THE WORLD OF LAPP

Product News 2012

LAPP GROUP

Welcome

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LAPP GROUP

Content

Brand quality from Stuttgart

ÖLFLEX®
Power- and control cables

The world's first brand cable is available in the most varied of versions to match maximum requirements.

Key features: Oil-resistant, flexible and available to match almost any requirement or environmental condition – also free of halogens.

Fields of application: Multipurpose. Special variants are more and more in demand in the area of renewable energies.

EPIC®
Industrial connectors

The brand for strong and reliable connections.

Key features: Robust square and circular connectors. Flexible system consisting of housings, inserts, contacts and accessories – for every requirement, the tailor-made solution. Similarly, EPIC® SOLAR plugs for photovoltaics are also part of the extensive product range.
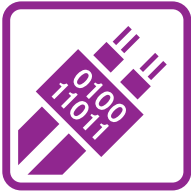
Fields of application: Mechanical and systems engineering, drive technology, Automation.

UNITRONIC®
Data communication systems

The ideal brand for fast, trend-setting and reliable data transfer.

Key features: UNITRONIC® are not only data lines, but also bus lines, which together with active sensor/actuator modules or gateways provide a perfect system for automation.

Fields of application: Measurement, control, regulation, bus or LAN networks.
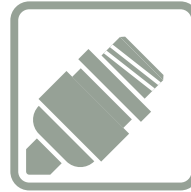
SKINTOP®
Cable glands

The brand for multipurpose cable entries in line with the following: quickly fastened, centred and hermetically sealed.

Key features: Large clamping areas, optimum strain reliefs, the most diverse of versions such as SKINTOP® CLICK, COLD or CUBE.

Fields of application: Everywhere, where cables must be fastened reliably and quickly.

ETHERLINE®
Data communication systems for ETHERNET-Technology

The brands for network solutions, safety systems and firewalls in the industrial networking sector.

Key features: System solutions consisting hardware, software, consulting, network design and support.

Fields of application: Factory automation, Renewable Energy, Building technology, Structured cabling.

SILVYN®
Protective cable conduit- and cable carrier systems

The brand for all-round cable protection.

Key features: The product range includes SILVYN® cable protection hoses for perfect protection against mechanical and chemical loads, along with SILVYN® CHAIN energy supply chains for highly-dynamic applications.

Fields of application: Everywhere that cables have to be additionally protected or routed.

HITRONIC®
Optical transmission systems

The brand for split-second, fault-free, intercept-free data transport.

Key features: The HITRONIC® product range includes fibre optic cables in the most varied of versions, along with suitable accessories such as splice boxes, wall distributors or couplings.

Fields of application: Office and industrial sector, Renewable Energy.

FLEXIMARK®
Cable marking systems

The brand for permanent, clearly-arranged cable markings.

Key features: Comprehensive range – from manual labelling solutions onto digital identification. Withstands high chemical, thermal and mechanical loads.

Fields of application: All cable, single cores, control cabinets.

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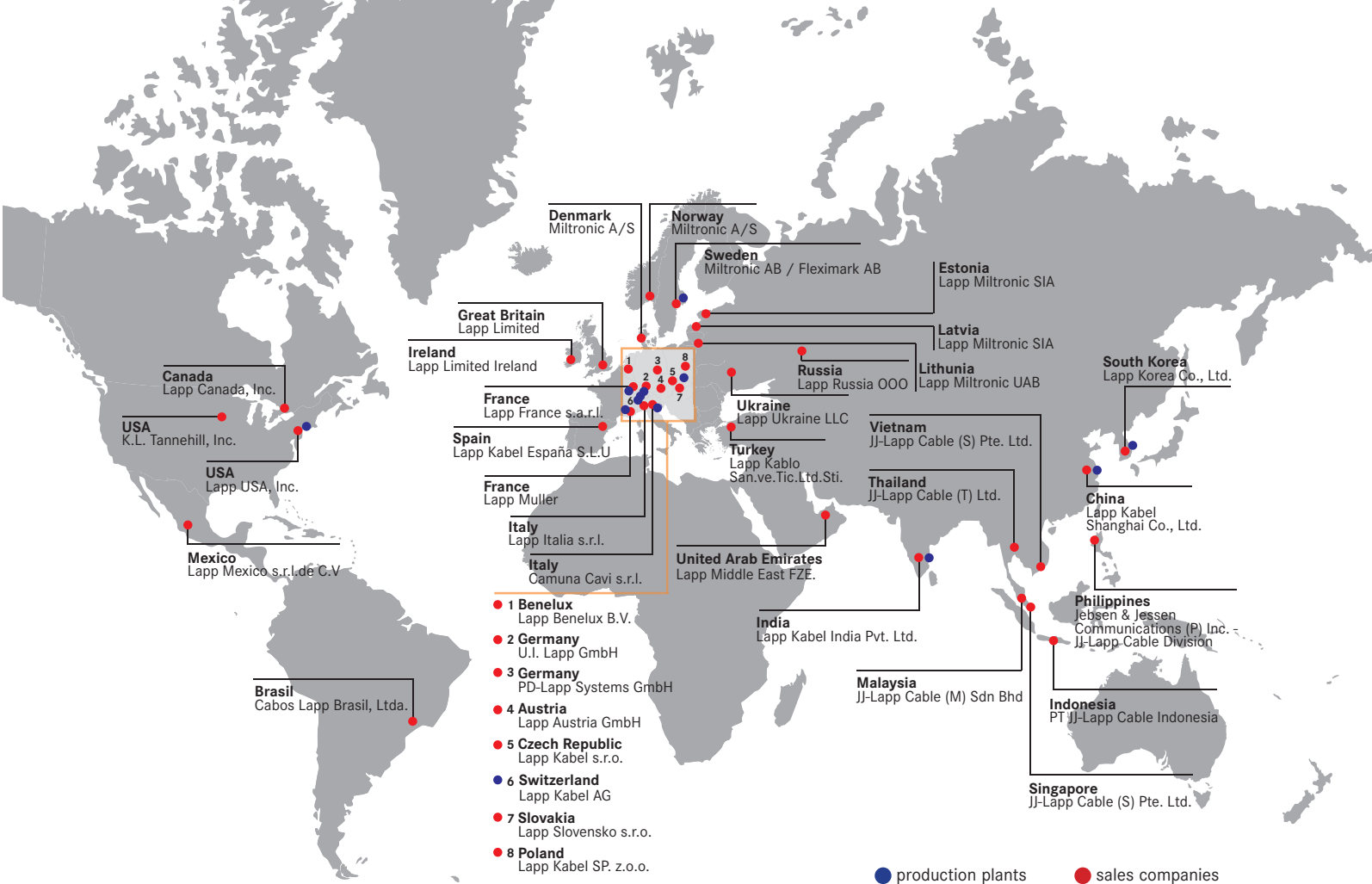
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● **5 Czech Republic**
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● **6 Switzerland**
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● **7 Slovakia**
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● **8 Poland**
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● production plants   ● sales companies

At home in Stuttgart, but known all over the world

The World of Lapp is based in Stuttgart. This is where it all started for our company, which was founded in 1959 as U.I. Lapp KG (now U.I. Lapp GmbH). From its headquarters in Stuttgart we have determinedly evolved to become a global player – with currently 15 production plants in Europe, Asia and America, 41 sales companies and more than 100 sales partners, 3,000 employees. The larger Lapp companies such as Russia, India, China, Canada and Mexico have their own warehouses. The others are promptly supplied through our high-performance logistics centres. At our Lapp Centres we are also strongly committed to enhancing the knowledge of our employees and customers. After all, knowledge is the ink with which the future is written down.

One of our most successful "products" is that of proximity to our customers. On the one hand, we practice intensive dialogue with designers and planners, manufacturers and users. This enables us to identify new requirements and trends at a much earlier stage, to quickly provide you with suitable solutions. Innovation leadership put into active practice.

On the other hand, proximity to our customers really means something to us: our presence extends all round the globe. As a reliable partner on a local basis we support our customers in exploiting markets by providing them with short delivery times and low logistics costs.

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Our guiding principles

Customer-oriented

Innovative

Success-oriented

Family-oriented

Customer-oriented

We strive to make our customers successful in their markets. We work together reliably with our partners in a spirit of trust.

- We take each existing and potential customer serious and treat one another with respect
- We guarantee our customers worldwide security of supply through international manufacturing locations and local stocking of Lapp brand-name products
- We are there for our customers all over the world with our competent staff
- We find quick, flexible and simple solutions for our customers
- We provide our customers a competitive price-performance ratio
- We work together with our partners on a long-term basis and grow with them
- We complete our range of skills with strong partners
- We strengthen our global growth with an international network of partners

LAPP GROUP

Success-oriented

Success orientation is important to us in order to secure our independence and our profitable growth.

- Our achievement-oriented organisation inspires customers and other stakeholders
- Our organisation is versatile and adapts to new challenges
- Our organisation has transparent structures which are aligned with our processes
- We encourage team-oriented decision making
- We remain conscious of our risks while driving our growth
- We are cost and result conscious
- We orient ourselves to mutually agreed targets and communicate these
- Our decisions are sustainable and long-term oriented

Family-oriented

Long-term orientation, warmth and the familiar atmosphere of our family-owned and operated company stand against coldness and anonymity.

- Our corporate culture is characterised by treating one another with respect
- We promote personal responsibility and initiative
- We communicate openly and transparently
- We work together toward our goal in a spirit of trust
- We reflect our thoughts and actions constructively
- We secure our future through actively training and developing our staff
- We respect human rights, values and standards in all cultures. We are committed to social responsibility
- The shareholders identify themselves with the company. Lapp remains a family-owned enterprise

Innovative

For us, innovation means future-oriented solutions for our customers.

- We continuously develop our products, system solutions and services
- We set standards with our brand-name products in terms of safety, quality and functionality
- We are always striving towards improvements in methods, processes and technologies
- We manufacture our innovative brand-name products in our own, flexible plants
- We pledge ourselves to ensure safety, the well-being of our employees, the protection of our environment and the conservation of resources when manufacturing our products

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

Power and control cables

LAPP GROUP

Power chain applications

Servo applications - power drive systems, approved

New

ÖLFLEX® SERVO FD 796 CP

LAPP KABEL STUTTGART ÖLFLEX® SERVO FD 796 CP CE

Info

- New high-end version! For very dynamic motion sequences
- Slim = less space required
- Multiple Certifications

Benefits

- Allows much faster speed and accelerations which increases the economic efficiency of the machines
- Multi-standard = fewer part varieties = cost savings
- Suitable for the most important servomotor drive systems of leading manufacturers.
- Benefit: The modified design of the control pairs brings less voltage drop and allows significant higher working voltage of the associated circuits
- To substitute 7 ÖLFLEX SERVO FD product lines:
  755CP/-755CP DESINA/-781CP/-785CP/ -785CP DESINA/-790CP/-795CP

Application range

- Connecting cable between servo controller and motor
- In power chains or moving machine parts
- For use in assembling- & pick-and-place machines
- Particularly in wet areas of machine tools and transfer lines.
- For assembly lines, production lines in all kinds of machines

Product features

- Dynamic performance in power chains: Accellerations up to 50m/s². Travel speed: up to 5m/s. Travel lengths up to 100m.
- Low-capacitance design: This may results in lower EMI interference, depending on the drive`s electrical operating conditions.
- Halogen-free materials
- Flame retardancy: UL/CSA: VW-1, FT1. IEC/EN: 60332-1-2
- Oil resistant

Approvals

CE CSA UL RoHS ✓ VDE

- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

Design

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: Polypropylene (PP)
- According P/N individual design: Power cores without, with one pair or with two control core pairs arranged as pairs, twisted together in short lay lengths.
- Non-woven wrapping
- Tinned-copper braiding
- PUR outer sheath, orange (RAL 2003)

Technical data

Core identification code
Power: black cores with marking U/L1/C/L+; V/L2; W/L3/D/L- and 1 green-yellow core
Optional Design with one pair of control cores: black; white. Two pairs of control cores: black with white numbers: 5, 6, 7, 8

Approvals
VDE - Reg. - No. 8591
UL AWM Style 20234
CSA AWM I/II A/B 1000V 80° FT 1

Specific insulation resistance
> 20 GOhm x cm

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

Minimum bending radius
For flexible applications:
7.5 x outside diameter (1.5-16mm²)
10 x outside diameter (25-50mm²)
Fixed installation: 4 x outer diameter

Nominal voltage
IEC: Power and control cores: U0/U: 600/1000 V
UL & CSA: 1000V

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

Protective conductor
G = with GN-YE protective conductor

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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO FD 796 CP				
0027950	4 G 1,5	9.2	79.0	140
0027951	4 G 2,5	10.6	129.0	197
0027952	4 G 4	11.9	186.0	268
0027953	4 G 6	14.4	296.0	397
0027954	4 G 10	17.6	449.0	591
0027955	4 G 16	22.0	716.0	955
0027956	4 G 25	25.2	1,073.0	1337
0027957	4 G 35	28.7	1,480.0	1769
0027958	4 G 50	33.4	2,115.0	2468
0027959	4 G 1,5 + (2 x 1,5)	12.0	135.0	261
0027960	4 G 2,5 + (2 x 1,5)	13.8	188.0	318
0027961	4 G 4 + (2 x 1,5)	14.9	235.0	385
0027962	4 G 6 + (2 x 1,5)	17.0	329.0	486

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0027963	4 G 10 + (2 x 1,5)	19.4	515.0	701
0027964	4 G 16 + (2 x 1,5)	23.8	757.0	1048
0027965	4 G 25 + (2 x 1,5)	27.0	1,147.0	1532
0027966	4 G 35 + (2 x 1,5)	31.2	1,538.0	2097
0027967	4 G 50 + (2 x 1,5)	34.7	2,181.0	2721
0027969	4 G 1,5 + 2 x (2 x 0,75)	12.2	159.0	313
0027970	4 G 2,5 + 2 x (2 x 1,0)	14.6	207.0	395
0027971	4 G 4 + (2 x 1,0) + (2 x 1,5)	16.3	344.0	485
0027972	4 G 6 + (2 x 1,0) + (2 x 1,5)	18.1	436.0	588
0027973	4 G 10 + (2 x 1,0) + (2 x 1,5)	21.8	610.0	819
0027974	4 G 16 + 2 x (2 x 1,5)	25.5	801.0	1135
0027975	4 G 25 + 2 x (2 x 1,5)	28.9	1,187.0	1559
0027976	4 G 35 + 2 x (2 x 1,5)	31.4	1,588.0	2093
0027977	4 G 50 + 2 x (2 x 2,5)	36.8	2,557.0	2920

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

Similar products

- ÖLFLEX® SERVO 709 CY refer to main catalogue 2012 page 91
- SERVO cables in acc. to SIEMENS® Standard 6FX 8PLUS refer to main catalogue 2012 page 104
- SERVO Cables in acc. to INDRAMAT® Standard INK refer to main catalogue 2012 page 105

Accessories

- Circular connectors refer to main catalogue 2012 page 597
- SKINDICHT® EMC/Earthing refer to main catalogue 2012 page 668

LAPP GROUP

Power and control cables
Power chain applications
Harsh conditions

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

New

ÖLFLEX® CHAIN 808 P
PVC-insulated, numbered, PUR sheath

LAPP KABEL STUTTGART ÖLFLEX® CHAIN 808 P C€

Info
● **Basic Line for light & ordinary duty in power chain applications**

■ Benefits
● Good combination of quality and price
● Compact design

■ Application range
● Assembly lines, production lines, in all kinds of machines
● In dry, damp or wet interiors
● In power chains or moving machine parts
● Particularly in wet areas of machine tools and transfer lines
● Suitable for use in measuring, control and regulating circuits

■ Product features
● Low-adhesive surface
● Oil-resistant
● Designed for 1...2 million bending/unbending cycles in the power chain

■ Approvals

CE RoHS ✓

● For travel distances up to 10 m.
● For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

■ Design
● Fine-wire strand made of bare copper wires
● Core insulation: PVC
● Cores twisted in layers
● Non-woven wrapping
● PUR outer sheath, grey (RAL 7001)

■ Technical data

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

Based on
HD 22.10 (VDE 0282 Part 10)

Specific insulation resistance
> 20 GOhm x cm

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

Minimum bending radius
For flexible applications:
Chains in self supporting non-gliding arrangements: 10 x outside diameter
Chains in gliding arrangements: 12 x outside diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
Core/core: 4000 V

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

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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1027700	2 X 0.5	5.2	10.0	40
1027701	3 G 0.5	5.5	15.0	48
1027702	4 G 0.5	6.0	20.0	58
1027703	5 G 0.5	6.5	24.0	67
1027704	7 G 0.5	7.7	34.0	88
1027705	12 G 0.5	9.2	58.0	136
1027706	18 G 0.5	11.0	87.0	195
1027707	25 G 0.5	13.3	120.0	274
1027708	2 X 0.75	5.6	15.0	49
1027709	3 G 0.75	6.0	22.0	60
1027710	4 G 0.75	6.5	29.0	73
1027711	5 G 0.75	7.1	37.0	86
1027712	7 G 0.75	8.5	51.0	117
1027713	12 G 0.75	10.3	87.0	181
1027714	18 G 0.75	12.2	130.0	259
1027715	25 G 0.75	14.8	181.0	363
1027716	2 X 1.0	5.9	19.0	58
1027717	3 G 1.0	6.3	29.0	72

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1027718	4 G 1.0	6.9	39.0	88
1027719	5 G 1.0	7.5	48.0	104
1027720	7 G 1.0	9.0	67.0	142
1027721	12 G 1.0	10.9	115.0	221
1027722	18 G 1.0	13.2	173.0	324
1027723	25 G 1.0	15.7	240.0	445
1027724	2 X 1.5	6.5	29.0	74
1027725	3 G 1.5	6.9	43.2	93
1027726	4 G 1.5	7.6	58.0	114
1027727	5 G 1.5	8.5	72.0	139
1027728	7 G 1.5	10.3	101.0	189
1027729	12 G 1.5	12.3	173.0	295
1027730	18 G 1.5	14.9	259.0	429
1027731	25 G 1.5	17.9	360.0	597
1027732	3 G 2.5	8.4	72.0	145
1027733	4 G 2.5	9.3	96.0	179
1027734	7 G 2.5	12.7	120.0	218
1027737	4 G 4	11.1	160.0	266

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■ Similar products
● ÖLFLEX® FD CLASSIC 810 P refer to main catalogue 2012 page 113
● ÖLFLEX® FD 855 P refer to main catalogue 2012 page 116
● ÖLFLEX® FD 891 P refer to main catalogue 2012 page 125

■ Accessories
● Protective Cable Conduit Systems and Cable Carrier Systems refer to main catalogue 2012 page 758

Power and control cables

Power chain applications

Harsh conditions

New

ÖLFLEX® CHAIN 808 CP

Screened, PVC-insulated, numbered, PUR sheath

LAPP KABEL STUTTGART ÖLFLEX® CHAIN 808 CP CE

Info

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

Benefits

- Good combination of quality and price
- Compact design
- Various applications

Application range

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

Product features

- Low-adhesive surface
- Oil-resistant
- Designed for 1...2 million bending/unbending cycles in the power chain

Approvals

CE RoHS ✓

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

Design

- Fine-wire strand made of bare copper wires
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- Tinned-copper braiding
- Non-woven wrapping
- PUR outer sheath, grey (RAL 7001)

Technical data

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

Based on
HD 22.10 (VDE 0282 Part 10)

Specific insulation resistance
> 20 GOhm x cm

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

Minimum bending radius
For flexible applications:
Chains in self supporting non-gliding arrangements: 10 x outside diameter
Chains in gliding arrangements: 12 x outside diameter
Fixed instalation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

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

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

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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1027751	2 X 0.5	5.8	36.0	45
1027752	3 G 0.5	6.1	43.0	59
1027753	4 G 0.5	6.6	49.0	83
1027754	5 G 0.5	7.1	57.0	96
1027755	7 G 0.5	8.5	69.0	136
1027756	12 G 0.5	10.0	104.0	200
1027757	18 G 0.5	11.8	141.0	275
1027758	25 G 0.5	14.1	211.0	350
1027759	2 X 0.75	6.2	43.0	56
1027760	3 G 0.75	6.6	52.0	70
1027761	4 G 0.75	7.1	61.0	95
1027762	5 G 0.75	7.7	72.0	130
1027763	7 G 0.75	9.1	89.0	168
1027764	12 G 0.75	10.9	138.0	232
1027765	18 G 0.75	13.0	211.0	315
1027766	25 G 0.75	15.6	280.0	435
1027767	2 X 1.0	6.5	51.0	84
1027768	3 G 1.0	6.9	62.0	110

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1027769	4 G 1.0	7.5	74.0	130
1027770	5 G 1.0	8.3	88.0	156
1027771	7 G 1.0	9.8	112.0	192
1027772	12 G 1.0	11.7	185.0	285
1027773	18 G 1.0	14.0	268.0	395
1027774	25 G 1.0	16.7	354.0	656
1027775	2 X 1.5	7.1	65.0	97
1027776	3 G 1.5	7.5	82.0	125
1027777	4 G 1.5	8.4	100.0	165
1027778	5 G 1.5	9.1	119.0	193
1027779	7 G 1.5	10.9	154.0	245
1027780	12 G 1.5	13.3	268.0	365
1027781	18 G 1.5	15.7	373.0	553
1027782	25 G 1.5	18.7	530.0	734
1027783	3 G 2.5	9.0	118.0	188
1027784	4 G 2.5	10.1	147.0	236
1027785	7 G 2.5	13.5	253.0	340
1027788	4 G 4	11.9	248.0	305

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Similar products

- ÖLFLEX® FD CLASSIC 810 CP refer to main catalogue 2012 page 114
- ÖLFLEX® CHAIN 815 CP refer to main catalogue 2012 page 115
- ÖLFLEX® FD 855 CP refer to main catalogue 2012 page 116
- ÖLFLEX® FD 891 CP refer to main catalogue 2012 page 130

Accessories

- Protective Cable Conduit Systems and Cable Carrier Systems refer to main catalogue 2012 page 758
- SKINTOP® MS-SC-M refer to main catalogue 2012 page 668
- SKINTOP® MS-M BRUSH refer to main catalogue 2012 page 669

Power chain applications
Harsh conditions

New

ÖLFLEX® PETRO FD 865 CP

Oil and drilling fluid (mud) resistant control cables for highly flexible outdoor applications

LAPP KABEL STUTTGART ÖLFLEX® PETRO FD 865 CP   CE

Info

- **Resistant to oil and drilling fluids acc. to NEK TS 606:2009 (Oil & Mud)**
- **Flexible down to -50°C**
- **Halogen-free**

Benefits

- Suitable for long horizontal drag chain travel distances
- Reduced outer diameters enable space and weight saving installation
- Suitable for contact with oil- and ester-based drilling muds as well as calcium bromide solutions usually used on drilling rigs
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media
- Copper braiding screens the cable against electromagnetic interference

Application range

- Permanently moved power chains or machine parts in harsh environment
- Onshore and offshore applications such as drilling rigs and drillships
- In wet areas within machinery and production or assembly lines

Product features

- Good notch and abrasion resistance
- Good weather, ozone, UV and oil resistance
- Halogen-free and flame-retardant (IEC 60332-1-2)
- Resistant to hydrolysis and microbes

Approvals

CE   RoHS ✓

- Resistant against oil and drilling fluids according NEK TS 606:2009 and IEC 61892-4
- Salt water-resistant according to UL 1309
- For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

Design

- Extra-fine wire strand made of bare copper
- Core insulation: TPE
- Cores twisted in short lay lengths
- Non-woven wrapping
- Inner sheath made of TPE
- Tinned copper screen braiding
- Outer sheath made of robust special polymer Colour: black

Technical data

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

Based on
VDE 0250/0281/0282

Specific insulation resistance
> 20 GOhm x cm

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

Minimum bending radius
For flexible use: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
3000 V

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

Temperature range
Flexing: -50°C to +80°C
Fixed installation: -60°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0023300	2 X 0.5	6.7	32.0	67
0023301	3 G 0.5	7.1	40.0	79
0023302	4 G 0.5	7.6	47.0	84
0023303	5 G 0.5	8.2	53.0	107
0023304	7 G 0.5	9.5	67.0	132
0023305	12 G 0.5	10.9	97.0	190
0023306	18 G 0.5	12.9	131.0	245
0023307	20 G 0.5	13.5	156.0	281
0023308	25 G 0.5	15.6	190.0	367
0023309	30 G 0.5	15.8	222.0	408
0023310	36 G 0.5	16.9	251.0	459
0023311	2 X 0.75	7.2	40.0	79
0023312	3 G 0.75	7.6	47.0	96
0023313	4 G 0.75	8.3	58.0	112
0023314	5 G 0.75	8.9	65.0	126
0023315	7 G 0.75	10.6	85.0	165
0023316	12 G 0.75	12.1	127.0	231
0023317	18 G 0.75	14.6	198.0	330
0023318	20 G 0.75	15.5	213.0	354
0023319	25 G 0.75	17.7	259.0	459
0023320	30 G 0.75	17.7	296.0	480
0023321	36 G 0.75	19.5	348.0	605
0023322	2 X 1.0	7.6	45.0	93
0023323	3 G 1.0	8.1	55.0	109
0023324	4 G 1.0	8.8	68.0	126
0023325	5 G 1.0	9.6	81.0	147
0023326	7 G 1.0	11.3	106.0	196
0023327	12 G 1.0	13.2	175.0	292
0023328	18 G 1.0	15.9	242.0	418
0023329	20 G 1.0	16.6	269.0	427

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0023330	25 G 1.0	19.2	329.0	575
0023331	30 G 1.0	19.6	377.0	635
0023332	36 G 1.0	21.2	467.0	758
0023333	2 X 1.5	8.3	58.0	115
0023334	3 G 1.5	8.9	76.0	139
0023335	4 G 1.5	9.8	91.0	156
0023336	5 G 1.5	10.8	111.0	198
0023337	7 G 1.5	12.5	145.0	254
0023338	12 G 1.5	14.9	242.0	416
0023339	18 G 1.5	17.4	346.0	564
0023340	20 G 1.5	18.3	377.0	562
0023341	25 G 1.5	21.4	486.0	811
0023342	30 G 1.5	21.4	568.0	821
0023343	36 G 1.5	23.4	655.0	1066
0023344	2 X 2.5	9.8	73.0	129
0023345	3 G 2.5	10.7	110.0	194
0023346	4 G 2.5	11.7	136.0	234
0023347	5 G 2.5	12.8	180.0	293
0023348	7 G 2.5	15.6	246.0	418
0023349	12 G 2.5	18.0	377.0	629
0023350	18 G 2.5	21.5	569.0	912
0023351	20 G 2.5	22.7	582.0	850
0023352	25 G 2.5	26.5	765.0	1266
0023353	4 G 4	13.9	205.0	311
0023354	5 G 4	15.4	250.0	381
0023355	4 G 6	16.2	289.0	423
0023356	5 G 6	17.8	354.0	512
0023357	4 G 10	20.4	475.0	672
0023358	5 G 10	22.3	582.0	814

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

Similar products

- ÖLFLEX® PETRO C HFFR refer to main catalogue 2012 page 61

Accessories

- SILVYN® CHAIN cable protection and guiding systems refer to main catalogue 2012

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

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ACCESSORIES

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APPENDIX

Power and control cables

Power chain applications
Various applications, approved

LAPP GROUP

New

ÖLFLEX® CHAIN 809
PVC-insulated, numbered, PVC sheath, approved

LAPP KABEL STUTTGART ÖLFLEX® CHAIN 809 CE

Info

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

■ Benefits
- Good combination of quality and price
- Compact design

■ Application range
- In power chains or moving machine parts
- In dry, damp or wet interiors
- Suitable for use in measuring, control and regulating circuits
- Wiring of machines, tools, devices, appliances and control cabinets
- Only for outdoor use within the indicated operating temperature range, with UV-protection

■ Product features
- Low-adhesive surface
- Designed for 1...2 million bending/unbending cycles in the power chain
- Flame retardancy:
  UL/CSA: VW-1, FT1.
  IEC/EN: 60332-1-2

■ Approvals
CE UL RoHS✓ cUL

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

■ Design
- Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5
- Core insulation: PVC
- Cores twisted in layers
- Non-woven wrapping
- PVC outer sheath, grey (RAL 7001)

■ Technical data

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

Approvals
cUL AWM II A/B FT1
UL-AWM-Style 20886

Based on
HD 21.13 S1; VDE 0281 Part 13

Specific insulation resistance
> 20 GOhm x cm

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

Minimum bending radius
For flexible applications:
Chains in self supporting non-gliding arrangements: 10 x outside diameter
Chains in gliding arrangements: 12 x outside diameter
Fixed instalation: 4 x outer diameter

Nominal voltage
VDE: U₀/U: 300/500 V
UL & CSA: 1000 V

Test voltage
Core/core: 4000 V

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

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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1026700	2 X 0.5	5.2	10.0	40
1026701	3 G 0.5	5.5	15.0	48
1026702	4 G 0.5	6.0	20.0	58
1026703	5 G 0.5	6.5	24.0	67
1026704	7 G 0.5	7.7	34.0	88
1026705	12 G 0.5	9.2	58.0	136
1026706	18 G 0.5	11.0	87.0	195
1026707	25 G 0.5	13.3	120.0	274
1026708	2 X 0.75	5.6	15.0	49
1026709	3 G 0.75	6.0	22.0	60
1026710	4 G 0.75	6.5	29.0	73
1026711	5 G 0.75	7.1	37.0	86
1026712	7 G 0.75	8.5	51.0	117
1026713	12 G 0.75	10.3	87.0	181
1026714	18 G 0.75	12.2	130.0	259
1026715	25 G 0.75	14.8	181.0	363
1026716	2 X 1.0	5.9	19.0	58
1026717	3 G 1.0	6.3	29.0	72

