	200
61819280	PA 02 / ~	3.5 x 3.6	3	1.3 - 3.0	200

Article number	Article designation	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
PA 1					
61819300	PA 1 / 0	4.2 x 5.5	3	2.5 - 5.0	200
61819310	PA 1 / 1	4.2 x 5.5	3	2.5 - 5.0	200
61819320	PA 1 / 2	4.2 x 5.5	3	2.5 - 5.0	200
61819330	PA 1 / 3	4.2 x 5.5	3	2.5 - 5.0	200
61819360	PA 1 / 6	4.2 x 5.5	3	2.5 - 5.0	200
61819340	PA 1 / 4	4.2 x 5.5	3	2.5 - 5.0	200
61819350	PA 1 / 5	4.2 x 5.5	3	2.5 - 5.0	200
61819370	PA 1 / 7	4.2 x 5.5	3	2.5 - 5.0	200
61819380	PA 1 / 8	4.2 x 5.5	3	2.5 - 5.0	200
61819390	PA 1 / 9	4.2 x 5.5	3	2.5 - 5.0	200
61819400	PA 1 /blank	4.2 x 5.5	3	2.5 - 5.0	200
61819410	PA 1 / A	4.2 x 5.5	3	2.5 - 5.0	200
61819420	PA 1 / B	4.2 x 5.5	3	2.5 - 5.0	200
61819430	PA 1 / C	4.2 x 5.5	3	2.5 - 5.0	200
61819440	PA 1 / D	4.2 x 5.5	3	2.5 - 5.0	200
61819450	PA 1 / E	4.2 x 5.5	3	2.5 - 5.0	200
61819460	PA 1 / F	4.2 x 5.5	3	2.5 - 5.0	200
61819470	PA 1 / G	4.2 x 5.5	3	2.5 - 5.0	200
61819480	PA 1 / H	4.2 x 5.5	3	2.5 - 5.0	200
61819490	PA 1 / I	4.2 x 5.5	3	2.5 - 5.0	200
61819500	PA 1 / J	4.2 x 5.5	3	2.5 - 5.0	200
61819510	PA 1 / K	4.2 x 5.5	3	2.5 - 5.0	200
61819520	PA 1 / L	4.2 x 5.5	3	2.5 - 5.0	200
61819530	PA 1 / M	4.2 x 5.5	3	2.5 - 5.0	200
61819540	PA 1 / N	4.2 x 5.5	3	2.5 - 5.0	200
61819550	PA 1 / O	4.2 x 5.5	3	2.5 - 5.0	200
61819560	PA 1 / P	4.2 x 5.5	3	2.5 - 5.0	200
61819570	PA 1 / Q	4.2 x 5.5	3	2.5 - 5.0	200
61819580	PA 1 / R	4.2 x 5.5	3	2.5 - 5.0	200
61819590	PA 1 / S	4.2 x 5.5	3	2.5 - 5.0	200
61819600	PA 1 / T	4.2 x 5.5	3	2.5 - 5.0	200
61819610	PA 1 / U	4.2 x 5.5	3	2.5 - 5.0	200
61819620	PA 1 / V	4.2 x 5.5	3	2.5 - 5.0	200
61819630	PA 1 / W	4.2 x 5.5	3	2.5 - 5.0	200
61819640	PA 1 / X	4.2 x 5.5	3	2.5 - 5.0	200
61819650	PA 1 / Y	4.2 x 5.5	3	2.5 - 5.0	200
61819660	PA 1 / Z	4.2 x 5.5	3	2.5 - 5.0	200
61819670	PA 1 / /	4.2 x 5.5	3	2.5 - 5.0	200
61819680	PA 1 / .	4.2 x 5.5	3	2.5 - 5.0	200
61819690	PA 1 / ,	4.2 x 5.5	3	2.5 - 5.0	200
61819700	PA 1 / :	4.2 x 5.5	3	2.5 - 5.0	200
61819710	PA 1 / =	4.2 x 5.5	3	2.5 - 5.0	200
61819720	PA 1/earth	4.2 x 5.5	3	2.5 - 5.0	200
61819760	PA 1 / +	4.2 x 5.5	3	2.5 - 5.0	200
61819770	PA 1 / -	4.2 x 5.5	3	2.5 - 5.0	200
61819780	PA 1 / ~	4.2 x 5.5	3	2.5 - 5.0	200
PA 2					
61819800	PA 2 / 0	6.6 x 9.5	4	4.0 - 10.0	100
61819810	PA 2 / 1	6.6 x 9.5	4	4.0 - 10.0	100
61819820	PA 2 / 2	6.6 x 9.5	4	4.0 - 10.0	100
61819830	PA 2 / 3	6.6 x 9.5	4	4.0 - 10.0	100
61819840	PA 2 / 4	6.6 x 9.5	4	4.0 - 10.0	100
61819850	PA 2 / 5	6.6 x 9.5	4	4.0 - 10.0	100
61819860	PA 2 / 6	6.6 x 9.5	4	4.0 - 10.0	100
61819870	PA 2 / 7	6.6 x 9.5	4	4.0 - 10.0	100
61819880	PA 2 / 8	6.6 x 9.5	4	4.0 - 10.0	100
61819890	PA 2 / 9	6.6 x 9.5	4	4.0 - 10.0	100
61819900	PA 2 /blank	6.6 x 9.5	4	4.0 - 10.0	100
61819910	PA 2 / A	6.6 x 9.5	4	4.0 - 10.0	100
61819920	PA 2 / B	6.6 x 9.5	4	4.0 - 10.0	100
61819930	PA 2 / C	6.6 x 9.5	4	4.0 - 10.0	100
61819940	PA 2 / D	6.6 x 9.5	4	4.0 - 10.0	100
61819950	PA 2 / E	6.6 x 9.5	4	4.0 - 10.0	100
61819960	PA 2 / F	6.6 x 9.5	4	4.0 - 10.0	100
61819970	PA 2 / G	6.6 x 9.5	4	4.0 - 10.0	100
61819980	PA 2 / H	6.6 x 9.5	4	4.0 - 10.0	100
61819990	PA 2 / I	6.6 x 9.5	4	4.0 - 10.0	100
61820000	PA 2 / J	6.6 x 9.5	4	4.0 - 10.0	100
61820010	PA 2 / K	6.6 x 9.5	4	4.0 - 10.0	100
61820020	PA 2 / L	6.6 x 9.5	4	4.0 - 10.0	100
61820030	PA 2 / M	6.6 x 9.5	4	4.0 - 10.0	100
61820040	PA 2 / N	6.6 x 9.5	4	4.0 - 10.0	100
61820050	PA 2 / O	6.6 x 9.5	4	4.0 - 10.0	100
61820060	PA 2 / P	6.6 x 9.5	4	4.0 - 10.0	100
61820070	PA 2 / Q	6.6 x 9.5	4	4.0 - 10.0	100
61820080	PA 2 / R	6.6 x 9.5	4	4.0 - 10.0	100
61820090	PA 2 / S	6.6 x 9.5	4	4.0 - 10.0	100
61820100	PA 2 / T	6.6 x 9.5	4	4.0 - 10.0	100
61820110	PA 2 / U	6.6 x 9.5	4	4.0 - 10.0	100
61820120	PA 2 / V	6.6 x 9.5	4	4.0 - 10.0	100
61820130	PA 2 / W	6.6 x 9.5	4	4.0 - 10.0	100
61820140	PA 2 / X	6.6 x 9.5	4	4.0 - 10.0	100
61820150	PA 2 / Y	6.6 x 9.5	4	4.0 - 10.0	100

FLEXIMARK® Single core marking • Basic System Single Core Marking

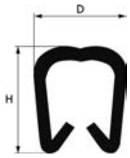
Article number	Article designation	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
61820160	PA 2 / Z	6.6 x 9.5	4	4.0 - 10.0	100
61820170	PA 2 / /	6.6 x 9.5	4	4.0 - 10.0	100
61820180	PA 2 / .	6.6 x 9.5	4	4.0 - 10.0	100
61820190	PA 2 / ,	6.6 x 9.5	4	4.0 - 10.0	100
61820200	PA 2 / :	6.6 x 9.5	4	4.0 - 10.0	100
61820210	PA 2 / =	6.6 x 9.5	4	4.0 - 10.0	100
61820220	PA 2/earth	6.6 x 9.5	4	4.0 - 10.0	100
61820260	PA 2 / +	6.6 x 9.5	4	4.0 - 10.0	100
61820270	PA 2 / -	6.6 x 9.5	4	4.0 - 10.0	100
61820280	PA 2 / ~	6.6 x 9.5	4	4.0 - 10.0	100
PA 3					
61820300	PA 3 / 0	11.0 x 16.5	6	8.0 - 16.0	20
61820310	PA 3 / 1	11.0 x 16.5	6	8.0 - 16.0	20
61820320	PA 3 / 2	11.0 x 16.5	6	8.0 - 16.0	20
61820330	PA 3 / 3	11.0 x 16.5	6	8.0 - 16.0	20
61820340	PA 3 / 4	11.0 x 16.5	6	8.0 - 16.0	20
61820350	PA 3 / 5	11.0 x 16.5	6	8.0 - 16.0	20
61820360	PA 3 / 6	11.0 x 16.5	6	8.0 - 16.0	20
61820370	PA 3 / 7	11.0 x 16.5	6	8.0 - 16.0	20
61820380	PA 3 / 8	11.0 x 16.5	6	8.0 - 16.0	20
61820390	PA 3 / 9	11.0 x 16.5	6	8.0 - 16.0	20
61820400	PA3/Blank	11.0 x 16.5	6	8.0 - 16.0	20
61820410	PA 3 / A	11.0 x 16.5	6	8.0 - 16.0	20
61820420	PA 3 / B	11.0 x 16.5	6	8.0 - 16.0	20
61820430	PA 3 / C	11.0 x 16.5	6	8.0 - 16.0	20
61820440	PA 3 / D	11.0 x 16.5	6	8.0 - 16.0	20
61820450	PA 3 / E	11.0 x 16.5	6	8.0 - 16.0	20
61820460	PA 3 / F	11.0 x 16.5	6	8.0 - 16.0	20
61820470	PA 3 / G	11.0 x 16.5	6	8.0 - 16.0	20
61820480	PA 3 / H	11.0 x 16.5	6	8.0 - 16.0	20
61820490	PA 3 / I	11.0 x 16.5	6	8.0 - 16.0	20
61820500	PA 3 / J	11.0 x 16.5	6	8.0 - 16.0	20
61820510	PA 3 / K	11.0 x 16.5	6	8.0 - 16.0	20
61820520	PA 3 / L	11.0 x 16.5	6	8.0 - 16.0	20
61820530	PA 3 / M	11.0 x 16.5	6	8.0 - 16.0	20
61820540	PA 3 / N	11.0 x 16.5	6	8.0 - 16.0	20
61820550	PA 3 / O	11.0 x 16.5	6	8.0 - 16.0	20
61820560	PA 3 / P	11.0 x 16.5	6	8.0 - 16.0	20
61820570	PA 3 / Q	11.0 x 16.5	6	8.0 - 16.0	20
61820580	PA 3 / R	11.0 x 16.5	6	8.0 - 16.0	20
61820590	PA 3 / S	11.0 x 16.5	6	8.0 - 16.0	20
61820600	PA 3 / T	11.0 x 16.5	6	8.0 - 16.0	20
61820610	PA 3 / U	11.0 x 16.5	6	8.0 - 16.0	20
61820620	PA 3 / V	11.0 x 16.5	6	8.0 - 16.0	20
61820630	PA 3 / W	11.0 x 16.5	6	8.0 - 16.0	20
61820640	PA 3 / X	11.0 x 16.5	6	8.0 - 16.0	20
61820650	PA 3 / Y	11.0 x 16.5	6	8.0 - 16.0	20
61820660	PA 3 / Z	11.0 x 16.5	6	8.0 - 16.0	20
61820670	PA 3 / /	11.0 x 16.5	6	8.0 - 16.0	20
61820680	PA 3 / .	11.0 x 16.5	6	8.0 - 16.0	20
61820720	PA 3/earth	11.0 x 16.5	6	8.0 - 16.0	20
61820760	PA 3 / +	11.0 x 16.5	6	8.0 - 16.0	20
61820770	PA 3 / -	11.0 x 16.5	6	8.0 - 16.0	20
61820780	PA 3 / ~	11.0 x 16.5	6	8.0 - 16.0	20

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Storage box refer to page 972
- Storage box refer to page 972
- PAV Mounting tool refer to page 972

Marking rings PC

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.
- Resistant to UV radiation
- Easy mounting through clipping

Application range

- For Single core marking
- Marking after assembly
- Also possible to use for marking wires before assembly
- Cross-section in mm²:
  PC 10: 0,5 mm²
  PC 20: 0,75 und 1 und 1,5 mm²
  PC 30: 2,5 und 4 mm²
  PC 40: 6 mm²

Product features

- Extremely flame-retardant according to UL 94 V0

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
PC 10					
61820900	PC 10 / O	3.7 x 3.6	3	2.4 - 3.0	200
61820910	PC 10 / 1	3.7 x 3.6	3	2.4 - 3.0	200
61820920	PC 10 / 2	3.7 x 3.6	3	2.4 - 3.0	200
61820930	PC 10 / 3	3.7 x 3.6	3	2.4 - 3.0	200
61820940	PC 10 / 4	3.7 x 3.6	3	2.4 - 3.0	200
61820950	PC 10 / 5	3.7 x 3.6	3	2.4 - 3.0	200
61820960	PC 10 / 6	3.7 x 3.6	3	2.4 - 3.0	200
61820970	PC 10 / 7	3.7 x 3.6	3	2.4 - 3.0	200
61820980	PC 10 / 8	3.7 x 3.6	3	2.4 - 3.0	200
61820990	PC 10 / 9	3.7 x 3.6	3	2.4 - 3.0	200
61821000	PC 10/blank	3.7 x 3.6	3	2.4 - 3.0	200
61821010	PC 10 / A	3.7 x 3.6	3	2.4 - 3.0	200
61821020	PC 10 / B	3.7 x 3.6	3	2.4 - 3.0	200
61821030	PC 10 / C	3.7 x 3.6	3	2.4 - 3.0	200
61821040	PC 10 / D	3.7 x 3.6	3	2.4 - 3.0	200
61821050	PC 10 / E	3.7 x 3.6	3	2.4 - 3.0	200
61821060	PC 10 / F	3.7 x 3.6	3	2.4 - 3.0	200
61821070	PC 10 / G	3.7 x 3.6	3	2.4 - 3.0	200
61821080	PC 10 / H	3.7 x 3.6	3	2.4 - 3.0	200
61821090	PC 10 / I	3.7 x 3.6	3	2.4 - 3.0	200
61821100	PC 10 / J	3.7 x 3.6	3	2.4 - 3.0	200
61821110	PC 10 / K	3.7 x 3.6	3	2.4 - 3.0	200
61821120	PC 10 / L	3.7 x 3.6	3	2.4 - 3.0	200
61821130	PC 10 / M	3.7 x 3.6	3	2.4 - 3.0	200
61821140	PC 10 / N	3.7 x 3.6	3	2.4 - 3.0	200
61821150	PC 10 / O	3.7 x 3.6	3	2.4 - 3.0	200
61821160	PC 10 / P	3.7 x 3.6	3	2.4 - 3.0	200
61821170	PC 10 / Q	3.7 x 3.6	3	2.4 - 3.0	200
61821180	PC 10 / R	3.7 x 3.6	3	2.4 - 3.0	200
61821190	PC 10 / S	3.7 x 3.6	3	2.4 - 3.0	200
61821200	PC 10 / T	3.7 x 3.6	3	2.4 - 3.0	200
61821210	PC 10 / U	3.7 x 3.6	3	2.4 - 3.0	200
61821220	PC 10 / V	3.7 x 3.6	3	2.4 - 3.0	200
61821230	PC 10 / W	3.7 x 3.6	3	2.4 - 3.0	200
61821240	PC 10 / X	3.7 x 3.6	3	2.4 - 3.0	200
61821250	PC 10 / Y	3.7 x 3.6	3	2.4 - 3.0	200
61821260	PC 10 / Z	3.7 x 3.6	3	2.4 - 3.0	200
61821270	PC 10 / /	3.7 x 3.6	3	2.4 - 3.0	200
61821280	PC 10 / .	3.7 x 3.6	3	2.4 - 3.0	200
61821290	PC 10 / ,	3.7 x 3.6	3	2.4 - 3.0	200
61821300	PC 10 / :	3.7 x 3.6	3	2.4 - 3.0	200
61821310	PC 10 / =	3.7 x 3.6	3	2.4 - 3.0	200
61821320	PC 10/earth	3.7 x 3.6	3	2.4 - 3.0	200
61821360	PC 10 / +	3.7 x 3.6	3	2.4 - 3.0	200
61821370	PC 10 / -	3.7 x 3.6	3	2.4 - 3.0	200
61821380	PC 10 / ~	3.7 x 3.6	3	2.4 - 3.0	200
PC 20					
61821400	PC 20 / 0	4.5 x 4.2	3	3.0 - 4.0	200
61821410	PC 20 / 1	4.5 x 4.2	3	3.0 - 4.0	200
61821420	PC 20 / 2	4.5 x 4.2	3	3.0 - 4.0	200
61821430	PC 20 / 3	4.5 x 4.2	3	3.0 - 4.0	200
61821440	PC 20 / 4	4.5 x 4.2	3	3.0 - 4.0	200

FLEXIMARK® Single core marking • Basic System Single Core Marking

Article number	Article designation	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
61821450	PC 20 / 5	4.5 x 4.2	3	3.0 - 4.0	200
61821460	PC 20 / 6	4.5 x 4.2	3	3.0 - 4.0	200
61821470	PC 20 / 7	4.5 x 4.2	3	3.0 - 4.0	200
61821480	PC 20 / 8	4.5 x 4.2	3	3.0 - 4.0	200
61821490	PC 20 / 9	4.5 x 4.2	3	3.0 - 4.0	200
61821500	PC 20/blank	4.5 x 4.2	3	3.0 - 4.0	200
61821510	PC 20 / A	4.5 x 4.2	3	3.0 - 4.0	200
61821520	PC 20 / B	4.5 x 4.2	3	3.0 - 4.0	200
61821530	PC 20 / C	4.5 x 4.2	3	3.0 - 4.0	200
61821540	PC 20 / D	4.5 x 4.2	3	3.0 - 4.0	200
61821550	PC 20 / E	4.5 x 4.2	3	3.0 - 4.0	200
61821560	PC 20 / F	4.5 x 4.2	3	3.0 - 4.0	200
61821570	PC 20 / G	4.5 x 4.2	3	3.0 - 4.0	200
61821580	PC 20 / H	4.5 x 4.2	3	3.0 - 4.0	200
61821590	PC 20 / I	4.5 x 4.2	3	3.0 - 4.0	200
61821600	PC 20 / J	4.5 x 4.2	3	3.0 - 4.0	200
61821610	PC 20 / K	4.5 x 4.2	3	3.0 - 4.0	200
61821620	PC 20 / L	4.5 x 4.2	3	3.0 - 4.0	200
61821630	PC 20 / M	4.5 x 4.2	3	3.0 - 4.0	200
61821640	PC 20 / N	4.5 x 4.2	3	3.0 - 4.0	200
61821650	PC 20 / O	4.5 x 4.2	3	3.0 - 4.0	200
61821660	PC 20 / P	4.5 x 4.2	3	3.0 - 4.0	200
61821670	PC 20 / Q	4.5 x 4.2	3	3.0 - 4.0	200
61821680	PC 20 / R	4.5 x 4.2	3	3.0 - 4.0	200
61821690	PC 20 / S	4.5 x 4.2	3	3.0 - 4.0	200
61821700	PC 20 / T	4.5 x 4.2	3	3.0 - 4.0	200
61821710	PC 20 / U	4.5 x 4.2	3	3.0 - 4.0	200
61821720	PC 20 / V	4.5 x 4.2	3	3.0 - 4.0	200
61821730	PC 20 / W	4.5 x 4.2	3	3.0 - 4.0	200
61821740	PC 20 / X	4.5 x 4.2	3	3.0 - 4.0	200
61821750	PC 20 / Y	4.5 x 4.2	3	3.0 - 4.0	200
61821760	PC 20 / Z	4.5 x 4.2	3	3.0 - 4.0	200
61821770	PC 20 / /	4.5 x 4.2	3	3.0 - 4.0	200
61821780	PC 20 / .	4.5 x 4.2	3	3.0 - 4.0	200
61821790	PC 20 / ,	4.5 x 4.2	3	3.0 - 4.0	200
61821800	PC 20 / :	4.5 x 4.2	3	3.0 - 4.0	200
61821810	PC 20 / =	4.5 x 4.2	3	3.0 - 4.0	200
61821820	PC 20/earth	4.5 x 4.2	3	3.0 - 4.0	200
61821860	PC 20 / +	4.5 x 4.2	3	3.0 - 4.0	200
61821870	PC 20 / -	4.5 x 4.2	3	3.0 - 4.0	200
61821880	PC 20 / ~	4.5 x 4.2	3	3.0 - 4.0	200
PC 30					
61821900	PC 30 / 0	5.7 x 5.5	3	4.0 - 5.0	200
61821910	PC 30 / 1	5.7 x 5.5	3	4.0 - 5.0	200
61821920	PC 30 / 2	5.7 x 5.5	3	4.0 - 5.0	200
61821930	PC 30 / 3	5.7 x 5.5	3	4.0 - 5.0	200
61821940	PC 30 / 4	5.7 x 5.5	3	4.0 - 5.0	200
61821950	PC 30 / 5	5.7 x 5.5	3	4.0 - 5.0	200
61821960	PC 30 / 6	5.7 x 5.5	3	4.0 - 5.0	200
61821970	PC 30 / 7	5.7 x 5.5	3	4.0 - 5.0	200
61821980	PC 30 / 8	5.7 x 5.5	3	4.0 - 5.0	200
61821990	PC 30 / 9	5.7 x 5.5	3	4.0 - 5.0	200
61822000	PC 30/blank	5.7 x 5.5	3	4.0 - 5.0	200
61822010	PC 30 / A	5.7 x 5.5	3	4.0 - 5.0	200
61822020	PC 30 / B	5.7 x 5.5	3	4.0 - 5.0	200
61822030	PC 30 / C	5.7 x 5.5	3	4.0 - 5.0	200
61822040	PC 30 / D	5.7 x 5.5	3	4.0 - 5.0	200
61822050	PC 30 / E	5.7 x 5.5	3	4.0 - 5.0	200
61822060	PC 30 / F	5.7 x 5.5	3	4.0 - 5.0	200
61822070	PC 30 / G	5.7 x 5.5	3	4.0 - 5.0	200
61822080	PC 30 / H	5.7 x 5.5	3	4.0 - 5.0	200
61822090	PC 30 / I	5.7 x 5.5	3	4.0 - 5.0	200
61822100	PC 30 / J	5.7 x 5.5	3	4.0 - 5.0	200
61822110	PC 30 / K	5.7 x 5.5	3	4.0 - 5.0	200
61822120	PC 30 / L	5.7 x 5.5	3	4.0 - 5.0	200
61822130	PC 30 / M	5.7 x 5.5	3	4.0 - 5.0	200
61822140	PC 30 / N	5.7 x 5.5	3	4.0 - 5.0	200
61822150	PC 30 / O	5.7 x 5.5	3	4.0 - 5.0	200
61822160	PC 30 / P	5.7 x 5.5	3	4.0 - 5.0	200
61822170	PC 30 / Q	5.7 x 5.5	3	4.0 - 5.0	200
61822180	PC 30 / R	5.7 x 5.5	3	4.0 - 5.0	200
61822190	PC 30 / S	5.7 x 5.5	3	4.0 - 5.0	200
61822200	PC 30 / T	5.7 x 5.5	3	4.0 - 5.0	200
61822210	PC 30 / U	5.7 x 5.5	3	4.0 - 5.0	200
61822220	PC 30 / V	5.7 x 5.5	3	4.0 - 5.0	200
61822230	PC 30 / W	5.7 x 5.5	3	4.0 - 5.0	200
61822240	PC 30 / X	5.7 x 5.5	3	4.0 - 5.0	200
61822250	PC 30 / Y	5.7 x 5.5	3	4.0 - 5.0	200
61822260	PC 30 / Z	5.7 x 5.5	3	4.0 - 5.0	200
61822270	PC 30 / /	5.7 x 5.5	3	4.0 - 5.0	200
61822280	PC 30 / .	5.7 x 5.5	3	4.0 - 5.0	200
61822290	PC 30 / ,	5.7 x 5.5	3	4.0 - 5.0	200
61822300	PC 30 / :	5.7 x 5.5	3	4.0 - 5.0	200
61822310	PC 30 / =	5.7 x 5.5	3	4.0 - 5.0	200
61822320	PC 30/earth	5.7 x 5.5	3	4.0 - 5.0	200

Article number	Article designation	Width x height (mm)	Sleeve length (mm)	Area of application Ø (mm)	Contents (unit)
61822360	PC 30 / +	5.7 x 5.5	3	4.0 - 5.0	200
61822370	PC 30 / -	5.7 x 5.5	3	4.0 - 5.0	200
61822380	PC 30 / ~	5.7 x 5.5	3	4.0 - 5.0	200
PC 40					
61822400	PC 40 / 0	6.9 x 6.7	4	5.0 - 6.2	200
61822410	PC 40 / 1	6.9 x 6.7	4	5.0 - 6.2	200
61822420	PC 40 / 2	6.9 x 6.7	4	5.0 - 6.2	200
61822430	PC 40 / 3	6.9 x 6.7	4	5.0 - 6.2	200
61822440	PC 40 / 4	6.9 x 6.7	4	5.0 - 6.2	200
61822450	PC 40 / 5	6.9 x 6.7	4	5.0 - 6.2	200
61822460	PC 40 / 6	6.9 x 6.7	4	5.0 - 6.2	200
61822470	PC 40 / 7	6.9 x 6.7	4	5.0 - 6.2	200
61822480	PC 40 / 8	6.9 x 6.7	4	5.0 - 6.2	200
61822490	PC 40 / 9	6.9 x 6.7	4	5.0 - 6.2	200
61822500	PC 40/blank	6.9 x 6.7	4	5.0 - 6.2	200
61822510	PC 40 / A	6.9 x 6.7	4	5.0 - 6.2	200
61822520	PC 40 / B	6.9 x 6.7	4	5.0 - 6.2	200
61822530	PC 40 / C	6.9 x 6.7	4	5.0 - 6.2	200
61822540	PC 40 / D	6.9 x 6.7	4	5.0 - 6.2	200
61822550	PC 40 / E	6.9 x 6.7	4	5.0 - 6.2	200
61822560	PC 40 / F	6.9 x 6.7	4	5.0 - 6.2	200
61822570	PC 40 / G	6.9 x 6.7	4	5.0 - 6.2	200
61822580	PC 40 / H	6.9 x 6.7	4	5.0 - 6.2	200
61822590	PC 40 / I	6.9 x 6.7	4	5.0 - 6.2	200
61822600	PC 40 / J	6.9 x 6.7	4	5.0 - 6.2	200
61822610	PC 40 / K	6.9 x 6.7	4	5.0 - 6.2	200
61822620	PC 40 / L	6.9 x 6.7	4	5.0 - 6.2	200
61822630	PC 40 / M	6.9 x 6.7	4	5.0 - 6.2	200
61822640	PC 40 / N	6.9 x 6.7	4	5.0 - 6.2	200
61822650	PC 40 / O	6.9 x 6.7	4	5.0 - 6.2	200
61822660	PC 40 / P	6.9 x 6.7	4	5.0 - 6.2	200
61822670	PC 40 / Q	6.9 x 6.7	4	5.0 - 6.2	200
61822680	PC 40 / R	6.9 x 6.7	4	5.0 - 6.2	200
61822690	PC 40 / S	6.9 x 6.7	4	5.0 - 6.2	200
61822700	PC 40 / T	6.9 x 6.7	4	5.0 - 6.2	200
61822710	PC 40 / U	6.9 x 6.7	4	5.0 - 6.2	200
61822720	PC 40 / V	6.9 x 6.7	4	5.0 - 6.2	200
61822730	PC 40 / W	6.9 x 6.7	4	5.0 - 6.2	200
61822740	PC 40 / X	6.9 x 6.7	4	5.0 - 6.2	200
61822750	PC 40 / Y	6.9 x 6.7	4	5.0 - 6.2	200
61822760	PC 40 / Z	6.9 x 6.7	4	5.0 - 6.2	200
61822770	PC 40 / /	6.9 x 6.7	4	5.0 - 6.2	200
61822780	PC 40 / .	6.9 x 6.7	4	5.0 - 6.2	200
61822790	PC 40 / ,	6.9 x 6.7	4	5.0 - 6.2	200
61822800	PC 40 / :	6.9 x 6.7	4	5.0 - 6.2	200
61822810	PC 40 / =	6.9 x 6.7	4	5.0 - 6.2	200
61822820	PC 40/earth	6.9 x 6.7	4	5.0 - 6.2	200
61822860	PC 40 / +	6.9 x 6.7	4	5.0 - 6.2	200
61822870	PC 40 / -	6.9 x 6.7	4	5.0 - 6.2	200
61822880	PC 40 / ~	6.9 x 6.7	4	5.0 - 6.2	200

Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- Marking rings Pliosnap refer to page 973

Accessories

- Storage box refer to page 972

PAD Mounting rod

Benefits
- Long cylindrical PAD mounting rod
- Tool for marking cables after assembly with PA marking rings
- Reduced installation time

Application range
- PA marking rings
- Marking before assembly

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Article number	Article designation	Up to cable diameter (mm)	Suitable for:	Contents (unit)
PAD Mounting rod				
61822920	PAD 3 installation tool	3.1	PA 02	1
61822930	PAD 4 installation tool	3.5	PA 1	1
61822940	PAD 5 installation tool	4.5	PA 1	1

Photographs 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
- Marking rings PA02 refer to page 966

PAV Mounting tool

Benefits
- This U-shaped stainless steel mounting tool makes marking considerably easier
- Can be mounted from both the left and right sides of the conductor

Application range
- PA marking rings
- Marking before assembly

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Article number	Article designation	Up to cable diameter (mm)	Suitable for:	Contents (unit)
PAV Mounting tool				
61822960	PAV 02 installation tool	3	PA 02	1
61822970	PAV 10 installation tool	4	PA 1	1

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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
- Marking rings PA02 refer to page 966

Storage box

Benefits
- Simple assignment
- With 12 or 18 storage compartments

Application range
- PA marking rings
- PC marking rings

Technical data
ETIM 5.0 Class-ID: EC001530
ETIM 5.0 Class-Description: Cable coding system

RAL **Colour delivered**
Transparent (also separators)

Article number	Article designation	Dimensions W x H x D (mm)	Contents (unit)
Storage box			
61794911	Storage box 12 compartments	250.0 x 46.0 x 175.0	1
61794910	Storage box 18 compartments	240.0 x 42.0 x 195.0	1

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Marking rings Pliosnap

Benefits
- Fast and easy assembly
- The mounting wands have a support so thatwhen they are in an horizontal position themarkings can be easily identified.
- PLIOSNAP markers grip the conductor tightly without the 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
- **Cross-section in mm²**
  Plisonap 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

Technical data

RAL **Colour delivered**
White

Material
Polyoxymethylen (POM)

Temperature range
-40 °C to +90 °C

Norm references / Approvals
- Fire behaviour according to UL 94 HB

Note
- Tensile strength at yield: 54 N/mm2
- Elongation at break: 30 %
- Elasticity: 2100 N /mm²
- Dielectric strength: 28 kV/mm

Included
- 1 PU= 300 markers on 10 (Pliosnap 0-6) or 12 (Pliosnap 9 +12) carriers

Article number	Article designation	Colour carrier	Area of application Ø (mm)	Contents (unit)	PU
Pliosnap 0					
61919400	Marking rings Pliosnap 0/0 WH	black	0.8 - 1.0	300	1
61919401	Marking rings Pliosnap 0/1 WH	black	0.8 - 1.0	300	1
61919402	Marking rings Pliosnap 0/2 WH	black	0.8 - 1.0	300	1
61919403	Marking rings Pliosnap 0/3 WH	black	0.8 - 1.0	300	1
61919404	Marking rings Pliosnap 0/4 WH	black	0.8 - 1.0	300	1
61919405	Marking rings Pliosnap 0/5 WH	black	0.8 - 1.0	300	1
61919406	Marking rings Pliosnap 0/6 WH	black	0.8 - 1.0	300	1
61919407	Marking rings Pliosnap 0/7 WH	black	0.8 - 1.0	300	1
61919408	Marking rings Pliosnap 0/8 WH	black	0.8 - 1.0	300	1
61919409	Marking rings Pliosnap 0/9 WH	black	0.8 - 1.0	300	1
61919410	Marking rings Pliosnap 0/A WH	black	0.8 - 1.0	300	1
61919411	Marking rings Pliosnap 0/B WH	black	0.8 - 1.0	300	1
61919412	Marking rings Pliosnap 0/C WH	black	0.8 - 1.0	300	1
61919413	Marking rings Pliosnap 0/D WH	black	0.8 - 1.0	300	1
61919414	Marking rings Pliosnap 0/E WH	black	0.8 - 1.0	300	1
61919415	Marking rings Pliosnap 0/F WH	black	0.8 - 1.0	300	1
61919416	Marking rings Pliosnap 0/G WH	black	0.8 - 1.0	300	1
61919417	Marking rings Pliosnap 0/H WH	black	0.8 - 1.0	300	1
61919418	Marking rings Pliosnap 0/I WH	black	0.8 - 1.0	300	1
61919419	Marking rings Pliosnap 0/J WH	black	0.8 - 1.0	300	1
61919420	Marking rings Pliosnap 0/K WH	black	0.8 - 1.0	300	1
61919421	Marking rings Pliosnap 0/L WH	black	0.8 - 1.0	300	1
61919422	Marking rings Pliosnap 0/M WH	black	0.8 - 1.0	300	1
61919423	Marking rings Pliosnap 0/N WH	black	0.8 - 1.0	300	1
61919424	Marking rings Pliosnap 0/O WH	black	0.8 - 1.0	300	1
61919425	Marking rings Pliosnap 0/P WH	black	0.8 - 1.0	300	1
61919426	Marking rings Pliosnap 0/Q WH	black	0.8 - 1.0	300	1
61919427	Marking rings Pliosnap 0/R WH	black	0.8 - 1.0	300	1
61919428	Marking rings Pliosnap 0/S WH	black	0.8 - 1.0	300	1
61919429	Marking rings Pliosnap 0/T WH	black	0.8 - 1.0	300	1
61919430	Marking rings Pliosnap 0 U WH	black	0.8 - 1.0	300	1
61919431	Marking rings Pliosnap 0/V WH	black	0.8 - 1.0	300	1
61919432	Marking rings Pliosnap 0/W WH	black	0.8 - 1.0	300	1

Article number	Article designation	Colour carrier	Area of application Ø (mm)	Contents (unit)	PU
61919433	Marking rings Pliosnap 0/X WH	black	0.8 - 1.0	300	1
61919434	Marking rings Pliosnap 0/Y WH	black	0.8 - 1.0	300	1
61919435	Marking rings Pliosnap 0/Z WH	black	0.8 - 1.0	300	1
61919436	Marking rings Pliosnap 0/+ WH	black	0.8 - 1.0	300	1
61919437	Marking rings Pliosnap 0/- WH	black	0.8 - 1.0	300	1
61919438	Marking rings Pliosnap 0/. WH	black	0.8 - 1.0	300	1
61919439	Marking rings Pliosnap 0/ : WH	black	0.8 - 1.0	300	1
Pliosnap 1					
61919440	Marking rings Pliosnap 1/0 WH	brown	1.0 - 1.4	300	1
61919441	Marking rings Pliosnap 1/1 WH	brown	1.0 - 1.4	300	1
61919442	Marking rings Pliosnap 1/2 WH	brown	1.0 - 1.4	300	1
61919443	Marking rings Pliosnap 1/3 WH	brown	1.0 - 1.4	300	1
61919444	Marking rings Pliosnap 1/4 WH	brown	1.0 - 1.4	300	1
61919445	Marking rings Pliosnap 1/5 WH	brown	1.0 - 1.4	300	1
61919446	Marking rings Pliosnap 1/6 WH	brown	1.0 - 1.4	300	1
61919447	Marking rings Pliosnap 1/7 WH	brown	1.0 - 1.4	300	1
61919448	Marking rings Pliosnap 1/8 WH	brown	1.0 - 1.4	300	1
61919449	Marking rings Pliosnap 1/9 WH	brown	1.0 - 1.4	300	1
61919450	Marking rings Pliosnap 1/A WH	brown	1.0 - 1.4	300	1
61919451	Marking rings Pliosnap 1/B WH	brown	1.0 - 1.4	300	1
61919452	Marking rings Pliosnap 1/C WH	brown	1.0 - 1.4	300	1
61919453	Marking rings Pliosnap 1/D WH	brown	1.0 - 1.4	300	1
61919454	Marking rings Pliosnap 1/E WH	brown	1.0 - 1.4	300	1
61919455	Marking rings Pliosnap 1/F WH	brown	1.0 - 1.4	300	1
61919456	Marking rings Pliosnap 1/G WH	brown	1.0 - 1.4	300	1
61919457	Marking rings Pliosnap 1/H WH	brown	1.0 - 1.4	300	1
61919458	Marking rings Pliosnap 1/I WH	brown	1.0 - 1.4	300	1
61919459	Marking rings Pliosnap 1/J WH	brown	1.0 - 1.4	300	1
61919460	Marking rings Pliosnap 1/K WH	brown	1.0 - 1.4	300	1
61919461	Marking rings Pliosnap 1/L WH	brown	1.0 - 1.4	300	1
61919462	Marking rings Pliosnap 1/M WH	brown	1.0 - 1.4	300	1
61919463	Marking rings Pliosnap 1/N WH	brown	1.0 - 1.4	300	1
61919464	Marking rings Pliosnap 1/O WH	brown	1.0 - 1.4	300	1
61919465	Marking rings Pliosnap 1/P WH	brown	1.0 - 1.4	300	1
61919466	Marking rings Pliosnap 1/Q WH	brown	1.0 - 1.4	300	1
61919467	Marking rings Pliosnap 1/R WH	brown	1.0 - 1.4	300	1
61919468	Marking rings Pliosnap 1/S WH	brown	1.0 - 1.4	300	1
61919469	Marking rings Pliosnap 1/T WH	brown	1.0 - 1.4	300	1
61919470	Marking rings Pliosnap 1 U WH	brown	1.0 - 1.4	300	1
61919471	Marking rings Pliosnap 1/V WH	brown	1.0 - 1.4	300	1
61919472	Marking rings Pliosnap 1/W WH	brown	1.0 - 1.4	300	1
61919473	Marking rings Pliosnap 1/X WH	brown	1.0 - 1.4	300	1
61919474	Marking rings Pliosnap 1/Y WH	brown	1.0 - 1.4	300	1
61919475	Marking rings Pliosnap 1/Z WH	brown	1.0 - 1.4	300	1
61919476	Marking rings Pliosnap 1/+ WH	brown	1.0 - 1.4	300	1
61919477	Marking rings Pliosnap 1/- WH	brown	1.0 - 1.4	300	1
61919478	Marking rings Pliosnap 1. WH	brown	1.0 - 1.4	300	1
61919479	Marking rings Pliosnap 1/ :	brown	1.0 - 1.4	300	1
Pliosnap 2					
61919480	Marking rings Pliosnap 2/0 WH	grey	1.0 - 1.4	300	1
61919481	Marking rings Pliosnap 2/1 WH	grey	1.0 - 1.4	300	1
61919482	Marking rings Pliosnap 2/2 WH	grey	1.0 - 1.4	300	1
61919483	Marking rings Pliosnap 2/3 WH	grey	1.0 - 1.4	300	1
61919484	Marking rings Pliosnap 2/4 WH	grey	1.0 - 1.4	300	1
61919485	Marking rings Pliosnap 2/5 WH	grey	1.0 - 1.4	300	1
61919486	Marking rings Pliosnap 2/6 WH	grey	1.0 - 1.4	300	1
61919487	Marking rings Pliosnap 2/7 WH	grey	1.0 - 1.4	300	1
61919488	Marking rings Pliosnap 2/8 WH	grey	1.0 - 1.4	300	1
61919489	Marking rings Pliosnap 2/9 WH	grey	1.0 - 1.4	300	1
61919490	Marking rings Pliosnap 2/A WH	grey	1.0 - 1.4	300	1
61919491	Marking rings Pliosnap 2/B WH	grey	1.0 - 1.4	300	1
61919492	Marking rings Pliosnap 2/C WH	grey	1.0 - 1.4	300	1
61919493	Marking rings Pliosnap 2/D WH	grey	1.0 - 1.4	300	1
61919494	Marking rings Pliosnap 2/E WH	grey	1.0 - 1.4	300	1
61919495	Marking rings Pliosnap 2/F WH	grey	1.0 - 1.4	300	1
61919496	Marking rings Pliosnap 2/G WH	grey	1.0 - 1.4	300	1
61919497	Marking rings Pliosnap 2/H WH	grey	1.0 - 1.4	300	1
61919498	Marking rings Pliosnap 2/I WH	grey	1.0 - 1.4	300	1
61919499	Marking rings Pliosnap 2/J WH	grey	1.0 - 1.4	300	1
61919500	Marking rings Pliosnap 2/K WH	grey	1.0 - 1.4	300	1
61919501	Marking rings Pliosnap 2/L WH	grey	1.0 - 1.4	300	1
61919502	Marking rings Pliosnap 2/M WH	grey	1.0 - 1.4	300	1
61919503	Marking rings Pliosnap 2/N WH	grey	1.0 - 1.4	300	1
61919504	Marking rings Pliosnap 2/O WH	grey	1.0 - 1.4	300	1
61919505	Marking rings Pliosnap 2/P WH	grey	1.0 - 1.4	300	1
61919506	Marking rings Pliosnap 2/Q WH	grey	1.0 - 1.4	300	1
61919507	Marking rings Pliosnap 2/R WH	grey	1.0 - 1.4	300	1
61919508	Marking rings Pliosnap 2/S WH	grey	1.0 - 1.4	300	1
61919509	Marking rings Pliosnap 2/T WH	grey	1.0 - 1.4	300	1
61919510	Marking rings Pliosnap 2 U WH	grey	1.0 - 1.4	300	1
61919511	Marking rings Pliosnap 2/V WH	grey	1.0 - 1.4	300	1
61919512	Marking rings Pliosnap 2/W WH	grey	1.0 - 1.4	300	1
61919513	Marking rings Pliosnap 2/X WH	grey	1.0 - 1.4	300	1
61919514	Marking rings Pliosnap 2/Y WH	grey	1.0 - 1.4	300	1
61919515	Marking rings Pliosnap 2/Z WH	grey	1.0 - 1.4	300	1

Article number	Article designation	Colour carrier	Area of application Ø (mm)	Contents (unit)	PU
61919516	Marking rings Pliosnap 2/+ WH	grey	1.0 - 1.4	300	1
61919517	Marking rings Pliosnap 2/- WH	grey	1.0 - 1.4	300	1
61919518	Marking rings Pliosnap 2/. WH	grey	1.0 - 1.4	300	1
61919519	Marking rings Pliosnap 2/ : WH	grey	1.0 - 1.4	300	1
Pliosnap 3					
61919520	Marking rings Pliosnap 3/0 WH	green	1.4 - 1.8	300	1
61919521	Marking rings Pliosnap 3/1 WH	green	1.4 - 1.8	300	1
61919522	Marking rings Pliosnap 3/2 WH	green	1.4 - 1.8	300	1
61919523	Marking rings Pliosnap 3/3 WH	green	1.4 - 1.8	300	1
61919524	Marking rings Pliosnap 3/4 WH	green	1.4 - 1.8	300	1
61919525	Marking rings Pliosnap 3/5 WH	green	1.4 - 1.8	300	1
61919526	Marking rings Pliosnap 3/6 WH	green	1.4 - 1.8	300	1
61919527	Marking rings Pliosnap 3/7 WH	green	1.4 - 1.8	300	1
61919528	Marking rings Pliosnap 3/8 WH	green	1.4 - 1.8	300	1
61919529	Marking rings Pliosnap 3/9 WH	green	1.4 - 1.8	300	1
61919530	Marking rings Pliosnap 3/A WH	green	1.4 - 1.8	300	1
61919531	Marking rings Pliosnap 3/B WH	green	1.4 - 1.8	300	1
61919532	Marking rings Pliosnap 3/C WH	green	1.4 - 1.8	300	1
61919533	Marking rings Pliosnap 3/D WH	green	1.4 - 1.8	300	1
61919534	Marking rings Pliosnap 3/E WH	green	1.4 - 1.8	300	1
61919535	Marking rings Pliosnap 3/F WH	green	1.4 - 1.8	300	1
61919536	Marking rings Pliosnap 3/G WH	green	1.4 - 1.8	300	1
61919537	Marking rings Pliosnap 3/H WH	green	1.4 - 1.8	300	1
61919538	Marking rings Pliosnap 3/I WH	green	1.4 - 1.8	300	1
61919539	Marking rings Pliosnap 3/J WH	green	1.4 - 1.8	300	1
61919540	Marking rings Pliosnap 3/K WH	green	1.4 - 1.8	300	1
61919541	Marking rings Pliosnap 3/L WH	green	1.4 - 1.8	300	1
61919542	Marking rings Pliosnap 3/M WH	green	1.4 - 1.8	300	1
61919543	Marking rings Pliosnap 3/N WH	green	1.4 - 1.8	300	1
61919544	Marking rings Pliosnap 3/O WH	green	1.4 - 1.8	300	1
61919545	Marking rings Pliosnap 3/P WH	green	1.4 - 1.8	300	1
61919546	Marking rings Pliosnap 3/Q WH	green	1.4 - 1.8	300	1
61919547	Marking rings Pliosnap 3/R WH	green	1.4 - 1.8	300	1
61919548	Marking rings Pliosnap 3/S WH	green	1.4 - 1.8	300	1
61919549	Marking rings Pliosnap 3/T WH	green	1.4 - 1.8	300	1
61919550	Marking rings Pliosnap 3 U WH	green	1.4 - 1.8	300	1
61919551	Marking rings Pliosnap 3/V WH	green	1.4 - 1.8	300	1
61919552	Marking rings Pliosnap 3/W WH	green	1.4 - 1.8	300	1
61919553	Marking rings Pliosnap 3/X WH	green	1.4 - 1.8	300	1
61919554	Marking rings Pliosnap 3/Y WH	green	1.4 - 1.8	300	1
61919555	Marking rings Pliosnap 3/Z WH	green	1.4 - 1.8	300	1
61919556	Marking rings Pliosnap 3/+ WH	green	1.4 - 1.8	300	1
61919557	Marking rings Pliosnap 3/- WH	green	1.4 - 1.8	300	1
61919558	Marking rings Pliosnap 3/. WH	green	1.4 - 1.8	300	1
61919559	Marking rings Pliosnap 3/ : WH	green	1.4 - 1.8	300	1
Pliosnap 6					
61919560	Marking rings Pliosnap 6/0 WH	red	1.9 - 2.6	300	1
61919561	Marking rings Pliosnap 6/1 WH	red	1.9 - 2.6	300	1
61919562	Marking rings Pliosnap 6/2 WH	red	1.9 - 2.6	300	1
61919563	Marking rings Pliosnap 6/3 WH	red	1.9 - 2.6	300	1
61919564	Marking rings Pliosnap 6/4 WH	red	1.9 - 2.6	300	1
61919565	Marking rings Pliosnap 6/5 WH	red	1.9 - 2.6	300	1
61919566	Marking rings Pliosnap 6/6 WH	red	1.9 - 2.6	300	1
61919567	Marking rings Pliosnap 6/7 WH	red	1.9 - 2.6	300	1
61919568	Marking rings Pliosnap 6/8 WH	red	1.9 - 2.6	300	1
61919569	Marking rings Pliosnap 6/9 WH	red	1.9 - 2.6	300	1
61919570	Marking rings Pliosnap 6/A WH	red	1.9 - 2.6	300	1
61919571	Marking rings Pliosnap 6/B WH	red	1.9 - 2.6	300	1
61919572	Marking rings Pliosnap 6/C WH	red	1.9 - 2.6	300	1
61919573	Marking rings Pliosnap 6/D WH	red	1.9 - 2.6	300	1
61919574	Marking rings Pliosnap 6/E WH	red	1.9 - 2.6	300	1
61919575	Marking rings Pliosnap 6/F WH	red	1.9 - 2.6	300	1
61919576	Marking rings Pliosnap 6/G WH	red	1.9 - 2.6	300	1
61919577	Marking rings Pliosnap 6/H WH	red	1.9 - 2.6	300	1
61919578	Marking rings Pliosnap 6/I WH	red	1.9 - 2.6	300	1
61919579	Marking rings Pliosnap 6/J WH	red	1.9 - 2.6	300	1
61919580	Marking rings Pliosnap 6/K WH	red	1.9 - 2.6	300	1
61919581	Marking rings Pliosnap 6/L WH	red	1.9 - 2.6	300	1
61919582	Marking rings Pliosnap 6/M WH	red	1.9 - 2.6	300	1
61919583	Marking rings Pliosnap 6/N WH	red	1.9 - 2.6	300	1
61919584	Marking rings Pliosnap 6/O WH	red	1.9 - 2.6	300	1
61919585	Marking rings Pliosnap 6/P WH	red	1.9 - 2.6	300	1
61919586	Marking rings Pliosnap 6/Q WH	red	1.9 - 2.6	300	1
61919587	Marking rings Pliosnap 6/R WH	red	1.9 - 2.6	300	1
61919588	Marking rings Pliosnap 6/S WH	red	1.9 - 2.6	300	1
61919589	Marking rings Pliosnap 6/T WH	red	1.9 - 2.6	300	1
61919590	Marking rings Pliosnap 6 U WH	red	1.9 - 2.6	300	1
61919591	Marking rings Pliosnap 6/V WH	red	1.9 - 2.6	300	1
61919592	Marking rings Pliosnap 6/W WH	red	1.9 - 2.6	300	1
61919593	Marking rings Pliosnap 6/X WH	red	1.9 - 2.6	300	1
61919594	Marking rings Pliosnap 6/Y WH	red	1.9 - 2.6	300	1
61919595	Marking rings Pliosnap 6/Z WH	red	1.9 - 2.6	300	1
61919596	Marking rings Pliosnap 6/+ WH	red	1.9 - 2.6	300	1
61919597	Marking rings Pliosnap 6/- WH	red	1.9 - 2.6	300	1
61919598	Marking rings Pliosnap 6/. WH	red	1.9 - 2.6	300	1

