THE WORLD OF LAPP

Products for photovoltaic 2018 | 19

LAPP

legend

INDUSTRIES

- Automation
- Mechanical and Plant Engineering
- Solar Energy

PRODUCT CHARACTERISTICS

- Suitable for outdoor use
- Good chemical resistance
- Flame-retardant
- Wide clamping range
- Halogen-free
- Cold-resistant
- Corrosion-resistant
- Maximum vibration protection
- Mechanical resistance
- Assembly time
- Low weight
- Optimum strain relief
- Robust
- Voltage
- Interference signals
- Temperature-resistant
- UV-resistant
- Waterproof
- Variety of approval certifications

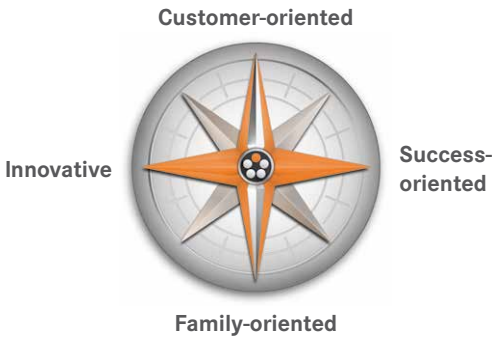
Please note: the purpose of the icons is to provide you with a quick overview and a rough indication of the product features to which the corresponding information relates. You can find details of product characteristics in the “technical data” sections on the product pages.

content

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

family

On course for success



Family business and global player

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

Success built on family values

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

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

> www.lappkabel.com/company

range

[complete range for photovoltaics]

“Nothing is more environment-friendly than receiving energy directly from the sun. This is our commitment to the solar technology.” says Siegbert Lapp, member of the board of Lapp Holding AG.

The fact that we recognised the potential of this market very early on and have built up specialist expertise in this area demonstrates once again the innovative tradition of our company. Our offering ranges from developing tailored products to advising you on planning and conversion matters.

After taking into account the full range of operational requirements, LAPP offers a specifically tailored comprehensive range of cables, connectors and photovoltaic accessories for cabling photovoltaic plants – we are the system of choice!

In collaboration with users, the TÜV (German Association for Technical Inspection) and the North American UL approval organisation, a variety of tests have been carried out on our ÖLFLEX® cables, SOLAR cables, SKINTOP® cable glands and EPIC® SOLAR connectors to guarantee highest quality standards. Our products can be used throughout the world and naturally also comply with the RoHS directive.

LAPP Logistic Center Ludwigsburg

solar

[connection technology for solar trees from LAPP]

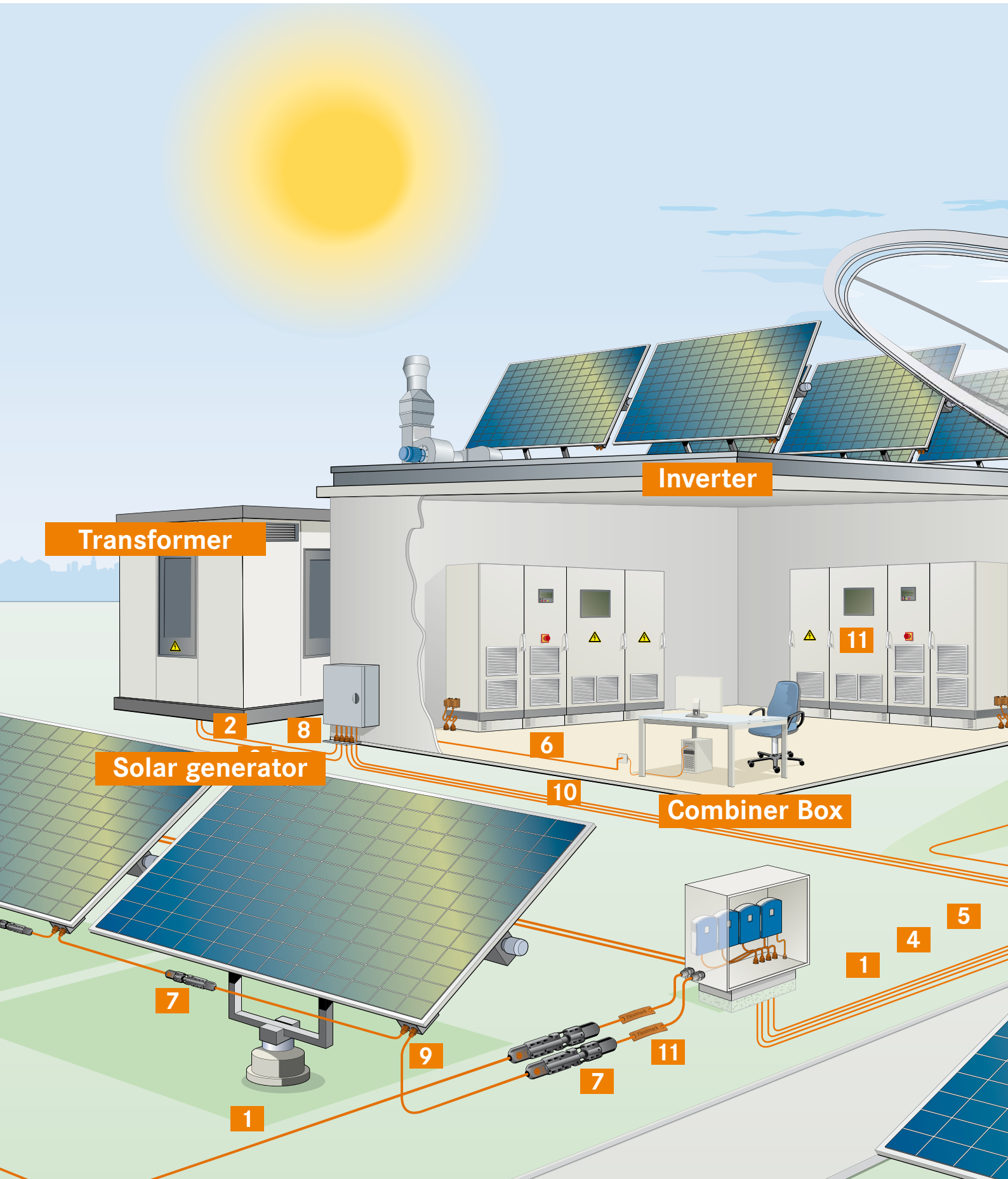
At the world exhibition in Milan, Expo, the German pavilion was grabbing the visitors' attention with its energy-generating solar trees. These solar trees integrate organic photovoltaics (OPV) technology and, unlike conventional solar modules, are made from flexible, film-integrated OPV modules. The revolutionary connection technology needed to produce these comes from Stuttgart-based LAPP.

For over ten years, LAPP has been successfully developing connection systems for photovoltaic modules and has regularly pushed the market forward with its intelligent innovations, for example the well-known connector system EPIC® SOLAR and the cable series ÖLFLEX® SOLAR.

The OPV modules and the innovative connections are made from one cast – unlike with conventional photovoltaic modules, there is no longer a junction box attached; instead, there is a so-called access point that is cast directly onto the flexible OPV film and merges with the film. This method prevents capillary action and therefore also damage due to corrosion. Additionally, the connection components are, at only 30 mm x 20 mm, considerably smaller than those in conventional systems. The cables to be used by the modules were also selected according to customer-specific requirements and are only 2mm wide. They have been produced in grey for use on the German pavilion so that they can be integrated virtually unnoticeably into the grey wire braiding of the design components.

Organic photovoltaic objects on German pavilion at the world exhibition in Milan

solar system



[the solar system by LAPP]