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1026718	4 G 1.0	6.9	39.0	88
1026719	5 G 1.0	7.5	48.0	104
1026720	7 G 1.0	9.0	67.0	142
1026721	12 G 1.0	10.9	115.0	221
1026722	18 G 1.0	13.2	173.0	324
1026723	25 G 1.0	15.7	240.0	445
1026724	2 X 1.5	6.5	29.0	74
1026725	3 G 1.5	6.9	43.2	93
1026726	4 G 1.5	7.6	58.0	114
1026727	5 G 1.5	8.5	72.0	139
1026728	7 G 1.5	10.3	101.0	189
1026729	12 G 1.5	12.3	173.0	295
1026730	18 G 1.5	14.9	259.0	429
1026731	25 G 1.5	17.9	360.0	597
1026732	3 G 2.5	8.4	72.0	145
1026733	4 G 2.5	9.3	96.0	179
1026734	7 G 2.5	12.7	120.0	218
1026737	4 G 4	11.1	160.0	266

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

■ Similar products
- ÖLFLEX® FD CLASSIC 810 refer to main catalogue 2012 page 108
- ÖLFLEX® CHAIN 879 refer to main catalogue 2012 page 127
- ÖLFLEX® FD 891 refer to main catalogue 2012 page 125

■ Accessories
- EPIC® Industrial connectors refer to main catalogue 2012 page 450
- SKINTOP® MS-SC-M refer to main catalogue 2012 page 668

New

ÖLFLEX® CHAIN 809 CY

Screened, PVC-insulated, numbered, PVC-sheath, approved

LAPP KABEL STUTTGART ÖLFLEX® CHAIN 809 CY CE

Info
● **Basic Line for light & ordinary duty in power chain applications**

■ Benefits
● Good combination of quality and price
● Compact design

■ Application range
● In power chains or moving machine parts
● In EMC-sensitive environments
● Suitable for use in measuring, control and regulating circuits
● Wiring of machines, tools, devices, appliances and control cabinets
● Only for outdoor use within the indicated operating temperature range, with UV-protection

■ Product features
● Low-adhesive surface
● Designed for 1...2 million bending/unbending cycles in the power chain
● Flame retardancy:
UL/CSA: VW-1, FT1.
IEC/EN: 60332-1-2

■ Approvals
CE UL RoHS✓ cUL

● For travel distances up to 10 m.
● For use in power chains: Please comply with the assembly guidelines listed in Appendix T3

■ Design
● Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5
● Core insulation: PVC
● Cores twisted in layers
● Non-woven wrapping
● Tinned-copper braiding
● Non-woven wrapping
● PVC outer sheath, grey (RAL 7001)

■ Technical data

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

Approvals
cUL AWM II A/B FT1
UL-AWM-Style 20886

Based on
HD 21.13 S1; VDE 0281 Part 13

Specific insulation resistance
> 20 GOhm x cm

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

Minimum bending radius
For flexible applications:
Chains in self supporting non-gliding arrangements: 10 x outside diameter
Chains in gliding arrangements: 12 x outside diameter
Fixed instalation: 4 x outer diameter

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

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

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

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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1026751	2 X 0.5	5.8	36.0	45
1026752	3 G 0.5	6.1	43.0	59
1026753	4 G 0.5	6.6	49.0	83
1026754	5 G 0.5	7.1	57.0	96
1026755	7 G 0.5	8.5	69.0	136
1026756	12 G 0.5	10.0	104.0	200
1026757	18 G 0.5	11.8	141.0	275
1026758	25 G 0.5	14.1	211.0	350
1026759	2 X 0.75	6.2	43.0	56
1026760	3 G 0.75	6.6	52.0	70
1026761	4 G 0.75	7.1	61.0	95
1026762	5 G 0.75	7.7	72.0	130
1026763	7 G 0.75	9.1	89.0	168
1026764	12 G 0.75	10.9	138.0	232
1026765	18 G 0.75	13.0	211.0	315
1026766	25 G 0.75	15.6	280.0	435
1026767	2 X 1.0	6.5	51.0	84
1026768	3 G 1.0	6.9	62.0	110

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1026769	4 G 1.0	7.5	74.0	130
1026770	5 G 1.0	8.3	88.0	156
1026771	7 G 1.0	9.8	112.0	192
1026772	12 G 1.0	11.7	185.0	285
1026773	18 G 1.0	14.0	268.0	395
1026774	25 G 1.0	16.7	354.0	486
1026775	2 X 1.5	7.1	65.0	97
1026776	3 G 1.5	7.5	82.0	125
1026777	4 G 1.5	8.4	100.0	165
1026778	5 G 1.5	9.1	119.0	193
1026779	7 G 1.5	10.9	154.0	245
1026780	12 G 1.5	13.3	268.0	365
1026781	18 G 1.5	15.7	373.0	553
1026782	25 G 1.5	18.7	530.0	734
1026783	3 G 2.5	9.0	118.0	188
1026784	4 G 2.5	10.1	147.0	236
1026785	7 G 2.5	13.5	253.0	340
1026788	4 G 4	11.9	248.0	305

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

■ Similar products
● ÖLFLEX® FD CLASSIC 810 CY refer to main catalogue 2012 page 109
● ÖLFLEX® CHAIN 815 CY refer to main catalogue 2012 page 110
● ÖLFLEX® CHAIN 879 CY refer to main catalogue 2012 page 128

■ Accessories
● EPIC® Industrial connectors refer to main catalogue 2012 page 450
● SKINTOP® MS-SC-M refer to main catalogue 2012 page 668

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Power and control cables

Photovoltaic

New

ÖLFLEX® SOLAR XLR-R

The new generation of electron beam cross-linked solar cables with reduced diameters - TÜV type approved

LAPP KABEL STUTTGART ÖLFLEX® SOLAR XLR-R WHITE CE

LAPP KABEL STUTTGART ÖLFLEX® SOLAR XLR-R RED CE

LAPP KABEL STUTTGART ÖLFLEX® SOLAR XLR-R BLUE CE

Info
- Optimised cable design - thin, light and robust
- TÜV Type approved (2PfG 1169/08.07) According to DKE specification PV1-F
- Substitudes version XLR und XLR TF

■ **Benefits**
- Reduced outer diameters enable space and weight saving installation
- Reduction of flame propagation as well as of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- Colour-coding of the core insulation simplifies the differentiation of the polarity during installation
- Exact quantity control during installation by meter marking on the cable sheath

■ **Application range**
- For the cabling between the solar modules and as an extension cable between the individual module strings or DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- For the cabling of flexible or building-integrated photovoltaic systems

■ **Product features**
- Excellent weather, temperature and UV-resistance
- Good notch and abrasion resistance
- Good heat pressure resistance
- Halogen-free and flame-retardant
- XLR-R = X-Linked Radiated-Reduced Proven electron beam cross-linked quality

■ **Approvals**

CE   RoHS ✓
- TÜV Type approved (2PfG 1169/08.07)
- Halogen-free according to EN 50267-2-1/-2
- Ozone-resistant according to EN 50396
- Weather/UV-resistant acc. to HD 605/A1
- Acid and alkali-resistant acc. EN 60811-2-1

■ **Design**
- Conductor: fine-wire tinned-copper strands
- Core insulation: electron beam cross-linked copolymer
- Colour of core insulation: white, red or blue
- Outer sheath: electron beam cross-linked copolymer
- Outer sheath colour: black

■ **Technical data**

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

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

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
AC U_0/U : 600/1000 V
DC U_0/U : 900/1500 V
Max. permissible operating voltage: DC 1,8 kV (Conductor-conductor, non earthed system)

Test voltage
AC 6500 V

Current rating
Im compliance with TÜV requirements spec. 2 PfG 1169/08.2007 table 1

Temperature range
-40°C to +120°C max. conductor temperature based on EN 60216-1
Ambient temperature range according to TÜV 2 PfG 1169/08.2007: -40°C to +90°C

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLR-R				
Core insulation: white / Outer sheath: black				
0023175	1.5	4.4	14.4	34
0023176	2.5	4.8	24.0	46
0023177	4.0	5.2	38.4	63
0023178	6.0	5.8	57.6	86
0023179	10.0	7.0	96.0	132
0023180	16.0	8.3	153.6	197
Core insulation: red / Outer sheath: black				
0023186	1.5	4.4	14.4	34
0023187	2.5	4.8	24.0	46
0023188	4.0	5.2	38.4	63
0023189	6.0	5.8	57.6	86
0023190	10.0	7.0	96.0	132
0023191	16.0	8.3	153.6	197
Core insulation: blue / Outer sheath: black				
0023192	1.5	4.4	14.4	34
0023193	2.5	4.8	24.0	46
0023194	4.0	5.2	38.4	63
0023195	6.0	5.8	57.6	86
0023196	10.0	7.0	96.0	132
0023197	16.0	8.3	153.6	197

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100kg. Refer to Appendix T17 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 Thin M pre-assembled refer to page 66
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 66
- Universal strip stripping and cutting tool refer to main catalogue 2012 page 906
- KS 20 cable shears refer to main catalogue 2012 page 904

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ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

New

ÖLFLEX® SOLAR XLS-R
Electron beam cross-linked solar cables with reduced outer diameters

LAPP KABEL STUTTGART ÖLFLEX® SOLAR XLS-R WHITE CE

LAPP KABEL STUTTGART ÖLFLEX® SOLAR XLS-R RED CE

LAPP KABEL STUTTGART ÖLFLEX® SOLAR XLS-R BLUE CE

Info
- Optimised cable design - thin, light and robust
- Substitudes version XLS

■ Benefits
- Reduced outer diameters enable space and weight saving installation
- Robust against mechanical impacts
- Reduction of flame propagation as well as of toxic combustion gases in the event of fire
- Colour-coding of the core insulation simpli-fies the differentiation of the polarity during installation
- Exact quantity control during installation by meter marking on the cable sheath

■ Application range
- For the cabling between the solar modules and as an extension cable between the indi-vidual module strings or DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible photovoltaic modules

■ Product features
- Weather, abrasion and UV-resistant
- Good heat pressure resistance
- Halogen-free and flame-retardant
- XLS-R = X-Linked Standard - Reduced Proven electron beam cross-linked quality
- Red and blue outer sheaths are also available upon request

■ Approvals
CE RoHS ✓

- Flame-retardant according to IEC 60332.1.2
- Halogen-free according to EN 50267-2-1/-2
- Ozone-resistant according to EN 50396
- Weather/UV-resistant acc. to HD 605/A1
- Acid and alkali-resistant acc. EN 60811-2-1

■ Design
- Conductor: fine-wire tinned-copper strands
- Core insulation: electron beam cross-linked copolymer
- Colour of core insulation: white, red or blue
- Outer sheath: electron beam cross-linked copolymer
- Outer sheath colour: black

■ Technical data

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

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
AC U_0/U : 600/1000 V
DC U_0/U : 900/1500 V
Max. permissible operating voltage: DC 1,8 kV
(Conductor-conductor, non earthed system)

Test voltage
AC 6500 V

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

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLS-R				
Core insulation: white / Outer sheath: black				
0023100	1.5	4.4	14.4	34
0023136	2.5	4.8	24.0	46
0023137	4.0	5.2	38.4	63
0023138	6.0	5.8	57.6	86
0023104	10.0	7.0	96.0	132
0023105	16.0	8.3	153.6	197
Core insulation: red / Outer sheath: black				
0023139	1.5	4.4	14.4	34
0023141	2.5	4.8	24.0	46
0023142	4.0	5.2	38.4	63
0023114	6.0	5.8	57.6	86
0023115	10.0	7.0	96.0	132
0023116	16.0	8.3	153.6	197
Core insulation: blue / Outer sheath: black				
0023117	1.5	4.4	14.4	34
0023118	2.5	4.8	24.0	46
0023119	4.0	5.2	38.4	63
0023120	6.0	5.8	57.6	86
0023143	10.0	7.0	96.0	132
0023144	16.0	8.3	153.6	197

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

■ Similar products
- ÖLFLEX® SOLAR XLR-R refer to page 14

■ Accessories
- EPIC® SOLAR 4 Thin M pre-assembled refer to page 66
- Universal strip stripping and cutting tool refer to main catalogue 2012 page 906
- KS 20 cable shears refer to main catalogue 2012 page 904
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 66

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APPENDIX

Power and control cables

Special applications

Photovoltaic

LAPP GROUP

New

ÖLFLEX® SOLAR XLR 4703

UL-listed solar cables according to NEC for use in North America

LAPP KABEL STUTTGART ÖLFLEX® SOLAR XLR 4703 600V RED ROHS C€

Info

- **According to UL Subject 4703 Type PV Wire**
- **2000 V version available on request**

■ Benefits

- Standard-compliant application for exposed wiring of PV systems in North America in compliance with US NFPA 70 NEC article 690.31 (National Electrical Code)
- High thermal capacity for long-lasting operation of the PV system in all seasons
- Reduction of flame propagation as well as of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- Exact quantity control during installation by meter marking on the cable sheath

■ Application range

- For the cabling between the solar modules and as an extension cable between the individual module strings or DC/AC inverter
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks

■ Product features

- Excellent weather, temperature and UV-resistance
- Good notch and abrasion resistance
- Good heat pressure resistance
- Halogen-free and flame-retardant
- XLR = X-Linked Radiated
  Proven electron beam cross-linked quality

■ Approvals

CE UL RoHS ✓

- According to UL Subject 4703 Type PV Wire
- Halogen-free according to EN 50267-2-1/-2
- Flame-retardant according to IEC 60332-1-2, UL VW-1, Vertical Flame Test FV-1, CSA FT 2
- Ozone-resistant according to EN 50396
- Weather/UV-resistant acc. to HD 605/A1

■ Design

- Conductor: fine-wire tinned-copper strands
- Core insulation: electron beam cross-linked copolymer
- Colour of core insulation: red
- Outer sheath: electron beam cross-linked copolymer
- Outer sheath colour: black

■ Technical data

DIN VDE
Approvals
UL PV-Wire listed (Photovoltaic Wire) according to UL Subject 4703

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

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
AC U_0/U : 600/1000 V
DC U_0/U : 900/1500 V
Max. permissible operating voltage: DC 1,8 kV (Conductor-conductor, non earthed system)
According to UL: 600 V

Test voltage
AC 6500 V

Temperature range
Fixed installation: –40 °C to +120 °C
According to UL: –40 °C to +90 °C

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLR 4703 600V				
Core insulation: red / Outer sheath: black				
0027130	2.5	5.9	24.0	55
0027133	4.0	6.3	38.4	69
0027136	6.0	6.9	57.6	92
0027139	10.0	8.9	96.0	158
0027142	16.0	10.2	153.6	228

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100kg. Refer to Appendix T17 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 Thin M pre-assembled refer to page 66
- Universal strip stripping and cutting tool refer to main catalogue 2012 page 906
- KS 20 cable shears refer to main catalogue 2012 page 904
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 66

New

ÖLFLEX® SOLAR XLS-R T
Electron beam cross-linked solar twin-cables

LAPP KABEL STUTTGART ÖLFLEX® SOLAR XLS-R T BK/RD   CE

LAPP KABEL STUTTGART ÖLFLEX® SOLAR XLS-R T BU/RD   CE

Info
- Time-saving installation
- Ideal for stand-alone PV power systems
- Optimised cable design - thin, light and robust

Benefits
- Time-saving installation
- Reduced outer diameters enable space and weight saving installation
- Robust against mechanical impacts
- Reduction of flame propagation as well as of toxic combustion gases in the event of fire
- Exact quantity control during installation by meter marking on the cable sheath

Application range
- Ideal for stand-alone PV power systems
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible photovoltaic modules

Product features
- Weather, abrasion and UV-resistant
- Good heat pressure resistance
- Halogen-free and flame-retardant
- Easy to split into two separate cables
- XLS-R T= X-Linked Standard-Reduced Twin Proven electron beam cross-linked quality

Approvals
CE RoHS ✓

- Flame-retardant according to IEC 60332.1.2
- Halogen-free according to EN 50267-2-1/-2
- Ozone-resistant according to EN 50396
- Weather/UV-resistant acc. to HD 605/A1
- Acid and alkali-resistant acc. EN 60811-2-1

Design
- Conductor: fine-wire tinned-copper strands
- Core insulation: electron beam cross-linked copolymer
- Outer sheath: electron beam cross-linked copolymer
- Outer sheath colour: black

Technical data

Core identification code
Black/red
blue/red

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

Minimum bending radius
Fixed installation: 4 x outer diameter

Nominal voltage
AC U_0/U : 600/1000 V
DC U_0/U : 900/1500 V
Max. permissible operating voltage: DC 1,8 kV
(Conductor-conductor, non earthed system)

Test voltage
AC 6500 V

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

Article number	Number of cores and mm² per conductor	Outer dimensions, width x height (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLS-R T				
Core insulation: red/black				
0023982	2 X 2.5	9.9 x 4.8	48.0	94
0023984	2 X 4.0	10.7 x 5.2	76.8	128
0023986	2 X 6.0	11.9 x 5.8	115.2	174
0023988	2 X 10.0	14.3 x 7.0	192.0	267
Core insulation: blue/red				
0023983	2 X 2.5	9.9 x 4.8	48.0	94
0023985	2 X 4.0	10.7 x 5.2	76.8	128
0023987	2 X 6.0	11.9 x 5.8	115.2	174
0023989	2 X 10.0	14.3 x 7.0	192.0	267

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

Similar products
- ÖLFLEX® SOLAR XLS-R refer to page 15

Accessories
- EPIC® SOLAR 4 Thin M pre-assembled refer to page 66
- Universal strip stripping and cutting tool refer to main catalogue 2012 page 906
- KS 20 cable shears refer to main catalogue 2012 page 904
- EPIC® SOLAR 4 THIN F pre-assembled refer to page 66

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

Assembled cables

eMobility – Assembled charging line, 7-pin

LAPP GROUP

New

Charging cable with vehicle connector

CE RoHS✓

Info

● **For charging stations**

New

Charging cable with type 1 vehicle connector

CE RoHS✓

Info

● **For charging stations**

■ **Benefits**

● Robust
● Resistant to oil, dust and water
● Special cable design for a long service life
● Flexible at low temperatures
● Fire: Low corrosive smoke emission

■ **Application range**

● For charging stations, electric and plug-in hybrid vehicles

■ **Product features**

● Vehicle connector according to IEC 62196
● Fine-wire, tinned-copper conductor
● Core insulation: TPE
● PUR outer sheath
● Suitable for all weather conditions

■ **Design**

Charging cable with vehicle connector

● Cable for 1-phase charging up to 16 A: Lapp Kabel Charge 3G 2.5 mm² + 2 x 0.5 mm²
● Cable for 3-phase charging up to 16 A: Lapp Kabel Charge 5G 2.5 mm² + 2 x 0.5 mm²
● Cable for 3-phase charging up to 32 A: Lapp Kabel Charge 5G 6 mm² + 2 x 0.5 mm²
● Type 2 cable connector are injection moulded

Charging cable with type 1 vehicle connector

● Cable for 1-phase charging up to 16 A: Lapp Kabel Charge 3G 2.5 mm² + 2 x 0.5 mm²
● Cable for 1-phase charging up to 32 A: Lapp Kabel Charge 3G 6 mm² + 2 x 0.5 mm² –> on request

■ **Technical data**

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

Temperature range
-25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Outer sheath colour	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Cut off clean, charging cable, vehicle connector type 2						
74880054	Charging: 1 phase 16A	4,000	orange	421.0	1778	1
74880062	Charging: 3 phase 16A	4,000	orange	667.0	1815	1
74880066	Charging: 3 phase 32A	4,000	orange	1,529.0	2985	1
Cu off clean, charging cable, vehicle connector type 1						
74880058	Charging: 1 phase 16A	4,000	orange	421.0	1733	1

Copper price basis: EUR 150/100kg. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
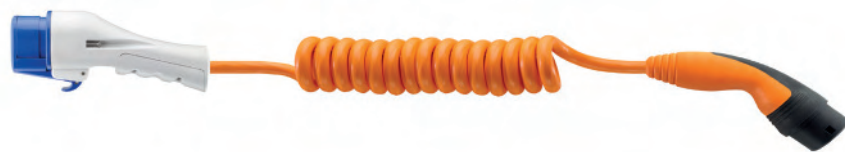Photographs are not to scale and do not represent detailed images of the respective products.

New

Charging cable with type 2 plug and type 2 vehicle connector

CE RoHS ✓

Info
- For electric vehicles with type 2 vehicle inlet

New

Charging cable Spiral with type 2 plug and type 2 vehicle connector

CE RoHS ✓

Info
- For electric vehicles with type 2 vehicle inlet

New

Charging cable Helix with type 2 plug and type 2 vehicle connector

CE RoHS ✓

Info
- For electric vehicles with type 2 vehicle inlet

■ Benefits
- Robust
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Fire: Low corrosive smoke emission

■ Application range
- For charging stations, electric and plug-in hybrid vehicles

■ Product features
- Vehicle connector according to IEC 62196
- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- PUR outer sheath
- Suitable for all weather conditions

■ Design
- Cable for 1-phase charging up to 16 A: Lapp Kabel Charge 3G 2.5 mm² + 2 x 0.5 mm²
- Cable for 3-phase charging up to 16 A: Lapp Kabel Charge 5G 2.5 mm² + 2 x 0.5 mm²
- Cable for 3-phase charging up to 32 A: Lapp Kabel Charge 5G 6 mm² + 2 x 0.5 mm²
- Type 2 cable connector are injection moulded

■ Technical data

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

Temperature range
–25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Outer sheath colour	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Plug type 2, charging cable, vehicle connector type 2						
74880055	Charging: 1 phase 16A	4,000	orange	349.0	2026	1
74880063	Charging: 3 phase 16A	4,000	orange	554.0	2004	1
74880067	Charging: 3 phase 32A	4,000	orange	1,529.0	3410	1
Plug type 2, Charging cable spiralised, Vehicle connector type 2						
74880056	Charging: 1 phase 16A	4,000	orange	8,120.0	3375	1
74880064	Charging: 3 phase 16A	4,000	orange	1,365.0	3696	1
74880068	Charging: 3 phase 32A	4,000	orange	2,205.0	4543	1
Plug type 2, charging cable Helix, vehicle connector type 2						
74880057	Charging: 1 phase 16A	4,000	orange	399.0	399	1
74880065	Charging: 3 phase 16A	4,000	orange	619.0	619	1
74880069	Charging: 3 phase 32A	4,000	orange	1,529.0	1529	1

Copper price basis: EUR 150/100kg. Refer to 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.

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

LAPP GROUP

Assembled cables

eMobility - Assembled charging line, 7-pin

New

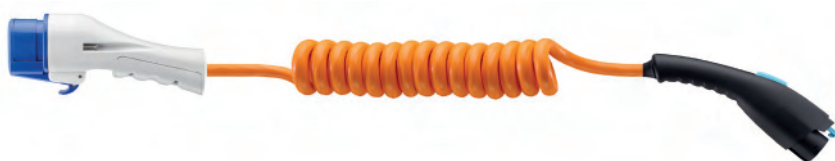## Charging cable with type 2 plug and type 1 vehicle connector

CE RoHS ✓

Info
● For electric vehicles with typ 1 vehicle inlet

New

Charging cable Spiral with type 2 plug and type 1 vehicle connector

CE RoHS ✓

Info
● For electric vehicles with typ 1 vehicle inlet

New

Charging cable Helix with type 2 plug and type 1 vehicle connector

CE RoHS ✓

Info
● For electric vehicles with typ 1 vehicle inlet

■ **Benefits**
● Robust
● Resistant to oil, dust and water
● Special cable design for a long service life
● Flexible at low temperatures
● Fire: Low corrosive smoke emission

■ **Application range**
● For charging stations, electric and plug-in hybrid vehicles

■ **Product features**
● Vehicle connector according to IEC 62196
● Fine-wire, tinned-copper conductor
● Core insulation: TPE
● PUR outer sheath
● Suitable for all weather conditions

■ **Design**
● Cable for 1-phase charging up to 16 A: Lapp Kabel Charge 3G 2.5 mm² + 2 x 0.5 mm²
● Cable for 1-phase charging up to 32 A: Lapp Kabel Charge 3G 6 mm² + 2 x 0.5 mm² –> on request
● Type 2 cable connector are injection moulded

■ **Technical data**

Conductor stranding Fine wire according to VDE 0295 Class 5/ IEC 60228 Class 5	
Temperature range -25°C to +80°C	

Article number	Version	Spiral length, extended (mm)	Outer sheath colour	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Plug type 2, charging cable, vehicle connector type 1						
74880059	Charging: 1 phase 16A	4,000	orange	349.0	2026	1
Plug type 2, charging cable spiralised, vehicle connector type 1						
74880060	Charging: 1 phase 16A	4,000	orange	812.0	3337	1
Plug type 2, charging cables Helix, vehicle connector type 1						
74880061	Charging: 1 phase 16A	4,000	orange	399.0	2179	1

Copper price basis: EUR 150/100kg. Refer to 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.

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LAPP GROUP

New

Charging cable with type 3 plug and type 2 vehicle connector

CE RoHS ✓

Info
- For electric vehicles with type 2 vehicle inlet

New

Charging cable Spiral with type 3 plug and type 2 vehicle connector

CE RoHS ✓

Info
- For electric vehicles with type 2 vehicle inlet

New

Charging cable Helix with type 3 plug and type 2 vehicle connector

CE RoHS ✓

Info
- For electric vehicles with type 2 vehicle inlet

Benefits
- Robust
- Resistant to oil, dust and water
- Special cable design for a long service life
- Flexible at low temperatures
- Fire: Low corrosive smoke emission

Application range
- For charging stations, electric and plug-in hybrid vehicles

Product features
- Vehicle connector according to IEC 62196
- Fine-wire, tinned-copper conductor
- Core insulation: TPE
- PUR outer sheath
- Suitable for all weather conditions

Design
- Cable for 1-phase charging up to 16 A: Lapp Kabel Charge 3G 2.5 mm² + 2 x 0.5 mm²
- Cable for 3-phase charging up to 16 A: Lapp Kabel Charge 5G 2.5 mm² + 2 x 0.5 mm²
- Cable for 3-phase charging up to 32 A: Lapp Kabel Charge 5G 6 mm² + 2 x 0.5 mm²
- Type 2 cable connector are injection moulded

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

Temperature range
-25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Outer sheath colour	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Plug type 3, charging cable, vehicle connector type 2						
74880070	Charging: 1 phase 16A	4,000	orange	349.0	2026	1
74880073	Charging: 3 phase 16A	4,000	orange	554.0	2004	1
74880076	Charging: 3 phase 32A	4,000	orange	1,529.0	3410	1
Plug type 3, charging cable spiralised, vehicle connector type 2						
74880071	Charging: 1 phase 16A	4,000	orange	812.0	3375	1
74880074	Charging: 3 phase 16A	4,000	orange	1,463.0	3899	1
74880077	Charging: 3 phase 32A	4,000	orange	2,205.0	4543	1
Plug type 3, charging cable Helix, vehicle connector type 2						
74880072	Charging: 1 phase 16A	4,000	orange	399.0	2179	1
74880075	Charging: 1 phase 16A	4,000	orange	619.0	2140	1
74880078	Charging: 3 phase 32A	4,000	orange	1,529.0	3410	1

Copper price basis: EUR 150/100kg. Refer to 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.

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Power and control cables

LAPP GROUP

Assembled cables

eMobility - Assembled charging line, 7-pin

New

Charging cable with type 3 plug and type 1 vehicle connector

CE RoHS ✓

Info

● For electro vehicles with typ 1 vehicle inlet

New

Charging cable Spiral with type 3 plug and type 1 vehicle connector

CE RoHS ✓

Info

● For electro vehicles with typ 1 vehicle inlet

New

Charging cable Helix with type 3 plug and type 1 vehicle connector

CE RoHS ✓

Info

● For electro vehicles with typ 1 vehicle inlet

■ Benefits

● Robust
● Resistant to oil, dust and water
● Special cable design for a long service life
● Flexible at low temperatures
● Fire: Low corrosive smoke emission

■ Application range

● For charging stations, electric and plug-in hybrid vehicles

■ Product features

● Vehicle connector according to IEC 62196
● Fine-wire, tinned-copper conductor
● Core insulation: TPE
● PUR outer sheath
● Suitable for all weather conditions

■ Design

● Cable for 1-phase charging up to 16 A: Lapp Kabel Charge 3G 2.5 mm² + 2 x 0.5 mm²
● Cable for 1-phase charging up to 32 A: Lapp Kabel Charge 3G 6 mm² + 2 x 0.5 mm² –> on request

■ Technical data

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

Temperature range
-25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Outer sheath colour	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Plug type 3, charging cable, vehicle connector type 1						
74880079	Charging: 1 phase 16A	4,000	orange	349.0	2026	1
74880082	Charging: 1 phase 32A	4,000	orange	1,529.0	3410	1
Plug type 3, charging cables spiralised, vehicle connector type 1						
74880080	Charging: 1 phase 16A	4,000	orange	812.0	3375	1
74880083	Charging: 1 phase 32A	4,000	orange	2,205.0	4543	1
Plug type 3, charging cable Helix, vehicle connector type 1						
74880081	Charging: 1 phase 16A	4,000	orange	399.0	2179	1
74880084	Charging: 1 phase 32A	4,000	orange	1,529.0	3410	1

Copper price basis: EUR 150/100kg. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

New

Charging cable with type F plug and type 2/1 vehicle connector

CE RoHS ✓

Info

● Harnessing with Inline Control Cable Box for charging mode 2

■ Benefits

● Robust
● Resistant to oil, dust and water
● Special cable design for a long service life
● Flexible at low temperatures
● Fire: Low corrosive smoke emission

■ Application range

● For charging stations, electric and plug-in hybrid vehicles

■ Product features

● Vehicle connector according to IEC 62196
● PUR outer sheath
● Suitable for all weather conditions

■ Design

● Cable for 1-phase charging up to 16 A: Lapp Kabel Charge 3G 2.5 mm² + 2 x 0.5 mm²
● H07BQ-F: Cable from Typ F plug up to ICCB
● Type 2 cable connector are injection moulded
● Type F cable connectors are injection moulded

■ Technical data

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

Temperature range
-25°C to +80°C

Article number	Version	Spiral length, extended (mm)	Outer sheath colour	Copper index kg/1.000 pieces	Weight (kg/1000 pieces)	PU
Plug type F, charging cable with ICCB, vehicle connector type 2						
74880085	Charging: 1 phase 16A	4,000	orange	2,205.0	4543	1
Plug type F, charging cable with ICCB, vehicle connector type 1						
74880086	Charging: 1 phase 16A	4,000	orange	1,192.0	3496	1

Copper price basis: EUR 150/100kg. Refer to 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.