FLEXIMARK® Single core marking • Basic System Single Core Marking

Article number	Article designation	Colour carrier	Area of application Ø (mm)	Contents (unit)	PU
61919599	Marking rings Pliosnap 6/ : WH	red	1.9 - 2.6	300	1
Pliosnap 9					
61919600	Marking rings Pliosnap 9/0 WH	blue	2.6 - 3.5	300	1
61919601	Marking rings Pliosnap 9/1 WH	blue	2.6 - 3.5	300	1
61919602	Marking rings Pliosnap 9/2 WH	blue	2.6 - 3.5	300	1
61919603	Marking rings Pliosnap 9/3 WH	blue	2.6 - 3.5	300	1
61919604	Marking rings Pliosnap 9/4 WH	blue	2.6 - 3.5	300	1
61919605	Marking rings Pliosnap 9/5 WH	blue	2.6 - 3.5	300	1
61919606	Marking rings Pliosnap 9/6 WH	blue	2.6 - 3.5	300	1
61919607	Marking rings Pliosnap 9/7 WH	blue	2.6 - 3.5	300	1
61919608	Marking rings Pliosnap 9/8 WH	blue	2.6 - 3.5	300	1
61919609	Marking rings Pliosnap 9/9 WH	blue	2.6 - 3.5	300	1
61919610	Marking rings Pliosnap 9/A WH	blue	2.6 - 3.5	300	1
61919611	Marking rings Pliosnap 9/B WH	blue	2.6 - 3.5	300	1
61919612	Marking rings Pliosnap 9/C WH	blue	2.6 - 3.5	300	1
61919613	Marking rings Pliosnap 9/D WH	blue	2.6 - 3.5	300	1
61919614	Marking rings Pliosnap 9/E WH	blue	2.6 - 3.5	300	1
61919615	Marking rings Pliosnap 9/F WH	blue	2.6 - 3.5	300	1
61919616	Marking rings Pliosnap 9/G WH	blue	2.6 - 3.5	300	1
61919617	Marking rings Pliosnap 9/H WH	blue	2.6 - 3.5	300	1
61919618	Marking rings Pliosnap 9/I WH	blue	2.6 - 3.5	300	1
61919619	Marking rings Pliosnap 9/J WH	blue	2.6 - 3.5	300	1
61919620	Marking rings Pliosnap 9/K WH	blue	2.6 - 3.5	300	1
61919621	Marking rings Pliosnap 9/L WH	blue	2.6 - 3.5	300	1
61919622	Marking rings Pliosnap 9/M WH	blue	2.6 - 3.5	300	1
61919623	Marking rings Pliosnap 9/N WH	blue	2.6 - 3.5	300	1
61919624	Marking rings Pliosnap 9/O WH	blue	2.6 - 3.5	300	1
61919625	Marking rings Pliosnap 9/P WH	blue	2.6 - 3.5	300	1
61919626	Marking rings Pliosnap 9/Q WH	blue	2.6 - 3.5	300	1
61919627	Marking rings Pliosnap 9/R WH	blue	2.6 - 3.5	300	1
61919628	Marking rings Pliosnap 9/S WH	blue	2.6 - 3.5	300	1
61919629	Marking rings Pliosnap 9/T WH	blue	2.6 - 3.5	300	1
61919630	Marking rings Pliosnap 9 U WH	blue	2.6 - 3.5	300	1
61919631	Marking rings Pliosnap 9/V WH	blue	2.6 - 3.5	300	1
61919632	Marking rings Pliosnap 9/W WH	blue	2.6 - 3.5	300	1
61919633	Marking rings Pliosnap 9/X WH	blue	2.6 - 3.5	300	1
61919634	Marking rings Pliosnap 9/Y WH	blue	2.6 - 3.5	300	1
61919635	Marking rings Pliosnap 9/Z WH	blue	2.6 - 3.5	300	1
61919636	Marking rings Pliosnap 9/+ WH	blue	2.6 - 3.5	300	1
61919637	Marking rings Pliosnap 9/- WH	blue	2.6 - 3.5	300	1
61919638	Marking rings Pliosnap 9/. WH	blue	2.6 - 3.5	300	1
61919639	Marking rings Pliosnap 9/ : WH	blue	2.6 - 3.5	300	1
Pliosnap 12					
61919640	Marking rings Pliosnap 12/0 WH	yellow	4.5 - 6.0	300	1
61919641	Marking rings Pliosnap 12/1 WH	yellow	4.5 - 6.0	300	1
61919642	Marking rings Pliosnap 12/2 WH	yellow	4.5 - 6.0	300	1
61919643	Marking rings Pliosnap 12/3 WH	yellow	4.5 - 6.0	300	1
61919644	Marking rings Pliosnap 12/4 WH	yellow	4.5 - 6.0	300	1
61919645	Marking rings Pliosnap 12/5 WH	yellow	4.5 - 6.0	300	1
61919646	Marking rings Pliosnap 12/6 WH	yellow	4.5 - 6.0	300	1
61919647	Marking rings Pliosnap 12/7 WH	yellow	4.5 - 6.0	300	1
61919648	Marking rings Pliosnap 12/8 WH	yellow	4.5 - 6.0	300	1
61919649	Marking rings Pliosnap 12/9 WH	yellow	4.5 - 6.0	300	1
61919650	Marking rings Pliosnap 12/A WH	yellow	4.5 - 6.0	300	1
61919651	Marking rings Pliosnap 12/B WH	yellow	4.5 - 6.0	300	1
61919652	Marking rings Pliosnap 12/C WH	yellow	4.5 - 6.0	300	1
61919653	Marking rings Pliosnap 12/D WH	yellow	4.5 - 6.0	300	1
61919654	Marking rings Pliosnap 12/E WH	yellow	4.5 - 6.0	300	1
61919655	Marking rings Pliosnap 12/F WH	yellow	4.5 - 6.0	300	1
61919656	Marking rings Pliosnap 12/G WH	yellow	4.5 - 6.0	300	1
61919657	Marking rings Pliosnap 12/H WH	yellow	4.5 - 6.0	300	1
61919658	Marking rings Pliosnap 12/I WH	yellow	4.5 - 6.0	300	1
61919659	Marking rings Pliosnap 12/J WH	yellow	4.5 - 6.0	300	1
61919660	Marking rings Pliosnap 12/K WH	yellow	4.5 - 6.0	300	1
61919661	Marking rings Pliosnap 12/L WH	yellow	4.5 - 6.0	300	1
61919662	Marking rings Pliosnap 12/M WH	yellow	4.5 - 6.0	300	1
61919663	Marking rings Pliosnap 12/N WH	yellow	4.5 - 6.0	300	1
61919664	Marking rings Pliosnap 12/O WH	yellow	4.5 - 6.0	300	1
61919665	Marking rings Pliosnap 12/P WH	yellow	4.5 - 6.0	300	1
61919666	Marking rings Pliosnap 12/Q WH	yellow	4.5 - 6.0	300	1
61919667	Marking rings Pliosnap 12/R WH	yellow	4.5 - 6.0	300	1
61919668	Marking rings Pliosnap 12/S WH	yellow	4.5 - 6.0	300	1
61919669	Marking rings Pliosnap 12/T WH	yellow	4.5 - 6.0	300	1
61919670	Marking rings Pliosnap 12 U WH	yellow	4.5 - 6.0	300	1
61919671	Marking rings Pliosnap 12/V WH	yellow	4.5 - 6.0	300	1
61919672	Marking rings Pliosnap 12/W WH	yellow	4.5 - 6.0	300	1
61919673	Marking rings Pliosnap 12/X WH	yellow	4.5 - 6.0	300	1
61919674	Marking rings Pliosnap 12/Y WH	yellow	4.5 - 6.0	300	1
61919675	Marking rings Pliosnap 12/Z WH	yellow	4.5 - 6.0	300	1
61919676	Marking rings Pliosnap 12/+ WH	yellow	4.5 - 6.0	300	1
61919677	Marking rings Pliosnap 12/- WH	yellow	4.5 - 6.0	300	1
61919678	Marking rings Pliosnap 12/. WH	yellow	4.5 - 6.0	300	1
61919679	Marking rings Pliosnap 12/ : WH	yellow	4.5 - 6.0	300	1

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FLEXIMARK® LA Labels

Benefits

- Self-adhesive labels made from polyester film for laser printers
- Better grip due to rounded-corners
- Resistant to chemicals, UV-radiation, moisture and some oils
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A 15)

Application range

- For component marking e.g. for marking cabinets
- Printing with commercial laser printers
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)

Product features

- Adhesive needs up to 24 hours to bond

Note

- Insert sheet in manual paper feed compartment
- The use of the cartridges of the printer supplier is recommended
- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up

Info

- LA 16,9-9 YE conained in FLEXIMARK® sample bag (article number M3251010)
- New sizes are available

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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)	Number of markers per PU	Labels per side	PU
FLEXIMARK® LA Labels						
83256198	FLEXIMARK® label LA 7-8 WH	white	7.0 x 8.0	5600	560	1
83256199	FLEXIMARK® label LA 7-8 YE	yellow	7.0 x 8.0	5600	560	1
83256200	FLEXIMARK® label LA 7-8 SR	silver	7.0 x 8.0	5600	560	1
83256228	FLEXIMARK® label LA 11.0x8.0 WH	white	11.0 x 8.0	4200	420	1
83256229	FLEXIMARK® label LA 11.0x8.0 YE	yellow	11.0 x 8.0	3850	385	1
83256230	FLEXIMARK® label LA 11.0x8.0 SR	silver	11.0 x 8.0	6110	611	1
83256231	FLEXIMARK® Label LA 12.0x6.0 WH	white	12.0 x 6.0	6110	611	1
83256233	FLEXIMARK® Label LA 12.0x6.0 SR	silver	12.0 x 6.0	3150	315	1
83256232	FLEXIMARK® Label LA 12.0x6.0 YE	yellow	12.0 x 6.0	6110	611	1
83256203	FLEXIMARK® label LA 15-6 WH	white	15.0 x 6.0	5170	517	1
83256204	FLEXIMARK® label LA 15-6 YE	yellow	15.0 x 6.0	5170	517	1
83256234	FLEXIMARK® label LA 16.0x8.0 YE	yellow	16.0 x 8.0	3150	315	1
83256235	FLEXIMARK® label LA 16.0x8.0 YE	yellow	16.0 x 8.0	3150	315	1
83256236	FLEXIMARK® label LA 16.0x8.0 SR	silver	16.0 x 8.0	740	74	1
83256206	FLEXIMARK® label LA 16.9-7 WH	white	16.9 x 7.0	4000	400	1
83256207	FLEXIMARK® label LA 16.9-7 YE	yellow	16.9 x 7.0	4000	400	1
83256209	FLEXIMARK® Label LA 16.9x9 WH 3100	white	16.9 x 9.0	3100	310	1
83256210	FLEXIMARK® Label LA 16.9-9 YE	yellow	16.9 x 9.0	3100	310	1
83256212	FLEXIMARK® label LA 20-8 WH	white	20.0 x 8.0	2800	280	1
83256213	FLEXIMARK® label LA 20-8 YE	yellow	20.0 x 8.0	2800	280	1
83256215	FLEXIMARK® label LA 25-12 WH	white	25.0 x 12.0	1610	161	1
83256216	FLEXIMARK® label LA 25-12 YE	yellow	25.0 x 12.0	1610	161	1
83256218	FLEXIMARK® label LA 25.6-10 WH	white	25.6 x 10.0	1960	196	1
83256219	FLEXIMARK® label LA 25.6-10 YE	yellow	25.6 x 10.0	1960	196	1
83256221	FLEXIMARK® label LA 46.9-9 WH	white	46.9 x 9.0	1240	124	1
83256222	FLEXIMARK® label LA 46.9-9 YE	yellow	46.9 x 9.0	1240	124	1
83256224	FLEXIMARK® label LA 56-21.8 WH	white	56.0 x 21.8	390	39	1
83256243	FLEXIMARK® label LA 60-30 WH	white	60.0 x 30.0	270	27	1
83256225	FLEXIMARK® label LA 56-21.8 YE	yellow	56.0 x 21.8	390	39	1
83256096	FLEXIMARK® Label LA 30 30.5-12.7 WH	white	30.5 x 12.7	110	110	1
83256240	FLEXIMARK® label LA 30.5x12.7 YE	yellow	30,5 x 12,7	1100	110	1
83256241	FLEXIMARK® Label LA 30 30.5-12.7 YE	yellow	30,5 x 12,7	1100	110	1
83256242	FLEXIMARK® label LA 30.5x12.7 SR	silver	30,5 x 12,7	270	27	1
83256097	FLEXIMARK® Label LA 50 60-30 WH	white	60.0 x 30.0	240	24	1
83256244	FLEXIMARK® label LA 60-30 YE	yellow	60.0 x 30.0	270	27	1
83256245	FLEXIMARK® label LA 60-30 SR	silver	60.0 x 30.0	180	18	1
83256237	FLEXIMARK® label LA 80-7,5 WH	white	80.0 x 7,5	740	74	1
83256238	FLEXIMARK® label LA 80.0x7.5 YE	yellow	80.0 x 7,5	740	74	1
83256239	FLEXIMARK® label LA 80-7,5 SR	silver	80.0 x 7,5	1110	110	1

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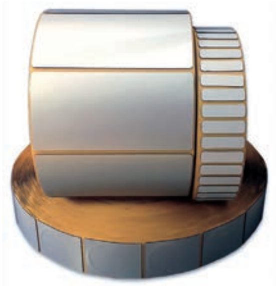
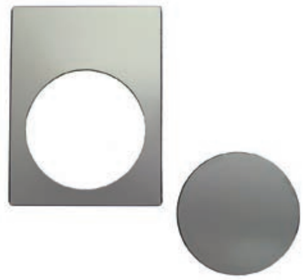
Similar products

- FLEXIMARK® TA Labels Component marking

Accessories

- FLEXIMARK® Software 10.0 refer to page 979

FLEXIMARK® TA foam Component marking

Info

- Contained in FLEXIMARK® sample bag (article number M3251010)

Benefits

- Cost-efficient alternative to traditionally used engraved plastic signs
- Self-adhesive on many surfaces
- Good UV-resistance

Application range

- For component and cabinet identification, CE marking and logotypes
- Components in switch cabinet construction and push buttons
- Information signs etc.
- Can be printed with the FLEXIMARK® thermal transfer printer as CAB A4+M and EOS4
- Printing with FLEXIMARK® Software (Download: http://www.lappkabel.com/service/downloadcenter/markingsystem/marking-software.html)

Product features

- Recommended ribbon: FTI-Y 60-360 BK (article no. 83260201)

Product Make-up

- Delivered as a roll of labels

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Dimensions
Core-Ø: 76 mm

On request
Other sizes are available upon request

Adhesive
Acrylic-based permanent adhesive

Colour delivered
White and silver

Material
Polyester foam

Temperature range
-40 °C to +90 °C

Article number	Article designation	Colour	Width x length (mm)	Contents (unit)	PU
Rectangular shape					
83260164	FLEXIMARK® TA foam 27-8 WH	white	8.0 x 27.0	1000	1
83260165	FLEXIMARK® TA foam 27-12.5 WH	white	12.5 x 27.0	1000	1
83260166	FLEXIMARK® TA foam 27-12.5 SR	silver	12.5 x 27.0	1000	1
83260167	FLEXIMARK® TA foam 27-15 SR	silver	15.0 x 27.0	1000	1
83260168	FLEXIMARK® TA foam 27-18 SR	silver	18.0 x 27.0	1000	1
83260169	FLEXIMARK® TA foam 27-18 WH	white	18.0 x 27.0	1000	1
83260170	FLEXIMARK®TA foam 30-40 SR	silver	40.0 x 30.0	1000	1
83260171	FLEXIMARK® TA foam 35-15 SR	silver	15.0 x 35.0	1000	1
83260172	FLEXIMARK® TA foam 35-18 SR	silver	18.0 x 35.0	1000	1
83260173	FLEXIMARK® TA foam 45-15 SR	silver	15.0 x 45.0	1000	1
83260174	FLEXIMARK® TA foam 45-15 WH	white	15.0 x 45.0	1000	1
83260175	FLEXIMARK® TA foam 48-19 WH	white	19.0 x 48.0	750	1
83260176	FLEXIMARK® TA foam 50-15 SR	silver	15.0 x 50.0	750	1
83260177	FLEXIMARK® TA foam 50-25 SR	silver	25.0 x 50.0	750	1
83260178	FLEXIMARK® TA foam 60-30 WH	white	30.0 x 60.0	500	1
83260179	FLEXIMARK® TA foam 60-30 SR	silver	30.0 x 60.0	500	1
83260180	FLEXIMARK® TA foam 70-18 SR	silver	18.0 x 70.0	500	1
83260181	FLEXIMARK® TA foam 90-30 WH	white	30.0 x 90.0	250	1
83260182	FLEXIMARK® TA foam 90-30 SR	silver	30.0 x 90.0	250	1
83260183	FLEXIMARK® TA foam 90-45 SR	silver	45.0 x 90.0	250	1
83260184	FLEXIMARK® TA foam 90-45 WH	white	45.0 x 90.0	250	1
83260185	FLEXIMARK® TA foam 100-30 SR	silver	30.0 x 100.0	250	1
83260186	FLEXIMARK® TA foam 100-50 SR	silver	50.0 x 100.0	250	1
83260187	FLEXIMARK® TA foam 100-50 WH	white	50.0 x 100.0	250	1
83260188	FLEXIMARK® TA foam 105-140 SR	silver	140.0 x 105.0	500	1
Rectangular shape with a round cut-out for the marking of push buttons					
83260189	FLEXIMARK® TA foam 40-30 Ø 24mm SR	silver	30.0 x 40.0	1000	1
83260190	FLEXIMARK® TA foam 40-30 Ø 24mm WH	white	30.0 x 40.0	1000	1

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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

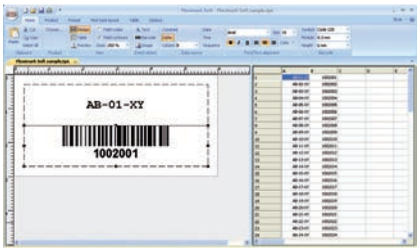
Accessories

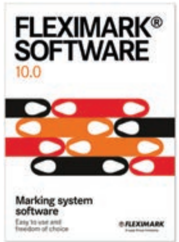
- FLEXIMARK® Software 10.0 refer to page 979
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 980

FLEXIMARK® Software 10.0

Info

- Free trial version available on LappKabel homepage
- Technical support in English free of charge (Phone: +46 155 777 64, 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 and other pictures, serial codes and import of excel files
- Online update service for new labels via Internet
- Image library including symbols used in electrical engineering
- Integrated product catalogue for all labels and markers

Application range

- Marking software that enables you to print all kinds of FLEXIMARK® labels easily and quickly

Product features

- System requirements:
  - 20 MB free hard disk space
  - Printer and driver for Microsoft® Windows 2000 or higher
- Suitable for Windows 7
- 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

Note

- The full version is available for download free of charge, with a trial period of 30 days
- Light version is available for download free-of-charge
- Download www.lappkabel.com : Service - Downloadcenter -Marking system FLEXIMARK®- Suitable Marking software
- Technical support in English free of charge (Phone: +46 155 777 64, E-Mail: support@fleximark.se)

Included

- CD-ROM
- Operating manual and help function in the program

Technical data

ETIM

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Article number	Article designation	Language	PU
FLEXIMARK® Software 10.0			
83251080	FLEXIMARK® Software 10.0	DE / EN / SE / FR	1

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

FLEXIMARK® Thermoprint A4+M and EOS4*

Info

- FLEXIMARK® EOS4 ensures excellent print quality for a fair price
- Technical support in English free of charge (Phone: +46 155 777 64, E-Mail: support@fleximark.se)

Benefits

- High print speed (up to 125 mm/sec)
- High print resolution: 300 dpi
- Easy integration into existing IT environments
- Simple communication with FLEXIMARK® marking software 10.0
- 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

- Technical support in English free of charge (Phone: +46 155 777 64, E-Mail: support@fleximark.se)
- A 4+M recommended for flat shrink tube as cutter can also be used for perforations
- Other thermal transfer printing systems are available upon request

Included

- FLEXIMARK® Thermoprint A4+M/300 or EOS4 with operation manual and service manual on CD-ROM
- Marking software FLEXIMARK® Software 10.0
- Windows® driver
- FLEXIMARK® Ribbon R71 55/360 resin BK (article number 83259604)
- Power supply USB cable (length 1.8 m)

Technical data

ETIM 5.0 Class-ID: EC000610
ETIM 5.0 Class-Description:
Label maker

Dimensions
FLEXIMARK® Thermal printer A4+M:
274x242x446 mm (HxBxT)
FLEXIMARK® thermoprint EOS4:
245x264x412mm (HxWxD)

Label rolls
Material thickness: 0,055-1,2 mm (A4+M), 0,055-0,7 mm (EOS4)
Carrier width: 10-120 mm (A4+M), 10-116 mm (EOS4)
Max. core diameter Ø: 38.0 - 100.0 mm (A4+M), 38-76 mm (EOS4)

Ribbons
Ribbon length: up to 500 m (A4+M) or 360m (EOS4)

Speed
Up to 125.00 mm/s

Weight
FLEXIMARK® Thermoprint A4+M: 9.0 kg
FLEXIMARK® Thermoprint EOS4: 5 kg

Material
Labels or continuous material on coils

Article number	Article designation	Colour	PU
Printer			
83259598	FLEXIMARK® Thermoprint EOS4/300		1
83259602	FLEXIMARK® Thermoprint A4+M/300		1
Perforation-cutter and cutter for labels			
83259584	FLEXIMARK® Cutter EOS4	metallic	1
83259603	FLEXIMARK® Perforation cutter A4+M	metallic	1

* Trade product, no Lapp product
Photographs 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® Heat shrinkable tubing refer to page 954
- FLEXIMARK® Flexilabel TFL
- FLEXIMARK® Wrapping labels TCK refer to page 955
- FLEXIMARK® Software 10.0 refer to page 979
- FLEXIMARK® Ribbons Transfer Printer A4+M/300 and EOS4* refer to page 981
- FLEXIMARK® Flexiprint TF refer to page 965
- FLEXIMARK® TA Labels Component marking

NEW

FLEXIMARK® Ribbons Transfer Printer A4+M/300 and EOS4*

Benefits
- Suitable for each label width and surface. Resistant to scratching and abrasion (also in colour) - available in various qualities
- Use the right ribbon for the particular application
- With the cutter for FLEXIMARK® thermal printer EOS 4 diverse labels and shrink tubes can be cut
- The perforation cutter for the thermal printer FLEXIMARK® A4+M cuts as well as perforates holes

Application range
- Resin ribbons R 71: Solely for plastic labels with smooth and shiny surface
- FTI-Y: Excellent printing results on PUR cablelabels, TA foam labels and halogen-free shrink tube (not recommended for diesel-resistant shrink tube and TA labels)
- FTI-X: Particular recommended for shrink tubes, also for diesel resistant shrink tubes

Note
- Other versions are available upon request

Technical data

ETIM
ETIM 5.0 Class-ID: EC000610
ETIM 5.0 Class-Description:
Label maker

Article number	Article designation	Colour	Width (mm) x length (m)	Material	PU
Ribbons					
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	wax	1
83260200	Ribbon FTI-Y 110-360 BK	black	110.0 x 360.0	wax	1
83260206	Ribbon FTI-X 60-300 BK	black	60.0 x 300.0	wax	1
83260205	Ribbon FTI-X 100-300 BK	black	100.0 x 300.0	wax	1
83260262	Ribbon Y501P 30-450 WH	white	30.0 x 450.0	wax	1
83260260	Ribbon FTI-X 55-300 WH	white	55.0 x 300.0	wax	1
83260261	Ribbon FTI-X 110-300 WH	white	110.0 x 300.0	wax	1

* Trade product, no Lapp product
Other colours, sizes and materials are available upon request.
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Accessories
- FLEXIMARK® Thermoprint A4+M and EOS4* refer to page 980

FLEXIMARK® Character holders PTE

Benefits
- Ensure high flexibility:
  - Character holders can be cut to the desired length
  - Suitable for FLEXIMARK® Flexilabels LFL, MINI character strips as well as for DYMO® industry tapes
- Additional protection against UV- radiation and diverse chemicals

Application range
- For cable/conduit marking
- Suitable for holding text and character strips, printable LFL labels, and e.g. DYMO or Brother label strips
- Assembly with 2.6 mm cable ties or fasten with screws and rivets when using end caps

Product features
- LABS-free

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 988
- FLEXIMARK® Pliers FL52A for character holders refer to page 988

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: 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)	Contents (unit)	PU
FLEXIMARK® 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 PTE character holder 9,5 mm					
83252005	FLEXIMARK® Lock Button Mini FLKA 5206 YE			500	1
83252020	FLEXIMARK® End clap Mini FLG 5242 YE			100	1

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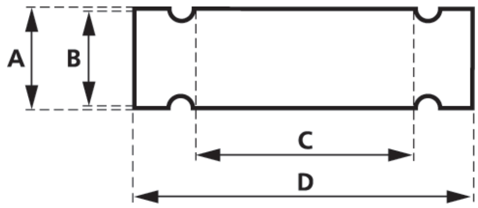
Similar products
- FLEXIMARK® PTEF/ CAB refer to page 983

Accessories
- FLEXIMARK® Pliers FL52ERA for character holders refer to page 988
- Basic Tie cable tie refer to page 1057
- DYMO® ID1 - Industry tape D1 refer to page 991
- FLEXIMARK® Pliers FL52A for character holders refer to page 988

FLEXIMARK® PTEF/ CAB

Info

- PTEF 9,5-35 contained in FLEXIMARK® sample bag (article number M3251010)



Benefits

- PC labels LFL are adapted to be pushed into different sizes of character-holder
- Cost-saving, as you save the time for cutting
- Additional protection against UV- radiation and diverse chemicals

Application range

- For cable/conduit marking
- Suitable for holding text and character strips, printable LFL labels, and e.g. DYMO or Brother label strips
- Assembly with 2.6 mm cable ties or fasten with screws and rivets when using end caps

Product features

- LABS-free

Included

- PTEF without cable ties
  CAB: with cable ties (135x2,6 mm)

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: 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)	Contents (unit)	PU
PTEF character-holder - without cable tie							
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
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
CAB character-holder - with cable tie							
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 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 1057
- Detectable Cable ties refer to page 1059
- DYMO® ID1 - Industry tape D1 refer to page 991
- TY - FAST® cable ties refer to page 1058

ÖLFLEX®
UNITRONIC®
ETHERLINE®
HITRONIC®
EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
APPENDIX

FLEXIMARK® Character holders PGS

Info

- PGS 10-285 BK contained in FLEXIMARK® sample bag (article number M3251010)

Benefits

- Easy to label
- Flexible
- Self-adhesive on many surfaces
- Transparent cover MT ensures an additional protection of the label or the character strips
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

Application range

- For marking component groups in the manufacturing of control cabinets
- Suitable for FLEXIMARK® Flexilabels LFL, MINI character strips as well as for DYMO® industry tapes
- Fastening: bonding, or at temperatures > +45°C with screws or rivets

Product features

- Extremely flame-retardant according to UL 94 V0

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: 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)	Contents (unit)	PU
FLEXIMARK® Character holders PGS					
83252010	FLEXIMARK® PGS 10-285 WH	white	285.0 x 10.0	10	1
83250002	FLEXIMARK® PGS 10-285 BK	black	285.0 x 10.0	10	1
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	FLEYXIMARK® PGS 10-1000 GY	grey	1,000.0 x 10.0	10	1
Transparent cover/label protection					
83250043	FLEXIMARK® Label cover 10-100 PGS 10	transparent	1,000.0 x 10.0	10	1

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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® Pliers FL52ERA for character holders refer to page 988
- DYMO® ID1 - Industry tape D1 refer to page 991

FLEXIMARK® Collar Snap-on

Info

- Snap-On 2-3,5/15 contained in FLEXIMARK® sample bag (article number M3251010)

Benefits

- Efficient way of marking cables that are already installed
- Enhanced scratch-protection
- Resistant and flexible protection
- Halogen-free and flame-retardant
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

Application range

- For Single core marking
- Marking of optical fibre cables
- Marking of UNITRONIC® Fieldbus sensor-/actuator wiring
- Marking after assembly

Product features

- Extremely flame-retardant according to UL 94 V0

Note

- Suitable marking collar for LMB labels

Included

- Marking collars without labels

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Colour delivered
transparent

Material
Halogen-free polyethylene

Temperature range
-40°C to +80°C

Article number	Article designation	Length (mm)	For cable Ø (mm)	Contents (unit)	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

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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® Label LMB refer to page 951
- FLEXIMARK® Label LMB 30-4,7 YEWH

FLEXIMARK® Collar closed

Benefits

- Enhanced scratch-protection
- Durable grip
- Version made of PUR is halogen-free and flame-retardant
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A 15)

Application range

- For Single core marking
- Marking of UNITRONIC® Fieldbus sensor-/actuator wiring
- Marking before assembly

Product features

- Extremely flame-retardant according to UL 94 V0

Note

- Suitable marking collar for LMB labels

Included

- Marking collars without labels

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

On request
Further collars available on request

Colour delivered
transparent

Material
Halogen-free polyurethane or PVC (not halogen-free)

Temperature range
-50°C to +80°C

Article number	Article designation	Length (mm)	For cable Ø (mm)	Contents (unit)	PU
Halogen-free					
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	11.0 - 5.0	500	1
83252674	FLEXIMARK® collar halogen-free 5-11/15 TR	15	11.0 - 5.0	500	1
83252694	FLEXIMARK® collar halogen-free 5-11/23 TR	23	11.0 - 5.0	200	1
83252675	FLEXIMARK® collar halogen-free 5-11/30 TR	30	11.0 - 5.0	200	1
Not halogen-free					
83252887	FLEXIMARK® collar 1-2/30 TR	30	2.0 - 1.0	500	1
83252889	FLEXIMARK® collar 2-3/30 TR	30	3.0 - 2.0	500	1
83252642	FLEXIMARK® marking collar 2-4/15 TR	15	4.0 - 2.0	1000	1

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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® Label LMB refer to page 951

FLEXIMARK® Collar for cable tie

Benefits

- Enhanced scratch-protection
- Continous usage due to the assembly with cable ties
- Resistant and flexible protection
- Diverse criteria as ageing resistance and chemical resistance are tested by the independent SP Technical Research Institute of Sweden according to SP 2171 Test Method (see selection table A15)

Application range

- For cable marking (suitable for large cross-sections)
- Marking of UNITRONIC® Fieldbus sensor-/ actuator wiring
- Marking before assembly

Product features

- Extremely flame-retardant according to UL 94 V0

Note

- Suitable marking collar for LMB labels

Included

- Marking collars without labels

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Dimensions
Height sleeve: 3 mm
Width sleeve: 5 mm
Total width cable tie area: 20 mm

On request
Further collars available on request

Info
Dimensions: 9,3 x 20 mm

Colour delivered
transparent

Material
Halogen-free polyurethane

Temperature range
-50°C to +80°C

Article number	Article designation	Length (mm)	Contents (unit)	PU
FLEXIMARK® Collar for cable tie				
83252676	FLEXIMARK® collar for cable ties	30	200	1

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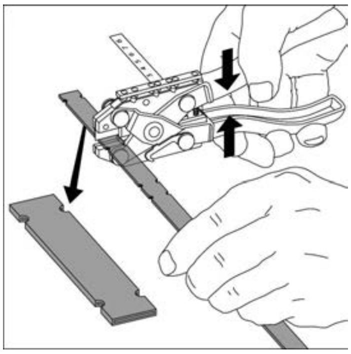
FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Accessories

- Basic Tie cable tie refer to page 1057
- Detectable Cable ties refer to page 1059
- TY - FAST® cable ties refer to page 1058
- FLEXIMARK® Label LMB refer to page 951

FLEXIMARK® Pliers FL52ERA for character holders



Benefits
- Creating a centred hole
- New puncher creates accurate hole-punching on cable ties
- 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
- Further spare parts are available
- 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)

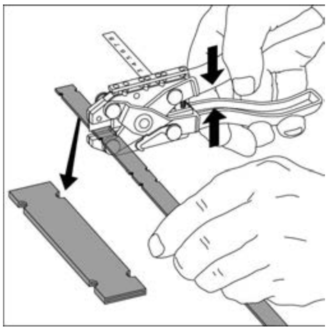
Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Article number	Article designation	Character holder	Contents (unit)
FLEXIMARK® Pliers FL52ERA for character holders			
83252047	FLEXIMARK® Plier FL52ERA	6 / 9.5 / 12	1

Photographs 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® Marking Kit MINI refer to page 960

FLEXIMARK® Pliers FL52A for character holders



Application range
- Special hole pliers for character-holders PTE and PGS with 6-12 mm width
- Can also be used as a knife for shortening character holders
- Cuts and punches MINI standard PTE character holders (6 to 25)

Product features
- The pliers can hold 6-25 mm character holders

Note
- Single parts (cutting and punching device) can be exchanged
- Further spare parts are available

Product Make-up
- Lightweight model suitable for all hand sizes
- Pocket-size

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

Article number	Article designation	Suitable for:	Contents (unit)
FLEXIMARK® Pliers FL52A for character holders			
83252024	FLEXIMARK® Plier FL52A	MINI	1

Photographs 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® Marking Kit MINI refer to page 960

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, typewriter, 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 KMK: 5 mm
- Bundling area of KMK: 10-25 mm
- Strap width of KMK3: 10 mm
- Bundling area of KMK3: 16-31 mm
- Fastening loops KMK2/KMK4: 5 mm

Included
- Please order labels separately
- Labels: 10 sheets with 150 (61742922) or 50 labels (61742926)

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 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

Article number	Article designation	Width x height (mm)	Equipment per piece	Suitable for:	Contents (unit)
KMK Label holders					
61742820	KMK 1 label-holder	29.0 x 8.0	with strap	ES/LP-BW-GB	100
61742822	KMK 2 label-holder	29.0 x 8.0	without strap	ES/LP-BW-GB	100
61742824	KMK 3 label-holder	40.0 x 17.0	with strap	ES/KMK 3 GB	50
61742826	KMK 4 label-holder	40.0 x 17.0	without strap	ES/KMK 3 GB	50
61742922	ES/LP-BW-GB labels	29.0 x 8.0	1500 labels	KMK 1, KMK 2	10
61742926	ES/KMK 3 GB labels	40.0 x 17.0	500 labels	KMK 3, KMK 4	10

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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 marking sign can be opened and closed easily for replacement of 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

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description: Labelling material

General
Available characters: A-Z, 0-9

Material
Polypropylene (PP)

Temperature range
-30°C to +110°C

Product Make-up
- Perforated sheets, approx. DIN A5 (colour: white)
- Cable tie dimensions: 200 x 5 mm

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	10	50
61742900	ETB labels	52.0 x 17.5	14	1

Photographs 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.

NEW

DYMO® Industry Rhino Pro 4200

Benefits

- Compact, easy to use, time-saving label printer for on-the-go pros
- Marking kit consists of all elements you need for marking cables on site

Application range

- Labelling of cables and wires
- Labelling of terminal blocks
- Labelling of modules and components
- Labelling of patch panels and protective sockets

Product features

- Familiar computer-style QWERTZ keyboard for fast and easy text entry
- Large back-lit display is easy to read, even in dimly-lit work areas
- Prints 6mm (1/4”), 9mm (3/8”), 12mm (1/2”) and 19mm (3/4”) wide industrial strength labels in a variety of materials and colours plus print directly on heat -shrink tubes
- “Favourites” key provides single-key access to your most commonly used labels, symbols and terms
- Integrated rubber bumpers help prevent damage from accidental drops and falls

Note

- Supply cord is not included in the scope of delivery and can be ordered with article no. 61800150

Product Make-up

- **FLEXIMARK Kit DYMO® RHINO PL150**
  -Ready packed set in hard case-

  Content:
  1x label printer DYMO® Rhino PL150
  1x vinyl labels 9mm (or 12mm) in yellow and white
  1x special hole pliers FL52-ERA
  1x character holders PTE 9,5-1000

Technical data

ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description:
Labelling material

Colour delivered
black, yellow and white

Material
The thermal transfer printing technology ensures the labels are highly durable and resistant
Li-Ion storage battery

Article number	Article designation	Contents (unit)
DYMO® Rhino Pro 4200		
61800337	DYMO RHINO PRO 4200	1
FLEXIMARK® Kit PL 150		
83257103	FLEXIMARK® Kit PL 150 9 mm	1
83257104	FLEXIMARK® Kit PL 150 12mm	1

DYMO® is a registered trademark of Sanford GmbH,a Newell Rubbermaid Company
In the FLEXIMARK® DYMO® Set DYMO PL 150 is included (same functions as DYMO® 4200, just another branding)
Photographs are not to scale and do not represent detailed images of the respective products.

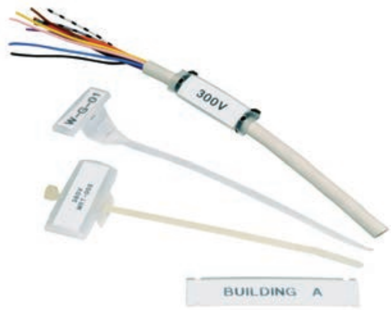
Similar products

- Portable labeler PL 300 and 200

Accessories

- DYMO® ID1 - Industry tape D1 refer to page 991

DYMO® ID1 - Industry tape D1



Benefits
- Highly resistant to wear and tear, fluctuating temperatures, chemicals, solvents, water and UV-light

Application range
- Label or shrink tube tapes for following DYMO®series 4200/PL 150, 200 und 300

Product Make-up
- Permanent polyester tape:
  Ideal for heavily-textured and powder-coated surfaces where extremely good adhesion and a long service life are required; for identification of junction boxes, buttons and patch panels.
- Coloured vinyl strips:
  The permanent adhesive connection; a flexible coloured vinyl; and a tape that is resistant to UV, oil, scratches and solvents; provide the ideal solution for every type of labelling. For indoor and outdoor applications. Ideal for warning and safety markings and for cable labelling.
- **Shrink tube tape:**
  For single core and cable labelling. The combination of shrinking tube and special coloured tape gives a smudge-proof and scratch-proof lettering which is resistant to solvents, oils and UV light.
- **Non-adhesive insert label:**
  Ideal as an insert for label-holders (e.g. PTEF/ CAB), attached to the cable by a cable tie. Material: polypropylene

Technical data

ETIM 5.0 Class-ID: EC000608
ETIM 5.0 Class-Description: Labelling tape

Temperature range
-18°C bis +90°C

Article number	Article designation	Colour of lettering / tape	Width W (mm)	Length (m)	For cable Ø (mm)	Contents (unit)
Transparent polyester labels						
61800285	RP/ID1 9mm POLYESTER SW/ TRANSP	black-transparent	9	5.5		1
Flexible VINYL labels						
61800274	RP/ID1 9mm VINYL SW/WS	black-white	9	5.5		1
61800275	RP/ID1 12mm VINYL SW/GELB	black-yellow	12	5.5		1
61800276	RP/ID1 12mm VINYL SW/ORANGE	black-orange	12	5.5		1
61800277	RP/ID1 12mm VINYL SW/ROT	black-red	12	5.5		1
61800278	RP/ID1 12mm VINYL SW/GRÜN	black-green	12	5.5		1
61800279	RP/ID1 12mm VINYL SW/WS	black-white	12	5.5		1
61800280	RP/ID1 19mm VINYL SW/GELB	black-yellow	19	5.5		1
61800281	RP/ID1 19mm VINYL SW/ORANGE	black-orange	19	5.5		1
61800282	RP/ID1 19mm VINYL SW/ROT	black-red	19	5.5		1
61800283	RP/ID1 19mm VINYL SW/GRÜN	black-green	19	5.5		1
61800284	RP/ID1 19mm VINYL SW/WS	black-white	19	5.5		1
Shrink tube tape						
61800290	RP/ID1 Shrink 1-6-1400	black-white	6	1.5	1.18 - 2.33	1
61800291	RP/ID1 Shrink 1-9-1400	black-white	9	1.5	1.73 - 3.73	1
61800295	RP/ID1 Shrink 1-9-1400YL	black-yellow	9	1.5	1.73 - 3.73	1
61800292	RP/ID1 Shrink 1-12-1400	black-white	12	1.5	2.97 - 5.13	1
61800296	RP/ID1 Shrink 1-12-1400YL	black-yellow	12	1.5	2.97 - 5.13	1
61800293	RP/ID1 Shrink 1-19-1400	black-white	19	1.5	4.64 - 8.70	1
61800297	RP/ID1 Shrink 1-19-1400YL	black-yellow	19	1.5	4.64 - 8.70	1
Non-adhesive inserts						
61800340	RP/ID1 insertion plate 1-6-1600	black-white	6	5.5		1
61800344	RP/ID1 insertion plate 1-12-1600	black-white	12	5.5		1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- TY - FAST® cable ties refer to page 1058
- DYMO® Industry Rhino Pro 4200 refer to page 990

M 1011 Manual embossing machine

Benefits
- Tough cast-metal labeler
- Imprints 12 mm wide metal tapes that withstand chemicals, extreme weather conditions, very high and low temperatures, salty water and abrasion
- Features a front scissor cut-off and a built-in hole-punching device that makes a hole for hanging and tacking
- Quick, simple and permanent marking on site

Application range
- Cable and component marking system
- For outdoor applications

Note
- The M 1011 embossing machine could be only used with the suitale embossing tape which you find below in the table.
- Number 1 is not included on the embossing wheel- please use the character “I” instead
- Spare parts could be requested dialing following hotline: +4969 9999 15354

Included
- M 1011: embossing machine,embossing wheels, aluminium tape without adhesive, steel tape without adhesive, softcase

Technical data
ETIM 5.0 Class-ID: EC000610
ETIM 5.0 Class-Description:
Label maker

General
Lettering height: 4.7 mm

Note
Punching hole diameter: 2 mm
Available characters: A-Z, 0-9

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)	Contents (unit)
Embossing machine in a case					
61742670	M 1011 embosser	4.7			1
Suitable embossing tapes					
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 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
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

SP Metal print

Benefits
- Easy to handle
- One or two-hand operation
- Small and space-saving for narrow available space

Application range
- Stand embossing machine for metal plates
- SP Metallprint is a manually operated machine for embossing metal plates quickly and easily. The device is particularly suitable for batch production with changing data and different type plates. The sign is clamped and the desired characters are set on the embossing wheel, visible in front of the device. The adjustable automatic feed of the work table ensures that the correct distances are achieved between the characters.

Product features
- Lettering sizes: 2, 3, 4, 5 mm (replaceable embossing wheels)
- Character set: uppercase A-Z, numbers 0-9, characters +/-,
- Max. label size: 140 x 90 mm

Technical data
ETIM 5.0 Class-ID: EC000610
ETIM 5.0 Class-Description:
Label maker

General
Max. depth: 90 mm
Weight: 6.5 kg

Note
Equipment dimensions: H = 303 mm; footprint 145 x 120 mm

- Pressure limit for uniform embossing depth
- Adjustable stop through terminal strip

Included
- Embossing machine incl. embossing wheel for selected font size.
- Blank markers: 50 markers/PU

Article number	Article designation	Text height (mm)	Contents (unit)
SP Metal print			
61725991	SP 2 embosser	2	1
61725990	SP 3 embosser	3	1
61725992	SP 4 embosser	4	1
61725993	SP 5 embosser	5	1
61726000	PK 2 spare embossing wheel	2	1
61726001	PK 3 spare embossing wheel	3	1
61726002	PK 4 spare embossing wheel	4	1
61726003	PK 5 spare embossing wheel	5	1
Suitable blank markers			
83251576	FLEXIMARK® SMC blank 9,9-110		50
83251575	FLEXIMARK® SMC blank 9,9-75		50

Photographs 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.

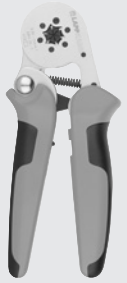
Accessories
- FLEXIMARK® Stainless steel marking FCC refer to page 944

Tools and cable accessories

Tools and cable accessories


LAPPKABEL
0,08 – 6 mm²/AWG 28 – 10

Connector and Crimping Engineering • Crimping Tools for end sleeves



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] Crimping inserts for 0.08 – 50 mm²	**MCT Mobile Crimp Tool** Crimping inserts for 0.1 – 10 mm²
Page	1014	1015	1015	1016	1016	1016	1016	1017	1017	–	1034	1033
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	Pressing tools for insulated connectors				Pressing tools for non-insulated connectors						Pressing 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** Crimping inserts for 0.08 – 50 mm²
Page	1024	1024	1024	1024	1025	1025	1025	1026	1026	1026	1030	1030	1031	1034
Insulated flat plug connectors, cable lugs and other 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 flat plug connectors, cable lugs and other 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												●	●	

*with variable crimping inserts

COMBINOX cable shears

Benefits

- Wire guide integrated into blade

Product Make-up

- Stainless steel shears

Included

- Included: stripping device

Technical data

ETIM 5.0 Class-ID: EC000142
ETIM 5.0 Class-Description: Cable shears

Article number	Article designation	Weight (kg)	Length (mm)	Pieces / PU
COMBINOX cable shears				
61735980	Combinox	0.121	193	1

COMBINOX® is a registered trademark of Bessey&Sohn GmbH&Co.KG
Photographs are not to scale and do not represent detailed images of the respective products.