1 ÖLFLEX® SOLAR
Photovoltaic cables

2 PVC UNDERGROUND CABLE
Power and control cable

3 Medium Voltage Cable

4 UNITRONIC® BUS
Data- and BUS cables

5 UNITRONIC® Feldbus
S/A cabling

6 ETHERLINE®
Ethernet cabling

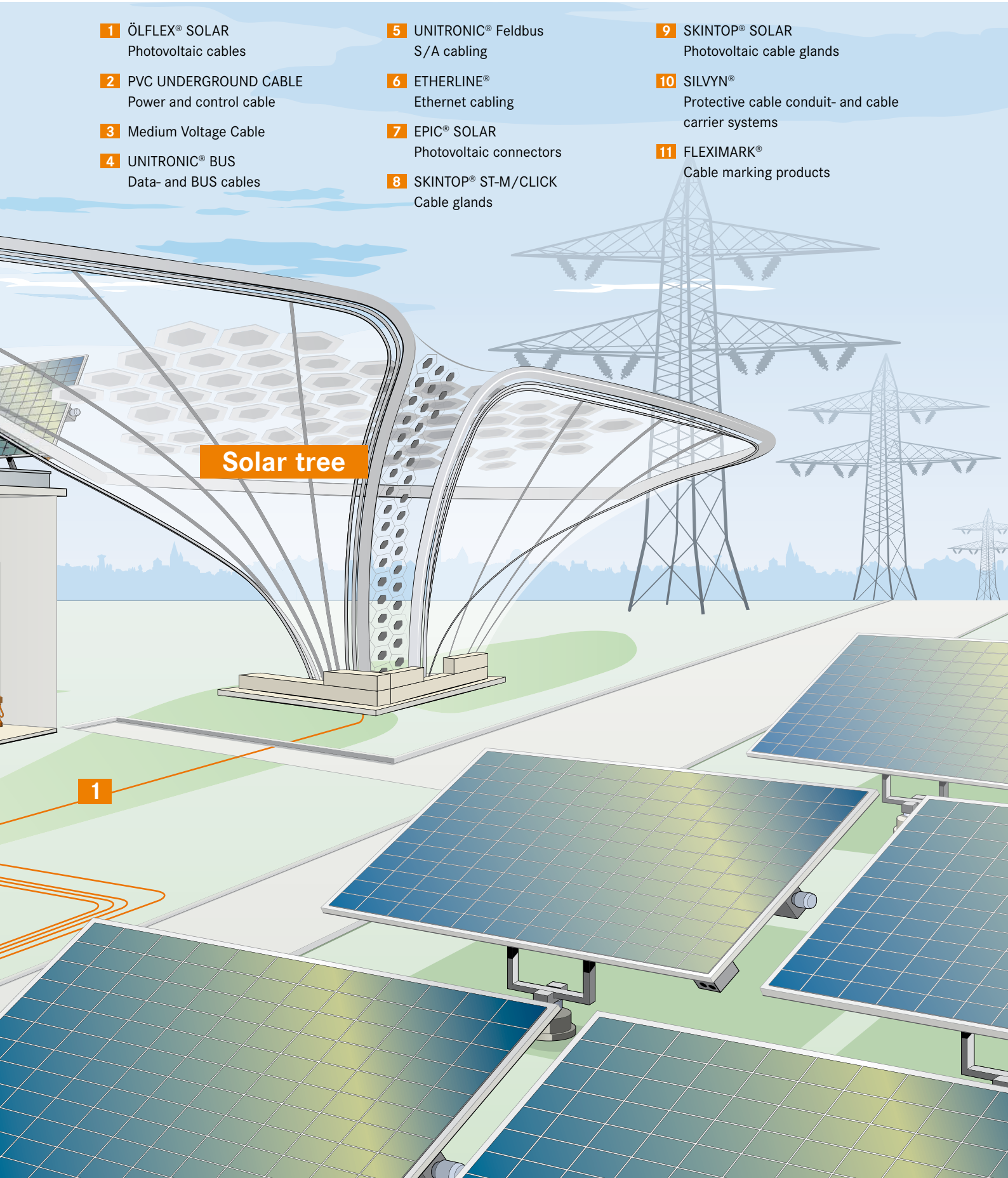
7 EPIC® SOLAR
Photovoltaic connectors

8 SKINTOP® ST-M/CLICK
Cable glands

9 SKINTOP® SOLAR
Photovoltaic cable glands

10 SILVYN®
Protective cable conduit- and cable carrier systems

11 FLEXIMARK®
Cable marking products



8 brands

[uncompromising quality – worldwide]

ÖLFLEX®
Power and control cables

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

UNITRONIC®
Data communication systems

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

ETHERLINE®
Data communication systems for ETHERNET technology

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

HITRONIC®
Optical transmission systems

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

EPIC®
Industrial connectors

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

SKINTOP®
Cable glands

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

SILVYN®
Protective cable conduit systems and cable carrier systems

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

FLEXIMARK®
Marking systems

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

Reliably connecting the world

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

No matter where you are – we are always by your side. Our plants, sales companies, partners and, above all, our competent teams of advisers ensure we offer you a comprehensive service on every continent. We do not simply distribute cable technology, we also manufacture our products ourselves – which represents another advantage for you. As a manufacturer with 17 of our own production facilities, you will benefit from our expertise in the development, design and manufacture of cables, system products and cable accessories. Thanks to this expertise, we can guarantee that LAPP will provide you with the quality that you require and that you demand.

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

17
Production sites

100
Sales partners

Employees from
152
countries

8
Strong brands

1
Innovation after another

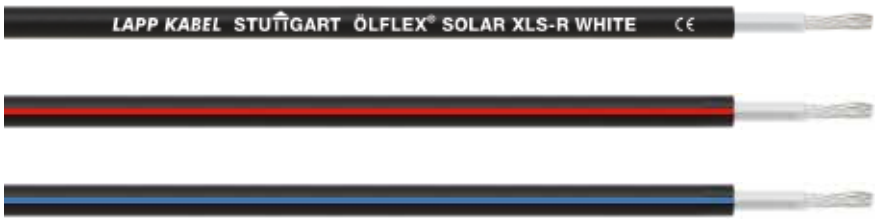
More than
40,000
Standard products

40
Proprietary sales companies

3,770
Employees

ÖLFLEX® SOLAR XLS-R

Electron beam cross-linked solar cables with reduced outer diameters



Info

- Optimised cable design – thin, light and robust

Benefits

- Reduced outer diameters enable space and weight saving installation
- Robust against mechanical impacts
- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Extruded colour stripe serves as reverse polarity protection during installation.
- Exact quantity control during installation by meter marking on the cable sheath

Application range

- For the cabling between the solar modules and as extension cable between the module strings and the DC/AC inverter
- Flexible or building-integrated PV systems
- Not suitable for direct burial, Installation according to IEC 60364-5-52, respectively HD 60364-5-52

Product features

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

Product Make-up

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

Technical data

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

Minimum bending radius
Fixed installation:
4 × outer diameter

Nominal voltage
AC U_0/U : 600/1000 V
DC U_0/U : 900/1500 V
Max. permissible operating voltage: DC 1.8 kV (Conductor-conductor, non earthed system)

Test voltage
AC 6500 V

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

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Core insulation: white / Outer sheath: black				
0023136	2.5	4.8	24	46
0023137	4	5.2	38.4	63
0023138	6	5.8	57.6	86
0023104	10	7	96	132
0023105	16	8.3	153.6	197
Core insulation: white / Outer sheath: black with red stripe				
0023390	2.5	4.8	24	46
0023391	4	5.2	38.4	63
0023392	6	5.8	57.6	86
0023393	10	7	96	132
0023394	16	8.3	153.6	197
Core insulation: white / Outer sheath: black with blue stripe				
0023395	2.5	4.8	24	46
0023396	4	5.2	38.4	63
0023397	6	5.8	57.6	86
0023398	10	7	96	132
0023399	16	8.3	153.6	197

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

H1Z2Z2-K

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

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- H1Z2Z2-K (type according to EN 50618)
- Substitudes previous ÖLFLEX® SOLAR XLR-R

Benefits

- Reduction of flame propagation and of toxic combustion gases in the event of fire
- Robust against mechanical impacts
- For outdoor applications
- Not suitable for direct burial, installation according to IEC 60364-5-52, respectively HD 60364-5-52

Application range

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

Product features

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

Norm references/Approvals

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

Product Make-up

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

Technical data

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

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

Minimum bending radius
Fixed installation:
4 × outer diameter

Nominal voltage
AC U_0/U : 1.0/1.0 kV
DC U_0/U : 1.5/1.5 kV
Max. permissible operating voltage:
DC 1.8 kV

Test voltage
AC 6500 V

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

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

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
H1Z2Z2-K				
Core insulation: white / Outer sheath: black				
1023552	4	5.8	38.4	62
1023553	6	6.3	57.6	84
1023554	10	7.4	96	126
1023555	16	8.1	153.6	197
1023590	25	10.3	240	270
1023591	35	11.8	336	370
Core insulation: white / Outer sheath: red				
1023572	4	5.8	38.4	62
1023573	6	6.3	57.6	84
1023574	10	7.4	96	126
1023575	16	8.1	153.6	197
Core insulation: white / Outer sheath: blue				
1023582	4	5.8	38.4	62
1023583	6	6.3	57.6	84
1023584	10	7.4	96	126
1023585	16	8.1	153.6	197

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

ÖLFLEX® SOLAR XLWP

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

Info

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

Benefits

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

Application range

- For underground installation in conduits, in which water, heat and moisture can accumulate
- For floating PV/canal top installations where cables are in contact with water or exposed to high humidity (see data sheet for more details)
- Suitable for direct burial: see data sheet

Product features

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

Norm references / Approvals

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

Product Make-up

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

Technical data

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

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

Minimum bending radius
Fixed installation:
4 × outer diameter

Nominal voltage
AC U_0/U : 1.0/1.0 kV
DC U_0/U : 1.5/1.5 kV
Max. permissible operating voltage: DC 1.8 kV

Test voltage
AC 6500 V

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

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

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR XLWP				
Core insulation: white / Outer sheath: black				
1023601	4	5.8	38.4	68.1
1023602	6	6.4	57.6	91.6
1023603	10	7.6	96	138.6
1023604	16	9.1	153.6	209.7
Core insulation: white / Outer sheath: black with red stripe				
1023621	4	5.8	38.4	68.1
1023622	6	6.4	57.6	91.6
1023623	10	7.6	96	138.6
1023624	16	9.1	153.6	209.7

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

ÖLFLEX® SOLAR V4A

Extra robust solar cables with high-grade steel protection braiding

Info

- Protected against martens, rodents and termites

Benefits

- High-grade stainless steel wire braiding (class V4A) provides highly effective protection against martens, rodents and even termites
- Robust against mechanical impacts
- Reduction of flame propagation and of toxic combustion gases in the event of fire

Application range

- For use in PV systems that are installed on the roofs of stables or barns situated in farmsteads or densely-forested areas

Product features

- Weather/UV-resistant acc. to HD 605/A1
- Halogen-free and flame-retardant
- Good mechanical strength

Product Make-up

- Fine-wire, tinned-copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: Black
- Armouring made of stainless V4A high-grade steel wire braiding

Technical data

Core identification code
Black

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

Minimum bending radius
Fixed installation:
5 × outer diameter

Nominal voltage
AC U_0/U : 600/1000 V
DC U_0/U : 900/1500 V
Max. permissible operating voltage:
DC 1.8 kV (Conductor-conductor, non earthed system)

Test voltage
AC 6500 V

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

Article number	Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SOLAR V4A stainless steel				
0025960	4	7	38.4	98
0025961	6	8	57.6	158