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ACCESSORIES

APPENDIX

LAPP GROUP

New

UNITRONIC® BUS ASI

■ Benefits
- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected.
  AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- The rubber versions are halogen-free

■ Application range
- Communication at sensor/actuator level
- UNITRONIC® Fieldbus sensor-/actuator wiring
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- The TPE version has an oil-resistant outer sheath. It is suitable for wet areas, in particular in conjunction with water-soluble cooling lubricants.

■ Product features
- Data and power are transmitted via an unscreened, geometrically coded two-core flat cable (protection against polarity reversal).
- The conductor is contacted by "piercing technology" within the ASI modules.
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables).

■ Approvals

RoHS √

- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- PVC version has UL/CSA (CMG) approval.

■ Design
- Extra-fine wire, tinned copper strands
- Core insulation: blue and brown
- Profiled outer sheath made of rubber (G), thermoplastic elastomers (TPE) or PVC
- Colour: yellow (RAL 1023) or black (RAL 9005)
- Colour: red (RAL 3000)

■ Technical data

Approvals
UL/CSA version: CMGc(UL)us or (UL)CL2 or AWM 300V FT4 approval

Peak operating voltage
Yellow: 300 V (not for power applications)
Black: 300 V (not for power applications)
Red: 300 V

Conductor resistance
1.5 mm²: max. 13.7 Ohm/km
2.5 mm²: max. 8.21 Ohm/km

Minimum bending radius
Fixed installation: 12 mm
Flexible use 24 mm

Test voltage
Core/core: 2000 V

Temperature range
Dependent on outer sheath material:
PVC: -30°C to +90°C
Other materials: -40°C to +85°C
During installation:
PVC -20 °C to +90 °C
Other materials:
-30 °C to +85 °C

Article number	Article designation	Outer sheath material	Outer sheath colour	Application	Number of cores and mm² per conductor	Copper index (kg/km)	Weight (kg/km)
For fixed and flexible applications (19-wire stranded conductor)							
2170228	UNITRONIC® BUS ASI (G)	EPDM (rubber)	yellow	Data and power transmission	2 x 1,5	29.0	85
2170229	UNITRONIC® BUS ASI (G)	EPDM (rubber)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	85
2170371	UNITRONIC® BUS ASI LD (G)	EPDM (rubber)	yellow	Data and power transmission	2 x 2,5	48.0	85
2170372	UNITRONIC® BUS ASI LD (G)	EPDM (rubber)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48.0	85
2170230	UNITRONIC® BUS ASI (TPE)	TPE	yellow	Data and power transmission	2 x 1,5	29.0	64
2170231	UNITRONIC® BUS ASI (TPE)	TPE	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	64
2170232	UNITRONIC® BUS ASI (TPE)	TPE	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29.0	64
2170842	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	yellow	Data and power transmission	2 x 1,5	29.0	70
2170843	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	70

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

■ Accessories
- SKINTOP® DIX-M AUTOMATION refer to page 76
- Universal strip stripping and cutting tool refer to main catalogue 2012 page 906
- AS-i clip clamp / AS-i End sealing refer to page 88
- AS-I STRIP special stripping tool refer to main catalogue 2012 page 908
- AS-I STRIP special refer to main catalogue 2012
- SKINTOP® DIX ASI refer to main catalogue 2012

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New

UNITRONIC® BUS ASI FD
Highly flexible application

LAPP KABEL STUTTGART UNITRONIC® BUS ASI FD

LAPP KABEL STUTTGART UNITRONIC® BUS ASI FD

Info
- "FD" = suitable for power chains
- "LD" = Long Distance

■ Benefits
- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected. AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- For highly flexible applications (power chains, moving machine parts)
- High oil-resistance

■ Application range
- Communication at sensor/actuator level
- UNITRONIC® Fieldbus sensor-/actuator wiring

■ Product features
- PUR versions are halogen-free according to IEC 60754-1
- Flame-retardant according to IEC 60332-1-2, UL FT-2 flame test
- Data and power are transmitted via an un-screened, geometrically coded two-core flat cable (protection against polarity reversal).
- The conductor is contacted by "piercing technology" within the ASI modules.
- The sensors are connected to the ASI mod-ules (coupling modules) using round cables (connection cables).

■ Approvals
c**UL**us **RoHS**√ ASi
- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- TPE variant: UL AWM Style 2103 CSA AWM II A/B
- PUR versions: UL AWM Style 20549

■ Design
- Extra-fine wire, tinned copper strands
- Core insulation: blue and brown
- Profiled outer sheath: TPE or PUR
- Colour: yellow (RAL 1023) or black (RAL 9005)

■ Technical data

Peak operating voltage
300 V (not for power applications)

Conductor resistance
1.5 mm²: max. 13.7 Ohm/km
2.5 mm²: max. 8.21 Ohm/km

Minimum bending radius
Fixed installation: 12 mm
Flexing without fixing: 24 mm
Flexing with fixing: 60 mm (15 x D)

Test voltage
Core/core: 2000 V

Temperature range
Fixed installation:
-40°C to +80°C (TPE +105°C)
Flexing – without fixing:
-30 °C to +70 °C (TPE +105 °C)

Article number	Article designation	Outer sheath material	Outer sheath colour	Application	Number of cores and mm² per conductor	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications (power chains, moving machine parts)							
2170311	UNITRONIC® BUS ASI FD P FRNC	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29.0	64
2170312	UNITRONIC® BUS ASI FD P FRNC	PUR UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	64
2170317	UNITRONIC® BUS ASI LD FD P	PUR UL/CSA (AWM)	yellow	Data and power transmission	2 x 2,5	48.0	74
2170318	UNITRONIC® BUS ASI LD FD P	PUR UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48.0	74
2170830	UNITRONIC® BUS ASI FD (TPE) A	TPE UL/CSA (AWM)	yellow	Data and power transmission	2 x 1,5	29.0	64
2170831	UNITRONIC® BUS ASI FD (TPE) A	TPE UL/CSA (AWM)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29.0	64

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

■ Accessories
- SKINTOP® DIX-M AUTOMATION refer to page 76
- Universal strip stripping and cutting tool refer to main catalogue 2012 page 906
- AS-i clip clamp / AS-i End sealing refer to page 88
- AS-I STRIP special stripping tool refer to main catalogue 2012 page 908
- AS-I STRIP special refer to main catalogue 2012
- SKINTOP® DIX ASI refer to main catalogue 2012

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Data communication systems

LAPP GROUP

Cables for bus systems PROFIBUS-DP/FMS/FIP

Characteristic impedance: 135 - 165 ohm

New

UNITRONIC® BUS PB Y 7-W FC BK

Suitable for outdoor use, UV-resistant

LAPP KABEL STUTTGART UNITRONIC® BUS PB Y 7-W SUN RES

■ Benefits
- UV and weather-resistant in black
- 7-W: 7-wire, e.g. for applications where vibrations occur
- Fast Connect (FC) cable design
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

■ Application range
- PROFIBUS® (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

■ Product features
- PVC compound TM2 acc. to VDE 0281-1 or HD 21.1
- Resistant to acids, alkalis and certain oils at room temperature

■ Approvals
RoHS ✓   PROFIBUS®

■ Design
- Stranded conductor, 7-wire, bare
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Tin-plated copper wire braiding
- PVC outer sheath, black

■ Suitable tools
- FC Strip stripping tool refer to main catalogue 2012 page 908

■ Technical data

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V
Core/screen: 1500 V

Temperature range
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

Characteristic impedance
150 ± 15 Ohm

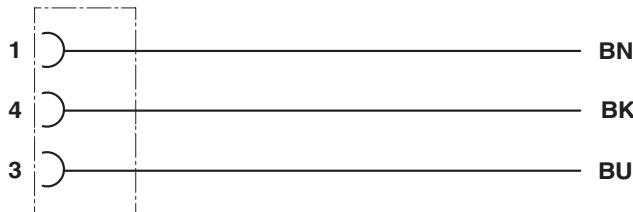| Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170310	UNITRONIC® BUS PB Y 7-W FC BK	1 x 2 x 0.64	7.8	30.1	80

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

New

EPIC® Data PROFIBUS Connectors 90° M 12

Info
- **Fully compatible with market standard**
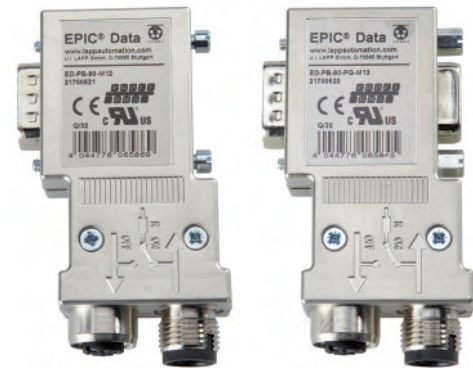
EPIC® Data PROFIBUS Connectors 90° M 12

Benefits
- Suitable for assembled M 12 PB cables
- Standardised interfaces
- Cost-saving due to quick installation
- Easy to connect

Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Control engineering

Product features
- No loose parts
- Adjustable termination resistor is integrated
- Switch can also be operated when the connector is plugged and setting is clearly visible
- When used as a through connector (two cable connections, node) the switch must be in the "OFF" position. If used as a terminating connector (one cable connection, segment end), the switch must be in the "ON" position.
- If the switch is in the "ON" position the outgoing bus cable is disconnected

Approvals
CE c UL us RoHS ✓ PROFI BUS

- Sub-D pin assignment in accordance with PROFIBUS

Design
- Sub-D plug, 9-pin
- 5-pin connector, M 12, B-coded
- Metallised housing
- (-PG) With additional programming/diagnostic interface: Sub-D socket, 9-pin

Suitable cables
- PROFIBUS cable: M 12 connector on free conductor end refer to main catalogue 2012 Page 391
- PROFIBUS Cable: M 12 connector M 12 on M 12 socket refer to main catalogue 2012 Page 392

Similar products
- PROFIBUS D - SUB solid metal:
ED-PB-35-PG-M 12-PRO / Article no.: 21700561
ED-PB-90-PG-M 12-PRO / Article no.: 21700562
ED-PB-AX-PG-M 12-PRO / Article no.: 21700563

ED-PB-35-PG-ST-PRO / Article no.: 21700564
ED-PB-90-PG-ST-PRO / Article no.: 21700565
ED-PB-AX-PG-ST-PRO / Article no.: 21700566

Technical data

⌀ **Dimensions**
70 mm x 40 mm x 17 mm (L x W x H)

Connection type
M 12

Degree of soiling
2

Weight
approx. 60 g

IP **Protection rating**
IP20

Cable outlet
90°

Terminating resistor
Integrated resistor combination that is connected by a sliding switch

Transmission rate
max. 12 MBit/s

Interfaces
PROFIBUS station:
 SUB-D socket, 9-pin
PROFIBUS cable:
 M 12 PB system cabling

Current consumption
max. 12.5 mA

Permissble ambient conditions
Operating temperature:
 0°C to +60°C
Transport and storage temperature:
 -25°C to +80°C
Relative humidity:
 max. 75 % at +25°C

Supply voltage
4.75 to 5.25 V DC
(supplied from terminal)

Article number	Article designation	Cable outlet	Adjustable termination resistance	PG
EPIC® Data PROFIBUS Connectors				
21700521	ED-PB-90-M 12	90°	yes	no
EPIC® Data PROFIBUS Connectors				
21700520	ED-PB-90-PG-M 12	90°	yes	yes

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
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For detailed technical information please refer to www.lappautomation.com

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

LAPP GROUP

UNITRONIC® Fieldbus

3-pin sensor/actuator cordsets

New

S/A cable: M12 socket on free conductor end

S/A cable: M12 socket on free conductor end

Pin	Colour
1	BN
4	BK
3	BU

■ Benefits
- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

■ Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features
- 3-pin connector
- Socket with M12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals
cULus   **RoHS** ✓

■ Design
- Fixed flexible control cable
- Design: 3 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free/PVC
- Outer sheath colour: black

■ Technical data

IP
Protection rating
IP65/IP68/IP69K

Ambient temperature (operation)
Plug/socket
-25°C to +90°C (PUR/PVC)
Cable, fixed installation
-40°C to +80°C (PUR)
-25°C to +80°C (PVC)
Cable, flexible installation
-5°C to +80°C (PUR/PVC)

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	Status display	PU
Straight socket						
22260257	AB-C3-2,0PUR-M12FS	2	250	4	no	1
22260250	AB-C3-5,0PUR-M12FS	5	250	4	no	1
22260251	AB-C3-10,0PUR-M12FS	10	250	4	no	1
22260080	AB-C3-2,0PVC-M12FS	2	250	4	no	1
22260663	AB-C3-5,0PVC-M12FS	5	250	4	no	1
22260081	AB-C3-10,0PVC-M12FS	10	250	4	no	1
Angled socket						
22260258	AB-C3-2,0PUR-M12FA	2	250	4	no	1
22260259	AB-C3-5,0PUR-M12FA	5	250	4	no	1
22260260	AB-C3-10,0PUR-M12FA	10	250	4	no	1
Straight socket with LEDs						
22260252	AB-C3-2,0PUR-M12FS-2L	2	24	4	2 LEDs	1
22260265	AB-C3-5,0PUR-M12FS-2L	5	24	4	2 LEDs	1
22260266	AB-C3-10,0PUR-M12FS-2L	10	24	4	2 LEDs	1
Angled socket with LEDs						
22260253	AB-C3-2,0PUR-M12FA-2L	2	24	4	2 LEDs	1
22260254	AB-C3-5,0PUR-M12FA-2L	5	24	4	2 LEDs	1
22260255	AB-C3-10,0PUR-M12FA-2L	10	24	4	2 LEDs	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet (www.lappautomation.com)
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6
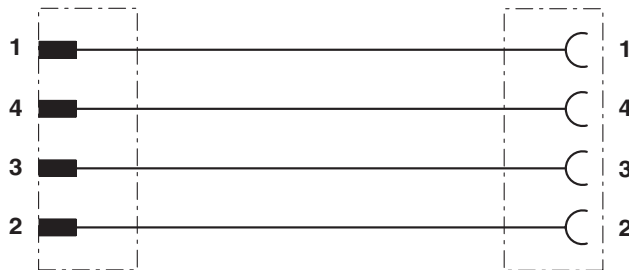
ÖLFLEX® UNITRONIC® ETHERLINE® HITRONIC® EPIC® SKINTOP® SILVYN® FLEXIMARK® ACCESSORIES APPENDIX

LAPP GROUP

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

New

S/A cable: M8 connector on free conductor end


```
1 ━━━━━━━━━━━━  BN
4 ━━━━━━━━━━━━  BK
3 ━━━━━━━━━━━━  BU
```

S/A cable: M8 connector on free conductor end

■ Benefits
- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

■ Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features
- 3-pin connector
- Plug with M8 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals
cULus   RoHS √

■ Design
- Fixed flexible control cable
- Design: 3 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, black
- Outer sheath: PUR, halogen-free/PVC
- Outer sheath colour: black

■ Technical data

IP **Protection rating**
IP65/IP68/IP69K

Ambient temperature (operation)
Plug/socket
-25°C to +90°C (PUR/PVC)
Cable, fixed installation
-40°C to +80°C (PUR)
-25°C to +80°C (PVC)
Cable, flexible installation
-5°C to +80°C (PUR/PVC)

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
Straight connector					
22260204	AB-C3-M8MS-2,0PUR	2	60	3	1
22260205	AB-C3-M8MS-5,0PUR	5	60	3	1
22260218	AB-C3-M8MS-10,0PUR	10	60	3	1
22260847	AB-C3-M8MS-2,0PVC	2	60	3	1
22260665	AB-C3-M8MS-5,0PVC	5	60	3	1
22260848	AB-C3-M8MS-10,0PVC	10	60	3	1
Angled connector					
22260053	AB-C3-M8MA-2,0PUR	2	60	3	1
22260987	AB-C3-M8MA-5,0PUR	5	60	3	1
22260055	AB-C3-M8MA-10,0PUR	10	60	3	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
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UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

4-pin sensor/actuator cordsets

New

S/A cable: M12 socket on free conductor end

1	——————	BN
2	——————	WH
4	——————	BK
3	——————	BU

S/A cable: M12 socket on free conductor end

■ Benefits
- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

■ Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features
- 4-pin connector
- Socket with M12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals

c(UL)us RoHS ✓

■ Design
- Fixed flexible control cable
- Design: 4 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free/PVC
- Outer sheath colour: black

■ Technical data

IP **Protection rating**
IP65/IP68/IP69K

Ambient temperature (operation)
Plug/socket
-25°C to +90°C (PUR/PVC)
Cable, fixed installation
-40°C to +80°C (PUR)
-25°C to +80°C (PVC)
Cable, flexible installation
-5°C to +80°C (PUR/PVC)

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

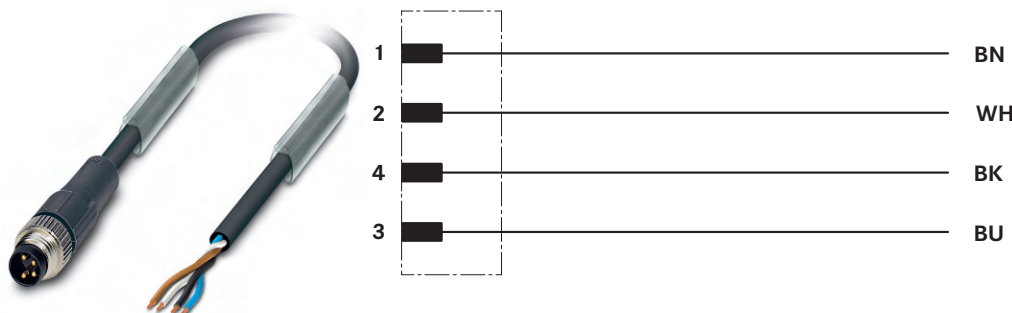| Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	Status display	PU
Straight socket						
22260322	AB-C4- 2,0PUR-M12FS	2	250	4	no	1
22260323	AB-C4- 5,0PUR-M12FS	5	250	4	no	1
22260343	AB-C4-10,0PUR-M12FS	10	250	4	no	1
22260688	AB-C4- 2,0PVC-M12FS	2	250	4	no	1
22260689	AB-C4-5,0PVC-M12FS	5	250	4	no	1
22260685	AB-C4-10,0PVC-M12FS	10	250	4	no	1
Angled socket						
22260324	AB-C4- 2,0PUR-M12FA	2	250	4	no	1
22260325	AB-C4- 5,0PUR-M12FA	5	250	4	no	1
22260341	AB-C4-10,0PUR-M12FA	10	250	4	no	1
22260841	AB-C4- 2,0PVC-M12FA	2	250	4	no	1
22260678	AB-C4-5,0PVC-M12FA	5	250	4	no	1
22260683	AB-C4-10,0PVC-M12FA	10	250	4	no	1
Straight socket with LEDs						
22260344	AB-C4- 2,0PUR-M12FS-2L	2	24	4	2 LEDs	1
22260345	AB-C4- 5,0PUR-M12FS-2L	5	24	4	2 LEDs	1
22260346	AB-C4-10,0PUR-M12FS-2L	10	24	4	2 LEDs	1
Angled socket with LEDs						
22260326	AB-C4- 2,0PUR-M12FA-3L	2	24	4	3 LEDs	1
22260327	AB-C4- 5,0PUR-M12FA-3L	5	24	4	3 LEDs	1
22260340	AB-C4-10,0PUR-M12FA-3L	10	24	4	3 LEDs	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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For the UNITRONIC® field bus type code, please see table T6

New

S/A cable: M12 connector on M12 socket

S/A cable: M12 connector on M12 socket

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

Product features

- 4-pin connector
- Plug with M12 thread to socket with M12 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

Approvals

c UL us   RoHS ✓

Design

- Fixed flexible control cable
- Design: 4 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free/PVC
- Outer sheath colour: black

Technical data

IP Protection rating
IP65/IP68/IP69K

Ambient temperature (operation)
Plug/socket
-25°C to +90°C (PUR/PVC)
Cable, fixed installation
-40°C to +80°C (PUR)
-25°C to +80°C (PVC)
Cable, flexible installation
-5°C to +80°C (PUR/PVC)

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
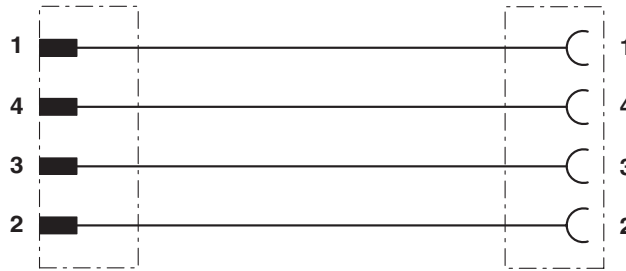TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	Status display	PU
Straight connector to straight socket						
22260328	AB-C4-M12MS- 0,3PUR-M12FS	0.3	250	4	no	1
22260329	AB-C4-M12MS- 0,6PUR-M12FS	0.6	250	4	no	1
22260330	AB-C4-M12MS- 1,0PUR-M12FS	1	250	4	no	1
22260331	AB-C4-M12MS- 2,0PUR-M12FS	2	250	4	no	1
Straight connector to angled socket						
22260332	AB-C4-M12MS- 0,3PUR-M12FA	0.3	250	4	no	1
22260333	AB-C4-M12MS- 0,6PUR-M12FA	0.6	250	4	no	1
22260334	AB-C4-M12MS-1,0PUR-M12FA	1	250	4	no	1
22260335	AB-C4-M12MS-2,0PUR-M12FA	2	250	4	no	1
22260832	AB-C4-M12MS-2,0PVC-M12FA	2	250	4	no	1
22260705	AB-C4-M12MS-5,0PVC-M12FA	5	250	4	no	1
22260833	AB-C4-M12MS-10,0PVC-M12FA	10	250	4	no	1
Angled connector to straight socket						
22260304	AB-C4-M12MA-0,3PUR-M12FS	0.3	250	4	no	1
22260305	AB-C4-M12MA-0,6PUR-M12FS	0.6	250	4	no	1
22260306	AB-C4-M12MA-1,0PUR-M12FS	1	250	4	no	1
22260307	AB-C4-M12MA-2,0PUR-M12FS	2	250	4	no	1
Straight connector to angled socket with LEDs						
22260336	AB-C4-M12MS-0,3PUR-M12FA-3L	0.3	24	4	3 LEDs	1
22260337	AB-C4-M12MS-0,6PUR-M12FA-3L	0.6	24	4	3 LEDs	1
22260338	AB-C4-M12MS-1,0PUR-M12FA-3L	1	24	4	3 LEDs	1
22260339	AB-C4-M12MS-2,0PUR-M12FA-3L	2	24	4	3 LEDs	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet (www.lappautomation.com)
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

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

UNITRONIC® Fieldbus
4-pin sensor/actuator cordsets

New

S/A cable: M8 connector on free conductor end

1	────────	BN
2	────────	WH
4	────────	BK
3	────────	BU

S/A cable: M8 connector on free conductor end

■ Benefits
- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

■ Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features
- 4-pin connector
- Plug with M8 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals

c(UL)us RoHS √

■ Design
- Fixed flexible control cable
- Design: 4 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

■ Technical data

IP
Protection rating
IP65/IP68/IP69K

Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

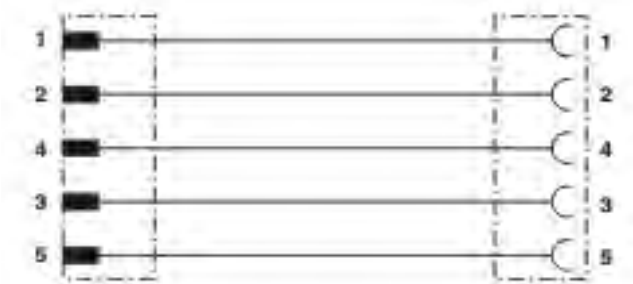| Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
Straight connector					
22260300	AB-C4-M8MS-2,0PUR	2	30	3	1
22260308	AB-C4-M8MS-5,0PUR	5	30	3	1
22260318	AB-C4-M8MS-10,0PUR	10	30	3	1
Angled connector					
22260056	AB-C4-M8MA-2,0PUR	2	30	3	1
22260057	AB-C4-M8MA-5,0PUR	5	30	3	1
22260058	AB-C4-M8MA-10,0PUR	10	30	3	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

New

S/A cable: M8 connector on M8 socket

S/A cable: M8 connector on M8 socket

■ Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

■ Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features

- 4-pin connector
- Plug with M8 thread to socket with M8 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals

cULus RoHS ✓

■ Design

- Fixed flexible control cable
- Design: 4 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, white, blue, black
- Outer sheath: PUR, halogen-free
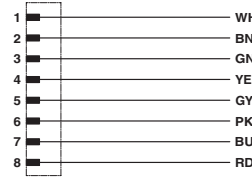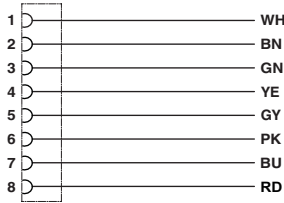- Outer sheath colour: black

■ Technical data

IP **Protection rating**
IP65/IP68/IP69K

Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	Status display	PU
Straight connector to straight socket						
22260313	AB-C4-M8MS-0,3PUR-M8FS	0.3	30	3	no	1
22260314	AB-C4-M8MS-0,6PUR-M8FS	0.6	30	3	no	1
22260315	AB-C4-M8MS-1,0PUR-M8FS	1	30	3	no	1
22260316	AB-C4-M8MS-2,0PUR-M8FS	2	30	3	no	1
Straight connector to angled socket						
22260059	AB-C4-M8MS-0,3PUR-M8FA	0.3	30	3	no	1
22260060	AB-C4-M8MS-0,6PUR-M8FA	0.6	30	3	no	1
22260061	AB-C4-M8MS-1,0PUR-M8FA	1	30	3	no	1
22260062	AB-C4-M8MS-2,0PUR-M8FA	2	30	3	no	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet (www.lappautomation.com)
UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

ÖLFLEX®
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ACCESSORIES
APPENDIX

Data communication systems

UNITRONIC® Fieldbus
5-pin sensor/actuator cordsets

LAPP GROUP

New

S/A cable: M12 connector on M12 socket

S/A cable: M12 connector on M12 socket

■ Benefits
- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

■ Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features
- 5-pin connector
- Plug with M12 thread to socket with M12 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals
c(UL)us RoHS ✓

■ Design
- Fixed flexible control cable
- Design: 5 x 0.34 mm² (42 x 0.1 mm)
- Core colours: brown, white, blue, black, green/yellow
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

■ Technical data

IP **Protection rating**
IP65/IP68/IP69K

Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	Status display	PU
Straight connector to straight socket						
22260410	AB-C5-M12MS-0,3PUR-M12FS	0.3	60	4	no	1
22260411	AB-C5-M12MS-0,6PUR-M12FS	0.6	60	4	no	1
22260412	AB-C5-M12MS-1,0PUR-M12FS	1	60	4	no	1
22260413	AB-C5-M12MS-2,0PUR-M12FS	2	60	4	no	1
Straight connector to angled socket						
22260063	AB-C5-M12MS-0,3PUR-M12FA	0.3	60	4	no	1
22260064	AB-C5-M12MS-0,6PUR-M12FA	0.6	60	4	no	1
22260065	AB-C5-M12MS-1,0PUR-M12FA	1	60	4	no	1
22260066	AB-C5-M12MS-2,0PUR-M12FA	2	60	4	no	1
Straight connector to angled socket with LEDs						
22260067	AB-C5-M12MS-0,3PUR-M12FA-3L	0.3	24	4	3 LEDs	1
22260068	AB-C5-M12MS-0,6PUR-M12FA-3L	0.6	24	4	3 LEDs	1
22260069	AB-C5-M12MS-1,0PUR-M12FA-3L	1	24	4	3 LEDs	1
22260070	AB-C5-M12MS-2,0PUR-M12FA-3L	2	24	4	3 LEDs	1