Multipurpose shears A and B

Application range

- Suitable for separating steel-wire screen braiding
- Suitable for cutting cables, lines, single cores, flat cables, bands, thin sheet metal, paper, cardboard and wires

Product Make-up

- Multipurpose shears A: With forged blades, spring and frames
- Multipurpose shears B: With forged blades

Technical data

ETIM 5.0 Class-ID: EC000160
ETIM 5.0 Class-Description: Shears

Article number	Article designation	Weight (kg)	Length (mm)	Pieces / PU
Multipurpose shears A and B				
62120010	Multipurpose shears A: With forged blades, spring and frames	0.12	180	1
62120020	Multipurpose shears B: With forged blades	0.095	175	1

Photographs are not to scale and do not represent detailed images of the respective products.

LAPP GROUP

Tools and cable accessories

Cutting, Stripping, Skinning • Cutting tools for small diameters

BULLI cable shears

Benefits

- Ergonomic handles
- Drawing cut is possible due to the special shape of the blades
- Lightweight shears with locking bolt and spring return

Application range

- For fine-wire conductors up to max. outer diameter of 16 mm

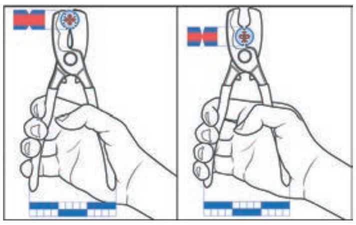
Technical data

ETIM 5.0 Class-ID: EC000142
ETIM 5.0 Class-Description: Cable shears

Article number	Article designation	For outer diameter (mm)	Weight (kg)	Length (mm)	Pieces / PU
BULLI cable shears					
61744160	BULLI	16	0.135	185	1
61744161	Spare spring BULLI		-	-	1

Photographs are not to scale and do not represent detailed images of the respective products.

KS 20 cable shears



Benefits
- Less force required due to favourable transmission ratio and new blade geometry
- High ergonomics thanks to multi-component-handles
- Particular two-blades-system (see drawings)
- Cutting with precision grinding
- Easy and clean cut by using only one hand

Application range
- Cuts copper and aluminium cables with up to 20 mm outer diameter
- Not suitable for steel wire and hard-drawn copper conductors

Product features
- Material: special tool steel, forged, burnished head
- Made in Germany

Technical data
ETIM
ETIM 5.0 Class-ID: EC000142
ETIM 5.0 Class-Description: Cable shears

Article number	Article designation	For outer diameter (mm)	Weight (kg)	Length (mm)	Pieces / PU
KS 20 cable shears					
62120045	KS 20	20	0.3	200	1

Photographs are not to scale and do not represent detailed images of the respective products.

NEW

KT cable shears

Benefits
- Trouble-free cutting with lightweight and optimum transmission ratio
- One-hand operation through ratchet principle
- Less power required due to wave-like polished blades
- Optimum leverage due to 2-way gear rim drive (KT 6: 3-way gear rim drive)

Application range
- Not suitable for steel wire / hard aluminium alloys / hard-drawn copper conductors

Product features
- Swivel knife can be unlocked in any cutting position with a press of the thumb
- Cuts smoothly and cleanly without crushing

Note
- Also suitable for stripping wires

Technical data
ETIM
ETIM 5.0 Class-ID: EC000142
ETIM 5.0 Class-Description: Cable shears

Article number	Article designation	For outer diameter (mm)	Weight (kg)	Length (mm)	Pieces / PU
KT cable shears					
61813750	KT 4	32	0.545	250	1
61813760	Spare blade KT 4		-	-	1
61813770	KT 5	52	0.74	280	1
61813775	Spare blade KT 5		-	-	1
61813751	KT 6	60	0.825	320	1
61813752	Cable Shears spare knife KT 6		-	-	1
61813753	Cable shears fixed knife KT 6		-	-	1

Photographs are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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

ETIM 5.0 Class-ID: EC000163
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

DATA STRIP stripping tool

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)

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

Technical data

ETIM 5.0 Class-ID: EC000163
ETIM 5.0 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

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 are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

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

Suitable cables
- UNITRONIC® BUS PB FRNC FC Page 333

Technical data
ETIM 5.0 Class-ID: EC001583
ETIM 5.0 Class-Description: Accessories for bus system

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 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 325

Technical data
ETIM 5.0 Class-ID: EC000163
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

NEW

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 5.0 Class-ID: EC000163
ETIM 5.0 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 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

Info

- Now also available as right-angled version (RA)

Technical data

ETIM 5.0 Class-ID: EC000163
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

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 5.0 Class-ID: EC000163
ETIM 5.0 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 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 (but please note that the blade is not already assembled in the tool)
- Tool is always delivered with a length stop

Technical data

ETIM 5.0 Class-ID: EC000163
ETIM 5.0 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
21920122	Solar stripping knife	1.5 - 6				1
21920126	POF 1, 2, 4-wire stripping knife		PVC/PUR			1
21920006	Flurorpolymer stripping knife	0.03 - 2	Fluoropolymer			1
21920004	Flurorpolymer stripping knife	2.5 - 10	Fluoropolymer			1
21920008	Flurorpolymer stripping knife	16	Fluoropolymer			1
21920135	AS I stripping knife		rubber/TPE/PVC			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		PVC/PUR			1
21920129	Universal Strip Fluorpolymer 0,03-2,08	0.03 - 2.08	Fluoropolymer			1
21920130	Universal Strip Fluorpolymer 2,5-10 mm²	2.5 - 10	Fluoropolymer			1
21920131	Universal Strip Fluorpolymer 16	16	Fluoropolymer			1
21920140	Universal Strip AS-I		rubber/TPE/PVC			1
21920120	Universal Strip Solar	1.5 - 6				1

Photographs are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

Accessories

- Additional blades are available upon request

Technical data

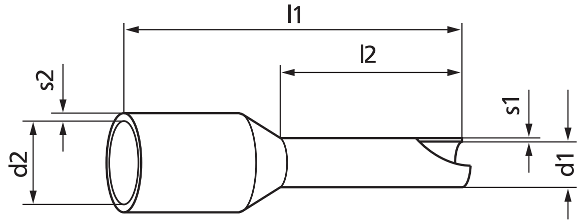
ETIM 5.0 Class-ID: EC000005
ETIM 5.0 Class-Description: Cable end sleeve

Note
Halogen-free

Material
Copper/PP
Surface: tin-plated

Temperature range
-5°C to +105°C*

Conductor end sleeves insulated



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

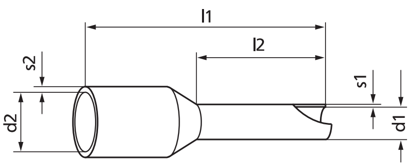
Suitable tools

- PEW 8.185 crimping pliers refer to page 1015
- PEW 8.186 crimping pliers refer to page 1015
- PEW 8.87 crimping pliers refer to page 1016
- CK 90 crimping pliers refer to page 1017

Article number	Article designation	For mm²	AWG	Colour	l1 mm	l2 mm	d 1 mm	s1 mm	d 2 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 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
ETIM 5.0 Class-ID: EC000005
ETIM 5.0 Class-Description: Cable end sleeve

General
Halogen-free

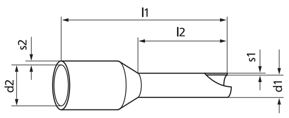
Material
Copper/PP
Surface: tin-plated

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 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 97

Technical data
ETIM 5.0 Class-ID: EC000005
ETIM 5.0 Class-Description: Cable end sleeve

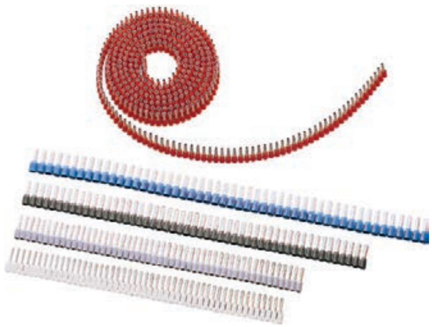
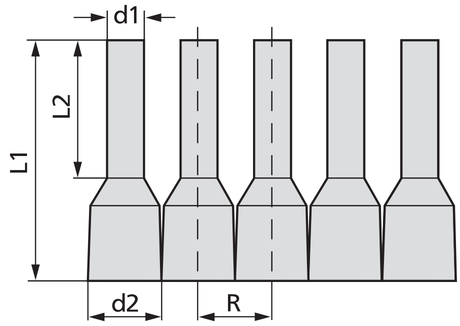
Material
Copper/PP
Surface: tin-plated

Temperature range
-5°C to +105°C

Article number	Article designation	For mm²	AWG	Colour	l1 mm	l2 mm	d 1 mm	s1 mm	d 2 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 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
ETIM 5.0 Class-ID: EC000005
ETIM 5.0 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 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 1014

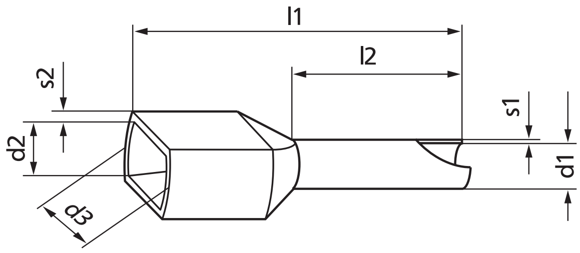
Technical data
ETIM 5.0 Class-ID: EC000005
ETIM 5.0 Class-Description:
Cable end sleeve

Article number	Article designation	For mm²	AWG	Colour	l1 mm	l2 mm	d 1 mm	d 2 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 are not to scale and do not represent detailed images of the respective products.

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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 1017

Technical data

ETIM 5.0 Class-ID: EC000005
ETIM 5.0 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	d 1 mm	s1 mm	d 2 mm	d 3 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 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

TWIN 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

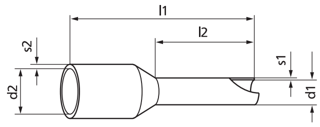
TWIN assorted boxes
- 2x0,75 - 8mm, 2x1,00 - 8mm, 2x1,05 - 8mm, 2x2,50 - 10mm

Technical data
ETIM 5.0 Class-ID: EC000005
ETIM 5.0 Class-Description: Cable end sleeve

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 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 0,25 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 211
- MULTI-STANDARD SC 2.2
- MULTI-STANDARD SC 2.1

Suitable tools
- PEW 8.186 crimping pliers refer to page 1015
- MULTICRIMP 6 crimping pliers
- PEW 8.87 crimping pliers refer to page 1016

Technical data

ETIM 5.0 Class-ID: EC000005
ETIM 5.0 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

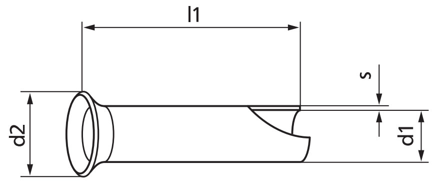
Temperature range
Permanent load -5°C up to +105°C, temporary load +120°C

Article number	Article designation	For mm²	AWG	Colour	l1 mm	l2 mm	d 1 mm	s1 mm	d 2 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- Conductor end sleeves insulated refer to page 1007

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 1015
- PEW 8.186 crimping pliers refer to page 1015
- PEW 8.87 crimping pliers refer to page 1016
- KEB 1025 crimping pliers refer to page 1016
- KEB 3550 crimping pliers refer to page 1016
- CK 90 crimping pliers refer to page 1017

Technical data
ETIM 5.0 Class-ID: EC000005
ETIM 5.0 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	d 1 mm	d 2 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 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

ETIM 5.0 Class-ID: EC000163
ETIM 5.0 Class-Description: Cable stripping tool

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 are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

Accessories

- DIN-strips for QUADRO refer to page 1009

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

- Could be used up to a sleeve length of 20 mm (for sleeves longer than 12 mm at least 2 crimps are necessary)
- For pressing insulated and non-insulated conductor end sleeves

PEW 8.185 crimping pliers

- Cross-section range from 0.08 - 16 mm² with square pressing

PEW 8.186 crimping pliers

- Cross-section range from 0.08 -10 mm² with hexagonal pressing

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 5.0 Class-ID: EC000168
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

Similar products

- PEW 8.87 crimping pliers refer to page 1016

Accessories

- Conductor end sleeves insulated refer to page 1007
- Conductor end sleeves AH, not insulated refer to page 1013

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
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

Accessories
- Conductor end sleeves insulated refer to page 1007

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
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

Accessories
KEB 1025 Crimpzange
- Conductor end sleeves insulated refer to page 1007

NEW

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
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Conductor end sleeves insulated refer to page 1007

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
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Adjustable crimping pressure

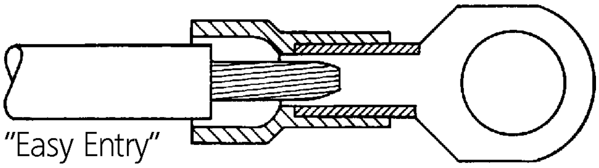
Note
Crimping profile: Trapezoid

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 are not to scale and do not represent detailed images of the respective products.

Accessories
- TWIN conductor end sleeves refer to page 1010

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 / SEN 245010 / BS 4579
- Design 1+2: DIN 46237
- Design 7: DIN 46228
- 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 1024
- CSA 0760 + KSA 0760 crimping pliers
  refer to page 1024

Technical data

ETIM 5.0 Class-ID: EC001052
ETIM 5.0 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

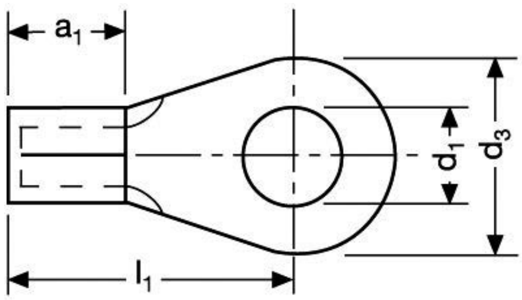
Temperature range
-20°C to +105°C
Short-term: up to +120°C

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 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 1034
- V 1311-A pressing pliers, hydraulic refer to page 1030
- DKB 0325 + DKB 0360 crimping pliers refer to page 1026

Technical data

ETIM 5.0 Class-ID: EC001052
ETIM 5.0 Class-Description: Solderless copper terminals for copper conductors

Note
s = thickness of material

Material
High-quality electrolytic copper for good conductivity

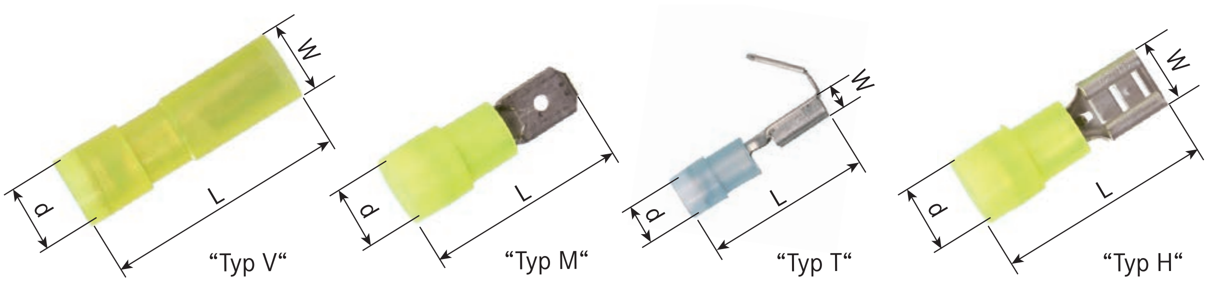
Temperature range
Max. temperature: +120°C (short-term)
Temperature range up to +90°C

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
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

Article number	Article designation	For mm²	UL certification	AWG	Nominal size	d1	d3	l1	a1	s	Pieces / PU
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	31	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 are not to scale and do not represent detailed images of the respective products.

Panel connectors insulated



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 1024
- CSA 0760 + KSA 0760 crimping pliers refer to page 1024

Technical data

ETIM 5.0 Class-ID: EC000516
ETIM 5.0 Class-Description: Round plug/flat receptacle

Material
Brass tin-plated
Polycarbonate insulation

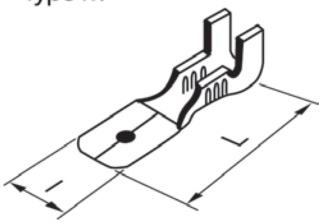
Temperature range
-20°C to +105°C
Short-term: up to +120°C

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

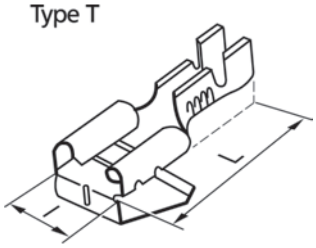
1 = PVC insulation, not easy-entry; 2 = polyamide (nylon) insulation, not easy-entry; 3 = unsoldered, with additional brass sleeve
Photographs are not to scale and do not represent detailed images of the respective products.

Panel connectors non-insulated

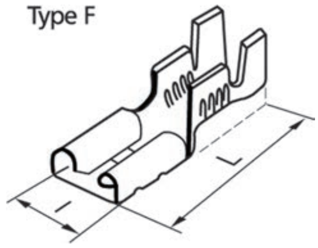
Type M



Type T



Type F



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 1025
- KRB 0560 crimping pliers refer to page 1025

Technical data
ETIM 5.0 Class-ID: EC000516
ETIM 5.0 Class-Description: Round plug/flat 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 are not to scale and do not represent detailed images of the respective products.

Similar products
- Panel connectors with latch refer to page 1023

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 1025

Technical data
ETIM 5.0 Class-ID: EC000516
ETIM 5.0 Class-Description: Round plug/flat receptacle

Material
Brass

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 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
ETIM 5.0 Class-ID: EC000516
ETIM 5.0 Class-Description: Round plug/flat 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Panel connectors non-insulated refer to page 1022

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
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Panel connectors insulated refer to page 1021
- Insulated cable lugs refer to page 1018

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
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Panel connectors insulated refer to page 1021
- Insulated cable lugs refer to page 1018

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

ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Panel connectors non-insulated refer to page 1022

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

ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Panel connectors non-insulated refer to page 1022

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
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

Accessories
- Solderless cable lugs KB refer to page 1019

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
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

General
Adjustable crimping pressure

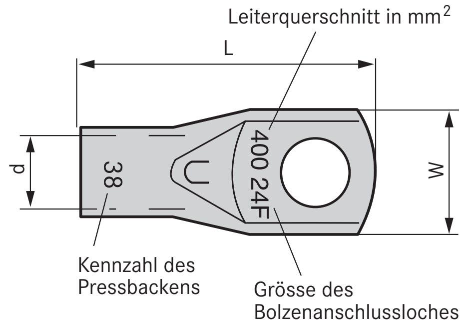
Note
Crimping profile: W-pressing

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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Tube cable lugs KR/ KRT/ KRF refer to page 1027
- Solderless cable lugs KB refer to page 1019

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

ETIM 5.0 Class-ID: EC001051
ETIM 5.0 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

Article number	Article designation	Screw hole Ø (mm)	UL certification	Length (mm)	Pressing dies	d mm	W mm	Pieces / PU
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
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 are not to scale and do not represent detailed images of the respective products.

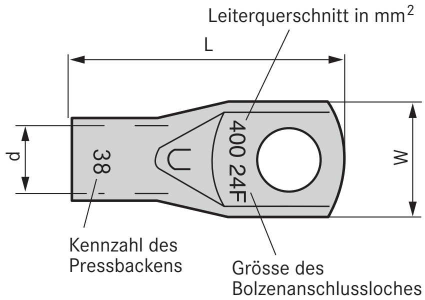
Similar products

- Solderless cable lugs KB refer to page 1019

Accessories

- T 2288 pressing pliers refer to page 1030
- V 1311-A pressing pliers, hydraulic refer to page 1030
- DKB 0325 + DKB 0360 crimping pliers refer to page 1026
- PVL 1300 pressing pliers battery-operated refer to page 1031

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

ETIM 5.0 Class-ID: EC001051
ETIM 5.0 Class-Description:
Tube cable lug for copper conductors

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 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 1027
- Solderless cable lugs KB refer to page 1019

Accessories
- T 2288 pressing pliers refer to page 1030
- V 1311-A pressing pliers, hydraulic refer to page 1030
- DKB 0325 + DKB 0360 crimping pliers refer to page 1026
- PVL 1300 pressing pliers battery-operated refer to page 1031

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
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 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
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

Similar products
- PVL 1300 pressing pliers battery-operated refer to page 1031

Accessories
- Die holders for system 1311 refer to page 1032
- Dies for system 1311 and 1300 refer to page 1032

NEW

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 mm^2 und C-sleeves up to 120 mm^2
- 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

ETIM 5.0 Class-ID: EC000168
ETIM 5.0 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 qulity also for compacted conductors) is available upon request

Note
Crimping profile: Hexagonal and mandrel
Pressing force: 124 kN (13 t)

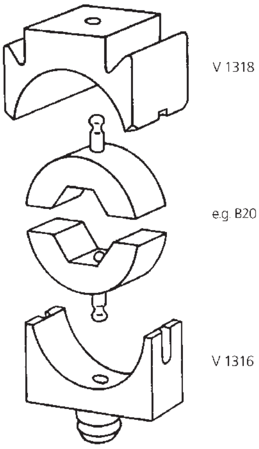
Temperature range
-20°C to +40°C

Article number	Article designation	Weight (kg)	Pieces / PU
PVL 1300 pressing pliers battery-operated			
61813821	Crimping tool PVL 1300	5.4	1

Photographs are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

Accessories
- Die holders for system 1311 refer to page 1032
- Dies for system 1311 and 1300 refer to page 1032

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 1030
- PVL 1300 pressing pliers battery-operated refer to page 1031

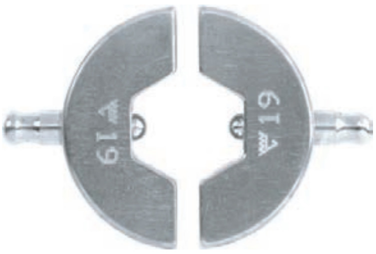
Technical data

ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: 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 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 needesd, for all other dies you need to order the die holders separately.

Technical data

ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Suitable tools

- V 1311-A pressing pliers, hydraulic refer to page 1030
- PVL 1300 pressing pliers battery-operated refer to page 1031

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 are not to scale and do not represent detailed images of the respective products.

Mobile crimp tool crimping pliers

Info
- Inserts can be quickly changed

Technical data
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

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

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 are not to scale and do not represent detailed images of the respective products.
Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

Accessories
- Mobile crimp tool - crimping inserts refer to page 1033

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

Technical data
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Suitable tools
- Mobile crimp tool crimping pliers refer to page 1033

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
RJ 45						
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 are not to scale and do not represent detailed images of the respective products.

PEW 12 universal tool

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

Technical data
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Crimping inserts for PEW 12 system refer to page 1035

NEW

EPEW 12 universal tool

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

Technical data
ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Colour delivered
Black

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 are not to scale and do not represent detailed images of the respective products.

Accessories
- Crimping inserts for PEW 12 system refer to page 1035

Crimping inserts for PEW 12 system

Benefits

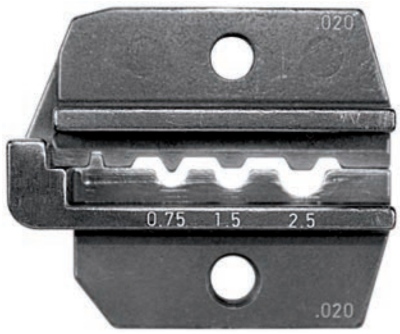
- Ensure high flexibility: All inserts can be used in PEW 12 (article number 61813807) as well as in E-PEW 12 (article number 61813817) and in criming máchine CM 25 (article number: 11147001)
- Comply with DIN 46237, DIN 46234/46235/46267 and DIN 46 247, 46 345, 46 346

Note

- On request: other inserts available

Technical data

ETIM 5.0 Class-ID: EC000168
ETIM 5.0 Class-Description: 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 connectors	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
One piece screen connectors RSK							
61813866	PEW 12.354/ 401 M	One-piece RSK screen connectors					1
61813868	PEW 12.373/301 J	One-piece RSK screen connectors					1
61813869	PEW 12.374/301 H	One-piece RSK screen connectors					1
61813865	PEW 12.375 / 401 L	One-piece RSK screen connectors					1
61813864	PEW 12.599/401 K	One-piece RSK screen connectors					1
61813867	PEW 12.619/ 401 N	One-piece RSK screen connectors					1

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ACCESSORIES
APPENDIX

NEW

Pneumatic crimping machine UP 35

Technical data

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

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Short manual is included- manuals could be also downloaded here: http://www.lappkabel.com/instructions.html

Accessories

- Crimping inserts for PEW 12 system refer to page 1035
- Crimping inserts for the UP 35 machine refer to page 1036

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

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

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RSK one-piece screen connector

Benefits

- The four sizes can be identified by the different colours of the connectors
- Matching tool inserts have the same colour
- Reduced installation time

Application range

- One-part SHIELD-KON® screen connector allows screened cables to be connected quickly and permanently

Norm references / Approvals

- Meets and exceeds the performance requirements of MIL-F-21608

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

- ERG 740 manual pressing tool refer to page 1039

Technical data

ETIM 5.0 Class-ID: EC002020
ETIM 5.0 Class-Description: Shield connection clamp

Material
Tinned electrolyte copper
Insulation: laminated polyester

Temperature range
-65°C to +125°C

Article number	Article designation	Colour	Shield Ø (mm)	Suitable connectors	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

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Similar products

- SHIELD-KON® two-part screen connector refer to page 1040

Accessories

- RSK-FLAG connector refer to page 1038

RSK gauge

Benefits

- For easy determination of the appropriate RSK connector and crimping insert
- Appropriate connector and tool insert is indicated by the notches (insert the stripped end of the cable into the slots located aound the gauge)

Application range

- For the one-piece SHIELD-KON® connectors RSK

Technical data

ETIM 5.0 Class-ID: EC002020
ETIM 5.0 Class-Description:
Shield connection clamp

Article number	Article designation	Pieces / PU
RSK gauge		
61753760	RSK gauge	1

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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 5.0 Class-ID: EC002020
ETIM 5.0 Class-Description:
Shield connection clamp

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

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ERG 740 manual pressing tool

Benefits
- Metal inserts can be changed easily and quick
- No adjustment of the tool necessary
- Ergonomic plastic handles
- Pressing dies move in parallel to each other, which enables the contorting effect of the RSK connectors

Application range
- Crimping tool for one-screen SHIELD-KON® connectors RSK

Included
- Pressing pliers ERG 740
- RSK gauge for easy identification of the connector
- Soft case (245x 210 x 55 mm)
- Bench-mount stand for easier use in volume production

Technical data
ETIM 5.0 Class-ID: EC002020
ETIM 5.0 Class-Description: Shield connection clamp

Article number	Article designation	Suitable inserts	Pieces / PU
ERG 740 manual pressing tool			
61753160	ERG 740 case + hand pliers + gauge	Metal	1

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crimping inserts for ERG 740

Benefits
- For medium to high volumes
- Made of hardened steel, therefore no erosion
- Inserts are easy changeable
- Product Ref. is engraved on the upper part and on the lower part of the die set

Application range
- Tool inserts for SHIELD-KON®one-piece screen connectors RSK, suitable for ERG 740

Included
- Packaging: 1 die set in a cardboard box with Euroslot (weight: approx. 75 g, packaging size: 45 x 45 x 70 mm)

Suitable tools
- ERG 740 manual pressing tool refer to page 1039

Technical data
ETIM 5.0 Class-ID: EC002020
ETIM 5.0 Class-Description: Shield connection clamp

Article number	Article designation	Colour	Shield Ø (mm)	Suitable connectors	Pieces / PU
Metal inserts for ERG 740					
61722835	D-101 A	red	1.27-1.79	RSK 5101	1
61722825	D-101 B	red	1.80-2.28	RSK 5101	1
61722905	D-201 C	blue	2.29-2.55	RSK 5201	1
61722915	D-201 D	blue	2.56-3.00	RSK 5201	1
61722925	D-201 E	blue	3.01-3.34	RSK 5201	1
61743045	D-201 F	blue	3.35-3.65	RSK 5201	1
61722935	D-301 G	yellow	3.66-4.13	RSK 5301	1
61722945	D-301 H	yellow	4.14-4.71	RSK 5301	1
61722875	D-301 J	yellow	4.72-5.12	RSK 5301	1
61743215	D-401 K	green	5.13-5.86	RSK 5401	1
61743225	D-401 L	green	5.87-6.36	RSK 5401	1
61743235	D-401 M	green	6.37-7.00	RSK 5401	1
61743245	D-401 N	green	7.01-7.62	RSK 5401	1

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Similar products
- Crimping inserts for PEW 12 system refer to page 1035

SHIELD-KON® two-part screen connector

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

- WT 4454 G universal pressing pliers
- SHIELD-KON® two-part screen connector crimping accessories refer to page 1041

Technical data

ETIM 5.0 Class-ID: EC002020
ETIM 5.0 Class-Description: Shield connection clamp

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)	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	100
61749820	GSC 128	blue	3.25 x 3.86	100
61749830	GSC 149	purple	3.78 x 4.54	100
61749840	GSC 156	yellow	3.96 x 4.90	100
61749850	GSC 175	blue	4.40 x 5.46	100
61749860	GSC 187	orange	4.75 x 5.76	100
61749870	GSC 194	red	4.93 x 5.79	100
61749880	GSC 199	silver	5.05 x 5.97	100
61749890	GSC 205	yellow	5.20 x 6.22	100
61749900	GSC 219	green	5.56 x 6.35	100
61749910	GSC 225	purple	5.71 x 6.50	100
61749920	GSC 232	orange	5.90 x 6.70	100
61749930	GSC 261	yellow	6.63 x 7.54	100
61749940	GSC 275	silver	6.98 x 7.77	100
61749950	GSC 281	purple	7.14 x 8.40	100
61749960	GSC 287	blue	7.29 x 8.30	100
61749970	GSC 297	green	7.54 x 8.50	100
61749980	GSC 312	yellow	7.95 x 9.20	100
61749990	GSC 327	silver	8.30 x 9.45	100
61750000	GSC 348	orange	8.84 x 9.98	100
61750010	GSC 359	purple	9.12 x 10.13	100
61750020	GSC 375	yellow	9.52 x 10.30	100
61750030	GSC 405	red	10.28 x 11.50	100
61750040	GSC 415	blue	10.54 x 11.76	100
61750050	GSC 425	silver	10.80 x 12.06	100
61750060	GSC 460	silver	11.68 x 12.95	100
61750070	GSC 500	green	12.70 x 14.60	100

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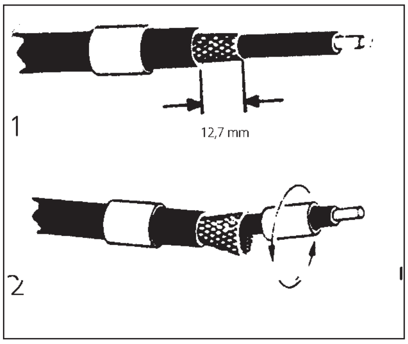
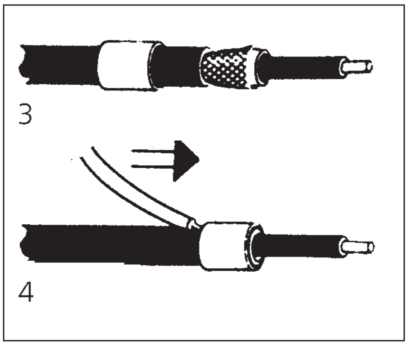
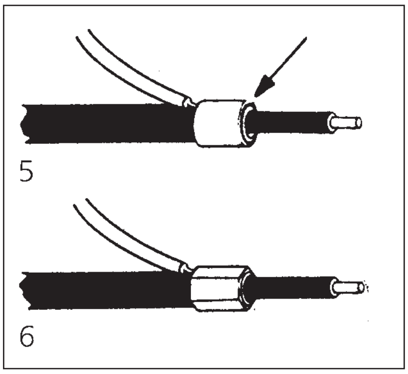
SHIELD-KON® two-part screen connector

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.

SHIELD-KON® two-part screen connector crimping accessories

Benefits

- Manual pressing pliers with removable press matrices for two-part SHIELD-KON®connectors
- Integrated forced lock only allows the tool to be opened after it has completely closed (emergency opening possible)
- Appropriate press insert can be determined by using the selected outer sleeve

Product Make-up

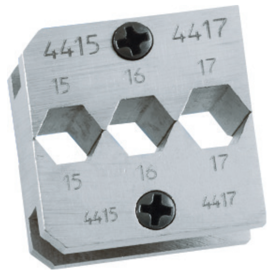
- Crimping profile: Hexagonal

Technical data

ETIM 5.0 Class-ID: EC002020
ETIM 5.0 Class-Description:
Shield connection clamp

Included

- Article number 61743920: Pliers without case and without pressing dies
- Article number 61792250:
  Empty case with space for 12 inserts
- Crimping inserts have to be ordered seperately



Article number	Article designation	Suitable for outer sheaths	Pieces / PU
Crimping tool			
61743920	WT 4454 G		1
Accessories crimping tool			
61792250	WT case for WT 4454 G		1
Crimping dies			
61789480	4419-4403 G	GSC 101 / 128 / 149 / 156 / 175	1
61789490	4406-4410 G	GSC 187 / 194 / 199 / 205 / 219 / 225 / 232	1
61789500	4411-4414 G	GSC 261 / 275 / 281 / 287 / 297	1
61789510	4415-4417 G	GSC 312 / 327 / 348	1
61789520	5450-5451 G	GSC 359 / 375	1
61789530	5452 G	GSC 405 / 415	1
61789540	5454 G	GSC 425	1
61789550	5456 G	GSC 460	1
61789560	5457 G	GSC 500	1

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Crimping inserts on picture of WT 4454 G are not depicting the SHIELD-KON®inserts, they are depicted in an extra picture

Temflex™ 1500 insulating tape

Benefits
- Resistant to most solvents
- Waterproof
- Adhesive on one side

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
ETIM 5.0 Class-ID: EC000128
ETIM 5.0 Class-Description: Adhesive tape

Material
PVC

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 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
ETIM 5.0 Class-ID: EC000128
ETIM 5.0 Class-Description: Adhesive tape

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 x 12 x 0.1	PTFE	10

Photographs 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

ETIM 5.0 Class-ID: EC002254
ETIM 5.0 Class-Description:
Cable insulation hose

Note
Dielectric strength: 18 kV/mm

Material
Silicone
UV-resistant

Temperature range
-60°C to +200°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 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

ETIM 5.0 Class-ID: EC002254
ETIM 5.0 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 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
- Four available sizes: Cover a diameter range from 1 to 50 mm
- Variable diameter by tightening the braid

Included
- Are delivered in 2 pieces with 50 m each

Suitable conduits
- SILVYN® EMC AS-CU Page 899

Technical data

ETIM 5.0 Class-ID: EC001182
ETIM 5.0 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	mm²	Approx. Ø range in mm	Number of wires x Ø (mm)	Weight (kg)	PU (m)
Copper braid						
61721370	CU 14	1.32	1 - 4	24 x 7 x 0,10	1.2	100
61721380	CU 410	4.14	4 - 10	24 x 22 x 0,10	3.9	100
61721390	CU 1020	8.29	10 - 20	48 x 22 x 0,10	7.6	100
61721395	CU 2050	18.1	20 - 50	48 x 12 x 0,10	8.1	100

Photographs 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

ETIM 5.0 Class-ID: EC000128
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Accessories
- SKINTOP® MS-SC-M refer to page 732
- SKINTOP® MS-SC refer to page 794

HOTY heat-shrink tube

Benefits
- Well-priced
- Good weather and UV-resistance
- Flame-retardant
- Safe transport is secured via light pressure

Application range
- HOTY heat-shrink tubing is used for protecting and insulating e.g. contacts, cable lugs and connectors

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 1052

Technical data

ETIM 5.0 Class-ID: EC000217
ETIM 5.0 Class-Description: Heat-shrink tubing

Info
Shrinking ratio: 2:1

Colour delivered
Black- UV-resistant

Material
PVC

Test voltage
Dielectric strength: 20 kV/mm

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 are not to scale and do not represent detailed images of the respective products.

NEW

Shrink tube PROTECT Box

Benefits

- Very flexible, UL 224 flame retardant thin-walled heat shrink tubing with excellent physical and mechanical properties
- Convenient quantity for small consumers
- Stackable boxes for easy storage

Application range

- General purpose, flexible heat shrink tubing for protection, insulation and bundling

Product features

- UV-resistant

Norm references / Approvals

- UL file no.: E476215

Suitable tools

- HG 2320 hot-air pistol refer to page 1052

Technical data

ETIM 5.0 Class-ID: EC000217
ETIM 5.0 Class-Description: Heat-shrink tubing

Note
Dielectric strength: 20 kV/mm
Thin walled

Info
Shrinking ratio: 2:1

Colour delivered
Black- UV-resistant
Transparent - halogen-free

Material
Cross-linked polyolefin, without silicone,cadmium and lead

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	Contents (m)	PU
Black						
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 Box25,4/12,7 BK	black	25.4 - 12.7	0.89	3	1
Transparent						
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 tubes from ABB (former Thomas & Betts) are available upon request
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Shrink tube PROTECT

Benefits

- Very flexible, UL 224 flame retardant thin-walled heat shrink tubing with excellent physical and mechanical properties
- Approved for the use in North America and Canada

Application range

- General purpose, flexible heat shrink tubing for protection, insulation and bundling

Product features

- Dielectric strength: 20 kV/mm
- UV-resistant

Norm references / Approvals

- UL file no.: E476215
- UL 224 approval

Note

- Not resistant against engine oils

Included

- Plastic bag with 1.22 m units

Suitable tools

- HG 2320 hot-air pistol refer to page 1052

Technical data

ETIM 5.0 Class-ID: EC000217
ETIM 5.0 Class-Description: Heat-shrink tubing

General
Thin walled

On request
Other colours are available upon request

Note
Dielectric strength: 20 kV/mm

Info
Shrinking ratio: 2:1

Colour delivered
Black

Material
Cross-linked polyolefin, without silicone,cadmium and lead

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						
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	61	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

Shrink tubes from ABB (former Thomas & Betts) are available upon request
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Shrink tube PROTECT GN/YE

Benefits
- Very flexible, UL 224 flame retardant thin-walled heat shrink tubing with excellent physical and mechanical properties
- Approved for the use in North America and Canada

Application range
- For identifying and marking earthing connectors and cables
- Mechanical and electrical insulation, corrosion protection

Product features
- Dielectric strength: 20 kV/mm

Norm references / Approvals
- UL file no.: E476215

Note
- Non halogen-free

Design
- Green-yellow polyolefin shrink-tubing

Included
- Plastic bag with 1.22 m units

Suitable tools
- HG 2320 hot-air pistol refer to page 1052

Technical data

ETIM 5.0 Class-ID: EC000217
ETIM 5.0 Class-Description:
Heat-shrink tubing

General
Dielectric strength: 20 kV/mm

Info
Shrinking ratio: 2:1

Colour delivered
green/yellow

Material
Cross-linked polyolefin, without silicone,cadmium and lead

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 GN/YE						
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

Shrink tubes from ABB (former Thomas & Betts) are available upon request
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Shrink tube PROTECT Set

Benefits
- Convenient plastic kit with PROTECT shrink tubes including small hot air pistol

Application range
- For repair and maintenance, for small series production and in research and development

Product features
- Dielectric strength: 20 kV/mm

Norm references / Approvals
- UL file no.: E476215

Included
- The shrink set in a practical case
- Assortment of common shrinking tube sizes of type PROTECT
- **Content:**
  50x 50 mm Shrink tube PROTECT 1,6/0,8 BK
  50x 50 mm Shrink tube PROTECT 1,6/0,8 TR
  50 x 50 mm Shrink tube PROTECT 2,4/1,2 BK
  50 x 50 mm Shrink tube PROTECT 2,4/1,2 TR
  20 x 50 mm Shrink tube PROTECT 3,2/1,6 BK
  20 x 50 mm Shrink tube PROTECT 3,2/1,6 TR
  20 x 50 mm Shrink tube PROTECT 3,2/1,6 YE
  20 x 50 mm Shrink tube PROTECT 3,2/1,6 WH
  10 x 50 mm Shrink tube PROTECT 4,8/2,4 BK
  10 x 50 mm Shrink tube PROTECT 4,8/2,4 TR
  10 x 50 mm Shrink tube PROTECT 4,8/2,4 YE
  10 x 50 mm Shrink tube PROTECT 4,8/2,4 BU
  15 x 50 mm Shrink tube PROTECT 6,4/3,2 BK
  15 x 50 mm Shrink tube PROTECT 6,4/3,2 WH
  15 x 50 mm Shrink tube PROTECT 6,4/3,2 YE
  15 x 50 mm Shrink tube PROTECT 6,4/3,2 BU
  15 x 50 mm Shrink tube PROTECT 9,5/4,7 BK
  15 x 50 mm Shrink tube PROTECT 9,5/4,7 BU
  20 x 50 mm Shrink tube PROTECT 12,7/6,4 BK
  20 x 50 mm Shrink tube PROTECT 12,7/6,4 RD
  5 x 100 mm Shrink tube PROTECT 19,1/9,5 BK

Technical data
ETIM 5.0 Class-ID: EC000217
ETIM 5.0 Class-Description: Heat-shrink tubing

Info
Shrinking ratio: 2:1

Material
Cross-linked polyolefin, without silicone,cadmium and lead

Temperature range
-55°C to +135°C
Shrinking temperature: +90°C

Article number	Article description
Shrink tube PROTECT Set	
61742465	PROTECT Set

Shrink tubes from ABB (former Thomas & Betts) are available upon request
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Shrink tube PROTECT-C

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
- UV-resistant
- Dielectric strength: 15 kV/mm

Included
- Plastic bag with 0.6 m units

Suitable tools
- HG 2320 hot-air pistol refer to page 1052

Technical data
ETIM 5.0 Class-ID: EC000217
ETIM 5.0 Class-Description: Heat-shrink tubing

General
Double-walled

Note
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

Shrink tubes from ABB (former Thomas & Betts) are available upon request
Photographs are not to scale and do not represent detailed images of the respective products.

NEW

Shrink tube PROTECT-M/PROTECT-T

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
- UV-resistant
- Dielectric strength:
  PROTECT-M: 15 kV/mm
  PROTECT-T: 14 kV/mm

Design
- PROTECT-M = medium wall
- PROTECT-T = thick wall

Included
- Plastic bags with 1.0 m units

Suitable tools
- HG 2320 hot-air pistol refer to page 1052

Technical data

ETIM 5.0 Class-ID: EC000217
ETIM 5.0 Class-Description:
Heat-shrink tubing

Note
Non flame-retardant
Double-walled

Info
Shrinking ratio: 3:1
Good UV-resistance

Material
Cross-linked modified polyolefin, with thermoplastic adhesive coating inside
Halogen-free

Temperature range
-40°C to +120°C
Shrinking temperature: +110°C

Article number	Article description	Shrinkage range (mm)	Panel thickness, shrunk +- 0.1 mm	Pieces / PU	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

Shrink tubes from ABB (former Thomas & Betts) are available upon request
Photographs 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

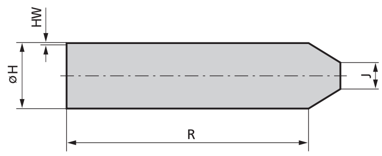
ETIM 5.0 Class-ID: EC000218
ETIM 5.0 Class-Description: Heat-shrink end cap

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	1
61830070	TEC 148/57	148	57	27	80.0 - 133.0	105	3.3	1

1. after shrinking +/- 10%; 2. after shrinking +/- 20%
Photographs 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

ETIM 5.0 Class-ID: EC001170
ETIM 5.0 Class-Description: Straight-through/transition joint (set)

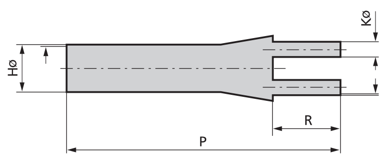
General
UV-resistant

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	TEB2-50/21	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 are not to scale and do not represent detailed images of the respective products.

NEW

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)

Info
- New version with improved functions and lifetime

Technical data

ETIM 5.0 Class-ID: EC001382
ETIM 5.0 Class-Description:
Hot glue 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

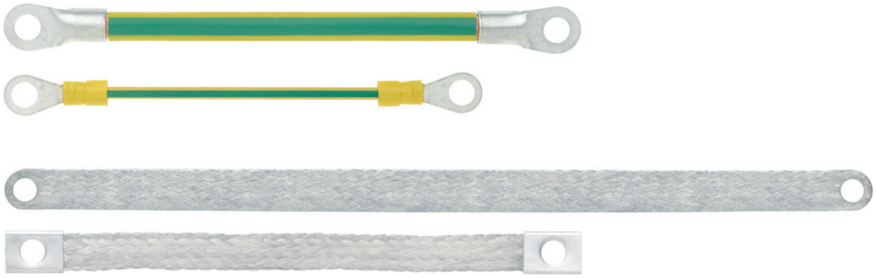
Photographs are not to scale and do not represent detailed images of the respective products.
Guarantee is limited to 500 working hours or 1 year

Accessories
- Shrink tube PROTECT Box refer to page 1046
- Shrink tube PROTECT-C refer to page 1049
- Shrink tube PROTECT-M/PROTECT-T refer to page 1050

Ground Straps / Flat Ground Straps

Info

- New sizes are available



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

ETIM 5.0 Class-ID: EC001182
ETIM 5.0 Class-Description:
Braided hose

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	Cross-section (mm²)	Article designation	For	Length (mm)	PU
Ground straps					
4571120	4	Ground strap 1 x 4/M6/170 mm GN/YE	M6	170	25
4571121	16	Ground straps 1x16/M6/170mm GN/YE	M6	170	25
4571122	25	Ground strap 1x25/M6/170mm GN/YE	M6	170	25
4571123	4	Ground strap 1x4/M8/300mm GN/YE	M8	300	25
4571198	16	Ground strap 1x16/M6/500mm GN/YE	M6	500	25
4571124	16	Ground strap 1x16/M8/300mm GN/YE	M8	300	25
4571125	25	Ground strap 1x25/M8/300mm GN/YE	M8	300	25
Pressure-welded flat ground straps					
4571132	10	Flat ground strap/press. 1X10/M6/200mm	M6	200	25
4571133	16	Flat ground strap/press. 1x16/M8/200mm	M8	200	25
4571134	25	Flat ground strap/terminals 1x25/M8/200mm	M8	200	25
4571135	10	Flat ground strap/press. 1x10/M6/300mm	M6	300	25
70399965	16	Flat ground strap/press. 1X16/M6/200mm	M6	200	25
70399966	16	Flat ground strap/press. 1X16/M6/300mm	M6	300	25
70399967	16	Flat ground strap/press. 1x16/M8/200mm	M8	200	25
4571136	16	Flat ground strap/terminals 1x16/M8/300mm	M8	300	25
4571137	25	Flat ground strap/terminals 1x25/M8/300mm	M8	300	25
70399969	25	Flat ground strap/press. 1X25/M8/500mm	M8	500	25
Flat ground straps with terminals					
4571196	6	Flat Ground Strap/Press. 1x6/M6/200mm	M6	200	25
4571197	6	Flat Ground Strap/Press. 1x6/M6/300mm	M6	300	25
4571126	10	Flat ground straps/terminals 1x10/M6/200mm	M6	200	25
4571127	16	Flat ground strap/terminals 1x16/M8/200mm	M8	200	25
4571128	25	Flat ground strap/terminals 1x25/M8/200mm	M8	200	25
4571129	10	Flat ground strap/terminals 1x10/M6/300mm	M6	300	25
4571130	16	Flat ground strap/terminals 1x16/M8/300mm	M8	300	25
4571131	25	Flat ground strap/terminals 1x25/M8/300mm	M8	300	25

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 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

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

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 / bundle Ø (mm)	PU (m)
KW plastic coil			
61600010	Plastic spiral KW 2	natural / 2 - 7	50
61600015	Plastic spiral KW 2	black / 2 - 7	50
61722850	Plastic spiral KW 2	blue / 2 - 7	50
61722856	Plastic spiral KW 2	yellow / 2 - 7	50
61600040	Plastic spiral KW 5	natural / 5 - 20	30
61600045	Plastic spiral KW 5	black / 5 - 20	25
61722851	Plastic spiral KW 5	blue / 5 - 20	25
61600050	Plastic spiral KW 5	yellow / 5 - 20	25
61600070	Plastic spiral KW 10	natural / 10 - 40	30
61722840	Plastic spiral KW 10	black / 10 - 40	25
61722852	Plastic spiral KW 10	blue / 10 - 40	25
61600080	Plastic spiral KW 10	yellow / 10 - 40	25

Other sizes and colours are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products
- Cable-Eater bunched cable conduit refer to page 1055

Cable-Eater bunched cable conduit


Benefits

- Fast and easy assembly through using the cable insertion tools
- Reduced installation time

Application range

- The main fields of application include the bundling and protection of cables in cable pre-assembly, the electrical industry and switch cabinet and plant construction.