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

NYY-J, NYY-O

Fixed installation, direct burial; PVC cable with different application areas

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- Standard cable for direct burial with different application areas
- 0,6/1,0 kV alternative to the PVC installation cable NYM

Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 – Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

Product features

- Flame-retardant according IEC 60332-1-2
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Norm references / Approvals

- HD 603/VDE 0276-603 (for 1 to 5 cores)
- HD 627/VDE 0276-627 (as from 7 cores)

Product Make-up

- Bare copper wire conductor
- Abbreviations “re”, “rm”, “se”, “sm”: r = round conductor form; s = sectorial conductor form; e = single-wire conductor; m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

Technical data

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

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

Conductor stranding
Single or multi-wire

Minimum bending radius
Single-core: 15 × outer diameter
Multi-core: 12 × outer diameter

Nominal voltage
U_0/U: 0.6/1.0 kV

Test voltage
4000 V

Protective conductor
J = with GN-YE protective conductor
O = without protective conductor

Temperature range
During installation: -5°C to +50°C
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
NYY-J				
1550030	1 × 25 rm	13	240	380
1550038	1 × 35 rm	14	336	447
1550032	1 × 50 rm	15	480	650
1550033	1 × 70 rm	17	672	864
1550035	1 × 120 rm	21	1152	1400
1550037	1 × 185 rm	25	1776	2080
15500013	3 × 1.5 re	12	43	223
15500023	4 × 1.5 re	13	58	256
15500033	5 × 1.5 re	14	72	293
1550004	7 × 1.5 re	15	101	360
1550005	10 × 1.5 re	18	144	520
1550006	12 × 1.5 re	19	173	560
1550084	14 × 1.5 re	20	202	620
1550007	16 × 1.5 re	21	230	680
1550008	19 × 1.5 re	22	274	760
1550009	24 × 1.5 re	24	346	900
1550086	30 × 1.5 re	26	432	1100
15500103	3 × 2.5 re	13	72	272
15500113	4 × 2.5 re	14	96	316
15500123	5 × 2.5 re	15	120	323
1550013	7 × 2.5 re	16	168	450
1550090	10 × 2.5 re	20	240	630
1550091	12 × 2.5 re	20	288	680
1550092	14 × 2.5 re	21	336	790
1550094	19 × 2.5 re	23	456	990
1550096	24 × 2.5 re	26	576	1300
1550097	30 × 2.5 re	28	720	1400
15500583	3 × 4 re	15	115	373
15500203	4 × 4 re	16	154	439
15500263	5 × 4 re	17	192	510
15500593	3 × 6 re	16	173	466

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
15500213	4 × 6 re	17	230	547
15500273	5 × 6 re	19	288	640
15500603	3 × 10 re	18	288	629
15500223	4 × 10 re	19	384	743
15500823	5 × 10 re	21	480	899
15500613	3 × 16 re	20	461	850
15500233	4 × 16 re	22	614	1039
15500833	5 × 16 re	23	768	1240
15500713	3 × 25 rm/16 re	25	874	1595
15500243	4 × 25 rm	27	960	1620
15500153	3 × 35 sm/16 re	27	1162	1718
15500753	4 × 35 sm	27	1344	1916
15500163	3 × 50 sm/25 rm	31	1680	2383
15500253	4 × 50 sm	31	1920	2639
15500173	3 × 70 sm/35 sm	33	2352	3196
15500763	4 × 70 sm	35	2688	3576
15500183	3 × 95 sm/50 sm	38	3216	4271
15500773	4 × 95 sm	40	3648	4746
15500723	3 × 120 sm/70 sm	41	4128	5281
15500783	4 × 120 sm	43	4608	5813
15500733	3 × 150 sm/70 sm	46	4992	6408
15500793	4 × 150 sm	48	5760	7263
15500743	3 × 185 sm/95 sm	50	6240	7909
15500803	4 × 185 sm	53	7104	8905
15500193	3 × 240 sm/120 sm	57	8064	10162
15500813	4 × 240 sm	60	9216	11430
NYY-O				
1550205	1 × 10 re	10	96	176
1550206	1 × 16 re	11	154	239
1550207	1 × 25 rm	13	240	380
1550208	1 × 35 rm	14	336	447
1550209	1 × 50 rm	15	480	650
1550210	1 × 70 rm	17	672	864
1550211	1 × 95 rm	19	912	1132
1550212	1 × 120 rm	21	1152	1405
1550213	1 × 150 rm	22	1440	1710
1550214	1 × 185 rm	25	1776	2080
1550215	1 × 240 rm	27	2304	2669
1550216	1 × 300 rm	30	2880	3305
1550218	1 × 500 rm	39	4800	5400
15502003	2 × 1.5 re	11	29	210
15502193	2 × 2.5 re	12	48	250
15502203	2 × 4 re	14	77	360
15502213	2 × 6 re	15	115	400
15502223	2 × 10 re	17	192	500
15502533	4 × 16 re	22	614	1039
15502543	4 × 25 rm	27	960	1620
15502563	4 × 50 sm	31	1920	2639
15502573	4 × 70 sm	35	2688	3576

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

NAYY-J, NAYY-O

Fixed installation, direct burial; PVC cable with solid aluminium conductors

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- With solid aluminium conductor

Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

Product features

- Flame-retardant according IEC 60332-1-2
- Maximum tensile strain for aluminium conductors during installation is 30 N/mm² according to HD 603/VDE 0276-603: Part 1 Appendix A.4.12 and Part 3-G point 4
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Norm references / Approvals

- HD 603/VDE 0276-603

Product Make-up

- Aluminium conductor
- Abbreviations “re”, “se”:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Outer sheath: Based on PVC

Technical data

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

Core identification code
According to VDE 0293-308 (table T9)

Conductor stranding
Single or multi-wire

Minimum bending radius
Fixed installation: 12 × outer diameter

Nominal voltage
U_0/U: 0.6/1.0 kV

Test voltage
4000 V

Protective conductor
J = with GN-YE protective conductor
O = without protective conductor

Temperature range
During installation: -5 °C to +50 °C
Fixed installation: -30 °C to +70 °C

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Alu index (kg/km)	Weight (kg/km)
NAYY-O				
3036547	1 × 70 rm	18	203	410
3036548	1 × 95 rm	20	276	570
3036549	1 × 120 rm	21	348	620
3036550	1 × 150 rm	23	435	735
3036551	1 × 185 rm	25	536	845
3036552	1 × 240 rm	28	696	1100
1552022	1 × 300 rm	30	870	1379
NAYY-J				
1552010	4 × 35 re	29	406	1170
1552011	4 × 50 se	30	580	1305
1552012	4 × 70 se	35	812	1730
1552013	4 × 95 se	39	1102	2205
1552014	4 × 120 se	42	1392	2655
1552015	4 × 150 se	46	1740	3150
1552016	4 × 185 se	51	2146	3925
1552017	4 × 240 se	60	2784	4880

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Aluminium price basis: excludes aluminium. Refer to catalogue appendix T17 for the application and definition of “Metal price basis” and “Metal index”.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NYCWY

Fixed installation, direct burial; PVC cable with concentric, wave-like copper conductor and cross-conductive spiral

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- With concentric, wave-like copper conductor

Benefits

- Concentric conductor above all as PE
- Easier connection due to the waveform of the concentric copper conductor

Application range

- Power and control cable for fixed installation in the following applications:
- For indoor and outdoor use
- Burial without additional, suitable underground protection according to VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial: normal minimum installation depth 0.6 m, but at least 0.8 m under roads
- In concrete with a temperature below the maximum cable operating temperature of +70 °C according to the VDE standard HD 603/VDE 0276-603 - Part 3-G (point 4) governing PVC cables for direct burial

Product features

- Flame-retardant according IEC 60332-1-2
- Current rating according to HD 603/VDE 0276-603, Part 3-G, Table 14 (buried at +20 °C ground temperature according to HD 603/VDE 0276-603, Part 3-G, point 5) for routing underground and Table 15 (in the air at an air temperature of +30 °C according to HD 603/VDE 0276-603, Part 3-G, point 5) when used outdoors; but always taking into consideration corrections/reductions to the current rating that may be necessary according to VDE 0298-4, and VDE 0298-4 (also refer to the catalogue appendix T12) for installation in and on buildings

Norm references / Approvals

- HD 603/VDE 0276-603 for NYCWY with 3 or 4 cores and the relevant concentric protective conductor

Product Make-up

- Bare copper wire conductor
- Abbreviations “re”, “rm”, “se”, “sm”:
  r = round conductor form;
  s = sectorial conductor form;
  e = single-wire conductor;
  m = multi-wire conductor;
- Core insulation: Based on PVC
- Filling compound over the core assembly
- Concentric, wave-like, outer conductor made of bare copper strands with inductance-reducing, cross-conductive copper bond counter spiral
- Outer sheath: Based on PVC

Technical data

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

Core identification code
Up to 5 cores: colour-coded according to VDE 0293-308, refer to Appendix T9

Conductor stranding
Single or multi-wire

Minimum bending radius
Fixed installation: 12 × outer diameter

Nominal voltage
U_0/U: 0.6/1.0 kV

Test voltage
4000 V

Temperature range
During installation: -5°C to +50°C
Fixed installation: -40°C to +70°C

