

THE WORLD OF LAPP

Innovations 2015



LAPP GROUP











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▶ THIS CATALOGUE IS VALID FROM APRIL 2015.

Legend for icons

Industries

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

Product characteristics

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

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.

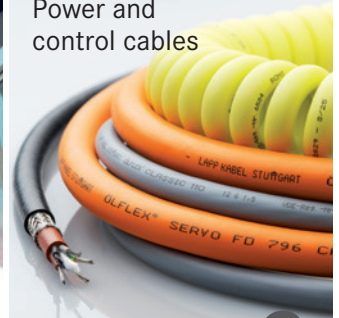
Content

Informations about
the company



2

ÖLFLEX®
Power and
control cables



8

UNITRONIC®
Data communication
systems



12

ETHERLINE®
Data communication
systems for
ETHERNET technology



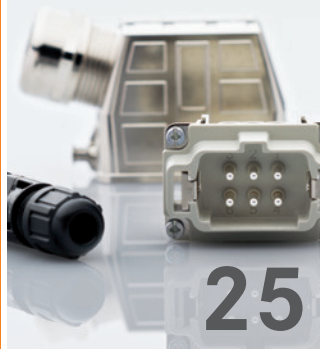
14

HITRONIC®
Optical transmission
systems



22

EPIC®
Industrial connectors



25

SKINTOP®
Cable glands



26

SILVYN® Protective
cable conduit systems
and cable carrier systems



29



Tools and
cable accessories

32



Brand quality from Stuttgart



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.



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.



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.



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.



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.



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.



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.



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.

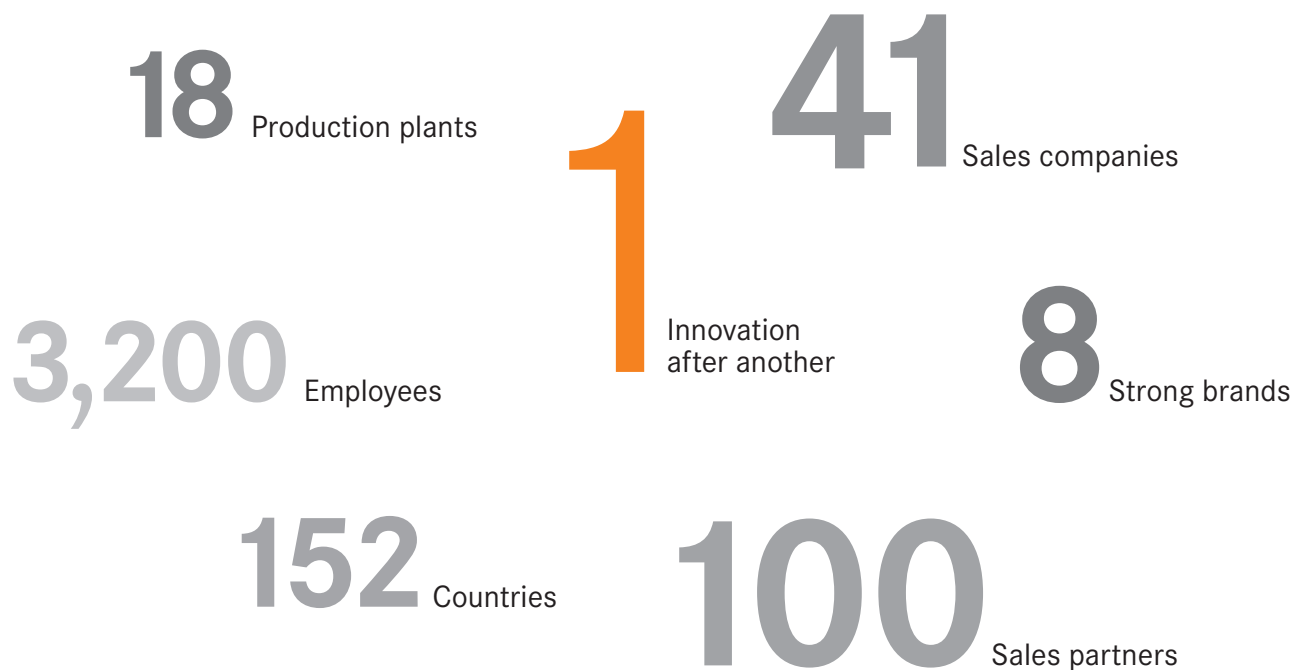
Reliably connecting the world

We want to help you become even more productive and successful. This is why we work tirelessly on optimising our processes. We do everything to make sure we always find the best solution for you and also provide you with quick, efficient and effective support.

No matter where you are – we are always by your side. Our plants, sales companies, partners and, above all, our competent teams of advisers ensure we offer you a comprehensive service on every continent. We do not simply distribute cable technology, we also

manufacture our products ourselves – which represents another advantage for you. As a manufacturer with 18 of our own production facilities, you will benefit from our expertise in the development, design and manufacture of cables, system products and cable accessories. Thanks to this expertise, we can guarantee that Lapp will provide you with the quality that you require and that you demand.

You can always rely on quality from Lapp – wherever you are in the world. This is also embodied by our strong brands.



As of 01.04.2014



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Systems made to order

With our ÖLFLEX® CONNECT system, we offer you a comprehensive product range for a huge variety of different markets and power ranges.



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. There is space in even the smallest chain – and our specialists 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 a single supplier.