Included

- Suitable insertion tool
- SHR protective cable conduit

Technical data

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

Note
Halogen-free
Flame-retardant according to UL 94 HB

Colour delivered
White
Black

Material
Polypropylene (PP)
LABS-free

Article number	Article description	Colour / bundle Ø (mm)	Inner Ø (mm)	Panel thickness (mm)	Processing tool/ installation tool	PU (m)
Cable-Eater bunched cable conduit						
61830300	SHR-08-PPB	black / 6 - 9	8	0.8	STKP 8	100
61830310	SHR-15-PPB	black / 10 - 16	15	0.8	STKP 15	50
61830320	SHR-20-PPB	black / 17 - 21	20	0.9	STKP 20	30
61830330	SHR-25-PPB	black / 21 - 28	25	1	STKP 25	20
61830302	SHR-08-PPW	white / 6 - 9	8	0.8	STKP 8	100
61830312	SHR-15-PPW	white / 10 - 16	15	0.8	STKP 15	50
61830322	SHR-20-PPW	white / 17 - 21	20	0.9	STKP 20	30
61830332	SHR-25-PPW	white / 21 - 28	25	1	STKP 25	20
61830335	SHR-32-PPB	black / 29 - 32	32	1.3	STKP 32	15
61830333	SHR-32-PPW	white / 29 - 32	32	1.3	STKP 32	15

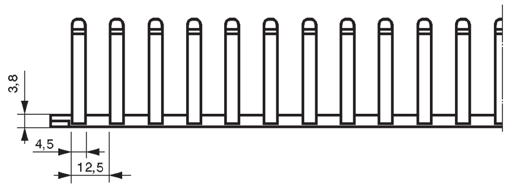
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Spare tool Cable - Eater refer to page 1057

NEW

Flexible wiring duct



Benefits
- Fast and easy assembly through using the cable insertion tools
- Reduced installation time

Application range
- For use in control panels, distribution boards or in areas that are difficult to reach
- Attach the cable trunking: webs turned upwards, connect one cable end and laterally insert the cable up to the requested branch point, connect the opposite cable end

Product features
- Two or more lengths can be joined by snapping the ends together
- Are delivered in 50 cm pieces

Norm references / Approvals
- UL 94 V-2

Note
- Recommended screws: M3 with cheese head DIN85A and washer or M4 with cheese head DIN 85 A and washer

Suitable tools
- Cable Eater tool (STK 20)

Technical data

On request
Version with self-adhesive layer
Square form

Note
Halogen-free

RAL **Colour delivered**
Light grey (RAL 7035)

Material
Polypropylene (PP)

Temperature range
-40°C to +70°C

Article number	Article description	Length (mm)	Height (mm)	Width (mm)	Quantity of pieces	PU (m)
Flexible wiring duct						
61830290	GMF HF-20 GY	23	24	19	60	30
61830291	GMF HF-30 GY	33	35	28	36	18
61830292	GMF HF-40 GY	44	46	37	24	12

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- Spare tool Cable - Eater refer to page 1057

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 895

Technical data

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

Article number	Article description	Pieces / PU
Cable Eater tool		
61830340	STKP 8	1
61830350	STKP 15	1
61830360	STKP 20	1
61830370	STKP 25	1
61830380	STKP 32	1

Photographs 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, solvents containing chlorine
- Good UV-resistance of the black cable tie
- High tensile strengths

Application range

- Multipurpose cable tie for many applications

Product features

- Flame retardancy: UL 94 class V2
- Water absorption: 2.5 % (50 % relative humidity)
- Dielectric strength: 50,000 volts/mm

Norm references / Approvals

- E-File no. upon request

Info

- The standard cable ties for many applications

Technical data

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

Material
Polyamide 6.6
Halogen-free

Temperature range
-40°C to +85°C
Max. temperature: +110°C (short-term)

Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	PU
natural						
61831001	Basic Tie 100x2.5 TR	yes	100.0 x 2,5	2.0 - 24.0	110	1000
61831003	Basic Tie 160x2.5 TR	yes	160.0 x 2,5	2.0 - 42.0	110	1000
61831004	Basic Tie 200x2.5 TR	yes	200.0 x 2,5	2.0 - 55.0	110	1000
61831005	Basic Tie 140x3.5 TR	yes	140.0 x 3,5	3.0 - 36.0	200	1000
61831006	Basic Tie 200x3.5 TR	yes	200.0 x 3,5	3.0 - 55.0	200	1000
61831007	Basic Tie 280x3.5 TR	yes	280.0 x 3,5	3.0 - 80.0	200	100
61831013	Basic Tie 360x3.5 TR	yes	360.0 x 3,5	5.0 - 103.0	200	100
61831009	Basic Tie 160x4.5 nat.	yes	160.0 x 4.5	3.0 - 38.0	280	1000
61831011	Basic Tie 200x4.5 TR	yes	200.0 x 4,5	3.0 - 51.0	280	1000
61831014	Basic Tie 250x4.5 TR	yes	250.0 x 4,5	5.0 - 68.0	280	100
61831016	Basic Tie 360x4.5 TR	yes	360.0 x 4,5	5.0 - 101.0	280	100
61831020	Basic Tie 240x7.5 TR	yes	240.0 x 7,5	5.0 - 62.0	650	100
61831021	Basic Tie 320x7.5 TR	yes	320.0 x 7,5	5.0 - 88.0	650	100
61831022	Basic Tie 360x7.5 TR	yes	360.0 x 7,5	5.0 - 101.0	650	100
61831023	Basic Tie 450x7.5 TR	yes	450.0 x 7,5	20.0 - 130.0	650	100
61831024	Basic Tie 540x7.5 TR	yes	540.0 x 7,5	20.0 - 160.0	650	100
61831025	Basic Tie 750x7.5 TR	yes	750.0 x 7,5	32.0 - 222.0	650	100
61831026	Basic Tie 780x9.0 TR	yes	780.0 x 9.0	20.0 - 235.0	800	100

Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	PU
Black- UV-resistant						
61831041	Basic Tie 100x2.5 BK	yes	100.0 x 2,5	2.0 - 24.0	110	1000
61831043	Basic Tie 160x2.5 BK	yes	160.0 x 2,5	2.0 - 42.0	110	1000
61831044	Basic Tie 200x2.5 BK	yes	200.0 x 2,5	2.0 - 55.0	110	1000
61831045	Basic Tie 140x3.5 BK	yes	140.0 x 3,5	3.0 - 36.0	200	1000
61831046	Basic Tie 200x3.5 BK	yes	200.0 x 3,5	3.0 - 55.0	200	1000
61831047	Basic Tie 280x3.5 BK	yes	280.0 x 3,5	3.0 - 80.0	200	100
61831053	Basic Tie 360x3.5 BK	yes	360.0 x 3,5	5.0 - 103.0	200	100
61831049	Basic Tie 160x4.5 BK	yes	160.0 x 4.5	3.0 - 38.0	280	1000
61831051	Basic Tie 200x4.5 BK	yes	200.0 x 4,5	3.0 - 51.0	280	1000
61831054	Basic Tie 280x4.5 BK	yes	280.0 x 4,5	5.0 - 68.0	280	100
61831056	Basic Tie 360x4.5 BK	yes	360.0 x 4,5	5.0 - 101.0	280	100
61831060	Basic Tie 240x7.5 BK	yes	240.0 x 7,5	5.0 - 62.0	650	100
61831061	Basic Tie 320x7.5 BK	yes	320.0 x 7,5	4.0 - 80.0	650	100
61831062	Basic Tie 360x7,5 BK	yes	360.0 x 7,5	5.0 - 101.0	650	100
61831063	Basic Tie 450x7.5 BK	yes	450.0 x 7,5	20.0 - 130.0	650	100
61831064	Basic Tie 540x7.5 BK	yes	540.0 x 7,5	20.0 - 160.0	650	100
61831065	Basic Tie 750x7.5 BK	yes	750.0 x 7,5	32.0 - 222.0	650	100
61831066	Basic Tie 780x9.0 BK	yes	780.0 x 9.0	20.0 - 235.0	800	100

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- BASIC cable tie pliers refer to page 1068

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 UL 94V-2

Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1067

Technical data

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 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	114.0 x 2.4	25.0	80	1000
61810360	TY125-18	yes	136.0 x 2.4	32.0	80	1000
61810380	TY125-40	yes	142.0 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	305.0 x 4.6	76.0	220	1000
61810430	TY400-50	yes	376.0 x 4.6	102.0	220	1000
61810440	TY200-120	no	219.0 x 7.6	50.0	540	500
61810450	TY400-120	yes	376.0 x 7.6	102.0	540	500
Black- UV-resistant						
61810460	TY100-18x	yes	114.0 x 2.4	25.0	80	1000
61810470	TY125-18x	yes	136.0 x 2.4	32.0	80	1000
61810490	TY125-40x	yes	143.0 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	305.0 x 4.6	76.0	220	1000
61810540	TY400-50x	yes	376.0 x 4.6	102.0	220	1000
61810550	TY200-120x	no	219.0 x 7.6	50.0	540	500
61810560	TY400-120x	no	376.0 x 7.6	102.0	540	500

TY-FAST® is a registered trademark of ABB.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1067

ECOLAB

NEW

Detectable Cable ties

PEW 8.185 crimping pliers

PEW 8.185 crimping pliers

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
- Available as standard polyamide 6.6 or or in buoyant Polypropylene version for liquid-processing applications

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
- Applications with strong chemical influences

Norm references / Approvals

- Flammability class: UL 94 V-2/TY-RAP® polyamide 6.6
- Flammability class: UL 94 HB/ polypropylene and cable ties without steel nose
- 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.

Design

- Without steel nose/ PA 6.6
- With steel nose (brand TY-RAP®) / PA 6.6
- With steel nose (brand TY-RAP®) / polypropylene

Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1067

Technical data

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

Colour delivered
Blue

Material
Polyamide 6.6 or polypropylene
Halogen-free and silicone-free

Temperature range
Cable ties without steel nose:
-40°C up to +65°C
Cable ties with steel nose:
-40°C up to +85°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 100 x 2,5 BU	no	100.0 x 2.5	2.0 - 24.0	100	100
61723361	Cable tie Detect 200 x 4,5 BU	no	200.0 x 4.5	3.0 - 51.0	250	100
61723362	Cable tie Detect 380 x 4,5 BU	no	380.0 x 4.5	5.0 - 110.0	250	100
61723363	Cable tie Detect 360 x 7,5 BU	no	360.0 x 7.5	5.0 - 101.0	600	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
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	50
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	50

TY-RAP® is a registered trademark of ABB.
Photographs are not to scale and do not represent detailed images of the respective products.

Standard cable ties with steel nose

PEW 8.185 crimping pliers

Info

- Convince yourself of the good price/ performance ratio of the new Strong Tie series.

Benefits

- The special design of the cable ties guarantees maximum resistance and safety even in the most extreme applications.
- Steel nose ensures secure and durable binding
- High strength is constant even under harsh conditions: extreme temperature ranges, humidity and extreme cold
- Lock is also resistant to shocks and vibrations

Application range

- Good quality cable ties with steel nose for demanding environments

Product features

- The steel blade is fixed to the tie head and is made from corrosion-resistant, anti-magnetic steel (type 316)
- Strong Tie with higher pull-out forces

Norm references / Approvals

- File numberTY-RAP®: E49405, see table
- Fire behaviour according to UL 94V-2

Included

- Strong Tie and TY-X: Packed in a recyclable plastic bag
- Items provided with the add-in “B” (e.g. TY**B** 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 1067

Technical data

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

Colour delivered
Natural colour

Material
Polyamide 6.6
Halogen-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
Cable ties with steel nose- type Strong Tie						
61715011	Strong Tie 100 x 2,5 NA	no	100.0 x 2.5	2.0 - 24.0	180	1000
61715017	Strong Tie 200 x 2,5 NA	no	200.0 x 2.5	2.0 - 55.0	180	1000
61715012	Strong Tie 140 x 3,5 NA	no	140.0 x 3.5	3.0 - 36.0	280	1000
61715018	Strong Tie 200 x 3,5 NA	no	200.0 x 3.5	3.0 - 55.0	280	1000
61715014	Strong Tie 280 x 3,5 NA	no	280.0 x 3.5	3.0 - 80.0	280	1000
61715019	Strong Tie 360 x 3,5 NA	no	360.0 x 3.5	3.0 - 101.0	280	1000
61715013	Strong Tie 186 x 4,5 NA	no	186.0 x 4.5	3.0 - 51.0	400	1000
61715020	Strong Tie 290 x 4,5 NA	no	290.0 x 4.5	3.0 - 80.0	400	1000
61715016	Strong Tie 360 x 4,5 NA	no	360.0 x 4.5	3.0 - 103.0	400	1000
61715015	Strong Tie 340 x 7,0 NA	no	340.0 x 7.0	6.0 - 90.0	700	500
61715021	Strong Tie 220 x 7,5 NA	no	220.0 x 7.5	6.0 - 56.0	800	500
Cable ties with steel nose- type TY-RAP®						
61715000	TYB* 23 M	no	92.0 x 2.4	2.0 - 16.0	80	1000
61716250	TY 232 M	yes	203.0 x 2.4	2.0 - 50.0	80	1000
61716310	TY 234 M	yes	356.0 x 2.4	2.0 - 102.0	80	1000
61715060	TYB* 24 M	no	140.0 x 3.6	2.0 - 29.0	180	1000
61716370	TY 242 M	yes	204.0 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	no	186.0 x 4.8	3.5 - 45.0	220	1000
61716490	TY 253 M	yes	295.0 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 7.6	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

B = box, otherwise plastic bag
TY-RAP® is a registered trademark of ABB.
TY-RAP® Standard in other colours are available upon request (see description).
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1067

NEW

UV-stabilised cable ties with steel nose

PEW 8.185 crimping pliers

PEW 8.185 crimping pliers

Benefits
- Weather-resistant for harsh environmental conditions
- Contain 2 % Carbon to meet military specifications
- Steel nose ensures secure and durable binding
- High strength is constant even under harsh conditions: extreme temperature ranges, humidity and extreme cold
- Lock is also resistant to shocks and vibrations

Application range
- Used for outdoor installation and maintenance of power plants

Product features
- Strong Tie with higher pull-out forces

Norm references / Approvals
- File numberTY-RAP®: E49405, see table
- Fire behaviour according to UL 94V-2

Included
- Strong Tie and TY-X: Packed in a recyclable plastic bag

Info
- Convince yourself of the good price/performance ratio of the new Strong Tie series.

Technical data

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

Colour delivered
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
Cable ties with steel nose- type Strong Tie						
61723001	Strong Tie UV 100x2,5 BK	no	100.0 x 2.5	2.0 - 24.0	180	1000
61723007	Strong Tie UV 200 x 2,5 BK	no	200.0 x 2.5	3.0 - 55.0	180	1000
61723002	Strong Tie UV 140 x 3,5 BK	no	140.0 x 3.5	3.0 - 36.0	280	1000
61723008	Strong Tie UV 200 x 3,5 BK	no	200.0 x 3.5	3.0 - 55.0	280	1000
61723004	Strong Tie UV 280 x 3,5 BK	no	280.0 x 3.5	3.0 - 80.0	280	1000
61723009	Strong Tie UV 360 x 3,5 BK	no	360.0 x 3.5	3.0 - 101.0	280	1000
61723003	Strong Tie UV 186 x 4,5 BK	no	186.0 x 4.5	3.0 - 51.0	400	1000
61723011	Strong Tie UV 290 x 4,5 BK	no	290.0 x 4.5	3.0 - 80.0	400	1000
61723006	Strong Tie UV 360 x 4,5 BK	no	360.0 x 4.5	3.0 - 103.0	400	1000
61723005	Strong Tie UV 340 x 7,0 BK	no	340.0 x 7.0	6.0 - 90.0	700	500
61723012	Strong Tie UV 220 x 7,5 BK	no	220.0 x 7.5	6.0 - 57.0	800	500
Cable ties with steel nose- type TY-RAP®						
61723010	TYB* 23 MX	no	92.0 x 2.4	2.0 - 16.0	80	1000
61723110	TY 232 MX	no	200.0 x 2.4	2.0 - 50.0	80	1000
61723120	TY 234 MX	no	356.0 x 2.4	2.0 - 102.0	80	1000
61723020	TYB* 24 MX	no	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	281.0 x 3.6	2.0 - 76.0	180	1000
61723140	TY 244 MX	no	368.0 x 3.6	2.0 - 103.0	180	1000
61723030	TYB* 25 MX	no	186.0 x 4.8	3.5 - 45.0	220	1000
61723150	TY 253 MX	no	293.0 x 4.8	3.5 - 78.0	220	1000
61723060	TY 28 MX	yes	360.0 x 4.8	3.5 - 102.0	220	1000
61723160	TY 272 MX	no	223.0 x 7.6	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	no	762.0 x 7.6	6.0 - 229.0	540	500

TY-RAP® is a registered trademark of ABB.
Photographs are not to scale and do not represent detailed images of the respective products.

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 UL 94V-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 1067

Technical data
ETIM 5.0 Class-ID: EC000046
ETIM 5.0 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						
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	no	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	no	761.0 x 6.9	6.0 - 229.0	530	500

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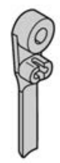
Cable tie with steel nose for srewing on



TY 33 M

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 UL 94V-2

Design
- Also deliverable in black and UV-resistant

Technical data
ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

Colour delivered
Natural colour

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40°C to +85°C

Suitable tools
- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1067

Article number	Article description	UL certification	Hole Ø (mm)	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
TY-RAP® for screwing 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 4.8	3.5 - 45.0	220	1000
61715540	TY 35 M	yes	4.8	198.0 x 4.7	3.5 - 45.0	220	1000
61720070	TY 1435 M	yes	6.3	198.0 x 4.8	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.
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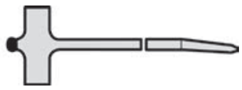
Cable ties with steel nose with labelling area

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 UL 94V-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

Included

- TY-X: Packed in a recyclable plastic bag

Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to page 1067

Technical data

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Similar products

- KMK Label holders refer to page 989

Accessories

- MS Marker pens refer to page 961

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

Norm references / Approvals
- Fire behaviour according to UL 94 HB

Technical data
Colour delivered
Black- UV-resistant
Red- RAL 3000

Material
Polyethylene

Temperature range
-40 °C to +85 °C

Article number	Article description	UL certification	Length x width (mm)	Bundling Ø (mm)	Pieces / PU
Red					
61710040	Quick Tie 120 x 3,5 RD	no	118.0 x 3.4	3.0 - 26.0	100
61710041	Quick Tie 240 x 3,8 RD	no	238.0 x 4.0	4.0 - 61.0	100
61710042	Quick Tie 320 x 4,4 RD	no	318.0 x 4.4	5.0 - 83.0	100
61710043	Quick Tie 650 x 5,6 RD	no	643.0 x 5.5	80.0 - 180.0	100
Black					
61721101	Quick Tie 120 x 3,5 BK	no	118.0 x 3.4	3.0 - 26.0	100
61721102	Quick Tie 240 x 3,8 BK	no	238.0 x 4.0	4.0 - 61.0	100
61721103	Quick Tie 320 x 4,4 BK	no	318.0 x 4.4	5.0 - 83.0	100
61721104	Quick Tie 650 x 5,6 BK	no	643.0 x 5.5	80.0 - 180.0	100

Photographs are not to scale and do not represent detailed images of the respective products.

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
ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

Colour delivered
Black

Material
Polyamide
Halogen-free and silicone-free

Temperature range
-20°C to +93°C (FO)/ 104°C (FOL)

Article number	Article description	UL certification	Length x width (mm)	Pieces / PU
FO with loop:Slitted head makes quick and easy fastening possible				
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: Strap made of high-quality polymer provides additional stability and safety				
61823740	FOL 300-50-0	no	304.0 x 19.0	10
61823750	FOL 500-50-0	no	457.0 x 19.0	10

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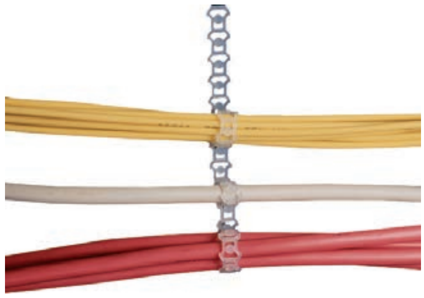
Mille-Tie™ cable ties

Info

- Environmentally friendly



Benefits

- Could be reused again
- Adjusts and controls the tension automatically by means of a self-regulating mechanism
- Fast assembly as binder can be mounted in any direction
- No sharp edges, avoids injuries
- No cable damage and crushing due to the elasticity of the tie

Application range

- For high-quality and complex cable management systems
- For bundling of sensitive cables as fiber optic cables and network cables

Design

- One size for all applications

Technical data

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

Material
TPE

Temperature range
-20°C to +80°C

Article number	Article description	Colour	UL certification	Length (mm)	Pieces / PU
Mille-Tie™ cable ties					
61710200	MT-00	black	no	305	100
61710201	MT-01	red	no	305	100
61710202	MT-02	blue	no	305	100
61710203	MT-03	yellow	no	305	100
61710204	MT-04	green	no	305	100
61710205	MT-05	natural	no	305	100
61710206	MT-06	grey	no	305	100

Photographs are not to scale and do not represent detailed images of the respective products.

LS steel cable ties

Info

- LS 4,6-100 contained in FLEXIMARK® sample bag (article number M3251010)

Benefits

- Acid-resistant
- Minimum space required due to the flat binder heads
- Cable ties are self-locking, time-consuming folding and crimping is not longer required
- Steel ball at the end of the tie makes it easy to thread it in
- If pulled in the opposite direction to re-open or loosen the tie, the ball is locked at the end of the tie and re-opening is impossible

Application range

- Outdoor applications and usage under extreme conditions, e.g. high corrosion risk
- For fixing NM FLEXIMARK® stainless steel labelling character holders (width: 7,9 mm)
- Could be used in any industry with a demanding environment (e.g. oil & gas, railways)

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 1068

Technical data

ETIM 5.0 Class-ID: EC000046
ETIM 5.0 Class-Description: Cable tie

General
Maxiumum tensile strength:
4,6 mm= 445 N
7,9 mm= 1112 N

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 4.6 - 100	100.0 x 4.6	21.0	45.3	100
61812948	LS 4.6 - 125	125.0 x 4.6	32.0	45.3	100
61812949	LS 4.6 - 150	150.0 x 4.6	40.0	45.3	100
61812950	LS 4.6 - 200	200.0 x 4.6	51.0	45.3	100
61812960	LS 4.6 - 360	360.0 x 4.6	102.0	45.3	100
61812970	LS 4.6 - 520	520.0 x 4.6	152.0	45.3	100
61812980	LS 4.6 - 680	680.0 x 4.6	203.0	45.3	100
61812990	LS 4.6 - 840	840.0 x 4.6	254.0	45.3	100
61813000	LS 7.9 - 200	200.0 x 7.9	51.0	113.3	100
61813010	LS 7.9 - 360	360.0 x 7.9	102.0	113.3	100
61813020	LS 7.9 - 520	520.0 x 7.9	152.0	113.3	100
61813030	LS 7.9 - 680	680.0 x 7.9	203.0	113.3	100
61813040	LS 7.9 - 840	840.0 x 7.9	254.0	113.3	100
61813050	LS 7.9 - 1010	1,016.0 x 7.9	305.0	113.3	100
With polyester coating					
61813085	LSC 4,6-100	100.0 x 4.6	21.0	45.3	100
61813086	LSC 4,6-125	125.0 x 4.6	32.0	45.3	100
61813088	LSC 4,6-200	200.0 x 4.6	51.0	45.3	100
61813089	LSC 4,6-360	360.0 x 4.6	102.0	45.3	100
61813093	LSC 7,9-200	200.0 x 7.9	51.0	113.3	100
61813094	LSC 7,9-360	360.0 x 7.9	102.0	113.3	100
61813096	LSC 7,9-520	520.0 x 4.6	152.0	113.3	100

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- FLEXIMARK® Stainless steel marking FCC refer to page 944
- FLEXIMARK® Stainless steel kit refer to page 956
- STEEL GUN HT-338 cable tie pliers refer to page 1068

TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers

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- reordering with article no. 62120121 or 62120126)
- Lightweight
- Nose made of stainless steel guarantees a longer lifetime of the tool

Note

- ERG 50 available as pneumatic version on request

Design

- Interchangeable head for the other cable tie width is available as a component

Technical data

ETIM 5.0 Class-ID: EC000453
ETIM 5.0 Class-Description:
Cable tie tool

Caution
Tension is manually adjustable

Note
Length x width x height:
178x127x38 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
Mounting pistol TY-GUN ERG 50					
62120120	Mounting pistol TY-GUN ERG 50	Plastic	2.4 - 4.8	0.26	1
TY-GUN ERG 120					
62120125	Mounting pistol 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 are not to scale and do not represent detailed images of the respective products.

Accessories

- Detectable Cable ties refer to page 1059

BASIC cable tie pliers

Benefits
- The tightening force can be adapted gradually
- Low-cost starter product

Application range
- Cable tie gun for plastic cable ties
- For tightening and cutting cable ties

Technical data
ETIM 5.0 Class-ID: EC000453
ETIM 5.0 Class-Description:
Cable tie tool

Article number	Article description	For cable ties	Cable tie width (mm)	D x V mm	Weight (kg)	PU
BASIC cable tie pliers						
62120321	BASIC - cable tie pliers	Plastic	2.2 - 4.8	160 x 130	0.31	1

Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- Detectable Cable ties refer to page 1059
- TY - FAST® cable ties refer to page 1058

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
- Further spare parts are available
- Use the adjusting screw to receive a clean cut - the right tension is depending on the type of cable used

Technical data
ETIM 5.0 Class-ID: EC001288
ETIM 5.0 Class-Description:
Labelling material

Article number	Article description	For cable ties	Max. cable tie width (mm)	D x V mm	Weight (kg)	Pieces / PU
FLEXIMARK® STEEL-GUN HT 338 Kabelbinderzange						
83250022	FLEXIMARK® HT-338	Stainless steel	7.9	178 x 140	0.56	1
83250023	FLEXIMARK® Spare Part HT-338				0.018	1

Photographs are not to scale and do not represent detailed images of the respective products.

Plug socket

Benefits
- The plug-in socket has an opening for cable-tie width ups to 4,5 mm, and is due to the flat plug nose flexible for diverse applications

Application range
- Push button mounts for cable ties
- The buttom is positioned for pressfitting in the panel for suitable thickness following drilling. The tie is inserted in the slot of the buttom body.
- The quick and safe mounting method makes these plug-in sockets ideal for applications in control cabinet manufacture, household appliances, motor vehicles and office equipment

Technical data

Material
Polyamide 6.6

Temperature range
-40°C to +80°C

Note
- Recommended minimum working temperature due to the adhesive layer: +10°C

Design
- For cable ties: 2.8 / 4.8 mm

Article number	Article description	Colour	For wall thickness up to (mm)	Diameter (mm)	Tie width (mm)	Weight (g/100 pieces)	Pieces / PU
Plug socket							
61724001	Plug socket 10 x 66 NA	natural	3.2	6.4 (M6)	4.5	25.2	100
61724002	Plug socket 10 x 66 BK	black	3.2	6.4 (M6)	4.5	25.2	100

Photographs are not to scale and do not represent detailed images of the respective products.

Tie socket self-adhesive

Benefits
- Bi-directional nylon square bases with dual-adhesive
- Option for cross-mounting / double-mounting on the crossover points of the cable harness
- Self-adhesive
- Easy to handle
- Lower space requirement

Application range
- Fastening elements for cable ties
- The cable ties are slotted through the eyelets for fixing cables or other items to the wall.
- Areas of application: Wiring of switch cabinets, motor vehicles and office machines, etc.

Product features
- Minimum adhesive application time: 10 sec, recommended adhesive curing time: 24 h

Norm references / Approvals
- Self-extinguishing in accordance with UL 94 V-2 (without adhesive tape)

Note
- Walls must be smooth and grease-free.

Technical data

On request
Further types and sizes of sockets of ABB available upon request.

RAL **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	For wall thickness up to (mm)	Diameter (mm)	Tie width (mm)	Length x width (mm)	Weight (g/100 pieces)	Pieces / PU
Tie socket self-adhesive								
61718612	Adhesive socket 19 x 19 NA	natural	4.7	4.8	4	19.0 x 19.0	52	100
61718611	Adhesive socket 19 x 19 BK	black	4.7	4.8	4	19.0 x 19.0	52	100
61718614	Adhesive socket 27 x 27 NA	natural	4.7	4.8	4.5	27.0 x 27.0	136	100
61718613	Adhesive socket 27 x 27 BK	black	4.7	4.8	4.5	27.0 x 27.0	136	100

Photographs are not to scale and do not represent detailed images of the respective products.

Mounting socket with saddle

mm	A	B	C	D
TC 140	7,0	8,7	14,2	3,6
TC 141	8,2	11,1	17,0	4,0
TC 142	11,0	14,2	23,4	5,2

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

ETIM 5.0 Class-ID: EC000449
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Tie small socket

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

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

ETIM 5.0 Class-ID: EC000449
ETIM 5.0 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

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	250

This is a product of the company ABB/Thomas & Betts.
Photographs 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

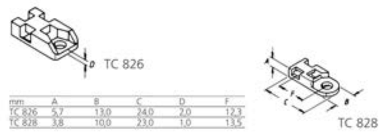
Technical data

ETIM 5.0 Class-ID: EC000449
ETIM 5.0 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



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 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

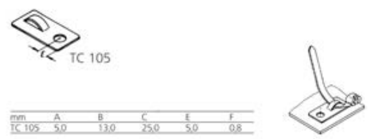
Included
- Delivered without screws

Technical data

ETIM 5.0 Class-ID: EC000449
ETIM 5.0 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.
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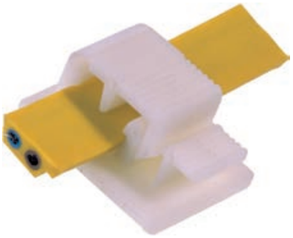
AS-I clip clamp / AS-I end sealing



Benefits

- AS-i clip clamp: Conical shape of the receptacle in the socket ensures that the cable is firmly secured, releasable closure
- AS-I end seal:
  - Easy to assemble
  - Can be used on both sides
  - Compact dimensions save space
  - Cost-effective method of sealing AS-Interface cables
- The high-grade acrylate adhesive allows quick mounting and the socket can be immediately stressed, can also be secured using a screw

Application range

- Fastening elements for cables and conductors
- For use with UNITRONIC® AS-Interface bus cables

Product features

- LABS-free

Suitable cables

- UNITRONIC® BUS ASI Page 325

Technical data

ETIM 5.0 Class-ID: EC001604
ETIM 5.0 Class-Description: Fieldbus, decentr. periphery - communication module

Note
Adhesive: acrylic with lining made of PUR foam

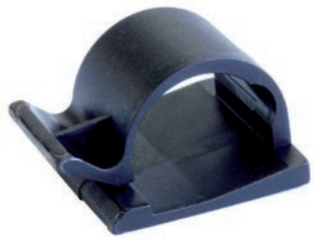
Material
AS-i clip clamp: Polyamid 6.6 - halogen-free
AS-I end seal: TPE (colour: black)

Temperature range
AS-i clip clamp: -40 °C to +80 °C
AS-I end seal: -40 °C to +110 °C

Article number	Article description	Colour	Diameter (mm)	Length x width (mm)	Adhesive tape thickness (mm)	Height (mm)	Pieces / PU
AS-I clip clamp							
61825000	AS-I clip clamp	white	3.3	25.0 x 20.0	0.8	11.70	500
AS-I end sealing							
22260047	AB-ASI-PC-BK	black		20.0 x 4.7		11.00	100

Photographs 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
- Easy to handle
- Self-adhesive

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 15 mm

Norm references / Approvals

- Self-extinguishing in accordance with UL 94 V-2 (without adhesive tape)

Technical data

ETIM 5.0 Class-ID: EC000127
ETIM 5.0 Class-Description: Fixing clip

General
Self-adhesive on many surfaces

On request
Upon request: Black colour

Colour delivered
Natural colour

Material
Polyamide 6.6
Halogen-free

Temperature range
-40°C to +80°C

Article number	Article description	Max. bundle Ø (mm)	Socket area x height (mm)	Pieces / PU
CC cord clips				
61723810	CC 5	5	19 / 19 x 10	100
61723820	CC 11	10	26 / 26 x 13	100
61723840	CC 21	15	26 / 26 x 17	100

Photographs are not to scale and do not represent detailed images of the respective products.

Cable trolly system for round and flat cables

Info

- Our configuration tool on our homepage (Knowledge center-cable accessories) supports you in choosing the correct cable trolley system
- 3D drawings available

Benefits

- The guiding rollers have ball bearings and guarantee easy, smooth running in the C-profile rails.
- The cables in the clamping devices are clamped gently, and an appropriately shaped pressing piece prevents sharp bends at the clamping point.

Application range

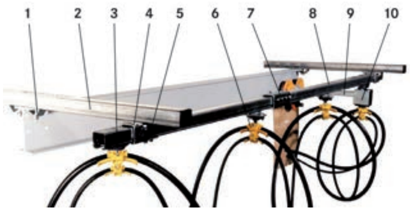
- Crane and conveying machinery
- For hoisting equipment and conveyor systems
- Mechanical engineering
- Nut suitable for applications for Ex-Areas

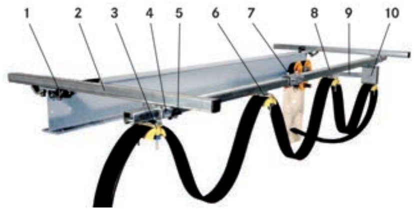
Product features

- Certain components (such as the cable trailer) made of galvanised steel
- Dustproof ball bearing (wheels)
- Cable clamp and protection plate made of polyamide

Product Make-up

- Complete system consisting of the following components:
- 1. Clamps (steel girder)
  2. Extension arm
  3. End clamp
  4. Rail bracket
  5. Stopper





6. Cable trailer
7. Track coupler
8. C-profile rail
9. Towing arm
10. Towing trolley

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 delivery length of the C-profile rail is 6 m.
- The rail opening is 11 mm
- 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, flat cables up to a width of 54 mm, round cables up to an outer diameter of 36 mm

Technical data

ETIM 5.0 Class-ID: EC000896
ETIM 5.0 Class-Description: Ceiling bracket for cable support system

General
Max. cable load: 20 kg

On request
Further systems (e.g. stainless steel version, C40 system or steel wire system) are available upon request

Temperature range
-40°C to +160°C

Article number	Article designation	Pieces / PU
Cable trailer system for flat cables		
62200420	Towing trolley, flat	1
62200421	Cable trailer, flat	1
62200422	End clamp, flat	1
Cable trailer system for round cables		
62200434	Cable trailer, round	1
62200435	Towing trolley, round	1
62200436	End clamp, round	1
62200437	Cable clamp, round, 1-16 mm	1
62200438	Cable clamp for cable 17-25 mm	1
62200439	Cable clamp, round, 26-36 mm	1
Components for both systems		
62200423	Rail bracket, vertical	1
62200425	Stopper	1
62200424	Track coupler	1
62200427	Rail bracket with flexible fastening	1
62200428	Rail bracket for ceiling mounting	1
62200429	Rail bracket for wall mounting	1
62200460	Wall bracket 11-725	1
62200430	Towing arm, 400 mm	1
62200431	Towing arm, 630 mm	1
62200432	Extension arm, 800 mm	1
62200433	Steel girder clamp	1
Fastening options:		
62200426	Rail curve: 90°	1
62200440	C-profile rail, 6 m	1

CIBES® is a registered trade mark of INOMEC AB
The complete system is also availabel in stainless steel.
Photographs are not to scale and do not represent detailed images of the respective products.

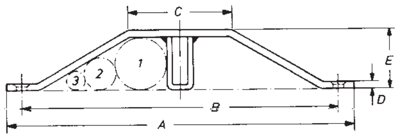
Similar products

- SILVYN® CHAIN cable protection and guiding systems

Accessories

- SKINDICHT® SVFK

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

ETIM 5.0 Class-ID: EC000047
ETIM 5.0 Class-Description: Cable tray/wide span cable tray

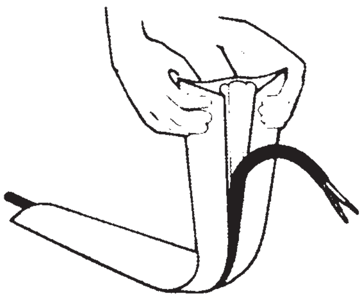
Note
Max. loading capacity: 7 t

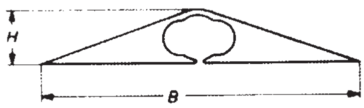
Material
Steel, galvanized
Fireproof

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 are not to scale and do not represent detailed images of the respective products.

STY plastic cable tunnel





Technical data

ETIM 5.0 Class-ID: EC000047
ETIM 5.0 Class-Description: Cable tray/wide span cable tray

Colour delivered
Grey

Material
PVC

Benefits

- High flexibility of the material enables easy installation of cables
- Cutting to size is possible up to 10 m
- ROHS compliant

Application range

- Reliable anti-tripping guard used to cover cables that are laid on the ground

Product Make-up

- STY5: (W)idth = 48 mm, (H)eight = 8 mm
- STY9: (W)idth = 69 mm, (H)eight = 12 mm
- STY12: (W)idth = 87 mm, (H)eight = 15 mm

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 are not to scale and do not represent detailed images of the respective products.

RKK 01-06 round cable wedge clamps

Benefits
- The wedged clamps hold the cable without damaging it and without restricting the necessary movement of the cable.
- Other cable combinations are possible

Application range
- The wedged clamps can be used to secure round control cables.

Product Make-up
- Round cable wedged clamps

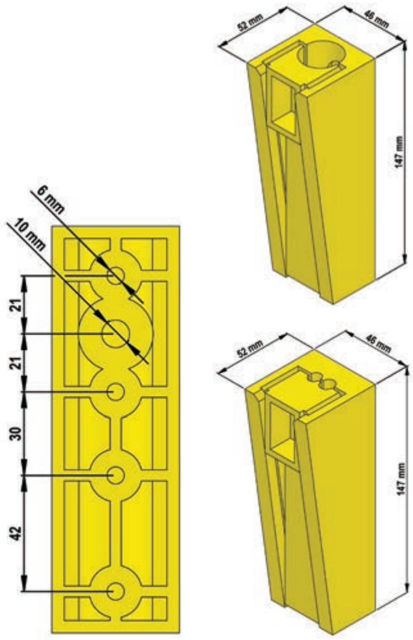
Technical data

ETIM 5.0 Class-ID: EC000536
ETIM 5.0 Class-Description: Cable bracket

Note
Clamping force: 343N

Material
Polyamide 6.6

Temperature range
-20°C to +50°C



Accessories
- Installation sheets MP 11/13/12/14/18/28/21/22

Article number	Article designation	Number of cables	For cable outer Ø (mm)	Weight (g)	Pieces / PU
RKK 01-06 round cable wedge clamps					
52026020	RKK 01	2	8.0-11.0 and 7.0-10.0	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	150	1
52026022	RKK 06	1	11.5-14.0	190	1

Photographs are not to scale and do not represent detailed images of the respective products.

FKK 08 Flat cable wedge clamp, small

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
- Flat cable wedge clamps are suitable for securing flat control cables.

Product Make-up
- Maximum cable thickness: 10 mm
- The small wedge-shaped cable clamp can hold up to two flat cables.

Suitable cables
- ÖLFLEX® LIFT F Page 172

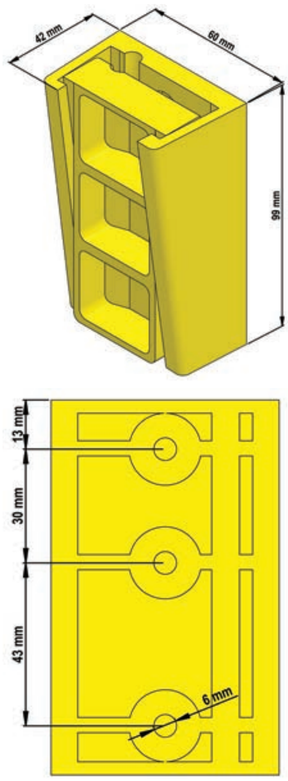
Technical data

ETIM 5.0 Class-ID: EC002407
ETIM 5.0 Class-Description: Accessories for installation rail current/data cable

Info
Clamping force: at overall cable thickness 2-10 mm = 600-800 N
Minimum insert depth for wedge: 60 % = 60 mm

Material
Polyamide 6.6 - halogen-free

Temperature range
Operating temperature: -20°C to +50°C

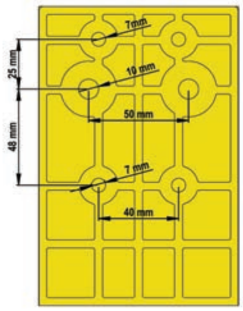


Accessories
- Installation sheets MP 11/13/12/14/18/28/21/22

Article number	Article designation	Number of cables	Max. total cable length (mm)	Weight (g)	Pieces / PU
FKK 08 Flat cable wedge clamp, small					
52026051	FKK 08	1-2	50 x 10	105	1

Photographs are not to scale and do not represent detailed images of the respective products.

FKK 07 cable wedge clamp, large



Application range
- Flat cable wedge clamps are suitable for securing flat control cables.

Product Make-up
- Maximum cable thickness: 17 mm
- The large wedge-shaped cable clamp can hold up to three flat cables.

Suitable cables
- ÖLFLEX® LIFT F Page 172

Technical data

ETIM 5.0 Class-ID: EC002407
ETIM 5.0 Class-Description: Accessories for installation rail current/data cable

Info
Clamping force: at overall cable thickness 2-9 mm and 16-17 mm = 800 N
Minimum insert depth for wedge: 60 % = 90 mm

Material
Polyamide 6.6 - halogen-free

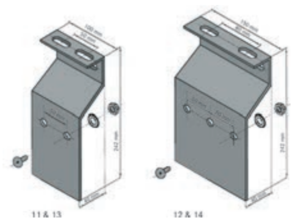
Temperature range
Operating temperature: -20°C to +50°C

Accessories
- Installation sheets MP 11/13/12/14/18/28/21/22

Article number	Article designation	Number of cables	Max. total cable length (mm)	Weight (g)	Pieces / PU
FKK 07 cable wedge clamp, large					
52026050	FKK 07	1-3	90x17	345	1

Photographs are not to scale and do not represent detailed images of the respective products.

MP 11/13/12/14 installation sheets



Application range
- Installation sheets
- Installation sheet for all-round and large flat cable wedges (primed)

Included
- 2 or 3 hexagonal nuts
- 2 or 3 countersunk screws
- 2 or 3 serrated lock washers
- 1 mounting plate

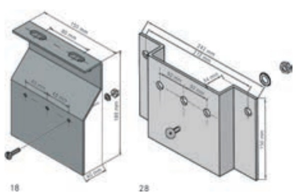
Technical data

ETIM 5.0 Class-ID: EC002407
ETIM 5.0 Class-Description: Accessories for installation rail current/data cable

Article number	Article designation	Number of terminals and types	Pieces / PU
MP 11/13/12/14 installation sheets			
52026031	MP 11	1-2 RKK (01-06)	1
52026032	MP 13	1-2 RKK (01-06) or 1 FKK (07)	1
52026033	MP 12	1-3 RKK (01-06)	1
52026034	MP 14	1-3 RKK (01-06) or 1 FKK (07) and 1 RKK (01-06)	1

RKK = round cable wedge clamp; FKK = flat cable wedge clamp
Photographs are not to scale and do not represent detailed images of the respective products.

MP 18/28 installation sheets



Application range
- Installation sheets
- Installation sheet for small flat cable wedges (zinc-plated)

Included
- 2 or 3 hexagonal nuts
- 2 or 3 countersunk screws
- 2 or 3 serrated lock washers
- 1 mounting plate

Technical data

ETIM 5.0 Class-ID: EC002407
ETIM 5.0 Class-Description: Accessories for installation rail current/data cable

Article number	Article designation	Number of terminals and types	Pieces / PU
MP 18/28 installation sheets			
52026060	MP 18	1-2 FKK (08)	1
52026061	MP 28	1-2 FKK (08)	1

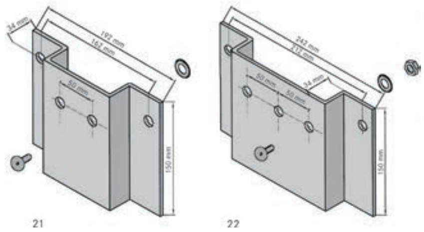
FKK = flat cable wedge clamp
Photographs are not to scale and do not represent detailed images of the respective products.

MP 21/22 installation sheets

Application range
- Installation sheets
- Installation sheet for all-round and large flat cable wedges (zinc-plated)

Included
- 2 or 3 hexagonal nuts
- 2 or 3 serrated lock washers
- 2 or 3 countersunk screws
- 1 mounting plate

Technical data
ETIM 5.0 Class-ID: EC002407
ETIM 5.0 Class-Description: Accessories for installation rail current/data cable



Article number	Article designation	Number of terminals and types	Pieces / PU
MP 21/22 installation sheets			
52026062	MKK 21	1 FKK (07) or 2 RKK (01-06)	1
52026063	MKK 22	1 FKK (07) + 1 RKK (01-06) or 3 RKK (01-06)	1

RKK = round cable wedge clamp; FKK = flat cable wedge clamp
Photographs are not to scale and do not represent detailed images of the respective products.

EKK single clamp / DKK double clamp


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 5.0 Class-ID: EC000127
ETIM 5.0 Class-Description: Fixing clip

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	1.9	1
52026012	DKK 26	19-26	125 x 85 x 120	1.9	1

Photographs 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

ETIM 5.0 Class-ID: EC002132
ETIM 5.0 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 are not to scale and do not represent detailed images of the respective products.