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
NYCWY				
15505003	2 × 10 re/10	19	312	610
15505263	3 × 10 re/10	20	408	775
15505403	4 × 10 re/10	21	504	897
15505273	3 × 16 re/16	22	643	1066
15505413	4 × 16 re/16	24	796	1250
15505283	3 × 25 rm/25	26	1003	1584
15505423	4 × 25 rm/16	28	1142	1822
15505303	3 × 35 sm/35	26	1402	1710
15505433	4 × 35 sm/16	29	1526	2146
15505163	3 × 50 sm/50	30	2000	2368
15505443	4 × 50 sm/25	33	2203	3031
15505453	4 × 70 sm/35	38	3082	4056
15505143	3 × 95 sm/50	38	3296	4256
15505323	3 × 95 sm/95	39	3791	4600
15505463	4 × 95 sm/50	43	4208	5364
15505153	3 × 120 sm/70	41	4236	5314
15505473	4 × 120 sm/70	46	5388	6748
15505353	3 × 150 sm/70	45	5100	6344
15505483	4 × 150 sm/70	51	6540	8159
15505173	3 × 185 sm/95	50	6383	8054

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

UNITRONIC® Li2YCYv (TP)

Screened data transmission cable mit PE core insulation, reinforced outer sheath and twisted pairs

Info

- Cables for RS485/RS422

Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Particularly suitable for wiring data systems with transmission rates up to 10 Megabits per second, and is qualified for the RS422 and RS485 interfaces.
- For fixed and limited flexible installation
- Can be used in dry or damp rooms
- Signal-, control- and measuring cable,for transmission of low, sensitive signals and high bit rates

- **UNITRONIC® Li2YCYv (TP)** with its reinforced, nominal/ minimum average wall thickness of at least 1.8 mm of the black outer sheath (Yv) is designed for indoor and outdoor use as well as for applications where a reinforced outer sheath may turn out to be advantageous

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Wall thickness of the outer sheath is increased (“Yv”)
- Outer sheath colour: black (RAL 9005)

Technical data

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

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
At 800 Hz: max. 60 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded conductor,
based on VDE 0881, 7-wire

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

Short-range crosstalk attenuation
Up to 1 MHz min. 50 dB
Up to 10 MHz min. 40 dB

Test voltage
Core/core: 2000 V
Core/screen: 1000 V

Characteristic impedance
100 ± 15 Ohm (> 1 MHz)

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

Article number	Number of pairs and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® Li2YCYv (TP) black for outdoor installation and direct burial, 7-wire				
0031350	2 × 2 × 0.22	8.1	24.2	79
0031351	3 × 2 × 0.22	8.7	28.6	93
0031352	4 × 2 × 0.22	8.9	34.2	100
0031353	8 × 2 × 0.22	10.7	70	156
0031354	10 × 2 × 0.22	12	76	185
0031365	1 × 2 × 0.34	7.4	20	69
0031355	2 × 2 × 0.34	9.3	34.1	102
0031356	3 × 2 × 0.34	10	43	117
0031357	4 × 2 × 0.34	10.3	52.8	130
0031358	8 × 2 × 0.34	12.6	85.8	206
0031366	1 × 2 × 0.5	7.9	29	79
0031360	2 × 2 × 0.5	10.1	37	120
0031361	3 × 2 × 0.5	10.9	55	142
0031362	4 × 2 × 0.5	11.2	60	160
0031363	8 × 2 × 0.5	13.9	113.3	251
0031364	10 × 2 × 0.5	16	148	303

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

UNITRONIC® ST

Static screened data transmission cable similar to UL AWM 2092

Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields

Application range

- Especially designed for the transmission of the smallest measurement and control signals at minimal space requirements
- Internal wiring of electronic equipment
- For fixed and limited flexible installation
- For use in dry, damp and wet rooms

Product features

- Protection against interferences at medium and high frequencies by aluminium-laminated plastic foil, combination of flexibility and good screening (normal requirements)
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on UL AWM Style 2092 / 2093

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- Plastic-laminated aluminium foil with tinned copper drain wire
- Outer sheath made of PVC, Colour of the outer sheath: Similar to Silver-grey/RAL 7001

Technical data

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

Core identification code
2 cores: black, transparent
3 cores: black, red, transparent

Mutual capacitance
C/C approx. 90 nF/km
C/S approx. 160 nF/km

Inductivity
approx. 0.65 mH/km

Minimum bending radius
Occasional flexing: 10 × outer diameter
Fixed installation: 6 × outer diameter

Characteristic impedance
Approx. 95 Ohm

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

Article number	Number of conductors and AWG size	Conductor cross-section (mm²)	Core insulation material	Outer sheath material	Outer diameter (mm)	Copper index (kg/km)
UNITRONIC® ST						
0033000	2 × AWG 20/7	0.52	PE	PVC	5.2	17.2
0033001	3 × AWG 20/7	0.52	PE	PVC	5.3	23

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

NEW

EPIC® SOLAR 4Plus M

Connector system for weatherproof cabling of photovoltaic systems

Info

- 4 mm connector system with double hook
- For photovoltaic plants up to 1.5 kV system voltage

EPIC® SOLAR 4Plus F

Connector system for weatherproof cabling of photovoltaic systems

Info

- 4 mm connector system with double hook
- For photovoltaic plants up to 1.5 kV system voltage

Benefits

- Low contact-resistance for efficient power transmission
- Crimp connection for reliable field mounting
- Suitable for various ÖLFLEX® SOLAR cables
- Reliable connection, only possible to unlock with a tool, according NEC standard
- Tested accroding IEC 62852: Connectors for DC-application in photovoltaic systems

Application range

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

Product features

- 4 mm connector system with double hook
- 10 mm² maximum crimp connection for high currents and long cables
- 1500 V system voltage for modern photovoltaic plants with huge power

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
1.5 kV

Rated impulse voltage
16 kV

Pollution degree
3

Contact resistance
< 0.5 mOhm

Protection rating
IP68 (10h/1m)

Cycle of mechanical operation
100

Protection class
II

Temperature range
-40°C to +105°C

Suitable cables

- H1Z2Z2-K
- ÖLFLEX® SOLAR XLWP
- ÖLFLEX® SOLAR XLS-R
- ÖLFLEX® SOLAR XLR-E

Suitable tools

- EPIC® SOLAR TOOL

Suitable connectors

- EPIC® SOLAR 4 Splitter

Article number	Article designation	Cross-section (mm²)	Clamping range (in mm)	Rated current (A)	PU
EPIC® SOLAR 4Plus male field-mountable, inclusive contacts					
44428233	EPIC® SOLAR 4Plus M 2.5 mm²	2.5	5.2 – 7.1	22	100
44428235	EPIC® SOLAR 4Plus M 4 mm² ... 6 mm²	4 – 6	5.2 – 7.1	30	100
44428237	EPIC® SOLAR 4Plus M 10 mm²	10	5.2 – 7.1	35	100
EPIC® SOLAR 4Plus male contacts as spare part					
44428217	EPIC® SOLAR 4Plus PIN M 2.5 mm²	2.5	–	–	100
44428219	EPIC® SOLAR 4Plus PIN M 4 mm² ... 6 mm²	4 – 6	–	–	100
44428239	EPIC® SOLAR 4Plus PIN M 10 mm²	10	–	–	100
EPIC® SOLAR 4Plus female field-mountable, inclusive contacts					
44428234	EPIC® SOLAR 4Plus F 2.5 mm²	2.5	5.2 – 7.1	22	100
44428236	EPIC® SOLAR 4Plus F 4 mm² ... 6 mm²	4 – 6	5.2 – 7.1	30	100
44428238	EPIC® SOLAR 4Plus F 10 mm²	10	5.2 – 7.1	35	100
EPIC® SOLAR 4Plus female contacts as spare part					
44428218	EPIC® SOLAR 4Plus PIN F 2.5 mm²	2.5	–	–	100
44428220	EPIC® SOLAR 4Plus PIN F 4 mm² ... 6 mm²	4 – 6	–	–	100
44428240	EPIC® SOLAR 4Plus PIN F 10 mm²	10	–	–	100

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

NEW

EPIC® SOLAR 4 Splitter

Connector system for weatherproof cabling of photovoltaic systems

Info

- 4 mm connector system with double hook
- Splitter for parallel connection of photovoltaic modules

Benefits

- Splitter for pallalel connection of PV-modules and strings
- Easy plug and play
- Fixing option for a clear installation with a ⌀ 5mm mounting hole

Application range

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

Product features

- Mateable with EPIC® SOLAR 4PLUS, EPIC® SOLAR 4
- Splitter MFF 1 × connection male, 2 × connection female
- Splitter MFF 1 × connection female, 2 × connection male

Suitable connectors

- EPIC® SOLAR 4
- EPIC® SOLAR 4Plus

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002635
ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)

Rated voltage (V)
1000 V AC/DC

Rated impulse voltage
8 kV

Rated current (A)
30 A

Pollution degree
3

Protection rating
IP65/IP67

Cycle of mechanical operation
100

Protection class
II

Temperature range
-40 °C ... +85 °C

Article number	Article designation	PU
EPIC® SOLAR 4 Splitter		
44428226	EPIC® SOLAR 4 Splitter MFF	25
44428227	EPIC® SOLAR 4 Splitter FMM	25

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

EPIC® CRIMPTOOL

Benefits

- The crimping tool enables simple and reliable crimping of the EPIC® SOLAR products in the field. Different cross-sections are possible with the tool in the marked crimping profile. The locator holds the connector securely, meaning your hand is free to insert the cable into the connector.

Application range

- Crimping tool for easy assembly of EPIC® SOLAR products

Product features

- The Crimp tool is delivered in a case. Crimping die (DIE) and Locator (LOC) must be ordered separately and can be stored in the case.