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For the UNITRONIC® field bus type code, please see table T6

Data communication systems
UNITRONIC® Fieldbus
8-pin sensor/actuator cables

New

S/A cable: M12 connector/socket on free conductor end

1	WH
2	BN
3	GN
4	YE
5	GY
6	PK
7	BU
8	RD

1	WH
2	BN
3	GN
4	YE
5	GY
6	PK
7	BU
8	RD

S/A cable: M12 connector/socket on free conductor end

■ Benefits
- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

■ Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features
- 8-pin connector
- Design: plug/socket with M12 thread to free conductor end
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals
RoHS ✓

■ Design
- Fixed flexible control cable
- Design: 8 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, white, grey, pink, red, yellow, green
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

■ Technical data

IP **Protection rating**
IP65/IP68/IP69K

Ambient temperature (operation)
Plug/socket
-25°C to +90°C
Cable, fixed installation
-40°C to +80°C
Cable, flexible installation
-5°C to +80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

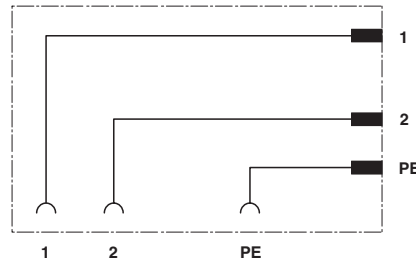**Knurl material**
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
Straight connector					
22260091	AB-C8-M12MS-2,0PUR	2	30	2	1
22260092	AB-C8-M12MS-5,0PUR	5	30	2	1
22260093	AB-C8-M12MS-10,0PUR	10	30	2	1
Angled connector					
22260094	AB-C8-M12MA-2,0PUR	2	30	2	1
22260095	AB-C8-M12MA-5,0PUR	5	30	2	1
22260096	AB-C8-M12MA-10,0PUR	10	30	2	1
Straight socket					
22260726	AB-C8-2,0PUR-M12FS	2	30	2	1
22260728	AB-C8-5,0PUR-M12FS	5	30	2	1
22260729	AB-C8-10,0PUR-M12FS	10	30	2	1
8 pole angled socket					
22260615	AB-C8-5,0PUR-M12FA	5	30	2	1
22260616	AB-C8-10,0PUR-M12FA	10	30	2	1
22260141	AB-C8-2,0PUR-M12FA	2	30	2	1

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Copper price basis: inclusive of copper. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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For the UNITRONIC® field bus type code, please see table T6

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

New

S/A cable: M12 connector on M12 socket

S/A cable: M12 connector on M12 socket

■ Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

■ Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features

- 8-pin connector
- Plug with M12 thread to socket with M12 thread
- The cables have marker carriers
- Free of substances that could hinder paint or varnish
- Suitable for drag chains

■ Approvals

RoHS √

■ Design

- Fixed flexible control cable
- Design: 8 x 0.25 mm² (32 x 0.1 mm)
- Core colours: brown, blue, white, grey, pink, red, yellow, green
- Outer sheath: PUR, halogen-free
- Outer sheath colour: black

■ Technical data

IP **Protection rating**
IP65/IP68/IP69K

Ambient temperature (operation)
Plug/socket
–25°C to +90°C
Cable, fixed installation
–40°C to +90°C
Cable, flexible installation
–5°C to 80°C

Contact material
CuSn

Contact surface material
Ni/Au

Coding
A - Standard

Knurl material
Zinc die-cast, nickel-plated

Gripping body material
TPU, flame-retardant, self-extinguishing

Article number	Article designation	Length (m)	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
Straight connector to straight socket					
22260097	AB-C8-M12MS-0,3PUR-M12FS	0.3	30	2	1
22260098	AB-C8-M12MS- 0,6PUR-M12FS	0.6	30	2	1
22260099	AB-C8-M12MS-1,0PUR-M12FS	1	30	2	1
22260042	AB-C8-M12MS- 2,0PUR-M12FS	2	30	2	1
Straight connector to angled socket					
22260137	AB-C8-M12MS-0,3PUR-M12FA	0.3	30	2	1
22260138	AB-C8-M12MS-0,6PUR-M12FA	0.6	30	2	1
22260139	AB-C8-M12MS1,0PUR-M12FA	1	30	2	1
22260140	AB-C8-M12MS-2,0PUR-M12FA	2	30	2	1

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Customised cable lengths, outer-sheath materials (e.g. PVC), and types of connectors are available upon request.
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UL approvals can be found in the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6

New

Field mountable valve connectors

Field mountable valve connectors

■ Benefits
- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Standardised interfaces

■ Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features
- 3 and 5-pin valve connector
- Free of substances that could hinder paint or varnish
- Connection type: screw connection

■ Approvals
RoHS ✓

■ Suitable cables
- UNITRONIC® SENSOR refer to main catalogue 2012 Page 379

■ Technical data
IP Protection rating
IP 65

Ambient temperature (operation)
Valve connector
-25°C to +60°C

Standards/stipulations
Valve connector according to EN 175301-803

Article number	Article designation	Nominal voltage U_N (V)	Nominal current I_N in (A)	Status display	Protective circuit	PU
Valve connector type A (18 mm)						
22260048	AB-C3-M16-A	230	10	Without	Without	1
22260050	AB-C3-PG9-A-1L-S	24	4	1 LED	Z diode	1
Valve connector type B (10 mm)						
22260051	AB-C3-PG9-B-1L-S	24	4	1 LED	Z diode	1
Valve connector type BI (11 mm)						
22260052	AB-C3-PG9-BI-1L-S	24	4	1 LED	Z diode	1
Valve connector type C (8 mm)						
22260142	AB-C3-PG9-C-1L-SV	24	1.5	1 LED	Varistor	1
Valve connector type CI (9.4 mm)						
22260143	AB-C3-PG9-CI-1L-SV	24	1.5	1 LED	Varistor	1
Valve connector for pressure switch (18 mm)						
22260049	AB-C5-M16-AD-2L	24	1.5	2 LEDs	Without	1

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For the UNITRONIC® field bus type code, please see table T6

Data communication systems

UNITRONIC® Fieldbus
Field mountable connectors and wall ducts

New

Field mountable S/A connectors M 12

⊗ LAPP GROUP

Field mountable S/A connectors M 12

■ Benefits
- Quick and easy on-site assembly
- Creating individual cable lengths
- Standardised interfaces
- No special tools required for connecting the cables (fast-connect designs)

■ Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features
- 4, 5 and 8-pin version
- Screened and non-screened version
- Fast-connect and screw connection design
- Free of substances that could hinder paint or varnish

■ Approvals
RoHS ✓

■ Suitable cables
- Cable for sensor / actuator components refer to main catalogue 2012

■ Technical data

IP **Protection rating**
IP 65 / IP 67 (IDC)
IP 67 (screw)

Ambient temperature (operation)
Plug / socket
-25°C to +80°C (IDC)
-25°C to +85°C (piercing)
-40°C to +85°C (screw)

Contact material
CuZn

Contact surface material
CuSnZn

Coding
A - Standard

Article number	Article designation	Number of pins	Min. conductor cross-section, flexible, in mm²	Max. conductor cross-section, flexible, in mm²	Min. cable diameter (mm)	Max. cable diameter (mm)	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
Straight connector, fast-connect (insulation displacement)									
22260132	AB-C4-M12MS-F0,34	4	0.14	0.34	3.5	6	125	4	1
22260134	AB-C4-M12MS-F0,75	4	0.34	0.75	4	8	250	4	1
Straight connector, screw connection									
22260649	AB-C4-M12MS-PG7	4	0.25	0.75	4	6	250	4	1
22260995	AB-C4-M12MS-PG9	4	0.25	0.75	6	8	250	4	1
22260129	AB-C5-M12MS-PG7	5	0.25	0.75	4	6	60	4	1
22260651	AB-C5-M12MS-PG9	5	0.25	0.75	6	8	60	4	1
22260996	AB-C5-M12MS-PG9-SKINTOP®	5	0.25	0.75	6	8	125	4	1
Straight socket, fast-connect (insulation displacement)									
22260131	AB-C4-M12FS-F0,34	4	0.14	0.34	3.5	6	125	4	1
22260133	AB-C4-M12FS-F0,75	4	0.34	0.75	4	8	250	4	1
Straight socket, screw connection									
22260640	AB-C4-M12FS-PG7	4	0.25	0.75	4	6	250	4	1
22260641	AB-C4-M12FS-PG9	4	0.25	0.75	6	8	250	4	1
22260127	AB-C5-M12FS-PG7	5	0.25	0.75	4	6	60	4	1
22260644	AB-C5-M12FS-PG9	5	0.25	0.75	6	8	60	4	1
22260997	AB-C5-M12FS-PG9-SKINTOP®	5	0.25	0.75	6	8	125	4	1
Angled connector, screw connection									
22260647	AB-C4-M12MA-PG7	4	0.25	0.75	4	6	250	4	1
22260130	AB-C5-M12MA-PG7	5	0.25	0.75	4	6	60	4	1
22260648	AB-C5-M12MA-PG9	5	0.25	0.75	6	8	60	4	1
Angled socket, screw connection									
22260636	AB-C4-M12FA-PG7	4	0.25	0.75	4	6	250	4	1
22260128	AB-C5-M12FA-PG7	5	0.25	0.75	4	6	60	4	1
22260638	AB-C5-M12FA-PG9	5	0.25	0.75	6	8	60	4	1
Straight connector, shielded, screw connection									
22260135	AB-C5-M12MS-PG9-SH	5	0.25	0.75	6	8	60	4	1
22260825	AB-C8-M12MS-PG9-SH	8	0.25	0.75	6	8	30	2	1
Straight socket, shielded, screw connection									
22260136	AB-C5-M12FS-PG9-SH	5	0.25	0.75	6	8	60	4	1
22260826	AB-C8-M12FS-PG9-SH	8	0.25	0.75	6	8	30	2	1

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IDC = insulation displacement connector
For the UNITRONIC® field bus type code, please see table T6

New

Field mountable S/A connectors M8

Field mountable S/A connectors M8

■ Benefits
- Quick and easy on-site assembly
- Creating individual cable lengths
- Standardised interfaces

■ Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ Product features
- 3 and 4-pin version
- Fast-connect and screw connection design
- Free of substances that could hinder paint or varnish

■ Approvals
RoHS ✓

■ Suitable cables
- Cable for sensor / actuator components refer to main catalogue 2012

■ Technical data

IP
Protection rating
IP 65 / IP 67 (IDC)
IP 68 (piercing)
IP 67 (screw)

Ambient temperature (operation)
Plug/socket
−25°C to +80°C (IDC)
−25°C to +85°C (piercing)
−40°C to +85°C (screw)

Contact material
CuZn

Contact surface material
Au

Coding
A - Standard

Article number	Article designation	Number of pins	Min. conductor cross-section, flexible, in mm²	Max. conductor cross-section, flexible, in mm²	Min. cable diameter (mm)	Max. cable diameter (mm)	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
Straight connector, fast-connect (insulation displacement)									
22260993	AB-C3-M8MS-F0,25	3	0.08	0.25	2.5	5	60	4	1
22260985	AB-C3-M8MS-F0,5	3	0.25	0.5	2.5	5	60	4	1
22260043	AB-C4-M8MS-F0,25	4	0.08	0.25	2.5	5	30	4	1
22260044	AB-C4-M8MS-F0,5	4	0.25	0.5	2.5	5	30	4	1
Straight connector, fast-connect (piercing)									
22260122	AB-C3-M8MS-P	3	0.14	0.38	3	5	60	4	1
22260123	AB-C4-M8MS-P	4	0.14	0.38	3	5	30	4	1
Straight connector, screw connection									
22260120	AB-C3-M8MS	3	0.14	0.5	3.5	5	60	4	1
22260121	AB-C4-M8MS	4	0.14	0.5	3.5	5	30	4	1
Straight socket, fast-connect (insulation displacement)									
22260994	AB-C3-M8FS-F0,25	3	0.08	0.25	2.5	5	60	4	1
22260986	AB-C3-M8FS-F0,5	3	0.25	0.5	2.5	5	60	4	1
22260045	AB-C4-M8FS-F0,25	4	0.08	0.25	2.5	5	30	4	1
22260046	AB-C4-M8FS-F0,5	4	0.25	0.5	2.5	5	30	4	1
Straight socket, fast-connect (piercing)									
22260124	AB-C3-M8FS-P	3	0.14	0.38	3	5	60	4	1
22260119	AB-C4-M8FS-P	4	0.14	0.38	3	5	30	4	1
Straight socket, screw connection									
22260125	AB-C3-M8FS	3	0.14	0.5	3.5	5	60	4	1
22260126	AB-C4-M8FS	4	0.14	0.5	3.5	5	30	4	1

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IDC = insulation displacement connector
For the UNITRONIC® field bus type code, please see table T6

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

New

S/A M12 flush-type connectors with M16 fastening thread

1	BN
2	WH
4	BK
3	BU
5	GY

S/A M12 flush-type connectors with M16 fastening thread

■ **Benefits**
- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Standardised interfaces

■ **Application range**
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

■ **Product features**
- M12 panel feed-through with punched-on single litz wires
- Panel feed-through with M16 fastening thread
- Front wall-mounting
- M12 A-coded with quick-locking system
- Free of substances that could hinder paint or varnish
- Can be positioned

■ **Approvals**

RoHS ✓

■ **Design**
- Halogen-free PUR, single litz wires, l = 0.5 m
- 0,34 mm²

■ **Technical data**

IP **Protection rating**
IP 67

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

Contact material
CuZn

Contact surface material
Au

Coding
A - Standard

Article number	Article designation	Number of pins	Conductor cross-section (mm²)	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
M12 flush-type connector pin for front-mounting [1]						
22260108	AB-C4-M12MS-M16-0,5	4	0.34	250	4	1
22260106	AB-C5-M12MS-M16-0,5	5	0.34	60	4	1
M12 flush-type connector pin for front-mounting, can be positioned [1]						
22260083	AB-C4-M12MS-M16-PO-0,5	4	0.34	250	4	1
22260084	AB-C5-M12MS-M16-PO-0,5	5	0.34	60	4	1
M12 flush-type connector socket for front-mounting [1]						
22260107	AB-C4-M12FS-M16-0,5	4	0.34	250	4	1
22260105	AB-C5-M12FS-M16-0,5	5	0.34	60	4	1
M12 flush-type connector socket for front-mounting, can be positioned [1]						
22260085	AB-C4-M12FS-M16-PO-0,5	4	0.34	250	4	1
22260086	AB-C5-M12FS-M16-PO-0,5	5	0.34	60	4	1

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Photographs are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6
1.) with quick-locking system

■ **Accessories**
- Fitting nut for flush-type connectors refer to main catalogue 2012 page 382

ÖLFLEX®

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ACCESSORIES

APPENDIX

LAPP GROUP

Data communication systems
UNITRONIC® Fieldbus
Field mountable connectors and wall ducts

New

S/A M12 flush-type connectors with PG9 fastening thread

Pin	Wire
1	BN
2	WH
4	BK
3	BU
5	GY

S/A M12 flush-type connectors with PG9 fastening thread

Benefits
- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Standardised interfaces

Application range
- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

Product features
- M12 panel feed-through with punched-on single litz wires
- Panel feed-through with PG9 fastening thread
- Designs for front and rear wall-mounting
- Free of substances that could hinder paint or varnish
- Can be positioned

Approvals
RoHS ✓

Design
- Halogen-free PUR, single litz wires, I = 0.5 m
- 0,34 mm²

Technical data
IP **Protection rating**
IP 67

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

Contact material
CuZn

Contact surface material
Au

Coding
A - Standard

Article number	Article designation	Number of pins	Conductor cross-section (mm²)	Nominal voltage U_N (V)	Nominal current I_N in (A)	PU
M12 flush-type connector pin for rear-mounting (fitting nut included) [1]						
22260117	AB-C4-DSI-M12MS-PG9-0,5	4	0.34	250	4	1
22260115	AB-C5-DSI-M12MS-PG9-0,5	5	0.34	60	4	1
M12 flush-type connector socket for rear-mounting (fitting nut included) [1]						
22260118	AB-C4-DSI-M12FS-PG9-0,5	4	0.34	250	4	1
22260116	AB-C5-DSI-M12FS-PG9-0,5	5	0.34	60	4	1
M12 flush-type connector pin for front-mounting [1]						
22260113	AB-C4-M12MS-PG9-0,5	4	0.34	250	4	1
22260112	AB-C5-M12MS-PG9-0,5	5	0.34	60	4	1
M12 flush-type connector pin for front-mounting, can be positioned [1]						
22260087	AB-C4-M12MS-PG9-PO-0,5	4	0.34	250	4	1
22260088	AB-C5-M12MS-PG9-PO-0,5	5	0.34	60	4	1
M12 flush-type connector socket for front-mounting [1]						
22260114	AB-C4-M12FS-PG9-0,5	4	0.34	250	4	1
22260111	AB-C5-M12FS-PG9-0,5	5	0.34	60	4	1
M12 flush-type connector socket for front-mounting, can be positioned [1]						
22260089	AB-C4-M12FS-PG9-PO-0,5	4	0.34	250	4	1
22260090	AB-C5-M12FS-PG9-PO-0,5	5	0.34	60	4	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to 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.
For detailed technical information please refer to the data sheet (www.lappautomation.com)
For the UNITRONIC® field bus type code, please see table T6
1.) with quick-locking system

Accessories
- Fitting nut for flush-type connectors refer to main catalogue 2012 page 382

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

Accessories for INDUSTRIAL networking

LAN cables for structured industrial cabling

`New`

ETHERLINE® Y Cat.5e BK 2x2AWG22/7

LAPP KABEL STUTTGART ETHERLINE® Y CAT. 5e SUN RES

■ Benefits
- UV and weather-resistant in black
- For flexible applications (7-wire stranded conductor) = type B
- FAST ETHERNET = 100 Mbit/s

■ Application range
- Many applications with Industrial Ethernet, e.g. PROFINET type B, i.e. fixed installation and flexible use.
- Resistant to acids, alkalis and certain oils at room temperature

■ Product features
- PVC compound TM2 acc. to VDE 0281-1 or HD 21.1

■ Approvals
RoHS ✓

■ Design
- Stranded conductor, 7-wire, bare
- Core insulation: Based on Polyolefin
- Star quad
- Aluminum-coated foil
  Screening braid made of tinned-copper wires
- PVC outer sheath

■ Technical data

⚡ **Peak operating voltage**
(not for power applications) 125 V

◿ **Minimum bending radius**
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

⚡ **Test voltage**
Core/core: 1000 V
Core/screen: 500 V

🌡 **Temperature range**
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

Z∞ **Characteristic impedance**
At 1 - 100 MHz: 100 ± 15 Ohm

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170901	ETHERLINE® Y CAT.5e BK 2x2xAWG22/7	2 x 2 x AWG22/7	6.2	30.4	59

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

`New`

ETHERLINE® CAT.6 FD

ⓘ Info
- **CAT.6 for drag chain!**
- **Only for patch cable applications (max. 60 m)**
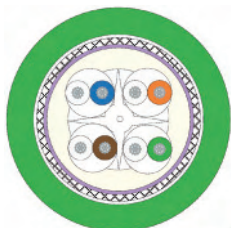
■ Benefits
- PUR outer sheath is highly resistant to most oils, abrasion, and UV-radiation
- Premium screening against electromagnetic interference

■ Application range
- For use in power chains and moving machinery parts in dry or damp rooms

■ Product features
- Flame-retardant according to IEC 60332.1.2

■ Approvals
c(UL)us RoHS ✓
- UL/CSA type CMX (UL 444)

■ Design
- Stranded conductor, tinned
- AWG 26 (19-wire)
- PP core insulation
- Inner sheath: thermoplastic copolymer (FRNC)
- PUR outer sheath, halogen-free
- Colour: green (based on RAL 6018)

■ Suitable connectors
- Field-Terminable Connector RJ45 CAT.5e FM45 refer to main catalogue 2012 page 418
- Connector RJ45 Cat.6A fieldmountable refer to main catalogue 2012 page 419

■ Technical data

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

◿ **Minimum bending radius**
Fixed installation:
4 x outer diameter
Flexing: 7.5 x outer diameter

⚡ **Test voltage**
700 V

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

Z∞ **Characteristic impedance**
At 1 - 100 MHz: 100 ± 15 Ohm

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170488	ETHERLINE® FD P CAT.6	4 x 2 x AWG26/19	7.8	31.7	63

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

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New

Industrial Ethernet PN A Patchcord M 12

Info

● **For PROFINET applications (D-coded)**

Benefits
● Non-permanent connections allow for easy change of equipment
● For directly connecting two electric components

Application range
● Suitable for use in industrial applications
● For indoor use
● For fixed installation (solid conductor) = type A

Product features
● The cable is UL/CSA-approved
● Colour: green (based on RAL 6018)

Design
● Solid and bare copper conductor
● Star quad
● Overall screening with copper braid and plastic-laminated aluminium foil
● Outer sheath made of PVC
● Pre-assembled patchcord with a M 12 D-coded connector on both sides
● Connector with vibration protection

Article number	Article designation	Number of pairs and AWG per conductor
Straight connector on straight connector		
2171001	IE-PNA-5-M12D-S-1-Y-2-22-1-M12D-S	2x2
2171002	IE-PNA-5-M12D-S-2-Y-2-22-1-M12D-S	2x2
2171003	IE-PNA-5-M12D-S-3-Y-2-22-1-M12D-S	2x2
2171004	IE-PNA-5-M12D-S-5-Y-2-22-1-M12D-S	2x2
2171005	IE-PNA-5-M12D-S-10-Y-2-22-1-M12D-S	2x2
2171006	IE-PNA-5-M12D-S-20-Y-2-22-1-M12D-S	2x2
Angled connector on straight connector		
2171013	IE-PNA-5-M12D-A-1-Y-2-22-1-M12D-S	2x2
2171014	IE-PNA-5-M12D-A-2-Y-2-22-1-M12D-S	2x2
2171015	IE-PNA-5-M12D-A-3-Y-2-22-1-M12D-S	2x2
2171016	IE-PNA-5-M12D-A-5-Y-2-22-1-M12D-S	2x2
2171017	IE-PNA-5-M12D-A-10-Y-2-22-1-M12D-S	2x2
2171018	IE-PNA-5-M12D-A-20-Y-2-22-1-M12D-S	2x2

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

New

Industrial Ethernet PN A Patchcord M 12 on free conductor end

Info

● **For PROFINET applications (D-coded)**

Industrial Ethernet PN A Patchcord M 12 on free conductor end

Benefits
● Non-permanent connections allow for easy change of equipment
● For directly connecting two electric components
● To be used for direct connector assembly

Application range
● For fixed installation (solid conductor) = type A
● Indoor applications
● Automation technology
● Mechanical engineering

Design
● Solid and bare copper conductor
● Star quad
● Overall screening with copper braid and plastic-laminated aluminium foil
● Outer sheath made of PVC

Article number	Article designation	Number of pairs and AWG per conductor
straight connector on free conductor end		
2171007	IE-PNA-5-M12D-S-1-Y-2-22-1-OE	2x2
2171008	IE-PNA-5-M12D-S-2-Y-2-22-1-OE	2x2
2171009	IE-PNA-5-M12D-S-3-Y-2-22-1-OE	2x2
2171010	IE-PNA-5-M12D-S-5-Y-2-22-1-OE	2x2
2171011	IE-PNA-5-M12D-S-10-Y-2-22-1-OE	2x2
2171012	IE-PNA-5-M12D-S-20-Y-2-22-1-OE	2x2
Angled connector on free conductor end		
2171019	IE-PNA-5-M12D-A-1-Y-2-22-1-OE	2x2
2171020	IE-PNA-5-M12D-A-2-Y-2-22-1-OE	2x2
2171021	IE-PNA-5-M12D-A-3-Y-2-22-1-OE	2x2
2171022	IE-PNA-5-M12D-A-5-Y-2-22-1-OE	2x2
2171023	IE-PNA-5-M12D-A-10-Y-2-22-1-OE	2x2
2171024	IE-PNA-5-M12D-A-20-Y-2-22-1-OE	2x2

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

New

Industrial Ethernet PN B Patchcord M12

Info

● For PROFINET applications (D-coded)

Industrial Ethernet PN B Patchcord M12

■ Benefits

● Non-permanent connections allow for easy change of equipment
● For directly connecting two electric components

■ Application range

● Suitable for use in industrial applications
● For indoor use
● For flexible applications (7-wire stranded conductor)

■ Design

● Flexible fine-wire copper conductor
● Star quad
● Overall screening with copper braid and plastic-laminated aluminium foil
● Outer sheath made of PVC
● Pre-assembled patchcord with a M12 D-coded connector on both sides
● Connector with vibration protection

Article number	Article designation	Number of pairs and AWG per conductor
Angled connector on straight connector		
2171037	IE-PNB-5-M12D-A-1-Y-2-22-7-M12D-S	2x2
2171038	IE-PNB-5-M12D-A-2-Y-2-22-7-M12D-S	2x2
2171039	IE-PNB-5-M12D-A-3-Y-2-22-7-M12D-S	2x2
2171040	IE-PNB-5-M12D-A-5-Y-2-22-7-M12D-S	2x2
2171041	IE-PNB-5-M12D-A-10-Y-2-22-7-M12D-S	2x2
2171042	IE-PNB-5-M12D-A-20-Y-2-22-7-M12D-S	2x2
Straight connector on straight connector		
2171025	IE-PNB-5-M12D-S-1-Y-2-22-7-M12D-S	2x2
2171026	IE-PNB-5-M12D-S-2-Y-2-22-7-M12D-S	2x2
2171027	IE-PNB-5-M12D-S-3-Y-2-22-7-M12D-S	2x2
2171028	IE-PNB-5-M12D-S-5-Y-2-22-7-M12D-S	2x2
2171029	IE-PNB-5-M12D-S-10-Y-2-22-7-M12D-S	2x2
2171030	IE-PNB-5-M12D-S-20-Y-2-22-7-M12D-S	2x2

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

New

Industrial Ethernet PN B Patchcord M12 on free conductor end

Info

● For PROFINET applications (D-coded)

Industrial Ethernet PN B Patchcord M12 on free conductor end

■ Benefits

● Non-permanent connections allow for easy change of equipment
● For directly connecting two electric components

■ Application range

● Suitable for use in industrial applications
● For indoor use
● For flexible applications (7-wire stranded conductor)

■ Design

● Fine-wire, tinned-copper conductor
● Star quad
● Overall screening with copper braid and plastic-laminated aluminium foil
● Outer sheath made of PVC
● Connector with vibration protection
● Design: 2x2xAWG22

Article number	Article designation
Angled connector on free conductor end	
2171043	IE-PNB-5-M12D-A-1-Y-2-22-7-OE
2171044	IE-PNB-5-M12D-A-2-Y-2-22-7-OE
2171045	IE-PNB-5-M12D-A-3-Y-2-22-7-OE
2171046	IE-PNB-5-M12D-A-5-Y-2-22-7-OE
2171047	IE-PNB-5-M12D-A-10-Y-2-22-7-OE
2171048	IE-PNB-5-M12D-A-20-Y-2-22-7-OE
Straight connector on free conductor end	
2171031	IE-PNB-5-M12D-S-1-Y-2-22-7-OE
2171032	IE-PNB-5-M12D-S-2-Y-2-22-7-OE
2171033	IE-PNB-5-M12D-S-3-Y-2-22-7-OE
2171034	IE-PNB-5-M12D-S-5-Y-2-22-7-OE
2171035	IE-PNB-5-M12D-S-10-Y-2-22-7-OE
2171036	IE-PNB-5-M12D-S-20-Y-2-22-7-OE

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

New

Industrial Ethernet PN C Patchcord M 12

Info

● **For PROFINET applications (D-coded)**

Industrial Ethernet PN C Patchcord M 12

● Overall screening with copper braid and plastic-laminated aluminium foil
● Outer sheath made of PUR
● Pre-assembled patchcord with a M 12 D–coded connector on both sides
● Connector with vibration protection

■ Benefits
● Non-permanent connections allow for easy change of equipment
● Non-permanent connections allow for easy change of equipment
● For directly connecting two electric components

■ Application range
● Suitable for use in industrial applications
● For indoor use
● For use in power chains and moving machinery parts in dry or damp rooms

■ Design
● Extra-fine wire, tinned braided conductor
● Star quad

Article number	Article designation
Angled connector on straight connector	
2171061	IE-PNC-5-M 12D-A-1-P-2-22-FD-M 12D-S
2171062	IE-PNC-5-M 12D-A-2-P-2-22-FD-M 12D-S
2171063	IE-PNC-5-M 12D-A-3-P-2-22-FD-M 12D-S
2171064	IE-PNC-5-M 12D-A-5-P-2-22-FD-M 12D-S
2171065	IE-PNC-5-M 12D-A-10-P-2-22-FD-M 12D-S
2171066	IE-PNC-5-M 12D-A-20-P-2-22-FD-M 12D-S
Straight connector on straight connector	
2171049	IE-PNC-5-M 12D-S-1-P-2-22-FD-M 12D-S
2171050	IE-PNC-5-M 12D-S-2-P-2-22-FD-M 12D-S
2171051	IE-PNC-5-M 12D-S-3-P-2-22-FD-M 12D-S
2171052	IE-PNC-5-M 12D-S-5-P-2-22-FD-M 12D-S
2171053	IE-PNC-5-M 12D-S-10-P-2-22-FD-M 12D-S
2171054	IE-PNC-5-M 12D-S-20-P-2-22-FD-M 12D-S

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

New

Industrial Ethernet PN C Patchcord M 12 on free conductor end

Info

● **For PROFINET applications (D-coded)**

Industrial Ethernet PN C Patchcord M 12 on free conductor end

■ Benefits
● Non-permanent connections allow for easy change of equipment
● For directly connecting two electric components

■ Application range
● Suitable for use in industrial applications
● For indoor use
● For highly flexible applications (power chains, moving machine parts)

■ Design
● Extra-fine wire, tinned copper strands
● Star quad
● Overall screening with copper braid and plastic-laminated aluminium foil
● Outer sheath made of PUR
● Connector with vibration protection

Article number	Article designation
straight connector on free conductor end	
2171055	IE-PNC-5-M 12D-S-1-P-2-22-FD-OE
2171056	IE-PNC-5-M 12D-S-2-P-2-22-FD-OE
2171057	IE-PNC-5-M 12D-S-5-P-2-22-FD-OE
2171058	IE-PNC-5-M 12D-S-5-P-2-22-FD-OE
2171059	IE-PNC-5-M 12D-S-10-P-2-22-FD-OE
2171060	IE-PNC-5-M 12D-S-20-P-2-22-FD-OE
Angled connector on free conductor end	
2171067	IE-PNC-5-M 12D-A-1-P-2-22-FD-OE
2171068	IE-PNC-5-M 12D-A-2-P-2-22-FD-OE
2171069	IE-PNC-5-M 12D-A-3-P-2-22-FD-OE
2171070	IE-PNC-5-M 12D-A-5-P-2-22-FD-OE
2171071	IE-PNC-5-M 12D-A-10-P-2-22-FD-OE
2171072	IE-PNC-5-M 12D-A-20-P-2-22-FD-OE

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ACCESSORIES

APPENDIX

New

Industiral Ethernet Patchcord RJ45-RJ45 P

Industiral Ethernet Patchcord RJ45-RJ45 P

■ Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components
- Flexible use

■ Application range

- Suitable for use in industrial applications
- For indoor use

■ Design

- Stranded conductor, 7-wire, 4 x 2 x AWG26/7
- Fine copper wire strands
- Overall screening with copper braid and plastic-laminated aluminium foil
- Pre-assembled patchcord with a RJ45 connector on both sides
- Outer sheath made of PUR

Article number	Article designation
2-pair version	
2171115	IE-5-RJ45-1-P-2-26-7-RJ45
2171116	IE-5-RJ45-2-P-2-26-7-RJ45
2171117	IE-5-RJ45-3-P-2-26-7-RJ45
2171118	IE-5-RJ45-5-P-2-26-7-RJ45
2171119	IE-5-RJ45-10-P-2-26-7-RJ45
2171120	IE-5-RJ45-20-P-2-26-7-RJ45
4-pair version	
2171501	IE-5-RJ45-1-P-4-26-7-RJ45
2171502	IE-5-RJ45-2-P-4-26-7-RJ45
2171503	IE-5-RJ45-3-P-4-26-7-RJ45
2171504	IE-5-RJ45-5-P-4-26-7-RJ45
2171505	IE-5-RJ45-10-P-4-26-7-RJ45
2171506	IE-5-RJ45-20-P-4-26-7-RJ45

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

New

UNITRONIC® LAN 200 - CAT.5e

LAPP KABEL STUTTGART UNITRONIC® LAN U/UTP 200 MHz Cat.5e

LAPP KABEL STUTTGART UNITRONIC® LAN F/UTP 200 MHz Cat.5e

Info

- **EIA** = Electronic Industries Association
- **TIA** = Telecommunication Industries Association
- **TSB** = Technical Systems Bulletin

■ Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

■ Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

■ Product features

- Transfer of digital and analogue data signals
- The characteristic impedance of this cable is 100 Ohm ±15 %
- IEEE 802.3: 10/100/1000Base-T
  IEEE 802.5: ISDN; FDDI; ATM

■ Approvals

RoHS ✓

- Class D in ISO/IEC 11801 standard corresponds to CAT.5
- LAN CAT.5e cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class D).