Appendix

Selection tables

Technical tables

Usage criteria	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
Page	26	28	29	30	31	32	33	34	37	38	39	40	41	42	43	44	46	47	48	49	50	51	52	53	54	56	58	60	62
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

LAPP GROUP

Flexible connecting and control cables

Cable designation (fixed installation and/or occasional flexing)

Usage criteria	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 0,6/1KV	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® 491 P	ÖLFLEX® 450 P	ÖLFLEX® 500 P	ÖLFLEX® 540 P	ÖLFLEX® 540 CP	ÖLFLEX® 550 P*	H05RR-F***	H05RN-F***	H07RNF***	H07RNF, enhanced version
Page	63	64	65	66	67	69	70	71	72	73	74	75	77 78	79	80	81 82	83	84	85	86	87	88	89	90	91	92
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)	H07ZZ-F***	NSSHÖU	H07RN8-F***	ÖLFLEX® SERVO 700	ÖLFLEX® SERVO 720 CY	ÖLFLEX® SERVO 2YSLCY-JB	ÖLFLEX® SERVO 719 CY	ÖLFLEX® SERVO 7DSL	SERVO cable acc. to SIEMENS® standard 6FX 5008	ÖLFLEX® SERVO 9YSLCY-JB	SERVO cable acc. to SEW® standard	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
Page	94	96	99	100	101	102	103	105	106	104	107	117	154	154	162	163	164	165	167	168	169
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

Cables for use in power chains or robot applications

Usage criteria	ÖLFLEX® SERVO FD 781 CY (p. 108)	ÖLFLEX® SERVO FD 796 P (p. 109)	ÖLFLEX® SERVO FD 796 CP (p. 110)	ÖLFLEX® SERVO FD 798 CP (p. 112)	ÖLFLEX® SERVO FD 7DSL (p. 113)	SERVO cable acc. to SIEMENS® standard 6FX 8PLUS- green or orange (p. 114)	SERVO cable acc. to INDRAMAT® standard INK (p. 116)	SERVO cable acc. to LENZE® standard (p. 117)	Special Encoder & Resolver cables (p. 118)	ÖLFLEX® CHAIN 808 P (p. 129)	ÖLFLEX® CHAIN 808 CP (p. 130)	ÖLFLEX® CLASSIC FD 810 (p. 119)	ÖLFLEX® CLASSIC FD 810 CY (p. 120)	ÖLFLEX® CLASSIC FD 810 P (p. 131)	ÖLFLEX® CLASSIC FD 810 CP (p. 132)	ÖLFLEX® ROBUST FD (p. 133)	ÖLFLEX® ROBUST FD C (p. 134)	ÖLFLEX® PETRO FD 865 CP (p. 137)	ÖLFLEX® FD 855 P (p. 135)	ÖLFLEX® FD 855 CP (p. 136)	ÖLFLEX® CHAIN 809 SC (p. 121)	ÖLFLEX® CHAIN 809 SC CY (p. 122)	ÖLFLEX® FD 90 (p. 123)	ÖLFLEX® FD 90 CY (p. 124)	ÖLFLEX® CHAIN 809 (p. 125)	ÖLFLEX® CHAIN 809 CY (p. 126)	ÖLFLEX® FD 891 (p. 127)	ÖLFLEX® FD 891 CY (p. 128)	ÖLFLEX® FD 891 P (p. 138)	ÖLFLEX® CHAIN 896 P (p. 139)
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 (for continuous flexing)																														
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

Usage criteria / Page	140 ÖLFLEX® ROBOT 900 P	141 ÖLFLEX® ROBOT 900 DP	142 ÖLFLEX® ROBOT F1	162 ÖLFLEX® CRANE NSHTÖU	164 ÖLFLEX® CRANE PUR	305 UNITRONIC® FD	306 UNITRONIC® FD CY	307 UNITRONIC® FD P plus	308 UNITRONIC® FD CP plus	309 UNITRONIC® FD CP (TP) plus	326 UNITRONIC® BUS ASI FD (TPE) A	326 UNITRONIC® BUS ASI FD P FRNC	374 UNITRONIC® BUS IBS FD P	324 UNITRONIC® BUS LD FD P	339 UNITRONIC® BUS PB FD P A	358 UNITRONIC® BUS DN FD P	377 UNITRONIC® SENSOR FD	322 KOAXIAL-KABEL RGB	415 ETHERLINE® Cat.5 FD + BK	417 ETHERLINE® EC FD Cat.5e	420 ETHERLINE® PN Cat.5 FD	427 ETHERLINE® Cat.6 FD	430 ETHERLINE® FD Cat.6$_A$	431 ETHERLINE® TORSION Cat.6$_A$ Y	421 ETHERLINE® TORSION Cat.5	431 ETHERLINE® TORSION Cat.6$_A$ P	430 ETHERLINE® FD Cat.6$_A$ P	489 491 HITRONIC® POF SIMPLEX/DUPLEX FD PE-PUR	492 HITRONIC® POF DUPLEX FD PNC PA-PUR	502 HITRONIC® PCF DUPLEX FD PNC PVC-PUR	502 HITRONIC® PCF DUPLEX FD PNC PVC-PVC	509 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 (for continuous flexing)																																
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/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

LAPP GROUP

Cables for conveyor technology

Usage criteria	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
Page	165	172	170	171	167	168	169	166	162	163	164	131	308 309	346
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	✔		✔	✔					✔	✔				

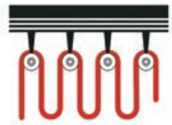
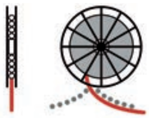
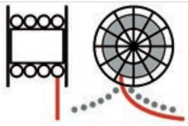
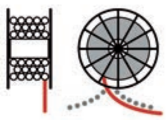
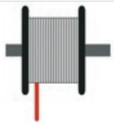
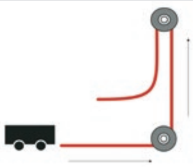
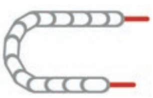
✔ Main application/design
✓ Possible application

● 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

Cables for conveyor technology – application areas

Usage criteria		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
Page		162	163	164	165	171	166	167	168	169	170	172	131	308 309	346
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

Halogen-free cables

Usage criteria	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® CHAIN 896 P	ÖLFLEX® SERVO FD 7DSL	ÖLFLEX® SOLAR XLR-R	ÖLFLEX® SOLAR XLS-R	ÖLFLEX® SOLAR XLR WP
Page	63	64	65	66	67	69	70	71	81	82	86	87	92	94	98	114	135	136	110	137	109	112	139	113	151	152	153
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.

Legend: ✔ = Main application/design; ✓ = Possible application; ● = Flexible use; □ = Fixed and flexible use; ▲ = Fixed installation; ◆ = Fixed installation (briefly)

Usage criteria	ÖLFLEX® CRANE PUR	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 125 SC	ÖLFLEX® HEAT 180 SiF	ÖLFLEX® HEAT 180 SiF A	ÖLFLEX® TORSION FRNC	ÖLFLEX® TORSION D FRNC	ÖLFLEX® CHARGE
Page	164	174	175	176	177	178	179	180	181	182	189	191	192	154	154	156
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											✔	✔	✔			

Usage criteria	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
Page	216 217	222	225	227	244	329	297	298	299	307	308	309	375	372	374	324
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
◆ 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}

Usage criteria	UNITRONIC® BUS ASI FD P FRNC	ETHERLINE® H Cat.5e	ETHERLINE® Cat.5 FRNC HYBRID	ETHERLINE® FD P Cat.6	UNITRONIC® LAN 200 Cat.5e LSZH	UNITRONIC® LAN 250 Cat.6 LSZH	UNITRONIC® LAN 500 Cat.6_A LSZH	UNITRONIC® LAN 1000 Cat.7 LSZH	UNITRONIC® LAN 1200 Cat.7_A LSZH	UNITRONIC® LAN 1500 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 PH 120	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	UNITRONIC® BUS PB FRNC FC	UNITRONIC® BUS PB FD FRNC FC	UNITRONIC® BUS PB TORSION	UNITRONIC® DeviceNet FRNC
Page	326	412	426	427	466	467	468	469	470	471	412	413	414	419	420	421	434	428 432	428 432	429	430	431	435	433	333	341	345	357
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.

Data network cables for low-frequency analogue/digital signal transmission

Usage criteria	Cable designation																												
Page	276	278 279	281	282	303	304	284	285	286	287	288	289	290	291	293	294 295	296	297 298	299	305 306	307	308	309	314	315	281	317	318	320
	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																✔	✔												

	Cable protection hoses		Cable entries	Marking	Accessories
Halogen-free accessories	SILVYN® RILL PA6 SILVYN® RILL PA12 SILVYN® FPAS SILVYN® HCC SILVYN® LCCH-2 SILVYN® AS SILVYN® EDU-AS SILVYN® TC	SILVYN® EMC AS-CU SILVYN® SSUE SILVYN® UI 511 SILVYN® HFX SILVYN® CHAIN SILVYN® CHAIN STEEL SILVYN® HIPROJACKET	SKINTOP® ST-HF-M SKINTOP® GMP-HF-M SKINTOP® BLK-GL-M SKINTOP® GMP-GL-M SKINDICHT® KW-M SKINDICHT® KU-M SKINDICHT® EKU-M	FLEXIMARK® single core marking Flexipart, marking sleeves, Flexiprint FLEXIMARK® cable labelling MINI system, shrink tube labelling FLEXIMARK® component labelling LB LA labels DYMO® label strips	Embossed metal plates, insulated conductor end sleeves Insulated cable lugs, TBTA insulating tape Shrink hoses CMP/PKG/HSB/PLG TEC end caps TEB branch joints KW plastic coil Cable ties Basic Tie/TY-RAP®/TY-FAST®

✔ 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

LAPP GROUP

UNITRONIC® COAXIAL/BUS/LAN cables – COAXIAL/BUS/LAN cable interfaces
ETHERLINE® cables – Industrial Ethernet cable interfaces

Usage criteria	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	COAXIAL CABLE RG 62 A/U	MULTI COAXIAL CABLE RG 59 B/U	COAXIAL CABLE RGB	COAXIAL CABLE RGB-FD
Page	321	321	321	321	321	321	321	321	321	321	321	321	321	322	322	322
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										✔						
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				✔	✔							✔				

Usage criteria	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	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
Page	372	374	373	372	372	373	323	324	329	338	334	337	342	329	341	345	346	344	326	375	328	331	331	360	359	359	361
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			✔			✔					✔																
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	UNITRONIC® BUS PB HEAT 180	UNITRONIC® LAN 200 U/UTP Cat.5e	UNITRONIC® LAN 200 F/UTP Cat.5e	UNITRONIC® LAN 200 SF/UTP Cat.5e	UNITRONIC® LAN 250 U/UTP Cat.6	UNITRONIC® LAN 250 F/UTP Cat.6	UNITRONIC® LAN Flex, Cat.5e, Cat.7	UNITRONIC® LAN 1500 Cat.7A	UNITRONIC® LAN 500 Cat.6A U/FTP, F/FTP, S/FTP	UNITRONIC® LAN 1000 S/FTP Cat.7	UNITRONIC® LAN 1200 Cat.7A	UNITRONIC® LAN Outdoor Cat.7	UNITRONIC® Li2YCY(TP)-Li2YCYv(TP)	UNITRONIC® Li2YCY PiMF
Page	332	466	466	466	467	467	473	471	468	469	470	472	291	293
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												✔		
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.6A ≤ 500 MHz							✔		✔					
CAT.7 ≤ 600 MHz								✔		✔	✔	✔		
CAT.7A ≤ 1200 MHz								✔			✔			
CAT.7A ≤ 1500 MHz								✔						
Design														
PVC sheath		✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔
Halogen-free sheath		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
PE sheath												✔		
PUR sheath, abrasion-resistant, cut-resistant														
FEP outer sheath	✔													
TPE sheath														

Usage criteria	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.6A	ETHERLINE® PN Cat.6A Flex	ETHERLINE® FD Cat.6A
Page	412	413	414	415	425	426	418	419	420	422	421	428	429	430
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					✔									
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.6A ≤ 500 MHz												✔	✔	✔
CAT.7 ≤ 600 MHz														
CAT.7A ≤ 1200 MHz														
CAT.7A ≤ 1500 MHz														
Design														
PVC sheath		✔					✔	✔		✔		✔	✔	✔
Halogen-free sheath	✔	✔	✔	✓		✔		✔				✔		
PE sheath					✔									
PUR sheath, abrasion-resistant, cut-resistant	✔	✔	✔	✔		✔			✔		✔	✔		✔
FEP outer sheath														
TPE sheath														

Usage criteria	ETHERLINE® TORSION Cat.6A	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® TRAY Cat.5e Y	ETHERLINE® PN Cat.6A FRNC FLEX	ETHERLINE® ROBUST	ETHERLINE® ROBUST FR	ETHERLINE® HEAT 6722
Page	431	416	417	427	432	434	434	424	423	434	429	435	436	433
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														
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.6A ≤ 500 MHz	✔			✔							✕	✕	✕	✕
CAT.7 ≤ 600 MHz					✔									
CAT.7A ≤ 1200 MHz														
CAT.7A ≤ 1500 MHz														
Design														
PVC sheath	✔	✔			✔		✔			✔				
Halogen-free sheath					✔	✔		✔			✔	✔		✔
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.6A cables and higher categories

UNITRONIC® BUS and ETHERLINE® – which cable suits which fieldbus system?

Usage criteria	Cable designation																											
Page	372	372	374	374	373	323 324	329	329	329	356	338	345	346	343	334 335	329	329	329	356	340	336	359	359	361	332	368	328	360
	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					✔										✔	✔					✔			✔		✔		
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

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UNITRONIC® BUS and ETHERLINE® – which cable suits which fieldbus system?

Usage criteria	Cable designation																																						
Page	325	326	326	326	325	357	357	357	357	358	358	358	358	375	375	369	369	370	370	412	412	413	418	414	420	419	425	426	428	432	421	427	431	430	429	416 417	413	418	418
	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® TRAY Cat.5e Y
DIN VDE Standards																																							
UL/CSA-approved		✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔						✔	✔		✔			✔	✔	✔	✔	✔	✔	✔	✔	✔
Installation																																							
Fixed installation	✔	✔	✔	✔	✔	✔	✔	✔	✔					✔	✔	✔	✔	✔		✔	✔		✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Flexible	✔	✔	✔		✔	✔	✔	✔	✔									✔				✔		✔	✔	✔		✔			✔	✔	✔	✔	✔	✔	✔		✔
Highly flexible (drag chains etc.)		✔	✔							✔	✔	✔	✔						✔					✔	✔						✔	✔	✔	✔		✔			
Suitable for outdoor use/direct burial, UV-resistant																																							
Z_∞ 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
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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			
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UNITRONIC® BUS and ETHERLINE® – technical data

Usage criteria	Cable designation														
Page	372	374	373	323	324	329	338 340	334	356	359	359	369	369	360	328
	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 (blue + black) fixed installation	UNITRONIC® BUS CAN fixed installation (0.22 mm^2)	UNITRONIC® BUS FD P CAN FD P highly flexible application (0.25 mm^2)	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 to °C	- 30 + 80	- 40 + 80	- 40 + 70	- 40 + 80	- 40 + 80	- 40 + 80	- 40 + 80	- 40 + 80	- 30 + 80	- 30 + 80	- 40 + 80	- 25 + 80	- 25 + 105	- 40 + 80	- 40 + 80
Temperature range flexing from °C to °C	–	- 30 + 70	–	- 5 + 70	- 30 + 70	–	- 30 + 70	–	–	- 5 + 70	- 30 + 70	–	–	- 10 + 70	- 10 + 70

Usage criteria	Cable designation														
Page	370	370	412	412	412	412	413	413	416	416	417	419	419	421	
	UNITRONIC® BUS CC fixed installation	UNITRONIC® BUS CC FD P FRNC highly flexible application	ETHERLINE® H Cat.5e fixed installation	ETHERLINE® P Cat.5e fixed installation	ETHERLINE® H-H Cat.5e fixed installation	ETHERLINE® H FLEX Cat.5e flexible application	ETHERLINE® P FLEX flexible application	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 to °C	- 40 + 70	- 40 + 80	- 30 + 80	- 30 + 80	- 30 + 80	- 30 + 80	- 30 + 80	- 40 + 80	- 30 + 80	- 40 + 80	- 40 + 80	- 40 + 80	- 25 + 80	- 40 + 80	
Temperature range flexing from °C to °C	–	- 40 + 80	- 5 + 60	- 5 + 60	- 5 + 60	- 5 + 60	- 5 + 60	- 10 + 70	- 5 + 50	- 30 + 50	- 30 + 50	- 20 + 60	- 25 + 80	- 40 + 80	

**without FC = 65 mm/FC = 120 mm

Usage criteria	Cable designation													
Page	418	418	418	418	414	420	428 432	428 432	428 432	429	429	430 431	430 431	434
	ETHERLINE® Y CAT.5e AWG 22/1 fixed installation	ETHERLINE® TRAY ER PN Y FC	ETHERLINE® Y FC CAT.5 AWG 22/1 fixed installation	ETHERLINE® YY CAT.5e AWG 22/1 suitable for outdoor use/direct burial	ETHERLINE® FD P CAT.5e AWG 26/19 highly flexible application	ETHERLINE® PN Cat.5 FD highly flexible application	ETHERLINE® Cat.6$_A$ H + Cat.7 H	ETHERLINE® Cat.6$_A$ P + Cat.7 P	ETHERLINE® Cat.6$_A$ Y + Cat.7 Y	ETHERLINE® PN Cat.6$_A$ Y FLEX	ETHERLINE® PN Cat.6$_A$ FRNC FLEX	ETHERLINE® FD Cat.6$_A$ + TORSION Cat.6$_A$ Y	ETHERLINE® FD P Cat.6$_A$ + TORSION Cat.6$_A$ P	ETHERLINE® TRAY Cat.5e Y
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	48	48	–	–	–	–	–	–	–	–
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	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Conductor resistance (loop) Data network cable pair max. Ω/km	192	192	192	192	192	192	118	118	118	143	143	175	175	192
Minimum bending radius, fixed installation	–	–	–	–	8 x D	–	10 x D	10 x D	10 x D	8 x D	8 x D	8 x D	8 x D	10 x D
Minimum bending radius, flexing	78 mm	90 mm	90 mm	90 mm	15 x D	100 mm	–	–	–	15 x D	15 x D	15 x D	15 x D	15 x D
Temperature range fixed installation from °C to °C	- 30 + 80	- 30 + 70	- 30 + 80	- 30 + 80	- 30 + 80	- 20 + 70	- 25 + 80	- 40 + 80	- 30 + 80	- 10 + 70	- 25 + 80	- 40 + 80	- 40 + 80	- 40 + 80
Temperature range flexing from °C to °C	- 5 + 60	- 5 + 60	- 5 + 60	- 5 + 60	- 5 + 60	- 5 + 60	–	–	–	- 10 + 70	- 25 + 80	- 10 + 70	- 30 + 70	- 25 + 80

Usage criteria	Cable designation												
Page	325	325	326	326	326	325	357	357	357	357	322	375	375
	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 to °C	- 40 + 85	- 40 + 85	- 40 + 80	- 40 + 105	- 40 + 80	- 30 + 90	- 25 + 80	- 20 + 80	–	–	- 40 + 80	- 30 + 70	- 30 + 70
Temperature range flexing from °C to °C	–	–	- 30 + 70	- 30 + 105	- 30 + 70	–	–	–	- 40 + 80	- 10 + 80	- 30 + 80	–	–

Cable entries at a glance

Usage criteria	SKINTOP® ST-M/STR-M/ST(R) M ISO	SKINTOP® CLICK/CLICK-R	SKINTOP® CLICK BS	SKINTOP® COLD/COLD-R	SKINTOP® CUBE	SKINTOP® CUBE MULTI	SKINTOP® ST and STR	SKINTOP® ST (NPT) and STR (NPT)	SKINTOP® ST-HF-M	SKINTOP® SOLAR (plus)	SKINTOP® BS-M/BS M ISO	SKINTOP® BS	SKINTOP® BS (NPT)	SKINTOP® BT and BT-M	SKINTOP® MS-M and MSR-M/MS-M-XL and MSR-M-XL	SKINTOP® MS and MSR	SKINTOP® MS (NPT) and MSR (NPT)	SKINTOP® MS-IS-M	SKINTOP® MS-SC-M	SKINTOP® MS-M BRUSH/BRUSH plus	SKINTOP® MS-SC	SKINTOP® K-M ATEX plus/plus blue	SKINTOP® KR-M ATEX plus/plus blue	SKINTOP® MS-M ATEX/MS-M-XL ATEX	SKINTOP® MSR-M ATEX	SKINTOP® MS-M BRUSH ATEX/ SKINDICHT® SHVE-M ATEX	SKINDICHT® MINI	SKINDICHT® CN and CN-M	SKINDICHT® SHV-M	SKINTOP® MS-NPT BRUSH	SKINTOP® MS-SC NPT	SKINTOP® INOX/INOX-R	SKINTOP® BS-M METALL	SKINTOP® BRUSH ADD ON	SKINTOP® HYGIENIC
Page	712 713	715	720	727	743	745	788	784	718	717	719	790	784	791 721	724 725	792	785	728	732	733	794	722 723	722 723	729	729	730	758	809 759	756	787	786	735	726	734	737
Properties																																			
IP protection rating/NEMA	68/69	68	68	68	64	66	68	68	68	68	68	68	68	68	**	68	68	68	68	68/69	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68/69
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																																			
cULus, cURus, TÜV, VDE, DNV	✔																																		
VDE, cULus, cURus, DNV		✔	✔																																
VDE				✔					✔																										
UL, UR, CSA, TÜV							✔																												
UL, UR, CSA								✔		✔		✔					✔																		
cULus, cURus, VDE, DNV											✔				✔																				
cULus, cURus, DNV																			✔																
VDE, cULus, DNV																				✔															
DNV, ATEX																						✔	✔												
cULus, cURus, DNV, ATEX																								✔	✔										
ATEX, DNV																										✔									
cULus																														✔					
EHEDG/ECOLAB																																			✔

Usage criteria	SKINDICHT® SHV	SKINDICHT® SHV-M-VITON®	SKINDICHT® SHV-VITON®	SKINDICHT® SHVE-M	SKINDICHT® SHVE	SKINDICHT® SR-SV-M	SKINDICHT® SR-SV	SKINDICHT® FL	SKINDICHT® SRE-M	SKINDICHT® SRE	SKINDICHT® SR-M	SKINDICHT® SR	SKINDICHT® KW-M	SKINDICHT® SE and SE-M	SKINDICHT® RWV-M	SKINDICHT® RWV	SKINDICHT® SKZ-M	SKINDICHT® SKZ	SKINDICHT® SHZ-M	SKINDICHT® SHZ	SKINDICHT® SVF and SVF-M	SKINDICHT® SVFK	SKINDICHT® SVRE-M	SKINDICHT® SVRE	SKINDICHT® SVRN-M	SKINDICHT® SVRN	SKINDICHT® SVRX-W	SKINDICHT® SVRX-Z	SKINDICHT® SK	SKINDICHT® SH	SKINDICHT® VENT
Page	807	757	808	754	805	753	804	798	755	806	752	803	760	811 761	760	810	750	802	751	800	797 749	796	746	795	746	795	747	747	801	799	768 769
Properties																															
IP protection rating/NEMA	68	68	68	68	68	65	65	65	65	65	65	65	55	55	55	55	55	55	55	55	54	54	54	54	54	54	54	54	20	20	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																															

**68/69, NEMA 4 x/NEMA 6

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For current information see: www.lappgroup.com

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 Kabel 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 Kabel 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 / Properties	ÖLFLEX® CLASSIC 0,6/1 KV unscreened	ÖLFLEX® SERVO 719 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® 491 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® FD 891/891 CY	ÖLFLEX® FD 891 P	ÖLFLEX® CHAIN 896 P	UNITRONIC® FD P plus, FD CP 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 5008	SERVO cable as per SIEMENS® standard 6FX 8 PLUS	SERVO cable as per SEW® standard	UNITRONIC® BUS PB FD Y HYBRID
Page	42	103	109	110	112	75	48	79	80	83	81	50	52	63	64	108	131	135	121	123	124	127 128	138	139	307 308 309	377	58 60	154	116	117	118	106	114	107	344
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

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Technical data for EPIC® rectangular connectors

Usage criteria		EPIC® rectangular connectors/inserts																				
	Page	534	534	535	535	535	535	536	536	537	537	538	538	539	540	540	541	542	542	543	543	544
		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	544	545	545	546	546	547	547	547	547	548	548	548	550	550	550	552	552	552	554	554	554
		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

Technical data for EPIC® rectangular connectors

Usage criteria		EPIC® rectangular connectors/inserts																				
	Page	552	552	552	552	552	552	556	556	557	557	557	557	558	558	559	559	559			562	562
		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	563	563	567	568	568	568	569	569	569	570	570	571	571	571	573	576	576	576	576
		EPIC® High-current module, 1+PE	EPIC® High-current module, 2-pin	EPIC® High-voltage module, 3-pin	EPIC® High-voltage module, 4+PE	EPIC® 3-pin module	EPIC® 4-pin module, HE	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	2	3	4 + PE	3	4	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	10.0 – 25.0	1.5 – 10.0	0.5 – 2.5	1.5 – 10.0	0.5 – 4.0	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	1000	1000	1000	630	630	400	400	250	250	100	250	30	30	125/ 600	–	–	–	–
IEC: rated current [A]		82	82	50	16	40	25	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 GROUP

Applications of HITRONIC® fibre-optic cable components at a glance

Usage criteria	Lapp Kabel plastic fibre-optic cables (POF) – range									PCF fibre optic cable range							
Page	488	489	490	491	491	489 491	492	492	492	499	500	500	501	502	502	502	502
	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																	
Heavy duty					✔												
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	506	507	509	508	512	513	511	514	510	515	516	517	518	519	520	521	522
	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® HON Outdoor Cable, A-DQ(ZN)B2Y	HITRONIC® HVN Outdoor Cable, A-DQ(ZN)B2Y	HITRONIC® HVN-Mini Outdoor Cable, A-DQ(ZN)2Y	HITRONIC® HOW Armoured Outdoor Cable, A-DQ(ZN)(SR)2Y	HITRONIC® HMDC Micro Cable A-D(ZN)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	✔				✔	✔	✔	✔		✔	✔			✔	✔		
Heavy duty	✔							✔		✔	✔				✔		
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

Applications of servo cables in electrical power drive systems (PDS)

Usage criteria		Cable designation (fixed installation or occasional flexing)									
	Page	100	103	101	42	43	102	104	105	107	106
		ÖLFLEX® SERVO 700	ÖLFLEX® SERVO 719 CY	ÖLFLEX® SERVO 720 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	Servo cable as per SEW® standard, static	Servo cable as per SIEMENS® FX5 series
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®	Power								✔		
	Signal								✔		

Usage criteria		Cable designation (permanent flexing, e.g. in power chains)															
	Page	108	109	110	112	113	114	116	117	118	118	118	118	118	118	118	309
		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®	Power					✔											
	Signal					✔											

✔ Main application/design
✓ Possible application

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A13 Selection tables

Cables for expanded ambient temperature ranges

Usage criteria	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
Page	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	191	192	193	194	194	194	195	196	197	198	199
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)

	Stainless steel FCC marking	Characters strips plastic MINI	Character holders PTE	Character holders PTEF Cab	Collars	Flexiprint LF	Wrapping labels LCK	Cable label LFL	Cable label TFL	LA Labels	TA Labels	Cable marker FCC
Page	944	*	982	983	985 986 987	964	955	949	*	977	978	946
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.

* see online-catalogue

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.

Safe use of our products

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–A13 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.

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. In the case of a DC supply, the nominal supply voltage must not exceed the nominal voltage of the cable by a factor greater than 1.5. The continuous operating voltage of AC and DC supplies may exceed the nominal supply voltage e. g. 500 -> 550 V (10%) as per DIN EN 50565-1, table 2 for a 300/500 VAC System.

The nominal voltage of cables and wires is expressed by the ratio U/U_0 in volts, whereby:

- **U_0** is the effective voltage between a phase conductor and the earth (metal sheath/screening of the cable or surrounding medium)
- **U** is the effective voltage between two phase conductors of a multi-core cable or a system of single core cables

The dielectric strength of the insulation of cables, conductors and wires must be sufficient for the required test voltage.
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.
The AC test voltages are detailed on the individual product pages in the catalogue under "technical data" and can also be used to make selections in cases where no meaningful U/U_0 ratio can be provided.

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.

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.

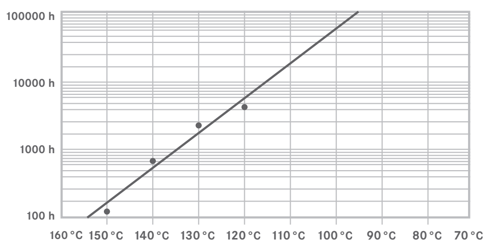
When configuring and assembling the SILVYN® CHAIN energy supply systems, the assembly instructions detailed in table T3 "Assembly guidelines for ÖLFLEX® FD and UNITRONIC® FD cables in power chains" must be followed. With regards to the correct installation of a SILVYN® CHAIN energy supply system, please 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 für 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.

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 CY BK ÖLFLEX® SERVO 700, 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® 150, 150 CY, 191, 191 CY, ÖLFLEX® FD 891/891 CY, TRAY II, ÖLFLEX® SERVO 719 CY, ÖLFLEX® SERVO FD 781 CY, ÖLFLEX® CONTROL TM/TM CY, SERVO cables as per SEW®, SIEMENS® FX 5008 Standard	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, 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® Robot 900, F1, ÖLFLEX® CRANE PUR, UNIRONIC® 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® 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, UNITRONIC® 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
Inorganic chemicals										
Alums, cold-saturated concentration	good	good	good	good	good	good	good	good	good	good
Aluminium salts, any concentration	moderate	good	good	good	good	good	good	good	good	good
Ammonia, aqueous, 10 % concentration	low	good	good	good	good	good		good		good
Ammonium acetate, aqueous, any concentration		good	good	good	good	good	low	good	low	good
Ammonium carbonate, aqueous, any concentration		good	good	good	good	good	good	good	good	good
Ammonium chloride, aqueous, any concentration		good	good	good	good	good	good	good	good	good
Barium salts, any concentration	moderate	good	good	good	good	good	good	good	good	good
Boric acid, aqueous	moderate	good	good	good	good	good	good	good	good	good
Calcium chloride, aqueous, cold-saturated concentration	moderate	good	good	good	good	good	good	good	good	good
Calcium nitrate, aqueous, cold-saturated concentration	moderate	good	good	good	good	good	good	good	good	good
Chromium salts, aqueous, cold-saturated concentration		good	good	good		good	good	good	good	low
Potassium carbonate, aqueous (potash)		good	good	good	good	good	good	good	good	good
Potassium chlorate, aqueous, cold-saturated concentration		good	good	good	good	good	moderate	good	good	good
Potassium chloride, aqueous, cold-saturated concentration	moderate	good	good	good	good	good	good	good	good	good
Potassium dichromate, aqueous		good	good	good	good	good	good	good	good	good
Potassium iodide, aqueous	moderate	good	good	good	good	good	good	good	good	
Potassium nitrate, aqueous, cold-saturated concentration	moderate	good	good	good	good	good	good	good	good	good
Potassium permanganate, aqueous		moderate	moderate	moderate	good	moderate	good	moderate	good	good
Potassium sulphate, aqueous	moderate	good	good	good	good	good	good	good	good	good
Copper salts, aqueous, cold-saturated concentration	moderate	good	good	good	good	good	good	good	good	good
Magnesium salts, aqueous, cold-saturated concentration	moderate	good	good	good	good	good	good	good	good	good
Sodium bicarbonate, aqueous (natron)		good	good	good	good	good	good	good	good	good
Sodium bisulphite, aqueous		good	good	good	good	good	good	good	good	good
Sodium chloride, aqueous (table salt)	moderate	good	good	good	good	good	good	good	good	good
Sodium thiosulphate, aqueous (fixing salt)		good	good	good	good	good	good	good	good	good
Nickel salts, aqueous, cold-saturated concentration	moderate	good	good	good	good	good	good	good	good	good
Phosphoric acid, 50 % concentration		good	good	good	good	good	good	good	low	good
Mercury, 100 % concentration	good	good	good	good	good	good	good	good	good	good
Mercury salts, aqueous, cold-saturated concentration	moderate	good	good	good	good	good	good	good	good	good
Nitric acid, 30 % concentration	low	low	low	low	moderate	low	low	low	low	moderate
Hydrochloric acid, concentrated	low	low	low	low	low	low	low	low	low	moderate
Sulphur, 100 % concentration	good	good	good	good	good	good	good	good	low	moderate
Sulphur dioxide, gaseous		good	good	good	good	good	good	good	good	good
Carbon disulphide	low	low	low	low	low	low	low	low	low	low
Hydrogen sulphide		good	good	good	moderate	good	good	good	good	low
Sea water	moderate	good	good	good	good	good	good	good	good	good
Silver salts, aqueous	moderate	good	good	good	good	good	good	good	good	good
Hydrogen peroxide, 3 % concentration		good	good	good	good	good	good	good	good	low
Zinc salts, aqueous	moderate	good	good	good	good	good	good	good	good	good
Tin(II) chloride	moderate	good	good	good	good	good	good	good	good	good
Organic chemicals										
Ethanol, 100 % concentration	low	low	low	low	good	low	good	low	good	good
Formic acid, 30 % concentration	low	low	low	low	good	low	good	low	good	
Petrol	low	low	low	low	low	low	moderate	low	low	low
Succinic acid, aqueous, cold-saturated concentration		good	good	good	good	good	good	good	good	good
Acetic acid, 20 % concentration	low	moderate	moderate	moderate	good	moderate	good	moderate	moderate	good
Hydraulic oil	low	low	low	low		low	low	low	low	low
Isopropanol, 100 % concentration		low	low	low	good	low	good	low	good	good
Machinery oil	low	moderate	moderate	moderate		moderate	moderate	moderate	low	moderate
Methanol, 100 % concentration	moderate	moderate	moderate	moderate	good	moderate	good	moderate	good	good
Oxalic acid, aqueous, cold-saturated concentration	moderate	good	good	good	good	good	moderate	good	good	good
Cutting oil	low	moderate	moderate	moderate	moderate	moderate	moderate	moderate	low	moderate
Plant-based oils + fats	low	moderate	moderate	moderate	moderate	moderate	moderate	moderate	low	moderate
Tartaric acids, aqueous	moderate	good	good	good	good	good	good	good	good	good
Citric acid	moderate	good	good	good	good	good	good	good	good	good

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.

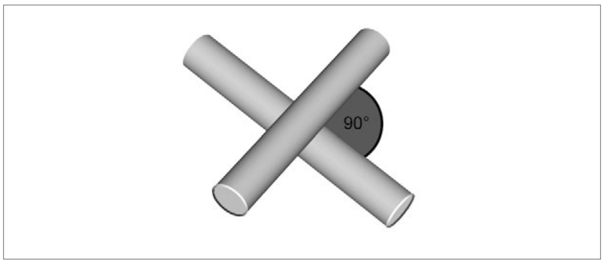
- PROFINET has the following conductor types:
  Type A: fixed installation
  Type B: flexible application, occasional flexing
  Type C: highly flexible application, torsion, drag chain, etc.

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

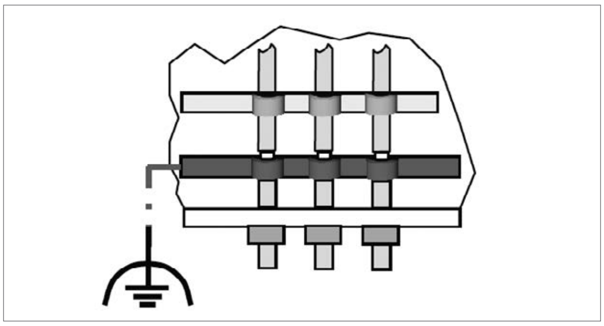
- In a system with different PROFINET categories and power cables, all of the cables should be separate bundles and run along separate ducts.

- 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°.



- Connect the screenings of all the cables which run into the control cabinet with the equipotential bonding at the cabinet entrance. Between the cabinet entrance and the screening contact, avoid installing cables coming from outside of the cabinet parallel to PROFINET cables that are inside the cabinet. This also applies to cables of the same category as each other.



- 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.

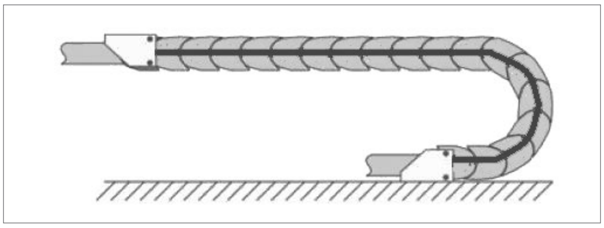
- Protect copper conductors and fibre-optic cables outside of cable carrier systems using plastic pipes or, in the case of a heavy mechanical load, using metal pipes.

- 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.

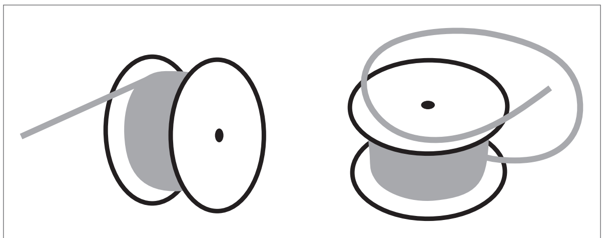
- Observe the temperature range for the cables. Deviations from these temperatures will result in a lower mechanical and electrical cable rating and will damage the cables.

- 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.

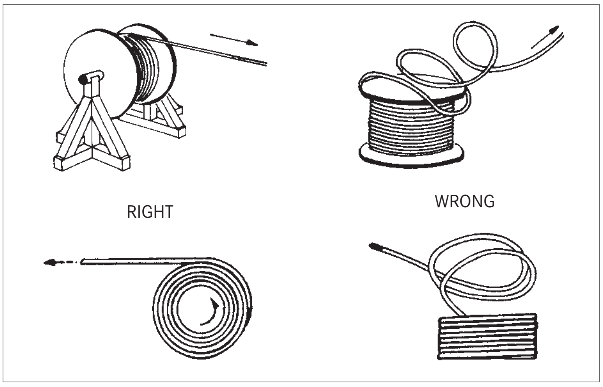
RECOMMENDATION: a detailed "Planning and Installation Guide" for PROFIBUS and/or PROFINET is available from the PROFIBUS User Organisation (PNO) in Karlsruhe, Germany.

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.

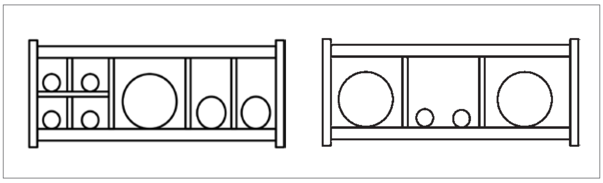
2. The cables must be unreeled from the ring or drum free of any twists (at a tangent) and must be laid out straight. This work should be carried out before starting the installation works so that the cables can relax in this time.
Due to the manufacturing process, the markings on the cables run round 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.

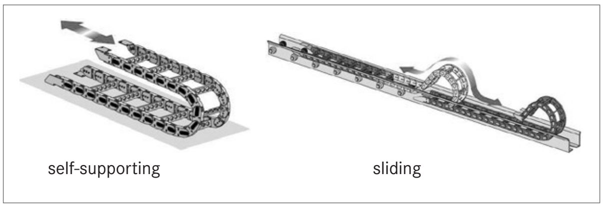
5. The cables must lie loosely next to each other in the chain chambers. They should be separated as much as possible using separators. The clearance between the cables and the cross bar, the separators or the neighbouring cables should be at least 10% of the cable diameter.



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.

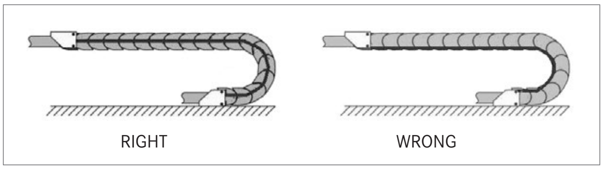
7. If the chain configurations are suspended vertically, additional free space must be provided in terms of the stay height, as the cables are lengthened during operation. After a short period of operation time, it is important to check whether the cables are still running along the neutral zone. It 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).

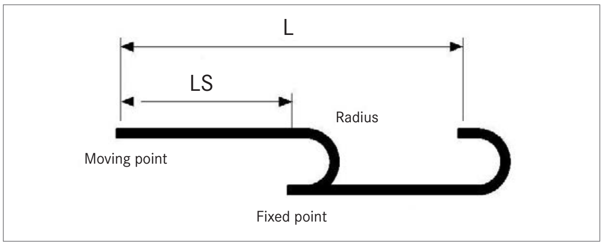
10. Make sure that the cables in the bending radius run in the neutral zone, i.e. there must be no forced guidance through the chain in the inner or outer radius, so that the cables can still move relative to one another and to the chain.



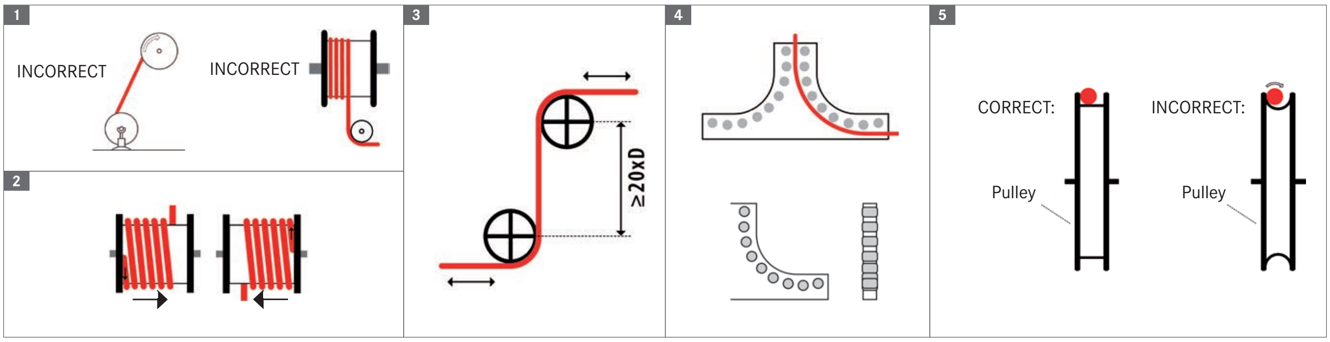
11. If a cable does not run smoothly, i.e. if it becomes twisted along the longitudinal axis during operation, the cable should be rotated gradually at one of the fastening points until it runs smoothly again.

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

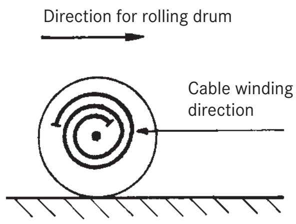
A General information

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).

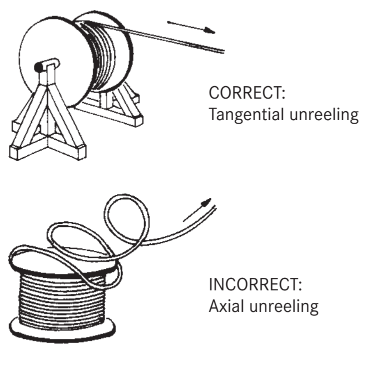
B Suspending the cables

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



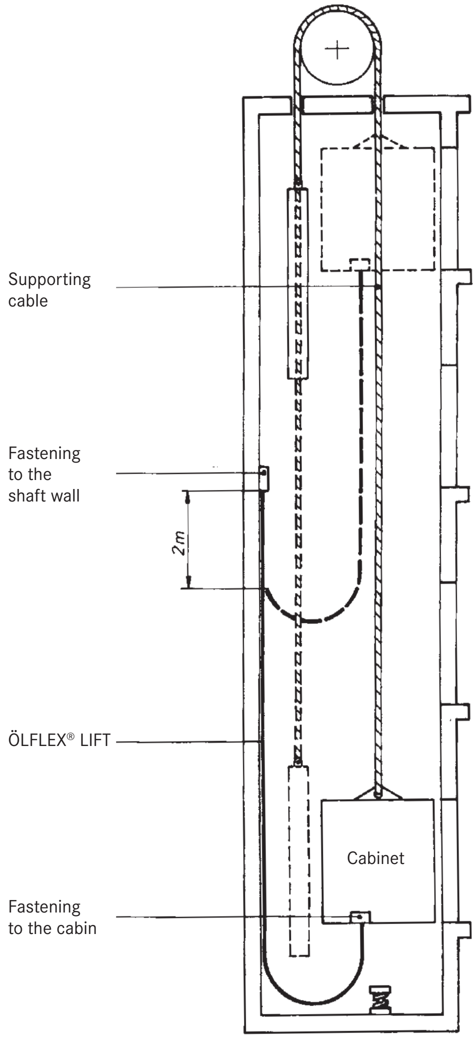
2



C General 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



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

Type designations for telecommunications cables and fibre-optic cables

Fibre-optic cables

☐ – ☐☐☐☐☐ ☐☐ ☐ ☐

1 2 3 4 5 6 7 8 9 10

1. Basic type

A	Outdoor cable
AT	Outdoor cable, divisible
J	Indoor cable
J/A or U	Indoor/outdoor cable, universal cable

2. Fibres

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

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 casing

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 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® field bus

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	**M12Y** – M12 Y connector
MA – angled connector	**B** – bridged
FS – straight socket	**3-, 4-, 5-, 8-,** .. number of pins
FA – angled socket	**A, AD, B, BI, C, CI** – valve connector type
M8, M12, M16, M23 – thread	**S** – valve connector with Z diode
L – status display/LEDs	**SV** – valve connector with varistor
SH – screened version	**SVC** – valve connector with varistor and commutator
HD – Hygienic Design	**SUP** – valve connector with suppressor diode
VA – stainless steel knurl	

Ready-made 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	**PG7, PG9, PG11, PG13** – cable connection
MA – angled connector	**F0.34** (fast connection, max. 0.34 mm² cond. cross-sec.)
FS – straight socket	**F0.75** (fast connection, max. 0.75 mm² cond. cross-sec.)
FA – angled socket	**M16-0.5** (M16 flush-type conn. with 0.5 m PUR strand)
P – piercing connection	**PG9-0.5** (PG9 flush-type conn. with 0.5 m PUR strand)
SH – screened version	**DSI** – flush-type connector (rear wall mounting)
M8, M12, M16, M23 – thread	**PO** – flush-type connector (can be positioned)
3-, 4-, 5-, 8-, .. number of pins	

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-ASI-J** – AS-Interface distributor
AB-PB – Automation Bus PROFIBUS	**DI** – Digital Inputs
AB-DN – Automation Bus DeviceNet	**DO** – Digital Outputs
AB-CAN – Automation Bus CAN	**R** – Relay outputs
AB-ASI – Automation Bus AS-Interface	

Colour code for ÖLFLEX® cables

The colour code applies to the following cables starting from 6 cores: ÖLFLEX® CLASSIC 100, 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

Extension and compensating cables - colour codes and background information

Table 8-1: international colour codes for extension and compensating cables

Thermo couple	Material ⊕ ⊖	IEC 60584-3 Designation XC / CC	DIN 43710* Designation XC / CC	ANSI MC 96.1 Designation XC / CC	BS 4937 Designation XC / CC	NF C 42-324 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
K	NiCr – Ni	KCA 0 °C up to +150 °C	KCA 0 °C up to +150 °C			WC 0 °C up to +150 °C
K	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 -25 °C up to +200 °C; NC 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

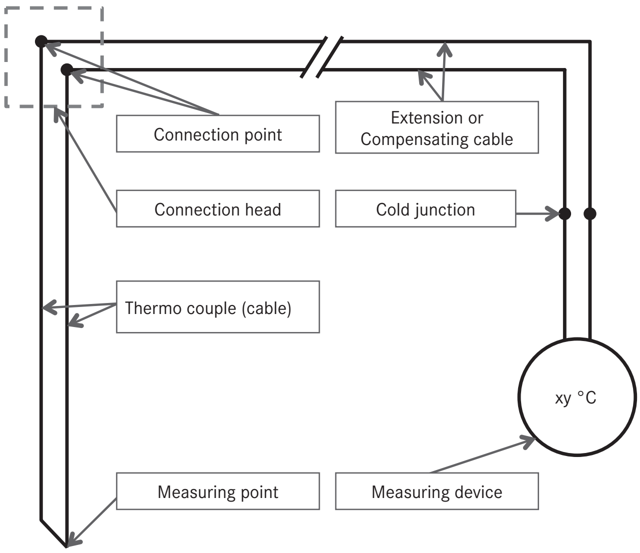
The measurement principle:

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 without green/yellow core (currently not yet harmonised)	Cables without 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	

Example conductor stranding (metric)

Cross-section in mm²	Multi-wire conductor	Several-wire conductor	Fine-wire conductor	Extra-fine wire conductor			
0.14				~ 18 x 0.10	~ 18 x 0.1	~ 36 x 0.07	~ 72 x 0.05
0.25			~ 14 x 0.15	~ 32 x 0.10	~ 32 x 0.1	~ 65 x 0.07	~ 128 x 0.05
0.34		7 x 0.25	~ 19 x 0.15	~ 42 x 0.10	~ 42 x 0.1	~ 88 x 0.07	~ 174 x 0.05
0.38		7 x 0.27	~ 19 x 0.16	~ 19 x 0.16	~ 48 x 0.1	~ 100 x 0.07	~ 194 x 0.05
0.5	7 x 0.30	7 x 0.30	~ 16 x 0.20	~ 28 x 0.15	~ 64 x 0.1	~ 131 x 0.07	~ 256 x 0.05
0.75	7 x 0.37	7 x 0.37	~ 24 x 0.20	~ 42 x 0.15	~ 96 x 0.1	~ 195 x 0.07	~ 384 x 0.05
1.0	7 x 0.43	7 x 0.43	~ 32 x 0.20	~ 56 x 0.15	~ 128 x 0.1	~ 260 x 0.07	~ 512 x 0.05
1.5	7 x 0.52	7 x 0.52	~ 30 x 0.25	~ 84 x 0.15	~ 192 x 0.1	~ 392 x 0.07	~ 768 x 0.05
2.5	7 x 0.67	~ 19 x 0.41	~ 50 x 0.25	~ 140 x 0.15	~ 320 x 0.1	~ 651 x 0.07	~ 1280 x 0.05
4	7 x 0.85	~ 19 x 0.52	~ 56 x 0.30	~ 224 x 0.15	~ 512 x 0.1	~ 1040 x 0.07	
6	7 x 1.05	~ 19 x 0.64	~ 84 x 0.30	~ 192 x 0.20	~ 768 x 0.1	~ 1560 x 0.07	
10	7 x 1.35	~ 49 x 0.51	~ 80 x 0.40	~ 320 x 0.20	~ 1280 x 0.1	~ 2600 x 0.07	
16	7 x 1.70	~ 49 x 0.65	~ 128 x 0.40	~ 512 x 0.20	~ 2048 x 0.1		
25	7 x 2.13	~ 84 x 0.62	~ 200 x 0.40	~ 800 x 0.20	~ 3200 x 0.1		
35	7 x 2.52	~ 133 x 0.58	~ 280 x 0.40	~ 1120 x 0.20			
50	~ 19 x 1.83	~ 133 x 0.69	~ 400 x 0.40	~ 705 x 0.30			
70	~ 19 x 2.17	~ 189 x 0.69	~ 356 x 0.50	~ 990 x 0.30			
95	~ 19 x 2.52	~ 259 x 0.69	~ 485 x 0.50	~ 1340 x 0.30			
120	~ 37 x 2.03	~ 336 x 0.67	~ 614 x 0.50	~ 1690 x 0.30			
150	~ 37 x 2.27	~ 392 x 0.69	~ 765 x 0.50	~ 2123 x 0.30			
185	~ 37 x 2.52	~ 494 x 0.69	~ 944 x 0.50	~ 1470 x 0.40			
240	~ 37 x 2.87	~ 627 x 0.70	~ 1225 x 0.50	~ 1905 x 0.40			
300	~ 61 x 2.50	~ 790 x 0.70	~ 1530 x 0.50	~ 2385 x 0.40			
400	~ 61 x 2.89		~ 2035 x 0.50				
500	~ 61 x 3.23		~ 1768 x 0.60				
630	~ 91 x 2.97		~ 2286 x 0.60				

NOTE ON STANDARDS:

For single-wire conductors ... **(class 1)**, please see DIN EN 60228 (VDE 0295), table 1

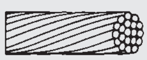
For multi-wire conductors ... **(class 2)**, please see DIN EN 60228 (VDE 0295), table 2

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

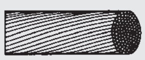
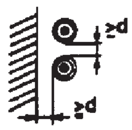
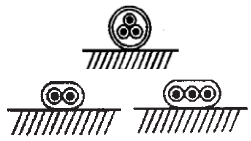
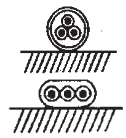
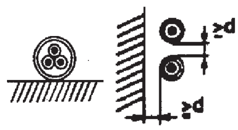

extra-fine wire

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

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.

