THE WORLD OF LAPP

Innovations 2016

LAPP GROUP

Legend for icons

INDUSTRIES

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

PRODUCT CHARACTERISTICS

- Suitable for outdoor use
- Good chemical resistance
- Flame-retardant
- Wide clamping range
- Halogen-free
- Heat-resistant
- Cold-resistant
- Corrosion-resistant
- Maximum vibration protection
- Mechanical resistance
- Assembly time
- Low weight
- Oil-resistant
- Optimum strain relief
- Space requirement

- Power chain
- Clean room
- Robust
- Acid-resistant
- Reliability
- Integrated SKINTOP® cable gland
- Voltage
- Connector with standard housing unit
- Interference signals
- Temperature-resistant
- Torsion-resistant
- Torsion load
- UV-resistant
- Waterproof
- Variety of approval certifications

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

Content

Success through values

Rock solid, high performance. Regional roots, global aspirations. Fast, reliable, high quality – and development that is always one step ahead. For products for the railway industry as well. This is Lapp.

The southwest region of Germany is considered one of the most innovative and powerful industrial sectors in the world, and for good reason. Lapp is a part of this region, helping to guide it and its success worldwide.

As a completely family run company, we know: Everything that we have achieved

since our founding in 1957 is based on the daily commitment of our skilled staff and partnerships with our customers based on trust. Each of them has made a decisive contribution to our mutual success.

Today, Lapp is one of the world's leading manufacturers of cables, leads, cable accessories and systems of the highest level of quality. We have approximately 3,300 employees worldwide. With 18 production sites on four continents, more than 39 sales companies and hundreds of dedicated consulting experts, we are always close by. And not just physically:

customer proximity cannot be measured in mere kilometres. It is based on listening, making your challenges our own and developing solutions that help to further your business model.

Candid closeness and a trusting, partnership-based cooperation are more than just words for Lapp, they are values upon which we have built our family company.

The result? Intelligent and reliable connectivity solutions precisely tailored to the needs of our globally active customers. For you as well.

Customer-oriented
Successful
Family based
Innovative. **Lapp.**

- Founded in 1957

- A leading manufacturer of cables, leads, accessories and complete system solutions for connection technology

- Approximately 3,300 employees worldwide

- 18 production facilities

- More than 39 sales companies

- Hundreds of dedicated consulting experts worldwide

- Years of experience in the rail industry

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

Lapp makes it into the TOP 100

The Stuttgart-based company has become one of Germany's elite innovators/Company to receive award from TOP 100 mentor Ranga Yogeshwar

Lapp makes it into the TOP 100 and belongs to the most innovative German SMEs. v.l. Dr. Simon Alig, Assitant of the Managing Board Technology & Innovation, mentor Ranga Yogeshar, Guido Ege, Head of Product Management and Product Development, and Georg Stawowy, Member of the Board for Technology and Innovation. Picture: KD Busch/comamedia, www.top100-germany.com

The TOP 100 companies, a title bestowed upon the most innovative German SMEs, are to be named in the 23rd edition of this competition. The Lapp Group is among the innovative elite this year. The Stuttgart-based company had taken part in a demanding scientific selection process to achieve this status. The Group's innovation management and success in innovation were examined. The mentor of the innovation competition, Ranga Yogeshwar, will present the award for Top Innovator during the German SME Summit on 24 June in Essen.

The innovative strength behind the Lapp Group, which has been awarded the TOP 100 seal, has a name: "technology and innovation management", or TIM for short. The workshops of the same name run by the Stuttgart-based experts in connection technology are a breeding ground for new ideas. Employees from around the world working in a wide range of roles are invited to develop new solution approaches for customers three or four times per year. There are also a number of smaller TIM workshops in various departments throughout the company. "Our aim is for our employees to view innovations as part of their day-to-day work going forward so that they no longer need managers in order to come up with innovations," said Siegbert Lapp, Chairman of the Supervisory Board. The Top Innovator develops and produces complete solutions for cable technology and creates a broad portfolio of branded products, including flexible cables, power

and control cables, data and fibre optic cables, cable glands, industrial connectors and cable accessories. 3,300 or so employees around the world work for the family company, which was founded in 1959. 1,200 of these employees are based in Germany. The portfolio of standard products, not including the company's countless special-purpose solutions, now consists of over 40,000 items. This huge range is the result of many successful innovations.

Lapp is the market leader in the industry in Germany as well as being in the top tier internationally. Georg Stawowy, Member of the Board for Technology and Innovation, explains Lapp's philosophy for innovation: "Firstly, we want to tap into new markets with our innovations. Secondly, we want to be the company that is always providing the latest and best products."

Over 4,000 companies expressed an interest in participating in TOP 100 this year. 366 applied for the qualifying round. 284 reached the final round. 238 then managed the leap into the TOP 100 (a maximum of 100 companies in each of the three size categories). The companies were once again assessed by Professor Nikolaus Franke and his team at the Chair for Entrepreneurship and Innovation of Vienna University of Economics and Business. They used 100 parameters in five assessment categories – "innovation-friendly executive management", "innovation climate", "innovative processes and organisation", "inno-

vation marketing/external orientation" and "innovation success" – to perform their evaluation. The TOP 100 companies are seen as the trendsetters in their industries. This is also reflected in the assessment's figures: Among the companies, 97 are market leaders on a national scale and 32 are market leaders on a global scale. Looking at recent statistics, they generated an average of 40 percent of their turnover with market innovations and product improvements brought onto the market ahead of their competitors. Their sales growth was around 28 percentage points higher than the respective average in the industry. In total, the SMEs have filed 2,292 national and international patents over the past three years. This innovative capacity is also paying off in the workplace as the TOP 100 companies are planning to hire around 9,500 new employees over the next three years.

Ranga Yogeshwar, the mentor of TOP 100 who is also a science journalist and TV presenter, is impressed by the quality of the companies and is hoping to see others follow in their footsteps: "The way in which the TOP 100 companies come up with new ideas and develop groundbreaking products and services from these ideas is truly remarkable. I am so glad that this award shines a light on these qualities. Hopefully their success will encourage other companies to follow suit. After all, this culture of innovation will become increasingly significant to all companies in future."

Lapp Group

TOP-INNOVATOR
2016

Unter der wissenschaftlichen Leitung von Professor Dr. Nikolaus Franke vom Institut für
Entrepreneurship und Innovation der Wirtschaftsuniversität Wien werden jedes Jahr die inno-
vativsten Unternehmen des deutschen Mittelstands ermittelt. Die Prüfung des Innovations-
managements der Lapp Group brachte hervorragende Ergebnisse. Damit zählt das Unternehmen
zu den Top-Innovatoren im Mittelstand.

PROF. DR. NIKOLAUS FRANKE
Institut für Entrepreneurship und Innovation
Wirtschaftsuniversität Wien   24. Juni 2016

RANGA YOGESHWAR
Mentor
von TOP 100

Top-Innovator
2016

Eight brands, one promise:
uncompromising quality – worldwide

ÖLFLEX®
Power and control cables

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

UNITRONIC®
Data communication systems

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

ETHERLINE®
Data communication systems for ETHERNET technology

Our ETHERLINE® branded prod-ucts open up a secure, fast and reliable path to the future of Ethernet applications. The sys-tems are made up of durable and robust cables and connec-tion components for passive network technology, and deliver an effective solution for almost any application, particularly in an industrial environment.

HITRONIC®
Optical transmission systems

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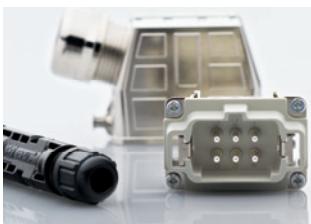
EPIC®
Industrial connectors

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

SKINTOP®
Cable glands

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

SILVYN®
Protective cable conduit systems and cable carrier systems

The universal range of SILVYN® protection and guidance sys-tems protect cables effectively against dust, moisture, mechan-ical, thermal and chemical influ-ences. The versatile SILVYN® CHAIN range of energy supply chains also protects and guides cables in dynamic applications.

FLEXIMARK®
Marking systems

The requirement: permanent marking. The solution: FLEXIMARK®. These sophisti-cated 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 guaran-teed 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.

8 strong brands

100 sales partners

1 innovation after another

Employees from **152** countries

More than **40,000** standard products

39 proprietary sales companies

3,300 employees

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Yemen
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Power and control cables

LAPP GROUP

Power chain applications • Harsh conditions, certified

CE UL cUL

ÖLFLEX® CHAIN 90 P

Highly flexible single core power cable with abrasion and oil resistant PUR sheath – certified for North America

LAPP KABEL STUTTGART ÖLFLEX® CHAIN 90 P CE

LAPP KABEL STUTTGART ÖLFLEX® CHAIN 90 P CE

Info

- Extended Line for heavy duty in power chain applications
- Allrounder for indoor and outdoor use
- Improved characteristics in the event of a fire

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard certification reduces part varieties and saves costs
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Longer cable installation lengths thanks to low mutual capacitance cable design

Application range

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

Product features

- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter
- Flammability:
  - Halogen-free acc. to VDE 0472-815
  - Flame retardant acc. to IEC 60332-1-2 or UL/cUL VW-1, FT1
- Good weather, UV and oil resistance
- Abrasion and notch-resistant
- Flexible at low temperatures
- Low-capacitance design

Norm references / Approvals

- USA: UL AWM Style 11624, VW-1
  Canada: cUL AWM I/II A, FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: TPE compound
- PUR outer sheath, black (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 Class-Description:
Low voltage power cable

Core identification code
Black or green-yellow, other colours available on request

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

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

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 3 x outer diameter

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

Test voltage
4000 V

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

Alternating bending cycles
10 mio. cycles

Temperature range
Flexing: -35°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Core colour	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 90 P					
1026513	1.5	6.3	green-yellow	14.4	48
1026514	1.5	6.3	black	14.4	48
1026515	2.5	6.9	green-yellow	24	63
1026516	2.5	6.9	black	24	63
1026517	4	7.2	green-yellow	38.4	77
1026518	4	7.2	black	38.4	77
1026519	6	7.7	green-yellow	57.6	95
1026520	6	7.7	black	57.6	95
1026521	10	9.1	green-yellow	96	145
1026522	10	9.1	black	96	145
1026523	16	10.6	green-yellow	153.6	205
1026524	16	10.6	black	153.6	205
1026525	25	12.3	green-yellow	240	290
1026526	25	12.3	black	240	290
1026527	35	13.3	green-yellow	336	413
1026528	35	13.3	black	336	413

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Core colour	Copper index (kg/km)	Weight (kg/km)
1026529	50	15.9	green-yellow	480	535
1026530	50	15.9	black	480	535
1026531	70	18	green-yellow	672	776
1026532	70	18	black	672	776
1026533	95	19.9	green-yellow	912	998
1026534	95	19.9	black	912	998
1026535	120	22.5	green-yellow	1152	1249
1026536	120	22.5	black	1152	1249
1026537	150	24.6	green-yellow	1440	1486
1026538	150	24.6	black	1440	1486
1026539	185	27.2	green-yellow	1776	1788
1026540	185	27.2	black	1776	1788
1026541	240	32.1	green-yellow	2304	2381
1026542	240	32.1	black	2304	2381
1026543	300	34	green-yellow	2880	2964
1026544	300	34	black	2880	2964

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

Accessories

- SILVYN® CHAIN cable protection and guiding systems

LAPP GROUP

Power and control cables
Power chain applications • Harsh conditions, certified

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ACCESSORIES

ÖLFLEX® CHAIN 90 CP

Highly flexible, screened single core power cable with abrasion and oil resistant PUR sheath – certified for North America

Info

- Extended Line for heavy duty in power chain applications
- Allrounder for indoor and outdoor use
- Improved characteristics in the event of a fire

LAPP KABEL STUTTGART ÖLFLEX® CHAIN 90 CP CE

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Wide temperature range for applications in harsh climatic environments
- Longer cable installation lengths thanks to low mutual capacitance cable design
- Copper screening complies with EMC requirements and protects against electromagnetic interference

Application range

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

Product features

- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter
- Flammability:
  - Halogen-free acc. to VDE 0472-815
  - Flame retardant acc. to IEC 60332-1-2 or UL/cUL VW-1, FT1
- Good weather, UV and oil resistance
- Flexible at low temperatures
- Low-capacitance design
- EMC-compliant

Norm references / Approvals

- USA: UL AWM Style 11624, VW-1 Canada: cUL AWM I/II A, FT1
- UL File No. E63634
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: TPE compound
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, black (RAL 9005)

Technical data

Classification
ETIM 5.0 Class-ID: EC000057
ETIM 5.0 Class-Description: Low voltage power cable

Core identification code
Black, other colours are available upon request

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
For flexible use:
7.5 x outer diameter
Fixed installation: 3 x outer diameter

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

Test voltage
4000 V

Alternating bending cycles
10 mio. cycles

Temperature range
Flexing: -35°C to +80°C
Fixed installation: -50°C to +80°C

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CHAIN 90 CP				
1026547	1.5	7	23.8	60
1026548	2.5	7.6	41	90
1026549	4	7.9	58.8	100
1026550	6	8.4	81.3	120
1026551	10	9.8	123	180
1026553	16	11.3	187.7	240
1026555	25	13	280.6	340
1026557	35	14.2	398.9	480

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1026559	50	16.8	551.7	610
1026561	70	19.1	773.2	880
1026563	95	21.6	1036.6	1160
1026565	120	23.6	1277.7	1380
1026567	150	25.9	1618	1670
1026569	185	28.5	1957.3	1980
1026571	240	33.4	2511.7	2600
1026573	300	35.3	3117	3210

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

Accessories

- SKINTOP® BRUSH ADD-ON refer to main catalogue 2016/17
- SKINTOP® MS-M BRUSH refer to main catalogue 2016/17
- SKINTOP® MS-HF-M BRUSH refer to page 45
- SILVYN® CHAIN cable protection and guiding systems