■ Design

- U/UTP: no overall or pair shielding
- F/UTP: foil screening as overall screening
- SF/UTP: copper braid and foil screening as overall screening
- Solid conductor
- Outer sheath either as PVC or LSZH

■ Technical data

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

Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C

Characteristic impedance
100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC version					
2170125	200 U/UTP Cat.5e	4 x 2 x AWG24/1	5.6	17.0	33
2170126	200 F/UTP Cat.5e	4 x 2 x AWG24/1	6.4	18.0	39
2170128	200 SF/UTP Cat.5e	4 x 2 x AWG24/1	6.7	32.0	49
Halogen-free versions					
2170185	200 U/UTP Cat.5e LSZH	4 x 2 x AWG24/1	5.6	17.0	33
2170138	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG24/1	6.7	32.0	49

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

■ Accessories

- Connector RJ45 CAT.5 Hirose TM11 refer to main catalogue 2012 page 418
- Connector RJ45 CAT.5 Stewart SS37 refer to main catalogue 2012 page 418
- Field-Terminable Connector RJ45 CAT.5e FM45 refer to main catalogue 2012 page 418
- DATA STRIP stripping tool refer to main catalogue 2012 page 907

New

UNITRONIC® LAN 250 - CAT.6

LAPP KABEL STUTTGART UNITRONIC® LAN U/UTP 250 MHz Cat.6

LAPP KABEL STUTTGART UNITRONIC® LAN F/UTP 250 MHz Cat.6

Info
- EIA =Electronic Industries Association
- TIA = Telecommunication Industries Association
- TSB = Technical Systems Bulletin

■ Benefits
- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

■ Application range
- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).

■ Product features
- Transfer of digital and analogue data signals
- LAN Cat.6 cables are specified up to 350 MHz
- The characteristic impedance of this cable is 100 Ohm ±15 %
- IEEE 802.3: 10/100/1000Base-T IEEE 802.5: ISDN; FDDI; ATM

■ Approvals

RoHS ✓

- Class E out of the standard ISO/IEC 11801 corresponds to CAT.6
- LAN CAT.6 cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class E - permanent link).

■ Design
- U/UTP: no overall or pair shielding
- F/UTP: foil screening as overall screening
- Solid conductor
- Outer sheath either as PVC or LSZH

■ Technical data

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

Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C

Characteristic impedance
Z_∞ 100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC versions					
2170186	250 U/UTP Cat.6	4 x 2 x AWG24/1	6.5	18.0	46
Halogen-free versions					
2170193	250 U/UTP Cat.6 LSZH	4 x 2 x AWG24/1	6.5	18.0	46
2170194	250 F/UTP Cat.6 LSZH	4 x 2 x AWG24/1	7.5	19.0	54

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

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APPENDIX

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APPENDIX

New

UNITRONIC® LAN 500 - Cat.6$_A$

LAPP KABEL STUTTGART UNITRONIC® LAN CAT. 6A 4x2xAWG23

LAPP KABEL STUTTGART UNITRONIC® LAN CAT. 6A 4x2xAWG26

Info

- EIA = Electronic Industries Association
- TIA = Telecommunication Industries Association
- TSB = Technical Systems Bulletin

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- The characteristic impedance of this cable is 100 Ohm ±15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM

Approvals

RoHS ✓

- Class E$_A$ out of the standard ISO/IEC 11801 corresponds to Cat.6$_A$
- LAN Cat.6$_A$ cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class E$_A$ - permanent link).

Design

- U/FTP: aluminium compound foil as pair screening
- F/FTP: aluminium compound foil as overall screening and pair screening
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Solid conductor
- Outer sheath either as PVC or LSZH

Technical data

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

Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C

Characteristic impedance
100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC version					
2170143	500 S/FTP Cat.6$_A$	4 x 2 x AWG23/1	7.7	27.0	58
Halogen-free versions					
2170195	500 U/FTP Cat.6$_A$ LSZH	4 x 2 x AWG23/1	7.4	21.0	52
2170196	500 F/FTP Cat.6$_A$ LSZH	4 x 2 x AWG23/1	7.6	22.0	56

Copper price basis: EUR 150/100kg. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Coil 100 m; Drum (500; 1000) m
CAT.6a is available as a draft
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Connector RJ45 CAT.6 Hirose TM21 refer to main catalogue 2012 page 419
- DATA STRIP stripping tool refer to main catalogue 2012 page 907

Data communication systems for ETHERNET-Technology

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Components for building-networking
LAN cables for structured building cabling

New

UNITRONIC® LAN 1000 S/FTP Cat.7

LAPP KABEL STUTTGART UNITRONIC® LAN S/FTP 1000 MHz Cat.7

LAPP KABEL STUTTGART UNITRONIC® LAN S/FTP 1000 MHz Cat.7 DUPLEX

Info
- EIA = Electronic Industries Association
- TIA = Telecommunication Industries Association
- TSB = Technical Systems Bulletin

■ Benefits
- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

■ Application range
- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

■ Product features
- Transfer of digital and analogue data signals
- The characteristic impedance of this cable is 100 Ohm ±15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
  IEEE 802.5: ISDN; FDDI; ATM; cable sharing
  IEEE 802.3at: suitable for PoE

■ Approvals

RoHS ✓

- Class F in the ISO/IEC 11801 standard corresponds to CAT.7

■ Design
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Solid conductor
- Outer sheath: halogen-free, flame-retardant compound

■ Technical data

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

Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C

Characteristic impedance
Z_∞ 100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Halogen-free versions					
2170614	1000 S/FTP Cat.7 LSZH	4 x 2 x AWG23/1	7.7	27.0	60
2170634	1000 S/FTP Cat.7 duplex	2 x (4 x 2 x AWG23/1)	7.7 x 15.4	54.0	120

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

Data communication systems for ETHERNET-Technology
Components for building-networking
LAN cables for structured building cabling

New

UNITRONIC® LAN 1200 S/FTP Cat.7$_A$

LAPP KABEL STUTTGART UNITRONIC® LAN S/FTP 1200 MHz Cat.7A

Info
- Complies with the EN 50173 and ISO/IEC 11801 standards

Benefits
- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range
- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features
- Transfer of digital and analogue data signals
- The cable is specified for up to 1.2 GHz
- The characteristic impedance of this cable is 100 Ohm ±15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
  IEEE 802.5: ISDN; FDDI; ATM; cable sharing
  IEEE 802.3at: suitable for PoE

Approvals
RoHS ✓
- LAN Cat.7$_A$ cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36 as well as ISO/IEC 11801 or EN 50173 (Class F$_A$ - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

Design
- Solid bare copper wire AWG22
- Cellular polyolefin core insulation, max. core diameter 1.6 mm
- Pair screen made of aluminium-lined plastic foil, overall screening made of tinned-copper braiding
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 7032)

Technical data
Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C

Characteristic impedance
100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170615	1200 S/FTP Cat. 7$_A$ LSZH	4 x 2 x AWG22/1	8.1	34.0	66

Copper price basis: EUR 150/100kg. Refer to Appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: Drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories
- Multipurpose shears A and B refer to main catalogue 2012 page 902
- DATA STRIP stripping tool refer to main catalogue 2012 page 907

New

UNITRONIC® LAN 1500 S/FTP Cat.7$_A$

LAPP KABEL STUTTGART UNITRONIC® LAN S/FTP 1500 MHz Cat.7A

Info
- Complies with the EN 50173 and ISO/IEC 11801 standards

Benefits
- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range
- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).

Product features
- Transfer of digital and analogue data signals
- Cable is specified for up to 1.5 GHz
- The characteristic impedance of this cable is 100 Ohm ±15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
  IEEE 802.5: ISDN; FDDI; ATM; cable sharing
  IEEE 802.3at: suitable for PoE, VoIP

Approvals
- LAN Cat.7$_A$ cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36 as well as ISO/IEC 11801 or EN 50173 (Class F$_A$ - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

Design
- Solid bare copper wire AWG22
- Cellular polyolefin core insulation, max. core diameter 1.6 mm
- Pair screen made of aluminium-lined plastic foil, overall screening made of tinned-copper braiding
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 7032)

Technical data
Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Temperature range
Operating temperature: -20°C to +60°C
During installation: 0 °C to +50 °C

Characteristic impedance
100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2170199	1500 S/FTP Cat. 7$_A$ LSZH	4 x 2 x AWG22/1	8.5	42.0	72

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

Data communication systems for ETHERNET-Technology

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Components for building-networking
LAN cables for structured building cabling

New

UNITRONIC® LAN OUTDOOR

LAPP KABEL STUTTGART UNITRONIC® LAN 1000 MHz S/FTP CAT.7 PE 4x2x23AWG/1

Info

- **Data cable for primary, secondary and tertiary cabling with PE outer sheath for outdoor applications**

■ Benefits
- Suitable for outdoor use and direct burial
- UV and water-resistant
- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

■ Application range
- For outdoor use
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

■ Product features
- Transfer of digital and analogue data signals
- The characteristic impedance of this cable is 100 Ohm ±15 %
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T
  IEEE 802.5: ISDN; FDDI; ATM; cable sharing
  IEEE 802.3at: suitable for PoE

■ Approvals
- LAN Cat.7 cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class F - permanent link).

■ Design
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Solid conductor
- Core insulation: foamed polyolefin
- PE outer sheath
- Colour: black (RAL 9005)

■ Technical data

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

Temperature range
Operation: up to +60 °C
During installation: -15 °C to +60 °C

Characteristic impedance
Z_∞ 100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Suitable for direct burial					
2170198	1000 S/FTP Cat.7 (L)PE	4 x 2 x AWG23/1	10.0	34.0	90
Suitable for direct routing underground, not transversely waterproof					
2170197	1000 S/FTP Cat.7 PE	4 x 2 x AWG23/1	9.6	34.0	75

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

New

UNITRONIC® LAN FLEX
Flexible use

LAPP KABEL STUTTGART UNITRONIC® LAN 200 MHz F/UTP CAT.5e Y 4x2x26AWG/7

Info

- **Only for patch cable applications (max. 60 m)**

■ Benefits
- For directly connecting two electric components
- Easy to assemble

■ Application range
- Indoor applications
- LAN connections
- Control cabinet wiring

■ Product features
- Good flexibility - easy installation with tight space requirements

■ Design
- F/UTP: foil screening as overall screening
- SF/UTP: copper braid and foil screening as overall screening
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath either as PVC or LSZH

■ Technical data

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

Characteristic impedance
Z_∞ 100 Ohm +- 15%

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
PVC versions					
2170127	200 F/UTP Cat.5e	4 x 2 x AWG26/7	5.6	13.0	28
2170129	200 SF/UTP Cat.5e	4 x 2 x AWG26/7	6.0	22.0	36
2170144	600 S/FTP CAT7 Y	4 x 2 x AWG26/7	6.5	22.0	39
Halogen-free versions					
2170137	200 F/UTP Cat.5e LSZH	4 x 2 x AWG26/7	5.6	13.0	28
2170139	200 SF/UTP Cat.5e LSZH	4 x 2 x AWG26/7	6.0	22.0	36

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
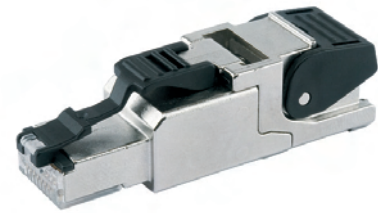
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Connector RJ45 Cat.6$_A$ fieldmountable

Product features

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey

- By a multi-level relief setting the connector can accomodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
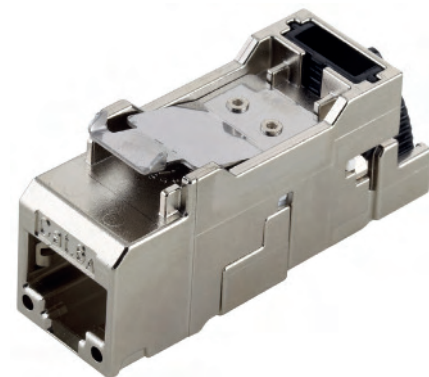- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Article number	Article designation	PU
21700600	EPIC® DATA ED-IE-AX-6$_A$-A-20-FC	10 pieces
21700601	EPIC® DATA ED-IE-AX-6$_A$-B-20-FC	10 pieces

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

New

Easy Connect RJ45 Modul Cat.6$_A$ 10G

Easy Connect RJ45 Modul Cat.6A 10G

Product features

- Field assembly Industrial Ethernet module RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet

- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accomodate a cable diameter from 5,0 mm up to 9,0 mm

- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Article number	Article designation	PU
RJ45 Modul acc. to T568A		
21700611	ED-IE-AX-RJ45F-6A-A-FC	24 pieces
RJ45 Modul acc. to T568B		
21700612	ED-IE-AX-RJ45F-6A-B-FC	24 pieces

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

Data communication systems for ETHERNET-Technology

Components for building-networking

RJ45 Ethernet connector

New

Connector industry RJ45 Cat.6$_A$ 10 IP68

■ Product features
- Housing: brass nickel plated
- Qualified for 10 Gigabit Ethernet
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1
- IP68

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

Article number	Article designation
Inclusive RJ45 connector	
21700630	ED-IE-AX-RJ45-6A-B-68-FC
Dust cap for RJ45 connector	
21700631	ED-IE-AX-RJ45-AC-DC
Inclusive RJ45 Modul acc. to T568A	
21700632	ED-IE-RJ45F-6A-B-68-FC
Dust cap for RJ45 Modul	
21700633	ED-IE-RJ45F-AC-DC

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

New

Easy connect rail mount adapter Cat.6$_A$

■ Product features
- Plastic housing including Easy Connect RJ45 Modul Cat.6A 10G
- Suitable for use in industrial applications
- Integrated strain relief for cable O.D. to 9 mm
- Colour: light grey (RAL 7035)

■ Approvals
- Field assembly Industrial Ethernet module RJ45 according to IEC 60603-7-51

Article number	Article designation
Inclusive RJ45 Modul acc. to T568A	
21700613	EPIC DATA HS RJ45 F 10G A
Inclusive RJ45 Modul acc. to T568B	
21700614	EPIC DATA HS RJ45 F 10G B

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

Data communication systems for ETHERNET-Technology

Components for building-networking

LSA+ connection systems

New

Data Binder LSA+ Cat.7$_A$

■ Product features
- A data connector allows installation cables to be easily extended and damaged cables to be replaced, without having to reinstall the entire cable network.

- For 4pair shielded or unshielded installation cable with diameter of AWG26/1-AWG22/1
- Cable strain relief using cable ties
- ABS (halogen free) housing, black

■ Approvals
- Complies with the EN 50173 and ISO/IEC 11801 standards

Article number	Article designation
21700629	EPIC DATA DV LSA+ Cat.7A

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

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ACCESSORIES

APPENDIX

New

HITRONIC® HQW Armoured Outdoor Cable

Info

- **A-DQ(ZN)(SR)2Y**
- **Outdoor cable with corrugated steel tape armour, central loose tube and non-metallic strength elements**

Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV and water-resistant
- Zero electromagnetic interference as the cable contains no metal

Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environment
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Approvals

RoHS ✓

Design

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strength members
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

Optical fibre type
Core material: Glass
Cladding material: Glass

Temperature range
Operation: -20°C to +60°C
Installation: 0 °C to +50 °C
Storage: -40 °C to +70 °C

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Long-term: 3000 N
Short-term: 5700 N

Article number	Article designation	Fibre type	Number of fibres	Outer diameter (mm)
Multimode G 50 OM3				
27900304	HITRONIC® HQW3000 4G 50/125 OM3	50/125 OM3	4	9.6
27900308	HITRONIC® HQW3000 8G 50/125 OM3	50/125 OM3	8	9.6
27900312	HITRONIC® HQW3000 12G 50/125 OM3	50/125 OM3	12	9.6
27900324	HITRONIC® HQW3000 24G 50/125 OM3	50/125 OM3	24	9.6
Multimode G 50 OM2				
27900204	HITRONIC® HQW3000 4G 50/125 OM2	50/125 OM2	4	9.6
27900208	HITRONIC® HQW3000 8G 50/125 OM2	50/125 OM2	8	9.6
27900212	HITRONIC® HQW3000 12G 50/125 OM2	50/125 OM2	12	9.6
27900224	HITRONIC® HQW3000 24G 50/125 OM2	50/125 OM2	24	9.6
Multimode G 62.5 OM1				
27900104	HITRONIC® HQW3000 4G 62.5/125 OM1	62.5/125 OM1	4	9.6
27900108	HITRONIC® HQW3000 8G 62.5/125 OM1	62.5/125 OM1	8	9.6
27900112	HITRONIC® HQW3000 12G 62.5/125 OM1	62.5/125 OM1	12	9.6
27900124	HITRONIC® HQW3000 24G 62.5/125 OM1	62.5/125 OM1	24	9.6
Singlemode E 9 OS2				
27900904	HITRONIC® HQW3000 4E 9/125 OS2	9/125 OS2	4	9.6
27900908	HITRONIC® HQW3000 8E 9/125 OS2	9/125 OS2	8	9.6
27900912	HITRONIC® HQW3000 12E 9/125 OS2	9/125 OS2	12	9.6
27900924	HITRONIC® HQW3000 24E 9/125 OS2	9/125 OS2	24	9.6

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs are not to scale and do not represent detailed images of the respective products.

Rectangular connectors

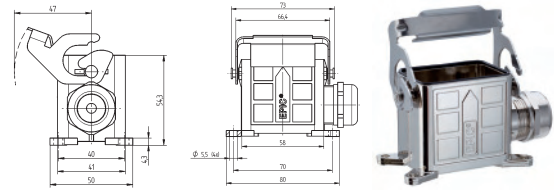EPIC® ULTRA H-B 6

LAPP GROUP

> **New**

EPIC® ULTRA H-B 6 TG LB

> **New**

EPIC® ULTRA H-B 6 TS LB

RoHS ✓

Info
- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

RoHS ✓

Info
- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

■ Benefits
- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

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

■ Product features
- The hoods and surface-mount base are supplied with integrated SKINTOP® cable gland
- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2

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

■ Technical data

Material
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

IP **Protection rating**
IP 65

Temperature range
–40°C to +100°C

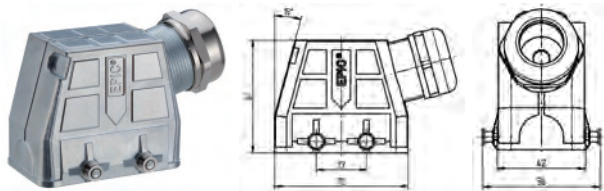| Article number	Article	Cable clamping range (mm)	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: hood (straight cable entry, bolts for single lever)				
70250200	ULTRA H-B 6 TG LB 6-13	6 - 13		1
70250201	ULTRA H-B 6 TG LB 9-17	9 - 17		1
70250202	ULTRA H-B 6 TG LB 9-17 BRUSH	9 - 17	6	1
H-B housing: hood (side cable entry, bolts for single lever)				
70250203	ULTRA H-B 6 TS LB 6-13	6 - 13		1
70250204	ULTRA H-B 6 TS LB 9-17	9 - 17		1
70250205	ULTRA H-B 6 TS LB 9-17 BRUSH	9 - 17	6	1

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

■ Accessories
- FLEXIMARK® ULTRA L 12X8,5 refer to page 84
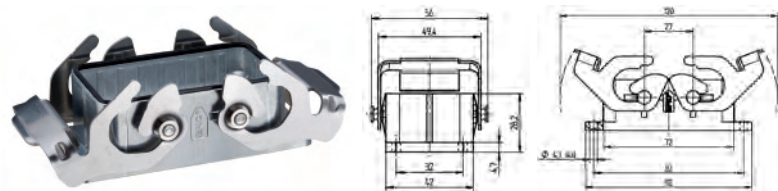
New

EPIC® ULTRA H-B 6 AG LB

RoHS ✓

Info
- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

New

EPIC® ULTRA H-B 6 SGR LB

RoHS ✓

Info
- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

■ Benefits
- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

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

■ Product features
- The hoods and surface-mount base are supplied with integrated SKINTOP® cable gland
- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2

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

■ Technical data

Material
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

IP Protection rating
IP 65

Temperature range
-40°C to +100°C

Article number	Article	Cable clamping range (mm)	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: panel-mount base (single lever)				
70250206	ULTRA H-B 6 AG LB			1
H-B housing: surface-mount base (1 cable entry, single lever)				
70250207	ULTRA H-B 6 SGR LB 6-13	6 – 13		1
70250208	ULTRA H-B 6 SGR LB 9-17	9 – 17		1
70250209	ULTRA H-B 6 SGR LB 9-17 BRUSH	9 – 17	6	1

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

■ Accessories
- FLEXIMARK® ULTRA L 12X8,5 refer to page 84

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

New

EPIC® ULTRA H-B 10 TS QB

RoHS ✓

Info
- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

New

EPIC® ULTRA H-B 10 AG QB

RoHS ✓

Info
- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

■ Benefits
- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

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

■ Product features
- The hoods and surface-mount base are supplied with integrated SKINTOP® cable gland
- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2

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

■ Technical data

Material
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

IP **Protection rating**
IP 65

Temperature range
-40°C to +100°C

Article number	Article	Cable clamping range (mm)	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: hood (side cable entry, bolts for double lever)				
70250210	ULTRA H-B 10 TS QB 7-15	7 - 15		1
70250211	ULTRA H-B 10 TS QB 11-21	11 - 21		1
70250212	ULTRA H-B 10 TS QB 11-21 BRUSH	11 - 21	8	1
H-B housing: panel-mount base (double lever)				
70250213	ULTRA H-B 10 AG QB			1

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

■ Accessories
- FLEXIMARK® ULTRA L 12X8,5 refer to page 84

New

EPIC® ULTRA H-B 16 TS QB

RoHS ✓

Info
- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland
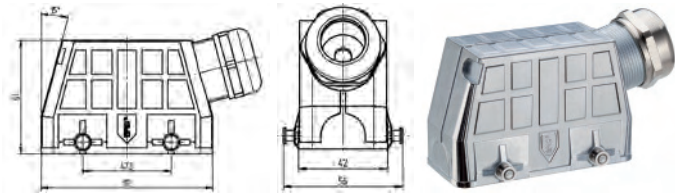
New

EPIC® ULTRA H-B 16 AG QB

RoHS ✓

Info
- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland
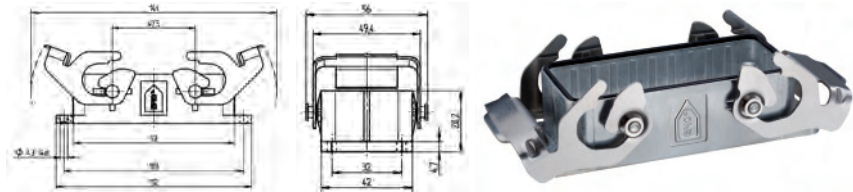
Benefits
- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space–saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

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

Product features
- The hoods and surface-mount base are supplied with integrated SKINTOP® cable gland
- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2

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

Technical data

Material
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

IP **Protection rating**
IP 65

Temperature range
-40°C to +100°C

Article number	Article	Cable clamping range (mm)	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: hood (side cable entry, bolts for double lever)				
70250214	ULTRA H-B 16 TS QB 7-15	7 - 15		1
70250215	ULTRA H-B 16 TS QB 11-21	11 - 21		1
70250216	ULTRA H-B 16 TS QB 11-21 BRUSH	11 - 21	8	1
H-B housing: panel-mount base (double lever)				
70250217	ULTRA H-B 16 AG QB			1

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

Accessories
EPIC® ULTRA H-B 16 AG QB
- FLEXIMARK® ULTRA L 12X8,5 refer to page 84
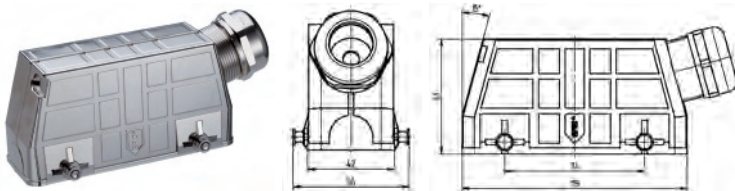
Rectangular connectors

EPIC® ULTRA H-B 24

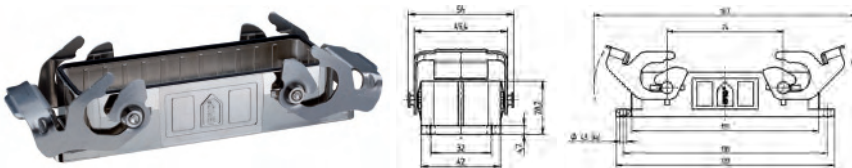**New**

EPIC® ULTRA H-B 24 TS QB

RoHS ✓

Info
- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

New

EPIC® ULTRA H-B 24 AG QB

RoHS ✓

Info
- EMC protection
- Corrosion-resistant
- SKINTOP® integrated cable gland

■ **Benefits**
- Optimum, low-resistance 360° screening
- All-purpose due to high corrosion resistance and high environmental protection.
- Space-saving due to compact dimensions
- Faster than any other comparable system
- High mechanical resistance

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

■ **Product features**
- The hoods and surface-mount base are supplied with integrated SKINTOP® cable gland
- Housings with the BRUSH addition come with BRUSH cable screen contacting
- Pluggable with standard housings
- Corrosion-resistant according to DIN EN 6988
- Resistance to cyclic salt spray is tested according to IEC 68-2-52, severity level 2

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

■ **Technical data**

Material
Housing: nickel-plated zinc die-casting
Lever and bolts: stainless steel
Sealing: NBR
Cable gland
Body: nickel-plated brass
Insert: PA
Seal: special elastomer