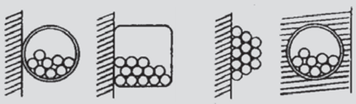
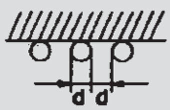
Number of layers on the coil, drum, reel	1	2	3	4	5
Conversion factor	0.80	0.61	0.49	0.42	0.38

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.

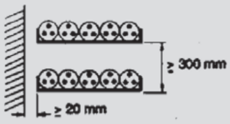
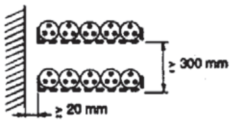
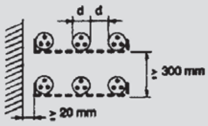
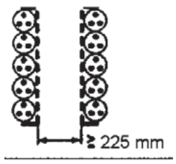
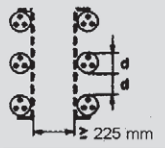
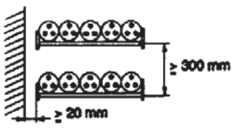
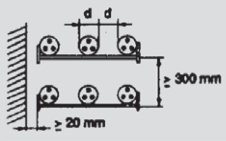
Configuration for installation	Number of multi-core cables or number of AC or three-phase circuits formed by single-core cables (2 or 3 live conductors)					
	1	2	3	4	6	10
	Conversion factors to be applied to the current rating values in table 12-1					
Bundled directly on the wall, on the floor, in 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.

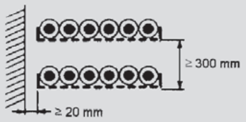
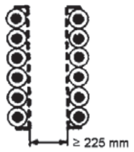
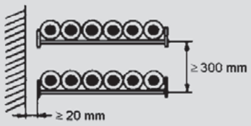
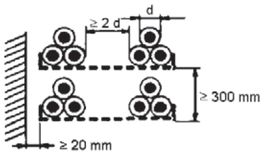
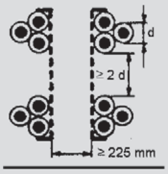
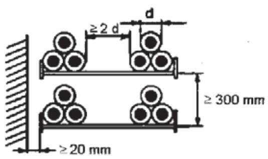
Configuration for installation			Number of troughs or conduits	Number of multi-core cables: 1	2	3	4	6	9
				Conversion factors					
Non-perforated cable troughs	touching		1	0.97	0.84	0.78	0.75	0.71	0.68
Perforated cable troughs	touching		1	1.00	0.88	0.82	0.79	0.76	0.73
	with gap		1	1.00	1.00	0.98	0.95	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.

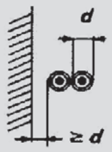
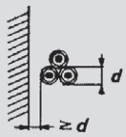
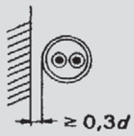
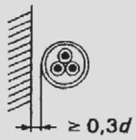
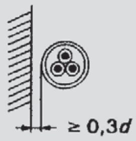
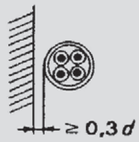
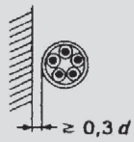
Configuration for installation			Number of troughs or conduits	Number of 3-pin circuits formed by single-core cables: 1	2	3	To be used as the multiplier for the measurement value of:
				Conversion factors			
Perforated cable troughs	touching		1	0.98	0.91	0.87	Three cables arranged horizontally and level
Perforated cable troughs	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
Perforated cable troughs			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						

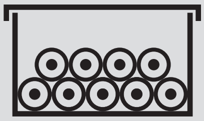
Table 12-11: operating current and power loss of copper conductors

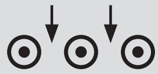
The illustration is taken out of DIN EN 61439-1 (VDE 0660-600-1), 2012-06, Annex H.

The following table provides reference values for operating currents and power losses of conductors inside an assembly of switchgears and controlgears 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.

Current rating as per National Electrical Code of the USA

Table 13-1: current rating of cables in the USA

Excerpt from NEC table T310.15 (B)(16) page 267

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) page 268

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 2014)

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.

The European Construction Product Regulation (CPR)

Requirements for fire behaviour of cables and their classification

Cables in buildings
Cables are used for different applications in buildings. In addition to energy supply, they are also used for signal and data transmission.

The increasing number of electrically-powered equipments and the increase in networking (e. g. intelligent controls, Internet distribution etc.) result in a rise in the number of cables required. Therefore, their behaviour in case of fire is becoming increasingly important.

The EU has responded to this situation by including cables in the new regulations for construction products.

The Construction Product Regulation and its significance
Regulation no. 305/2011 of the European Parliament and of the Council of 9th March 2011 laid down harmonised conditions for the marketing of construction products and is known as the Construction Product Regulation (CPR).

It has been in force since 1 Juli 2013 and replaces the previous construction products directive (no. 89/106/EEC) from 1988.

Along with many other construction products, the regulation covers energy, control and data cables intended for permanent use (installation) in buildings.

The regulation defines basic requirements for buildings, e. g. fire prevention, but does not set out specific product properties or stipulate the use of particular construction products.

Underlying standards – Euro classes
The products intended for use must be classified using standardised rules (harmonised standards), which requires testing and certification by a notified body.

The standards that define the fire behaviour requirements for cables (EN 50575) and describe the classification (EN 13501-6) had not yet been officially adopted at the time when CPR came into force.

Meanwhile the standards are finished and were published in the Official Journal of the EU in July 2015. Since this time the notification of testing bodies is possible and the transitional period during which products with and without CE marking under CPR can be brought into circulation starts at 1 December 2015 and ends at 1 December 2016.

Table 1: Euro classes under EN 13501-6 respectively 2006/751/EG

Class	Test method(s)	Classification criteria	Additional Classification
A_{CA}	EN ISO 1716	PCS ≤ 2.0 MJ/kg	
$B1_{CA}$	EN 50399 (30 kW burner) and	FS ≤ 1.75 m and THR_{1200s} ≤ 10 MJ and Peak-HRR ≤ 20 kW and FIGRA ≤ 120 Ws^{-1}	Smoke production and Flaming droplets/particles and Acidity
	EN 60332-1-2	H ≤ 425 mm	
$B2_{CA}$	EN 50399 (20.5 kW burner) and	FS ≤ 1.5 m and THR_{1200s} ≤ 15 MJ and Peak-HRR ≤ 30 kW and FIGRA ≤ 150 Ws^{-1}	Smoke production and Flaming droplets/particles and Acidity
	EN 60332-1-2	H ≤ 425 mm	
C_{CA}	EN 50399 (20.5 kW burner) and	FS ≤ 2.0 m and THR_{1200s} ≤ 30 MJ and Peak-HRR ≤ 60 kW and FIGRA ≤ 300 Ws^{-1}	Smoke production and Flaming droplets/particles and Acidity
	EN 60332-1-2	H ≤ 425 mm	
D_{CA}	EN 50399 (20.5 kW burner) and	THR_{1200s} ≤ 70 MJ and Peak-HRR ≤ 400 kW and FIGRA ≤ 1300 Ws^{-1}	Smoke production and Flaming droplets/particles and Acidity
	EN 60332-1-2	H ≤ 425 mm	
E_{CA}	EN 60332-1-2	H ≤ 425 mm	
F_{CA}	No performance determined		

Table 1: Euro classes under EN 13501-6 respectively 2006/751/EG

PCS – Gross calorific potential
FS - Flame Spread
THR – Total Heat Release
HRR - Heat Release Rate
FIGRA - Fire Growth Rate

Certificate of conformity
The familiar procedure for cables covered by the Low Voltage Directive required the manufacturer to establish the conformity of their products with the directives or compliance with the corresponding standards and to certify this in an EU Declaration of Conformity. However, this is not sufficient for products affected by the Construction Products Regulation. Depending on the intended Euro class, a conformity assessment process will have to be completed, with the scope outlined in table 2.

Except for Class F, a minimum of type testing by a notified body will be required. In association with the certificate of conformity, the manufacturer will have to issue a performance declaration, providing details of the fire behaviour (Euro class A-F).

Table 2: Conformity certification system under EN50575

Euro class	Conformity certification system	Tasks of notified body
A_{CA}, $B1_{CA}$, $B2_{CA}$, C_{CA}	1+	- Type testing - Regular plant auditing - Regular sampling from ongoing production
D_{CA}, E_{CA}	3	Type testing
F_{CA}	4	none

This process for classifying products and obtaining the certificate of conformity will apply equally to all member states and is a response to the requirement to eliminate barriers to trade in the construction product sector and improve the free movement of goods for these products in the internal market.

Use of classified cables in buildings
Incorporation of the corresponding cables into building regulations and assignment of fire classes to building types or areas within buildings is the responsibility of the relevant member states.

For example, in Germany, the individual states will implement the standards according to their own state building regulations, as building law is under state jurisdiction.

Definitive assignments of classes to buildings were not set at the time of going to press, although a possible classification can be found in a white paper from the ZVEI (German association of electrical equipment manufacturers), which can be found in German at www.zvei.de.

Classification/Certification of our products
At the time of going to press we couldn't issue any information about fire classes. The current status of our products can be found in our online catalogue at
http://products.lappgroup.com/online-catalogue/appendix/technical-tables.html.

Properties of cable insulation and sheathing

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 / Parameter	Material resistant to org. oils	Polyvinylchloride	Polyethylene	Polyurethane	Polytetrafluoroethylene	Tetrafluoroethylene Hexafluoropropylene copolymer
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 (10–3)	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 / Parameter	Ethylene tetrafluoroethylene	Chloroprene rubber	Silicone rubber	Ethylene propylene dien rubber	Thermoplastic elastomer polyolefin based	Thermoplastic elastomer polyester based
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 (10–3)	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 3x1.5 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).

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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.

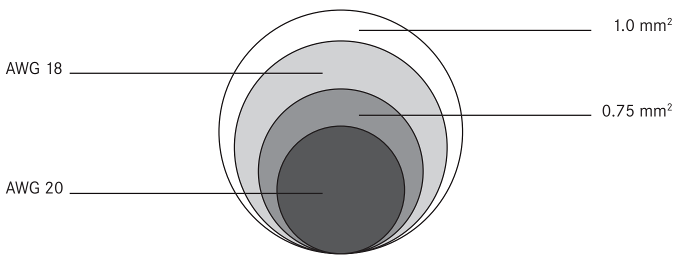
Standards required as part of project planning, such as UL1581 or IEC 60228 (VDE 0295), must be applied accordingly.

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 cm³
1 cubic foot	=	0.0283 m³
1 cubic yard	=	0.765 mm³
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 · 10-3 mm²
1 kcmil (MCM)	=	0.5067 mm²
1 square inch (sq. in.)	=	645.16 mm²
1 square foot (sg.ft.)	=	0.0929 m²
1 square yard	=	0.836 m²
1 acre	=	0.00405 km²
1 square mile	=	2.59 km²
1 m²	=	10.764 sq. ft.

4. Units of mass

British gravitation system:
1 slug = 1 lbs · s²/ft

British absolute system:
1 pound = 1 lb

1 slug = 32.174 lb, with 32.174 ft/s²
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/s²

1 lbf = 32.174 pdl – 9.80665 lb · m/s²

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/ft³ = 16.02 kg/m³

10. Specific weight

1 lbf/ft³ = 16.02 kp/m³

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:

$$\text{Copper index (kg/ 1000 pc)} \times \frac{\text{(DEL + 1\% procurement costs) – copper price basis}}{1000} = \text{Copper surcharge in Euro/ 100 pc}$$

$$516\ \text{kg}\ \text{kg/ 1000 pc} \times \frac{(576.93 + 5.77) - 150.00}{1000} = \text{Euro } 223.27/100\ \text{pc}$$

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/cm^3 in accordance with DIN EN 13602. Therefore, a single-core cable with a nominal cross section of 1 mm^2 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 mm^2 – 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

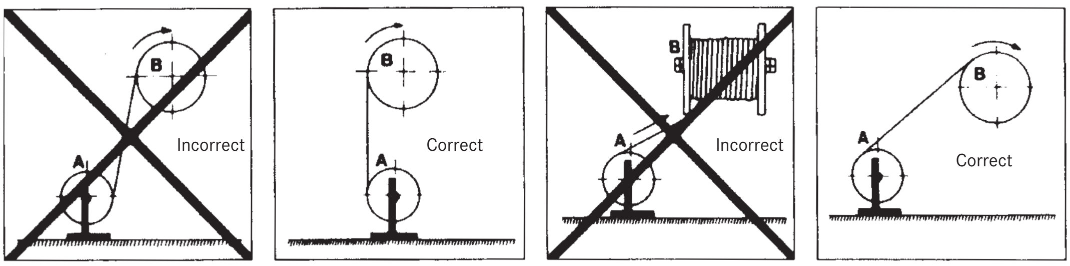
The temperature limits for the respective cable designs can be found in the technical data. The upper temperature limits must not be exceeded as a result of the cable heating up due to current heat and thermal environmental factors.
The lower temperature limits denote the lowest permitted ambient temperature.

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.



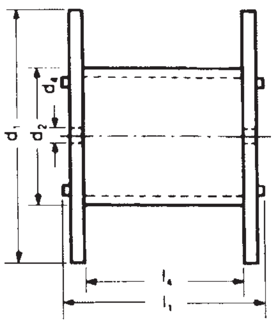
Winding and unwinding cables

NEOPRENE® is a registered trademark of DuPont de Nemour.

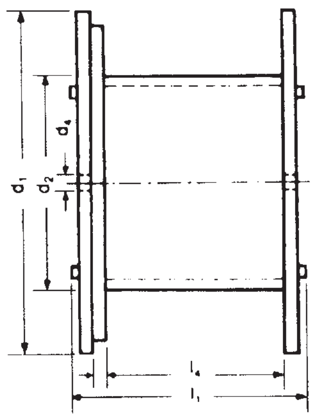
Wooden drums: holding capacity

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

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

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.

Returning drums. Please note the following.

Our partner responsible for all packaging and disposal matters is the disposal and recycling service provider INTERSEROH Dienstleistungs GmbH. Please address any queries regarding the new packaging regulation to:

Interseroh Dienstleistungs GmbH
Phone: 0049 2203 9147-1366
Fax: 0049 2203 9147-1390
E-mail: kabeltrommeln@interseroh.com

Any other special requests?

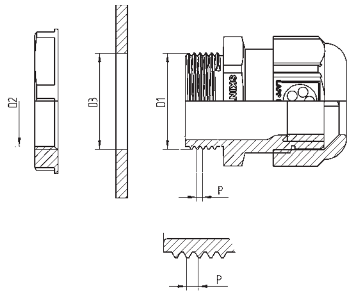
No problem! The Lapp Group has a highly motivated team of experts standing by to help you with your logistics requirements in any way they can. Just get in touch!

www.lappkabel.com/service/logistics

Thread and hole dimensions – technical data for installation

Metric thread to EN 60423 (for screw connections to EN 50 262)

Nominal size	Ø D1	P	Ø D2	Hole Ø D3
M 12 x 1.5	12	1.5	10.6	12.3 – 0.2
M 16 x 1.5	16	1.5	14.6	16.3 – 0.2
M 20 x 1.5	20	1.5	18.6	20.3 – 0.2
M 25 x 1.5	25	1.5	23.6	25.3 – 0.2
M 32 x 1.5	32	1.5	30.6	32.3 – 0.2
M 40 x 1.5	40	1.5	38.6	40.4 – 0.3
M 50 x 1.5	50	1.5	48.6	50.4 – 0.3
M 63 x 1.5	63	1.5	61.6	63.4 – 0.3
M 75 x 1.5	75	1.5	73.6	75.4 – 0.3
M 90 x 2	90	2	88.8	90.4 – 0.3
M 110 x 2	110	2	108.8	110.4 - 0.3



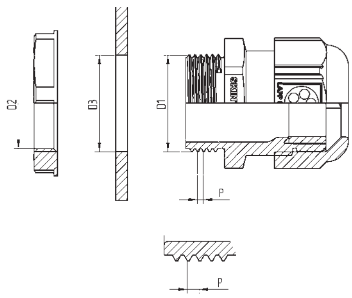
D1 = External-Ø
D2 = Core Ø internal thread
D3 = Hole Ø
P = Pitch

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
M 18 x 1.5	18	1.5	16.4	18.3 – 0.2
M 24 x 1.5	24	1.5	22.4	24.3 – 0.2
M 30 x 2	30	2	27.8	30.3 – 0.2
M 36 x 2	36	2	33.8	36.3 – 0.2
M 45 x 2	45	2	42.8	45.4 – 0.3
M 56 x 2	56	2	53.8	56.4 – 0.3
M 72 x 2	72	2	69.8	72.5 – 0.4
M 80 x 2	80	2	77.8	80.5 – 0.4
M 105 x 2	105	2	102.8	105.5 – 0.4

PG thread to DIN 40430

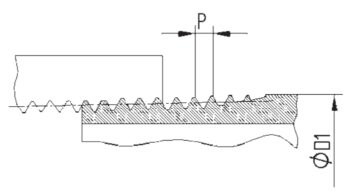
Nominal size	Ø D1	P	Ø D2	Hole Ø D3
PG 7	12.5	1.27	11.3	12.8 – 0.2
PG 9	15.2	1.41	13.9	15.5 – 0.2
PG 11	18.6	1.41	17.3	18.9 – 0.2
PG 13.5	20.4	1.41	19.1	20.7 – 0.2
PG 16	22.5	1.41	21.2	22.8 – 0.2
PG 21	28.3	1.588	26.8	28.6 – 0.2
PG 29	37.0	1.588	35.5	37.4 – 0.3
PG 36	47.0	1.588	45.5	47.4 – 0.3
PG 42	54.0	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 – 1983

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 SKINTOP® metric design to achieve category A protection rating and strain relief to EN 50262. For more information regarding the protection rating, see the product page.

Nominal size	Tightening torque in Nm	
	Plastic	Metal
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

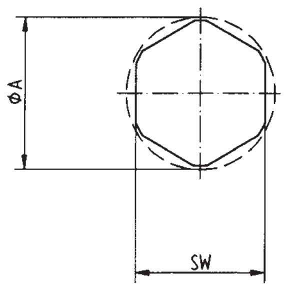
Nominal size	Tightening torques for fittings in Nm		Tightening torques for domed cap nuts in Nm	
	Plastic	Metal	Plastic	Metal
PG 7	3.0	6.25	1.7	6.25
PG 9	4.0	6.25	2.5	6.25
PG 11	4.0	6.25	2.5	6.25
PG 13.5	4.0	6.25	2.5	6.25
PG 16	6.0	7.5	3.3	7.5
PG 21	8.0	10.0	5.0	10.0
PG 29	13.0	10.0	5.0	10.0
PG 36	13.0	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



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, e.g. IP 54.

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 EN 50262 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 EN 502262 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.

EN 50262 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 EN 50262. 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**

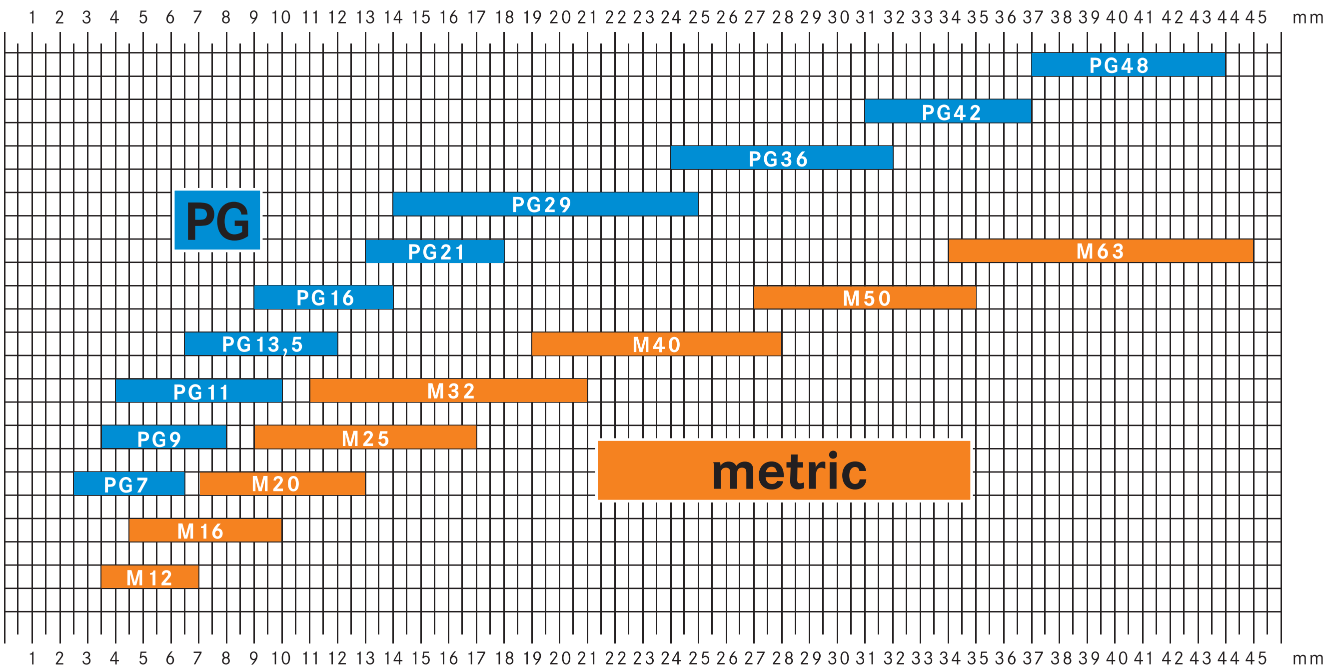
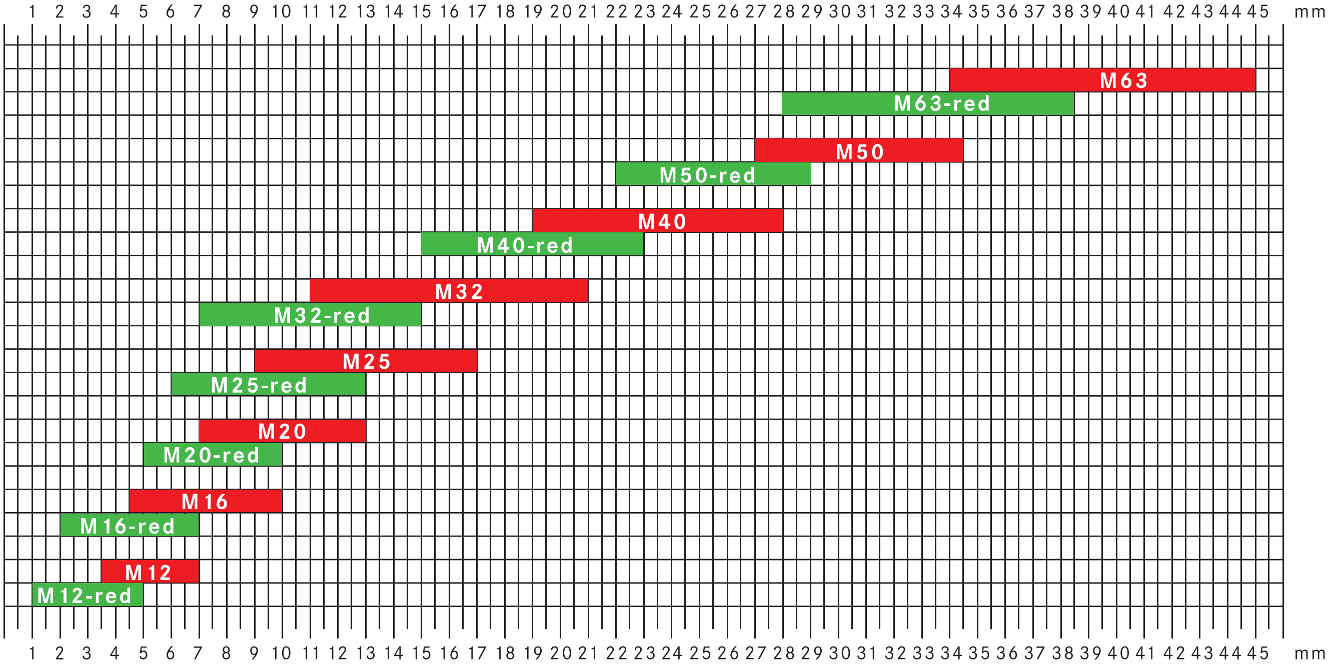


Table 23-1: substitution PG/metric

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

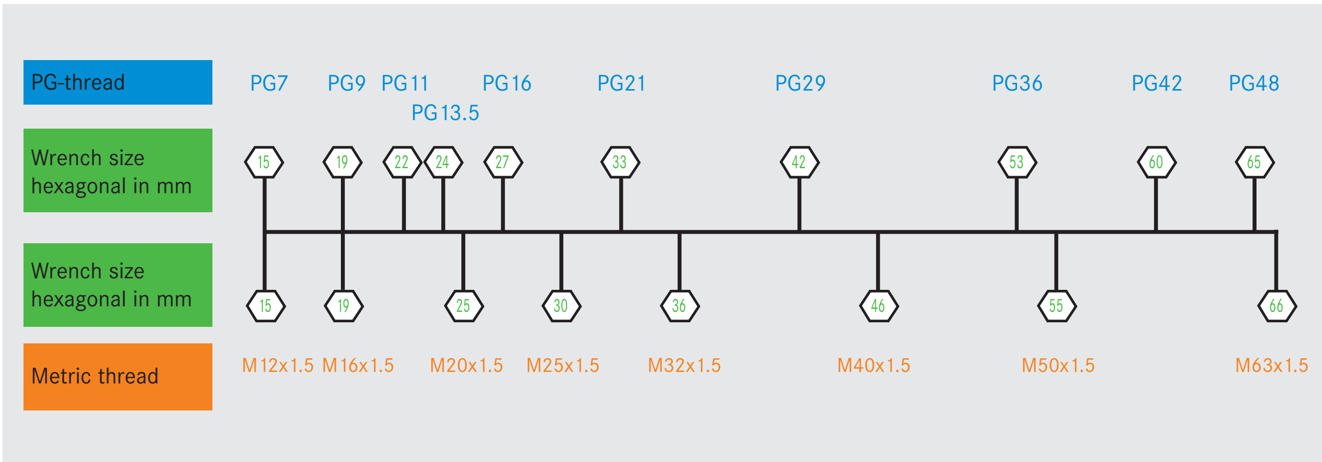


Table 23-2: EMC Optimized screening for use of cable glands

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)).

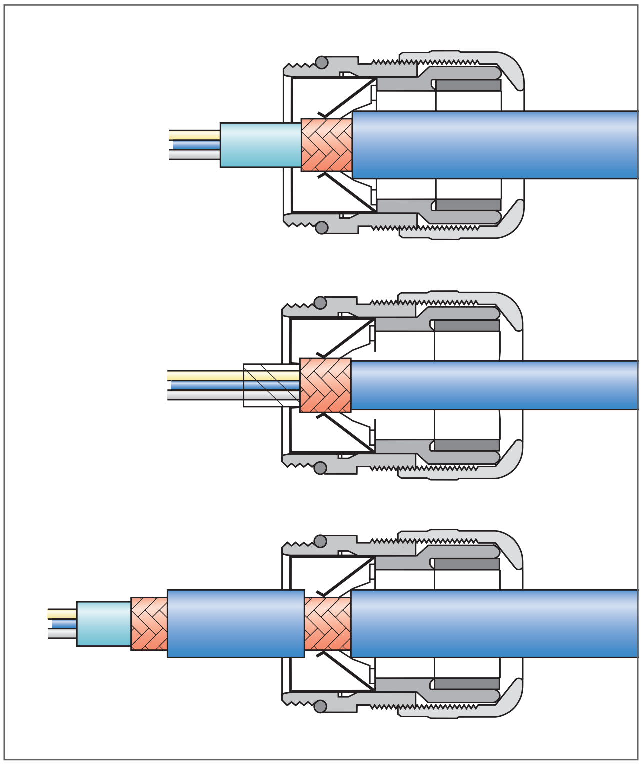


Table 23-2: EMC Optimized screening for use of cable glands

	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 characteristrics 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

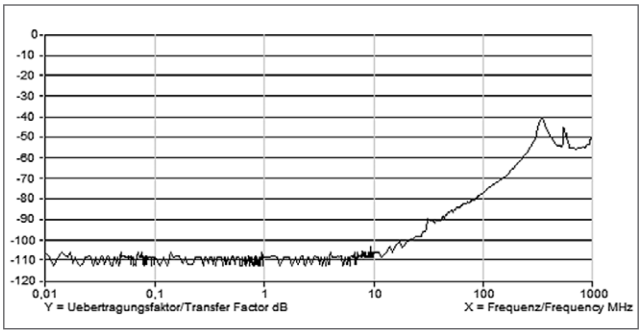
Measurements were performed as described above, in accordance with the German Defence Equipment Standard VG 95373, Procedure KS 01 B. The DC resistance of the glands equals 1 mW; this produces screening attenuation values which, depending upon the size and type of the gland, can amount to >100 dB.

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

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.

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EPIC®	SILVYN®
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SKINDICHT®	

Registered trademarks of other companies

Temflex™ 1500	(3M)	PROFIBUS®	(PI, PROFIBUS International)
Scotch™ 1183	(3M)	Netware	(Novell)
NEOPRENE®	(DuPont de Nemours)	Novell	(Novell)
TEFLON®	(DuPont de Nemours)	Arcnet	(Datapoint)
KEVLAR®	(DuPont de Nemours)	Apple	(Apple)
TERMI-POINT®	The Whitaker Corporation	Macintosh	(Apple)
INTERBUS®	(Phoenix Contact)	HP	(Hewlett Packard)
VariNET®	(Pepperl + Fuchs)	SIMATIC®	(SIEMENS®)
DEC®	(Digital Equipment Corporation)	SHIELD-KON®	(ABB)
LAT®	(Digital Equipment Corporation)	TY-FAST™	(ABB)
Thinwire® (net)	(Digital Equipment Corporation)	TY-GUN™	(ABB)
IBM	(International Business Machines)	TY-RAP®	(ABB)
PS/2	(International Business Machines)	TWIST TAIL™	(ABB)
Netview	(International Business Machines)	CIBES®	(Inomec AB)
AS/400	(International Business Machines)	SafetyBUS p	(Pilz)
DYMO®	(Sanford GmbH)	QUICKON®	(PhoenixContact)
VITON®	(DuPont Dow Elastomers)	INDRAMAT®	(Bosch Rexroth)
OS/2	(IBM)	Ecofast	(SIEMENS®)
DeviceNET™	(Open Device Net Vendor Association, ODVA)	DESINA®	VDW (Verein Deutscher Werkzeugmaschinenfabriken – German Machine Tool Builders Association)
Microsoft®	(Microsoft)	NYLON®	(DuPont de Nemours)
Microsoft® Windows	(Microsoft)	EtherCAT®	(EtherCAT Organisation)
SCO®	(Santa Cruz Operation)	EtherNet/IP®	(Open Device Net Vendor Association, ODVA)
Perbunan®	(Bayer AG)	CANopen	(CAN in Automation)
PROFINET®	(PI, PROFINET International)	TRASP®	(3M)

Certificate type		Fire protection	EAC
Product	**Page**		
Flexible power and control cables, nominal voltage up to 500 V			
ÖLFLEX® CLASSIC 100	26	✔	✔
ÖLFLEX® CLASSIC 100 CY	30	✔	✔
ÖLFLEX® CLASSIC 100 SY	31	✔	✔
ÖLFLEX® SMART 108	33	✔	✔
ÖLFLEX® CLASSIC 110	34	✔	✔
ÖLFLEX® CLASSIC 110 Orange	39	✔	✔
ÖLFLEX® CLASSIC 110 CY	40	✔	✔
ÖLFLEX® CLASSIC 110 SY	41	✔	✔
ÖLFLEX® CLASSIC 115 CY	44	✔	✔
ÖLFLEX® EB	46	✔	✔
ÖLFLEX® EB CY	47	✔	✔
ÖLFLEX® 140	48	✔	✔
ÖLFLEX® 140 CY	49	✔	✔
ÖLFLEX® 150	50	✔	✔
ÖLFLEX® 150 CY	51	✔	✔
ÖLFLEX® 191	52	✔	✔
ÖLFLEX® 191 CY	53	✔	✔
ÖLFLEX® SF	62	✔	✔
ÖLFLEX® ROBUST 210	73		✔
ÖLFLEX® ROBUST 215 C	74		✔
ÖLFLEX® CLASSIC 400 P	75		✔
ÖLFLEX® SPIRAL 400 P	241		✔
ÖLFLEX® CLASSIC 400 CP	77		✔
ÖLFLEX® CLASSIC 415 CP	78		✔
ÖLFLEX® 440 P	81	✔	✔
ÖLFLEX® 440 CP	82	✔	✔
ÖLFLEX® 491 P	83	✔	✔
ÖLFLEX® 450 P	84	✔	✔
ÖLFLEX® 500 P	85	✔	✔
ÖLFLEX® 540 P	86	✔	✔
ÖLFLEX® SPIRAL 540 P	244	✔	✔
ÖLFLEX® 540 CP	87	✔	✔
ÖLFLEX® 550 P	88		✔
ÖLFLEX® SERVO 720 CY	101	✔	
ÖLFLEX® SERVO FD 798 CP	112	✔	
ÖLFLEX® CLASSIC FD 810	119	✔	✔
ÖLFLEX® CLASSIC FD 810 CY	120	✔	✔
ÖLFLEX® CLASSIC FD 810 P	131	✔	✔
ÖLFLEX® CLASSIC FD 810 CP	132	✔	✔
ÖLFLEX® FD 855 P	135	✔	✔
ÖLFLEX® FD 855 CP	136	✔	✔
ÖLFLEX® ROBUST FD	133		✔
ÖLFLEX® FD 891	127	✔	✔
ÖLFLEX® FD 891 CY	128	✔	✔
ÖLFLEX® FD 891 P	138	✔	✔
ÖLFLEX® ROBOT 900 P	140	✔	✔
ÖLFLEX® ROBOT 900 DP	141	✔	✔
ÖLFLEX® ROBOT F1	142	✔	✔
ÖLFLEX® ROBOT F1 C	143	✔	✔

Certificate type		Fire protection	EAC
Product	**Page**		
ÖLFLEX® CHAIN 809	125	✔	✔
ÖLFLEX® CHAIN 809 CY	126	✔	✔
Flexible power and control cables, nominal voltage up to 750 V			
ÖLFLEX® CLASSIC 100	26	✔	✔
ÖLFLEX® CLASSIC 100 Yellow	29	✔	✔
ÖLFLEX® CLASSIC 100 CY	30	✔	✔
ÖLFLEX® CLASSIC 100 SY	31	✔	✔
ÖLFLEX® ROBUST 200	72		✔
ÖLFLEX® 540 P	86	✔	✔
ÖLFLEX® SPIRAL 540 P	244	✔	✔
ÖLFLEX® 540 CP	87	✔	✔
ÖLFLEX® 550 P	88		✔
Flexible power and control cables, nominal voltage up to 1000 V			
ÖLFLEX® CLASSIC 100 BK 0,6/1 kV	32	✔	✔
ÖLFLEX® CONTROL TM	54	✔	✔
ÖLFLEX® CONTROL TM CY	56	✔	✔
ÖLFLEX® TRAY II	58	✔	✔
ÖLFLEX® TRAY II CY	60	✔	✔
ÖLFLEX® CLASSIC 110 Black	42	✔	✔
ÖLFLEX® CLASSIC 110 CY Black	43	✔	✔
ÖLFLEX® FD 90	123	✔	✔
ÖLFLEX® FD 90 CY	124	✔	✔
ÖLFLEX® SERVO 700	100	✔	✔
ÖLFLEX® SERVO 2YSLCY-JB	102	✔	✔
ÖLFLEX® SERVO 2YSLCYK-JB	102	✔	✔
ÖLFLEX® SERVO 9YSLCY-JB	104	✔	✔
ÖLFLEX® SERVO 9YSLCY-JB BK	104	✔	✔
ÖLFLEX® SERVO FD 781 CY	108	✔	✔
ÖLFLEX® SERVO FD 796 P	109	✔	✔
ÖLFLEX® SERVO FD 796 CP	110	✔	✔
ÖLFLEX® CHAIN 809 SC	121	✔	✔
ÖLFLEX® CHAIN 896 P	139	✔	✔
SERVO LK SMS 6FX 5	106	✔	✔
SERVO LK SMS 6FX 8PLUS	114	✔	✔
ÖLFLEX® TORSION	154	✔	✔
NSSHÖU	96	✔	✔
Halogen-free, flame retardant, flexible power cables, nominal voltage up to 1000 V			
ÖLFLEX® CLASSIC 100 H	63	✔	✔
ÖLFLEX® CLASSIC 110 H	64	✔	✔
ÖLFLEX® CLASSIC 110 CH	65	✔	✔
ÖLFLEX® CLASSIC 130 H	66	✔	✔
ÖLFLEX® CLASSIC 135 CH	67	✔	✔
ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV	69	✔	✔
ÖLFLEX® CLASSIC 135 CH BK 0,6/1 kV	70	✔	✔
ÖLFLEX® PETRO C HFFR	71	✔	✔
ÖLFLEX® TORSION FRNC	154	✔	✔
ÖLFLEX® TORSION D FRNC	154	✔	✔
ÖLFLEX® HEAT 125 SC	189	✔	✔
H07ZZ-F	94	✔	✔

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.

Products with certification for Russia

Certificate type		Fire protection	EAC
Product	Page		
Flexible rubber cables, nominal voltage 450/750 V			
H05RR-F	80		✔
H05RN-F	81	✔	✔
H07RN-F	82	✔	✔
H07RN8-F	90	✔	✔
Flexible cables for conveyor technology			
ÖLFLEX® CRANE NSHTÖU	152	✔	✔
ÖLFLEX® CRANE VS (N)SHTÖU	153	✔	✔
ÖLFLEX® CRANE	155	✔	✔
ÖLFLEX® CRANE 2S	156	✔	✔
ÖLFLEX® CRANE PUR	154	✔	✔
ÖLFLEX® LIFT	157	✔	✔
ÖLFLEX® LIFT T	158	✔	✔
ÖLFLEX® LIFT S	159	✔	✔
ÖLFLEX® LIFT F	162	✔	✔
ÖLFLEX® CRANE F	160	✔	✔
ÖLFLEX® CRANE CF	161	✔	✔
Heat resistant cables			
ÖLFLEX® HEAT 105 MC	163	✔	✔
ÖLFLEX® HEAT 180 SiHF	166	✔	✔
ÖLFLEX® HEAT 180 SiF	180	✔	✔
ÖLFLEX® HEAT 180 SiF/GL	182	✔	✔
ÖLFLEX® HEAT 180 SiD	181	✔	✔
ÖLFLEX® HEAT 180 SiZ	182	✔	✔
ÖLFLEX® HEAT 180 H05SS-F EWKF	167	✔	✔
ÖLFLEX® HEAT 180 MS	168	✔	✔
ÖLFLEX® HEAT 180 C MS	169	✔	✔
ÖLFLEX® HEAT 180 EWKF	170	✔	✔
ÖLFLEX® HEAT 180 EWKF C	171	✔	✔
ÖLFLEX® HEAT 180 GLS	172	✔	✔
ÖLFLEX® HEAT 205 MC	173	✔	✔
ÖLFLEX® HEAT 205 SC	183	✔	✔
ÖLFLEX® HEAT 205 PTFE/FEP	173	✔	✔
ÖLFLEX® HEAT 260 MC	174	✔	✔
ÖLFLEX® HEAT 260 C MC	174	✔	✔
ÖLFLEX® HEAT 260 MC	174	✔	✔
ÖLFLEX® HEAT 260 SC	175	✔	✔
ÖLFLEX® HEAT 260 GLS	176	✔	✔
ÖLFLEX® HEAT 350 MC	177	✔	✔
ÖLFLEX® HEAT 350 SC	185	✔	✔
ÖLFLEX® HEAT 1565 MC	178	✔	✔
ÖLFLEX® HEAT 1565 SC	186	✔	✔
Single cores, nominal voltage up to 1000 V			
LiFY/LiFY 1 kV	131	✔	✔
H05V-K	191	✔	✔
X05V-K	189	✔	✔
H07V-K	193	✔	✔
X07V-K	194	✔	✔
H05Z-K (90°)	203	✔	✔
H07Z-K (90°)	204	✔	✔

Certificate type		Fire protection	EAC
Product	Page		
Multi-Standard SC 1	197	✔	✔
Multi-Standard SC 2.1	198	✔	✔
Multi-Standard SC 2.2	201	✔	✔
LiYCY	206	✔	✔
Li2YCY	206	✔	✔
PVC power and control cables for fixed installation up to 1000 V			
ÖLFLEX® STATIC CY BLACK	207	✔	✔
NYM-J	209	✔	✔
NYY-J	211	✔	✔
NYY-O	212	✔	✔
NYCY	213	✔	✔
NYCWY	214	✔	✔
NHXMH	210	✔	✔
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® 120 H, ÖLFLEX® 120 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 resistance in Gy approx.	Radiation resistance 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

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 Kabel products with multiple listings/approvals:

ÖLFLEX® CONTROL TM, ÖLFLEX® TRAY II, ÖLFLEX® 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 mm² 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).

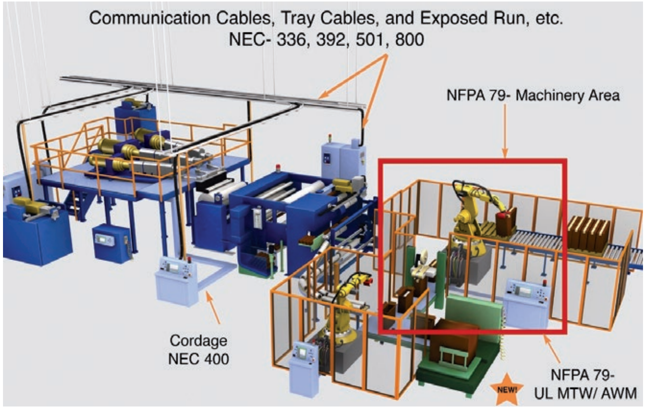
Examples of industrial machinery include: Machine tools, injection moulding, woodworking, assembly and material handling machines – generally, any machines for material processing and transport in the broader sense, but with a clear distinction from "passenger transport", for example.