Power and control cables

Special applications • Photovoltaic

LAPP GROUP

CE · TÜVRheinland

H1Z2Z2-K

Cross-linked solar cables – type H1Z2Z2-K certified according to EN 50618

H1Z2Z2-K CE
H1Z2Z2-K CE
H1Z2Z2-K CE

Info

- H1Z2Z2-K (code designation according to EN 50618)
- Substitudes previous ÖLFLEX® SOLAR XLR-R

Benefits

- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- For outdoor applications

Application range

- For use in photovoltaic-systems with rated voltage 1500 V DC
- For the cabling between the solar modules and as extension cable between the module strings and the DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated PV systems

Product features

- Flame retardant acc. to IEC 60332-1-2
- Weather/UV-resistant acc. to EN 50618, appendix E
- Ozone-resistant according to EN 50396
- Good notch and abrasion resistance
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)

Norm references / Approvals

- H1Z2Z2-K (code designation according to EN 50618)
- Items with other cross-sections on request

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of cross-linked copolymer
- Colour of core insulation: white
- Outer sheath made of cross-linked copolymer
- Outer sheath colour: black, red or blue

Technical data

Classification
ETIM 5.0 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 : 1,0/1,0 kV
DC U_0/U : 1,5/1,5 kV
Max. permissible operating voltage: DC 1,8 kV

Test voltage
AC 6500 V

Current rating
Im compliance with EN 50618, Table A.3

Temperature range
-40°C to +120°C max. conductor temperature based on EN 60216-1
Ambient temperature range according to EN 50618: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
H1Z2Z2-K				
Core insulation: white / Outer sheath: black				
1023552	4.0	5.8	38.4	62
1023553	6.0	6.3	57.6	84
1023554	10.0	7.4	96	126
1023555	16.0	8.1	153.6	197
1023590	25.0	10.3	240	270
1023591	35.0	11.8	336	370
Core insulation: white / Outer sheath: red				
1023572	4.0	5.8	38.4	62
1023573	6.0	6.3	57.6	84
1023574	10.0	7.4	96	126
1023575	16.0	8.1	153.6	197
Core insulation: white / Outer sheath: blue				
1023582	4.0	5.8	38.4	62
1023583	6.0	6.3	57.6	84
1023584	10.0	7.4	96	126
1023585	16.0	8.1	153.6	197

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® CRIMPTOOL refer to main catalogue 2016/17
- EPIC® SOLAR 4 M refer to main catalogue 2016/17
- EPIC® SOLAR 4 F refer to main catalogue 2016/17
- KS 20 cable shears refer to main catalogue 2016/17

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ACCESSORIES

ÖLFLEX® SOLAR XLWP

Electron beam cross-linked solar cables with optimized performance in water - EN 50618 type

LAPP KABEL STUTTGART **ÖLFLEX® SOLAR XLWP** CE

Info

- Optimised cable design – constant high volume resistance even after long-term period in water
- H1Z2Z2-K (code designation according to EN 50618)
- Substitudes previous ÖLFLEX® SOLAR XLR WP

Benefits

- The alternative for long-term storage in water, e.g. as it can occur in case after flooding or in buried conduits
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- Extruded colour stripe serves as reverse polarity protection during installation.
- Exact quantity control during installation by meter marking on the cable sheath

Application range

- For underground installation in conduits, in which water, heat and moisture can accumulate
- For the cabling between the solar modules and as extension cable between the module strings and the DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Suitable for direct burial: see data sheet

Product features

- Weather/UV-resistant acc. to EN 50618, appendix E
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- Good notch and abrasion resistance
- XLWP = X-Linked Water-Proof Proven electron beam cross-linked quality

Norm references / Approvals

- H1Z2Z2-K (code designation according to EN 50618)
- Items with other cross-sections on request

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Colour of core insulation: white
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: black respectively black with red stripe

Technical data

Classification
ETIM 5.0 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 : 1,0/1,0 kV
DC U_0/U : 1,5/1,5 kV
Max. permissible operating voltage: DC 1,8 kV

Test voltage
AC 6500 V

Current rating
Im compliance with EN 50618, Table A.3

Temperature range
-40°C to +120°C max. conductor temperature based on EN 60216-1
Ambient temperature range according to EN 50618: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLWP				
Core insulation: white / Outer sheath: black				
1023601	4.0	5.8	38.4	68.1
1023602	6.0	6.4	57.6	91.6
1023603	10.0	7.6	96	138.6
1023604	16.0	9.1	153.6	209.7
Core insulation: white / Outer sheath: black with red stripe				
1023621	4.0	5.8	38.4	68.1
1023622	6.0	6.4	57.6	91.6
1023623	10.0	7.6	96	138.6
1023624	16.0	9.1	153.6	209.7

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® SOLAR 4 M refer to main catalogue 2016/17
- EPIC® SOLAR 4 F refer to main catalogue 2016/17
- UNIVERSAL STRIP stripping tool refer to main catalogue 2016/17
- KS 20 cable shears refer to main catalogue 2016/17

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ACCESSORIES

Power and control cables

ÖLFLEX® CONNECT Systems Solutions • Spiralised

LAPP GROUP

CE

UNITRONIC® SPIRAL LiF2Y11Y

Spiral cable with outer PUR sheath for exact impulse transmission, unshielded
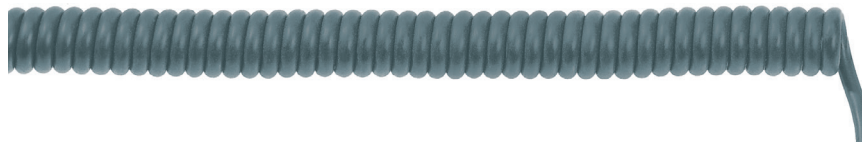
Info

- New: the unscreened spiral cables with small cross section
- High restoring forces
- PUR outer sheath

Benefits

- Extended lengths of up to 4 times the unextended spiral length
- Suitable for transportable machines and appliances
- Transmission of control and measuring signals

Application range

- For requirements of electronic applications
- In measurement and control engineering
- Handling and measurement equipment
- Conveyor and transport systems

Product features

- Abrasion and cut-resistant
- Very high flexibility
- Halogen-free and flame-retardant

Product Make-up

- Strands of bare copper wires
- Core insulation: Based on Polyolefin
- Outer sheath: PUR compound
- Outer sheath colour: grey
- Length of straight ends:
  1st end = 200 mm, 2nd end = 600 mm
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000247
ETIM 5.0 Class-Description: Spiralized cable

Core identification code
DIN 47100

Peak operating voltage
250 V (not for power transmission)

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Test voltage
1200 V

Temperature range
Flexing: -5°C to +50°C

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Pieces / PU
UNITRONIC® SPIRAL LiF2Y11Y						
73220300	2 x 0.14	400	100	3.4	14	5
73220301	2 x 0.14	800	200	3.4	14	5
73220302	2 x 0.14	1200	300	3.4	14	5
73220303	2 x 0.14	1600	400	3.4	14	5
73220304	2 x 0.14	2000	500	3.4	14	5
73220305	3 x 0.14	400	100	3.9	15	5
73220306	3 x 0.14	800	200	3.9	15	5
73220307	3 x 0.14	1200	300	3.9	15	5
73220308	3 x 0.14	1600	400	3.9	15	5
73220309	3 x 0.14	2000	500	3.9	15	5
73220310	4 x 0.14	400	100	4.2	17	5
73220311	4 x 0.14	800	200	4.2	17	5
73220312	4 x 0.14	1200	300	4.2	17	5
73220313	4 x 0.14	1600	400	4.2	17	5
73220314	4 x 0.14	2000	500	4.2	17	5
73220315	5 x 0.14	400	100	4.5	19	5
73220316	5 x 0.14	800	200	4.5	19	5
73220317	5 x 0.14	1200	300	4.5	19	5
73220318	5 x 0.14	1600	400	4.5	19	5
73220319	5 x 0.14	2000	500	4.5	19	5
73220320	6 x 0.14	400	100	5.1	20	5
73220321	6 x 0.14	800	200	5.1	20	5
73220322	6 x 0.14	1200	300	5.1	20	5
73220323	6 x 0.14	1600	400	5.1	20	5
73220324	6 x 0.14	2000	500	5.1	20	5
73220325	7 x 0.14	400	100	5.1	20	5
73220326	7 x 0.14	800	200	5.1	20	5
73220327	7 x 0.14	1200	300	5.1	20	5
73220328	7 x 0.14	1600	400	5.1	20	5
73220329	7 x 0.14	2000	500	5.1	20	5
73220330	12 x 0.14	400	100	6.3	23	1
73220331	12 x 0.14	800	200	6.3	23	1
73220332	12 x 0.14	1200	300	6.3	23	1
73220333	12 x 0.14	1600	400	6.3	23	1
73220334	12 x 0.14	2000	500	6.3	23	1
73220335	18 x 0.14	400	100	6.8	24	1
73220336	18 x 0.14	800	200	6.8	24	1
73220337	18 x 0.14	1200	300	6.8	24	1
73220338	18 x 0.14	1600	400	6.8	24	1
73220339	18 x 0.14	2000	500	6.8	24	1
73220340	2 x 0.25	400	100	4.3	18	5
73220341	2 x 0.25	800	200	4.3	18	5
73220342	2 x 0.25	1200	300	4.3	18	5
73220343	2 x 0.25	1600	400	4.3	18	5
73220344	2 x 0.25	2000	500	4.3	18	5

Power and control cables

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Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Pieces / PU
73220345	3 x 0.25	400	100	4.5	19	5
73220346	3 x 0.25	800	200	4.5	19	5
73220347	3 x 0.25	1200	300	4.5	19	5
73220348	3 x 0.25	1600	400	4.5	19	5
73220349	3 x 0.25	2000	500	4.5	19	5
73220350	4 x 0.25	400	100	4.9	20	5
73220351	4 x 0.25	800	200	4.9	20	5
73220352	4 x 0.25	1200	300	4.9	20	5
73220353	4 x 0.25	1600	400	4.9	20	5
73220354	4 x 0.25	2000	500	4.9	20	5
73220355	5 x 0.25	400	100	5.3	20	5
73220356	5 x 0.25	800	200	5.3	20	5
73220357	5 x 0.25	1200	300	5.3	20	5
73220358	5 x 0.25	1600	400	5.3	20	5
73220359	5 x 0.25	2000	500	5.3	20	5
73220360	6 x 0.25	400	100	6.1	21	5
73220361	6 x 0.25	800	200	6.1	21	5
73220362	6 x 0.25	1200	300	6.1	21	5
73220363	6 x 0.25	1600	400	6.1	21	5
73220364	6 x 0.25	2000	500	6.1	21	5
73220365	7 x 0.25	400	100	6.1	21	5
73220366	7 x 0.25	800	200	6.1	21	5
73220367	7 x 0.25	1200	300	6.1	21	5
73220368	7 x 0.25	1600	400	6.1	21	5
73220369	7 x 0.25	2000	500	6.1	21	5
73220370	12 x 0.25	400	100	7.5	28	1
73220371	12 x 0.25	800	200	7.5	28	1
73220372	12 x 0.25	1200	300	7.5	28	1
73220373	12 x 0.25	1600	400	7.5	28	1
73220374	12 x 0.25	2000	500	7.5	28	1
73220375	18 x 0.25	400	100	8.5	31	1
73220376	18 x 0.25	800	200	8.5	31	1
73220377	18 x 0.25	1200	300	8.5	31	1
73220378	18 x 0.25	1600	400	8.5	31	1
73220379	18 x 0.25	2000	500	8.5	31	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150 / 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request
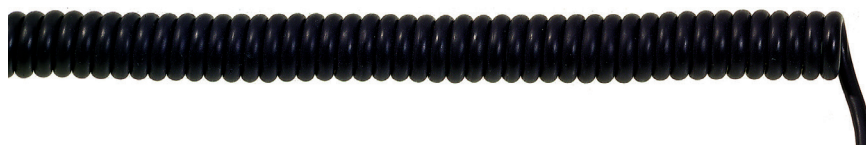
Accessories

• SKINTOP® CLICK refer to main catalogue 2016 / 17

Power and control cables

ÖLFLEX® CONNECT Systems Solutions • Spiralised

LAPP GROUP

CE

UNITRONIC® SPIRAL

Spiral cable with outer PUR sheath and overall shielding for exact impulse transmission

Info

- Secure against electrical interferences
- PUR outer sheath
- New: Now available in cross section 0,25mm²

Benefits

- Overall screening prevents high frequency interference and guarantees accurate signal transmission
- Extended lengths of up to 4 times the unextended spiral length

Application range

- In measurement and control engineering
- Wherever screened cables with smallest dimensions are required
- For requirements of electronic applications
- Handling and measurement equipment
- Conveyor and transport systems

Product features

- Abrasion and cut-resistant
- Very high flexibility

Product Make-up

- Strands of bare copper wires
- Core insulation: Based on PVC
- Screening: wrapped with braided copper wires
- Outer sheath: PUR compound
- Color of the outer jacket: Black
- Length of straight ends:
  1st end = 200 mm, 2nd end = 600 mm
- Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Technical data

Classification
ETIM 5.0 Class-ID: EC000247
ETIM 5.0 Class-Description: Spiralized cable

Core identification code
DIN 47100

Peak operating voltage
250 V (not for power transmission)

Conductor stranding
Extra-fine wire according to VDE 0295, class 6 / IEC 60228 class 6