Article number	Article description	Inserts	Version	Pieces / PU
11147000	Crimping tool	without crimping dies, without locator	In tool case	1

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

NEW

EPIC® SOLAR TOOL CSC

Cutting, stripping and crimping with just one tool

Info

- Cutting, stripping and crimping with just one tool

EPIC® SOLAR TOOL

3 cross section in one tool

Info

- 3 cross section in one tool

Application range

EPIC® SOLAR TOOL CSC

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

EPIC® SOLAR TOOL

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

Product features

EPIC® SOLAR TOOL CSC

- Multifunctional die for cutting, stripping and crimping with just one tool
- Locator (LOC) for the safe and accurate positioning of the crimping contacts

EPIC® SOLAR TOOL

- Crimping die (DIE) for the cable cross sections of 2.5 mm² up to 10 mm²
- Locator (LOC) for the safe and accurate positioning of the crimping contacts

Suitable cables

EPIC® SOLAR TOOL CSC

- H1Z2Z2-K
- ÖLFLEX® SOLAR XLWP
- ÖLFLEX® SOLAR XLS-R
- ÖLFLEX® SOLAR XLR-E

EPIC® SOLAR TOOL

- H1Z2Z2-K
- ÖLFLEX® SOLAR XLWP
- ÖLFLEX® SOLAR XLS-R
- ÖLFLEX® SOLAR XLR-E

Suitable connectors

EPIC® SOLAR TOOL CSC

- EPIC® SOLAR 4
- EPIC® SOLAR 4 Plus

EPIC® SOLAR TOOL

- EPIC® SOLAR 4
- EPIC® SOLAR 4 Plus

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000168
ETIM 5.0/6.0 Class-Description: Crimp tool cable lugs, cable end sleeves, screen connection

Article number	Article description	Cross-section (min) (in mm²)	Cross-section (max) (in mm²)	PU
Multi-functional die CSC				
44428992	EPIC® SOLAR TOOL CSC DIE 4 mm²	–	4	1
44428993	EPIC® SOLAR Tool CSC DIE 6 mm²	–	6	1
44428994	EPIC® SOLAR TOOL LOC 4, 6 mm²	4	6	1
Crimping die				
44428995	EPIC® SOLAR Tool DIE 2.5, 4, 6 mm²	2.5	6	1
44428996	EPIC® SOLAR Tool LOC 2.5, 4, 6 mm²	2.5	6	1
44428243	EPIC® SOLAR Tool DIE 4, 6, 10 mm²	4	10	1
44428244	EPIC® SOLAR Tool LOC 4, 6, 10 mm²	4	10	1

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

SKINTOP® ST-M / SKINTOP® STR-M

Info

- Now with IP69 approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!

Benefits

SKINTOP® ST-M

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

Application range

SKINTOP® ST-M

- Used in areas where a lot of cables and wires need to be inserted into housings with minimum space requirements
- Machine and equipment manufacturing
- Photovoltaic
- Automation technology
- Offshore platforms, equipment and shipyards

SKINTOP® STR-M

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

Norm references / Approvals

- UL File Nr. E79903
- GGVS: TÜ.EGG.020-95

Product Make-up

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

Note

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

Suitable cables

SKINTOP® STR-M

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

Suitable tools

SKINTOP® ST-M

- SKINMATIC® QUICK Set 1
- SKINMATIC® MH Set
- SKINTOP® LOCATOR
- SKINMATIC® RZ

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description:
Cable screw gland

Caution
SKINTOP® ST-M
Refer to Appendix T21 for the installation dimensions and torques
Size M 40 × 1.5 up to M 63 × 1.5 with O-ring
SKINTOP® STR-M
Refer to Appendix T21 for the installation dimensions and torques

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

Material
Body: Polyamide
Seal: CR

Tests
GGVS: TÜ.EGG.020-95

Protection rating
IP 68 – 5 bar
IP 69

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

Article number	Article designation/size	Clamping range ØF (mm)	SW wrench size (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces/PU
SKINTOP® ST-M silver grey						
53111000	M 12 × 1.5	3.5 – 7	15	30	8	100
53111010	M 16 × 1.5	4 – 10	19	34	8	100
53111020	M 20 × 1.5	6 – 13	25	37	9	100
53111030	M 25 × 1.5	8 – 17	30	40	10	50
53111040	M 32 × 1.5	9 – 21	36	47	10	25
53111050	M 40 × 1.5	16 – 28	46	52	10	10
53111060	M 50 × 1.5	27 – 34	55	62	12	5
53111070	M 63 × 1.5	34 – 45	66	71	12	5
SKINTOP® ST-M black						
53111200	M 12 × 1.5	3,5 – 7	15	30	8	100
53111210	M 16 × 1.5	4 – 10	19	34	8	100
53111220	M 20 × 1.5	6 – 13	25	37	9	100
53111230	M 25 × 1.5	8 – 17	30	40	10	50
53111240	M 32 × 1.5	9 – 21	36	47	10	25
53111250	M 40 × 1.5	16 – 28	46	52	10	10
53111260	M 50 × 1.5	27 – 34	55	62	12	5
53111270	M 63 × 1.5	34 – 45	66	71	12	5
SKINTOP® ST-M light grey						
53111400	M 12 × 1.5	3.5 – 7	15	30	8	100
53111410	M 16 × 1.5	4 – 10	19	34	8	100
53111420	M 20 × 1.5	6 – 13	25	37	9	100
53111430	M 25 × 1.5	8 – 17	30	40	10	50
53111440	M 32 × 1.5	9 – 21	36	47	10	25
53111450	M 40 × 1.5	16 – 28	46	52	10	10
53111460	M 50 × 1.5	27 – 34	55	62	12	5
53111470	M 63 × 1.5	34 – 45	66	71	12	5

Article number	Article designation/size	Clamping range ⌀F (mm)	SW wrench size (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces/PU
SKINTOP® ST M ISO silver-grey (with long metric connecting thread)						
53017010	M 16 × 1.5 ISO	3.5 – 8	19	40	12	100
53017030	M 20 × 1.5 ISO	5 – 12	24	45	13	100
53017040	M 25 × 1.5 ISO	9 – 14	27	47	13	50
SKINTOP® ST M ISO black (with long metric connecting thread)						
53010000	M 12 × 1.5 ISO	3.5 – 7	15	36.7	15	100
53017210	M 16 × 1.5 ISO	3.5 – 8	19	40	12	100
53017230	M 20 × 1.5 ISO	5 – 12	24	45	13	100
53017240	M 25 × 1.5 ISO	9 – 14	27	47	13	50
SKINTOP® STR-M silver grey						
53111100	M 12 × 1.5	2 – 5	15	30	8	100
53111110	M 16 × 1.5	3.5 – 7	19	34	8	100
53111120	M 20 × 1.5	4 – 10	25	37	9	100
53111130	M 25 × 1.5	5 – 13	30	40	10	50
53111140	M 32 × 1.5	6 – 15	36	47	10	25
53111150	M 40 × 1.5	9 – 23	46	52	10	10
53111160	M 50 × 1.5	24 – 29	55	62	12	5
53111170	M 63 × 1.5	28 – 39	66	71	12	5
SKINTOP® STR-M black						
53111300	M 12 × 1.5	2 – 5	15	30	8	100
53111310	M 16 × 1.5	3.5 – 7	19	34	8	100
53111320	M 20 × 1.5	4 – 10	25	37	9	100
53111330	M 25 × 1.5	5 – 13	30	40	10	50
53111340	M 32 × 1.5	6 – 15	36	47	10	25
53111350	M 40 × 1.5	9 – 23	46	52	10	10
53111360	M 50 × 1.5	24 – 29	55	62	12	5
53111370	M 63 × 1.5	28 – 39	66	71	12	5
SKINTOP® STR-M light grey						
53111500	M 12 × 1.5	2 – 5	15	30	8	100
53111510	M 16 × 1.5	3.5 – 7	19	34	8	100
53111520	M 20 × 1.5	4 – 10	25	37	9	100
53111530	M 25 × 1.5	5 – 13	30	40	10	50
53111540	M 32 × 1.5	6 – 15	36	47	10	25
53111550	M 40 × 1.5	9 – 23	46	52	10	10
53111560	M 50 × 1.5	24 – 29	55	62	12	5
53111570	M 63 × 1.5	28 – 39	66	71	12	5
SKINTOP® STR M ISO silver-grey (with long metric connecting thread)						
53017110	M 16 × 1.5 ISO	2 – 6	19	40	12	100
53017130	M 20 × 1.5 ISO	4 – 9	24	45	13	100
53017140	M 25 × 1.5 ISO	6 – 12	27	47	13	50
SKINTOP® STR M ISO black (with long metric connecting thread)						
53017310	M 16 × 1.5 ISO	2 – 6	19	40	12	100
53017330	M 20 × 1.5 ISO	4 – 9	24	45	13	100
53017340	M 25 × 1.5 ISO	6 – 12	27	47	13	50

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SKINTOP® SOLAR / SKINTOP® SOLAR plus

Info

- Cable gland for photovoltaik applications, based on EN 50262, EN 50548 and UL 1703
- Extended temperature range

Benefits

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

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

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

Note

SKINTOP® SOLAR plus

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

Suitable cables

- ÖLFLEX® SOLAR

Suitable tools

- SKINMATIC® RZ
- SKINMATIC® QUICK SET 1

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

Caution
Refer to Appendix T21 for the installation dimensions and torques

Colour delivered
RAL 9005 black/UV-resistant

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

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

Protection rating
IP 68 - 5 bar

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

Article number	Article designation/size	Clamping range ØF (mm)	SW wrench size (mm)	Overall length, C (mm)	Thread length, D (mm)	Pieces/PU
SKINTOP® SOLAR						
53113300	M 12 × 1.5	3.5 – 7	15	37.5	15	100
53113310	M 16 × 1.5	7 – 9	19	34	8	100
SKINTOP® SOLAR plus						
53113321	M 12 × 1.5	3.5 – 7	15	37.5	15	100
53113331	M 16 × 1,.5	7 – 9	19	34	8	100

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SKINTOP® GMP-GL-M

Benefits

- Glass fibre-reinforced for maximum mechanical stability
- Supporting surface for spanner means scratches on the housing are avoided

Application range

- For locking SKINTOP® cable glands in boreholes without thread.