Protection rating
IP 65

Temperature range
-40°C to +100°C

Article number	Article	Cable clamping range (mm)	Minimum Ø above braiding (mm)	Pieces / PU
H-B housing: hood (side cable entry, bolts for double lever)				
70250219	ULTRA H-B 24 TS QB 7-15	7 - 15		1
70250220	ULTRA H-B 24 TS QB 11-21	11 - 21		1
70250221	ULTRA H-B 24 TS QB 11-21 BRUSH	11 - 21	8	1
H-B housing: panel-mount base (double lever)				
70250222	ULTRA H-B 24 AG QB			1

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

■ **Accessories**
- FLEXIMARK® ULTRA L 12X8,5 refer to page 84

New

EPIC® H-Q 4+2

RoHS ✓

Info
● 4 power contacts + 2 signal contacts

RoHS ✓

New

EPIC® H-Q 8

RoHS ✓

New

EPIC® H-Q 17

■ Suitable housing:
- EPIC® Q Hood Plastic Page 64
- EPIC® H-Q Panel Base Plastic Page 64
- EPIC® H-Q Panel Base angled Plastic Page 64
- EPIC® H-Q Surface Mount Base Plastic Page [65
- EPIC® H-Q Cable Coupler Plastic Page 65
- EPIC® H-Q Hood Metal Page 65
- EPIC® H-Q Panel Base Metal Page 65

■ Suitable contacts:
EPIC® H-Q 4+2
- EPIC® H-Q 6mm contacts Page 63

EPIC® H-Q 8
- EPIC® H-Q 2.5mm Contacts Page 62

EPIC® H-Q 17
- EPIC® H-Q 1.6mm contacts Page 62

■ Benefits
- Insert suitable for plastic and metal housings
- Space-saving

■ Application range
- Servo and power drive systems
- Mechanical engineering
- Plant engineering

■ Technical data

Rated voltage (V)
EPIC® H-Q 4+2
IEC: 400/690 V (H-Q contacts)
UL: 600 V (H-Q contacts)
CSA: 600 V (H-Q contacts)
EPIC® H-Q 8
IEC: 500 V
UL: 600 V
CSA: 600 V
EPIC® H-Q 17
IEC: 250 V
UL: 600 V
CSA: 600 V

Rated impulse voltage
EPIC® H-Q 4+2
6KV (H-Q 6 mm contacts)
4KV (H-Q 2.5 mm contacts)
EPIC® H-Q 8
6 kV
EPIC® H-Q 17
4 kV

Rated current (A)
EPIC® H-Q 4+2
IEC: 40 A (H-Q 6 mm contacts)
10 A (H-Q 2.5 mm contacts)
EPIC® H-Q 8
IEC: 16 A
UL: 16 A
CSA: 16 A
EPIC® H-Q 17
max. 10 A

Degree of soiling
EPIC® H-Q 4+2
3
EPIC® H-Q 8
3
EPIC® H-Q 17
2

Contact resistance
EPIC® H-Q 4+2
< 4 mOhm
EPIC® H-Q 8
< 2 mOhm
EPIC® H-Q 17
< 2 mOhm

Contacts
EPIC® H-Q 4+2
Copper alloy, hard silver-plated
EPIC® H-Q 8
Copper alloy, hard silver-plated
EPIC® H-Q 17
Copper alloy, hard silver/gold-plated

Number of contacts
EPIC® H-Q 4+2
4 + 2 + PE
EPIC® H-Q 8
8 + PE
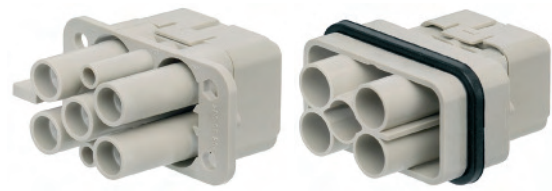**EPIC® H-Q 17**
17 + PE

Termination methods
EPIC® H-Q 4+2
Crimp termination: 1.5 - 6.0 mm² (H-Q 6mm contacts)
0.14 - 2.5 mm² (H-Q 1.6mm contacts)
EPIC® H-Q 8
Crimp termination: 0.5 - 4.0 mm²
EPIC® H-Q 17
Crimp termination: 0.14 - 2.5 mm²

Cycle of mechanical operation
500

Temperature range
-40°C to +125°C

Article number	Article	Version	Article designation	Contacts	Pieces / PU
H-Q 4+2 crimp termination					
44420511	H-Q 4+2 SCM	male	machined	4 + 2	1
44420510	H-Q 4+2 BCM	female	machined	4 + 2	1
H-Q 8 crimp termination					
44420527	H-Q 8 SCM	male	machined	1 - 8	1
44420526	H-Q 8 BCM	female	machined	1 - 8	1
H-Q 17 crimp termination					
44420525	H-Q 17 SCM	male	machined	1 - 17	1
44420524	H-Q 17 BCM	female	machined	1 - 17	1

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

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ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

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FLEXIMARK®

ACCESSORIES

APPENDIX

EPIC® Industrial connectors

Rectangular connectors

EPIC® H-Q contacts, tools, accessories

New

EPIC® H-Q 1.6mm contacts

New

H-Q 1.6mm/2.5mm Crimptool

Article number	Article	Version	Cross-section (min) in mm²	Cross-section (max) in mm²	Surface	Stripping length (mm)	Pieces / PU
Contacts							
44429415	H-Q 1.6 machined	male	0.14	0.37	Ag	8.0	100
44429410	H-Q 1.6 machined	female	0.14	0.37	Ag	8.0	100
44429416	H-Q 1.6 machined	male	0.50		Ag	8.0	100
44429411	H-Q 1.6 machined	female	0.50		Ag	8.0	100
44429417	H-Q 1.6 machined	male	0.75	1.00	Ag	8.0	100
44429412	H-Q 1.6 machined	female	0.75	1.00	Ag	8.0	100
44429418	H-Q 1.6 machined	male	1.50		Ag	8.0	100
44429413	H-Q 1.6 machined	female	1.50		Ag	8.0	100
44429419	H-Q 1.6 machined	male	2.50		Ag	8.0	100
44429414	H-Q 1.6 machined	female	2.50		Ag	8.0	100
44429425	H-Q 1.6 machined	male	0.14	0.37	Au	8.0	100
44429420	H-Q 1.6 machined	female	0.14	0.37	Au	8.0	100
44429426	H-Q 1.6 machined	male	0.50		Au	8.0	100
44429421	H-Q 1.6 machined	female	0.50		Au	8.0	100
44429427	H-Q 1.6 machined	male	0.75	1.00	Au	8.0	100
44429422	H-Q 1.6 machined	female	0.75	1.00	Au	8.0	100
44429428	H-Q 1.6 machined	male	1.50		Au	8.0	100
44429423	H-Q 1.6 machined	female	1.50		Au	8.0	100
44429424	H-Q 1.6 machined	female	2.50		Au	8.0	100
44429429	H-Q 1.6 machined	male	2.50		Au	8.0	100
Tools							
44429430	Crimptool for H-Q 1.6 and H-Q 2.5 contacts						1

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

New

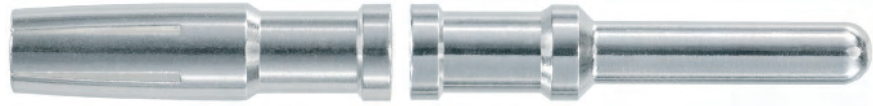## EPIC® H-Q 2.5mm Contacts

New

H-Q 1.6mm/2.5mm Crimptool

Article number	Article	Version	Cross-section (min) in mm²	Cross-section (max) in mm²	Surface	Stripping length (mm)	Pieces / PU
Contacts							
44429405	H-Q 2.5 machined	male	0.50		Ag	7.5	100
44429400	H-Q 2.5 machined	female	0.50		Ag	7.5	100
44429406	H-Q 2.5 machined	male	0.75	1.00	Ag	7.5	100
44429401	H-Q 2.5 machined	female	0.75	1.00	Ag	7.5	100
44429407	H-Q 2.5 machined	male	1.50		Ag	7.5	100
44429402	H-Q 2.5 machined	female	1.50		Ag	7.5	100
44429408	H-Q 2.5 machined	male	2.50		Ag	7.5	100
44429403	H-Q 2.5 machined	female	2.50		Ag	7.5	100
44429409	H-Q 2.5 machined	male	4.00		Ag	7.5	100
44429404	H-Q 2.5 machined	female	4.00		Ag	7.5	100
Tools							
44429430	Crimptool for H-Q 1.6 and H-Q 2.5 contacts						1

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

New

EPIC® H-Q 6mm contacts

New

H-Q 6mm Crimptool

Article number	Article	Version	Cross-section (mm²)	Surface	Stripping length (mm)	Pieces / PU
Contacts						
44420512	EPIC H-Q 4.0 machined	male	1.5	Ag	8.0	25
44420513	EPIC H-Q 4.0 machined	male	2.5	Ag	8.0	25
44420514	EPIC H-Q 4.0 machined	male	4.0	Ag	8.0	25
44420515	EPIC H-Q 4.0 machined	male	6.0	Ag	8.0	25
44420516	EPIC H-Q 4.0 machined	female	1.5	Ag	8.0	25
44420517	EPIC H-Q 4.0 machined	female	2.5	Ag	8.0	25
44420518	EPIC H-Q 4.0 machined	female	4.0	Ag	8.0	25
44420519	EPIC H-Q 4.0 machined	female	6.0	Ag	8.0	25
Tools						
44429431	Crimptool for H-Q 6mm contacts					1

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

New

EPIC® H-Q Cable Glands

New

EPIC® H-Q Accessories

Article number	Article	Version	Pieces / PU
H-Q cable glands for V16P housings (plastic housings)			
44420537	EPIC H-Q Cable gland	9-13mm	1
44420536	EPIC H-Q Cable gland	11.5 - 15.5mm	1
H-Q cable glands for V21M housings (metal housings)			
44420541	EPIC H-Q Cable gland	9-13mm	1
44420542	EPIC H-Q Cable gland	11.5 - 15.5mm	1
44420543	EPIC H-Q Cable gland	14 - 18mm	1
H-Q EMC cable gland for V21M housings (metal housings)			
44420544	EPIC H-Q cable gland EMC	11.5 - 15.5mm	1
44420545	EPIC H-Q cable gland EMC	14 - 18mm	1
44420534	EPIC H-Q dust cap	for housing H-Q with female insert	1
44420535	EPIC H-Q dust cap	for housing H-Q with male insert	1

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

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ACCESSORIES

APPENDIX

Rectangular connectors

EPIC® H-Q housings

LAPP GROUP

New

EPIC® Q Hood Plastic

RoHS ✓

New

EPIC® H-Q Panel Base Plastic

RoHS ✓

EPIC® H-Q Panel Base angled Plastic

RoHS ✓

■ Benefits

- Housing in plastic or metal version. For power supply in the smallest possible space
- Neck for cable gland integrated, use with special H-Q cable glands
- With mnetal housing EMC cable gland as an option

■ Application range

EPIC® Q Hood Plastic

- Plastic housings for standard applications
- Metal housings for increased environmental requirements

■ Technical data

Material
Housing: thermoplastic, grey
Lever: metal

Protection rating
IP 66

Temperature range
-40°C to +125°C

Article number	Article	M	Pieces / PU
H-Q housings – hoods (straight cable entry)			
44420530	H-Q TG V16P	V16P	1
H-Q Houusing Hood (Cable Entry side)			
44420531	H-Q TS V16P	V16P	1
H-Q housings – panel-mount base housings			
44420528	H-Q AG P		1
H-Q housings – angled panel-mount base housings			
44420529	H-Q WAG P		1

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

For current information see: www.lappgroup.com

New

EPIC® H-Q Surface Mount Base Plastic

New

EPIC® H-Q Cable Coupler Plastic

■ Benefits

- Housing in plastic or metal version. For power supply in the smallest possible space
- Neck for cable gland integrated, use with special H-Q cable glands
- With mnetal housing EMC cable gland as an option

■ Technical data

Material
Housing: thermoplastic, grey
Lever: metal

IP **Protection rating**
IP 66

Temperature range
-40°C to +125°C

Article number	Article	M	Pieces / PU
H-Q housings – surface-mount bases (1 cable entry)			
44420532	H-Q SGR V16P	V16P	1
H-Q housings – cable coupler hoods (straight cable entry)			
44420533	H-Q KG V16P	V16P	1

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

New

EPIC® H-Q Hood Metal

New

EPIC® H-Q Panel Base Metal

■ Benefits

- Housing in plastic or metal version. For power supply in the smallest possible space
- Neck for cable gland integrated, use with special H-Q cable glands
- With mnetal housing EMC cable gland as an option

■ Technical data

Material
Housing: zinc die-casting

Temperature range
-40°C to +125°C

IP **Protection rating**
IP 66

Article number	Article	M	Pieces / PU
H-Q Houusing Hood (Cable Entry side)			
44420540	H-Q TS V21M	V21M	1
H-Q housings – hoods (straight cable entry)			
44420539	H-Q TG V21M	V21M	1
H-Q housings – panel-mount base housings			
44420538	H-Q AG M	V21M	1

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

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

Solar connectors

EPIC® SOLAR 4

New

EPIC® SOLAR 4 M

RoHS ✓
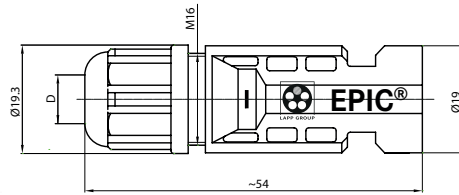
Info

- 4 mm connector system with double hook
- Field-mountable solar connector

New

EPIC® SOLAR 4 F

RoHS ✓
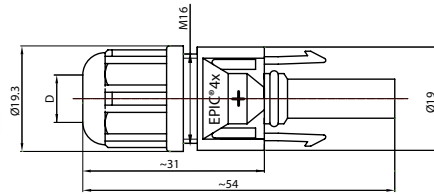
Info

- 4 mm connector system with double hook
- Field-mountable solar connector

■ Benefits

- Low contact-resistance for efficient power transmission
- Crimp connection for field mounting
- Suitable for various ÖLFLEX® SOLAR cables

■ Application range

- Photovoltaic plants
- Crystalline and thin-film constructions
- Solartracker

■ Product features

- 4 mm connector system with double hook
- UL pending

■ Suitable cables

- EPIC® SOLAR XLR-R Page 14
- EPIC® SOLAR XLS-R Page 15
- EPIC® SOLAR XLR 4703 Page 16

■ Suitable tools

- EPIC® SOLAR TOOL Page 67

■ Technical data

Rated voltage (V)
1000 V AC/DC

Rated impulse voltage
6 kV

Degree of soiling
3

Contact resistance
< 5 mOhm

IP **Protection rating**
IP 67

Protection class
II

Temperature range
–40 °C ... +85 °C

Article number	Article designation	Cross-section (mm²)	Cable clamping range (mm)	Rated current (A)	PU
EPIC® SOLAR 4 male field-mountable					
44428200	EPIC® SOLAR 4 M 2.5 mm²	2.5	4.5 - 6.5	22.0	100
44428201	EPIC® SOLAR 4 M 4mm²	4 - 6	5.0 - 7.2	30.0	100
EPIC® SOLAR 4 female field-mountable					
44428203	EPIC® SOLAR 4 F 2.5 mm²	2.5	4.5 - 6.5	22.0	100
44428204	EPIC® SOLAR 4 F 4mm²	4 - 6	5.0 - 7.2	30.0	100

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

New

EPIC® CRIMPTOOL

New

EPIC® SOLAR TOOL CSC

Info

- Cutting, stripping and crimping with just one tool

New

EPIC® SOLAR TOOL

Info

- 3 cross section in one tool

■ Application range

- For crimping of the photovoltaic connector EPIC® SOLAR 4 in the field
- For EPIC® SOLAR 4 and MC4 suitable

■ Product features

EPIC® SOLAR TOOL CSC

- Multi- functional die for cutting, stripping and crimping with just one tool
- Locator for the safe and accurate positioning of the crimping contacts

EPIC® SOLAR TOOL

- Crimping die for the cable cross sections of 2,5mm², 4mm² and 6mm²
- Locator for the safe and accurate positioning of the crimping contacts

■ Suitable cables

- EPIC® SOLAR XLR-R Page 14
- EPIC® SOLAR XLS-R Page 15
- EPIC® SOLAR XLR 4703 Page 16

■ Suitable connectors

- EPIC® SOLAR 4 Page 66

Article number	Article	Cross-section (min) in mm²	Cross-section (max) in mm²	PU
Crimptool				
11147000	Crimptool			1
Multi-functional die CSC				
44428992	EPIC® SOLAR TOOL CSC Die 4mm²		4.00	1
44428993	EPIC® SOLAR Tool CSC Die 6mm²		6.00	1
44428994	EPIC® SOLAR TOOL LOC 4, 6mm²	4.00	6.00	1
Crimping die				
44428995	EPIC® SOLAR Tool DIE 2.5, 4, 6mm²	2.50	6.00	1
44428996	EPIC® SOLAR Tool LOC 2.5, 4, 6mm²	2.50	6.00	1

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

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

SKINTOP® metric nickel-plated brass cable glands

SKINTOP® EMC/Earthing

LAPP GROUP

New

SKINTOP® BRUSH ADD-ON

■ **Benefits**
- Optimum low-resistance 360° screen contact
- Cutting edges cut through the insulating layer of the housing or switch cabinets, thus guaranteeing an optimum EMC contact
- Easy disassembling
- Visible, large-scale screen contact
- Uncomplicated and reliable

■ **Application range**
- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- For EMC-contact at through bore-holes
- Control cabinet manufacturing
- Automation systems
- Conveyor and transport systems

■ **Approvals**

CE RoHS ✓

■ **Design**
- Metric connection thread acc. to EN 50262

Info
- Innovative EMC add-on for SKINTOP® ST(R)-M polyamide cable glands.
- Worlds first patented active EMC lock-nut!

■ **Technical data**

Caution
Refer to Appendix T21 for the installation dimensions and torques

Approvals
UL pending

Material
Body: nickel-plated brass
EMC brush: brass

Temperature range
-70°C to +200°C

Article number	Article designation / size	Minimum Ø above braiding (mm)	SW (mm)	Thread length inner mm	Pieces / PU
54110840	M 16 x 1,5	5.0	24	10.0	25
54110841	M 20 x 1,5	5.0	24	10.0	10
54110842	M 25 x 1,5	5.0	30	10.0	10
54110843	M 32 x 1,5	8.0	39	12.0	10
54110844	M 40 x 1,5	10.0	47	12.0	5
54110845	M 50 x 1,5	14.0	56	12.0	5

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

■ **Accessories**
- SKINTOP® BS-M refer to main catalogue 2012 page 657
- SKINTOP® ST-M refer to page 69
- SKINTOP® STR-M refer to page 69
- SKINTOP® BT-M refer to main catalogue 2012 page 659
- SKINTOP® ST-HF-M refer to main catalogue 2012 page 656
- SKINTOP® COLD refer to page 74
- SKINTOP® COLD-R refer to page 74

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

New

SKINTOP® ST-M / SKINTOP® STR-M
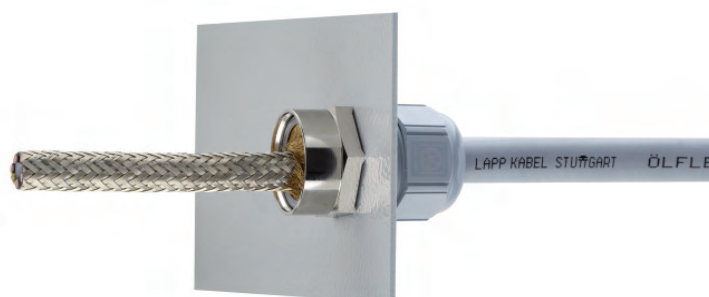
SKINTOP® ST-M

SKINTOP® STR-M

Info

- **Now with IP 69 K approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!**
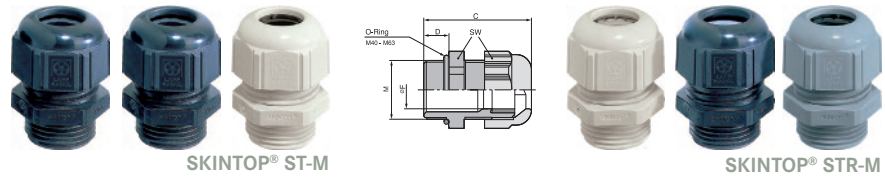
Benefits

SKINTOP® ST-M

- High oil-resistance for maximum reliability
- Permanent vibration protection
- Wide, variable clamping ranges
- Optimum strain relief
- Various accessories (e.g. multiple sealing inserts)

SKINTOP® STR-M

- For the benefits, refer to SKINTOP® ST-M

Application range

SKINTOP® ST-M

- Used in areas where cables and wires need to be safely inserted into housings
- Machine and equipment manufacturing
- Photovoltaic
- Automation technology
- Offshore platforms, equipment and shipyards

SKINTOP® STR-M

- With reducing seal insert, to seal cables with smaller outer diameters.

Approvals

CE c(UL)us VDE C(UL)us Vd TÜV GGVS

RoHS ✓ DNV

- UL File Nr. E79903

Design

- Metric connection thread acc. to EN 50262

Note

SKINTOP® ST-M

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- SKINTOP® ST M ISO types have an extra-long connection thread
- SKINTOP® ST M ISO versions with extra-long connection thread, see table, no DNV approval

SKINTOP® STR-M

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- SKINTOP® STR M ISO types have an extra-long connection thread
- SKINTOP® STR M ISO versions with extra-long connection thread, see table, no DNV approval

Suitable cables

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

Technical data

Caution
Refer to Appendix T21 for the installation dimensions and torques

RAL Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: Polyamide
Seal: CR

Tests
GGVS: TÜ.EGG.020-95

IP Protection rating
IP 68 - 5 bar
IP 69 K

Temperature range
Fixed: -40°C to +100°C
Dynamic: -20°C to +100°C

Suitable tools

SKINTOP® ST-M

- SKINMATIC® QUICK Set 1 refer to page 78
- SKINMATIC® RZ refer to main catalogue 2012 page 711
- SKINMATIC® TORQUE WRENCH refer to page 78

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® ST-M silver grey						
53111000	ST-M 12 x 1,5	3,5-7	15	30.0	8.0	100
53111010	ST-M 16 x 1,5	4,5-10	19	34.0	8.0	100
53111020	ST-M 20 x 1,5	7-13	25	37.0	9.0	100
53111030	ST-M 25 x 1,5	9-17	30	40.0	10.0	50
53111040	ST-M 32 x 1,5	11-21	36	47.0	10.0	25
53111050	ST-M 40 x 1,5	19-28	46	52.0	10.0	10
53111060	ST-M 50 x 1,5	27-35	55	62.0	12.0	5
53111070	ST-M 63 x 1,5	34-45	66	71.0	12.0	5
SKINTOP® ST-M black						
53111200	ST-M 12 x 1,5	3,5-7	15	30.0	8.0	100
53111210	ST-M 16 x 1,5	4,5-10	19	34.0	8.0	100
53111220	ST-M 20 x 1,5	7-13	25	37.0	9.0	100
53111230	ST-M 25 x 1,5	9-17	30	40.0	10.0	50
53111240	ST-M 32 x 1,5	11-21	36	47.0	10.0	25
53111250	ST-M 40 x 1,5	19-28	46	52.0	10.0	10
53111260	ST-M 50 x 1,5	27-35	55	62.0	12.0	5
53111270	ST-M 63 x 1,5	34-45	66	71.0	12.0	5
SKINTOP® ST-M light grey						
53111400	ST-M 12 x 1,5	3,5-7	15	30.0	8.0	100
53111410	ST-M 16 x 1,5	4,5-10	19	34.0	8.0	100
53111420	ST-M 20 x 1,5	7-13	25	37.0	9.0	100
53111430	ST-M 25 x 1,5	9-17	30	40.0	10.0	50
53111440	ST-M 32 x 1,5	11-21	36	47.0	10.0	25
53111450	ST-M 40 x 1,5	19-28	46	52.0	10.0	10
53111460	ST-M 50 x 1,5	27-35	55	62.0	12.0	5
53111470	ST-M 63 x 1,5	34-45	66	71.0	12.0	5
SKINTOP® ST M ISO silver-grey (with long metric connecting thread)						
53017010	ST M 16 x 1,5	3,5-8	19	40.0	12.0	100
53017030	ST M 20 x 1,5	5-12	24	45.0	13.0	100
53017040	ST M 25 x 1,5	9-14	27	47.0	13.0	50
SKINTOP® ST M ISO black (with long metric connecting thread)						
53017210	ST M 16 x 1,5	3,5-8	19	40.0	12.0	100
53017230	ST M 20 x 1,5	5-12	24	45.0	13.0	100
53017240	ST M 25 x 1,5	9-14	27	47.0	13.0	50

Cable glands

LAPP GROUP

SKINTOP® metric plastic cable glands
SKINTOP® Standard

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® STR-M silver grey						
53111100	STR-M 12 x 1,5	1-5	15	30.0	8.0	100
53111110	STR-M 16 x 1,5	2-7	19	34.0	8.0	100
53111120	STR-M 20 x 1,5	5-10	25	37.0	9.0	100
53111130	STR-M 25 x 1,5	6-13	30	40.0	10.0	50
53111140	STR-M 32 x 1,5	7-15	36	47.0	10.0	25
53111150	STR-M 40 x 1,5	15-23	46	52.0	10.0	10
53111160	STR-M 50 x 1,5	22-29	55	62.0	12.0	5
53111170	STR-M 63 x 1,5	28-39	66	71.0	12.0	5
SKINTOP® STR-M black						
53111300	STR-M 12 x 1,5	1-5	15	30.0	8.0	100
53111310	STR-M 16 x 1,5	2-7	19	34.0	8.0	100
53111320	STR-M 20 x 1,5	5-10	25	37.0	9.0	100
53111330	STR-M 25 x 1,5	6-13	30	40.0	10.0	50
53111340	STR-M 32 x 1,5	7-15	36	47.0	10.0	25
53111350	STR-M 40 x 1,5	15-23	46	52.0	10.0	10
53111360	STR-M 50 x 1,5	22-29	55	62.0	12.0	5
53111370	STR-M 63 x 1,5	28-39	66	71.0	12.0	5
SKINTOP® STR-M light grey						
53111500	STR-M 12 x 1,5	1-5	15	30.0	8.0	100
53111510	STR-M 16 x 1,5	2-7	19	34.0	8.0	100
53111520	STR-M 20 x 1,5	5-10	25	37.0	9.0	100
53111530	STR-M 25 x 1,5	6-13	30	40.0	10.0	50
53111540	STR-M 32 x 1,5	7-15	36	47.0	10.0	25
53111550	STR-M 40 x 1,5	15-23	46	52.0	10.0	10
53111560	STR-M 50 x 1,5	22-29	55	62.0	12.0	5
53111570	STR-M 63 x 1,5	28-39	66	71.0	12.0	5
SKINTOP® STR M ISO silver-grey (with long metric connecting thread)						
53017110	STR M 16 x 1,5	2-6	19	40.0	12.0	100
53017130	STR M 20 x 1,5	4-9	24	45.0	13.0	100
53017140	STR M 25 x 1,5	6-12	27	47.0	13.0	50
SKINTOP® STR M ISO black (with long metric connecting thread)						
53017310	STR M 16 x 1,5	2-6	19	40.0	12.0	100
53017330	STR M 20 x 1,5	4-9	24	45.0	13.0	100
53017340	STR M 25 x 1,5	6-12	27	47.0	13.0	50

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

■ **Accessories**

SKINTOP® ST-M
- SKINTOP® DIX-M refer to main catalogue 2012 page 672
- SKINTOP® GMP-GL-M refer to main catalogue 2012 page 670
- SKINTOP® DIX-M AUTOMATION refer to page 76
- SKINTOP® SDV-M ATEX refer to main catalogue 2012 page 674
- SKINTOP® SD-M refer to main catalogue 2012 page 675
- SKINTOP® DV-M refer to main catalogue 2012 page 675

SKINTOP® STR-M
- SKINTOP® GMP-GL-M refer to main catalogue 2012 page 670
- SKINTOP® SDVR-M ATEX refer to main catalogue 2012 page 674
- SKINTOP® SD-M refer to main catalogue 2012 page 675

New

SKINTOP® CLICK / SKINTOP® CLICK-R

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

Info

- **The most innovative cable insertion system in the market for a fast and highly flexible assembly. Simply click in - turn to the left - turn to the right - finished. The result: fixed, centred, strain-relieved fitting and maximum protection class in a few seconds.**
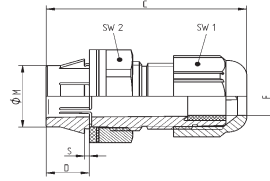
■ Benefits

SKINTOP® CLICK

- Fewer parts, counter nut no longer needed
- Save up to 70% of the time with the innovative CLICK system
- Simple, free assembly in any position
- Vibration protection
- No thread required

SKINTOP® CLICK-R

- For the benefits, refer to SKINTOP® CLICK

■ Application range

SKINTOP® CLICK

- Automation technology
- Solar applications
- Control cabinet manufacturing
- Measurement, control and electrical applications
- Air-conditioning technology

SKINTOP® CLICK-R

- With reducing seal insert, to seal cables with smaller outer diameters.