Test voltage
1200 V

Temperature range
Flexing: -5°C to +50°C

Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Pieces / PU
UNITRONIC® SPIRAL						
73220200	2 x 0.14	400	100	4.1	15	5
73220201	2 x 0.14	800	200	4.1	15	5
73220202	2 x 0.14	1200	300	4.1	15	5
73220203	2 x 0.14	1600	400	4.1	15	5
73220204	2 x 0.14	2000	500	4.1	15	5
73220205	3 x 0.14	400	100	4.3	18	5
73220206	3 x 0.14	800	200	4.3	18	5
73220207	3 x 0.14	1200	300	4.3	18	5
73220208	3 x 0.14	1600	400	4.3	18	5
73220209	3 x 0.14	2000	500	4.3	18	5
73220210	4 x 0.14	400	100	4.5	19	5
73220211	4 x 0.14	800	200	4.5	19	5
73220212	4 x 0.14	1200	300	4.5	19	5
73220213	4 x 0.14	1600	400	4.5	19	5
73220214	4 x 0.14	2000	500	4.5	19	5
73220215	5 x 0.14	400	100	4.8	20	5
73220216	5 x 0.14	800	200	4.8	20	5
73220217	5 x 0.14	1200	300	4.8	20	5
73220218	5 x 0.14	1600	400	4.8	20	5
73220219	5 x 0.14	2000	500	4.8	20	5
73220220	6 x 0.14	400	100	5.5	21	5
73220221	6 x 0.14	800	200	5.5	21	5
73220222	6 x 0.14	1200	300	5.5	21	5
73220223	6 x 0.14	1600	400	5.5	21	5
73220224	6 x 0.14	2000	500	5.5	21	5
73220225	7 x 0.14	400	100	5.9	23	5
73220226	7 x 0.14	800	200	5.9	23	5
73220227	7 x 0.14	1200	300	5.9	23	5
73220228	7 x 0.14	1600	400	5.9	23	5
73220229	7 x 0.14	2000	500	5.9	23	5
73220230	12 x 0.14	400	100	7.2	27	1
73220231	12 x 0.14	800	200	7.2	27	1
73220232	12 x 0.14	1200	300	7.2	27	1
73220233	12 x 0.14	1600	400	7.2	27	1
73220234	12 x 0.14	2000	500	7.2	27	1
73220235	18 x 0.14	400	100	8	29	1
73220236	18 x 0.14	800	200	8	29	1
73220237	18 x 0.14	1200	300	8	29	1
73220238	18 x 0.14	1600	400	8	29	1
73220239	18 x 0.14	2000	500	8	29	1
73220240	2 x 0.25	400	100	4.3	18	5
73220241	2 x 0.25	800	200	4.3	18	5
73220242	2 x 0.25	1200	300	4.3	18	5
73220243	2 x 0.25	1600	400	4.3	18	5
73220244	2 x 0.25	2000	500	4.3	18	5

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Article number	Number of cores and mm² per conductor	Spiral length, extended (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)	Pieces / PU
73220245	3 x 0.25	400	100	4.5	19	5
73220246	3 x 0.25	800	200	4.5	19	5
73220247	3 x 0.25	1200	300	4.5	19	5
73220248	3 x 0.25	1600	400	4.5	19	5
73220249	3 x 0.25	2000	500	4.5	19	5
73220250	4 x 0.25	400	100	4.9	21	5
73220251	4 x 0.25	800	200	4.9	21	5
73220252	4 x 0.25	1200	300	4.9	21	5
73220253	4 x 0.25	1600	400	4.9	21	5
73220254	4 x 0.25	2000	500	4.9	21	5
73220255	5 x 0.25	400	100	5.3	21	5
73220256	5 x 0.25	800	200	5.3	21	5
73220257	5 x 0.25	1200	300	5.3	21	5
73220258	5 x 0.25	1600	400	5.3	21	5
73220259	5 x 0.25	2000	500	5.3	21	5
73220260	6 x 0.25	400	100	5.3	21	5
73220261	6 x 0.25	800	200	5.3	21	5
73220262	6 x 0.25	1200	300	5.3	21	5
73220263	6 x 0.25	1600	400	5.3	21	5
73220264	6 x 0.25	2000	500	5.3	21	5
73220265	7 x 0.25	400	100	6.1	24	5
73220266	7 x 0.25	800	200	6.1	24	5
73220267	7 x 0.25	1200	300	6.1	24	5
73220268	7 x 0.25	1600	400	6.1	24	5
73220269	7 x 0.25	2000	500	6.1	24	5
73220270	12 x 0.25	400	100	7.2	27	1
73220271	12 x 0.25	800	200	7.2	27	1
73220272	12 x 0.25	1200	300	7.2	27	1
73220273	12 x 0.25	1600	400	7.2	27	1
73220274	12 x 0.25	2000	500	7.2	27	1
73220275	18 x 0.25	400	100	8.5	31	1
73220276	18 x 0.25	800	200	8.5	31	1
73220277	18 x 0.25	1200	300	8.5	31	1
73220278	18 x 0.25	1600	400	8.5	31	1
73220279	18 x 0.25	2000	500	8.5	31	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150 / 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.
Versions without the mandatory LAPP designation, but with other solid lengths, end lengths and end forms available on request

Accessories

• SKINTOP® CLICK refer to main catalogue 2016 / 17

ECOLAB

UNITRONIC® ROBUST S/A FD

High flexible, halogen-free sensor/actuator cable - resistant to a wide range of chemical media

LAPP KABEL STUTTGART UNITRONIC® ROBUST S/A FD

Info

- Good chemical resistance
- Excellent weather resistance
- Flexible at low temperatures

Benefits

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

Application range

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

Product features

- Core colour code according to EN 60947-5-2
- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free
- Suitable for drag chains

Norm references / Approvals

- **ECOLAB®**
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: PP
- Colour-code:
  3-pin: bn, bu, bk
  4-pin: bn, wh, bu, bk
  5-pin: bn, wh, bu, bk, gy
- Outer sheath made of special TPE
- Color of the outer jacket: Black

Technical data

Classification
ETIM 5.0 Class-ID: EC001578
ETIM 5.0 Class-Description: Flexible cable

Conductor stranding
Stranded, extra-fine wire

Minimum bending radius
Flexing: 5 x outer diameter
Fixed installation: 3 x outer diameter

Temperature range
Flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Dimensions (mm²)	Outer diameter (mm)	Colour	Copper index (kg/km)
0,25 mm²				
7038897	4x0.25	4.9	black	10.2
0,34 mm²				
7038895	3 x 0.34	5	black	9.8
7038894	4 x 0.34	5.4	black	13.1
7038896	5 x 0.34	5.9	black	16

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

Accessories

- EPIC® SENSOR M12 refer to main catalogue 2016/17
- EPIC® SENSOR M8 refer to main catalogue 2016/17
- STAR STRIP stripping tool refer to main catalogue 2016/17
- SMART STRIP stripping tool refer to main catalogue 2016/17

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ACCESSORIES

ETHERLINE® EC FLEX Cat.5e

Flexible use

LAPP KABEL STUTTGART ETHERLINE® P EC FLEX Cat.5e

LAPP KABEL STUTTGART ETHERLINE® Y EC FLEX Cat.5e

Info
- For EtherCAT applications
- Cat.5e-Performance
- Only for patch cable applications (max. 60 m)

Benefits
- Can be used for Industrial Ethernet in harsh industrial environments
- Can be used in dry or damp rooms
- Lower space requirement

Application range
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)
- Many applications with Industrial Ethernet, i.e. fixed installation and flexible use.
- For internal wiring of electric and electronic equipment in switch cabinets
- Only for patch cable applications (max. 60 m)

Product features
- PUR (Polyurethane) Version with increased robustness, UV- resistance and halogen free
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals
- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214
- Flame-retardant according to UL VW1/CSA FT1

Product Make-up
- Stranded tinned 7-wire conductor
- Core insulation: PE
- Insulation colour-codes: orange/white-orange; green/white-green
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- PVC or PUR jacket material
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

Characteristic impedance
100 Ohm +- 15%

Temperature range
fixed installation
PVC: -30°C to +80°C
PUR: -40°C to +80°C
flexing
PVC: -5°C to +50°C
PUR: -30°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC outer sheath					
2170430	ETHERLINE® Y EC FLEX Cat.5e	1 x 4 x AWG26/7	5,1	20	37
PUR outer sheath, halogen-free					
2170431	ETHERLINE® P EC FLEX Cat.5e	1 x 4 x AWG26/7	5,1	20	35

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- EPIC® SENSOR M8 refer to main catalogue 2016/17
- Field-Terminable Connector RJ45 CAT.5e FM45 refer to main catalogue 2016/17

Side tabs: ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES

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

ETHERLINE® EC FD Cat.5e
Highly flexible application

LAPP KABEL STUTTGART ETHERLINE® P EC FD Cat.5e

Info
- For EtherCAT applications
- For highly flexible industrial applications
- Cat.5e-Performance

Benefits
- Can be used for Industrial Ethernet in harsh industrial environments
- Can be used in dry or damp rooms
- Lower space requirement

Application range
- Suitable for EtherCAT and EtherNet/IP applications
- For highly flexible applications (power chains, moving machine parts)
- Many applications with Industrial Ethernet, e.g. EtherCat, i.e. fixed installation, flexible and highly flexible use
- For internal wiring of electric and electronic equipment in switch cabinets
- Only for patch cable applications (max. 60 m)

Product features
- PUR outer sheath, halogen-free
- Meets the requirements according to CAT.5e, ISO/IEC 11801 and EN 50173, Class D
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals
- UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02
- Flame-retardant according to UL VW1/CSA FT1
- Halogen-free according to VDE 0472-815

Product Make-up
- Tinned stranded copper wire, 26AWG (19 x 0.10), (0.14 mm²)
- Core insulation: PE
- Insulation colour-codes: orange/white-orange; green/white-green
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath: PUR compound, halogen-free
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC000830
ETIM 5.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 4 x Outer diameter
Flexing: 8 x outer diameter

Characteristic impedance
100 Ohm +- 15%

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® EC FD Cat.5e					
2170433	ETHERLINE® P EC FD Cat.5e	1 x 4 x AWG26/19	5.0	20	35

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- EPIC® SENSOR M8 refer to main catalogue 2016/17

LAPP GROUP

EPIC® DATA M12D
M12 D-coded connectors

Info
- CAT.5-Performance
- Installation without tools
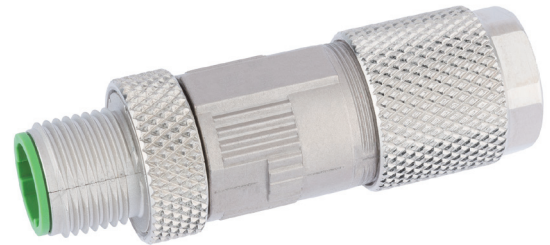
Product features
- Field assembly Industrial Ethernet connector, M12 D-coded according to IEC 61076-2-101
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Toolfree installation, small and compact design

Norm references / Approvals
- Data transmission is conform to category Cat.5 acc. to ISO 11801

Technical data

Classification
ETIM 5.0 Class-ID: EC001121
ETIM 5.0 Class-Description: Modular connector

Protection rating
IP 67

Ambient temperature (operation)
-25°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	AWG solid	AWG 7-wire
M12 D-coded plug, straight, colour coding acc. to PROFINET					
21700647	ED-IE-AX-M12D-5-PN-67-FC	6.2	9.7	24 - 22	26 - 22
M12 D-coded plug, straight, colour coding acc. to TIA 568					
21700648	ED-IE-AX-M12D-5-67	5	6.1	24 - 22	26 - 22
M12 D-coded socket, straight, TIA 568 colour coding					
22261016	AB-C4-M12FSD-SH	4	8	26 - 22	26 - 22

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Customized Pre-Assembled FO Cable Solutions

ÖLFLEX® CONNECT – integrated solutions made by Lapp

Lapp is offering an integrated solution with **ÖLFLEX® CONNECT** – cables assembled exactly to your requirements. Everything is possible – from traditional cable assemblies to industry standard servo connections right up to highly complex drag chain systems. With **ÖLFLEX® CONNECT** Lapp offers as well customized fibre optic system assemblies (FO trunks).

Customers can choose the right cable from the wide range of HITRONIC® fibre optic cables which can be assembled exactly as per customer specification.

By using factory assembled fibre optic cable solutions the installation for industry, telecommunication and office applications are significantly simplified.

Depending on the planning approach, time consuming connector installation or splicing at site can be avoided. Just lay the trunk system and simply plug it in with the factory pre-assembled connectors. **A plug & play solution from Lapp.**
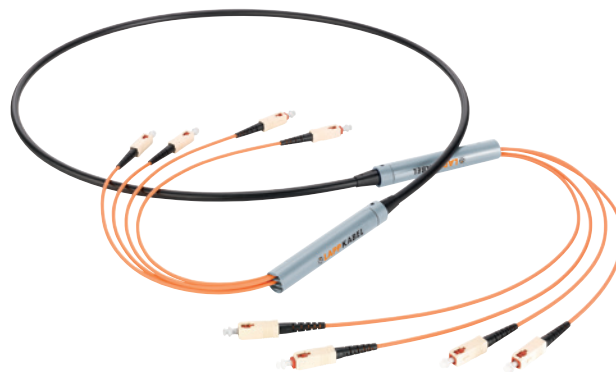
Technical benefits

- No splice connections are necessary during installation. This saves time and costs for equipment and special tooling.
- Low attenuation values by factory preassembled plugs
- Trunk-system are easy to use without any further time consuming on-site processing

- Available with all major cable and connector types (Lapp HITRONIC® range)
- Ready to use fibre optic cabling system
- IP 68 metallic cable unit splitter for glass fibre (GOF) loose tube cables up to 48 fibres

In a few steps to a customized FO-trunk-system:

1. **Determination of the required fibre type**
   – POF (980 / 1000)
   – PCF (200 / 230)
   – GOF (single-mode 9 / 125 OS2)
        (multimode 62,5 / 125 OM 1)
        (multimode 50 / 125 OM2; OM3; OM4)

2. **Selection of cable type and version**
   See HITRONIC® cable range
   (POF, PCF und GOF and number of fibers)

3. **Determination of the system length**

4. **Connector configuration**
   Selection of connector type – side 1 and 2

5. **Cable pulling device**
   Selection cable pulling device
   side 1 and / or side 2

6. **Specific requirements**
   Regarding packaging and marking

7. **Lapp in-house**
   Lapp will check the technical feasibility and plausibility (fibre – cable – connector) and make a quotation

8. **Easy ordering and fast shipping**

For questions about customized packaging and special issues we are happy to assist you.