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

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

Note

- UL approval only when used with the UL-approved SKINTOP® polyamide cable glands
- Designed for use with metric SKINTOP® plastic cable glands

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description:
Cable screw gland

On request
Available without collar
(without surface for assembling tool)

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

Material
Polyamide, glass fibre-reinforced

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

Article number	Article designation/size	SW wrench size (mm)	Pieces/PU
SKINTOP® GMP-GL-M silver grey			
53119000	M 12 × 1.5	17	100
53119010	M 16 × 1.5	22	100
53119020	M 20 × 1.5	27	100
53119030	M 25 × 1.5	34	100
53119040	M 32 × 1.5	41	100
53119050	M 40 × 1.5	50	25
53119060	M 50 × 1.5	60	25
53119070	M 63 × 1.5	75	25
SKINTOP® GMP-GL-M black			
53119100	M 12 × 1.5	17	100
53119110	M 16 × 1.5	22	100
53119120	M 20 × 1.5	27	100
53119130	M 25 × 1.5	34	100
53119140	M 32 × 1.5	41	100
53119150	M 40 × 1.5	50	25
53119160	M 50 × 1.5	60	25
53119170	M 63 × 1.5	75	25
SKINTOP® GMP-GL-M light grey			
53119003	M 12 × 1.5	17	100
53119013	M 16 × 1.5	22	100
53119023	M 20 × 1.5	27	100
53119033	M 25 × 1.5	34	100
53119043	M 32 × 1.5	41	100
53119053	M 40 × 1.5	50	25
53119063	M 50 × 1.5	60	25

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SKINTOP® CLICK / SKINTOP® CLICK-R

Info

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

Benefits

SKINTOP® CLICK

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

SKINTOP® CLICK-R

- For the benefits, refer to SKINTOP® CLICK

Application range

SKINTOP® CLICK

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

SKINTOP® CLICK-R

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

Norm references / Approvals

- UL File Nr. E79903

Included

- Included: disassembly tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000441
ETIM 5.0/6.0 Class-Description: Cable screw gland

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

Material
Body: special polyamide
Seal: special elastomer

Protection rating
IP 68 - 4 bar (M12)
IP 68 - 5 bar (M16 - M25)
IP 68 - 1 bar (M32)

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

Article number	Article designation/ size	Clamping range ØF (mm)	M (hole in mm)	SW1/SW2 (mm)	Overall length, C (mm)	Thread length, D (mm)	Wall thickness, S (mm)	Pieces/ PU
SKINTOP® CLICK light grey								
53112692	CLICK 12	4.5 – 7	12.3 (-0.2)	15 / 18	40	8	1 – 4	50
53112686	CLICK 16	5 – 9	16.3 (-0.2)	19 / 22	42	8	1 – 4	50
53112687	CLICK 20	7 – 13	20.3 (-0.2)	25 / 27	45	8	1 – 4	25
53112688	CLICK 25	9 – 17	25.3 (-0.2)	30 / 32	48	8	1 – 4	25
53112694	CLICK 32	11 – 20	32.3 (-0.2)	36 / 40	56	8	1 – 4	25
SKINTOP® CLICK silver grey								
53112921	CLICK 12	4.5 – 7	12.3 (-0.2)	15 / 18	40	8	1 – 4	50
53112876	CLICK 16	5 - 9	16.3 (-0.2)	19 / 22	42	8	1 – 4	50
53112877	CLICK 20	7 - 13	20.3 (-0.2)	25 / 27	45	8	1 – 4	25
53112878	CLICK 25	9 - 17	25.3 (-0.2)	30 / 32	48	8	1 – 4	25
53112922	CLICK 32	11 - 20	32.3 (-0.2)	36 / 40	56	8	1 – 4	25
SKINTOP® CLICK black								
53112923	CLICK 12	4.5 – 7	12.3 (-0.2)	15 / 18	40	8	1 – 4	50
53112882	CLICK 16	5 – 9	16.3 (-0.2)	19 / 22	42	8	1 – 4	50
53112883	CLICK 20	7 – 13	20.3 (-0.2)	25 / 27	45	8	1 – 4	25
53112884	CLICK 25	9 – 17	25.3 (-0.2)	30 / 32	48	8	1 – 4	25
53112924	CLICK 32	11 – 20	32.3 (-0.2)	36 / 40	56	8	1 – 4	25
SKINTOP® CLICK-R light grey								
53112925	CLICK-R 12	3.5 – 5	12.3 (-0.2)	15 / 18	40	8	1 – 4	50
53112689	CLICK-R 16	4 – 7	16.3 (-0.2)	19 / 22	42	8	1 – 4	50
53112690	CLICK-R 20	5 – 10	20.3 (-0.2)	25 / 27	45	8	1 – 4	25
53112691	CLICK-R 25	6 – 13	25.3 (-0.2)	30 / 32	48	8	1 – 4	25
53112926	CLICK-R 32	7 – 15	32.3 (-0.2)	36 / 40	56	8	1 – 4	25
SKINTOP® CLICK-R silver grey								
53112927	CLICK-R 12	3.5 – 5	12.3 (-0.2)	15 / 18	40	8	1 – 4	50
53112879	CLICK-R 16	4 – 7	16.3 (-0.2)	19 / 22	42	8	1 – 4	50
53112880	CLICK-R 20	5 – 10	20.3 (-0.2)	25 / 27	45	8	1 – 4	25
53112881	CLICK-R 25	6 – 13	25.3 (-0.2)	30 / 32	48	8	1 – 4	25
53112928	CLICK-R 32	7 – 15	32.3 (-0.2)	36 / 40	56	8	1 – 4	25
SKINTOP® CLICK-R black								
53112929	CLICK-R 12	3.5 – 5	12.3 (-0.2)	15 / 18	40	8	1 – 4	50
53112885	CLICK-R 16	4 – 7	16.3 (-0.2)	19 / 22	42	8	1 – 4	50
53112886	CLICK-R 20	5 – 10	20.3 (-0.2)	25 / 27	45	8	1 – 4	25
53112887	CLICK-R 25	6 – 13	25.3 (-0.2)	30 / 32	48	8	1 – 4	25
53112931	CLICK-R 32	7 – 15	32.3 (-0.2)	36 / 40	56	8	1 – 4	25

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SILVYN® SPLIT

Info

- Subsequent cable protection

Benefits

- Dimensionally stable
- Flexible
- Crush-resistant
- Low rodent-protection
- Fast and easy assembly

Application range

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

Product features

- Halogen-free (PA6)
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals
- Very good UV- and Weathering performance (SILVYN® SPLIT PP UV)

Product Make-up

- Divisable corrugated conduit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description: Corrugated plastic hose

On request
Polyamide 12 version (highly flexible)
ETFE version (high-temperature resistant up to +200°C)

Colour delivered
Black (RAL 9005), UV-resistant

Material
Polyamide 6 (PA6)
Polypropylene (PP)

Protection rating
IP 43 with SILVYN® SPLIT COV

Temperature range
PA6 : -40°C to +120°C
PP : -40°C to +135°C
PP UV: -40°C to +105°C

Article number	Nominal size	ID × OD (mm)	Bending radius (mm)	Suitable for SILVYN® COV	PU (m)
SILVYN® SPLIT PA6					
61806621	6	6.3 × 10	15	–	50
61806620	10	8.8 × 13.5	15	M16/PG9	50
61806631	11	11 × 16.1	15	–	50
61806630	14	13.2 × 18.7	15	M20/PG13,5	50
61806641	16	16 × 21.5	20	–	50
61806640	20	20.2 × 25.7	25	M25/PG21	50
61806650	23	23.9 × 31.3	35	M32/PG29	50
61806651	29	27.3 × 35.5	35	–	50
61806660	37	32.5 × 43.2	40	M40/PG29	25
61806670	45	43.1 × 54.2	70	M50	25
61806671	70	67 × 79.8	95	–	10
61806672	100	87.5 × 102.5	100	–	10
SILVYN® SPLIT PP					
61806615	6	6.3 × 10	15	–	50
61806625	10	8.4 × 13.4	15	M16/PG9	50
61806616	11	11 × 16.1	15	–	50
61806635	14	12.5 × 18.5	15	M20/PG13,5	50
61806617	16	16 × 21.5	20	–	50
61806645	20	19.2 × 25.3	20	M25/PG21	50
61806655	23	23.4 × 30.8	45	M32/PG29	50
61806618	29	27.3 × 35.5	50	–	50
61806665	37	31 × 41.4	60	M40/PG29	25
61806675	45	42.7 × 54	75	M50	25
61806619	70	67.5 × 79.8	95	–	10
61806622	100	87.5 × 102.5	100	–	10
SILVYN® SPLIT PP UV					
61806100	6	6.3 × 10	15	–	50
61806110	10	8.4 × 13.4	15	M16/PG9	50
61806120	11	11 × 16.1	15	–	50
61806130	14	12.5 × 18.5	15	M20/PG13,5	50
61806140	16	16 × 21.5	20	–	50
61806150	20	19.2 × 25.3	20	M25/PG21	50
61806160	23	23.4 × 30.8	45	M32/PG29	50
61806170	29	27.3 × 35.5	50	–	50
61806180	37	31 × 41.4	60	M40/PG29	25
61806190	45	42.7 × 54	75	M50	25
61806200	70	67.5 × 79.8	95	–	10

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SILVYN® SPLIT COV-M / SILVYN® SPLIT GMP-M / SILVYN® SPLIT COS

SILVYN® SPLIT COV-M

SILVYN® SPLIT GMP-M

SILVYN® SPLIT COS

Benefits

SILVYN® SPLIT COV-M
- Fast and easy assembly
- Subsequent mountable conduit insertion