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 – unlisted AWM single cores or unlisted 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 Kabel types: ÖLFLEX® TRAY II, ÖLFLEX® 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> 2011

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	✔
UNITRONIC® 300, 300S, 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	CMG	250	60	PUR	✔
UNITRONIC® BUS PB FD FRNC FC	CMG	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	125	75	PVC	✔
ETHERLINE® Y FC Cat.5	CMG/PLTC	600	75	PVC	✔
ETHERLINE® PN Cat.5e YY	CMG	125	70	PVC	✔
ETHERLINE® PN Cat.5 Y Flex FC	CMG	600	70	PVC	✔
ETHERLINE® FD P FC Cat.5e	CMX	300	75	PUR	✔
ETHERLINE® PN Cat.5e FRNC FLEX FC	CMG	100	75	FRNC	✔
ETHERLINE® Y FLEX Cat.5e	CMG	100	75	PVC	✔
ETHERLINE® Y EC FLEX Cat.5e	CMX	300	75	PVC	✔
ETHERLINE® P EC FLEX Cat.5e	CMX	125	75	PUR	✔
ETHERLINE® PN Cat.6$_A$ Y FLEX	CMG	300	75	PVC	✔
ETHERLINE® PN Cat.6$_A$ FRNC FLEX	CMG	300	75	FRNC	✔
ETHERLINE® PN Cat.6$_A$ FD Y	CMX	125	75	PVC	✔
ETHERLINE® PN Cat.6$_A$ FD P	CMX	125	75	PUR	✔
ETHERLINE® PN Cat.6$_A$ TORSION Y	CMX	125	75	PVC	✔
ETHERLINE® PN Cat.6$_A$ TORSION P	CMX	125	75	PUR	✔
ETHERLINE® FD P Cat.6	CMX	125	75	PUR	✔
ETHERLINE® TRAY ER PN Y FC	CMG/PLTC-ER	600	75	PVC	✔
ETHERLINE® MARINE FRNC FC	CMG/PLTC	600	75	FRNC	✔
ETHERLINE® TRAY Cat 5e Y	CMG/CMR/PLTC			PVC	✔
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 CY	21098	600	90	PVC	✔
ÖLFLEX® 150	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® 491 P	20234	600	80	PUR	✔
ÖLFLEX® CONTROL TM, TM CY	20886	1000	105	Special PVC compound	✔
ÖLFLEX® CHAIN 809	20886	1000	80	PVC	✔
ÖLFLEX® CHAIN 809 CY	20886	1000	80	PVC	✔
ÖLFLEX® FD 891	2587, 21098	600	90	PVC	✔
ÖLFLEX® FD 891 CY	2587, 21098	600	90	PVC	✔
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® 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 SiFA	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 CY	2570	1000	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 6FX 5008	Power cables: 2570 Signalling cables: 2502	Power cables: 1000 Signalling cables: 30	80	Special PVC compound, DESINA®-compliant	✔
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	125	70	FRNC	✔
ETHERLINE® TORSION Cat.5	21161	125	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	75	PVC	✔
ETHERLINE® Y FC Cat.5	21694	600	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.
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.

The Lapp Group 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.

The Lapp Group 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, the Lapp Group 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

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.

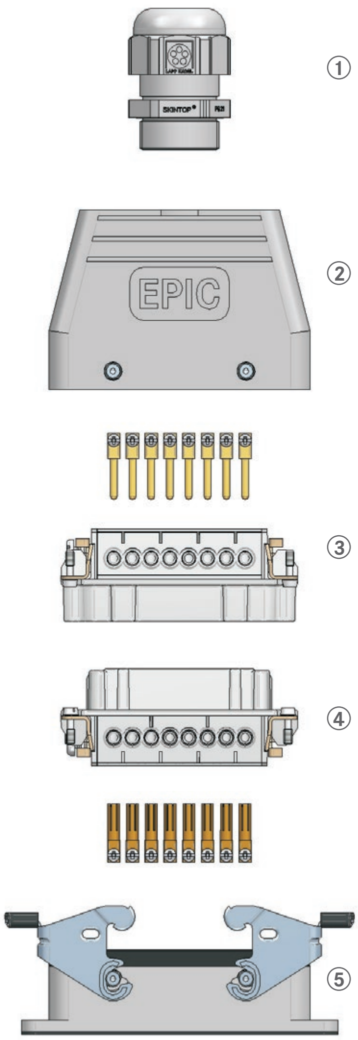
Directive 2006/66/EC on batteries and accumulators as well as waste batteries and accumulators

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 3V 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 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.

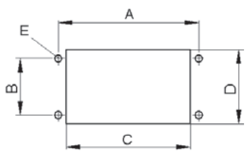
Table 31-2: EPIC® housings and inserts

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).

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.

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.

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.



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 (Ag2S). 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

Index of Products

From part number 10035381 to 10457700

LAPP GROUP

From part number 1123254 to 1308307

From part number 55001083 to 55507317

LAPP GROUP

From part number 61753762 to 61811190

GLOSSARY

Simply and quickly find the most important terms relating to electrical engineering.

A

Absorption
Cause for attenuation of a fibre optic cable.

ACR
Abbreviation for Attenuation to Crosstalk Ratio. The ACR value indicates the relationship between the near-end crosstalk and the attenuation at a certain frequency.

Address bus
System of associated cables, to which address bits can be transferred.

Adhesion
Adhesive, cohesive and density property of the outer sheath of a cable. "Low adhesion" property important e.g. for drag chain use in order to avoid the cables from sticking to each other.

Aging
The change in the properties (predominantly tensile strength and expansion) of a material over time under specific conditions such as temperature, UV radiation, ozone influence, chemical and thermal loads, etc.

Aging resistance
As cables are often subject to environmental influences over decades (life cycle), i. e. chemical, electrical and climatic exposure, it is these properties that are to be tested. Here, all the materials found in cables are briefly tested under extreme conditions. All materials should have a very high aging resistance.

Alternating current
The alternating current is produced by linking three alternating currents with identical oscillation values and frequencies. Also known as multi-phase alternating current.

Aluminium sheath
The aluminium sheath is lighter than the lead sheath, has better conductivity and greater resistance, however must include a plastic sheath to protect against corrosion.

American wire gauge
Cables or cores according to American cross-sections/dimensions. High AWG number → small cross-section, low AWG number → large cross-section (see Table T16).

Ampacity
Maximum permitted current that can be transmitted under defined conditions. VDE0298, Part 4.

Ampere
The strength of an electric current that flows through a conductor. Unit of measurement for the electric current (A).

Analog signal transmission
Transmission of continuously variable signals with which the light output is modulated.

Angle of beam spread
Half the vertical angle of the cone within which the injected power in a light waveguide with uniform illumination is equal to a specified fraction of the total injected power.

ANSI
Abbreviation for the American National Standards Institute. An American committee which, similar to the German DIN, develops and publishes standards.

Antenna cable
Antenna cables are coaxial high-frequency cables for receiver connections, domestic distribution grids and single antenna installations. They are mainly used in receiving and distribution stations for sound and television broadcasting. They must guarantee a low-reflection signal transmission.

Anti-kink cable glands
Mechanism that is part of a cable gland and provides additional protection if a flexible cable is frequently subjected to bending (e.g. SKINDICHT® SR-SV-M at Lapp).

Antioxidant, Oxidation inhibitor
As antioxidants may colour rubber compounds, they are generally only ever used for dark compounds. They prevent the compounds from becoming brittle too early.

Approved cables
Approved control and data network cables with certification, standards such as VDE, UL/CSA.

Armouring
Also known as reinforcement. Armouring is a mechanical protection for cables. It is produced in a variety of ways and using a wide range of materials, depending on the expected loads on the cable. It can be made of steel wire braiding, circular or flat steel wires, strip iron or combinations of these materials.

Armouring types
Commonly used are the flat steel wire, steel band, profile steel wire and round steel wire armouring with outer protective cover. There are also steel wire armourings with an anti-twist tape (steel band), however without an outer protective cover (for interior spaces).

Armouring, armour
A special electromechanical or mechanical protection against external stresses, for the improvement of the reduction factor and for the absorption of tensile forces. Plastic fibres are used instead of metallic armouring for fibre optic cables.

AS
Abbreviation for Australian Standard.

ASI (Actor-Sensor-Interface)
Bus system for the lowest level of automation. Facilitates the simple connection of sensors, actuators and integrated systems to the first control level. See → Master-Slave principle. Up to 248 binary inputs and outputs per grid, one cable for information and energy, reversepolarity protected connection technology, 100 m cable length or up to 300 m with repeaters, open tree structure of grid, protection class up to IP 67, cycle time <5 ms, high immunity to interference and fault tolerance.

ASME
Abbreviation for the American Society of Mechanical Engineers (USA).

Assembly
A ready-to-install cable. It is cut to the appropriate length and fitted with connecting elements (plugs, cable lugs, etc.) at the ends.

ASTM
Abbreviation for the American Society of Testing and Materials.

ATEX approval
This approval is required for the intended use of devices and protection systems in areas at risk to explosions.

Attenuation
Attenuation is the reduction of the signal amplitude during transmission to a medium. It increases with the rising frequency and cable length. The signal level is impaired in the process.

Attenuation a
The reduction of the optical signal power between two cross-sectional surfaces of a fibre optic cable due to losses. The unit of measurement is decibels (dB).

Attenuation coefficient a
The attenuation relative to the length of a fibre optic cable. The standard unit of measurement is decibel/kilometre (dB/km).

Automotive cable
Vehicle cables are cores and cables used in passenger cars and trucks (e.g. ÖLFLEX® TRUCK at Lapp).

AWG
Abbreviation for American Wire Gauge. Standard expression for the wire diameter. The smaller the AWG value, the bigger the wire diameter. The actual values (mm) depend on the core resolution, regardless of whether a fixed conductor or a strand is used.

AWM
UL marking for Appliance Wiring Material.

B

Backbone
Backbone or secondary wiring is the connection between the building distributor and the individual floor distributors in a structured wiring system.

Backscatter
A small fraction of the light that is deflected from its course due to dispersion travels in a reverse direction, i. e. in the light waveguide back to the transmitter. By observing the chronological progression of the backscattered light using a beam splitter on the transmitter, it is possible to measure not only the length and damping of an installed light waveguide from one end but also local irregularities, e.g. light losses in splices.

Backtwist
The term relates to the stranding process. The technical design of the stranding machine twists the elements to be processed into a strand without torsion.

BALUN
Balun is a term combining “balanced” and “unbalanced”. Baluns are used for adjusting impedance and symmetry in the various transmission media in copper grids.

Banding
Wrapping a bundle of wires with relatively narrow paper, textile, plastic or metal strips.

Bandwidth
Frequency range of a fibre optic cable within which data can be transmitted within a particular time frame. The greater the bandwidth, the more data that can be transmitted. The transmission speed depends on the bandwidth of the entire network.

Bandwidth product
The bandwidth product is what results when the bandwidth of a glass fibre cable is multiplied with the length of the measured section.

Bandwidth-length product
Measurement for the frequency range that can be transmitted by a fibre optic cable one kilometre in length. It is a constant value.

BASEC
Abbreviation for the British Approvals Service for Cables. Certification body – Great Britain and Northern Ireland.

Basic raw materials
In addition to the basic raw material, synthetic materials contain a range of other components such as stabilisers, softeners, filler and colour.

Batteries Act
The Battery Act came into force in 2009 and also covers the registration and return of batteries.

Battery cables
Link between battery and generator in the engine. They are developed, manufactured and delivered in accordance with customer requirements/product specifications.

Baud
Unit for a modulation rate in the transmission of communications. One step per second. 1 bit/s = baud, 1 Mbit/s = 1 Mbaud → see Bit

Bel
1 Bel = 10 decibels. In highfrequency technology, the common unit of measurement for attenuation and, like decibel, a dimensionless ratio.

Bending capacity
The bending capacity indicates how far a product can bend without forfeiting function.

Bending cycle
Number of bends repeated in the drag chain (How often was a cable actively stressed during testing or during application?)

Bending radii
Permissible radius for occasional or constant bending of cables. The bending radius is defined as a multiple of the cable diameter. The construction of the cables determines the minimum permissible bending radius, which allows it to be increased or reduced. The permissible bending radii must be adhered to when laying power lines and cables. The standard values are between 15 x D and 30 x D, depending on construction type and regulation. D is the outer diameter of the cable. (At Lapp: ÖLFLEX® FD with 5 x D or 7.5 x D).

Bending test at low temperature
Cold flexibility test for cables. A cold cable is wrapped around a pin and no cracks may occur in the insulation.

Binary
Property restricted to just two values.

Bit
The smallest unit for representing binary data, significance either 0 or 1. It is the basic unit for transmission information in digital systems. A byte is a group of 8 bits.

Bit error rate, BER
Ratio of error bits to the overall number of bits received during a specific period.

Blue cable
Cable for intrinsically safe systems in hazardous locations. The compulsory colour code here is blue, RAL 5015. (For Lapp, ÖLFLEX® EB. These cable types are also available with shielding, e.g. ÖLFLEX® EB CY, UNITRONIC® EB CY).

Braid angle
Variation in degrees between the longitudinal axis and the wire routing within the braid.

Braiding
Arrangement of interlaced wires or threads forming part of the structure of a cable. Copper wire braiding is used for screening, while braiding made of textile, plastic thread or steel wire performs supporting or carrying, i. e. mechanical, functions. Braiding can be close or wide meshed (coverage density in percent) with different angles of twist.

Breakdown
This refers to electrical breakdown between two conductors or a conductor in water during the testing process, when the insulation can no longer withstand the constantly increasing voltage (breakdown voltage) or if a fault in the insulation results in a breakdown within a specified time at a constant voltage.

Breaking load, ultimate load
The product of nominal cross-section and tensile strength is the breaking load.

British Standard Wire Gauge
Also known as NBS (New British Standard), SWG (Standard Wire Gauge), Legal Standard and Imperial Wire Gauge. A modified version of the Birmingham Wire Gauge, a standard from Great Britain valid for all wires.

Broadband
Transmissions in which the signals are transmitted by a high number of oscillations per second (glass fibre technology).

BS
Abbreviation for British Standard. Standards body for Great Britain, similar to VDE in Germany.

BSI
Abbreviation for British Standard Institution – Great Britain.

Bundle
Several cores or pairs that are stranded into a group and in turn make up one element of a strand assembly.

Bus system
The bus system is a system of cables that transmits information and data.

C

Cable
Combination of several cores with protective layers (sheath) or sheathing of a single core. The sheathing protects the cores against all kinds of harmful influences. Cables are used to transport electric current (power cables), transmit information using an electric current (data cables) or to transfer information using light waves (light waveguide cables). The term line is also commonly used, depending on the application. It is not possible to exactly delineate the two terms. In general, the term "cable" is used for installations outside buildings. In practice, however, the terms are used interchangeably. Combination of any number of cores under a sheath.

Cable carrier
An assembly of linked, hinged support elements for directional, dynamic routing of all types of flexible bending power cables.

Cable data
The cable type file is part of the CAE software from ePLAN®. The cable type file defines the number of cores, their colour code, the PE core and the screening for all cables. In the Lapp item master data for ePLAN®, the cable type is assigned to the relevant item. This means that when a Lapp item is selected, each core is automatically assigned the appropriate colour code in the ePLAN® circuit diagram.

Cable gland
The brand name is SKINTOP® at Lapp. A cable gland is a device that is designed to guide a cable or an insulated conductor into a sheath and provides a seal and a restraint mechanism. It can also have other functions, e.g. kink prevention, strain relief, potential equalisation, earthing, insulation or a combination of these.

Cable gland size
The following sizes are currently defined in EN 60562: M 12 x 1.5; M 16 x 1.5; M 20 x 1.5; M 25 x 1,5; M 32 x 1.5; M 40 x 1.5; M 50 x 1.5; M 63 x 1.5; M 75 x 1.5; M 90 x 2; M 110 x 2. M stands for metric.

Cable print
Coloured marking on the outer sheath of individual elements or cables using symbols, names and other markings.

Cable set-up
Describes (from inside to out) the materials used for cables, their design and properties and the position of the individual elements.

Cable tree
Combination of individual cores or cables tied together with nylon ties, spirals or hose sheathing. The form of the harness is created when joining the wires, as the various consumers in the device and system circuits are physically separated and the connection with the individual cables makes constant branches necessary.

Cable type letter code
Identification of cables according to their design, nominal cross-section and number of cores, nominal voltage and conductor shape, which results in specific combinations of predetermined letters and numbers. For rules and standards, each of the letters and numbers has a specific meaning.

Cables for hand-held machinery
Handheld device cables are connecting and extension cables for power tools used in the open air or in enclosed spaces (e.g. ÖLFLEX® 540 P/CP, ÖLFLEX® 550 P, ÖLFLEX® 400, ÖLFLEX® 500 P, ÖLFLEX® SF ... at Lapp).

Caloric load values
Caloric load is the energy that is released when cables and other building materials are burned.

Campus
The campus or primary wiring establishes the connection between the various buildings within a structured wiring system.

CAN
Controller Area Network. Result-controlled communication system. As a generator of information, this reports to all connected nodes.

Canadian Electrical Code
See → CEC

Capacity
Electrical unit of measure, measured in Farad, or electrical unit of measure V x A = Watts.

Carrier frequency
The frequency of the oscillation whose amplitude, phase or frequency is influenced by a signal.

Carrier frequency, hook-up wire
In carrier frequency systems, they are used to transmit signals. Up to 120 carrier frequency channels can be simultaneously transmitted in a cable.

CCC
Abbreviation for China Compulsory Certificate. Products requiring certification can only be imported to China, sold in China or used in Chinese business activities after the relevant CCC certification has been requested and granted.

CE
Abbreviation for Communauté Européenne (European Community).

CE marking
Comprises the “CE” symbol and indicates a product’s compliance with all applicable EU directives. CE indicates that the natural or legal entity which carries out or initiates the connection is satisfied that the product meets the requirements of all relevant harmonised standards and has been subjected to all mandatory conformity assessment procedures.

CEBEC
Abbreviation for Comité Electronique Belge – Belgian certification body.

CEC
Abbreviation for the Canadian version of the US National Electrical Code (NEC).

CEE
Mark for the European standards institution: International Commission on Rules of Electrical Equipment.

CEI
Abbreviation for Commission Electrotechnique Internationale – International.

CENELEC
Abbreviation for Comité Européen de Normalisation Electrotechniques (Europe).

Central element
See → Core.

Central filler
The core is a design element onto which the other design elements are attached.

Characteristic impedance
Apparent impedance of an electronic quadrupole; it is made up of the Ohmic resistance and the frequency-dependent resistances of inductances and capacitances. The impedance of a cable represents the ratio of the voltage waves advancing in a direction to the current wave moving in the same direction. Common values are 100, 120 and 150 Ohm. It is important that the impedance of the cable corresponds to the input/output impedance of the connected equipment.

Chromatic dispersion
Grouping of wavelength-dependent effects which lead to a bandwidth limitation, such as waveguide dispersion and sheath dispersion.

Circular Mil (CM)
Measurement for conductor cross-sections in 1/1000 inch (0.001”) from circuit diameter.

Cladding
Cladding is the glass layer which surrounds the core of the fibre optic cable.

Clamping range
Cable diameter range for which the assured properties of a cable gland apply.

CNOMO
Abbreviation for Comité de Normalisation des Moyens de Production. Commission for the standardisation of machine tools and tools used in the French automotive industry. With fibre optic cables, the plastic layer on the surface of the sheath for preserving the original surface condition.

Coating
Coating is a form of mechanical surface protection. It is a primary plastic layer which is applied directly to the sheath glass for fibre optic cables.

Coaxial cable
Concentric pair of conductors consisting of an inner conductor and an outer conductor, which completely surrounds the inner conductor. Coaxial cables are suitable for low-attenuation and distortion free transmission of high bandwidth signals. Because of their self-screening construction, they are much less sensitive to external interference (e.g. RG coaxial cable at Lapp). Coaxial cables are used in high frequency telecommunications systems (cable TV, Ethernet applications) for transmission of high frequency signals.

Colour code
For uniform marking of metallic cables and waveguides, various institutions including the EIA, DIN and IEC, have developed a standardised colour coding system. The colour codes for metallic cores assign totally different colours to the insulation of the pairs of cores for the individual standards. In addition to these standards, which are not consistently applied by manufacturers, colour codes specific to the manufacturer are often used.

Colour print
Sheaths and insulation covers are usually printed with colour, using a metallic disc whose lettering is engraved inversely on its periphery. Using a scraper, the excess colour can be scraped away.

Communication
Interaction between two independent systems. Used for one-way or two-way exchange of messages in the form of voice, text, images or data.

Compensating cable
Compensating cables are used together with a thermal element for temperature measurements. (Thermal elements such as Fe/CuNi iron-constantan (blue); NiCr/Ni nickel- chromium-nickel (green); PtRh/Pt platinum-rhodium-platinum (white). A thermal element consists of two conductors made from different materials, between which there is an electric potential depending on temperature. A compensating cable transmits this potential from the thermal element to a cold junction. There, based on the value of the potential, the temperature can be assigned at the point of measurement.

Composite layer, composite sheath
The combination of an aluminium foil with the plastic/ polyethylene sheath of a cable. The foil covers the core of the cable lengthways and overlapping, while the plastic part is placed on the outside. The outer sheath extruded onto it forms a homogeneous connection with the foil due to the effect of temperature, resulting in an interconnected "laminated" aluminium foil sheath. Used in outdoor telecommunications cables.

Compound
A material compound of polymer plastics with filler. Polymers are often compounded with colours, processing aids, fibres and other fillers.

Concentric conductor
The concentric conductor (e.g. NYCWY) may be used as a PE or PEN wire and can also act as the screening.

Conditioning
Division of production length of cables into storage or delivery lengths. Standard forms include coils with lengths of 50, 100 and 250 m and drums with 250, 500 and 1,000 m, depending on weight.

Conductance
The electrical conductivity is the inverse of the electrical resistance.

Conductor
Single-conductor cables are single- or multi-wire cables, used mainly for fixed laying with rubber or plastic insulation (ground wire). A non-insulated wire of a material whose high number of free electrons makes it suitable for carrying electric current (particularly copper and aluminium). Component allowing a connection that is easy to break and reestablish between two light waveguides. The insertion loss from a connector is normally higher than that from a splice. In signal and power engineering, connectors are used for connecting cables with different numbers of poles and in a variety of different designs. Because of the associated ease of service compared to fixed cable connections, connectors are being used in an increasing number of applications. (e.g. EPIC® at Lapp). Plugs are components that enable electrical conductors to be connected and are designed to create detachable electrical connections with an appropriate counterpart. Plugs may not be inserted or removed during proper use (under electrical voltage). A distinction is made between free and fixed plugs according to the mounting. The plug is made up of the plug housing and the contact elements. (e.g. EPIC® brand from Contact at Lapp). Central component for star-shaped passive light waveguide networks. It connects numerous transmitters and receivers and distributes the signal light output supplied by a connected transmitter evenly to all connected receivers.

Contact voltage
Part of an error voltage which may be contacted by members of the general public.

Control cable
The Lapp ÖLFLEX® brand is synonymous with connecting and control cables. The key features of control cables are: Bare or tin plated fine copper wire conductors, PVC insulation, stranding of cores with back twist, special PVC compound outer sheath. Different ÖLFLEX® designs include:
a) Different coloured cores,
b) Numbered cables. ÖLFLEX® cables have the following properties: Flexible, largely resistant to all kinds of oils, alkalis and acids. ÖLFLEX® are used in the following areas: As control cables in machine tool manufacture and general engineering, plant construction, in all kinds of industrial plants, in measurement and control engineering, process engineering, data processing etc. ÖLFLEX® control cables are highly recommended for these applications due to their excellent flexibility, the good general chemical resistance, the clear core coding and the problem-free compatibility with multi-pole machine connectors.

Copolymere
Mixture which polymerises from two or three monomers to form a chain.

Copper
The best material for producing electrical conductors. Excellent conductivity of heat and electricity. In addition, copper (Cu) has very good ductility and good strength properties.

Copper base
The monetary value used to value the copper contained in cables in the price.

Copper weight
It expresses the mass of the copper contained in the cables.

Copper-clad aluminium wire
This wire is made up of an aluminium core and a copper sheath.

Core
The optical core in glass fibre cable technology.

Core check, response at increased temperature
In order to determine the influence of heat on the mechanical properties of, for example, insulating covers, a test item is placed in a device for heat pressure testing which has already reached the testing temperature. The wall thickness of the test item determines the test load. After a specific storage period in the heating cabinet and subsequent cooling, the impression depth is measured with the reading microscope.

Core check, response with thermal shock
The core insulating cover is checked for thermal shock by wrapping the cores or strips from the insulating cover around a defined mandrel and storing them in a heating cabinet for approx. 1 hour at 150 °C. After removing the cores/strips and cooling them to room temperature, these test items should not display any visible cracks.

Core diameter
The core diameter is the diameter of the central light-carrying section of a light waveguide.

Core group
For the transmission of signals or energy, two or more stranded cores are required. Using two cores, it is possible to form a circuit that can transmit energy or signals.

Core Ident Code
VDE-DIN-colour code for colour-coded low-voltage cables according to VDE 0293-308/HD 308 S2.

Core identification
Coloured or numbered identification of single cores. A Lapp development: The internationally proven ÖLFLEX® colour code is based on the colour-coded identification of the single cores. Ten basic colours are combined with 2 mm wide colour spirals. This results in 102 colour variations. This colour marking is particularly advantageous compared to cores printed with numbers, as it means the cores can be assigned much more quickly in a device (saving time).

Core joint
Core joints combine synthetically insulated signal cable and telecommunication cores in a conductor diameter range of 0.35 – 0.9 mm. The cores are pressed together using a special core-joining pliers and thus placed solderless into the connection sleeve.

Core print
In the manufacture of cables, cores are principally identified by four methods:
1. Cores can be manufactured in one primary colour.
2. Marked with various colour codes.
3. Printed.
4. A combination of the different colour codes with printing. It must be noted that only earth conductors are to be green-yellow in colour and that these colours may not be used if there is any risk of confusion with other cables.

Core stranding
Without stranding, wires positioned parallel to one another would deform when bent. The outer wires would be overstretched and the inner wires compressed. The individual wires are twisted together in a spiral to maintain the flexibility and mobility of the conductor. The result is known as core stranding.

Core stranding with more than four cores
When constructing a cable, the best layer structure of the stranding elements is always selected, to obtain cables that are as circular as possible. Gaps in the layer structure are filled with insulated fillers or central cores (filling elements). In flat cables, the structural elements (groups or cores) are parallel to one another and can be stranded.

Core wrapping
Core wrappings are used to protect the insulating covers of rubber-insulated cables. They are mainly made from foil or fabric tape.

Core, conductor, insulated wire
Individually insulated conductor, e.g. made of single- or multi-wire copper or aluminium. Core = conductive component of cables with insulation coloured or marked numerically.

Corrosion
Degradation of minerals and materials due to mechanical and chemical environmental influences.

Coupler
Passive optical components for transmission of light between a light source and a light waveguide or between several light waveguides. Couplers that allow light waveguide networks for connecting multiple transmitters and receivers to be set up are of particular importance (see → T coupler).

Crane cables
Crane cables are supply cables for cranes in the open air or indoors (e.g. ÖLFLEX® CRANE at Lapp).

Crimp connection
Mechanical joining technology. When joining, for example, coaxial connectors with a coaxial cable using a crimping tool, a metal sleeve is pulled over the shielding and pressed together.

Cross-linked
The term refers to a manufacturing process for elastomers, thermoplastics and duroplastics. It describes the fact that particular chemicals are used to change the original linear alignment of the macromolecules from planar to solid structures. The materials used include sulphur compounds for rubber and peroxides for thermoplastics and duroplastics. Cross linking is carried out under the influence of heat and pressure, and high energy rays for thermoplastics. Cross linking is a permanent and irreversible process and plays a critical role in determining the actual material properties (it gives rubber its permanent elasticity and improves the thermal, mechanical and electrical properties of polyethylene).

Cross-linked polyethylene XLPE
Cross-linked polyethylene.

Cross-linking agent
Cross-linking agents or vulcanising materials in rubber compounds are either sulphur (for natural or synthetic rubber) or peroxide (for silicone, EPDM). Sulphur cross linking begins at room temperature and intensifies as the temperature is increased. With peroxide cross linking, oxygen is released for cross linking at a specific temperature.

Cross-section
Cross-sectional area of the conductor. A distinction is made between the geometrically defined nominal cross-section and the conductive cross-section, which is derived from the electrical → resistance.

A certain maximum resistance is assigned to the nominal cross-section, within which the conductor structure is specified. The cross-section is normally specified in mm². However, for certain types of cables, which are always made up of single-core conductors (telecommunications cables), the conductor diameter is used for marking or description.

CSA
Abbreviation for “Canadian Standards Association”. Canadian standards and testing body. Similar to VDE in Germany.

Current
Electrical unit, measured in Amperes. Current = Voltage/Resistance.

D

D.C.
Abbreviation for direct current.

Dark current
Current at the output of an optical receiver if no radiation is present.

Data bus
A system of associated cables, to which data bits are transferred.

Data transmission cable
Cables whose structure make them suitable for transmitting electric data processing pulses with minimum errors. Simple (pair) or more complex (screening) constructions are required depending on the susceptibility of the data pulses to faults (brand: UNITRONIC® at Lapp). Computer cables (Li2YCY-PIMF) or other, at least twisted in pairs, normally screened and often individually screened cables, e.g. UNITRONIC® LIYCY (TP), UNITRONIC® BUS; UNITRONIC® LAN, telephone cable, also light waveguide cables. TP = Twisted pair.

Data transmission rate
Unit of measure for the transmission speed of a data transmission. It is measured in bit/s or byte/s.

Data transmission, data transfer
Optical data transmission is always serial. Before data transmission, pending parallel data is always prepared for serial transfer and is post-processed to a parallel form after the transmission. We also refer to bit serial data transmission, as all of this data is always transferred as digital signals.

Decibel
A decibel is the logarithmic ratio of two levels (e.g. input level to output level). The unit of measure has no dimension and is specified in dB.

Degrees of protection
Protection of electrical equipment by housing, covers etc. Protection of equipment against the ingress of foreign bodies and water.

DEL
Abbreviation for Deutsches Elektrolytkupfer für Leitzwecke (German electrolyte copper for conduction) DEL is the stock market code for 99.5% pure copper in Euro/100 kg (see T17).

DEMKO
Abbreviation for Danmarks Elektriska Materialkontroll – Danish standards and testing body, testing and certification body, tasks similar to VDE/UL.

Density
Ratio of the mass to the volume of a body. If the mass is M and the volume is V, the radio is the density d = M/V.

Density unit
Result of the density of a body relative to the density of water (= 1). Corresponds to the specific weight.

Designation label
Fixing elements with which single wires, bundles, cables and cables on machine parts or walls can be permanently fixed in place. They are transparent or coloured, usually made from nylon and can display indelible information about their content.

DESINA®
The Verein Deutscher Werkzeugmaschinenfabriken e. V. (VDW) [German Machine Tool Manufacturing Federation] developed DESINA® (DEcentralised and Standardised INstAllation technology), a comprehensive overall concept for standardisation of electrical installation of equipment and machinery. Colour codes of cables:

- Servo cable, screened: Sheath colour orange RAL 2003
- Cable for measuring systems, screened: Sheath colour green RAL 6018
- Power cable, unscreened: Sheath colour black RAL 9005
- 24 Volt control cable, unscreened: Sheath colour grey RAL 7040 (similar to 7001)
- Field bus hybrid cable, Cu and light waveguide: Sheath colour violet RAL 4001
- Sensor/actuator cable, unscreened: Sheath colour yellow RAL 1021

DeviceNet™
Simple CAN-based communication system for networking of industrial automation equipment (limit transmitters, photo sensors, motor starters, frequency controlled drives, control terminals and similar) with master control equipment. Two screened twisted pairs of conductors within a cable are used as the transmission medium. One is used for communication (with transmission rates of 125, 250 or 500 kBit/s for cable lengths of 500 m, 250 m or 100 m) and the other to supply power to the connected equipment (max. 8 A for 24 V DC voltage).

Dielectric
Dielectric refers to the characteristic of certain substances to be electrically non-conductive – therefore insulating. Any electrically insulating material in which an external electrical field (e.g. between the plates in a capacitor) builds up an opposing field is referred to as dielectric. A dielectric causes a static electrical field to be retained even without a continuous supply of electric charge.

Dielectric constant (DC)
A material constant for a dielectric. The dielectric constant specifies how many times greater the capacitance of the capacitor will be if the insulating material is used as the dielectric instead of air. Multiplying the DC of the empty space by the dielectric constant gives the DC of the dielectric.

Diffusion
The primary cause of attenuation in a light waveguide. It is the result of microscopic fluctuations in the density of the glass, which deflect part of the guided light sufficiently from its course that it actually leaves the light waveguide. With light wavelengths above 1600 nm, this effect is very weak, however it increases at short wavelengths by the wavelength to the power of four (Rayleigh dispersion).

Digital signal transmission
Transmission of a signal using binary light pulses in a period time pattern.

Dimension
A term for the geometric size of a wire or strand, expressed as a diameter or cross-section. Often used in conjunction with the number of cores, e.g. 18 x 1.5 mm^2.

DIN
Abbreviation for Deutsches Institute für Normung [German Standardisation Institution]. It is based in Berlin, Germany.

DIN EN
European standard added to the German body of standards.

Direct line, connecting cable
A connecting cable is a cable that has a coupling connector through which the network connection is established. The fixed connection is found inside the device. The device is portable. The coupling connector contains earthed contacts and is thermoplastically moulded to the cable. Connecting cables are, for example, used to connect portable telephones.

Dispersion
Dispersion of the signal running time in a light waveguide. It is made up of various components: mode dispersion, material dispersion and waveguide dispersion. As a result of its dispersion, a light waveguide acts as a low-pass filter for the signals to be transmitted (see → Transmission function).

DKE
Abbreviation for Deutsche Kommission Elektrotechnik und Elektronik Informationstechnik [German Electrical Engineering, Electronics and Information Technology] in DIN und VDE. It is a branch of the DIN and its agency the VDE (Electrical Engineering, Electronics and Information Technology Federation). As a national organisation for formulating standards in electrical engineering and information technology, the DKE deals with important interdisciplinary issues such as safety, EMC, components and performance of conventional electric circuits, mobile wireless communication, software and Internet protocols. DKE is the German member of the European and global standardisation organisations. The DKE implements and publishes the results of standardisation work by the → IEC, → CELENEC and → ETSI in national standards.

Drag chain cables
Drag chain cables are cables used in power chains (e.g. ÖLFLEX® FD, ÖLFLEX® SERVO FD, UNITRONIC® FD plus at Lapp).

Drain wire
Single- or multi-wire non-insulated conductor that is run in close metallic contact under a screening.

Ductility, flexibility
As all cables and cores are liable to mechanical stress, they are also checked for flexibility, i. e. bent several times around various bending radii. There may be no visible damage to the cables, sheaths, inner or outer protective covers after testing. All stranded elements, braidings and wrappings must also remain correctly in place. In addition to the diameter of the strand assembly and the number of elements to be stranded, the length of lay plays a significant role in the flexibility of a cable. Based on the following principle: The shorter the length of lay, the more flexible the strand assembly.

Dummy
If there are “openings” detected in the cable, dummy elements or dummy cores are inserted and stranded together with the cable assembly. Dummy elements are generally made from cheap, inferior materials such as polyethylene twine, spun rayon and cotton. They are usually the same size as the real stranding elements.

Duplex operation
Transmission of two independent signals over a particular distance.

Duroplastic
In contrast to thermoplastics, after heating duroplastics cannot be deformed by heating them again. Duroplastics are required in the cable industry, e.g. as cable fittings or connectors.

E

Earth connection
Earthing of a point of the circuit, such as the neutral point, neutral conductor, midpoint or outer conductor.

Earth electrocode, ground system
Conductor that provides a conductive connection to earth. For example, it can be embedded in the ground or have a large area in contact with the ground.

Earthing
Earthing guarantees a clear reference potential for screening the active and passive components of a network.

ECAD
The ECAD component standard is a manufacturer-independent standard for describing item and engineering data in electrical engineering, specifically for machine and equipment manufacture.

EIA
Abbreviation for Electronic Industries Associations.

Elastomere
Elastomers are widely used for sheathing and insulating cables because of their excellent electrical and mechanical properties. Elastomers are high-molecular materials, whose elasticity depends on the degree of cross-linking. The biggest difference between elastic and plastic materials lies in loading and relief. After relief, an elastic material reverts to its original shape.

Electric circuits
In a cable, circuits with different voltages can be operated if they are insulated for the maximum voltage that occurs – VDE 0113 Part 1 and VDE 0100 Part 520.

Electric diameter of conductors
Determined on cables by electrical resistance measurements.

Electric Field
When voltages are applied to cables, electrical fields are formed, which can take on different shapes depending on the cable construction. In the low voltage range, up to approx. 1 kV, electrical fields have only a negligible influence on the dimensions of the insulating walls. To guarantee operational safety, there are high demands on the materials and dimensions in the high voltage range. An electrical field is represented by field lines. The density of these field lines indicates the force that exists between the two points on a field line (voltage).

Electric resistance
Resistance with which an electric circuit opposes the passage of the current. Resistance is specified and measured in Ohms.

Electricity
Form of energy based on the flow of free electrons. Electricity is produced in generators.

Electromagnetic protection
Protection against faults that could affect the cable from outside (immisions). Protection against faults caused by the cable (emissions). Braid, e.g. copper (tin plated) → flexible → coverage. Protection against external influences: mechanical, e.g. cables over edges; stepping on; pulling of cables; chemical: e.g. oils; thermal: heat, cold.

Element
Individual component of cables, a collective term for cores, pairs, bundles and carrier organs.

Elongation at break, ultimate elongation
Elongation at break is the ratio of the elongation to the initial length when a break occurs.

Elongation, extension, stretch
Extension of a body by mechanical forces. In the cable industry, it is tested using a mechanical testing method to determine the tensile strength of all components.

ELOT
Hellenic Organization for Standardization. Certification body for Greece.

EMC
Abbreviation for Electromagnetic Compatibility. The ability of a system, machine or item of equipment to work satisfactorily in the electromagnetic environment without itself causing any electromagnetic interference that would be unacceptable for all systems, machines or equipment in that environment.

EMK
Abbreviation for electromotive force.

EMS
Abbreviation for Electromagnetic Susceptibility. This is the functional resistance of a specific object to electromagnetic interference factors.

EN
Abbreviation for European Standards.

EPDM
Abbreviation for Ethylene Propylene Dien Monomer rubber. Chemically cross-linked elastomer with good electrical insulating properties and outstanding flexibility at low and high temperatures.

EPIC®
Abbreviation for Environmental Protected Industrial Connector. Registered trademark, a robust industrial connector from Contact.

ePLAN®
ePLAN® is the leading CAE software for planning electrical designs and documentation in machine and plant construction. The Lapp item data and the cable type file enable the individual cores in the ePLAN® circuit diagram to be assigned automatically. ePLAN® is produced by ePLAN® Software & Service GmbH & Co.KG. See www.eplan.de

EPR
Abbreviation for Ethylene Propylene Rubber.

Ethylene-Propylene- Rubber
See → EPDM

ETSI
Abbreviation for European Telecommunication Standards Institute. Its duties include developing harmonised standards for an integrated European communication system.

Explosive atmospheres
See VDE 0165 Part 1. Cables with a thermoplastic, duroplastic or mineral insulated metal sheath can be used for fixed routing. There may not be any cavities in the core bundle (not hose cable). The extruded embedding material and the fillers, if used (press extruded), must be "non-hygroscopic". Flame retardant in compliance with IEC 60332-1. Cables for mobile and transportable equipment must have connecting cables with an outer sheath made of heavyduty polychloroprene or an equivalent synthetic elastomer or a heavy-duty rubber insulated cable or connecting cables with a comparably robust construction.

Extension cord
A mobile cable assembled with a coupling connector and socket. The couplings are integrally moulded onto the cable using thermoplastics and contain protective contacts.

Extrusion line
It is powered by a motor and coils through a cylinder in a spiral. The filler is made up of thermoplastic prepared in the form of granules. Granules, i. e. a free-flowing mixture of grains of equal size, are the delivery form of various plastics for cable manufacture; in other words, an extruder is a system in which a continuous supply of granules is heated, compressed, mixed and homogenised.

F

Farad
Unit of measurement for electrical capacitance.

FDDI
Abbreviation for Fibre Distributed Data Interface. Network type made up of a double ring with a 100 Mbit/s transmission rate and using waveguides as the transmission medium.

Fibre cover
Made up of one or more materials and is used to mechanically insulate the fibres and to protect them against damage.

Fieldbus technology
Sensors and actuators are conventionally connected to a controller or evaluation unit using an analogue 4 – 20 mA signal. With this technology, a 2-core cable is necessary for each connection between the sensor or actuator and the controller. In addition, an input/output circuit (I/O) must be provided for each sensor and actuator in the controller (normally a PLC or PC). The picture looks very different when using a field bus system. In this case, all devices are connected to a bus cable (2, 4 or 5 cores depending on the field bus system). An interface card is used instead of the input/output circuits. This saves on I/O cards, reduces the space required in the control cabinet and permanently cuts the wiring costs. In conventional systems, information (e.g. measured values or a fault signal) can only be transmitted in one direction and in very limited amounts. This can be from the sensor to the controller or from the controller to the actuator. By contrast, in a field

bus system information can be exchanged bidirectionally via the digital bus. As well as the actual process data such as measured values (e.g. temperature) and control variables (e.g. speed), parameters such as the measuring range, measuring point codes (TAG), filter properties, maintenance or fault signals etc. can be transmitted. The advantages that this brings are obvious. Commissioning and maintenance are simplified and the flexibility of the system (e.g. with central measuring range selection) is improved. This normally also enables cost benefits to be achieved compared to conventional solutions.

Filler
Used as a component of insulating and sheathing compounds. The fillers in rubber compounds, for example, mesh directly into the rubber molecules and give them good mechanical abrasion resistance. Important fillers include siliceous chalk, soot and aluminium oxide.

Filler wire
Usually a tin-coated copper wire which should have contact with the aluminium layer of the screen along the entire cable length. In order to ensure the filler wire doesn't break when the cable bends, it must lie very loosely (undulating) on the cable core. The filler wire should be able to pass over any possible breaks in the screen.

Filler, valley sealer
Filler or support element in individual stranding layers in cables.

Fire behavior
Property which describes the behaviour of the cable when on fire (in particular, fire propagation).

Fire resistant
Property of materials used for insulation and sheathing that are slow to catch fire when exposed to heat and are self-extinguishing when the heat source is removed (→ hard to inflame).

Flame retardant
Thermoplastic and elastomer compounds for insulation and sheathing are influenced by additives so that they are slow to catch fire when heat acts on them.

Flat cable
Ribbon cable in which the individual strands are welded together to form a ribbon (often with multiple colours) and normally with small cross-sections (0.08, 0.14 or 0.25). The individual cores can normally be separated. Application: In electronics, for connecting circuit boards.

Flat type cable
Several individually insulated conductors in parallel with a sheath for mechanical protection, produced in such a way as to give a rectangular cable cross-section. Used in crane systems (ÖLFLEX® – Crane F).

Flexibility
A product (relating to cables in this case) is flexible if it can be moved around without impairing its functionality (e.g. lift cable or robot cable).

Fluorethylenpropylen (FEP)
Product from the TEFLON® series. A plastic for high temperatures, with excellent chemical resistance and excellent electrical properties but not economical. TEFLON® is a registered trademark of the company Du Pont de Nemours.

Foil
Plastic foil, metal foil and metal clad plastic foil are used for different purposes. Plastic foil provides mechanical protection, e.g. as padding under a screening braid or around the cores below when stripping to protect against incisions. Metal foil is used for electrical screening.

Frequency
Number of changes of polarity in an alternating current per second; the unit of measure is Hertz (Hz).

FTP
Abbreviation for Foil Shielded Twisted Pairs; in these cables the twisted pairs of cores are screened by a common plastic clad aluminium foil.

Full duplex
Full duplex transmission allows simultaneous transmission and reception of signals.

G

GAEB
Abbreviation for "Gemeinsamer Ausschuss Elektronik im Bauwesen" [Joint Committee for Electronics in Construction] and describes the data format in which engineering and planning offices create specifications and tenders for industry, infrastructure and building services projects. Lapp tender texts in the common formats GAEB 90 (*.d81) and GAEB 2000 (*.p81) are available for download from www.lappkabel.de.

General cable tie
General cable ties are coloured or transparent fixing elements (normally made of nylon) that can be used to secure individual wires or cables in a bundle. The teeth on the inside provide a permanent connection.

Glass fibre cable
Used to transmit data. They use light as the transmission medium rather than electric current. Dielectric waveguide, used to transmit signals using light waves. Also known as a fibre.

GOST
Standards institute in Russia (comparable with the VDE in Germany, British Standards in the UK, IMQ in Italy and UTE in France)

Gradient fibre
Light waveguide with a gradient profile, i. e. with a → refraction index profile that constantly changes across the cross-sectional area of the light waveguide. The profile of standard gradient fibres can be approximated as $1 < g < 3$ by an exponent profile.

Grid
The exact spacing between the conductors in a ribbon cable.

Gusset
Cavities that inevitably occur between the cores twisted into a strand due to their circular cross-section. When using sector-shaped conductors, practically no gussets occur.

H

Halogen free
Refers to materials that do not contain any halogens such as chlorine (Cl), bromine (Br), iodine (I) or fluorine (F).

HAR
Quality mark for a harmonised cable complying with CENELEC HD standards, issued only by HAR testing bodies, e.g. VDE, USE, BASEC, USE, SEV.

Hardness
See → Shore

Harmonizing key
→ See Table T6.

HD
Abbreviation for harmonisation document. In the EU, HDs have the status of a harmonised European standard (like ENs).

Heat of combustion
The temperature or heat released when a cable is burned (see → Thermal load).

Hertz
Unit of measure for the frequency of an alternating current (in Germany 50 Hz for mains cables).

Hood
The upper section of the housing can have a straight or lateral cable outlet. The hood can be freely combined with an externally mounted, surface mounted or coupling housing.

Hood termination
The insides of the end plates are coated with a thermoplastic adhesive. The end plates are used for sealing pressure monitored, moisture-resistant cables and tubes with a diameter of 5 to 10 mm.

Hybrid cable
Cable with different transmission media, such as light waveguide, copper conductor, HF conductor.

I

ICEA
Abbreviation for Insulated Cable Engineers' Association. A sub-committee of NEMA – USA.

IEC
Abbreviation for International Electrotechnical Commission. Standards committee for international standardisation of electrical materials and international commission for standardisation in the electrical engineering and electronics sector.

Imprinting
Marking of cables using a relief imprint (no colour). This technique is only possible when the sheath is warm as the marking is impressed into the material positively or negatively.

Industrial machinery for USA
The following general rules apply to construction and operation of machinery in the USA: The machinery must comply with federal safety laws issued by the Occupational Safety and Health Administration (O.S.H.A.: www.osha.gov) and the applicable national codes (statutory regulations) at the installation location. Machinery is only classed as safe if it has been designed and manufactured in compliance with applicable standards (NFPA 70, NFPA 79....) and its safety has been tested and declared safe by a Nationally Recognized Testing Laboratory (N.R.T.L., www.osha.gov/dts/otpca/nrtl/).

Industry 4.0
This term refers to the extensive networking of industry, from office to field level. In factories – but also for example in logistics – machinery, workpieces and office infrastructure are networked together and permanently exchange information. For this purpose, systems, machinery and objects are fitted with sensors and controls and are interconnected to form a so-called cyber-physical system (CPS). A CPS can also receive additional information from the internet. Industrial processes should thus become more flexible and efficient in future. Machinery, for example, is expected to switch between different tasks fully automatically and almost in real time, or help installation engineers to carry out their work flexibly. This means that customised special productions should be possible without high additional costs. We at the Lapp Group want to help our customers to implement their own Smart Factory. This is why we provide them with solutions which enable extensive data networking within production. We make our products intelligent so that our customers can increase the productivity and flexibility of their productions. We also use Industry 4.0 technology in our own value-creation processes – for example within logistics and production – in order to increase our efficiency and to offer our customers the best possible service.

Insertion loss, insertion attenuation
Attenuation caused by inserting an optical component into an optical transmission system. The attenuation that is caused in an optical transmission system by inserting an optical component, e.g. a plug or a → coupler.

Insulation
Preventing the passage of electrical currents using non- conductive materials. Materials are non-conductive (suitable for use as insulators) if they do not contain conduction electrons or only isolated electrons. These materials include various plastics, rubber, ceramic, porcelain, glass, paper, resin. (Insulation in capacitors and radio frequency cables is referred to as → dielectric).