Selection example:

Short designation:
TRUNK GOF HUN 1500-4E9 / 125-SC/LC-85m

Description:
– Customized pre-assembled fibre optic cable solution
– Based on cable version
  HITRONIC® HUN 4E9 / 125 OS2
– Assembled at both ends with connectors
  – side 1: 2 x SC-duplex connector
  – side 2: 2 x LC-duplex connector
– Cable splitter unit IP68:
  – up to zu 24 fibres
  – M20 through hole
– Side 1 protected with a cable pulling device
  – outer diameter < 30 mm
– System length 85 m
– On disposable drum

EPIC® MC BUS

The mixed assembly guarantees high flexibility. For applications in mechanical and plant engineering, for printing machines and slide-in technology.

Info

- Shielded modul for data and signal transmission
- Available 2017

Suitable housing
- EPIC® MCR Frames
  refer to main catalogue 2016/17

Suitable contacts:
- EPIC® H-D 1.6 machined contacts
  refer to main catalogue 2016/17

Benefits
- Shielded modul for data and signal transmission
- Crimp connection for permanent vibration proof contact
- CAT5e up to 1 Gigabit/s
- Cable clamp 3 - 9mm
- The mix of different functions in one plug guarantees high flexibility

Application range
- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
50

Rated impulse voltage
0,8 kV

Rated current (A)
10

Degree of soiling
3

Number of contacts
8

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
PA

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Number of operating contacts	Slots	Pieces / PU
EPIC® MC BUS				
10390410	EPIC® MCS BUS 2x(4) CM	2x (4 + shield)	2	10
10390411	EPIC® MCB BUS 2x(4) CM	2x (4 + shield)	2	10
EPIC® MC BUS PIN				
10390412	EPIC® MCS BUS PIN 1x(4) CM	4 + shield		10
10390413	EPIC® MCB BUS PIN 1x(4) CM	4 + shield		10

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EPIC® MH 2

High flexibility by the use of any combination of inserts in one connector
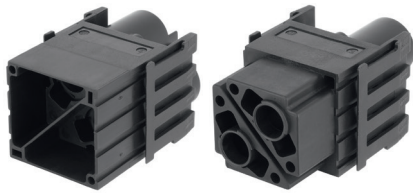
Info

- Modular connector System, mateable with the market standard
- High power module 2pole for compact power transmission
- Available 2017

Suitable housing

- EPIC® MH Modular System frame refer to main catalogue 2016 / 17
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® MH 8.0mm Contacts Page 38

Benefits

- High power module 2pole for compact power transmission
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
1000 V

Rated impulse voltage
8 kV

Rated current (A)
100 A

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
2

Termination methods
Crimp termination: 10 mm² ... 35 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 2					
44423212	EPIC® MHS 2 CM	male	2	2	10
44423213	EPIC® MHB 2 CM	female	2	2	10

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EPIC® MH 3

High flexibility by the use of any combination of inserts in one connector
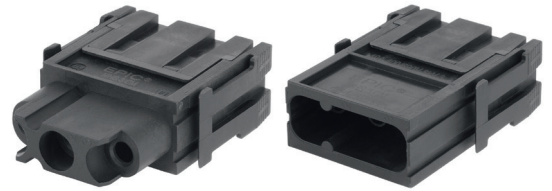
Info

- Modular connector System, mateable with the market standard
- Power module 3pole for compact power transmission
- Available 2017

Suitable housing

- EPIC® MH Modular System frame refer to main catalogue 2016/17
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® MH 4.0mm Contacts Page 38

Benefits

- Power module 3pole for compact power transmission
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
830 V

Rated impulse voltage
8 kV

Rated current (A)
40 A

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
3

Termination methods
Crimp termination: 1.5 mm² – 10 mm²

Material
Polyamide, glass fibre–reinforced

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 3					
44423214	EPIC® MHS 3 CM	male	3	1	10
44423215	EPIC® MHB 3 CM	female	3	1	10

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

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EPIC® MH 4

High flexibility by the use of any combination of inserts in one connector
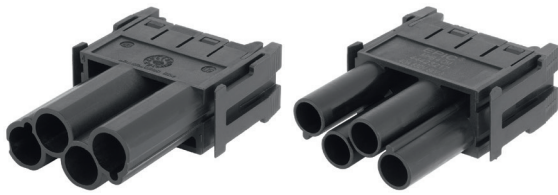
Info

- Modular connector System, mateable with the market standard
- Power module 4 pole for compact power transmission
- Available 2017

Suitable housing

- EPIC® MH Modular System frame refer to main catalogue 2016 / 17
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® MH 4.0mm Contacts Page 38

Benefits

- Power module 4 pole for compact power transmission
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  – Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
830 V

Rated impulse voltage
8 kV

Rated current (A)
40 A

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
4

Termination methods
Crimp termination: 1.5 mm² - 10 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 4					
44423216	EPIC® MHS 4 CM	male	4	1	10
44423217	EPIC® MHB 4 CM	female	4	1	10

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EPIC® MH 6
High flexibility by the use of any combination of inserts in one connector
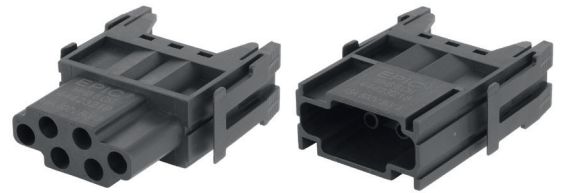
Info
- Modular connector System, mateable with the market standard
- Module 6 pole for control signals
- Available 2017

Suitable housing
- EPIC® MH Modular System frame refer to main catalogue 2016 / 17
- EPIC® H-B housing use in high version

Suitable contacts:
- EPIC® H-BE 2.5 machined contacts refer to main catalogue 2016 / 17

Benefits
- Module 6 pole for control signals
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range
- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description: Modular connector (industrial connector)

Rated voltage (V)
500 V

Rated impulse voltage
6 kV

Rated current (A)
16 A

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
6

Termination methods
Crimp termination: 0.14 - 4.0 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 6					
44423218	EPIC® MHS 6 CM	male	6	1	10
44423219	EPIC® MHB 6 CM	female	6	1	10

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

EPIC® MH 8

High flexibility by the use of any combination of inserts in one connector
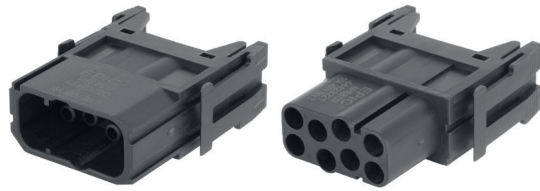
Info

- Modular connector System, mateable with the market standard
- Module 8 pole for control signals
- Available 2017

Suitable housing

- EPIC® MH Modular System frame refer to main catalogue 2016 / 17
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® H-BE 2.5 machined contacts refer to main catalogue 2016 / 17

Benefits

- Module 8 pole for control signals
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  – Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
400 V

Rated impulse voltage
6 kV

Rated current (A)
16 A

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
8

Termination methods
Crimp termination: 0.14 - 4.0 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 8					
44423220	EPIC® MHS 8 CM	male	8	1	10
44423221	EPIC® MHB 8 CM	female	8	1	10

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

EPIC® MH 12

High flexibility by the use of any combination of inserts in one connector
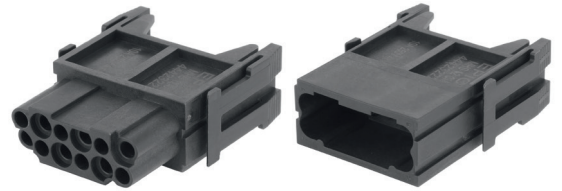
Info

- Modular connector System, mateable with the market standard
- Module 12 pole for control signals
- Available 2017

Suitable housing

- EPIC® MH Modular System frame refer to main catalogue 2016 / 17
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® H-D 1.6 machined contacts refer to main catalogue 2016 / 17

Benefits

- Module 12 pole for control signals
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
250 V

Rated impulse voltage
4 kV

Rated current (A)
10 A

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
12

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
Polyamide, glass fibre–reinforced

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 12					
44423222	EPIC® MHS 12 CM	male	12	1	10
44423223	EPIC® MHB 12 CM	female	12	1	10

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EPIC® MH 17

High flexibility by the use of any combination of inserts in one connector
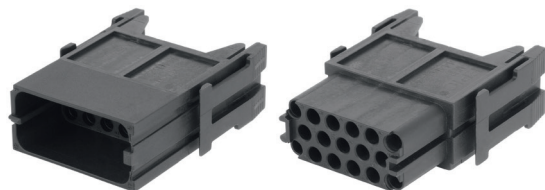
Info

- Modular connector System, mateable with the market standard
- Universal module for 17 contacts in smallest space
- Available 2017

Suitable housing

- EPIC® MH Modular System frame refer to main catalogue 2016 / 17
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® H-D 1.6 machined contacts refer to main catalogue 2016 / 17

Benefits

- Universal module for 17 contacts in smallest space
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  – Fire protection on railway vehicles:
    Test according EN 45545-2.
    Requirement sets R22 and R23.
    Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
160 V

Rated impulse voltage
2.5 kV

Rated current (A)
10 A

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
17

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
Polyamide, glass fibre–reinforced

**Cycle of mechanical operation**
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 17					
44423224	EPIC® MHS 17 CM	male	17	1	10
44423225	EPIC® MHB 17 CM	female	17	1	10

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EPIC® MH 20

High flexibility by the use of any combination of inserts in one connector
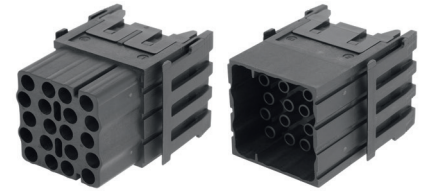
Info

- Modular connector System, mateable with the market standard
- Double module 20 pole for control signals
- Available 2017

Suitable housing

- EPIC® MH Modular System frame refer to main catalogue 2016/17
- EPIC® H–B housing use in high version

Suitable contacts:

- EPIC® H–BE 2.5 machined contacts refer to main catalogue 2016/17

Benefits

- Double module 20 pole for control signals
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
500 V

Rated impulse voltage
6 kV

Rated current (A)
16 A

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
20

Termination methods
Crimp termination: 0.14 - 4.0 mm²

Material
Polyamide, glass fibre–reinforced

Cycle of mechanical operation
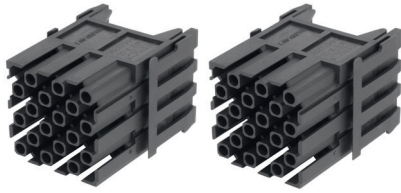500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 20					
44423226	EPIC® MHS 20 CM	male	20	2	10
44423227	EPIC® MHB 20 CM	female	20	2	10

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EPIC® MH 36

High flexibility by the use of any combination of inserts in one connector

Info

- Modular connector System, mateable with the market standard
- Double module for 36 contacts in smallest space
- Available 2017

Suitable housing

- EPIC® MH Modular System frame refer to main catalogue 2016 / 17
- EPIC® H-B housing use in high version

Suitable contacts:

- EPIC® H-D 1.6 machined contacts refer to main catalogue 2016 / 17

Benefits

- Double module for 36 contacts in smallest space
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
250 V

Rated impulse voltage
4 kV

Rated current (A)
10 A

Degree of soiling
3

Contact resistance
< 5 mOhm

Number of contacts
36

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
Polyamide, glass fibre-reinforced

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH 36					
44423266	EPIC® MHS 36 CM	male	36	2	10
44423267	EPIC® MHB 36 CM	female	36	2	10

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EPIC® MH Bus 2x(4) Modul
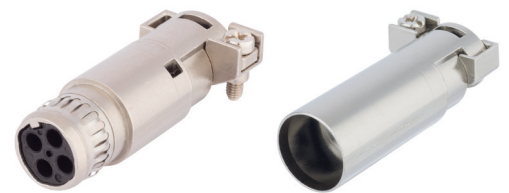High flexibility by the use of any combination of inserts in one connector
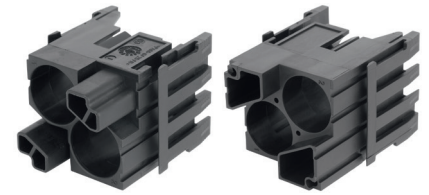
EPIC® MH Bus PIN 1x(4) contact holder
High flexibility by the use of any combination of inserts in one connector

Suitable housing
EPIC® MH Bus 2x(4) Modul
- EPIC® MH Modular System frame refer to main catalogue 2016/17
- EPIC® H-B housing use in high version

Suitable contacts:
EPIC® MH Bus 2x(4) Modul
- EPIC® H-D 1.6 machined contacts refer to main catalogue 2016/17
- EPIC® MH Bus PIN 1x(4) Page 33

Benefits
- Shielded modul for data and signal transmission
- EPIC® MH system is mateable with the market standard
- Crimp connection for permanent vibration proof contact
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range
- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Rated voltage (V)
50

Rated impulse voltage
0,8 kV

Rated current (A)
10

Degree of soiling
3

Number of contacts
EPIC® MH Bus 2x(4) Modul
8
EPIC® MH Bus PIN 1x(4) contact holder
4