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

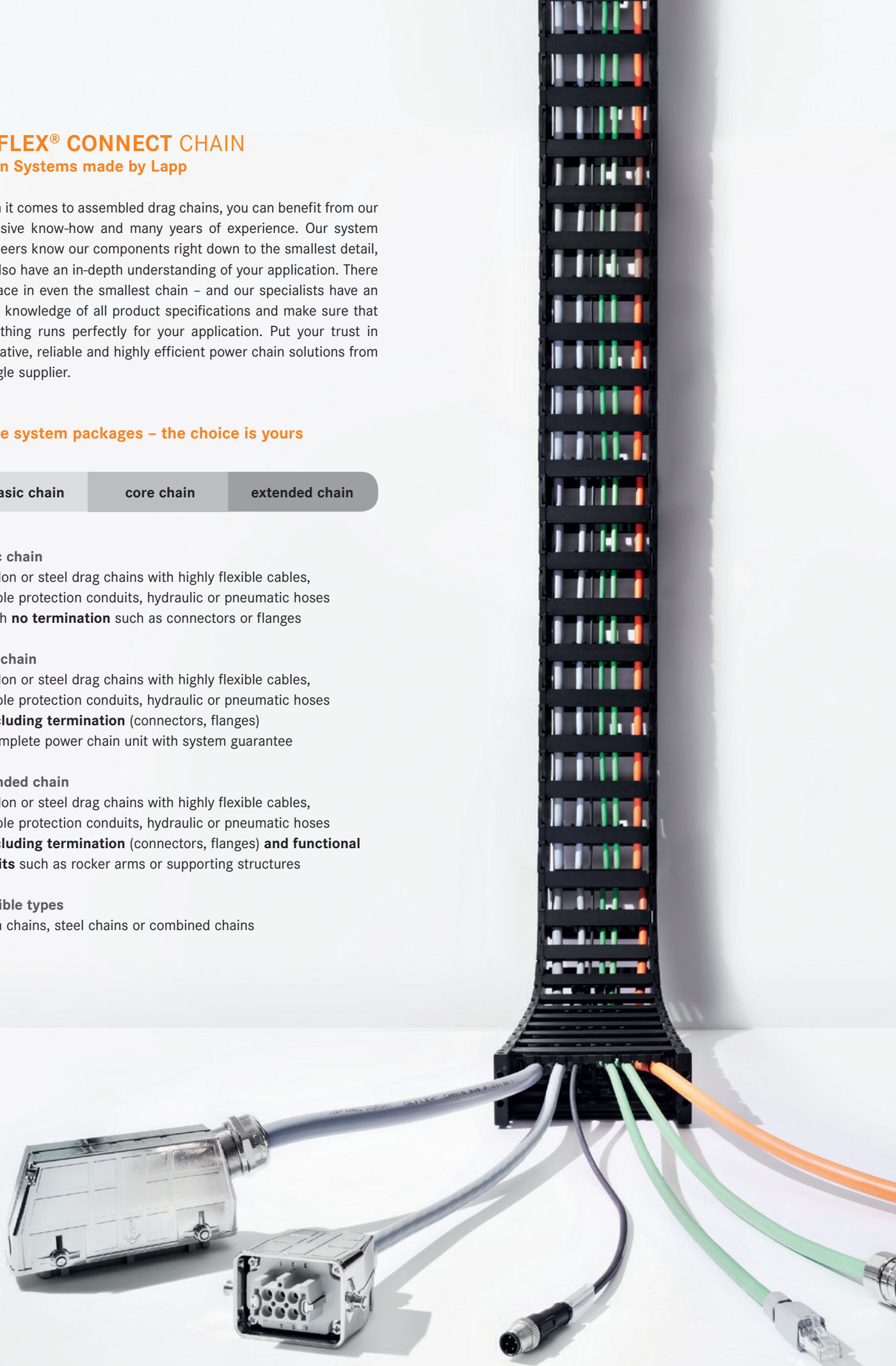
- Nylon or steel drag chains with highly flexible cables, cable protection conduits, hydraulic or pneumatic hoses **including termination** (connectors, flanges)
- Complete power chain unit with system guarantee

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 rocker arms or supporting structures

Possible types

Nylon chains, steel chains or combined chains



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
- 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
U₀/U: 300/500 V



Test voltage
4000 V



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



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

| Article number | Number of cores and mm ² 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 | 36.0 | 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 | 130.0 | 244 |
| 1120739 | 25 G0.75 | 13.8 | 180.0 | 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 | 48.0 | 94 |
| 1120746 | 7 G1.0 | 8.0 | 67.2 | 126 |
| 1120747 | 12 G1.0 | 10.5 | 115.0 | 205 |
| 1120748 | 18 G1.0 | 12.7 | 173.0 | 300 |
| 1120749 | 25 G1.0 | 14.7 | 240.0 | 408 |
| 1120750 | 2 X1.5 | 6.3 | 29.0 | 68 |
| 1120751 | 3 X1.5 | 6.7 | 43.0 | 84 |

| Article number | Number of cores and mm ² per conductor | Outer diameter (mm) | Copper index (kg/km) | Weight (kg/km) |
|----------------|---|---------------------|----------------------|----------------|
| 1120752 | 3 G1.5 | 6.7 | 43.0 | 84 |
| 1120753 | 4 X1.5 | 7.2 | 58.0 | 104 |
| 1120754 | 4 G1.5 | 7.2 | 58.0 | 104 |
| 1120755 | 5 X1.5 | 8.1 | 72.0 | 128 |
| 1120756 | 5 G1.5 | 8.1 | 72.0 | 128 |
| 1120757 | 7 X1.5 | 8.9 | 101.0 | 166 |
| 1120758 | 7 G1.5 | 8.9 | 101.0 | 166 |
| 1120759 | 12 G1.5 | 12.0 | 173.0 | 279 |
| 1120760 | 18 G1.5 | 14.4 | 259.0 | 407 |
| 1120761 | 25 G1.5 | 16.9 | 360.0 | 560 |
| 1120762 | 2 X2.5 | 7.5 | 48.0 | 101 |
| 1120763 | 3 G2.5 | 8.1 | 72.0 | 132 |
| 1120764 | 4 G2.5 | 8.9 | 96.0 | 163 |
| 1120765 | 5 G2.5 | 10.0 | 120.0 | 200 |
| 1120766 | 7 G2.5 | 11.1 | 168.0 | 267 |
| 1120767 | 12 G2.5 | 14.8 | 288.0 | 445 |
| 1120768 | 18 G2.5 | 17.8 | 432.0 | 648 |
| 1120769 | 25 G2.5 | 20.8 | 600.0 | 890 |
| 1120770 | 4 G4 | 10.8 | 154.0 | 249 |
| 1120771 | 5 G4 | 12.1 | 192.0 | 305 |
| 1120772 | 4 G6 | 13.0 | 230.0 | 365 |
| 1120773 | 5 G6 | 14.5 | 288.0 | 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 main catalogue
- ÖLFLEX® ROBUST 210 refer to main catalogue

■ Accessories

- FLEXIMARK® Stainless steel kit refer to main catalogue
- SKINTOP® MS-M refer to main catalogue
- SKINTOP® BS-M METAL / SKINTOP® BSR-M METAL refer to main catalogue