Insulation resistance
The electrical resistance of a non-metallic material between two electrodes, measured using a DC voltage.

Intensity
Power density at a surface through which radiation penetrates, e.g. at the radiating surface of a light source or at the cross- sectional area of a light waveguide (standard unit W/cm^2).

Interactive
Property of two systems to influence one another in order to exchange messages.

Interbus
At the lowest level of the automation hierarchy model, there are particular requirements for a communication system. Connection costs, real time capability and short cycle times are of crucial importance. The data to be transmitted, normally measured and control values, are typically only a few bits in length. INTERBUS-S, standardised in DIN E 19258, has a summation frame protocol and is designed specifically to meet these requirements. With a clock speed of 500 Kbit/s and a net data rate of approx. 50%, even time-critical controllers can be implemented using a bus system. With around 1,000,000 INTERBUS-S nodes in use worldwide, the system is one of the leading field bus systems. In some areas, e.g. networking of frequency converters and drive technology, it is actually the market leader.

Interface
Connecting point in a technical system that has particular properties enabling connection to another technical system.

Internet
Worldwide virtual data network.

Intrinsically safe
Electrical installation that is, in its own right, safe from the point of view of risk of explosion, i. e. no ignitable sparks can occur in the installation. All parts, including the cables, should be blue (RAL 5015) – e.g. at Lapp ÖLFLEX® EB, ÖLFLEX® EB CY, UNITRONIC® EB CY).

IP Code
A system of designations used to indicate the degree of protection provided by a housing against access to hazardous components, ingress of solid foreign bodies and/or water and to provide additional information relating to this protection (e.g. EN 602529).

ISDN
Abbreviation for Integrated Services Digital Network. Integrated service digital telecommunications network. Suitable for transmission of voice, text, images and data.

ISO
Abbreviation for International Organisation for Standardisation. Committee that develops internationally recognised standards.

J

Joint
Interconnection point between (data) transmission paths.

K

Kink
The cable has been forcefully bend over a sharp edge, causing plastic deformation of the individual strands and wires. This results in grooves that promote breakages on the individual wires.

kV
Abbreviation for Kilovolts. 1 kilovolt equals 1,000 Volts.

L

LAN
Abbreviation for Local Area Network. Physically limited network used for communication within a building or company.

Laser-printer, ink-jet printer
With this method, small production batches can be printed at low cost as there is no need for a print wheel to be made. The downside, however, is that it produces a print result of lesser quality.

Laying temperature
When installed, the cable temperature should not be below +3 °C. Cables with sheathing and insulation are sensitive to bending and impacts when exposed to cold.

Leading protective ground
The PE contact in a plug establishes the first contact and is the last to disconnect, and is marked as the protective earth symbol.

Leakage current
Leakage current is the current that flows via the functional insulation of a consumable to earth or an external conductive part. It can appear as a pure active current or as an active current with a capacitive value. In VDE 0700-1 “Household and Similar Electrical Appliances – Safety”, the following leakage currents are specified:
- For devices of protection class 0 and 0I 0.5 mA
- For portable devices of protection class I 0.75 mA
- For non-portable motorised equipment of protection class I 3.5 mA
- For non-portable heating equipment of protection class I 0.75 mA or 0.75 mA/kW, max. 5 mA
- For devices of protection class II 0.25 mA
- For devices of protection class III 0.5 mA

When taking leakage currents for an entire system (also important for residual current protective equipment) into consideration, both the leakage current (residual current) of the cables and the leakage current of the consumable must be accounted for.

Length of lay, length of twist
The twist length is the distance (measured in the direction of the longitudinal axis) covered by the elements of a layer after being twisted by 360°, e.g. 40 mm. It is usual to specify the number of twists per metre, e.g. 40 mm = 25 twists.

Lever series
To lock the EPIC® rectangular connector, there are single or central levers available for the one-handed locking of upper and lower housing sections, the double levers are used for the two-hand locking.

Li2YCY
Polyethylene screened individual cores.

Li5YCY
TEFLON® PTFE screened individual cores. TEFLON® is a brand name of the company DuPont de Nemours.

Lift cable
Lift cables are control cables with strain relief used for lifts, gantry cranes, teach pads, etc. (e.g. ÖLFLEX® LIFT, ÖLFLEX® CRANE at Lapp).

Link
A link represents a complete section of cabling from the floor distribution board to the data terminal input. It includes all connecting sockets and plugs, installation cables and patch cables. The quality of a link is defined using classes, the quality of the individual components using categories.

LiY
Individual cores (strand) predominantly 0.14 and 0.25 mm² LiYv: Tin plated individual cores (strand).

LiYCY
Individual cores with copper screening (C stands for copper).

LiYY
Multi-core stranded cable (ÖLFLEX®, UNITRONIC®).

Longitudinal water tightness
Achieved by filling the gaps between the core arrangements with various kinds of filler (e.g. petroleum jelly filling).

Loss factor
The loss factor depends on frequency, temperature and capacitance. This factor is the ratio of effective power to idle power with a sinusoid voltage.

M

Machine set-up for core insulation – Extrusion
The following single units have mainly conventional extrusion lines for core and insulating covers: Overend take-off, wire straightener, wire pre-heater, capacitance bridge, extruder, embossing or marking device, cooling section, eccentricity measuring device, diameter scanner, high-voltage testing device, double roller haul-off machine, accumulator and double bobbin winder.

Master
Central bus subscriber that controls bus access. All other subscribers operate as slaves (see → ASI).

Master-Slave principle
The master element issues instructions and the slave elements follow them. With decentralised bus control, for example, an automation device acts as the master element and issues access rights for the other components (slave elements – see → ASI).

Material dispersion
With a non-monochromatic light source, the dispersion that results from the dependency of a material's refraction index n on the wavelength and from the light velocity in that material.

Mica powder
Natural mineral product that is pulverised and used as a separating agent and lubricant either on its own or mixed with talcum. In the form of foils and strips, mica is also used for insulating conductors exposed to high thermal loads.

Microbending
Bending of fibres that have local axial deviations of a few micrometers and physical wavelengths of a few millimetres, for example. Microbending causes light losses and thus increases the → attenuation of the fibres.

Mode
Discrete light wave forms that can propagate in a light waveguide.

Mode dispersion
The signal distortion in a light waveguide caused by overlapping modes with different running times.

Modem
Device for adapting digitally operating data stations for analogue telecommunications channels.

Modulation
A network signal to be transmitted is modified by a carrier signal.

Monomode fibre
Light waveguide with small → core diameter in which only one mode, the basic mode, can be propagated. This fibre type is particularly suitable for broadband transmission over long distances as its → transmission bandwidth is only limited by → chromatic dispersion.

Motor cable
Motor cables are supply cables for electric motors (e. g. ÖLFLEX® SERVO FD at Lapp).

Multimode fibre
Light waveguide whose core diameter is large compared to the light wavelength and in which a large number of modes can therefore be propagated. A gradient profile (→ gradient fibre) allows the → mode dispersion to be kept low, allowing large transmission bandwidths to be achieved, although these can be exceeded using → monomode fibres.

Mutual capacity, operating capacity
For four, pair or phantom cable circuits: the capacity between the cores a and b of these cable circuits. With one core: the capacity between a conductor and all remaining interconnected conductors of a cable.

N

Nanosecond
Billionth of a second. Time unit for the internal switching speed of computers.

Near-end crosstalk, far end crosstalk
In multi-pair data cables, the field effect of the signal transmission for one pair induces an interference signal in adjacent pairs. Crosstalk does not depend on the length and is greater as the frequency increases. The difference between the effective signal and the interference signal measurable at the adjacent pair is referred to as crosstalk attenuation and is specified in dB. We differentiate between: NEXT (Near End Crosstalk) and FEXT (Far End Crosstalk).

NEC
Abbreviation for National Electrical Code. Group of standards for the safety of electrical equipment, e. g. electrical equipment installations in the low voltage range up to 600 V – USA.

NEMA
Abbreviation for National Electrical Manufacturers' Association. The NEMA works in conjunction with the IECA to produce and promote standards for cables – Washington D.C., USA.

NEMCO
Norwegian testing body, similar to the VDE in Germany.

Neoprene®
Trade name of the company DuPont de Nemours for synthetic chloroprene rubber.

Network
Cable network used to create connections between data stations.

Neutral conductor
Neutral conductors, where used, may not have a smaller cross-section than the outer conductor, see VDE 0100 Part 520, Section 524.2.

NFPA
Abbreviation for National Fire Protection Association. Issuer of NFPA standards and NEC – USA.

NFPA 79
NFPA 79 is the section of the National Electric Code (NEC®) which includes the requirements for electrical wiring of industrial machinery. NFPA 79 generally applies to electrical components used in individual

machines and machine configurations operating together (machine groups). The National Fire Protection Association (www.nfpa.org) is the issuer of this important standard. NFPA 79 applies to all electrical and electronic components in machinery with a maximum nominal voltage of 600 V. NFPA 79 was revised in 2006. The aim of this revision was to harmonise NFPA 79 with its European counterpart IEC/EN 60204.

Nominal voltage
The nominal voltage is the voltage to which the structure of the cable relates in terms of its electrical properties. The nominal voltage is expressed by specifying two AC voltages U_0/U in V : U_0 = Effective value between an outer conductor and earth (non-insulating environment). U = Effective value between two outer conductors in a multi-core cable or a system of single-core cables.

Norms
The German Federal Supreme Court gave the following statement on engineering rules on 14.05.1998: Recognised engineering rules are those that are recognised as correct by the theory and have demonstrated their effectiveness in practice. By contrast, according to the BGH DIN standards are only private engineering regulations with the nature of recommendations, which do reflect the recognised engineering rules but lag behind them or could actually be incorrect.

Numeral identification
See → Colour codes/Numerical identification

Numerical aperture
Sine of the maximum possible launch angle of a light waveguide.

NYM
These cables (standard cable for fixed installation) are designed for installation above, on and below ground, in dry, damp and wet areas and within walls and concrete, except for direct embedding in shaken, vibrated or compressed concrete.

O

Ohmic resistance
The resistance per unit length records the losses in the metallic conductors. The conductor dimensions, material and the temperature determine the DC resistance Ro'. Because of skin effect, the conductor resistance increases as the frequency rises. It also shows a linear increase as the cable length increases.

ÖNORM-Format
Austrian format for invitations to tender.

Operating supplies
All objects needed when using electrical energy, e.g. switch, motors and cables.

Operating temperature range
The range between the lower (lowest permissible temperature) and upper (highest permissible temperature) limit temperature that may be utilised by the operator.

Operating voltage
The actual voltage in a grid. This can fluctuate by up to 5%, caused by the alternating use of consumers.

Opposite direction of lay
See → Stranding

Order length
The length of cable ordered by the customer.

OTDR
Measuring method for testing glass fibres for faults or transmission quality. OTDR stands for Optical Time Domain Reflectometer.

Outdoor cable
Cables suitable for outdoor laying in the ground, in pipes, in the air, in rivers and lakes, in mines, on ships, for interior spaces or the most varied of industrial plants, etc. The design of the cable depends on the electrical, thermal, mechanical and chemical laying and operating conditions.

Outer conductor
Conductors that connect current sources with consumables. For example, C1, C2 or C3 in a three-phase system but not conductors come from the midpoint or neutral point. The conductor is arranged concentrically around the inner conductor of a coaxial pair.

Outer diameter
Diameter of the smallest circle that will enclose the surface of the sheath.

Outer sheath
Enclosed cover for protection of the elements underneath.

Outer sheath
On the one hand, refers to the outer covering of a cable. On the other hand, it is the entire optically transparent material in a light waveguide, excluding the core.

Overcurrent
If the permitted ampacity is exceeded, this is referred to as overcurrent.

Overcurrent protection devices
Overcurrent protection devices break the current supply in case of overcurrent. They include overcurrent protective switches and safety fuses.

Oxygen index
Percentage oxygen content in the ambient air that is necessary to maintain combustion after removal of a flame. As the natural oxygen content in the air is approx. 23%, materials with an oxygen index of greater than 24 are generally self-extinguishing when the flame is removed. This term comes up primarily in connection with halogen free cables.

P

Pad
Non-conductive element made of insulating material (PVC) or textile, used to fill up gaps in a strand group. Also known as a dummy core.

Pair
Two stranded → cores within a larger strand group (see → Element). The inductive coupling of two parallel conductors is reduced by twisting the two cores together as tightly as possible (→ twist length).

Panel mount base
Panel mount bases are designed for the feeding through of cables from below. The panel mount base is mounted to control cabinet walls for connecting control or power cables.

Patch cable
Patch cable complying with EN 50173/ISO IEC 11801 is used to provide a flexible connection between ports in patch fields and the connection to telecommunication sockets.

Patch field
A patch field is the switching device that is used to set up, establish and route connections.

PE
Abbreviation for polyethylene.

Photodiode
Semiconductor diode that absorbs light and feeds the charged particles released to an external circuit as a photoelectric current. A distinction is made between PIN photodiodes and avalanche photodiodes.

Photovoltaic
Photovoltaics refers to the direct conversion of solar energy into electrical energy using solar cells. Photovoltaics is a branch of solar technology, which includes other technical uses of solar energy.

Pigtail
Short part of a fibre optic cable on a laser diode or connector. The pigtail is the coupling link between a component and transmission fibre and is permanently fixed to the component.

PiMF
Abbreviation for pairs in metal foil.

Pollution level
Numerical value specifying the anticipated pollution of the micro-environment. Pollution levels 1, 2 and 3 are used. The pollution level is used to assign air gaps and creep distances. In industrial environments, the pollution level is typically 3.

Polyamide
Polyamide is a polymer. Polyamide is cold resistant with impact loads, impact resistant and abrasion resistant.

Polycarbonate
The prerequisite for resistance is that no aggressive components such as emollients (PVC) or solvents attach the polycarbonate. The material swells up, which can lead to stress cracks.

Polychloroprene-rubber
Synthetic rubber is resistant to solvents, has very good strength properties and is flame resistant, however very expensive (high-quality rubber cables, Pattex glue).

Polyethylene
Polyethylene is a halogen-free plastic, but is highly flammable. By adding additional materials, PE can be made flame retardant and smokeless.

Polyuretane
Extremely impact resistant, difficult to strip, strong reset forces. (PUR, 11Y, Q).

Polyvinylchloride
Polyvinylchloride is a halogenated plastic. The halogens are chlorine, bromine, fluorine, iodine and astatine. Chlorine and fluorine are used to make plastics flame retardant and more resistant to external influences. Cables with PVC sheathing are flame retardant. Halogenated plastics produce highly toxic gases when they burn, which form aggressive acids when they mix with extinguishing water and can, in turn, cause extremely severe corrosion damage.

Power dissipation factor
Power that is converted into heat or other energy losses.

Preform
Glass rod from which the glass fibres for light waveguides are drawn. When drawing the glass fibres, the ratio of core glass to shell glass is maintained.

Print wheel
This procedure is generally only a cost-effective option for average or large batches as a new print wheel is required for every change made to the print. Print wheels can, however, be used for geometrical logos and inverse printing. Print wheel results are also relatively easy to remove and wipe away.

PROFIBUS
The PROFIBUS network is based on the principle of master- slave communication. A central controller – the field bus master – cyclically reads the information from the field devices – the field bus slaves – and writes their output values. In a PROFIBUS DP network, a high-speed transmission rate of up to 12 Mbit/s is possible. It is based on the European standard EN 50170.

Protective conductor
(Symbol PE) A conductor that is necessary for certain protective measures against shock currents to create the electrical connection to subsequent parts. The protective conductor is marked in green/yellow (GNYE) in cables.

PTFE
Abbreviation for polytetrafluoroethylene, TEFLON® plastic (PTFE); a trade name of the company Du Pont de Nemours.

PUR
Abbreviation for polyurethane; a ductile, abrasion resistant thermoplastic alternative to rubber, e. g. in ÖLFLEX® 400P, ÖLFLEX® 540P.

PVC
Abbreviation for polyvinylchloride.

PVC-powder additive
Additives are added to PVC mixtures as matting agents, lubricants, colour pigments, wax for smooth surfaces.

Q

Quad
Stranding type in which the four individual cores are twisted into a quad (telecommunications cables).

R

RAL
The RAL colours with four-digit numbers have been a yardstick in colouring for more than 70 years. The collection of colours currently includes more than 200 colours. The basic collection for mat shades is the RAL 840-HR register. The collection for gloss shades is the RAL 841-GL register. The basic collections are continuously updated in line with the requirements of industry. These collections cover a wide range

of applications. The registers provide a colour template for designs, but also include safety and signal colours and comply with the colour specifications in DIN standards.

Rated current
Current determined by the manufacturer, primarily at an ambient temperature of 40 °C, which the connector can carry on a permanent basis and which simultaneously flows though all contacts which are connected to the largest possible conductor. In the process, not exceeding the upper limit temperature.

Rated voltage
Value of a voltage, measured according to the connector assembly and referring to specific operating conditions.

REACH
REACH directive (EC) No, 1907/2006 on registration, evaluation, authorisation and restriction of chemical substances With the REACH directive, the EU created a harmonised system for the registration, evaluation, authorisation and restriction of chemicals – referred to as REACH for short. The purpose of the directive is to ensure a high level of protection for human health and the environment.

Receiver sensitivity
The light output required by the receiver for low interference signal transmission. For digital signal transmission, the average light output (in W or dBm) required to achieve a bit error rate of 10 – 9 is normally specified.

Receiver, optical
Assembly for converting optical signals into electrical signals. It consists of a photodiode with a connecting fibre and plug and a low-noise amplifier and electronic signal processing circuits. Where possible, the main components of the receiver are normally combined into a compact sub-unit known as the reception module.

Reel
To keep setup times and transport costs down, the cable industry tries to supply large cables and long cable lengths on reels. In addition, this saves on connecting points and the associated fittings with longer cable lengths. The length supplied is limited by various factors, including the tensile strength and flexibility of the cable and the mass or cable volume. There are a large number of different reel sizes in the cable industry.

Reel size choice
Most winding systems in the cable industry now have tables showing the capacity and the product lengths and bending radii that can be wound, ensuring that the correct choice of reel can be made.

Reel structure
Reels consist of a circular core, which is bounded on both sides by flanges of larger diameter. The flange diameter is also the nominal size of the reel. Steel sockets are fitted in the centre of the reel flanges to hold the drive axes or barrels. These prevent damage to the reel flanges when winding and unwinding. On one reel flange (up to 1800 mm nominal size) there is a through hole for inserting one end of the cable; on larger reels, an inlet spiral is fitted to hold the end of the cable. This means that both ends of the wound length of cable are accessible and final inspection of the cable length can be carried out. Shipping reels are normally made of pine or spruce wood.

Reeling
This refers to the ability of cables to withstand constant winding and unwinding over a long period of time without sustaining damage. For mobile consumers (e.g. a crane), the cable length required for the different working positions is carried on a reel. Constant winding and unwinding makes high demands on the cable construction, which means that only special cables are suitable.

Reference earth
Part of earth considered as conductive that lies outside the zone of influence of any earthing arrangement.

Reflexion
Signal reflections occur at coupling points between components such as plugs and cables and, in copper networks, can be attributed to different characteristic impedances: In cases of extreme differences in characteristic impedance, this leads to signal distortion.

Refractive index
The factor n, by which the light velocity in an optically dense medium (e.g. glass) is smaller than in free space. More accurate term: Phase refraction index.

Refractive index distribution, index profile
Progression of the refractive index n across the cross-sectional area of a fibre optic cable.

Resistance
Resistance = Voltage/Current: “Obstruction” of the current flow, expressed in Ohm. The lower the cross-section, the greater the resistance. The more Ohms, the weaker the current flow. See also → Corrosion resistance, ozone resistance, radiation-resistant cables.

Resistant
The cable has a resistance to certain substances, i. e. they do not destroy it.

Retention of cable glands
The ability of a cable gland to limit the movement of a secured cable under static load.

RFID
RFID stands for Radio Frequency Identification and means that data can be transmitted with no contact or line of sight.

RJ45
An RJ45 connection is an eight-pin miniature connector system, e.g. for patch cables. The connector is standardised to comply with the ISO/IEC 11801 cabling standard.

RoHS
The EC directive 2011/65/EU for limiting the use of certain hazardous substances in electrical and electronic equipment governs the use of hazardous substances in equipment and components. Along with the applicable implementation in national law are referred to by the abbreviation RoHS (Restriction of (the use of certain) hazardous substances).

Route warning tape
In excavations, the greatest damage occurs on cables already laid in the ground. For this reason, route warning tapes are laid around 40 cm above the laid cables, which draws the attention of excavator drivers to the cable route when excavating.

Rubber insulated cable
Cable with rubber sheathing. For example, H05 RR/RN, H07 RR/RN at Lapp (previously: NMHöu/NSHöu).

S

S-FTP
The structure of shielded foil and braid twisted pair (S-FTP) cables is made up of a foil screen over all pairs, over which an additional screen of tin plated copper braiding is placed.

Same direction of lay
See → Stranding

Sample test, screening
Testing of production lengths or production parts in relation to production quantity.

Screened cable
Cables with screen in outer layer, over the cores or in double sheath. The screen can be made from braiding, foil or solid metal. With the foil version, a drain wire from the filler strand is used. Identified with a "C", and with "CY" for additional PVC sheathing if copper braiding used.

Self-extinguishing
Property of a (synthetic) material to extinguish itself when a flame is removed from the material.

SEMCO
Swedish testing body, similar to the VDE.

Semi-conductor
Materials whose electrical conductivity depends on various influences, e.g. current direction, temperature, incidence of light. By mixing with conductive materials (carbon, graphite), insulating materials (PVC) can be modified to give semiconductor properties.

Semiconductor bandgap
Energetic distance between the valence band and the conduction band of a semiconductor.

Separating layer
Foils positioned between the individual layers on the cable core to prevent harmful influences.

Separator
Polyethylene terephthalate foils are used in the cable industry as insulating foils. They have excellent dielectric and mechanical properties. They are used as separating foils in PVC insulated cables.

SEV
Abbreviation for Schweizerischer Elektrotechnischer Verein [Swiss Electrical Engineering Association], testing body similar to the VDE.

Sheath print
The customer receives information about the printing of cable sheaths regarding design, testing- and operation- related markings, colour codes, customer-specific markings and manufacturer markings. The prints are created using laser and ink-jet printers or print wheels. They are, however, of inferior quality to the embossed letters as they wear away relatively quickly or can be rubbed off.

Sheathed cable
Designation for NYM and other sheathed cables.

Shielding
A cover made of conductive material that is placed over an individual core, a group of cores or all cores in a cable. Screening is used to protect the cable against penetration by electrical and/or magnetic fields and to prevent electrical interference from escaping from a cable. Screening takes various forms: a copper wire braid or → covering, copper or aluminium foil wrapping or enclosed tubular copper or aluminium bodies. For the screening, the covering density is defined in percent, relative to the area located below the braiding.

Shipping reels
The correct choice of shipping reel is a crucial factor in the quality of a cable from winding to installation. The reel size and thus the winding volume is determined by the diameter and length of the material to be wound and the mass of the cable. The delivery agreement between the manufacturer and the customer is determined by the diameter and mass from the production design and the product length. It is critical that the bending radius of the cable, which determines the size of the reel core, is maintained.

Shore
Hardness of the cable sheath. The definition is: The resistance to penetration by another body, which is measured without exception before the occurrence of damage. Shore A test is used for soft plastics, Shore D test for harder plastics.

SIA
Swiss format for invitations to tender.

Signal cable
Signal cables are used to control the accuracy and precision of electric motors. (For example, ÖLFLEX® connecting and control cables, ÖLFLEX® SERVO, UNITRONIC® data cables at Lapp).

Single conductor
Conductor which, unlike a strand, consists of just a single wire. A rigid wire is suitable for fixed installation.

Single wire
See → Cable, single-wire.

Single-mode fibre
Waveguide in which only a single mode can be propagated at the operating wavelength.

Single–wired conductor
A single-wire conductor consists of just one wire.

Skin effect
The higher the frequency of the effective or interference signal, the more the high frequency current is pushed towards the surface. The skin effect is the property of an alternating or high frequency current in a conductor to move towards the surface due to field line induction processes. This limits the penetration depth of an external electromagnetic field into the object and thus its effectiveness inside.

Slave
Subscriber in a network that can only communicate in data exchange when addressed by the master (see → ASI).

SNA
Abbreviation for System Network Architecture. Network architecture concept that enables data to be transmitted between different types of computer.

Specific volume resistance
The specific volume resistance [Ohm m] results from the measured volume resistance [Ohm] multiplied by the measuring area [m²] divided by the sample length [m]. VDE 0207, Part 4 and VDE 0303, Part 30.

Speed of signal propagation
Signals propagate in all cables at a speed that is always lower than the speed of light. The NVP value specifies the ratio of this speed to the propagation speed of light.

Spiral cable
Flexible cables that are formed into a "spiral spring". The cable is wound onto a mandrel. The addition of heat (tempering) reduces the tensions in the plastic caused by the winding process, which means that the cable retains the spiral shape in a stress free condition after cooling. When expanded, the spiral extends and, when the force is no longer acting upon it, returns to its original condition.

Splice
Connection of two light waveguides created by melting their ends. Fixed connection between two light waveguides. A distinction is made between bonded and welded splices (→ Welded light waveguide connection).

Stabiliser
a) A component used in some plastics to obtain certain physical and chemical properties during processing and the usage time.
b) Additives (e. g. lead, tin or cadmium salts) for plastics. They delay or counteract the decomposition and aging process that occurs when exposed to thermal loads.

Step index fibre
Light waveguide with a stepped profile, i. e. with a refraction index profile that is characterised by a constant refraction index within the core and a sharp decline in the refraction index at the boundary of the core and the sheath.

STP
In twisted pair cables with foil screening of the individual pairs and an overall braided screening (STP = Individually Screened Foil and Braid Twisted Pair), the cores are twisted in pairs and individually screened with a metallic foil, to achieve exceptionally low near end crosstalk. An additional overall screen is then added.

Strain relief of cable glands
The ability of a cable gland to limit the movement of a secured cable under a dynamic and torsional load.

Strand
The individual wires in a conductor combined into a bundle; the number and individual wire thickness varies according to the desired cross-section. The individual wires are either bundled by stranding or by twisting. Individual cores, e. g. LiY, H05V-K, H07V-K

Stranding
The individual elements of cables are wound parallel around a central element. The elements can be the individual wires in a conductor or the cores or groups of cores themselves. Depending on requirements, the elements are twisted or stranded with different twist lengths. This is done in concentric layers, one on top of another, according to the number of elements. If the subsequent layer of the element is stranded in the same direction as the preceding layer, this is known as parallel lay stranding, as opposed to cross lay (reversed lay) stranding, where each subsequent layer is stranded in the opposite direction to the previous one. The stranding has an "S" lay if the stranding direction runs to the left as an observer looks at it, or a "Z" lay if the stranding runs to the right: A distinction is also made between stranding techniques with and without back twist.

Stranding machine, twister
Stranding machines are used to strand the components of a cable. Different types of stranding machines include single twist, double twist, multiple twist, high-speed, basket, SZ and universal stranding machines.

Strip line
Strip lines are used as fixed signal transmission cables in control and steering technology, measurement and data processing technology. They can contain up to 40 cores which lie parallel to each as a result of the welded insulating cover. Single cores can be separated from the strip line, without causing any damage to the insulating cover. Their flat arrangement means they can be guided through narrow slots or openings. They are fixed in place using brackets or adhesive.

Styrol
Is used as an insulating material for telecommunication cables (→ Dielectric). It has a good strength value, however is not resistant to solvents.

Super conduction
The property of metals and oxides to lose their electrical resistance due to cooling when a so-called transition temperature is reached.

Supporting cable
Because of their small dimensions, they are used for installation in small and miniature equipment.

Supporting core
Strands of hemp, steel or plastic are incorporated into the construction as supporting elements or to absorb tensile forces. In most cases, the carrier organ is positioned next to the core, i. e. in the middle of cables. However, there are also constructions in which one or two steel strands are positioned outside the bunch of cores but below a shared outer sheath.

Surface mount base
Lower housing sections with an enclosed base are referred to as surface-mounted. Surface mounted bases are available with a cable outlet on the right-hand side or on both sides of the housing.

Synthetic india rubber
Butyl synthetic rubber has a high resistance to ageing and lower gas permeability. It is highly resistant to chemicals.

T

T-Coupler
Optical component for combining the light from two light waveguides (see also → Coupler). Conversely, it can also be used to split the light output in one light waveguide into two outgoing light waveguides.

Take-up system
Sheathed cables are generally wrapped around wooden or process drums. The most common types of winding devices are bottom roller

winders, axial winders and barrel winders. Depending on their flexural loading, tensile strain, torsional strain, design, storage, mechanical load and transport, cables are individually wrapped and delivered on drums, bobbins, in coils or barrels.

Talcum
Talcum is a mineral, slightly fatty natural product. It is used in powder form as a separating agent or lubricant. It is also used when mixed with mica. When sheathing a strand of cores, to prevent the sheathing material that is applied when hot from sticking to the core insulation, the strand is dusted with talcum first. As well as the separating effect, this greatly reduces the friction between the individual elements of the cable and thus promotes flexibility and stripping.

Tape
The stranded assembly, comprising several cores, is surrounded by the tape. Generally, the tape is made from one or several synthetic or paper band layers.

Tape wrapping
Cables can be wrapped in a variety of different insulating materials. The tape is always helically wrapped around the cable as the taping machine operates in a rotary motion and the pull-off movement is always in a longitudinal direction. Several layers of paper or plastic tape are wrapped around the cable stranding or the cable core.

TDR
The Time Domain Reflectometry measuring method is used to locate faults in copper cables. The running time and shape of a reflected pulse enables the possible location of the fault to be determined relatively accurately. For PVC insulated cores, this value is approx. 0.541.

Telephone cord
Cables to or in telecommunication devices which have a high flexural loading or flexibility.

Temperature range
If the specified minimum temperature range is not reached, no mechanical forces may act on the cable as otherwise the insulation will break (rigidity of polymer chains). If the maximum temperature is exceeded, the insulation begins to melt (decomposition of polymer chains). Important! With every change of temperature, the resistance of the conductor also changes.

Tensile load
The maximum force with which a cable can be loaded under defined conditions.

Test voltage
The voltage applied to a test specimen to demonstrate a particular electrical strength.

Tex
The fineness of fibres is determined using the “fineness in Tex” system. This is a physical variable. 1 Tex = a fibre that has a mass of 1g at a length of 1000 m. Example: Polyester silk has a rating of 7 Tex = 1000 m of silk weighs 7 g.

Thermal splice
A thermal splice is a connection between light waveguides created by fusing the ends of the conductors.

Thermoplastics, thermoplastic materials
Thermoplastics are non-cross linked macromolecular compounds. By heating, it is possible to transfer them repeatedly to a plastic condition. They are primarily used for sheathing and insulation of cables.

Thomson measuring bridge for resistance measurement
Primarily used to measure very low resistances. The measuring range is between 10-6 and one Ohm. It is independent of voltage changes. The measured result is not falsified by the resistance of the measuring lead and other transition resistances (see also → Electrical resistance).

Tight buffer tube
Fibre type used in light waveguides, with a solid plastic layer attached directly to the outer glass.

Tin
Tin is used for tin plating copper wires.

Torsion
Twisting of the cable about the longitudinal axis. VDE0298, Part 300, Section 5.4.4: Flexible cables are not generally intended for torsional loads. In cases where this kind of torsional load cannot be avoided, the construction of the cable and the type of installation must be agreed between the user and the cable manufacturer.

Tracer thread
A thread whose structure, colour or colour combination is registered and protected as a trademark by a cable manufacturer. It provides information about the manufacturer of the relevant cables (at Lapp, the colour is ochre yellow).

Train signal cable
Designed for voltages up to 600 V. Depending on their purpose, the cores are twisted in fours or layers. They are PE insulated. Because of the strong electromagnetic fields on railways, an effective copper screen and steel tape armouring must be fitted under the outer sheath.

Transceiver
This is the active component of an Ethernet LAN for connection of terminals to the electrical bus cable with collision detection and signal adaptation functions. Transceiver is a combination of the words transmitter and receiver. The transceiver performs transmitting, monitoring, reception and interference functions.

Transfer impedance
Measure for the quality of the screening, defined as the ratio of the voltage along the screening in the system subject to interference to the current of the system causing the interference. The transfer impedance (coupling resistance) is the key variable for the quality of the screen and depends on the frequency. It is the ratio of the voltage drop along a screen on the side with interference (outside) to the interference current on the other side (inside) of the screen. The coupling resistance is determined by the construction of the screen, the skin effect and the capacitive coupling.

Transfer rate
The frequency at which the level of the transmission function of a light waveguide has reduced to half of its value at a frequency of zero, i. e. at which the signal attenuation has increased by 3 dB. As the transmission bandwidth of a light waveguide is approximately the reciprocal of its length (mode mixing), the bandwidth/length product is often specified as a quality feature.

Transmission function
A light waveguide acts as a low-pass filter for the signals to be transmitted. While only continuous wave attenuation is important for low signal frequencies (see also → Attenuation), higher signal frequencies are also attenuated as a result of the dispersion in the light waveguide. The transmission function of a light waveguide makes this a complex issue; however the phase distortion is normally so low that it is sufficient to specify the figure for the function.

Transmitter, optical
Assembly for converting electrical signals into optical signals. It consists of a transmission diode with connecting fibre, plug and driver amplifier and other electronic circuits. Particularly in laser diodes, a photodiode with control amplifier is required for monitoring and stabilising the radiated power. In many cases, a temperature sensor and a Peltier cooler are also required to stabilise the operating temperature. Where possible, the main components of the transmitter are normally combined into a compact sub-unit known as the transmission module.

Triaxial cable
Three-conductor cable that is made up of three connected axes. It consists of one conductor in the centre, the second conductor concentric around the first and the third conductor is isolated from the first two, normally by insulation, a braid and an outer sheath.

Trimming
Cables are reeled at standard lengths of, for example, 50 m, 100 m and 500 m on cable drums or coils (single cores) and placed in storage. Should a customer require a length shorter than the standard length, the cable is cut to size. The customer is then charged for this adjustment.

TTP
Time Triggered Protocol systems in data technology communicate continuously at predefined time intervals. The bandwidth is 5 Mbit/s asynchronous and 25 Mbit/s synchronous (see also CAN bus system).

Tube cable
Coaxial carrier frequency cable with copper inner conductor, PE discs as spacers, a tube-shaped bend copper tape as the outer conductor and a lead or aluminium sheath. They are used as long-distance cables for transmission of TV signals and communications.

Twist protection
Protection of light waveguide connectors against twisting. Without this protection, the end faces of the light waveguide would be next to one another and become scratched, significantly increasing attenuation.

Type test
Test to be performed periodically that includes all parameters that can influence the result. This test must be performed again if advancements or new developments have been made or the material, technology or design has been changed. The frequency of type tests is set out in legislation, contracts or operationally.

U

UL
Abbreviation for Underwriters Laboratories. American testing body, similar to the VDE in Germany.

UL Approbation for cable glands
Approval is particularly required if the machinery or system in which the cable gland has been used is to be exported to the USA. Approval is granted after a test complying with UL 514B and is confirmed by a certificate. The number of this certificate is known as the "file number" (e. g. E 79903).

UL listing mark for listed cables & wires
Cables intended for use as fixed wiring in buildings used for residential, commercial or industrial purposes. Listed cables not only have to meet individual UL product standards, but must also comply with the relevant articles of the National Electrical Code (NEC). Listed cables and wires can be used both for factory wiring of electrical equipment, devices, appliances and machines as well as for field wiring of industrial machinery and systems in accordance with NFPA 79. Approval marking on the product: (UL) = UL Listing mark.

UL recognition mark for AWM cables and wires
Appliance wiring material or "AWM" comprises cables intended solely for use in factory-wired electrical equipment, devices, appliances, control cabinets and industrial machinery as part of a "listed assembly". AWM is not intended for field wiring purposes. Cables with UL AWM style labelling must be used for the applications stipulated by the individual style designation.

Ultraviolet radiation
This invisible radiation is the section of the electromagnetic spectrum that is next to the visible range (UV radiation).

Underground cable
Cables are often designated according to their usage conditions. Underground telecommunication cables include outdoor cables designed to be routed underground.

Unit conductor of power cables
Unit conductors are solely used as large conductors, from approx. 400 square millimetres. In order to reduce the large amount of heat required during welding, the bundles are separated into subconductors during assembly and rejoined again in a new stranding procedure.

Unit cores of fiberoptic cables
Several coated fibre optic cables lightly undulating and loose in small plastic pipes which are filled with Vaseline or swelling powder.

Unit of wires
Bare wire bundles are the initial product for copper strands. They are also used as copper strands in wire screens (non-insulated product).

UTE
Abbreviation for Union Technique de l'Electricité (France).

V

Vagrancy currents
Currents that do not flow through the electrical mains (L1, L2, L3, N) are referred to as vagrancy currents.

VDE
Abbreviation for Verband Deutscher Elektrotechniker e.V., [German Electrical Engineering Federation], VDE testing and certification institute – VDE testing body.

VDE Approbation for cable glands
Approval is granted after a test complying with DIN/EN 50262 and is confirmed by an approval certificate,

VDEW
Abbreviation for Vereinigung Deutscher Elektrizitätswerke [Association of German Electricity Plants].

Velocity of propagation
Transmission speed of the electrical energy in a length of the cable compared to the light speed in free space. Usually expressed as a percentage.

Volt
Electrical unit of measure for voltage. 1 Volt is the voltage produced by a current of 1 A with a resistance of 1 Ohm. Voltage = Resistance x Current

Volt meter
Instrument for measuring voltage.

Voltage-level classes
We refer to four voltage levels. Everything that is < 1000 Volt (< 1 kV) belongs to the low voltage class. Voltages > 1 kV are classed as high voltage. In practice (no statutory specification), the high voltage class is divided into: Medium voltage 1 kV – 30 kV, high voltage 50 kV – 150 kV, extremely high voltage 150 kV – 400 kV. There are several different voltage levels within these classes.

Voltage, tension
Electrical unit of measure, measured in Volts, i. e. Voltage = Resistance x Current.

VSWR (Voltage Standing Wave Ratio)
Ratio of the transmitted signal voltage to the reflecting signal voltage measured along the transmission path.

Vulcanising
Technological process in which temperature, pressure and the use of sulphur compounds, for example, cause the molecules in rubber to form cross linkages. It is this process that gives rubber its permanent elasticity and makes it suitable for industrial use (see → Cross linking).

W

Wall thickness
The thickness of the insulation or sheath.

WAN
WAN is the abbreviation for Wide Area Network. This is a large network, which can extend worldwide. WANs normally connect LANs (Local Area Networks) via telephone cables. Routers and gateways connect the LANs using different technologies. WAN is a wide area transmission network for connecting distance users to a central network using public cables.

Watt
Electrical unit of measure for power V x A = Watts (VA).

Wave lengths
Length of a full wave oscillation (period). In optical signal technology, three wavelength ranges are normally used – 850 nm, 1300 nm and 1550 nm.

Waveguide dispersion
The dispersion that occurs with non-monochromatic light sources because the a/l relationship and, as a result, field distribution and group speeds of the modes in a light waveguide are wave dependent (a is the core radius, l is the light wavelength). In practice, waveguide dispersion always acts in conjunction with material dispersion; its overall effect is referred to as chromatic dispersion.

Wear resistance
The characteristic of a cable, wire or material to withstand surface wear.

WEEE directive
Under electrical and electronic equipment legislation (ElektroG in Germany), the WEEE directive governs the withdrawal of electrical and electronic products.

Wire drawing
Cold forming process, in which a sequence of increasingly small drawing dies (carbide cores or diamonds) gradually reduce the cross-section of pressed wire or wire rod.

Wire termination technique
Depending on the application, different wire termination methods can be chosen. Where ease of service and maintenance is required, a screw fitting is used. If large numbers of plug connectors with a reliable connection method are required, crimping is the best choice. A cage clamp combines ease of service with reliable wire termination, although the space required per contact for the wire termination is the highest of all the methods described here.

Wire–wrap connection
This is an electrical connection made without soldering. The contact is made by wrapping a bare copper wire around a square rod made of bronze, brass or silver under high tension (also known as cold welding).

Wiring cable
Cable for wiring equipment, control cabinets etc.

Wiring system
Wiring systems are made up of a variety of individual elements, such as cable sheathing, contact plugs, connector shells, seals, fixing elements, etc. In a car, the wiring system connects the electromechanical and electrical components and guarantees the transmission of information from and between the control units, as well as for the supply of energy to the consumers (engine, relay, lighting, etc.).

Working current, service current
The maximum permissible current that may be transmitted.

Woven cable
Several conductors running parallel which are held together using a thin sheath. See also → Flat cable.

Z

Zinc
In the cable industry, galvanised steel tape or steel wire are used as the armouring material (→ Armouring) to protect against corrosion.

ZVEH
Abbreviation for Zentralverband der Deutschen Elektrohandwerke e.V. [Central Association of German Electrical Trades] (Germany).

ZVEI
Abbreviation for Zentralverband der Elektrotechnik- und Elektronik Industrie e.V. [Central Electrical Engineering and Electronics Industry Association] (Germany).

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

The Lapp Group worldwide

Algeria
Cablemat Sarl
16 Cité Mimouni Lotissement 18
Villa N° 14
Bordj El Kiffan, ALGER
Tel.: +213 550024331, -661, -404, -331
Fax: +213 20388220, -212, -010, -39
www.cablemat.net

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

Armenia
Integral design & engineering LLC
8 Tumanyan str.
International Business Center
0001 YEREVAN
Tel.: +374 10 520188
Fax: +374 10 519188
info@integral.am
www.integral.am

Australia
DKSH Australia Pty Ltd.
14-17 Dansu Court Hallam
3803 VICTORIA
Tel.: +61 3 95546666
Fax: +61 3 95546677
info@dksh.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
Galpao18, 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
Cra 69B No. 21A – 24 Bodega UE 28 – 1
Parque Industrial Montevideo
BOGOTA, D.C
Tel.: +57 1 4126898
Fax: +57 1 2929736
info@transmisiones.de
www.transmisiones.de

Congo
Dezatech sarl
Av. Kasai no 12
KINSHASA/Gombe
Tel.: +243 8211 45963
dg@dezatech.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@3bro.gr

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
UB6 7RL GREENFORD MIDDLESEX
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

Hong Kong
Worldtex & Co.
Unit 11, 11/F, Tins Enterprises
Centre
777 Lai Chi Kok Rd.
CHEUNG SHA WAN
KOWLOON
Tel.: +85 22 7811860
Fax: +85 22 7814733
info@worldtex-co.com.hk

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 8110 304800
Fax: +91 80 27825479
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
K.Mecs Co., Ltd.
Headquarters Yusen Iwamotocho
Bldg. 3F
2-3-3 Iwamotocho, Chiyodaku
101-0032 TOKYO
Tel.: +81 3 58255333
Fax: +81 3 58258550
info@kmecs.co.jp
www.kmecs.com

Jordan
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Kazakhstan
Lapp Kazakhstan LLP
Abaya ave. 13, office 703
010000 ASTANA c.
Tel.: +7 7172 273590
sales@lappgroup.kz
www.lappgroup.kz

Korea
Lapp Korea LLC.
42, Jangangongdan 8-gil
Jangan-myeon, HWASEONG-SI
Gyeonggi-do, 445-941 Korea
Tel.: +82 31 1688 1099
Fax: +82 31 697 4099
www.lappkorea.com

Kuwait
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

Kyrgyzstan
MEG Solutions LLC
Chuj avenue 265A, office 204
720071 BISHKEK
Tel.: +996 312 641946
Fax: +996 312 641983
ofice@meg.kg
www.meg.kg

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
Autostrada Bucuresti – Pitesti, Km 13.5
A1 Business Park – Hala M
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
EUROCABLE G Co., Ltd.
Baruun Selbe 5/26
1st Khoroo, Chingeltei District
15160 ULAANBAATAR
Tel.: +976 70 117171
info@cable.mn
www.cable.mn

Morocco
Fiabel
16 Rue des Dahlias (Beausite)
Boulevard La Grande Ceinture
Ain Sebâa, CASABLANCA
Tel.: +212 522 403301, 522 404616
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 Latinamerica
Support Corporation
Edif. Global Bank Calle 50, piso 38
Int. 3801-A, PANAMA
Tel.: +507 3938-565
soporte.latam@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 2310333
Fax: +7 846 2310028
info@lappgroup.ru
www.lappgroup.ru

Saudi Arabia
see United Arab Emirates
LAPP CABLES MIDDLE EAST FZE

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 Logistics Pte. Ltd.
No.9 Tuas South St. 3
SINGAPORE 638017
Tel.: +65 6558-7176
Fax: +65 6558-7081
lappsea.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 578095
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
Fax: +46 155 77701
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 87527597
Fax: +886 2 87518688
edmund.foo@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

Uzbekistan
Elektro Potential LLC
Y. Bodomzor str. 2 B, office 311
Yunusabad area
100084 TASHKENT
Tel.: +998 71 1501220
Fax: +998 71 1501220
mz1958@yandex.ru

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

ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

Lapp products in motion

Find product animations for selected Lapp products here:
www.lappgroup.com/productanimations

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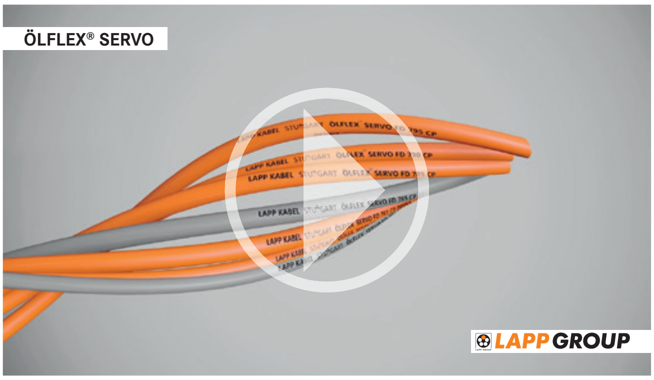
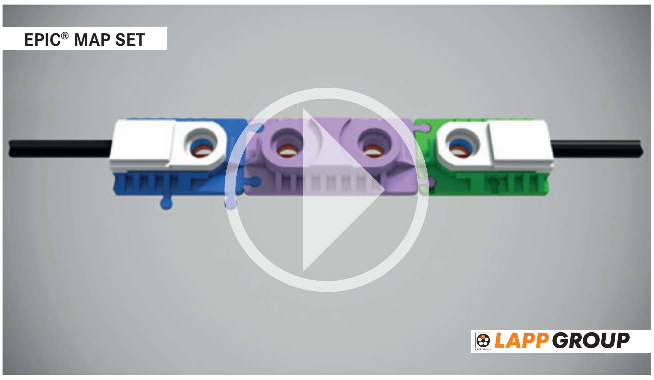
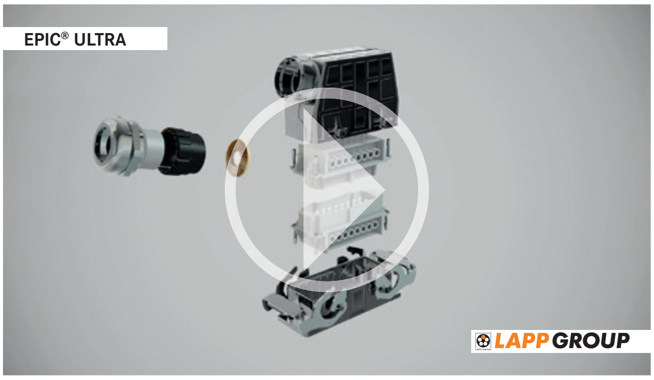
Product animations







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Our apps are available from the following stores:

THIS CATALOGUE IS VALID FROM JANUARY 2016

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.

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

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