SILVYN® SPLIT GMP-M
- Fast assembly
- Easy to disassemble

SILVYN® SPLIT COS
- Fast assembly
- Easy to disassemble
- High tensile strength
- Conduit retained by rib
- No loose parts

Application range

SILVYN® SPLIT COV-M
- In combination with protective conduit:
- SILVYN® SPLIT
- Mechanical engineering
- Electrical industry
- Used in areas where cables and wires need to be protected after assembly

SILVYN® SPLIT COS
- In combination with protective conduit:
- SILVYN® SPLIT
- Fastening of conduits on machine walls for all applications

Product features

SILVYN® SPLIT COV-M
- Divisable counter nut with metric thread

SILVYN® SPLIT COS
- One-piece conduit holder

Note

- UV-resistant and weather-resistant

Suitable conduits

- SILVYN® SPLIT

Technical data

Classification ETIM 5/6
SILVYN® SPLIT COV-M
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
SILVYN® SPLIT GMP-M
ETIM 5.0/6.0 Class-ID: EC001176
ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
SILVYN® SPLIT COS
ETIM 5.0/6.0 Class-ID: EC001171
ETIM 5.0/6.0 Class-Description: Holder for protective hose

Colour delivered
Black (RAL 9005), UV-resistant

Material
Halogen-free PA

Temperature range
-40 °C to +120 °C

Article number	Nominal size	Metric size	Hole ⌀ (mm)	Suitable for SILVYN® SPLIT	Pieces/PU
SILVYN® SPLIT COV-M (counter nut not included)					
61806680	–	16 x 1.5	–	10	100
61806681	–	20 x 1.5	–	14	100
61806682	–	25 x 1.5	–	20	50
61806683	–	32 x 1.5	–	23	50
61806684	–	40 x 1.5	–	37	25
61806685	–	50 x 1.5	–	45	25
SILVYN® SPLIT GMP-M (metric counter nut)					
61806686	–	16 x 1.5	–	–	100
61806687	–	20 x 1.5	–	–	100
61806688	–	25 x 1.5	–	–	50
61806689	–	32 x 1.5	–	–	50
61806691	–	40 x 1.5	–	–	25
61806692	–	50 x 1.5	–	–	25
SILVYN® SPLIT COS					
61806693	6	–	M3	6	100
61806690	10	–	M3	10	100
61806676	10	–	M5	10	100
61806694	11	–	M3	11	100
61806700	14	–	M3	14	100
61806677	14	–	M5	14	50
61806695	16	–	M5	16	50
61806696	16	–	M6	16	50
61806710	20	–	M5	20	50
61806678	20	–	M6	20	50
61806720	23	–	M5	23	50
61806679	23	–	M6	23	50
61806697	29	–	M5	29	50
61806698	29	–	M6	29	50
61806730	37	–	M6	37	20
61806740	45	–	M6	45	20
61806699	70	–	M6	70	10

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SILVYN® RILL PA 6

Info

- Maximum safety in the event of a fire

Benefits

- Dimensionally stable
- Flexible
- High flame-retardance and self-extinguishing in accordance with UL 94V-0
- Crush-resistant
- Lightweight

Application range

- Mechanical engineering
- Public utilities
- Railway applications / vehicle construction
- Moving applications
- Outdoor application (in black)

Product features

- Halogen and cadmium-free
- Abrasion-resistant
- High resistance to oil, petrol, acids and other chemicals

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

- Fine-profile corrugated polyamide 6 conduit

Note

- UV and weather-resistant in black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001175
ETIM 5.0/6.0 Class-Description:
Corrugated plastic hose

Certifications
IEC EN 61386-23
UL File No. E308201
DNV, Lloyd's Register
EN 45545-2 (HL-3)

Colour delivered
Grey (RAL 7031)
Black (RAL 9011), UV-resistant

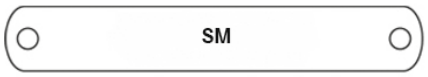
Material
PA 6
Silicone-free
Halogen-free
Fire behaviour according to UL 94V-0

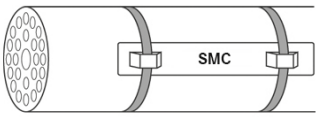
Temperature range
-40°C to +115°C
short-term +150°C

Article number	Nominal size	ID × OD (mm)	Bending radius (mm)	Suitable for SILVYN® KLICK-M/90°M	Suitable for SILVYN® KLICK PG/90°PG	Suitable for SILVYN® KLICK-GPZ-M/GPZ	PU (m)
SILVYN® RILL PA 6 grey							
61746939	10	6.5 × 10	13	10 × 1	7/-	12 × 1.5/7	50
61746940	13	10 × 13	20	12 × 1.5/16 × 1.5	9	16 × 1.5/9	50
61746950	16	12 × 15.8	35	16 × 1.5/20 × 1.5	11	20 × 1.5/11	50
61747010	18	14.3 × 18.5	40	–	13,5	-/13.5	50
61746960	21	16.5 × 21.2	45	20 × 1.5	16	25 × 1.5/16	50
61746970	28	23 × 28.5	55	25 × 1.5	21	32 × 1.5/21	50
61746980	34	29 × 34.5	65	32 × 1.5	29	40 × 1.5/29	25
61746990	42	36 × 42.5	90	40 × 1.5	36	50 × 1.5/36	25
61747000	54	48 × 54.5	100	50 × 1.5	48	63 × 1.5/48	25
SILVYN® RILL PA 6 black							
61746935	10	6.5 × 10	13	10 × 1	7/-	12 × 1.5/7	50
61746945	13	10 × 13	20	12 × 1.5/16 × 1.5	9	16 × 1.5/9	50
61746955	16	12.0 × 15.8	35	16 × 1.5/20 × 1.5	11	20 × 1.5/11	50
61747015	18	14.3 × 18.5	40	–	13,5	-/13,5	50
61746965	21	16.5 × 21.2	45	20 × 1.5	16	25 × 1.5/16	50
61746975	28	23 × 28.5	55	25 × 1.5	21	32 × 1.5/21	50
61746985	34	29 × 34.5	65	32 × 1.5	29	40 × 1.5/29	25
61746995	42	36 × 42.5	90	40 × 1.5	36	50 × 1.5/36	25
61747005	54	48 × 54.5	100	50 × 1.5	48	63 × 1.5/48	25

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

FLEXIMARK® Stainless steel FCC





Info

- Included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Acid-resistant
- Excellent chemical resistance
- High-temperature resistant
- Extremely durable

Application range

- Resists harsh environmental influences and extreme weather conditions
- Railway industry, food industry, wind industry, oil and gas industry

Norm references / Approvals

- Achilles JQS certified

Note

- Markers will be delivered with the desired text (printing service is included in the price)
- Ordering process: Customer-specific data will be emailed as an Excel file to the responsible Lapp employee when the order is made
  Column A: Row 1 content
  Column B: Row 2 content
  Column B or C: Number of markers with corresponding text
- Length of the markers is depending on the number of characters
- All characters are printed in capital letters
- Max. number of characters:
  one-line embossing:
  short size 15, long size 25
  two-line embossing:
  short size 30 (15 per line),
  long size 50 (25 per line)

Included

- 1 PU = 1 marker, there is no mimimum purchase quantity
- Markers are sorted prior to delivery
- Included cable ties in article no. 83251406, 83251456, 83251426, 83251468: Stainless steel cable ties LS 4,6-200 (article no.61812950)

Suitable tools

- Steel Gun HT-338 Cable tie pliers

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Cable coding system

Dimensions
Character height: 4.2 mm
Gap between 2 characters: approx. 1 mm
Borehole diameter: 3.2 mm
Cable tie width: max. 7.9 mm

Note
Blanko version article no. 83251575 and 83251576

Info
Available characters:
A-Ü 0-9 + - / . : , = Earth sign

Material
Acid resistant stainless steel
EN 1.4404 (SS2348, AISI 316L)

Temperature range
-80°C to +500°C

Article number	Article designation	Height (mm)	Product Make-up	Number of characters per line	Markers/PU
One line embossing / with cable tie brackets					
83251406	FLEXIMARK® Stainless steel SMC FCC LS200 0-15	9.9	with cable tie	0 – 15	1
83251456	FLEXIMARK® Stainless steel SMC FCC LS 16-25	9.9	with cable tie	16 – 25	1
83251402	FLEXIMARK® Stainless steel SMC FCC 0-15	9.9	without cable tie	0 – 15	1
83251454	FLEXIMARK® Stainless steel SMC FCC 16-25	9.9	without cable tie	16 – 25	1
One line embossing / with srew hole					
83251450	FLEXIMARK® Stainless steel SM FCC 0-15	9.9	with screw hole	0 – 15	1
83251478	FLEXIMARK® Stainless steel SM FCC 16-25	9.9	with screw hole	16 – 25	1
Two-line embossing / with cable tie brackets					
83251426	FLEXIMARK® Stainless steel SMC2R FCC LS 0-15	13.9	with cable tie	0 – 15	1
83251468	FLEXIMARK® Stainless steel SMC2R FCC LS 16-25	13.9	with cable tie	16 – 25	1
83251422	FLEXIMARK® Stainless steel SMC2R FCC 0-15	13.9	without cable tie	0 – 15	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Blank markers could be found on the product page “SP Metalprint” (article no. 83251575 und 83251576).