Info

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

New

ÖLFLEX® SERVO 719 CY

Screened servo cable - certified for North America

LAPP KABEL STUFGART ÖLFLEX® SERVO 719 CY DESINA, CE



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
- 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 strand made of bare copper wires
- Core insulation: polypropylene (PP)
- Individual design depending on the item: power cores with or without 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**
VDE: power cores and control cores: U₀/U: 600/1000 V
UL & CSA: 1000 V
- Test voltage**
Core/Core: 4 kV
Core/Screen: 4 kV
- Protective conductor**
G = with GN-YE protective conductor
- Temperature range**
Occasional flexing: -5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm ² per conductor | Outer diameter (mm) | Copper index (kg/km) | Weight (kg/km) |
|-----------------------------|---|---------------------|----------------------|----------------|
| ÖLFLEX® SERVO 719 CY | | | | |
| 1020010 | 4 G 1,5 | 8.4 | 83.0 | 130 |
| 1020011 | 4 G 2,5 | 9.9 | 125.0 | 190 |
| 1020012 | 4 G 4 | 11.7 | 191.0 | 273 |
| 1020013 | 4 G 6 | 13.7 | 290.0 | 394 |
| 1020014 | 4 G 10 | 16.7 | 452.0 | 581 |
| 1020015 | 4 G 16 | 20.1 | 721.0 | 884 |
| 1020016 | 4 G 25 | 24.3 | 1,100.0 | 1,348 |
| 1020017 | 4 G 35 | 27.7 | 1,548.0 | 1,840 |
| 1020018 | 4 G 50 | 33.7 | 2,151.0 | 2,645 |
| 1020019 | 4 G 1,5 + (2 x 1,5) | 11.5 | 146.0 | 242 |
| 1020020 | 4 G 2,5 + (2 x 1,5) | 12.9 | 189.0 | 306 |
| 1020021 | 4 G 4 + (2 x 1,5) | 15.0 | 271.0 | 420 |
| 1020022 | 4 G 6 + (2 x 1,5) | 17.0 | 351.0 | 529 |
| 1020023 | 4 G 10 + (2 x 1,5) | 19.5 | 540.0 | 752 |
| 1020024 | 4 G 0,75 + 2 x (2 x 0,34) | 9.7 | 99.0 | 163 |
| 1020025 | 4 G 1,5 + 2 x (2 x 0,75) | 12.3 | 150.0 | 245 |
| 1020026 | 4 G 2,5 + 2 x (2 x 1,0) | 14.7 | 223.0 | 357 |
| 1020027 | 4 G 4 + 2 x (2 x 1,0) | 16.4 | 288.0 | 452 |
| 1020028 | 4 G 4 + (2 x 1,0) + (2 x 1,5) | 16.6 | 307.0 | 469 |
| 1020029 | 4 G 6 + (2 x 1,0) + (2 x 1,5) | 18.5 | 421.0 | 617 |
| 1020030 | 4 G 10 + (2 x 1,0) + (2 x 1,5) | 22.1 | 588.0 | 852 |
| 1020031 | 4 G 16 + 2 x (2 x 1,5) | 25.0 | 876.0 | 1,162 |
| 1020032 | 4 G 25 + 2 x (2 x 1,5) | 28.7 | 1,227.0 | 1,590 |
| 1020033 | 4 G 35 + 2 x (2 x 1,5) | 30.6 | 1,652.0 | 2,023 |
| 1020034 | 4 G 50 + 2 x (2 x 2,5) | 37.0 | 2,264.0 | 2,876 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Copper price basis: EUR 150/100 kg. Refer to 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® CIRCON LS1 refer to main catalogue
- SKINTOP® MS-M BRUSH refer to main catalogue

Power chain applications

Various applications, certified



New

ÖLFLEX® CHAIN 809 SC CY

Screened single core, PVC-insulated, PVC sheath, certified for North America



Info

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

Benefits

- Multi-standard certification reduces part varieties and saves costs
- Easy to install
- Multifunctional application possibilities
- Also suitable for mobile 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 multi-core shielded servo drive 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

- Low-adhesive surface
- Flammability: UL/CSA: VW-1, FT1 IEC/EN: 60332-1-2
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Designed for 2 million alternating bending cycles and travel distances up to 10 meter

Norm references / Approvals

- CRU AWM II A/B FT1 UL-AWM-Style 10107
- Based on VDE 0250 / 0285
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3
- UL File No. E63634

Product Make-up

- Fine-wire strand made of bare copper wires
- 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: 600/1000 V
UL & CSA: 600 V
- Test voltage**
4000 V
- Protective conductor**
X = without protective conductor
- 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 (mm ²) | Outer diameter (mm) | Copper index (kg/km) | Weight (kg/km) |
|--------------------------------|--|---------------------|----------------------|----------------|
| ÖLFLEX® CHAIN 809 SC CY | | | | |
| 1062940 | 6.0 | 8.1 | 76.0 | 126 |
| 1062941 | 10.0 | 9.7 | 122.0 | 190 |
| 1062942 | 16.0 | 10.6 | 180.0 | 250 |
| 1062943 | 25.0 | 12.0 | 268.0 | 351 |
| 1062944 | 35.0 | 14.8 | 392.0 | 519 |
| 1062945 | 50.0 | 16.8 | 544.0 | 686 |
| 1062946 | 70.0 | 18.5 | 766.0 | 885 |
| 1062947 | 95.0 | 20.9 | 1,020.0 | 1,135 |
| 1062948 | 120.0 | 24.1 | 1,272.0 | 1,443 |
| 1062949 | 150.0 | 26.1 | 1,593.0 | 1,788 |
| 1062950 | 185.0 | 28.4 | 1,941.0 | 2,177 |
| 1062951 | 240.0 | 31.9 | 2,518.0 | 2,671 |
| 1062952 | 300.0 | 33.5 | 3,116.0 | 3,299 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 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 90 CY refer to main catalogue

Accessories

- SILVYN® CHAIN cable protection and guiding systems



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 (2PFG 1169/08.07)

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
- 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 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
Im compliance with TÜV requirements spec. 2 PFG 1169/08.2007 table 1

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

| Article number | Conductor cross-section (mm ²) | 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 | 24.0 | 48 |
| 1023502 | 4.0 | 5.6 | 38.4 | 65 |
| 1023503 | 6.0 | 6.2 | 57.6 | 88 |
| 1023504 | 10.0 | 7.4 | 96.0 | 135 |
| 1023505 | 16.0 | 8.7 | 153.6 | 207 |
| Core insulation: white / Outer sheath: black with red stripe | | | | |
| 1023521 | 2.5 | 5.2 | 24.0 | 48 |
| 1023522 | 4.0 | 5.6 | 38.4 | 65 |
| 1023523 | 6.0 | 6.2 | 57.6 | 88 |
| 1023524 | 10.0 | 7.4 | 96.0 | 135 |
| 1023525 | 16.0 | 8.7 | 153.6 | 207 |
| Core insulation: white / Outer sheath: black with blue stripe | | | | |
| 1023526 | 2.5 | 5.2 | 24.0 | 48 |
| 1023527 | 4.0 | 5.6 | 38.4 | 65 |
| 1023528 | 6.0 | 6.2 | 57.6 | 88 |
| 1023529 | 10.0 | 7.4 | 96.0 | 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 4Plus M refer to main catalogue
- EPIC® SOLAR 4Plus F refer to main catalogue
- UNIVERSAL STRIP stripping and cutting tool refer to main catalogue
- KS 20 cable shears refer to main catalogue