■ Approvals

C€ c(UL)us D/E c ꓵ us
RoHS ✓

- UL File Nr. E79903

■ Included

- Included: disassembly tool

■ Technical data

RAL **Colour delivered**
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: special polyamide
Seal: special elastomer

IP **Protection rating**
SKINTOP® CLICK
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M32)

Temperature range
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	M (hole in mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Wall thickness, S (mm)	Pieces / PU
SKINTOP® CLICK light grey								
53112692	CLICK 12	3.5 - 7	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112686	CLICK 16	5 - 9	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112687	CLICK 20	7 - 13	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112688	CLICK 25	9 - 17	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112694	CLICK 32	11 - 21	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK silver grey								
53112921	CLICK 12	3.5 - 7	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112876	CLICK 16	5 - 9	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112877	CLICK 20	7 - 13	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112878	CLICK 25	9 - 17	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112922	CLICK 32	11 - 21	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK black								
53112923	CLICK 12	3.5 - 7	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112882	CLICK 16	5 - 9	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112883	CLICK 20	7 - 13	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112884	CLICK 25	9 - 17	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112924	CLICK 32	11 - 21	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK-R light grey								
53112925	CLICK-R 12	1 - 5	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112689	CLICK-R 16	4 - 7	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112690	CLICK-R 20	5 - 10	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112691	CLICK-R 25	6 - 13	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112926	CLICK-R 32	7 - 15	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK-R silver grey								
53112927	CLICK-R 12	1 - 5	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112879	CLICK-R 16	4 - 7	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112880	CLICK-R 20	5 - 10	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112881	CLICK-R 25	6 - 13	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112928	CLICK-R 32	7 - 15	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK-R black								
53112929	CLICK-R 12	1 - 5	12.3 (-0.2)	15 / 18	40.0	8.0	1.0 - 4.0	50
53112885	CLICK-R 16	4 - 7	16.3 (-0.2)	19 / 22	42.0	8.0	1.0 - 4.0	50
53112886	CLICK-R 20	5 - 10	20.3 (-0.2)	25 / 27	45.5	8.0	1.0 - 4.0	25
53112887	CLICK-R 25	6 - 13	25.3 (-0.2)	30 / 34	48.5	8.0	1.0 - 4.0	25
53112931	CLICK-R 32	7 - 15	32.3 (-0.2)	36 / 40	55.0	8.0	1.0 - 4.0	25

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

■ Accessories

SKINTOP® CLICK

- SKINTOP® DIX-M refer to main catalogue 2012 page 672
- SKINTOP® DIX-M AUTOMATION refer to page 76
- SKINTOP® SDV-M ATEX refer to main catalogue 2012 page 674
- SKINTOP® SD-M refer to main catalogue 2012 page 675
- SKINTOP® DV-M refer to main catalogue 2012 page 675

SKINTOP® CLICK-R

- SKINTOP® SDVR-M ATEX refer to main catalogue 2012 page 674

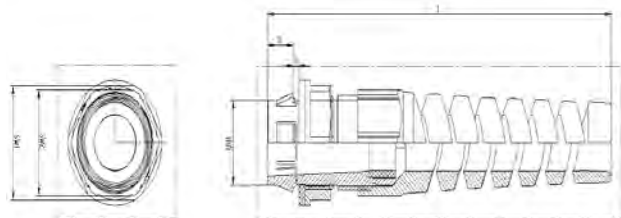# Cable glands

SKINTOP® metric plastic cable glands

SKINTOP® bending protection

LAPP GROUP

New

SKINTOP® CLICK BS

SKINTOP® CLICK BS

Info

- **The most innovative cable insertion system in the market for a fast and highly flexible assembly. Simply click in - turn to the left - turn to the right - finished. The result: fixed, centred, strain-relieved fitting and maximum protection class in a few seconds.**

■ Benefits

- Reliable bending protection for cable conservation and functional reliability
- Save up to 70% of the time with the innovative CLICK system
- No thread required
- To protect flexible cables
- Fewer parts, counter nut no longer needed

■ Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0730.
- Robotics industry
- Moving machine parts
- Apparatus construction
- Light and sound applications

■ Approvals

CE   cULus   D E   c UL us

RoHS ✓

- UL File Nr. E79903

■ Included

- Included: disassembly tool

■ Technical data

Colour delivered
Silver grey (RAL 7001)
Light grey (RAL 7035)
Black (RAL 9005), UV-resistant

Material
Body: special polyamide
Seal: special elastomer

Protection rating
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M32)

Temperature range
-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	M (hole in mm)	SW1/SW2 mm	Overall length, C (mm)	Thread length, D (mm)	Wall thickness, S (mm)	Pieces / PU
SKINTOP® CLICK BS light grey								
53112932	CLICK BS 12	3,5-7	12.3 (-0.2)	15 / 18	74.0	8.0	1.0 - 4.0	50
53112888	CLICK BS 16	5-9	16.3 (-0.2)	19 / 22	94.0	8.0	1.0 - 4.0	50
53112889	CLICK BS 20	7-13	20.3 (-0.2)	19 / 22	108.0	8.0	1.0 - 4.0	25
53112890	CLICK BS 25	9-17	25.3 (-0.2)	30 / 34	127.0	8.0	1.0 - 4.0	25
53112933	CLICK BS 32	11-21	32.3 (-0.2)	36 / 40	155.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK BS silver grey								
53112934	CLICK BS 12	3,5-7	12.3 (-0.2)	15 / 18	74.0	8.0	1.0 - 4.0	50
53112906	CLICK BS 16	5-9	16.3 (-0.2)	19 / 22	94.0	8.0	1.0 - 4.0	50
53112907	CLICK BS 20	7-13	20.3 (-0.2)	19 / 22	108.0	8.0	1.0 - 4.0	25
53112908	CLICK BS 25	9-17	25.3 (-0.2)	30 / 34	127.0	8.0	1.0 - 4.0	25
53112935	CLICK BS 32	11-21	32.3 (-0.2)	36 / 40	155.0	8.0	1.0 - 4.0	25
SKINTOP® CLICK BS black								
53112936	CLICK BS 12	3,5-7	12.3 (-0.2)	15 / 18	74.0	8.0	1.0 - 4.0	50
53112909	CLICK BS 16	5-9	16.3 (-0.2)	19 / 22	94.0	8.0	1.0 - 4.0	50
53112911	CLICK BS 20	7-13	20.3 (-0.2)	19 / 22	108.0	8.0	1.0 - 4.0	25
53112912	CLICK BS 25	9-17	25.3 (-0.2)	30 / 34	127.0	8.0	1.0 - 4.0	25
53112937	CLICK BS 32	11-21	32.3 (-0.2)	36 / 40	155.0	8.0	1.0 - 4.0	25

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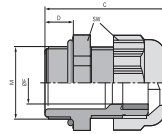
ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES

APPENDIX

New

SKINTOP® SOLAR / SKINTOP® SOLAR plus

SKINTOP® for photovoltaics

SKINTOP®SOLAR

SKINTOP®SOLAR plus

Info

● **Cable gland for photovoltaik applications, based on EN 50262, EN 50548 and UL 1703.**
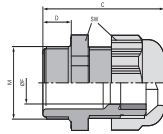
■ Benefits

● UV and ozone-resistant
● UL 746 C - UL F1 outdoor use
● High strain relief
● Permanent vibration protection
● Extremely flame-retardant according to UL 94V-0 / 94-5VA

■ Application range

● Photovoltaic plants and solar parks

■ Approvals

CE c ⓊL us RoHS ✓

● UL File Nr. E79903

■ Design

● Metric connection thread acc. to EN 50262

■ Note

● Counter nut to be used: SKINDICHT® SM-M
● Counter nut to be used: SKINTOP® GMP-GL-M

■ Suitable cables

● ÖLFLEX® SOLAR

■ Suitable tools

● SKINMATIC® RZ
● SKINMATIC® QUICK SET 1

■ Technical data

Caution
Refer to Appendix T21 for the installation dimensions and torques

RAL **Colour delivered**
SKINTOP® SOLAR
Black (RAL 9005)
SKINTOP® SOLAR plus
RAL 9005 black/UV-resistant

Material
SKINTOP® SOLAR
Body: Polycarbonate
Seal: CR
SKINTOP® SOLAR plus
Body: Polycarbonate
Seal: Silicone
O-Ring: Silicone

Tests
Cold impact test according to UL 1703/UL 746 C

IP **Protection rating**
IP 68 - 5 bar

Temperature range
SKINTOP® SOLAR
-40°C to +100°C
SKINTOP® SOLAR plus
-40°C to +125°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® SOLAR						
53113300	SOLAR M12x1,5	3,5-7	15	36.0	15.0	100
53113310	SOLAR M16x1,5	7-9	19	34.0	8.0	100
SKINTOP® SOLAR plus						
53113321	SOLAR plus M12x1,5	3,5-7	15	36.0	15.0	100
53113331	SOLAR plus M16x1,5	7-9	19	34.0	8.0	100

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

SKINTOP® metric nickel-plated brass cable glands

SKINTOP® COLD

LAPP GROUP

New

SKINTOP® COLD / SKINTOP® COLD-R

SKINTOP® COLD
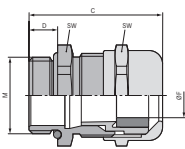
SKINTOP® COLD-R

Info

- **For extreme sub-zero temperatures**

■ Benefits

SKINTOP® COLD
- High cold-resistance
- Cold impact resistance
- High mechanical stability
- Optimum strain relief
- Wide, variable clamping ranges

SKINTOP® COLD-R
- For the benefits, refer to SKINTOP® COLD

■ Application range

SKINTOP® COLD
- In areas where mechanical stability and high cold-resistance are critical
- Air-conditioning technology
- Freezing plants, cold storage
- Offshore sector
- Plant engineering

SKINTOP® COLD-R
- With reducing seal insert, to seal cables with smaller outer diameters.

■ Approvals

CE DVE RoHS ✓

■ Design

- Metric connection thread acc. to EN 50262

■ Note

- Counter nut to be used: SKINDICHT® SM-M
- Refer to SKINTOP® metric accessories for suitable accessories

■ Technical data

Caution
Refer to Appendix T21 for the installation dimensions and torques

Material
Body: nickel-plated brass
Insert: special polyamide
Sealing ring: silicone
O-ring: silicone

Protection rating
IP 68 - 10 bar (M12 x 1.5 - M20 x 1.5)
IP 68 - 5 bar (M25 x 1.5 - M63 x 1.5)

Temperature range
-70°C to +100°C

| Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® COLD						
53113500	12 x 1,5	3-7	16	26.5	6.5	100
53113510	16 x 1,5	4,5-10	20	32.0	7.0	100
53113520	20 x 1,5	7-13	24	35.5	8.0	50
53113530	25 x 1,5	9-17	29	37.5	8.0	25
53113540	32 x 1,5	11-21	36	42.2	9.0	25
53113550	40 x 1,5	19-28	45	49.5	9.0	10
53113560	50 x 1,5	27-35	54	52.0	10.0	5
53113570	63 x 1,5	34-45	67	61.3	15.0	5
SKINTOP® COLD-R						
53113600	12 x 1,5	1-5	16	26.5	6.5	100
53113610	16 x 1,5	2-7	20	32.0	7.0	100
53113620	20 x 1,5	5-10	24	35.5	8.0	50
53113630	25 x 1,5	6-13	29	37.5	8.0	25
53113640	32 x 1,5	7-15	36	42.2	9.0	25
53113650	40 x 1,5	15-23	45	49.5	9.0	10
53113660	50 x 1,5	22-29	54	52.0	10.0	5
53113670	63 x 1,5	28-39	67	61.3	15.0	5

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LAPP GROUP

New

SKINTOP® MS-M ATEX BRUSH
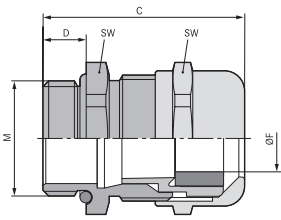
SKINTOP® MS-M ATEX BRUSH
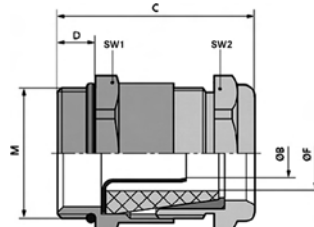
SKINTOP® SHVE-M ATEX

SKINTOP® MS-M ATEX BRUSH

Benefits

- Faster and less complicated assembling than any other system
- Optimum low-resistance 360° screen contact
- Simple cable adjustment
- Easy to uninstall
- Anti-static, safe, and impact-resistant at cold temperatures

Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Chemical and petrochemical industry
- Plant engineering
- Equipment group II / Category 2G+1D
- Devices, machines and apparatus of enhanced safety protection type "e"

Approvals

CE Ex RoHS ✓

Design

- Metric connection thread acc. to EN 50262

Note

- SKINDICHT® SHVE-M 20 x 1.5 ATEX design with EMC earthing sleeve to cover smaller cable clamping ranges

Technical data

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

Approvals
DNV for SKINDICHT® SHVE-M ATEX pending

Note
SKINDICHT® SHVE-M ATEX
IBExU08ATEX1161 X
Ex II 2G Ex e II
Ex II 1D Ex tD A20 IP 6X
SKINTOP® MS-M ATEX BRUSH
IBExU01ATEX1041 X
Ex II 2G Ex e II
Ex II 1D tD A20 IP6X

Material
SKINTOP® MS-M ATEX BRUSH
Body: nickel plated brass
Insert: special polyamide
EMV-Brush: brass
Seal: special elastomer
O-Ring: special elastomer
SKINDICHT® SHVE-M ATEX
Body: nickel plated brass
Earthing sleeve: brass
Seal: special elastomer
O-Ring: special elastomer

Tests
DIN EN 60079-0
DIN EN 60079-7

Protection rating
IP 68 - 10 bar

Temperature range
SKINTOP® MS-M ATEX BRUSH
-30°C to +90°C
SKINDICHT® SHVE-M ATEX
-20°C to +80°C

Article number	Article designation / size	Outer Ø (mm), from - to	Minimum Ø above braiding (mm)	SW (mm)	Thread length, D (mm)	Pieces / PU
SKINDICHT® SHVE-M ATEX						
52107102	20 x 1,5	6,9-8,9	5.0	24	6.0	10
SKINTOP® MS-M ATEX BRUSH						
52110023	25 x 1,5	9.0-17.0	6.0	29	8.0	10
52110024	32 x 1,5	11.0-21.0	8.0	36	9.0	1
52110025	40 x 1,5	19.0-28.0	10.0	45	9.0	1
52110026	50 x 1,5	27.0-35.0	14.0	54	10.0	1
52110027	63 x 1,5	34.0-45.0	20.0	67	15.0	1
52110028	63 x 1,5 plus	44.0-55.0	25.0	75	15.0	1

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EPIC®
SKINTOP®
SILVYN®
FLEXIMARK®
ACCESSORIES
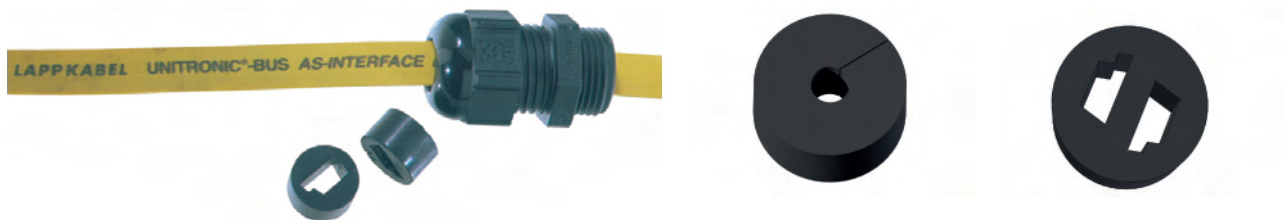APPENDIX

SKINTOP® metric cable gland accessories
SKINTOP® multiple sealing inserts/dust protection

New

SKINTOP® DIX-M AUTOMATION

SKINTOP® DIX-M AUTOMATION

■ Benefits
- Optimal seal when using AS-I bus cables
- Easy insertion of pre-assembled cables (with fieldbus or RJ-45 connector)
- Strain relief

■ Application range
- These seals can be used instead of our standard seals in the SKINTOP® cable glands.
- Control cabinets
- Control panels
- Office applications
- Automation technology

■ Approvals
CE RoHS✓

■ Note
- IP 68 can be achieved if the hole is optimally occupied, i.e. when using standard AS-I bus cables

■ Design
- Precise cut for AS-I bus cables
- Seal with hole and cut for easy insertion of pre-assembled RJ45 network cables
- Seal with hole and cut for easy insertion of pre-assembled field bus cables
- Multiple seal inserts with holes and slits for easy insertion of pre-assembled cables

■ Technical data

RAL	**Colour delivered** Black (RAL 9005)
♣	**Material** NBR
IP	**Protection rating** IP 54
🌡	**Temperature range** –40°C to +100°C

Article number	Article designation / size	Number of cables x cable Ø	Pieces / PU
SKINTOP® DIX-M ASI			
53611001	M 20	1 x AS-I	50
SKINTOP® DIX-M ASI DUO			
53611004	M 25	2 x AS-I	50
SKINTOP® DIX-M RJ-45			
53440980	M 25	1 x 5.4	50
SKINTOP® DIX-M FIELDBUS			
53440970	M 32	1 x 6.5	50
SKINTOP® DIX-M CUT			
53310444	M 40	3 x 10.0	25

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

■ Accessories
- SKINTOP® CLICK refer to page 71
- SKINTOP® MS-M refer to main catalogue 2012 page 662
- SKINTOP® ST-M refer to page 69

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

New

SKINTOP® CUBE

SKINTOP® CUBE MODULE

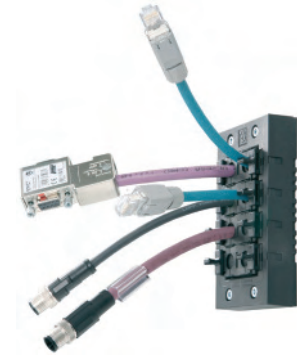SKINTOP® CUBE FRAME

SKINTOP® CUBE

Info
- Innovative multi-cable bushing system with variable clamping ranges for high flexibility in assembling.
- When disassembling, the frame can remain on the housing and the plug-in module remains securely on the cable.

Benefits
- Variable range of clamping force
- Vibration-safe module fixation
- Strain relief
- Oil resistance
- Simplified servicing due to easy assembling and disassembling

Application range
- For installation of harnessed cables
- Used in areas where cables and wires need to be safely inserted into housings
- Apparatus and switch cabinet construction
- Electronic installations
- Automation technology

Approvals
CE RoHS√

Design
- The SKINTOP® CUBE system consists of the SKINTOP® CUBE FRAME and the clip modules SKINTOP® CUBE MODULE.
- For cut-outs for industrial connectors with standard defined boreholes.
- For cut-outs for 16-pin industrial connectors (36 x 86 mm)
- For cut-outs for 24-pin industrial connectors (36 x 112 mm)

Note
- SKINTOP® CUBE MODULE 20x20 BLIND can be used as a blind module and for clamping ranges 1 - 3 mm

Included
- SKINTOP® CUBE FRAME including mounting material

Suitable tools
- Kraftform Kompakt® 10

Technical data

DIN VDE
Approvals
UL pending

Material
Frame: glass fibre-reinforced polyamide
Frame seal: CR
Clip module: special polypropylene
Clip module seal: LSE 2

IP
Protection rating
IP 64
NEMA 12

Temperature range
–20°C to +80°C

Article number	Article designation / size	Clamping range ØF (mm)	Max. number of executions	Pieces / PU
SKINTOP® CUBE Frame				
52220000	SKINTOP® CUBE FRAME 16		8	1
52220001	SKINTOP® CUBE FRAME 24		10	1
SKINTOP® CUBE clip modules				
52220004	SKINTOP® CUBE MODULE 20x20 BLIND	1 - 3		5
52220002	SKINTOP® CUBE MODULE 20x20 SMALL	4 - 6		5
52220003	SKINTOP® CUBE MODULE 20x20 LARGE	6 - 9		5
52220040	SKINTOP® CUBE MODULE 20x20 AS-I BUS	AS-I BUS Cable		5
52220005	SKINTOP® CUBE MODULE 40x40 SMALL	9 - 12		5
52220006	SKINTOP® CUBE MODULE 40x40 LARGE	12 - 16		5
52220007	SKINTOP® CUBE MODULE 40x40 BLIND			5

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

Similar products
- SKINDICHT® CABLEFIX cable bushing system refer to main catalogue 2012

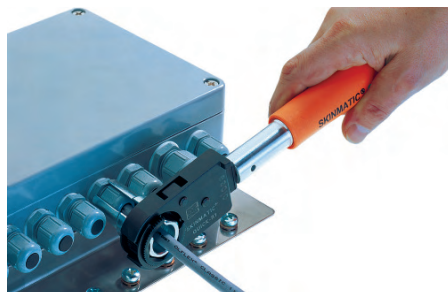### Accessories
- FLEXIMARK® LB-10 W refer to main catalogue 2012

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

SKINMATIC® mounting tools

SKINMATIC® metric mounting tools

New

SKINMATIC® QUICK Set 1

SKINMATIC® QUICK Set 1

■ Benefits

- Optimum high packing density, easy installation in very tight spaces
- Enormous time and cost saving
- Easy and safe handling using open ratchet system
- 4 sizes (M12, 16, 20, 25), only one tool

■ Application range

- Efficient assembly ratchet set for SKINTOP® ST(R)-M plastic cable glands.
- Optional SKINMATIC® TORQUE WRENCH with 9x12 mm adapter for use with SKINMATIC® QUICK SET 1
- The SKINMATIC® TORQUE WRENCH can also be used with a standard spanner wrench for 9x12 mm adapter

■ Product features

- Made of high-quality tool steel
- Included: a handy and strong box for storing the ratchet
- 1x R1 - ratchet
- 1x V1 - extension
- 4x open nut for wrench size (SW) 15, 19, 25, 30, suitable for ratchet head R1

Article number	Article designation / size	Width of flat surface (mm)	Pieces / PU
SKINMATIC® QUICK SET 1			
61610000	QUICK SET 1	15, 19, 25, 30	1
SKINMATIC® TORQUE WRENCH			
61610012	SKINMATIC® DMG 2-10 Nm		1
61610013	SKINMATIC® DMG 5-25 Nm		1

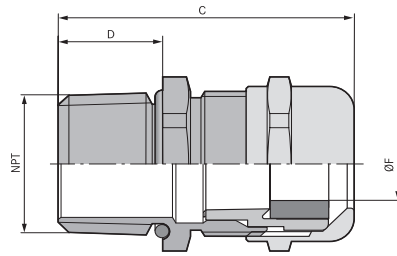Not subjected to RoHS directive.
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New

SKINMATIC® MH Set

SKINMATIC® MH Set

SKINMATIC® MH Gabelschlüssel

Info

- **Assembly tool for SKINTOP® gland sizes up to M110 x 2**

■ Benefits

- Fast, secure and damage-free assembly
- Shaped contact surface prevents the spanner from sliding off

■ Application range

- Special tools designed for metric SKINTOP® brass types

■ Product features

- Assembly set manufactured from chromium-plated tool steel

- The SKINMATIC® MH set consists of three special keys:
- SW 16/20 mm (M12/M16)
- SW 24/29 mm (M20/M25)
- SW 36/45 mm (M32/M40)

Article number	Width of flat surface (mm)	Brass gland sizes	Overall length (mm)	PU pieces (set)
SKINMATIC® MH-Set				
61791273	16/20, 24/29, 36/45	M 12 - M 40	200 / 220 / 250	1
SKINMATIC® MH single wrench				
61791267	55	M 50		1
61791268	68	M 63		1
61791269	76	M 63 PLUS		1
61791286	96	M 75		1
61791287	116	M 90		1
61791288	136	M 110		1

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SKINTOP®

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FLEXIMARK®

ACCESSORIES

APPENDIX

New

SKINTOP® MS-SC NPT

SKINTOP® MS-SC NPT

■ Benefits

- Highly conductive, flexible EMC contact for clamping various screen diameters
- Low-resistance screen contact, optimum EMC protection
- Also suitable for continuing the cable screen to another connection
- Suitable for cables with and without inner sheath

■ Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath

- Automation technology
- Telecommunication
- Measurement and control technology
- Industrial machinery and plant engineering

■ Approvals

CE c(UL)us c(N)us RoHS✓

- UL File Nr. E79903

■ Design

- NPT connection thread acc. to ANSI B1.20.2 - 1983

■ Technical data

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: CR
O-ring: NBR

IP Protection rating
IP 68 - 5 bar

Temperature range
-30°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-SC NPT						
53112910	3/8"	4,5 - 10	20	39.7	15.0	100
53112920	1/2"	7 - 13	24	42.5	15.0	50
53112930	3/4"	9 - 17	29	44.5	15.0	25
53112940	1"	11 - 21	36	49.0	15.0	25
53112950	1 1/4"	19 - 28	45	57.5	17.0	10
53112960	1 1/2"	27 - 35	54	61.5	17.0	5

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

New

SKINTOP® MS-NPT BRUSH
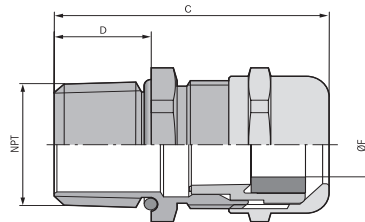
SKINTOP® MS-NPT BRUSH

■ Benefits

- Faster, easier screen contact
- Optimum low-resistance 360° screen contact
- Faster than any other comparable system
- Uncomplicated and reliable
- Maximum assembly freedom during adjustment

■ Application range

- For EMC-compliant earthing of the copper braiding, or for cables with copper shaft sheath
- Automation technology

- Conveyor technology
- High-power drives
- Frequency converters

■ Approvals

CE c(UL)us (N)us RoHS✓

- UL File Nr. E79903

■ Design

- NPT connection thread acc. to ANSI B1.20.2 - 1983

■ Technical data

Material
Body: nickel-plated brass
EMC brush: brass
Sealing ring: special elastomer
O-ring: special elastomer

IP Protection rating
IP 68 - 5 bar

Temperature range
-30°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-NPT BRUSH						
53112037	3/4"	9 - 17	29	43.0	15.0	10
53112047	1"	11 - 21	36	48.0	15.0	1
53112057	1 1/4"	19 - 28	45	57.5	17.0	1
53112067	1 1/2"	27 - 35	54	59.0	17.0	1
53112077	2"	34 - 45	67	63.0	17.0	1
53112087	2" plus	44 - 55	75	72.0	17.0	1

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New

SILVYN® BRAID PA6 / SILVYN® SNAP PET / SILVYN® SHRINK BRAID PET

SILVYN® BRAID PA6   **SILVYN® SNAP PET**

SILVYN® SHRINK BRAID PET

■ Info
- Cut into length without frazzle on the conduit's end
- Saves time

■ Benefits

SILVYN® BRAID PA6
- Protection against dust
- Abrasion protection
- Cut into length without frazzle on the conduit's end
- Simple, fast cable bundling
- Can be cut without the need for a thermo-cutting tool

SILVYN® SNAP PET
- Protection against dust
- Cables can be guided in or out of the SILVYN SNAP at any point.
- Tidies away cables
- Simple, fast cable bundling
- Self-wrapping

SILVYN® SHRINK BRAID PET
- Protection against dust
- Additional abrasion protection for critical areas
- Cut into length without frazzle on the conduit's end
- Simple, fast cable bundling

■ Application range

SILVYN® BRAID PA6
- Easy cable protection
- Additional insulation
- Bundling and guiding of cables and wires
- Low rodent-protection

SILVYN® SNAP PET
- Easy cable protection
- Bundling and guiding of cables and wires
- Cable harness

SILVYN® SHRINK BRAID PET
- Easy cable protection
- Additional insulation
- Bundling and guiding of cables and wires
- Rodent-protection

■ Product features

SILVYN® BRAID PA6
- Abrasion-resistant
- Flexible
- Can be cut at cold temperatures

SILVYN® SNAP PET
- Abrasion-resistant
- Flexible
- Abrasion-resistant
- Self-wrapping
- Cut longitudinally

SILVYN® SHRINK BRAID PET
- Abrasion-resistant
- Flexible
- Shrinkable
- Shrinking ratio: 2:1
- Maximum length lost after shrinkage is less than 15 %

■ Approvals

RoHS ✓

■ Design

SILVYN® BRAID PA6
- Polyamide 6.6 – halogen-free

SILVYN® SNAP PET
- Polyester – PET with shrinkable Polyolefin fibres

SILVYN® SHRINK BRAID PET
- Polyester – PET with shrinkable Polyolefin fibres

■ Suitable tools

SILVYN® BRAID PA6
- SILVYN® CC01 refer to main catalogue 2012 page 840
- 501 multipurpose shears refer to main catalogue 2012
- Multipurpose shears A and B refer to main catalogue 2012 page 902

SILVYN® SNAP PET
- SILVYN® CC01 refer to main catalogue 2012 page 840

SILVYN® SHRINK BRAID PET
- Cutting tools for various applications refer to main catalogue 2012 page 902
- SILVYN® CC01 refer to main catalogue 2012 page 840

■ Technical data

Upon request
SILVYN® BRAID PA6
Bulk containers on rolls
SILVYN® SHRINK BRAID PET
Bulk containers on rolls

Note
SILVYN® BRAID PA6
Halogen and cadmium-free
Self-extinguishing according to DIN 75200/ FMVSS302 and DIN5510
SILVYN® SNAP PET
Halogen and cadmium-free
Self-extinguishing in acc. UL 94 V0
SILVYN® SHRINK BRAID PET
No dielectric strength
Self-extinguishing according to DIN 75200/ FMVSS302 and DIN5510

RAL **Colour delivered**
SILVYN® BRAID PA6
Black (RAL 9005), UV-resistant
SILVYN® SNAP PET
Black, white, grey, orange
SILVYN® SHRINK BRAID PET
Black (RAL 9005), UV-resistant

Material
SILVYN® BRAID PA6
Polyamide 6.6 – halogen-free
SILVYN® SNAP PET
Polyester – PET braid sidewise rolled up
SILVYN® SHRINK BRAID PET
Polyamide 6.6 – halogen-free

Temperature range
SILVYN® BRAID PA6
–55°C to +125°C
SILVYN® SNAP PET
–55°C to +150°C
SILVYN® SHRINK BRAID PET
–55°C to +125°C

Article number	D (mm)	Clamping range (mm)	PU (m)
SILVYN® BRAID PA6			
61721260		4.0 – 10.0	20
61721261		10.0 – 14.0	15
61721262		14.0 – 24.0	15
61721263		14.0 – 24.0	10
61721264		18.0 – 26.0	10
61721265		32.0 – 44.0	5
SILVYN® SNAP PET			
61721280	25.0		2.5
61721281	25.0		2.5
61721283	25.0		2.5
61721282	25.0		2.5
SILVYN® SHRINK BRAID PET			
61721270	27.0	6.0 – 12.0	5
61721271	48.0	12.0 – 25.0	5
61721272	56.0	15.0 – 30.0	5
61721274	115.0	35.0 – 70.0	5
61721273	86.0	25.0 – 50.0	5

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

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® LAPP GROUP

Protective cable conduit systems and cable carrier systems

Impermeable protective cable conduit systems

Impermeable conduits

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New

SILVYN® FG

SILVYN® FG

SILVYN® HTDL/EF/OR/HCX/HFX/HIPROJACKET

SILVYN® ADG/AMG-M IP 67	SILVYN® FDG IP 67
SILVYN® ADHW/AMHW-M IP 67	SILVYN® FDHW IP 67
SILVYN® ADW/AMW-M IP 67	SILVYN® FDW IP 67
	SILVYN® TB-E

Info

- **NEW!!!**
- **Specifically for the food and drinks industry**

Benefits
- Protects against liquids
- High-tensile
- Smooth, white surface makes it easy to clean
- High crush-resistance
- FDA-approved outer sheath

Application range
- Mechanical engineering
- Plant engineering
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Pharmaceutical industry
- Food packaging machinery

Product features
- Flexible
- Crush-resistant
- Impact-resistant
- High-tensile

Approvals

RoHS ✓

- Approved according to FDA CFR 21 and NSF 51 (standard for the USA)

Design
- Spirally-wound heavy metal protective conduit with roughened profile
- Special, FDA-approved plastic sheath

Suitable tools
- SILVYN® ANAC-WZ refer to page 840

Technical data

RAL	**Colour delivered** White
	Material Electro-galvanised, strip-wound inner hoop-steel hose with special plastic sheath
	Temperature range –20°C to +60°C Short-term: +80 °C

Article number	Anamet designation	Internal Ø x external Ø (mm)	Nominal size	Bending radius (mm)	Dynamic bending radius (mm)	Inner Ø (mm)	PU ring (m)
SILVYN FG							
55503279	341.012.01	12,6 x 17,8	3/8"	60	85	12,6	30
55503280	341.016.01	16,0 x 21,1	1/2"	75	110	16,0	30
55503281	341.020.1	21,0 x 26,4	3/4"	90	140	21,0	30
55503282	341.026.1	26,5 x 33,1	1"	120	170	26,5	30
55503283	341.035.1	35,1 x 41,8	1 1/4"	135	215	35,1	15
55503284	341.040.1	40,3 x 47,8	1 1/2"	165	250	40,3	15
55503285	341.050.1	51,6 x 59,9	2"	210	300	51,6	15

Sizes 1 1/2" and 2" without copper conductors
Photographs are not to scale and do not represent detailed images of the respective products.