Termination methods
Crimp termination: 0.14 - 2.5 mm²

Material
PA

Cycle of mechanical operation
500

Temperature range
-40°C
+125°C

Article number	Article description	Contact type	Number of operating contacts	Slots	Pieces / PU
EPIC® MH Bus 2x(4) Modul					
44423228	EPIC® MHS Bus 2x(4) CM	male	2x (4 + shield)	2	10
44423230	EPIC® MHB Bus 2x(4) CM	female	2x (4 + shield)	2	10
EPIC® MH BUS PIN 1x(4) contact holder					
44423229	EPIC® MHS Bus PIN 1x(4) CM	male	4 + shield		10
44423231	EPIC® MHB Bus PIN 1x(4) CM	female	4 + shield		10

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EPIC® MH Potential set

High flexibility by the use of any combination of inserts in one connector

Info
- Equipotential spring for multi frame
- Available 2017

Benefits
- Equipotential spring for multi frame
- For use in EPIC® MH BUS modules

Application range
- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC000796
ETIM 5.0 Class-Description:
Contact for industrial connectors

Article number	Article description	Pieces / PU
EPIC® MH Potential set		
44423265	EPIC® MH Potential Set	10

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EPIC® MH 0 blind modul

High flexibility by the use of any combination of inserts in one connector
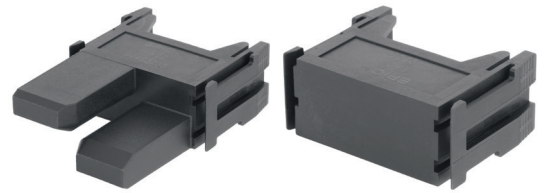
Info

- Modular connector System, mateable with the market standard
- Dummy module as a placeholder for future expansion
- Available 2017

Suitable housing

- EPIC® MH Modular System frame refer to main catalogue 2016/17
- EPIC® H-B housing use in high version

Benefits

- Dummy module as a placeholder for future expansion
- EPIC® MH system is mateable with the market standard
- "Z" version with centering function for plug in technique
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles: Test according EN 45545-2. Requirement sets R22 and R23. Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector (industrial connector)

Number of contacts
0

Material
Polyamide, glass fibre-reinforced

Temperature range
-40°C
+125°C

Article number	Article description	Slots	Pieces / PU
EPIC® MH 0 blind modul			
44423232	EPIC® MH 0	1	10
EPIC® MH 0 blind modul with centering			
44423233	EPIC® MH 0 Z	1	10

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ACCESSORIES

EPIC® MH 6 multi frame

High flexibility by the use of any combination of inserts in one connector
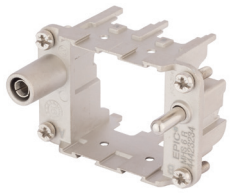
Info
• Modular connector System, mateable with the market standard
• Frame system for modules
• Available 2017

EPIC® MH 10 multi frame

High flexibility by the use of any combination of inserts in one connector

Info
• Modular connector System, mateable with the market standard
• Frame system for modules

EPIC® MH 16 multi frame

High flexibility by the use of any combination of inserts in one connector

Info
• Modular connector System, mateable with the market standard
• Frame system for modules
• Available 2017

EPIC® MH 24 multi frame

High flexibility by the use of any combination of inserts in one connector

Info
• Modular connector System, mateable with the market standard
• Frame system for modules
• Available 2017

EPIC® MH Clip

High flexibility by the use of any combination of inserts in one connector

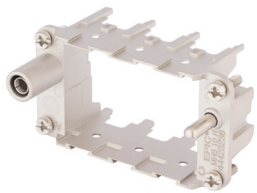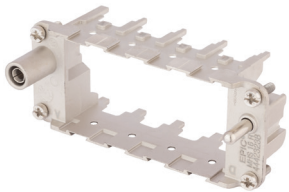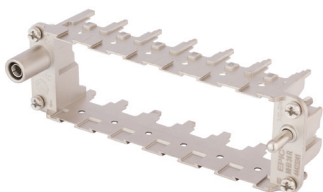| Info |
| --- |
| • Modular connector System, mateable with the market standard |
| • Adapter clip for modules of competition |
| • Available 2017 |

LAPP GROUP

Suitable housing

EPIC® MH 6 multi frame
- EPIC® ULTRA H-B 6
  refer to main catalogue 2016 / 17
- EPIC® H-B 6 Housings
  refer to main catalogue 2016 / 17

EPIC® MH 10 multi frame
- EPIC® ULTRA H-B 10
  refer to main catalogue 2016 / 17
- EPIC® H-B 10 Housings
  refer to main catalogue 2016 / 17

EPIC® MH 16 multi frame
- EPIC® ULTRA H-B 16
  refer to main catalogue 2016 / 17
- EPIC® H-B 16 Housings
  refer to main catalogue 2016 / 17

EPIC® MH 24 multi frame
- EPIC® ULTRA H-B 24
  refer to main catalogue 2016 / 17
- EPIC® H-B 24 Housings
  refer to main catalogue 2016 / 17

Benefits

EPIC® MH 6 multi frame
EPIC® MH 10 multi frame
EPIC® MH 16 multi frame
EPIC® MH 24 multi frame
- Multi frame for own and competition modules
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles:
    Test according EN 45545-2.
    Requirement sets R22 and R23.
    Hazard level HL1, HL2 and HL4
- PE connection from 1mm² up to 6mm² with end sleeve, 10mm² with adapter

EPIC® MH Clip

- EPIC® MH Clip for mounting of competition modules in EPIC® MH frame
- EPIC® MH system is mateable with the market standard
- The mix of different functions in one plug guarantees high flexibility
- Railway applications
  - Fire protection on railway vehicles:
    Test according EN 45545-2.
    Requirement sets R22 and R23.
    Hazard level HL1, HL2 and HL4

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Technical data

Classification
ETIM 5.0 Class-ID: EC002641
ETIM 5.0 Class-Description:
Modular connector

Material
Zinc die-cast

Cycle of mechanical operation
500

Temperature range
−40°C
+125°C

Article number	Article description	Contact type	Slots	Pieces / PU
EPIC® MH 6 multi frame				
44423234	EPIC® MHS 6 R (A, B)	male	2	10
44423235	EPIC® MHB 6 R (a, b)	female	2	10
EPIC® MH 10 multi frame				
44423236	EPIC® MHS 10 R (A, B, C)	male	3	10
44423237	EPIC® MHB 10 R (a, b, c)	female	3	10
EPIC® MH 16 multi frame				
44423238	EPIC® MHS 16 R (A, B, C, D)	male	4	10
44423239	EPIC® MHB 16 R (a, b, c, d)	female	4	10
EPIC® MH 24 multi frame				
44423240	EPIC® MHS 24 R (A, B, C, D, E, F)	male	6	10
44423241	EPIC® MHB 24 R (a, b, c, d, e, f)	female	6	10
EPIC® MH Clip				
44423264	EPIC® MH Clip			20

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EPIC® MH 8.0mm Contacts

High flexibility by the use of any combination of inserts in one connector

ⓘ Info

- Modular connector System, mateable with the market standard
- Available 2017

Application range

- Mechanical engineering
- Crimp connection for permanent vibration proof contact
- EPIC® MH system is mateable with the market standard

Suitable tools

- For use in battery hydraulic crimping tool Klauke type EK 120/42-L

Article number	Article description	Contact type	Connection cross section (mm²)	Pieces / PU
EPIC® MH D=8.0 contacts				
44423242	EPIC® MH SCEM AG 10sqmm D=8.0	male	10	10
44423246	EPIC® MH BCEM AG 10sqmm D=8.0	female	10	10
44423243	EPIC® MH SCEM AG 16sqmm D=8.0	male	16	10
44423247	EPIC® MH BCEM AG 16sqmm D=8.0	female	16	10
44423244	EPIC® MH SCEM AG 25sqmm D=8.0	male	25	10
44423248	EPIC® MH BCEM AG 25sqmm D=8.0	female	25	10
44423245	EPIC® MH SCEM AG 35sqmm D=8.0	male	35	10
44423249	EPIC® MH BCEM AG 35sqmm D=8.0	female	35	10

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

EPIC® MH 4.0mm Contacts

High flexibility by the use of any combination of inserts in one connector

ⓘ Info

- Modular connector System, mateable with the market standard
- Available 2017

Application range

- Mechanical engineering
- Robotics industry
- Plant engineering
- Renewable energy
- Railway applications / vehicle construction

Suitable tools

- EPIC® MH contact removal tool 4.0mm refer to refer to main catalogue 2016/17

Technical data

ETIM **Classification**
ETIM 5.0 Class-ID: EC000796
ETIM 5.0 Class-Description:
Contact for industrial connectors

Contact resistance
< 5 mOhm

Termination methods
Crimp termination: 1.5 mm² - 10 mm²

Stripping length (mm)
10

Cycle of mechanical operation
500

Article number	Article description	Contact type	Connection cross section (mm²)	Pieces / PU
EPIC® MH 4.0mm Contacts				
44423250	EPIC® MH SCEM AG 1.5sqmm D=4.0	male	1.5	10
44423255	EPIC® MH BCEM AG 1.5sqmm D=4.0	female	1.5	10
44423251	EPIC® MH SCEM AG 2.5sqmm D=4.0	male	2.5	10
44423256	EPIC® MH BCEM AG 2.5sqmm D=4.0	female	2.5	10
44423252	EPIC® MH SCEM AG 4sqmm D=4.0	male	4	10
44423257	EPIC® MH BCEM AG 4sqmm D=4.0	female	4	10
44423253	EPIC® MH SCEM AG 6sqmm D=4.0	male	6	10
44423258	EPIC® MH BCEM AG 6sqmm D=4.0	female	6	10
44423254	EPIC® MH SCEM AG 10sqmm D=4.0	male	10	10
44423259	EPIC® MH BCEM AG 10sqmm D=4.0	female	10	10

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ACCESSORIES

EPIC® TOOL DIE 8.0mm

High flexibility by the use of any combination of inserts in one connector

Info

- Crimp dies for electro hydraulic crimp tool
- Available 2017

EPIC® MH contact removal tool 8.0mm

High flexibility by the use of any combination of inserts in one connector

Info

- Tool for removing the 8.0mm contacts from the EPIC® MH modules
- Available 2017

Suitable contacts:

EPIC® TOOL DIE 8.0mm
- EPIC® MH 8.0mm Contacts Page 38

Benefits

EPIC® MH contact removal tool 8.0mm
- Tool for removing the 8.0mm contacts from the EPIC® MH modules

Suitable tools

EPIC® TOOL DIE 8.0mm
- For use in battery hydraulic crimping tool Klauke type EK 120/42-L

Article number	Article description	Connection cross section (mm²)	Connection cross section (mm²)	Pieces / PU
Crimping dies				
44423270	EPIC® TOOL DIE D=8.0 10sqmm	10	10.00	1
44423271	EPIC® TOOL DIE D=8.0 10sqmm	16	16.00	1
44423272	EPIC® TOOL DIE D=8.0 25sqmm	25	25.00	1
44423273	EPIC® TOOL DIE D=8.0 35sqmm	35	35.00	1
EPIC® MH contact removal tool 8.0mm				
44423269	EPIC® MH Contact Removal Tool D=8.0			1

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EPIC® ULTRA H-A 3 TG

Housing EPIC® ULTRA: for higher functional reliability

Info

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested

EPIC® ULTRA H-A 3 TS

Housing EPIC® ULTRA: for higher functional reliability

Info

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested

EPIC® ULTRA H-A 3 TBF

Housing EPIC® ULTRA: for higher functional reliability

Info

- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested

Benefits

- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- High mechanical and chemical resistance

Application range

- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

Product features

- Pluggable with standard housings
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours
- Corrosion-resistant according to DIN EN 6988
- Delivery including stainless steel screw for the inserts

Suitable inserts

- Refer to Selection Table A 10 to select the required inserts and housings

Technical data

Classification
ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description:
Housing for industrial connectors

Material
Housing: nickel-plated zinc diecasting
Lever: stainless steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12, 4, 4X (latched)

Temperature range
-40°C to +100°C,
short-term up to +125°C

Article number	Article description	M	Pieces / PU
EPIC® ULTRA H-A 3 TG			
10423300	ULTRA H-A 3 TG	20	10
EPIC® ULTRA H-A 3 TS			
10423201	ULTRA H-A 3 TS	20	10
EPIC® ULTRA H-A 3 TBF			
10423204	ULTRA H-A 3 TBF	20	10

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ACCESSORIES

EPIC® ULTRA H-A 3 AG
Housing EPIC® ULTRA: for higher functional reliability

Info
- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested

EPIC® ULTRA H-A 3 AGS
Housing EPIC® ULTRA: for higher functional reliability

Info
- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested

EPIC® ULTRA H-A 3 AGSV
Housing EPIC® ULTRA: for higher functional reliability

Info
- EMC protection
- Corrosion-resistant
- Protection rating UL50E tested

Benefits
- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- High mechanical and chemical resistance

Application range
- In EMC-sensitive environments
- For fixed and flexible applications (e.g. machinery building, wind turbines)
- Construction machinery
- Electric motor manufacturing

Product features
- Pluggable with standard housings
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2
- Salt spray testing according to DIN EN ISO 9227, method NSS, period of test 480 hours
- Corrosion-resistant according to DIN EN 6988
- Delivery including stainless steel screw for the inserts

Suitable inserts
- Refer to Selection Table A10 to select the required inserts and housings

Technical data
Classification
ETIM 5.0 Class-ID: EC000437
ETIM 5.0 Class-Description: Housing for industrial connectors

Material
Housing: nickel-plated zinc diecasting
Lever: stainless steel
Sealing: NBR

Protection rating
IP 65
NEMA 250, UL50E: 12, 4, 4X (latched)
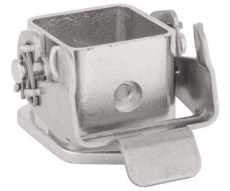
Temperature range
–40°C to +100°C, short-term up to +125°C