New

UNITRONIC® BUS CAN TRAY

LAPP KABEL STÜTTGART 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-Bus Connectors refer to main catalogue
- EPIC® Data CAN-Bus Connectors (full-metal) refer to main catalogue

Technical data

- 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 pairs/conductor cross section (mm ²) | Outer diameter (mm) | Conductor resistance | Copper index (kg/km) | Weight (kg/km) |
|--------------------------------|-------------------------|--|---------------------|----------------------|----------------------|----------------|
| UNITRONIC® BUS CAN TRAY | | | | | | |
| 2170857 | UNITRONIC® BUS CAN TRAY | 2 x 2 x 0,34 | 7.5 | 110.8 | 35.0 | 81.0 |

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.
 Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
 Packaging size: coil ≤ 30 kg or ≤ 250 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 main catalogue
- SMART STRIP stripping tool refer to main catalogue



New

UNITRONIC® BUS PB TRAY

Fixed installation

LAPP KABEL STUÏGART UNITRONIC® BUS PB TRAY



Info

- PLTC-ER (power limited tray cable exposed 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

- 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 | 26.0 | 82 |

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

Accessories

- EPIC® Data Connectors refer to main catalogue



New

ETHERLINE® TRAY



Info

- PLTC (power limited tray cable) for protected use on cable trays

Benefits

- Wide application range due to multiple certifications
- 4pair: 100Mbit/s up to 10 Gbit/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.6_A: S/FTP - copper braid as overall screening and pair screening with aluminium compound foil
- Cat.5e: SF/UTP - copper braid and foil screening as overall screening
- PVC outer sheath

Technical data



Peak operating voltage
(not for power applications) 125 V



Minimum bending radius
For flexible use:
15 x outer diameter
Fixed installation: 10 x outer diameter



Characteristic impedance
100 +/-15 Ohm at 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) |
|------------------------|--|---------------------------------------|--------------------------|----------------------|
| ETHERLINE® TRAY | | | | |
| 2170450 | ETHERLINE® TRAY Cat.5e Y 4x2x22AWG | 4x2xAWG22/7 | 9.6 | 59.368 |
| 2170463 | ETHERLINE® TRAY Cat.6 _A Y 4x2x22AWG | 4x2xAWG22/7 | 9.9 | 84.238 |

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



New

ETHERLINE® HEAT 6722



Info

- Designed according to ISO 6722
- tested acc.to ECE-R 118.01

LAPP KABEL STUTTGART ETHERLINE® HEAT Cat.5e FL9YBC11Y 4x2x0,22snv

LAPP KABEL STUTTGART ETHERLINE® HEAT Cat.6a FL09YBC11Y 4x2x0,22sn

LAPP KABEL STUTTGART ETHERLINE® HEAT Cat.7 FL09YBC11Y 4x2x0,22sn

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

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 (RAL1003)
Cat.7 blue (RAL5021)

Technical data

- 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) |
|-----------------------------|---|---------------------------------------|--------------------------|----------------------|
| ETHERLINE® HEAT 6722 | | | | |
| 2170850 | ETHERLINE® Cat. 5e FL9YBC11Y 4x2x0,22sn | 4x2xAWG24/7 | 7.7 | 38 |
| 2170581 | ETHERLINE® Cat. 6A FL9YBC11Y 4x2x0,22sn | 4x2xAWG24/7 | 8.1 | 38 |
| 2170582 | ETHERLINE® Cat. 7 FL9YBC11Y 4x2x0,22sn | 4x2xAWG24/7 | 8.1 | 38 |

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 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.



New

ETHERLINE® ROBUST



Info

- For PROFINET applications
- Good chemical resistance

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for both 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

- 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
- Outer sheath colour: black

Technical data



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) |
|----------------------------------|------------------------------|---------------------------------------|--------------------------|
| PROFINET Cat.5e | | | |
| 2170451 | ETHERLINE ROBUST PN Cat.5 | 2x2xAWG22/7 | 6.8 |
| PROFINET Cat.7 | | | |
| 2170452 | ETHERLINE® ROBUST PN Cat.7 | 4x2xAWG23/7 | 9.0 |
| Industrial Ethernet Cat.7 | | | |
| 2170453 | ETHERLINE® ROBUST Cat.7 FLEX | | |

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.



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 both 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

- 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

- Flame retardant acc. to IEC 60332-1-2
- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396

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
- Outer sheath colour: black

Technical data

- 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) |
|----------------------------------|---------------------------------|---------------------------------------|--------------------------|
| PROFINET Cat.5e | | | |
| 2170454 | ETHERLINE® ROBUST PN FR Cat.5 | 2x2xAWG22/7 | 6.8 |
| PROFINET Cat.7 | | | |
| 2170455 | ETHERLINE® ROBUST PN FR Cat.7 | 4x2xAWG23/7 | 9.0 |
| Industrial Ethernet Cat.7 | | | |
| 2170456 | ETHERLINE® ROBUST FR Cat.7 FLEX | | |

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.



New

Industrial Ethernet Patchcord Cat.6_A FD M 12X / Industrial Ethernet Patchcord Cat.6_A FD M 12X on free conductor end



Info

- CAT.6_A for drag chain, qualified for 10Gbit/s

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.6_A qualified for 10Gbit/s
- Suitable for direct connector assembly

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)
- Overmoulded with X-coded M12 connectors