■ Accessories
- TY-RAP® Detektierbarer Kabelbinder refer to page 87
- SILVYN® AMG-M refer to main catalogue 2012 page 829
- SILVYN® AMHW-M refer to main catalogue 2012 page 829
- SILVYN® AMW-M refer to main catalogue 2012 page 829
- SILVYN® AMG refer to main catalogue 2012 page 830
- SILVYN® FDG/FDHW/FDW refer to main catalogue 2012 page 831
- SILVYN® TB-E refer to main catalogue 2012 page 833

Impermeable protective cable conduit systems

Impermeable conduits

New

SILVYN® FG AMG-M

■ Benefits
- High tensile strength
- For high mechanical stress
- Enhanced sealing
- Easy to disassemble
- Special sealing element for food and beverage industry, tested in acc. to FDA CFR 21 and NSF 51 (USA)

■ Application range
- In combination with protective conduit
- SILVYN® HTDL/EF/OR/HCX/HFX/FG HIPROJACKET
- Mechanical engineering
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Outdoors

■ Approvals
RoHS ✓

■ Design
- Metric connection thread
- Hexagonal collar
- Threaded sleeve
- Cap nut
- Special seal element

■ Suitable conduits
- SILVYN® HTDL refer to main catalogue 2012 Page 826
- SILVYN® HIPROJACKET refer to main catalogue 2012 Page 825
- SILVYN® OR refer to main catalogue 2012 Page 827
- SILVYN® HCX refer to main catalogue 2012 Page 828
- SILVYN® HFX refer to main catalogue 2012 Page 828
- SILVYN® FG refer to main catalogue 2012 Page 832

■ Technical data

Material
Body: AISI 316 stainless steel
Inner seal: polyamide 6
O-ring and outer seal: FDA-approved TPE

IP **Protection rating**
IP 69K according to DIN 40050 T.9

Temperature range
-45°C to +105°C

Article number	Anamet designation	Nominal size	For conduit with outer Ø (mm)	Length	Internal Ø	SW (mm)	Pieces / PU
SILVYN AMG FG							
55503275	832.016.9	3/8"	17.8	33.0	10.2	26.0	50
55503276	832.020.9	1/2"	21.1	35.0	13.9	29.0	50
55503277	832.025.9	3/4"	26.4	37.0	18.5	35.0	25
55503278	832.032.9	1"	33.1	42.0	23.8	45.0	10

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New

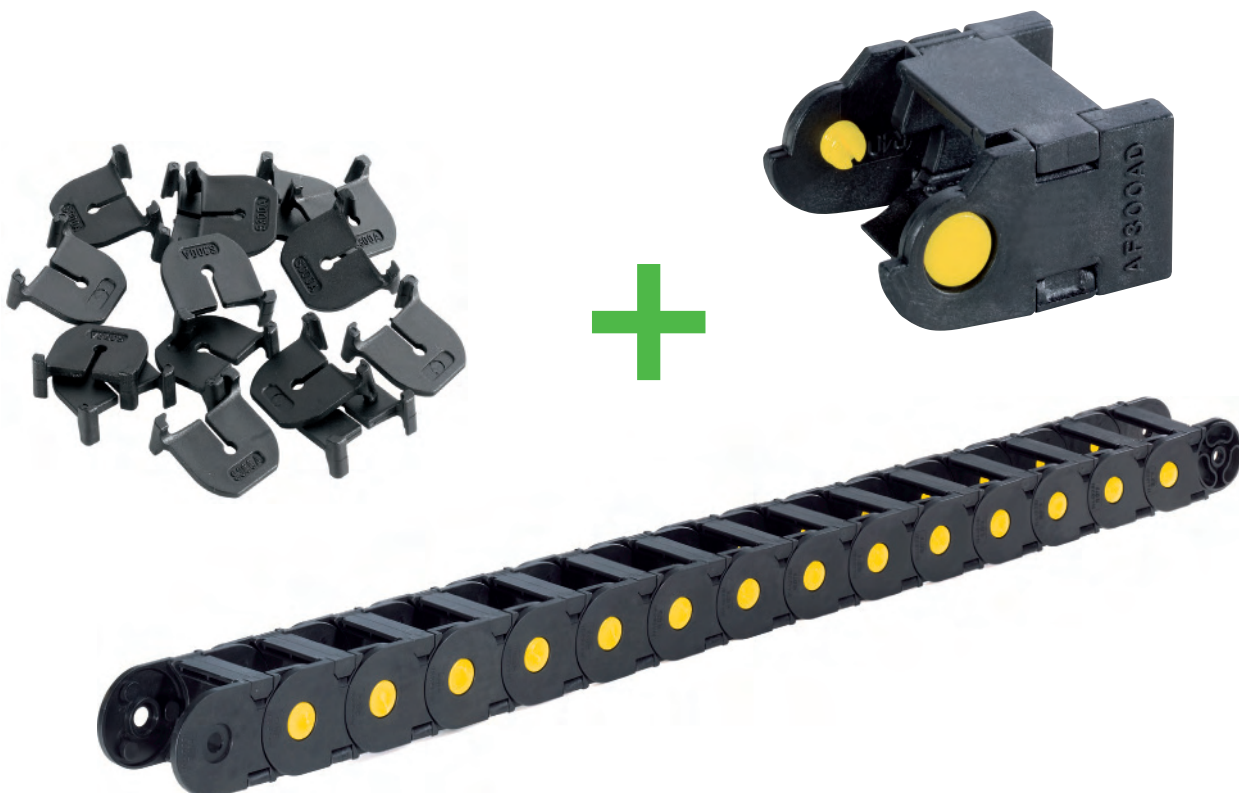# SILVYN® CHAIN KITS – Quick, easy, modular and safe
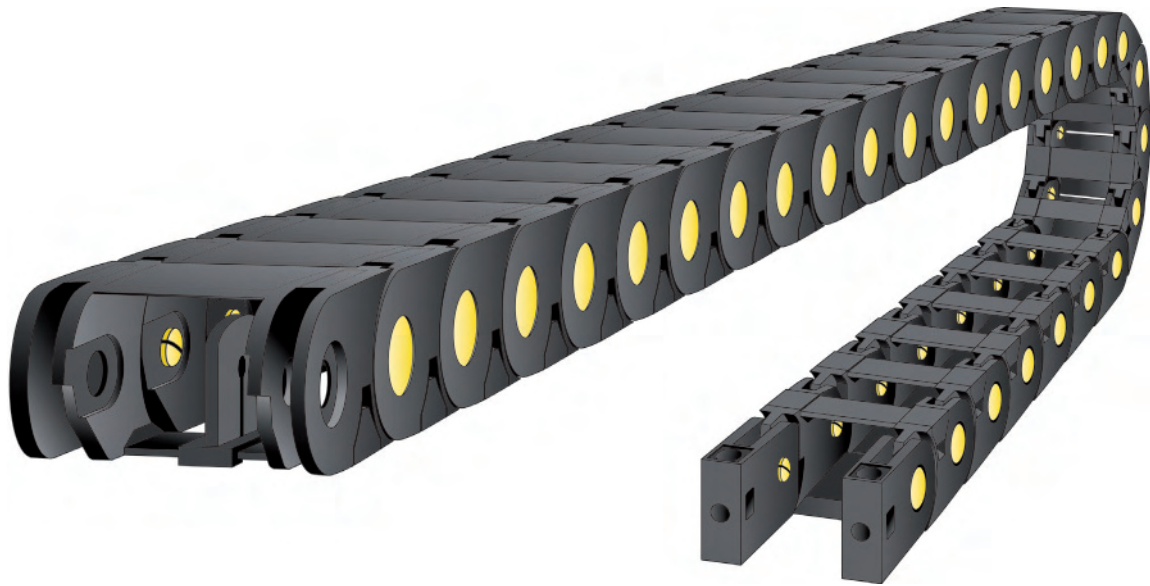
SILVYN® CHAIN the cable guidance system of the Lapp GROUP, known for reliable and long lasting cable guidance, is now introduced with a brand new selection opportunity. The so called SILVYN® CHAIN KITS, create an individual part assortment, which enables a fast, comfortable and safe selection of the power chain, the suitable end brackets and further accessories. Due to the absolute clear determination of the system components, valuable time will be saved by terminating the correct chain components of SILVYN® CHAIN KITS.

Find our complete SILVYN® CHAIN KITS program at www.lappgroup.com

SILVYN® CHAIN KITS

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FLEXIMARK® PC marking

FLEXIMARK® Laser printer system

New

FLEXIMARK® ULTRA L 12X8,5
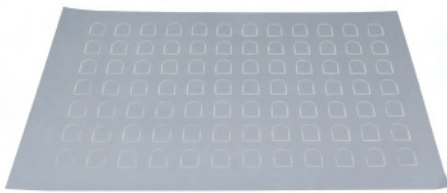
Info

- **Sample labels are available upon request**

FLEXIMARK® ULTRA L 12X8,5

■ **Benefits**

- Printing with FLEXIMARK® Software
- Designed for the EPIC® ULTRA marking field

■ **Application range**

- Self-adhesive labels made from polyester film for laser printers
- Special marking for EPIC® ULTRA hood

■ **Approvals**

RoHS ✓

■ **Note**

- Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up
- Insert sheet in manual paper feed compartment
- Use of original toner is recommended

■ **Design**

- Rounded-corners
- Perforated sheets, approx. DIN A5

■ **Technical data**

	Upon request
ℹ	Other colours are available upon request

ℹ	**Note**
	Adhesive strength: 15 N / 25 mm

RAL	**Colour delivered**
	Silver-grey

♣	**Material**
	Halogen-free polyester film Thickness: 0.05 mm

	Temperature range
	–40°C to +125°C Working temperature: min. +10 °C

Article number	Article designation	Width x height (mm)	Labels per side	Contents (unit)	PU
83252424	FLEXIMARK Ultra 12-8.5 SV	12.0 x 8.5	84	840	1

Photographs are not to scale and do not represent detailed images of the respective products.
Contents: roll, metre, unit, marker, label

■ **Accessories**

New

FLEXIMARK® LA Labels

■ Benefits
● Printing with FLEXIMARK® Software

■ Application range
● Self-adhesive labels made from polyester film for laser printers
● Cable and component marking system

■ Approvals
RoHS ✓

■ Note
● Optimum printing results from laser printers are achieved with straight sheet feed-in with no deflection over rollers and little heat build-up

■ Design
● Rounded-corners

Info
● Sample labels are available upon request

■ Technical data

Note
Adhesive strength: 15 N/25 mm

Colour delivered
White or yellow labelling field

Material
Halogen-free polyester film
Thickness: 0.05 mm

Temperature range
–40°C to +125°C
Working temperature: min. +10 °C

Article number	Article designation	Width x height (mm)	Labels per side	Contents (unit)	PU
83256203	FLEXIMARK label LA 15-6 WH	15.0 x 6.0	517	5,170	1
83256204	FLEXIMARK label LA 15-6 YE	15.0 x 6.0	517	5,170	1
83256206	FLEXIMARK label LA 16.9-7 WH	16.9 x 9.0	310	3,100	1
83256207	FLEXIMARK label LA 16.9-7 YE	16.9 x 9.0	310	3,100	1
83256212	FLEXIMARK label LA 20-8 WH	20.0 x 8.0	280	2,800	1
83256213	FLEXIMARK label LA 20-8 YE	20.0 x 8.0	280	2,800	1
83256215	FLEXIMARK label LA 25-12 WH	25.0 x 12.0	161	1,610	1
83256216	FLEXIMARK label LA 25-12 YE	25.0 x 12.0	161	1,610	1
83256218	FLEXIMARK label LA 25.6-10 WH	25.6 x 10.0	196	1,960	1
83256219	FLEXIMARK label LA 25.6-10 YE	25.6 x 10.0	196	1,960	1
83256221	FLEXIMARK label LA 46.9-9 WH	46.9 x 9.0	124	1,240	1
83256222	FLEXIMARK label LA 46.9-9 YE	46.9 x 9.0	124	1,240	1
83256224	FLEXIMARK label LA 56-21.8 WH	56.0 x 21.8	39	390	1
83256225	FLEXIMARK label LA 56-21.8 YE	56.0 x 21.8	39	390	1
83256209	FLEXIMARK Label LA 16.9x9 WH 3100	16.9 x 9.0	310	3,100	1
83256210	FLEXIMARK Label LA 16.9x9 YE 3100	16.9 x 9.0	310	3,100	1

Photographs are not to scale and do not represent detailed images of the respective products.
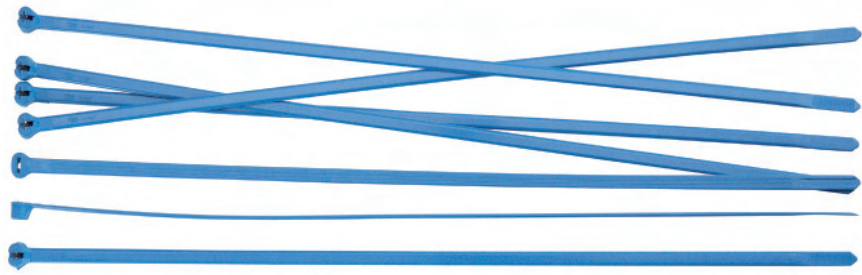Contents: roll, metre, unit, marker, label

■ Accessories
● FLEXIMARK® Software 10.0 refer to main catalogue 2012 page 877

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FLEXIMARK® PC marking

FLEXIMARK® Thermal Transfer System

LAPP GROUP

New

FLEXIMARK® FLEXILABEL TFL Cable marking

■ **Benefits**
- Easy to label

■ **Application range**
- The TFL labels are used together with the transparent character holders (PTE, CAB, PTFE). The result is a cable label that can be fixed to the cable with cable ties.

■ **Approvals**

RoHS ✓

■ **Suitable tools**
- Mounting pistol TY-GUN ERG 50

■ **Technical data**

RAL	**Colour delivered**	yellow white
♣	**Material**	Halogen-free polyester
🌡	**Temperature range**	–40°C to +125°C

Article number	Article designation	Colour	Width x length (mm)	Contents (unit)	PU
83254605	FLEXIMARK Flexilabel TFL 9.5-28 YE	yellow	28.0 x 9.5	1,000	1
83254600	FLEXIMARK flexi-label TFL 9.5-28 WH	white	28.0 x 9.5	1,000	1
83254610	FLEXIMARK flexi-label TFL 9.5-35 YE	yellow	35.0 x 9.5	1,000	1
83254615	FLEXIMARK flexi-label TFL 9.5-35 WH	white	35.0 x 9.5	1,000	1

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

Contents: roll, metre, unit, marker, label

■ **Accessories**
- FLEXIMARK® Software 10.0 refer to main catalogue 2012 page 877
- FLEXIMARK® Thermoprint A4+M/300 refer to main catalogue 2012 page 885

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APPENDIX

Tools and cable accessories
Binding, bundling, fastening
Cable ties

LAPP GROUP

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ACCESSORIES

APPENDIX

New

TY-RAP® detectable cable ties

TY-RAP® Detektierbarer Kabelbinder

■ Benefits

- Detectable cable ties with international FDA and HACCP hygiene monitoring regulations
- The round, flat, edge-free tie-heads allow assembly without getting caught and protect against injury and damage at adjacent cables and components.
- The cable tie can be gripped securely for easy tightening.
- In addition, the safety-grip tab prevents the tie from slipping out during assembly, and secures it before tightening by hand or with a tool.

■ Application range

- Food and beverage industry, especially for production and processing equipment of milk and meat products
- Applications with strong chemical influences
- Pharmaceutical production

■ Product features

- The new Ty-Rap ® cable ties are designed with a unique compound that activate metal detectors, X-ray and visual recognition systems.

■ Approvals

RoHS ✓

■ Note

- Storage requirements: nylon (polyamide) is, by its nature, susceptible to external influences. Cable ties are mechanically moistened in order to ensure optimal use. As such, they must be stored in a cool, dry location and must not be exposed to direct sunlight. Cable ties are packed in plastic bags to retain moisture; these should remain closed until the cable ties are used.

■ Suitable tools

- TY-GUN ERG 50 / TY-GUN ERG 120 cable tie pliers refer to main catalogue 2012 page 962

■ Technical data

DIN VDE **Approvals**
Flammability class: UL 94 HB/polypropylene
Flammability class: UL 94 V-2/polyamide 6.6

RAL **Colour delivered**
Blue

Material
Polyamide 6.6 or polypropylene
Halogen-free and silicone-free

Temperature range
-40°C up to +85°C

Article number	Article description	UL approval	Length x width (mm)	Bundling Ø (mm)	Tensile strength (N)	Pieces / PU
Detectable polyamide 6.6						
61723351	Cable tie TY-RAP TY523M-NDT	no	92 x 2	2.0 - 6.0	80	100
61723352	Cable tie TY-RAP TY525M-NDT	no	186 x 4	3.5 - 45.0	220	100
61723353	Cable tie TY-RAP TY528M-NDT	no	360 x 4	3.5 - 102.0	220	100
61723354	Cable tie TY-RAP TY527M-NDT	no	340 x 7	6.0 - 90.0	540	50
Detectable polypropylene						
61723355	Cable tie TY-RAP TY523M-PDT	no	92 x 2	2.0 - 16.0	50	100
61723356	Cable tie TY-RAP TY525M-PDT	no	186 x 4	3.5 - 45.0	130	100
61723357	Cable tie TY-RAP TY528M-PDT	no	360 x 4	3.5 - 102.0	130	100
61723358	Cable tie TY-RAP TY527M-PDT	no	340 x 7	6.0 - 90.0	270	50

TY-FAST® is a registered trademark of Thomas & Betts
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LAPP GROUP

New

AS-i clip clamp / AS-i End sealing
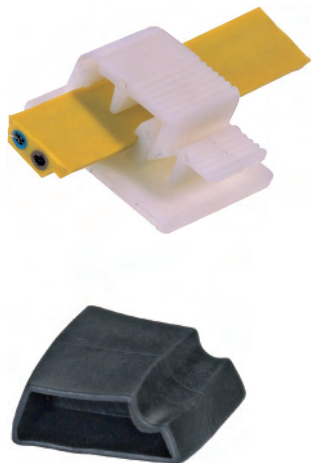
■ Benefits
- AS-i cable clamp:
  The conical shape of the receptacle in the socket and the releasable lock ensure that the cable is firmly secured.
- The high-grade acrylate adhesive allows quick mounting and the socket can be immediately stressed. Furthermore, it can also be secured using a screw.
- AS-i end seal:
  - Easy to assemble
  - Can be used on both sides
  - Compact dimensions save space
  - Cost-effective method of sealing AS-Interface cables

■ Application range
- Fastening elements for cables and conductors
- Clip clamp for AS interface bus cables
- For use with UNITRONIC® AS-Interface bus cables.

■ Product features
- AS-I clip clamp: releasable lock
- AS-I end seal:
  - Material: TPE
  - Colour: black

■ Technical data

General
Halogen-free

Note
Adhesive: acrylic with lining made of PUR foam

Material
Polyamide 6.6, impact-resistant

Temperature range
AS-I clip clamp: -40 °C to +80 °C
AS-I end seal: -40 °C to +110 °C

■ Design
- These mounting sockets can be reopened and were specially developed for AS-I cables.

■ Suitable cables
- UNITRONIC® BUS ASI Page 24

| Article number	Article description	Colour	Drill opening (mm)	Length x width (mm)	Adhesive tape thickness (mm)	Height (mm)	Pieces / PU
AS-I clip clamp							
61825000	AS-I clip clamp	white	3.3	25.0 x 20.0	0.8	11.70	500
End seal							
22260047	AB-ASI-PC-BK	black	–	20.0 x 4.7	–	11.00	100

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

New

Cable trolly system for round and flat cables
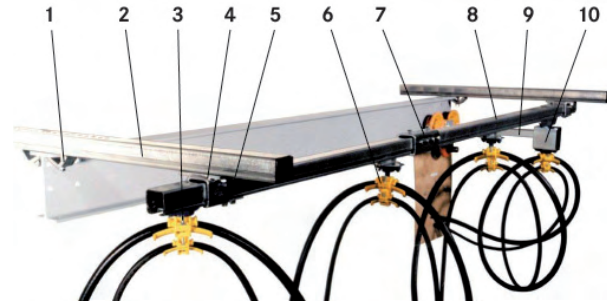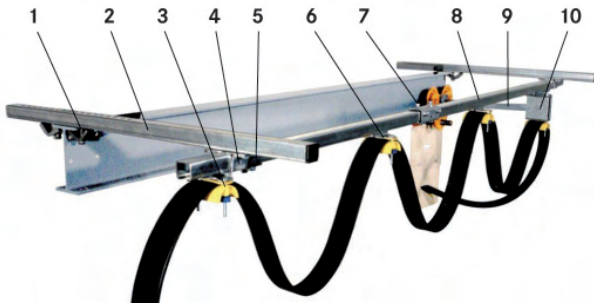
Benefits

- The guiding rollers have ball bearings and guarantee easy, smooth running in the C-profile rails.
- The cables in the clamping devices are clamped gently, and an appropriately shaped pressing piece prevents sharp bends at the clamping point.

Application range

- Crane and conveying machinery
- For hoisting equipment and conveyor systems
- Mechanical engineering
- Nut suitable for applications for Ex-Areas

Product features

- Certain components (such as the cable trailer) made of galvanised steel
- Dustproof ball bearing (wheels)
- Cable clamp and protection plate made of polyamide

Design

- Complete system consisting of the following components:
  1. Clamps (steel girder)
  2. Extension arm
  3. End clamp
  4. Rail bracket
  5. Stopper
  6. Cable trailer
  7. Track coupler
  8. C-profile rail
  9. Towing arm
  10. Towing trolley

Note

- Round- and flat cables are not allowed to combine a sight below and above

Design

- The delivery length of the C-profile rail is 6 m.
- The rail opening is 11 mm
- The installation of a system depends on various criteria, e.g. maximum cable slack (cable weight) and working length.

Suitable conduits

- Even air-pressure lines can be installed

Suitable cables

- ÖLFLEX® CRANE F refer to main catalogue 2012 Page 169
- ÖLFLEX® LIFT F refer to main catalogue 2012 Page 171
- Flat cables (ÖLFLEX® CRANE and ÖLFLEX® LIFT up to 54 mm)
- All round cables up to 36mm outer diameter

Article number	Article designation	Pieces / PU
Cable trailer system for flat cables		
62200420	Towing trolley, flat	1
62200421	Cable trailer, flat	1
62200422	End clamp, flat	1
Cable trailer system for round cables		
62200434	Cable trailer, round	1
62200435	Towing trolley, round	1
62200436	End clamp, round	1
62200437	Cable clamp, round, 1-16 mm	1
62200438	Cable clamp for cable 17-25 mm	1
62200439	Cable clamp, round, 26-36 mm	1
Components for both systems		
62200423	Rail bracket, vertical	1
62200425	Stopper	1
62200424	Track coupler	1
62200427	Rail bracket with flexible fastening	1
62200428	Rail bracket for ceiling mounting	1
62200429	Rail bracket for wall mounting	1
62200430	Towing arm, 400 mm	1
62200431	Towing arm, 630 mm	1
62200432	Extension arm, 800 mm	1
62200433	Steel girder clamp	1
Fastening options:		
62200426	Rail curve: 90°	1
62200440	C-profile rail, 6 m	1

CIBES® is a registered trade mark of INOMEC AB
The complete system is also availabel in stainless steel.
Photographs are not to scale and do not represent detailed images of the respective products.

Similar products

- SILVYN® CHAIN cable protection and guiding systems refer to main catalogue 2012

Accessories

- SKINDICHT® SVFK refer to main catalogue 2012

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ACCESSORIES

APPENDIX

Cable trolly system for round and flat cables

Planning a cable trolley system:

First find out:

- Travel distance
- Cable package – design (flat, round) and dimension
- Support bracket – wall or roof mounting, I-Beam, with distance
- Environment – indoor, outdoor, dust, moist, acid

1.) Type of system

Provide a brief drawing of the placement of cable clamps. Choose type of system you would like to use (wire, c-profile, I-beam, etc.) with regards to cable weight, size, bending radius and environment.

2.) Cable length

Find out the cables length you have to use in your system. Here fore consider the travel length multiplicated by the following factors:

Flat cable:
Travel distance less than 20 m x 1,25 = cable length
Travel distance 20-50 m x 1,20 = cable length
Travel distance greater than 50 m x 1,50 = cable length

Round cable:
Travel distance x 1,50 m = cable length

3.) How many trolleys do I need?

Divide the cable length by the double cable sagging which will give you the number of trolleys including the towing trolley. Note: standard cable sagging is 0,75 m.

4.) Parking space

Cable trolley length x number of trolleys + towing trolleys length = parking space

5.) Number of rails and track couplers

Travel distance + parking space = total track length

6.) Number of support brackets

Consider a max. of two meters space between the support brackets.
Choose correct mounting bracket (roof, wall, I-beam, etc.).

7.) Finally add

2 pieces of end stopper – additional cable for connection (normally 2-6 meters)
1 piece of end clamp
1 piece of towing arm

8.) Select a suitable cable gland of our SKINTOP® SKINDICHT® product range.

The cable shown is printed with: LAPP KABEL STUTTGART ÖLFLEX® SERVO FD 796 CP

Notices

For the use of our products is valid

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

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

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

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

Safety

Without exception our products are tested for application safety in accordance with laid down 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 001 for cables will apply. Excerpts from these standards, as well as complementary selection

and application tables, design and installation guidelines, are contained in the tables in the appendix to our Main Catalogue 2012/13. 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 specialized personnel and for the purpose for

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