Article number	Article description	M	Pieces / PU
EPIC® ULTRA H-A 3 AG			
10423200	ULTRA H-A 3 AG		10
EPIC® ULTRA H-A 3 AGS			
10423202	ULTRA H-A 3 AGS		10
EPIC® ULTRA H-A 3 AGSV			
10423203	ULTRA H-A 3 AGSV	20	10

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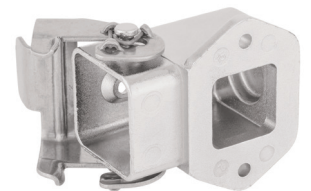ÖLFLEX®
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ACCESSORIES

EPIC® Protective cover H-B

Product features

- Protective cover for EPIC® ULTRA housings
- Without retaining cord
- Protective cover made of FDA approved material
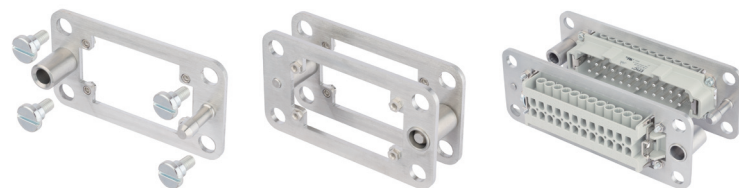- Protective cover for hoods with stainless steel levers and bolts

Technical data

Classification
ETIM 5.0 Class-ID: EC002314
ETIM 5.0 Class-Description:
Cap for industrial connectors

Article number	Version	Bolts	Clamp	Pieces / PU
ULTRA Protective Cover for panel and surface mount bases				
70250250	for housing ULTRA H-B 6	2		1
70250251	for housing ULTRA H-B 10	4		1
70250252	for housing ULTRA H-B 16	4		1
70250253	for housing ULTRA H-B 24	4		1
ULTRA Protective Cover for hoods				
70250254	for housing ULTRA H-B 6		Single lever	1
70250255	for housing ULTRA H-B 10		Double Lever	1
70250256	for housing ULTRA H-B 16		Double Lever	1
70250257	for housing ULTRA H-B 24		Double Lever	1

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EPIC® Industrial connectors

Rectangular connectors • EPIC® Mounting systems

LAPP GROUP

EPIC® Docking frame

Info

- Mounting system for control cabinets
- For float-mounting fixing of the inserts

Application range

- Control cabinet manufacturing
- Wind power plants

Product features

- Scope of delivery for one part:
  1 frame + 4 screws
- Special screws adapted to frame
- Pull-In range in x and y axis: + - 1,5mm

Technical data

Classification
ETIM 5.0 Class-ID: EC002312
ETIM 5.0 Class-Description:
Contact insert holder for industrial connectors

Material
Docking frame: stainless steel
Screws: steel zinc plated

Cycle of mechanical operation
500

| Article number	Article description	Version	Pieces / PU
EPIC® Docking frame			
44429440	H-B 6 DF	4 fixing screws each included	2
44429441	H-B 10 DF	4 fixing screws each included	2
44429442	H-B 16 DF	4 fixing screws each included	2
44429443	H-B 24 DF	4 fixing screws each included	2

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CE

SKINTOP® MS-HF-M

Info
• Cable gland for railway applications
• Hazard Level: HL 3
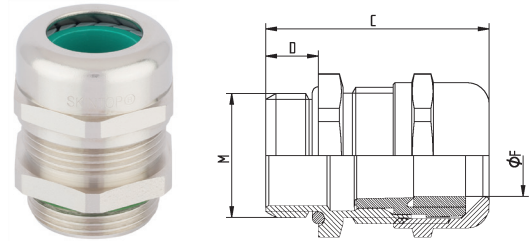
Benefits
• Halogen-free and flame-retardant
• Optimum strain relief
• Wide, variable clamping ranges
• Maximum reliability

Application range
• Underground railways and trains
• In areas where mechanical and chemical stability are critical
• When the protection of people and property is a priority.

Norm references / Approvals
• DIN EN 45545-2
• DIN EN 45545-3: 2013-08
• DIN EN 1363-1: 2012-10
• DIN EN 13501-2: Klassifizierung E30

Product Make-up
• Metric connection thread acc. to DIN EN 60423
• Basis for technical information DIN IEC 62444

Note
• Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Cap nut: nickel-plated brass
Insert: polyamide, halogenfree acc. to UL 94 V 0
Sealing ring: Special elastomere
O-ring: Special elastomere

Protection rating
IP 68 - 5 bar

Temperature range
dynamic -25°C up to + 100°C
Fixed: -40°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-HF-M						
53112570	M 12 x 1,5	3,5-7	16	26.5	6.5	100
53112571	M 16 x 1,5	4,5-10	20	33.0	7	100
53112572	M 20 x 1,5	7-13	24	37.0	8	50
53112573	M 25 x 1,5	9-17	29	38.5	8	25
53112574	M 32 x 1,5	11-21	36	45.5	9	25
53112575	M 40 x 1,5	19-28	45	48.0	9	10
53112576	M 50 x 1,5	27-35	54	55.5	10	5
53112577	M 63 x 1,5	34-45	67	67.0	15	5

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Accessories
• SKINDICHT® SM-M refer to main catalogue 2016 / 17
• SKINMATIC® MH Set refer to main catalogue 2016 / 17

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ACCESSORIES

Cable glands

LAPP GROUP

SKINTOP® metric nickel–plated brass cable glands • SKINTOP® Halogen–free

CE

SKINTOP® MS-HF-M SC

Info
- Cable gland for railway applications
- Hazard Level: HL 3

Benefits
- Halogen–free and flame–retardant
- Suitable for cables with and without inner sheath
- Low–resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact for clamping various screen diameters
- Few operation steps, easy to assemble

Application range
- Underground railways and trains
- For EMC–compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Industrial machinery and plant engineering
- Measurement and control technology
- Automation technology

Norm references / Approvals
- DIN EN 45545-2
- DIN EN 45545-3: 2013-08
- DIN EN 1363-1: 2012-10
- DIN EN 13501-2: Klassifizierung E30

Product Make-up
- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note
- SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder–coated housings
- Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel plated brass
Cap nut: nickel plated brass
Insert: halogen-free polyamid acc. to UL 94 V0
Sealing ring: special elastomer
O-ring: special elastomer

Protection rating
IP 68 - 5 bar

Temperature range
dynamic –25°C up to + 100°C
static -40°C up to +100°C

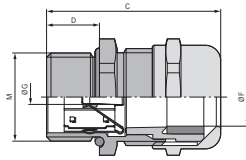| Article number	Article designation / size	Clamping range ØF (mm)	Minimum Ø above braiding (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-HF-M SC							
53112530	M 12 x 1,5	3,5-7	1	16	26.5	6.5	50
53112531	M 16 x 1,5	4,5-10	4	20	33.0	7	50
53112532	M 20 x 1,5	7-13	5	24	37.0	8.5	25
53112533	M 25 x 1,5	9-17	7.5	29	38.5	8	25
53112534	M 32 x 1,5	11-21	9	36	45.5	9	25
53112535	M 40 x 1,5	19-28	15	45	48.0	9	10
53112536	M 50 x 1,5	27-35	21	50	55.5	10	5

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Accessories
- SKINDICHT® SM-PE-M refer to main catalogue 2016/17
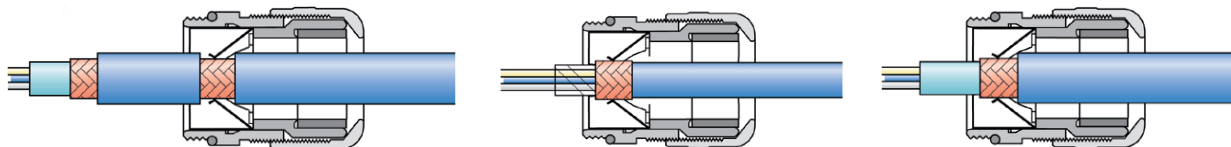
SKINTOP® MS-HF-M BRUSH

Info
• Cable gland for railway applications
• Hazard Level: HL 3

Benefits
• Halogen-free and flame-retardant
• Optimum, low-resistance 360° screen contact
• Faster than any other comparable system
• Maximum reliability
• Maximum assembly freedom during adjustment

Application range
• Underground railways and trains
• Automation systems
• High-power drives
• Frequency converters
• Conveyor and transport systems

Norm references / Approvals
• DIN EN 45545-2
• DIN EN 45545-3: 2013-08
• DIN EN 1363-1: 2012-10
• DIN EN 13501-2: Klassifizierung E30

Product Make-up
• Metric connection thread acc. to DIN EN 60423
• Basis for technical information DIN IEC 62444

Note
• SKINDICHT® SM-PE-M counter nut should be used to ensure optimum contact with painted, anodised or powder-coated housings
• Refer to SKINTOP® metric accessories for suitable accessories

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Cap nut: nickel-plated brass
Insert: polyamide, halogen-free acc. to UL 94 V0
EMC brush: brass wire
Sealing ring: special elastomer
O-ring: special elastomer

Protection rating
IP 68 - 5 bar

Temperature range
dynamic -25°C up to + 100°C
Fixed: -40°C to +100°C

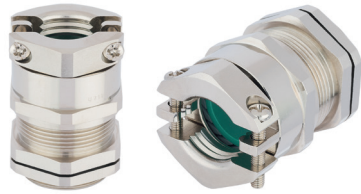| Article number	Article designation / size	Clamping range ØF (mm)	Minimum Ø above braiding (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-HF-M BRUSH							
53112543	M 25 x 1,5	9-17	6	29	36.0	8	10
53112544	M 32 x 1,5	11-21	8	36	42.2	9	5
53112545	M 40 x 1,5	19-28	10	45	49.5	9	5
53112546	M 50 x 1,5	27-35	14	54	52.0	10	5
53112547	M 63 x 1,5	34-45	20	67	61.3	15	1

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

Accessories
• SKINDICHT® SM-PE-M refer to main catalogue 2016 / 17

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Cable glands

⊗ LAPP GROUP

SKINTOP® metric nickel-plated brass cable glands • SKINTOP® Halogen-free

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CE

SKINTOP® MS-HF-M GRIP

Benefits

- Halogen-free and flame-retardant
- Reliable bending and anti-kink protection
- High strain relief
- For high mechanical stress

Application range

- Saddle clamp strain relief gland for harsh application conditions.
- Portable equipment
- Machines and systems on building sites
- Crane and conveying machinery
- Plant engineering

Norm references / Approvals

- DIN EN 45545-2
- DIN EN 45545-3: 2013-08
- DIN EN 1363-1: 2012-10
- DIN EN 13501-2: Klassifizierung E30

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- Refer to SKINTOP® metric accessories for suitable accessories

ⓘ Info

- Cable gland for railway applications
- Brass cable gland with with centred strain relief and kink protection
- Hazard Level: HL 3

Technical data

Classification
ETIM 5.0 Class-ID: EC000441
ETIM 5.0 Class-Description:
Cable screw gland

Caution
Refer to the instruction leaflet for the installation dimensions and torques

Material
Body: nickel plated brass
Cap nut: nickel plated brass
Insert: halogen-free polyamid acc. to UL 94 V0
Sealing ring: special elastomer
O-ring: special elastomer

Protection rating
IP 68 - 5 bar

Temperature range
dynamic -25°C up to + 100°C
static -40°C up to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-HF-M GRIP						
53112551	M 16 x 1,5	4,5-10	20	41.0	7	25
53112552	M 20 x 1,5	7-13	24	46.0	8.5	25
53112553	M 25 x 1,5	9-17	29	48.5	8	25
53112554	M 32 x 1,5	11-21	36	56.6	9	25

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

CE
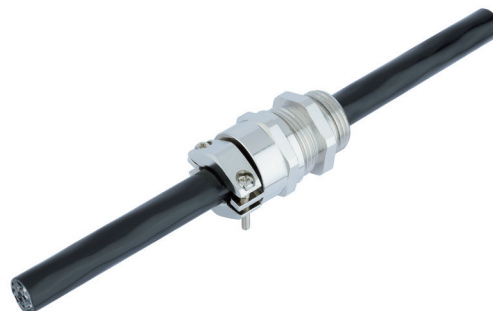
SKINTOP® MULTI

Info

- Compact multi cable bushing system with innovative gel technology

Benefits

- Large clamping range of 4 mm and AS-I BUS entry system by elastic gel technology with innovative membrane technology
- Easy installation, high packing density
- Optimum strain relief at the entire cable bundle
- Error reduction through clear assignment of cable to be installed by a clear marker of implementing points
- Not used holes remain securely sealed

Application range

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- For not harnessed cables and media hoses
- Apparatus and switch cabinet construction
- Automation technology

Product features

- One sealing to the cable & housing (captive)
- Halogen-free
- UV-, Ozon and oil resistant
- The adhesive gel provides a very easy positioning at the enclosure during the assembling

Product Make-up

- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

Included

- SKINTOP® MULTI including mounting material

Technical data

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

Certifications
UL pending
Fire behaviour according to UL94 V-2

Note
Individual hole configuration on request

Material
Frame: Polycarbonat
Sealing: Gel

Protection rating
IP 68

Temperature range
–30°C to +100°C

Article number	Article designation / size	Max. number of executions	Number of cables x clamping range	Pieces / PU
SKINTOP® MULTI				
52220065	SKINTOP® MULTI Version 1	22	6 x 8-12 mm, 16 x 3-7 mm	1
52220073	SKINTOP® MULTI Version 2	21	5 x 2-6 mm, 8 x 4-8 mm, 3 x 5-9 mm, 2 x 8-12 mm, 1 x 12-16 mm, 2 x AS-I BUS oder 2 x 2-4 mm	1

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

Similar products

- SKINTOP® CUBE MULTI refer to main catalogue 2016 / 17
- SKINTOP® CUBE refer to main catalogue 2016 / 17

Accessories

- Kraftform Kompakt® 10

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FIPLOCK® PA6

Flexible, corrugated cable conduit system in closed and divisible version

Info

- Hazard Level: HL 3

Technical data

Classification
ETIM 5.0 Class-ID: EC001175
ETIM 5.0 Class-Description:
Corrugated plastic hose