Technical data



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-M 12X-S-0,5-P-4-24-FD-M 12X-S | 4x2xAWG24 | 0,5 | 22 |
| 2172001 | IE-6A-M 12X-S-1-P-4-24-FD-M 12X-S | 4x2xAWG24 | 1 | 44 |
| 2172002 | IE-6A-M 12X-S-2-P-4-24-FD-M 12X-S | 4x2xAWG24 | 2 | 88 |
| 2172003 | IE-6A-M 12X-S-3-P-4-24-FD-M 12X-S | 4x2xAWG24 | 3 | 132 |
| 2172004 | IE-6A-M 12X-S-5-P-4-24-FD-M 12X-S | 4x2xAWG24 | 5 | 220 |
| 2172005 | IE-6A-M 12X-S-10-P-4-24-FD-M 12X-S | 4x2xAWG24 | 10 | 440 |
| 2172006 | IE-6A-M 12X-S-20-P-4-24-FD-M 12X-S | 4x2xAWG24 | 20 | 880 |
| Straight connector to straight socket | | | | |
| 2172028 | IE-6A-M 12XF-S-0,5-P-4-24-FD-M 12X-S | 4x2xAWG24 | 0,5 | 22 |
| 2172029 | IE-6A-M 12XF-S-1-P-4-24-FD-M 12X-S | 4x2xAWG24 | 1 | 44 |
| 2172030 | IE-6A-M 12XF-S-2-P-4-24-FD-M 12X-S | 4x2xAWG24 | 2 | 88 |
| 2172031 | IE-6A-M 12XF-S-3-P-4-24-FD-M 12X-S | 4x2xAWG24 | 3 | 132 |
| 2172032 | IE-6A-M 12XF-S-5-P-4-24-FD-M 12X-S | 4x2xAWG24 | 5 | 220 |
| 2172033 | IE-6A-M 12XF-S-10-P-4-24-FD-M 12X-S | 4x2xAWG24 | 10 | 440 |
| 2172034 | IE-6A-M 12XF-S-20-P-4-24-FD-M 12X-S | 4x2xAWG24 | 20 | 880 |
| straight connector on free conductor end | | | | |
| 2172007 | IE-6A-M 12X-S-0,5-P-4-24-FD-OE | 4x2xAWG24 | 0,5 | 22 |
| 2172008 | IE-6A-M 12X-S-1-P-4-24-FD-OE | 4x2xAWG24 | 1 | 44 |
| 2172009 | IE-6A-M 12X-S-2-P-4-24-FD-OE | 4x2xAWG24 | 2 | 88 |
| 2172010 | IE-6A-M 12X-S-3-P-4-24-FD-OE | 4x2xAWG24 | 3 | 132 |
| 2172011 | IE-6A-M 12X-S-5-P-4-24-FD-OE | 4x2xAWG24 | 5 | 220 |
| 2172012 | IE-6A-M 12X-S-10-P-4-24-FD-OE | 4x2xAWG24 | 10 | 440 |
| 2172013 | IE-6A-M 12X-S-20-P-4-24-FD-OE | 4x2xAWG24 | 20 | 880 |
| Straight plug on free conductor end | | | | |
| 2172170 | IE-6A-M 12XF-S-0,5-P-4-24-FD-OE | 4x2xAWG24 | 0,5 | 22 |
| 2172171 | IE-6A-M 12XF-S-1-P-4-24-FD-OE | 4x2xAWG24 | 1 | 44 |
| 2172172 | IE-6A-M 12XF-S-2-P-4-24-FD-OE | 4x2xAWG24 | 2 | 88 |
| 2172173 | IE-6A-M 12XF-S-3-P-4-24-FD-OE | 4x2xAWG24 | 3 | 132 |
| 2172174 | IE-6A-M 12XF-S-5-P-4-24-FD-OE | 4x2xAWG24 | 5 | 220 |
| 2172175 | IE-6A-M 12XF-S-10-P-4-24-FD-OE | 4x2xAWG24 | 10 | 440 |
| 2172176 | IE-6A-M 12XF-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

Industrial Ethernet Patchcord Cat.6_A FD M 12X on free conductor end

- EPIC® DATA AX RJ45 Cat.6_A refer to main catalogue
- EPIC® DATA 90 RJ45 Cat.6_A refer to main catalogue
- EPIC® DATA M 12D refer to main catalogue
- EPIC® DATA M 12X refer to main catalogue



New

Industrial Ethernet Patchcord Cat.6_A TORSION M12X-M12X / Industrial Ethernet Patchcord Cat.6_A TORSION M12X on free conductor end

Info

- Industrial Ethernet Cable, 4-pair, suitable for torsion stress
- CAT.6_A qualified for 10Gbit/s



Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- CAT.6_A qualified for 10Gbit/s
- Suitable for direct connector assembly

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)
- Overmoulded with X-coded M12 connectors

Technical data

- 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 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 |
| 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 plug 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 |

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Accessories

Industrial Ethernet Patchcord Cat.6_A TORSION M12X on free conductor end

- EPIC® DATA AX RJ45 Cat.6_A refer to main catalogue
- EPIC® DATA 90 RJ45 Cat.6_A refer to main catalogue
- EPIC® DATA M12D refer to main catalogue
- EPIC® DATA M12X refer to main catalogue



New

EPIC® DATA PN 90 RJ45



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 applications

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51



Info

- For PROFINET applications
- Installation without tools
- 4 different angled cable outlets possible

Technical data



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-90-6A-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.



New

EPIC® DATA 90 RJ45 Cat.6_A



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



Info

- CAT.6_A qualified for 10Gbit/s
- Installation without tools
- 4 different angled cable outlets possible

Technical data



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-90-6A-A-20-FC | 5.5 | 10 | 1 | 1.6 | 24 - 22 | 27 - 22 | |
| RJ45 connector acc. to T568A, specifically for cables with 19-wire cores | | | | | | | | |
| 21700639 | ED-IE-90-6A-A-20-FD-FC | 5.5 | 10 | 0.85 | 1.1 | 26 - 24 | 27 - 24 | 26 |
| RJ45 connector acc. to T568B | | | | | | | | |
| 21700637 | ED-IE-90-6A-B-20-FC | 5.5 | 10 | 1 | 1.6 | 24 - 22 | 27 - 22 | |
| RJ45 connector acc. to T568B, specifically for cables with 19-wire cores | | | | | | | | |
| 21700640 | ED-IE-90-6A-B-20-FD-FC | 5.5 | 10 | 0.85 | 1.1 | 26 - 24 | 27 - 24 | 26 |

Photographs 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



New

EPIC® DATA CCR FA



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

- IP Protection rating**
IP 65 / IP 67
- Ambient temperature (operation)**
Plug/socket -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 CCR FA | | | | | | | |
| 21700623 | EPIC® DATA CCR FA | 5 | 9.7 | 0.85 | 1.6 | 24 - 22 | 24 - 22 |

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

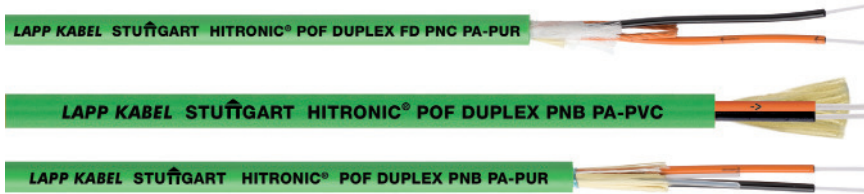
POF - Polymer Optical Fibre Cable

Two buffered fibres applications (DUPLEX)



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 transmission up to 70m
- Easy to handle
- No interference 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

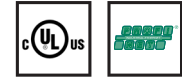
- Dimensions**
Buffered fibre: 2.2mm
Cable: see table
- Core identification code**
Black, orange (with arrow printing)
- Optical fibre type**
Core material: PMMA
Cladding material: fluoropolymers
- Permissible bending radius**
≥ 10 x outer diameter
- Permissible tensile force**
see data sheet
- Temperature 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 | 54 |
| 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 | 59 |