FLEXIMARK® Cablelabel PUR

Info

- PUR 60x10 included in FLEXIMARK® sample bag (article no. M3251010)

Benefits

- Good UV-resistance
- Good chemical resistance
- Highly flexible material
- Hydrolysis and micro organism resistant

Application range

- Markers could be used in any industry with a demanding environment (e.g. oil & gas, railways)
- Can be mounted directly on the cable together with plastic cable ties

Norm references / Approvals

- Extremely flame-retardant according to UL 94 V0
- MIL 81531 and MIL-STD-202G

Note

- Can be printed with the FLEXIMARK® Software and the FLEXIMARK® Thermal transfer printer SQUIX or EOS4
- Recommended ribbon:
  Text colour black:
  FTI-Y 60-360 BK (article no. 83260201),
  Text colour white:
  FTI-X 55-300 WH (article no. 83260260)
- With customized print: see product FLEXIMARK® Cablelabel PUR FCC

Included

- Delivered as a roll of labels

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-Description: Cable coding system

Colour delivered
Standard colour: yellow, white
Also available in red, orange, blue, green and black

Material
Halogen-free polyurethane

Temperature range
-50 °C to +100 °C
Could also withstand +125 °C in the short term

Article number	Article designation	Colour	Width × length (mm)	Markers/PU	PU
Mounting centrally (with 1 cable tie)					
83280275	FLEXIMARK® Cablelabel PUR 20×30 YE Diamond	yellow	30 × 20	1000	1
83280276	FLEXIMARK® Cablelabel PUR 20×30 WH Diamond	white	30 × 20	1000	1
Mounting left (with 1 cable tie)					
83280277	FLEXIMARK® Cablelabel PUR 55×12 YE	yellow	12 × 55	1000	1
83280278	FLEXIMARK® Cablelabel PUR 55×12 WH	white	12 × 55	1000	1
Mounting two-sided (with 2 cable ties)					
83280279	FLEXIMARK® Cablelabel PUR 35×10 YE	yellow	10 × 35	1000	1
83260191	FLEXIMARK® Cablelabel PUR 60×10 YE	yellow	10 × 60	1000	1
83260192	FLEXIMARK® Cablelabel PUR 75×15 YE	yellow	15 × 75	1000	1
83260193	FLEXIMARK® Cablelabel PUR 75×25 YE	yellow	25 × 75	500	1
83255321	FLEXIMARK® Cablelabel PUR 100×60 YE	yellow	60 × 100	250	1
83280280	FLEXIMARK® Cablelabel PUR 35×10 WH	white	10 × 35	1000	1
83260194	FLEXIMARK® Cablelabel PUR 60×10 WH	white	10 × 60	1000	1
83260195	FLEXIMARK® Cablelabel PUR 75×15 WH	white	15 × 75	1000	1
83260196	FLEXIMARK® Cablelabel PUR 75×25 WH	white	25 × 75	500	1
83255322	FLEXIMARK® Cablelabel PUR 100×60 WH	white	60 × 100	250	1
83280260	FLEXIMARK® Cablelabel PUR 60×10 RD	red	10 × 60	1000	1
83280261	FLEXIMARK® Cablelabel PUR 75×15 RD	red	15 × 75	1000	1
83280262	FLEXIMARK® Cablelabel PUR 75×25 RD	red	25 × 75	500	1
83280263	FLEXIMARK® Cablelabel PUR 60×10 OG	orange	10 × 60	1000	1
83280264	FLEXIMARK® Cablelabel PUR 75×15 OG	orange	15 × 75	1000	1
83280265	FLEXIMARK® Cablelabel PUR 75×25 OG	orange	25 × 75	500	1
83280266	FLEXIMARK® Cablelabel PUR 60×10 BU	blue	10 × 60	1000	1
83280267	FLEXIMARK® Cablelabel PUR 75×15 BU	blue	15 × 75	1000	1
83280268	FLEXIMARK® Cablelabel PUR 75×25 BU	blue	25 × 75	500	1
83280269	FLEXIMARK® Cablelabel PUR 60×10 BK	black	10 × 60	1000	1
83280270	FLEXIMARK® Cablelabel PUR 75×15 BK	black	15 × 75	1000	1
83280271	FLEXIMARK® Cablelabel PUR 75×25 BK	black	25 × 75	500	1
83280272	FLEXIMARK® Cablelabel PUR 60×10 GN	green	10 × 60	1000	1
83280273	FLEXIMARK® Cablelabel PUR 75×15 GN	green	15 × 75	1000	1
83280274	FLEXIMARK® Cablelabel PUR 75×25 GN	green	25 × 75	500	1

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FLEXIMARK® products are sold in packaging units. As example if you like to order 640 labels of LCK 32 you just need to order 1 PU instead of 640 single labels.

Ty-Rap® UV-stabilised cable ties with steel nose

Benefits

- High strength is constant even under harsh conditions: extreme temperature ranges, humidity and extreme cold
- Lock is also resistant to shocks and vibrations
- The steel blade is fixed to the tie head and is made from corrosion-resistant, anti-magnetic steel (type 316)

Application range

- Used for outdoor installation and maintenance of power plants

Product features

- Contain 2 % Carbon to meet military specifications

Norm references / Approvals

- File number TY-RAP®: E49405, see table
- Fire behaviour according to UL94 V-2

Included

- Items provided with the add-in “B” (e.g. TY**B** 24 M) are supplied in a handy workbox, where the cable ties are arranged properly

Suitable tools

- Ty-Gun ERG 50 / Ty-Gun ERG 120 Cable tie pliers

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000046
ETIM 5.0/6.0 Class-Description: Cable tie

Colour delivered
RAL 9005 black/UV-resistant

Material
Polyamide 6.6
Halogen-free and silicone-free

Temperature range
-40°C to +85°C

Article number	Article description	UL certification	Length × width (mm)	Bundling ∅ (mm)	Tensile strength (N)	Pieces/PU
Black (UV-resistant)						
61723010	TYB* 23 MX	yes	92 × 2.3	2 – 16	80	1000
61723110	TY 232 MX	yes	203 × 2.4	2 – 50	80	1000
61723120	TY 234 MX	yes	356 × 2.3	2 – 102	80	1000
61723020	TYB* 24 MX	yes	140 × 3.6	2 – 29	180	1000
61723130	TY 242 MX	yes	208 × 3.6	2 – 50	180	1000
61723040	TY 26 MX	yes	284 × 3.6	2 – 76	180	1000
61723140	TY 244 MX	yes	368 × 3.6	2 – 103	180	1000
61723030	TYB* 25 MX	yes	186 × 4.8	3.5 – 45	220	1000
61723150	TY 253 MX	yes	290 × 4.8	3.5 – 78	220	1000
61723060	TY 28 MX	yes	361 × 4.8	3.5 – 102	220	1000
61723160	TY 272 MX	yes	223 × 6.9	6 – 50	540	500
61723050	TY 27 MX	yes	340 × 7	6 – 90	540	500
61723070	TY 29 MX	yes	771 × 6.9	6 – 229	540	500

B = box, otherwise plastic bag
TY-RAP® is a registered trademark of ABB.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

NEW

KNIPEX Cable shear

Info

- Less power required due to favourable transmission ratio and new blade geometry

Benefits

- Special two-blade structure divides the cutting process into pre-cut and post-cut
- Easy and clean cut by using only one hand
- High ergonomics thanks to multi-component handles
- Insulated handels allow working under voltage up to 1000 V

Application range

- Cuts copper and aluminium cables

Product features

- Precision ground, hardened blades

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000142
ETIM 5.0/6.0 Class-Description: Cable shears

Certifications
Insulated according to IEC 60900, applicable up to 1000 V AC/1500 V DC VDE-tested

Material
High-grade special tool steel, forged, chrome plated

Article number	Article designation	Cable diameter (mm)	Weight (kg)	Length (mm)
KNIPEX Cable shear				
62120523	Cable shear KASI 20	20	0.34	200

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UNIVERSAL STRIP stripping tool

Benefits

- No pinching or deforming of cable ends thanks to a special cutting mode
- Interchangeable blades for different cable cross sections
- For use with a great variety of insulation with differing hardness and dimension
- Automatic release after operation

Application range

- Universal stripping pliers with interchangeable stripping blades for special applications

Product features

- Design: chrome-plated with plastic handle cover

Included

- Tool is always delivered with a length stop

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000163
ETIM 5.0/6.0 Class-Description: Cable stripping tool

Colour delivered
Orange

Article number	Article designation	For mm²	For insulation	Pieces / PU
21920120	Universal Strip Solar	1.5 – 6	XLPO	1

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Notes

info

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The following applies for the use of our products

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

The safety of our products is closely associated with how they are used. A knowledge of and adherence to the respective international/national standards of use (e.g. DIN VDE 0100; 0298) are mandatory. There are particular risks if installed improperly. This applies to all our products/items:

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

Safety

Without exception, our products are tested for application safety in accordance with defined standards and our own regulations, which complement the standards. Relevant legal requirements and safety regulations are also observed. Provided due care and attention is paid, the possibility of product-specific danger to the user may thus reasonably be excluded. Where products are used carelessly or incorrectly, however, considerable danger to persons and the environment may arise. For this reason, our cables must only be processed and/or used responsibly by trained electricians or specialists. This catalogue contains general information for the application of each product. Independent of such information, the application standards DIN VDE 0298 and DIN VDE 0891 for cables will apply. Excerpts from these standards, as well as complementary selection and application tables, design and installation guidelines, are contained in the tables in the appendix to this catalogue. Our machines and installation tools are – where necessary – designed in accordance with the machine guidelines and display the CE identification mark. It must be noted, however, that our machines and installation tools must only be used by trained specialist personnel and for the purpose for which they were designed.

ÖLFLEX®
Power and control cables

UNITRONIC®
Data communication systems

ETHERLINE®
Data communication systems
for ETHERNET technology

HITRONIC®
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