Certifications
IEC EN 61386-23
EN 45545-2 HL3

Colour delivered
Grey (RAL 7011)
Black (RAL 9005), UV-resistant

Material
PA 6
Silicone-free
Halogen-free
Fire behaviour according to UL 94V-0

Temperature range
-45°C to +120°C

Benefits

- The flexible conduit design enables small bending radii and is ideally suited for space-saving installations where space is limited in dry and damp interiors, as well as for outdoor applications
- Robust against mechanical impacts
- Flexible
- Dimensionally stable

Application range

- For use in railway vehicles and buses, for fixed installations and applications where limited movement may occur
- Railway technology
- Public transport equipment

Product features

- Low smoke density
- Self-extinguishing, no dripping
- Halogen-free
- High resistance to oil, petrol, acids and other chemicals
- Good weather and UV-resistance

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for FIPLOCK® M	Colour	PU ring (m)
Standard weight version (closed)						
61803908	7	6.2 x 10.0	15	12 x 1,5	black	50
61803909	10	9.6 x 12.8	20	12 x 1,5/16 x 1,5/20 x 1,5	black	50
61803910	12	12.0 x 15.7	30	16 x 1,5/20 x 1,5	black	50
61803911	17	16.1 x 21.1	35	20 x 1,5/25 x 1,5	black	50
61803912	23	22.0 x 28.4	40	25 x 1,5/32 x 1,5	black	50
61803913	29	28.3 x 34.5	50	32 x 1,5/40 x 1,5	black	50
61803914	36	35.8 x 42.2	55	40 x 1,5/50 x 1,5	black	25
61803915	48	46.7 x 53.8	65	50 x 1,5/63 x 1,5	black	25
61803916	56	56.3 x 67.2	100		black	25
61803917	70	67.2 x 79.6	130		black	25
61803918	95	91.3 x 106.0	170		black	10
61803919	125	126.5 x 146.5	380		black	10
61803920	7	6.2 x 10.0	15	12 x 1,5	grey	50
61803921	10	9.6 x 12.8	20	12 x 1,5/16 x 1,5/20 x 1,5	grey	50
61803922	12	12.0 x 15.7	30	16 x 1,5/20 x 1,5	grey	50
61803923	17	16.1 x 21.1	35	20 x 1,5/25 x 1,5	grey	50
61803924	23	22.0 x 28.4	40	25 x 1,5/32 x 1,5	grey	50
61803925	29	28.3 x 34.5	50	32 x 1,5/40 x 1,5	grey	50
61803926	36	35.8 x 42.2	55	40 x 1,5/50 x 1,5	grey	25
61803927	48	46.7 x 53.8	65	50 x 1,5/63 x 1,5	grey	25
61803928	56	56.3 x 67.2	100		grey	25
61803929	70	67.2 x 79.6	130		grey	25
61803930	95	91.3 x 106.0	170		grey	10
61803931	125	126.5 x 146.5	380		grey	10
Heavy duty version (closed)						
61803932	17	16.1 x 21.1	35	20 x 1,5/25 x 1,5	black	50
61803933	23	22.0 x 28.5	45	25 x 1,5/32 x 1,5	black	50
61803934	29	28.3 x 34.7	55	32 x 1,5/40 x 1,5	black	50
61803935	36	35.8 x 42.3	60	40 x 1,5/50 x 1,5	black	25
61803936	48	46.7 x 54.2	70	50 x 1,5/63 x 1,5	black	25
61803937	17	16.1 x 21.1	35	20 x 1,5/25 x 1,5	grey	50
61803938	23	22.0 x 28.5	45	25 x 1,5/32 x 1,5	grey	50
61803939	29	28.3 x 34.7	55	32 x 1,5/40 x 1,5	grey	50
61803940	36	35.8 x 42.3	60	40 x 1,5/50 x 1,5	grey	25
61803941	48	46.7 x 54.2	70	50 x 1,5/63 x 1,5	grey	25
Divisible version						
61803942	7	6.3 x 10.0	25		black	50
61803943	10	8.8 x 13.5	30		black	50
61803944	11	11.0 x 16.1	30		black	50
61803945	14	13.2 x 18.7	35		black	50
61803946	16	16.0 x 21.5	40		black	50
61803947	20	20.2 x 25.7	50		black	50
61803948	23	23.9 x 31.3	60		black	50
61803949	29	27.3 x 35.5	110		black	25
61803950	37	32.5 x 43.2	135		black	25
61803951	45	43.1 x 54.2	140		black	25

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

Similar products

- FIPLOCK® PA12 refer to page 49

Accessories

- FIPLOCK® M refer to page 50
- FIPLOCK® PG refer to main catalogue 2016/17
- FIPLOCK® NPT refer to main catalogue 2016/17
- SILVYN® Conduit scissor refer to main catalogue 2016/17

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FIPLOCK® PA 12

Flexible, corrugated cable conduit system in closed and divisible version

Info
• Hazard Level: HL 3

Benefits
• The flexible conduit design enables small bending radii and is ideally suited for space-saving installations where space is limited in dry and damp interiors, as well as for outdoor applications
• Robust against mechanical impacts
• Highly flexible and high fatigue life
• Dimensionally stable

Application range
• For use in railway vehicles and buses, for fixed installations and applications where continous movement may occur
• Railway technology
• Public transport equipment
• For indoor and outdoor use
• Carriage roof, Jumper connections, Couplings

Product features
• Low smoke density
• Self-extinguishing, no dripping
• Halogen-free
• High resistance to oil, petrol, acids and other chemicals
• Excellent weather and UV-resistance

Technical data

Classification
ETIM 5.0 Class-ID: EC001175
ETIM 5.0 Class-Description: Corrugated plastic hose

Certifications
IEC EN 61386-23
EN 45545-2 HL3

Colour delivered
Black (RAL 9005), UV-resistant

Material
PA 12
Silicone-free
Halogen-free
Fire behaviour according to UL 94V-0

Temperature range
-45°C to +105°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	Suitable for FIPLOCK® M	Colour	PU ring (m)
Standard weight version (closed)						
61803952	7	6.2 x 10.0	15	12 x 1,5	black	50
61803953	10	9.6 x 12.8	20	12 x 1,5/16 x 1,5/20 x 1,5	black	50
61803954	12	12.0 x 15.7	25	16 x 1,5/20 x 1,5	black	50
61803955	17	16.1 x 21.1	30	20 x 1,5/25 x 1,5	black	50
61803956	23	22.0 x 28.5	40	25 x 1,5/32 x 1,5	black	50
61803957	29	28.3 x 34.7	50	32 x 1,5/40 x 1,5	black	50
61803958	36	36.6 x 42.3	55	40 x 1,5/50 x 1,5	black	25
61803959	48	47.0 x 54.4	65	50 x 1,5/63 x 1,5	black	25
61803960	56	56.3 x 67.2	100		black	25
61803961	70	67.2 x 79.6	135		black	25
61803962	95	91.3 x 106.0	150		black	10
61803963	125	126.5 x 146.5	320		black	10
61803964	170	172.0 x 193.0	440		black	10
Heavy duty version (closed)						
61803965	7	6.0 x 10.0	15	12 x 1,5	black	50
61803966	10	9.2 x 12.8	20	12 x 1,5/16 x 1,5/20 x 1,5	black	50
61803967	12	11.8 x 15.7	25	16 x 1,5/20 x 1,5	black	50
61803968	17	16.1 x 21.1	35	20 x 1,5/25 x 1,5	black	50
61803969	23	22.0 x 28.5	40	25 x 1,5/32 x 1,5	black	50
61803970	29	28.3 x 34.7	50	32 x 1,5/40 x 1,5	black	50
61803971	36	35.8 x 42.3	60	40 x 1,5/50 x 1,5	black	25
61803972	48	46.7 x 54.2	70	50 x 1,5/63 x 1,5	black	25
Divisible version						
61803973	7	6.3 x 10.0	20		black	50
61803974	10	8.8 x 13.5	25		black	50
61803975	11	11.0 x 16.1	25		black	50
61803976	14	13.2 x 18.7	30		black	50
61803977	16	16.0 x 21.5	35		black	50
61803978	20	20.2 x 25.7	45		black	50
61803979	23	23.9 x 31.3	55		black	50
61803980	29	27.3 x 35.5	105		black	25
61803981	37	32.5 x 43.2	130		black	25
61803982	45	43.1 x 54.2	135		black	25
61803983	70	67.0 x 79.8	175		black	10
61803984	100	87.5 x 102.5	195		black	10

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

Accessories
• FIPLOCK® M refer to page 50
• FIPLOCK® PG refer to main catalogue 2016/17
• FIPLOCK® NPT refer to main catalogue 2016/17
• SILVYN® Conduit scissor refer to main catalogue 2016/17

Side tabs: ÖLFLEX® · UNITRONIC® · ETHERLINE® · HITRONIC® · EPIC® · SKINTOP® · SILVYN® · FLEXIMARK® · ACCESSORIES

CE

FIPLOCK® M

Conduit fitting system for highest requirements, suitable for FIPLOCK® PA6 / PA12

Info

• New conduit fitting system with innovative locking system

Benefits

• Very high tensile strength due to all around tooth system
• Ensures mounting safety due to integrated coding system
• Excellent IP rating
• Cost-saving due to quick and easy installation

Application range

• Suitable for FIPLOCK® PA6 / PA12
• Demand of increased liquid tightness
• For indoor and outdoor use

Product features

• All around locking mechanism due to 360° tooth system
• Locking mechanism with integrated coding system
• Extended sealing range across multiple corrugated conduit waves

Note

• Fitting is not suitable for use with divisible version of FIPLOCK® conduit

Technical data

Classification
ETIM 5.0 Class-ID: EC001176
ETIM 5.0 Class-Description: Screw connection for corrugated plastic hose

Certifications
IEC EN 61386-23
EN 45545-2 HL3

On request
PG or NPT connection thread
With 90° elbow

Colour delivered
Grey (RAL 7005)
Black (RAL 9005), UV-resistant

Material
PA 6
Halogen-free
Fire behaviour according to UL 94V-0

Protection rating
IP66/IP67/IP68/IP69

Temperature range
-45°C to +120°C

Article number	Metric size	SW wrench size mm	Clear opening (mm)	Suitable for FIPLOCK® PA6 / PA12	Colour	Pieces / PU
FIPLOCK® M black						
61804211	12 x 1.5	17	7.2	7	black	10
61804212	12 x 1.5	20	10	10	black	10
61804213	16 x 1.5	20	10	10	black	10
61804214	16 x 1.5	22	9	12	black	10
61804215	20 x 1.5	20	10	10	black	10
61804216	20 x 1.5	22	13	12	black	10
61804217	20 x 1.5	27	13	17	black	10
61804218	25 x 1.5	27	17.2	17	black	10
61804219	25 x 1.5	36	18	23	black	10
61804220	32 x 1.5	36	23	23	black	10
61804221	32 x 1.5	41	25	29	black	10
61804222	40 x 1.5	41	29	29	black	10
61804223	40 x 1.5	52	31.9	36	black	10
61804224	50 x 1.5	52	36	36	black	10
61804225	50 x 1.5	65	41.9	48	black	10
61804226	63 x 1.5	65	50.5	48	black	10
FIPLOCK® M grey						
61804227	12 x 1.5	17	7.2	7	grey	10
61804228	12 x 1.5	20	10	10	grey	10
61804229	16 x 1.5	20	10	10	grey	10
61804230	16 x 1.5	22	9	12	grey	10
61804231	20 x 1.5	20	10	10	grey	10
61804232	20 x 1.5	22	13	12	grey	10
61804233	20 x 1.5	27	13	17	grey	10
61804234	25 x 1.5	27	17.2	17	grey	10
61804235	25 x 1.5	36	18	23	grey	10
61804236	32 x 1.5	36	23	23	grey	10
61804237	32 x 1.5	41	25	29	grey	10
61804238	40 x 1.5	41	29	29	grey	10
61804239	40 x 1.5	52	31.9	36	grey	10
61804240	50 x 1.5	52	36	36	grey	10
61804241	50 x 1.5	65	41.9	48	grey	10
61804242	63 x 1.5	65	50.5	48	grey	10

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

Side navigation tabs: ÖLFLEX® | UNITRONIC® | ETHERLINE® | HITRONIC® | EPIC® | SKINTOP® | SILVYN® | FLEXIMARK® | ACCESSORIES

SILVYN® HFX-V0 / SILVYN® FCE-V0
Interlocked metal conduit with thick-walled Polyurethane jacket

SILVYN® HFX-V0

SILVYN® FCE-V0

Info
• Hazard Level: HL 2

Benefits
• The flexible conduit design enables small bending radii and is ideally suited for space-saving installations where space is limited in dry and damp interiors, as well as for outdoor applications
• High resistance to oil, petrol, acids and greases
• Liquidtight

Application range
• For use in railway vehicles and buses, for fixed installations and applications where limited movement may occur
• Also applicable within oily environments and areas with increased ambient temperature

Product features
• UV-resistant
• Halogen-free and flame-retardant
• High mechanical and chemical resistance

Product Make-up
• Helically-wound metal protective conduit with interlocked profile
• PUR outer sheath

Technical data

Classification
ETIM 5.0 Class-ID: EC001179
ETIM 5.0 Class-Description:
Protective metallic hose