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 main catalogue
- POF Cutting Tools refer to main catalogue
- POF Connector F-SMA and ST(BFOC) refer to main catalogue
- EPIC® Data PROFIBUS Connector (Optical Link Modul) refer to main catalogue
- STAR STRIP stripping tool refer to main catalogue

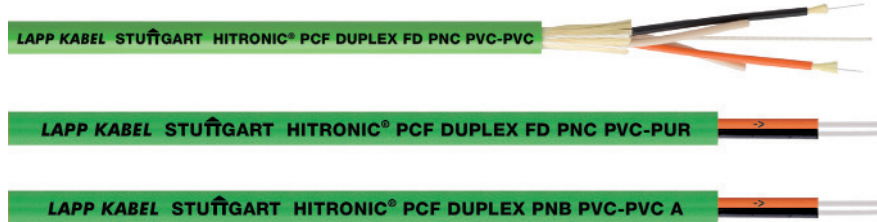


New

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 transmission up to 500m
- Easy to handle
- No interference by external fields
- No grounding problems
- Suitable for direct connector assembly

Application range

- PCF DUPLEX cables 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

- 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 | 7.2 | 59 |
| 28052702 | HITRONIC® PCF DUPLEX PNB PVC-PVC | 200/230 PCF | 2 | 7.2 | 59 |
| 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 | 77 |

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 main catalogue
- PCF Connector HFBR refer to main catalogue
- PCF Connector F-SMA and ST(BFOC) refer to main catalogue
- PCF Cutting Tools refer to main catalogue
- EPIC® Data PROFIBUS Connector (Optical Link Modul) refer to main catalogue
- STAR STRIP stripping tool refer to main catalogue



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
- Cable construction successfully tested up to 1250m blowing length
- 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

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 main catalogue
- HITRONIC® HVN-Mini Cable refer to main catalogue



Info

- Compact, powerful standard insert
- Space saving, crimping contact

EPIC® H-Q 12



Suitable housing

- EPIC® H-A 3 Housings
- Refer to Selection Table A 10 to select the required inserts and housings

Suitable contacts:

- EPIC® H-D 1.6 machined contacts

Benefits

- High performance crimping contacts
- PE contact with screw connection

Application range

- Machine and equipment manufacturing
- Control engineering

Technical data

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

Fixed installation: -40°C to +120°C

| Article number | Article | Version | 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 |
| 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.

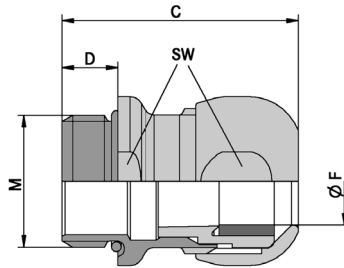
Accessories

- EPIC® Coding parts refer to main catalogue



New

SKINTOP® INOX SC



Info

- Stainless steel version with compact design
- Optimum EMC protection

Benefits

- Smooth surfaces - no edges
- Compact design
- Wide, variable clamping ranges
- Low-resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact for clamping various screen diameters

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Pharmaceutical industry
- Food industry (product-free zone, splash zone)
- Onshore and offshore applications
- Bottling plants and breweries

Norm references / Approvals

- **DIN EN ISO 14 159**
Security of machinery
Hygienic requirements for the design of machinery
- **DIN EN 1672-2**
Guideline for the design of machinery
- **ECOLAB®**
Industry standard in the field of professional cleaning and disinfection

Product Make-up

- Metric connection thread acc. to DIN 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

Technical data



Classification

ETIM 5.0 Class-ID: EC000240
ETIM 5.0 Class-Description:
Cable entry system



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 (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 main catalogue
- SKINTOP® HYGIENIC refer to main catalogue

Accessories

- Suitable counter nut SKINDICHT® SM-PE-M refer to main catalogue



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
- Dairy and cheese technology
- Mills for grains and cereals

Norm references / Approvals

- **EHEDG (TYPE EL Class I AUX)**
Hygienic design for machinery and components (pending)
- **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
- Metric connection thread acc. to DIN EN 50262
- One complete assembly is easily mounted from the outside

Note

- Other sizes are available upon request
- EMC version is available upon request
- Installation wrench for very high packing density on request

Suitable cables

- The following cables are recommended for IP 69 applications:
ÖLFLEX® ROBUST 200
H07RN8-F
H07RN-F

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 (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 refer to main catalogue

Accessories

- Suitable counter nut SKINDICHT® SM-PE-M refer to main catalogue
- SKINMATIC® QUICK SET refer to main catalogue





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 the ratchet
- 1x R1 - ratchet
- 1x V1 - extension
- 5x open nut for wrench size (N) 15, 16, 19, 20, 25, 30, suitable for ratchet head R1

■ Note

- Open nut N15 PA M12
- Open nut N16 MS M12
- Open nut N19 PA M16
- Open nut N20 (extension) MS M16
- Open nut N25 PA M20 / MS M20
- Open nut N30 PA M25 / MS M25

■ Technical data



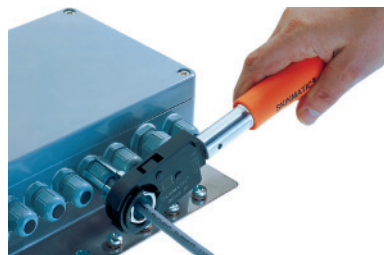
Classification

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

SILVYN® FG NM



Info

- All-plastic conduit
- Specifically for the food and beverage 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
- FSS machines
- Dairy and cheese technology
- 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

- DIN VDE** Certifications
FDA CFR 21
NSF 51
- RAL** 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 | Internal Ø x external Ø (mm) | Nominal size | Bending radius (mm) | Dynamic bending radius (mm) | PU ring (m) |
|---------------------------|------------------------------|--------------|---------------------|-----------------------------|-------------|
| SILVYN® FG NM blue | | | | | |
| 55503370 | 12.6 x 17.8 | 3/8" | 70 | 100 | 30 |
| 55503371 | 16.0 x 21.1 | 1/2" | 100 | 135 | 30 |
| 55503372 | 21.0 x 26.4 | 3/4" | 130 | 175 | 30 |
| 55503373 | 26.5 x 33.1 | 1" | 180 | 220 | 30 |
| 55503374 | 35.1 x 41.8 | 1 1/4" | 225 | 270 | 15 |
| 55503375 | 40.3 x 47.8 | 1 1/2" | 255 | 320 | 15 |
| 55503376 | 51.6 x 59.9 | 2" | 310 | 400 | 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 main catalogue

Accessories

- SILVYN® HYGIENIC refer to main catalogue
- SILVYN® AMG-M FG refer to main catalogue

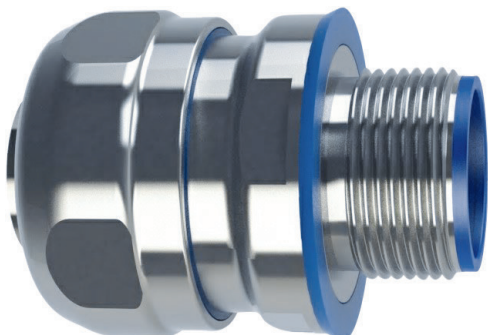
Liquid-tight conduits

Impermeable conduits



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
- For use in **product zone**
- FSS machines
- Dairy and cheese technology

Product features

- High chemical and thermal stability with very aggressive media such as Detergents and disinfectants, acids and alkalis during cleaning processes etc.

Norm references / Approvals

- **DIN EN 1672-2**
Guideline for the design of machinery
- **DIN EN ISO 14 159**
Security of machinery
Hygienic requirements for the design of machinery

Product Make-up

- Material and shape provide an easy and safe cleaning
- By the blue coloring of the sealing material clearly distinguishable from foodstuffs
- Rounded key areas for mounting with standard tools

Suitable conduits

- SILVYN® FG refer to main catalogue
- SILVYN® FG NM refer to main catalogue

Technical data

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 | Article designation | Nominal size | min. internal Ø | Pieces / PU |
|-------------------------|---------------------|--------------|-----------------|-------------|
| SILVYN® HYGIENIC | | | | |
| 55510700 | M16 x 1,5 | 3/8" | 10.7 | 1 |
| 55510701 | M20 x 1,5 | 1/2" | 14.5 | 1 |
| 55510702 | M25 x 1,5 | 3/4" | 18.7 | 1 |
| 55510703 | M32 x 1,5 | 1" | 24.6 | 1 |
| 55510704 | M40 x 1,5 | 1 1/4" | 32.7 | 1 |
| 55510705 | M50 x 1,5 | 1 1/2" | 37.7 | 1 |

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SILVYN® SPLIT

Benefits

- Dimensionally stable
- Flexible
- Crush-resistant
- Subsequent cable protection after cable installation
- Fast and easy assembly

Application range

- Vehicle construction
- Solar farm
- Mechanical engineering
- Electrical industry
- Used in areas where cables and wires need to be protected after assembly

Product features

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals
- Very good UV- and Weathering performance (SILVYN® SPLIT PP UV)

Product Make-up

- Divisible corrugated conduit

Info

- **New sizes are available**

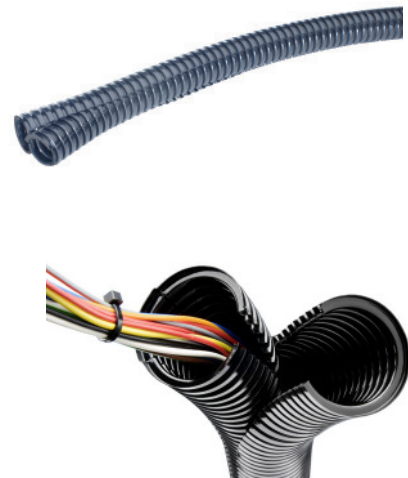
Technical data

RAL Colour delivered
Black (RAL 9005), UV-resistant

Material
Polyamide 6 (PA6)
Polypropylene (PP)

IP 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 | Article designation | Internal Ø x external Ø (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® RILL PA6 SINUS refer to main catalogue

Accessories

- SILVYN® SPLIT COV refer to main catalogue
- SILVYN® SPLIT COS refer to main catalogue
- Spare tool Cable - Eater refer to main catalogue

New

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/MULTICRIMP 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

- 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

| Article number | Article designation | For mm ² | 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.

Similar products

- PEW 8.87 crimping pliers refer to main catalogue

Accessories

- Conductor end sleeves insulated refer to main catalogue
- Conductor end sleeves AH, not insulated refer to main catalogue



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

- UV-resistant

Norm references / Approvals

- UL 224 approval

Note

- Not resistant against engine oils

Included

- Plastic bag with 1.22 m units

Suitable tools

- HG 2310 LCD hot-air pistol refer to main catalogue

Technical data

- 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 | 0.4 | 30.5 | 1 |
| 61742401 | PROTECT 1,6/0,8 BK | black | 1.6 - 0.8 | 0.4 | 30.5 | 1 |
| 61742402 | PROTECT 2,4/1,2 BK | black | 2.4 - 1.2 | 0.5 | 30.5 | 1 |
| 61742403 | PROTECT 3,2/1,6 BK | black | 3.2 - 1.6 | 0.5 | 30.5 | 1 |
| 61742404 | PROTECT 4,8/2,4 BK | black | 4.8 - 2.4 | 0.5 | 30.5 | 1 |
| 61742405 | PROTECT 6,4/3,2 BK | black | 6.4 - 3.2 | 0.6 | 30.5 | 1 |
| 61742406 | PROTECT 9,5/4,7 BK | black | 9.5 - 4.7 | 0.6 | 30.5 | 1 |
| 61742407 | PROTECT 12,7/6,4 BK | black | 12.7 - 6.4 | 0.6 | 30.5 | 1 |
| 61742408 | PROTECT 19,1/9,5 BK | black | 19.1 - 9.5 | 0.7 | 12.2 | 1 |
| 61742409 | PROTECT 25,4/12,7 BK | black | 25.4 - 12.7 | 0.8 | 12.2 | 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.

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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