Certifications
IEC EN 61386-23
EN 45545-2 HL2

Colour delivered
Black (RAL 9005), UV-resistant

Material
Metal with PUR sheath
Fire behaviour according to UL 94V-0

Temperature range
-50 °C to +105 °C
Short-term up to +125 °C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	PU ring (m)
SILVYN® HFX-V0				
64400248	5/16"	10.1 x 14.4	65	30
64400241	3/8"	12.6 x 17.8	85	30
64400253	1/2"	16.0 x 21.1	110	30
64400242	3/4"	21.0 x 26.4	140	30
64400243	1"	26.5 x 33.1	170	30
64400244	1 1/4"	35.1 x 41.8	215	15
64400245	1 1/2"	40.3 x 47.8	250	15
64400246	2"	51.6 x 59.9	300	15
SILVYN® FCE-V0				
61814708	12	10.0 x 14.0	50	25
61814709	16	13.0 x 17.0	60	25
61814710	20	17.0 x 21.5	80	25
61814711	25	21.2 x 26.0	100	25
61814712	32	28.1 x 34.0	125	25
61814713	40	37.7 x 44.5	160	10
61814714	50	48.4 x 55.5	190	10

* Trade product, no Lapp product
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
SILVYN® HFX-V0
• SILVYN® COMPACT M refer to main catalogue 2016/17
• SILVYN® COMPACT PG refer to main catalogue 2016/17
• SILVYN® COMPACT NPT refer to main catalogue 2016/17
• SILVYN® LTP-E refer to main catalogue 2016/17
SILVYN® FCE-V0
• SILVYN® FCE-M refer to page 53

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SILVYN® ZHLS / SILVYN® FCE-LFH

Interlocked metal conduit with thick-walled Polyolefin jacket

SILVYN® ZHLS

SILVYN® FCE-LFH

Info

• Hazard Level: HL 3

Benefits

• The flexible conduit design enables small bending radii and is ideally suited for space-saving installations where space is limited in dry and damp interiors, as well as for outdoor applications
• Liquidtight

Application range

• For use in railway vehicles and buses, for fixed installations and applications where limited movement may occur
• Also applicable within oily environments and areas with increased ambient temperature

Product features

• UV-resistant
• Halogen-free and flame-retardant
• High mechanical and chemical resistance

Product Make-up

• Helically-wound metal protective conduit with interlocked profile
• Outer sheath: halogen-free, thermoplastic polyolefin compound

Technical data

Classification
ETIM 5.0 Class-ID: EC001179
ETIM 5.0 Class-Description: Protective metallic hose

Certifications
IEC EN 61386-23
EN 45545-2 HL3

Colour delivered
Black (RAL 9005), UV-resistant

Material
Metal with Polyolefin jacket

Temperature range
-25°C to +80°C
Short-term: up to +100°C

Article number	Nominal size	ID x OD mm	Bending radius (mm)	PU ring (m)
SILVYN® ZHLS				
64400254	1/4"	6.4 x 11.5	40	30
64400255	5/16"	10.1 x 14.4	50	30
64400256	3/8"	12.6 x 17.8	60	30
64400257	1/2"	16.0 x 21.1	75	30
64400258	3/4"	21.0 x 26.4	90	30
64400259	1"	26.5 x 33.1	120	30
64400260	1 1/4"	35.1 x 41.8	135	15
64400261	1 1/2"	40.3 x 47.8	165	15
64400266	2"	51.6 x 59.9	210	15
SILVYN® FCE-LFH				
61814717	12	10.0 x 14.0	50	25
61814718	16	13.0 x 17.0	60	25
61814719	20	17.0 x 21.5	80	25
61814720	25	21.2 x 26.0	100	25
61814721	32	28.1 x 34.0	125	25
61814722	40	37.7 x 45.0	160	10
61814723	50	48.4 x 56.0	190	10

* Trade product, no Lapp product
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

SILVYN® ZHLS
• SILVYN® COMPACT M refer to main catalogue 2016/17
• SILVYN® COMPACT PG refer to main catalogue 2016/17
• SILVYN® COMPACT NPT refer to main catalogue 2016/17
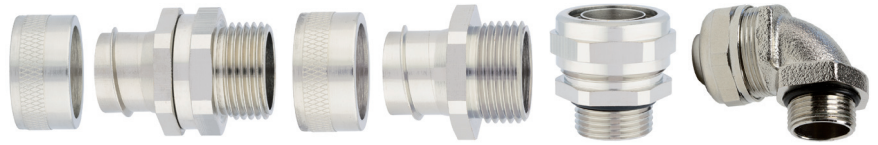• SILVYN® LTP-E refer to main catalogue 2016/17
SILVYN® FCE-LFH
• SILVYN® FCE-M refer to page 53

SILVYN® FCE-M

Nickel-plated brass fitting with space-saving dimensions in various designs

Info

• Space-saving due to compact dimensions

Benefits
• High mechanical stability
• High tensile strength
• Space-saving application
• Corrosion-resistant

Application range
• In combination with protective conduit:
• SILVYN® FCE-V0
• SILVYN® FCE-LFH

Product Make-up
• Metric connection thread
• Hexagonal collar
• Threaded sleeve
• Cap nut

Technical data

Classification
ETIM 5.0 Class-ID: EC001180
ETIM 5.0 Class-Description: Screw connection for protective metallic hose

Material
SILVYN® FCE COMPACT
Metal parts: nickel-plated brass
Sealings: NBR
SILVYN® FCE-F, FCE-S
Nickel-plated brass

Protection rating
SILVYN® FCE COMPACT: IP 68
SILVYN® FCE-F, FCE-S: IP 54

Temperature range
SILVYN® FCE COMPACT:
–45°C to +105°C
SILVYN® FCE-F, FCE-S:
–55°C to +260°C

Article number	Metric size	Suitable for SILVYN® FCE	Pieces / PU
SILVYN® FCE COMPACT M			
55503624	12 x 1.5	13	10
55503625	16 x 1.5	16	10
55503626	20 x 1.5	16	10
55503627	20 x 1.5	20	10
55503628	25 x 1.5	25	5
61803855	32 x 1.5	32	5
61803856	40 x 1.5	40	2
SILVYN® FCE COMPACT 90° M			
61803860	16 x 1.5	16	10
61803861	20 x 1.5	16	10
61803862	20 x 1.5	20	10
61803863	25 x 1.5	25	5
61803864	32 x 1.5	32	5
SILVYN® FCE-F M			
55503600	10 x 1.0	10	10
55503601	12 x 1.5	10	10
55503602	12 x 1.5	13	10
55503603	16 x 1.5	13	10
55503604	16 x 1.5	16	10
55503605	20 x 1.5	16	10
55503606	20 x 1.5	20	10
55503607	25 x 1.5	25	5
55503608	32 x 1.5	32	5
55503609	40 x 1.5	40	2
55503610	50 x 1.5	50	2
55503611	63 x 1.5	50	2
SILVYN® FCE-S M			
55503612			
55503613	12 x 1.5	10	10
55503614	12 x 1.5	13	10
55503615	16 x 1.5	13	10
55503616	16 x 1.5	16	10
55503617	20 x 1.5	16	10
55503618	20 x 1.5	20	10
55503619	25 x 1.5	25	5
55503620	32 x 1.5	32	5
55503621	40 x 1.5	40	2
55503622	50 x 1.5	50	2
55503623	63 x 1.5	50	2

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

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

Terminal Box

Enclosure, screw open-close type

CE cULus TÜVRheinland

> **Info**
>
> • The product family established itself in the industry sector with high quality and easy mounting

Benefits

• Tidy storage
• Dust and moisture protection
• Few operation steps, easy to assemble
• Transparent case lid supports good overview
• Diversity of variants

Product features

• Enclosure with screw caps
• Optional grey or transparent covers
• 3,5mm screw diameter for mounting plate
• 50mm extension frame for altitudal changes

Note

• Aluminium swingout panel available on request
• Perforated plastic plate deliverable for all sizes
• Including mounting material

Technical data

Certifications
cULus listed acc. to File No. E178096

On request
More sizes and colours available

Info
Shock resistance: IK 08 PC (see data sheet for further information)

Colour delivered
Enclosure: RAL 7035 light grey
Cover: transparent or RAL 7035 light grey

Material
Enclosure: Polycarbonate
Cover: Polycarbonate
Mounting panel: ABS

Protection rating
IP 66

Temperature range
−40°C to +85°C

Article number	Article description	Dimensions W x H x D (mm)	Pieces / PU
Mounting panel TB			
53110140	Mounting panel TB	160.0 x 160.0 x 4.0	1
53110141	Mounting panel TB	252.0 x 161.0 x 3.4	1
53110142	Mounting panel TB	267.0 x 267.0 x 3.3	1
53110143	Mounting panel TB	240.0 x 300.0 x 4.0	1
53110144	Mounting panel TB	155.0 x 335.0 x 4.0	1
53110145	Mounting panel TB	351.0 x 251.0 x 4.3	1
Terminal Box with grey cover			
53110100	Terminal Box GY	190.0 x 190.0 x 130.0	1
53110102	Terminal Box GY	280.0 x 190.0 x 130.0	1
53110104	Terminal Box GY	280.0 x 190.0 x 180.0	1
53110106	Terminal Box GY	280.0 x 190.0 x 230.0	1
53110108	Terminal Box GY	280.0 x 280.0 x 130.0	1
53110110	Terminal Box GY	340.0 x 280.0 x 130.0	1
53110112	Terminal Box GY	380.0 x 190.0 x 130.0	1
53110114	Terminal Box GY	380.0 x 190.0 x 180.0	1
53110116	Terminal Box GY	380.0 x 190.0 x 230.0	1
53110118	Terminal Box GY	380.0 x 280.0 x 130.0	1
53110120	Terminal Box GY	380.0 x 280.0 x 180.0	1
53110122	Terminal Box GY	380.0 x 280.0 x 230.0	1
53110124	Terminal Box GY	560.0 x 280.0 x 130.0	1
53110126	Terminal Box GY	560.0 x 380.0 x 180.0	1
Terminal Box with transparent cover			
53110101	Terminal Box TR	190.0 x 190.0 x 130.0	1
53110103	Terminal Box TR	280.0 x 190.0 x 130.0	1
53110105	Terminal Box TR	280.0 x 190.0 x 180.0	1
53110107	Terminal Box TR	280.0 x 190.0 x 230.0	1
53110109	Terminal Box TR	280.0 x 280.0 x 130.0	1
53110111	Terminal Box TR	340.0 x 280.0 x 130.0	1
53110113	Terminal Box TR	380.0 x 190.0 x 130.0	1
53110115	Terminal Box TR	380.0 x 190.0 x 180.0	1
53110117	Terminal Box TR	380.0 x 190.0 x 230.0	1
53110119	Terminal Box TR	380.0 x 280.0 x 130.0	1
53110121	Terminal Box TR	380.0 x 280.0 x 180.0	1
53110123	Terminal Box TR	380.0 x 280.0 x 230.0	1
53110125	Terminal Box TR	560.0 x 280.0 x 130.0	1
53110127	Terminal Box TR	560.0 x 380.0 x 180.0	1

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

Accessories

• Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set refer to main catalogue 2016/17

LAPP GROUP

Economic Box
Economic enclosure with hinges and quick release fasteners

Info
• Economic enclousure with hinges and quick release fasteners

Benefits
• Tidy storage
• Dust and moisture protection
• Few work steps, free assembly in any position
• Fast-snap-lock for easy handling
• Good combination of quality and price

Product features
• Enclosure with hinges and quick release fasteners
• Unique dovetail guide for frame or front panel (no standoff)
• Integrated mounting panel (included in the enclosure price)
• 3,5mm screw diameter for mounting plate

Note
• Wall mount (sold separately)
  – p/n upon request

Technical data

Certifications
cULus listed acc. to File No. E178096

Info
Shock resistance IK 07
(further details see data sheet)

Colour delivered
Light grey (RAL 7035)

Material
ABS plastic

Protection rating
IP 66

Temperature range
–40°C to +85°C

Article number	Article description	Dimensions W x H x D (mm)	Pieces / PU
Economic Box			
53110130	Economic Box	150.0 x 150.0 x 90.0	1
53110131	Economic Box	150.0 x 200.0 x 100.0	1
53110132	Economic Box	180.0 x 180.0 x 150.0	1
53110133	Economic Box	200.0 x 300.0 x 160.0	1
53110134	Economic Box	300.0 x 400.0 x 160.0	1
53110135	Economic Box	400.0 x 500.0 x 160.0	1

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

Accessories
• Kraftform® adjustable torque screwdriver/Kraftform Kompakt® Set
  refer to main catalogue 2016 / 17

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ACCESSORIES

Notices

Reach us around the world

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Enter the world
of Lapp:

Our apps are available from
the following stores:

Google play   App Store

THIS CATALOGUE IS VALID
FROM NOVEMBER 2016.

The following applies for the use of our products

The conformity of our products to the relevant European directives and compliance with the provisions contained therein shall be indicated by the CE marking.

Safety

Without exception, our products are tested for application safety in accordance with defined standards and our own regulations, which complement the standards. Relevant legal requirements and safety regulations are also observed. Provided due care and attention is paid, the possibility of product-specific danger to the user may thus reasonably be excluded. Where products are used carelessly or incorrectly, however, considerable danger to persons and the

environment may arise. For this reason, our cables must only be processed and/or used responsibly by trained electricians or specialists. This catalogue contains general information for the application of each product. Independent of such information, the application standards DIN VDE 0298 and DIN VDE 0891 for cables will apply. Excerpts from these standards, as well as complementary selection and application tables, design and installation

The safety of our products is closely associated with how they are used. A knowledge of and adherence to the respective international/national standards of use (e.g. DIN VDE 0100; 0298) are

mandatory. There are particular risks if installed improperly. This applies to all our products/items:

guidelines, are contained 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.

Processing is only to be done by an authorised electrician! Otherwise, there is the risk of an electric shock or a fire ignited by electric current!

ÖLFLEX®
Power and control cables

UNITRONIC®
Data communication systems

ETHERLINE®
Data communication systems
for ETHERNET technology

HITRONIC®
Optical transmission systems

EPIC®
Industrial connectors

SKINTOP®
Cable glands

SILVYN®
Protective cable conduit systems
and cable carrier systems

FLEXIMARK®
Marking systems