Suitable tools

- HG 2310 LCD hot-air pistol refer to main catalogue

Technical data



Note
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 | 0.4 | 12.0 | 1 |
| 61742424 | PROTECT Box 1,6/0,8 BK | black | 1.6 - 0.8 | 0.4 | 12.0 | 1 |
| 61742425 | PROTECT Box 2,4/1,2 BK | black | 2.4 - 1.2 | 0.5 | 12.0 | 1 |
| 61742426 | PROTECT Box 3,2/1,6 BK | black | 3.2 - 1.6 | 0.5 | 12.0 | 1 |
| 61742427 | PROTECT Box 4,8/2,4 BK | black | 4.8 - 2.4 | 0.5 | 10.0 | 1 |
| 61742428 | PROTECT Box 6,4/3,2 BK | black | 6.4 - 3.2 | 0.6 | 8.0 | 1 |
| 61742429 | PROTECT Box 9,5/4,7 BK | black | 9.5 - 4.7 | 0.6 | 7.0 | 1 |
| 61742430 | PROTECT Box 12,7/6,4 BK | black | 12.7 - 6.4 | 0.6 | 6.0 | 1 |
| 61742431 | PROTECT Box 19,1/9,5 BK | black | 19.1 - 9.5 | 0.7 | 5.0 | 1 |
| 61742433 | PROTECT Box 25,4/12,7 BK | black | 25.4 - 12.7 | 0.8 | 3.0 | 1 |
| Transparent | | | | | | |
| 61742434 | PROTECT Box 1,2/0,6 TR | transparent | 1.2 - 0.6 | 0.4 | 12.0 | 1 |
| 61742435 | PROTECT Box 1,6/0,8 TR | transparent | 1.6 - 0.8 | 0.4 | 12.0 | 1 |
| 61742436 | PROTECT Box 2,4/1,2 TR | transparent | 2.4 - 1.2 | 0.5 | 12.0 | 1 |
| 61742437 | PROTECT Box 3,2/1,6 TR | transparent | 3.2 - 1.6 | 0.5 | 12.0 | 1 |
| 61742438 | PROTECT Box 4,8/2,4 TR | transparent | 4.8 - 2.4 | 0.5 | 10.0 | 1 |
| 61742439 | PROTECT Box 6,4/3,2 TR | transparent | 6.4 - 3.2 | 0.6 | 8.0 | 1 |
| 61742440 | PROTECT Box 9,5/4,7 TR | transparent | 9.5 - 4.7 | 0.6 | 7.0 | 1 |
| 61742441 | PROTECT Box 12,7/6,4 TR | transparent | 12.7 - 6.4 | 0.6 | 6.0 | 1 |
| 61742442 | PROTECT Box 19,1/9,5 TR | transparent | 19.1 - 9.5 | 0.7 | 5.0 | 1 |
| 61742443 | PROTECT Box 25,4/12,7 TR | transparent | 25.4 - 12.7 | 0.8 | 3.0 | 1 |

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

Note

- Non halogen-free

Design

- Green-yellow polyolefin shrink-tubing

Included

- Plastic bag with 1.22 m units

Technical data



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

Suitable tools

- HG 2310 LCD hot-air pistol refer to main catalogue

| 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 | 0.5 | 61.0 | 1 |
| 61742417 | PROTECT 4,8/2,4 GN/YE | green-yellow | 4.8 - 2.4 | 0.5 | 61.0 | 1 |
| 61742418 | PROTECT 6,4/3,2 GN/YE | green-yellow | 6.4 - 3.2 | 0.6 | 30.5 | 1 |
| 61742419 | PROTECT 9,5/4,7 GN/YE | green-yellow | 9.5 - 4.7 | 0.6 | 30.5 | 1 |
| 61742420 | PROTECT 12,7/6,4 GN/YE | green-yellow | 12.7 - 6.4 | 0.6 | 30.5 | 1 |
| 61742421 | PROTECT 19,1/9,5 GN/YE | green-yellow | 19.1 - 9.5 | 0.7 | 30.5 | 1 |
| 61742422 | PROTECT 25,4/12,7 GN/YE | green-yellow | 25.4 - 12.7 | 0.8 | 18.3 | 1 |

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For current information see: www.lappgroup.com



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

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

Technical data



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

- 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
- 5 x 100 mm Shrink tube PROTECT 19,1/9,5 BU
- 5 x 180 mm Shrink tube PROTECT 25,4/12,7 BK
- 1 x HOT GUN



| Article number | Article description |
|----------------|---------------------|
| 61742465 | PROTECT Set |

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

Included

- Plastic bag with 0.6 m units

Suitable tools

- HG 2310 LCD hot-air pistol refer to main catalogue

Technical data



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 | 1.0 | 12.0 | 1 |
| 61742450 | PROTECT-C 6,0/2,0 BK | 6.0 - 2.0 | 1.1 | 9.0 | 1 |
| 61742451 | PROTECT-C 9,0/3,0 BK | 9.0 - 3.0 | 1.3 | 6.0 | 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 | 2.0 | 3.6 | 1 |
| 61742454 | PROTECT-C 24,0/8,0 BK | 24.0 - 8.0 | 2.5 | 3.0 | 1 |

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For current information see: www.lappgroup.com



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

Design

- PROTECT-M = medium wall
- PROTECT-T = thick wall

Included

- Plastic bags with 1.0 m units

Suitable tools

- HG 2310 LCD hot-air pistol refer to main catalogue

Technical data



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 | PU (m) | PU |
|--------------------|------------------------|----------------------|------------------------------------|--------|----|
| Medium wall | | | | | |
| 61742460 | PROTECT- M 12/3 BK | 12.0 - 3.0 | 2.2 | 15.0 | 1 |
| 61742461 | PROTECT- M 33/8 BK | 33.0 - 8.0 | 2.6 | 10.0 | 1 |
| 61742462 | PROTECT- M 40/12 BK | 40.0 - 12.0 | 2.6 | 5.0 | 1 |
| 61742463 | PROTECT- M 56/17 BK | 56.0 - 17.0 | 3.0 | 3.0 | 1 |
| 61742464 | PROTECT- M 92/26 BK | 92.0 - 26.0 | 3.1 | 1.0 | 1 |
| Thick wall | | | | | |
| 61742455 | PROTECT- T 13,0/4,0 BK | 13.0 - 4.0 | 2.6 | 25.0 | 1 |
| 61742456 | PROTECT-T 19/6 BK | 19.0 - 6.0 | 2.6 | 15.0 | 1 |
| 61742457 | PROTECT- T 45/12 BK | 45.0 - 13.0 | 3.7 | 5.0 | 1 |
| 61742458 | PROTECT- T 52/16 BK | 52.0 - 16.0 | 4.1 | 3.0 | 1 |
| 61742459 | PROTECT- T 130/45 BK | 130.0 - 45.0 | 4.2 | 1.0 | 1 |

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ment 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 con-

tained in the tables in the appendix to the current main catalogue. Our machines and installation tools are – where necessary – designed in accordance with the machine guidelines and display the CE identification mark. It must be noted, however, that our machines and installation tools must only be used by trained specialist personnel and for the purpose for which they were designed. ©Copyright by U.I. Lapp GmbH. Reprinting or reproduction of the text or the

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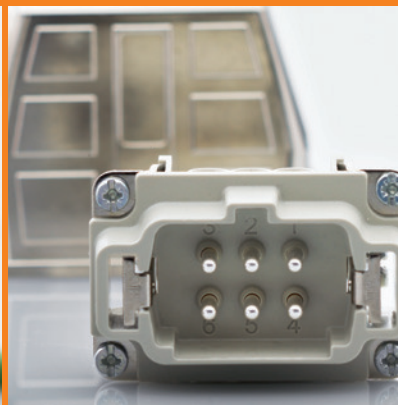
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