THE WORLD OF LAPP

Products for photovoltaic 2018 | 19
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.
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Andreas Lapp, Matthias Lapp, Ursula Ida Lapp, Alexander Lapp, Siegbert Lapp.
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
“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.
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]
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.

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.

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.

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® 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 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.

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.

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.

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.
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.

Reliably connecting the world

17
Production sites

100
Sales partners

152
Employees from countries

8
Strong brands

1
Innovation after another

40,000
Standard products

3,770
Employees

40
Proprietary sales companies
Power and control cables
Special applications • Photovoltaic

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

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

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

<table>
<thead>
<tr>
<th>Article number</th>
<th>Conductor cross-section (mm²)</th>
<th>Outer diameter (mm)</th>
<th>Copper index (kg/km)</th>
<th>Weight (kg/km)</th>
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Core insulation: white / Outer sheath: black with red stripe

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<tr>
<th>Article number</th>
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</table>

Core insulation: white / Outer sheath: black with blue stripe

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

Product features
- 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

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Core insulation: white / Outer sheath: black with red stripe

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Core insulation: white / Outer sheath: black with blue stripe

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

For current information see: www.lappgroup.com
**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 HD 60364-5-52 respectively

**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

**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**
- **H1Z2Z2-K** (type according to EN 50618)
- **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
- **Nominal voltage**
  - AC $U_{n}/U$: 1.0/1.0 kV
  - DC $U_{n}/U$: 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
1023550 | 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.
**Power and control cables**

Special applications • Photovoltaic

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**ÖLFLEX® SOLAR XLWP**

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

---

**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

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**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

**Technical data**

<table>
<thead>
<tr>
<th>Classification ETIM 5/6</th>
<th>ETIM 5.0/6.0</th>
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<td>Conductor stranding</td>
<td>Fine wire</td>
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<td>according</td>
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<td>class 5</td>
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</table>

**Nominal voltage**

- AC $U_{N}/U: 1.0/1.0$ kV
- DC $U_{N}/U: 1.5/1.5$ 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**

- $-40^\circ$C to +120$^\circ$C max. conductor temperature based on EN 60216-1
- Ambient temperature range according to EN 50618: $-40^\circ$C to +90$^\circ$C

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**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

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<table>
<thead>
<tr>
<th>Article number</th>
<th>Conductor cross-section (mm²)</th>
<th>Outer diameter (mm)</th>
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Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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.

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**Info**

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

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For current information see: www.lappgroup.com
**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: 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

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**Table**

<table>
<thead>
<tr>
<th>Article number</th>
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Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are 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.

For current information see: www.lappgroup.com
Fixed installation, direct burial; PVC cable with different application areas

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;
  - 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
  - U0/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

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<th>Copper index (kg/km)</th>
<th>Weight (kg/km)</th>
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--- | --- | --- | --- | ---
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
15500413 | 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 | 3194
15500763 | 4 × 70 sm | 35 | 2688 | 3576
15500183 | 3 × 95 sm/50 sm | 38 | 3216 | 4271
15500773 | 4 × 95 sm | 40 | 3648 | 4746
15500223 | 4 × 120 sm/70 sm | 41 | 4128 | 5281
15500783 | 4 × 120 sm | 43 | 4608 | 5813
15500193 | 3 × 240 sm/120 sm | 57 | 8064 | 10162
15500813 | 4 × 240 sm | 60 | 9216 | 11430

**NYY-O**

| Article number | Number of cores and mm² per conductor | Outer diameter (mm) | Copper index (kg/km) | Weight (kg/km)
--- | --- | --- | --- | ---
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
1550203 | 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 | 116 | 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.

For current information see: www.lappgroup.com
### Power and control cables

**Building Installation • Cables for direct burial**

#### NAYY-J, NAYY-O

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

#### 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
- Minimum 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**
  - U₀/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

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<tr>
<th>Article number</th>
<th>Number of cores and mm² per conductor</th>
<th>Outer diameter (mm)</th>
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Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Aluminium price basis: excludes aluminum. 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.

For current information see: www.lappgroup.com
NYCWY

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

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, 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

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
  Uₚₜ/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

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<th>Article number</th>
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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 ≤ 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.

For current information see: www.lappgroup.com
UNITRONIC® Li2YCYv (TP)
Screened data transmission cable mit PE core insulation, reinforced outer sheath and twisted pairs

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

<table>
<thead>
<tr>
<th>Classification ETIM 5/6</th>
<th>ETIM 5.0/6.0 Class-ID: EC000104</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core identification c</td>
<td>Core identification code</td>
</tr>
<tr>
<td>Core/core: 2000 V</td>
<td>DIN 47100, refer to Appendix T9</td>
</tr>
<tr>
<td>Core/screen: 1000 V</td>
<td>Mutual capacitance</td>
</tr>
<tr>
<td></td>
<td>At 800 Hz: max. 60 nF/km</td>
</tr>
<tr>
<td></td>
<td>Inductivity approx. 0.65 mH/km</td>
</tr>
<tr>
<td></td>
<td>Conductor stranding</td>
</tr>
<tr>
<td></td>
<td>Stranded conductor, based on VDE 0881, 7-wire</td>
</tr>
<tr>
<td></td>
<td>Minimum bending radius</td>
</tr>
<tr>
<td></td>
<td>Up to 1 MHz min. 50 dB</td>
</tr>
<tr>
<td></td>
<td>Up to 10 MHz min. 40 dB</td>
</tr>
<tr>
<td></td>
<td>Test voltage</td>
</tr>
<tr>
<td></td>
<td>Core/core: 2000 V</td>
</tr>
<tr>
<td></td>
<td>Core/screen: 1000 V</td>
</tr>
<tr>
<td></td>
<td>Characteristic impedance</td>
</tr>
<tr>
<td></td>
<td>100 ± 15 Ohm (&gt; 1 MHz)</td>
</tr>
<tr>
<td></td>
<td>Temperature range</td>
</tr>
<tr>
<td></td>
<td>Occasional flexing: 15 × outer diameter</td>
</tr>
<tr>
<td></td>
<td>Fixed installation: 6 × outer diameter</td>
</tr>
<tr>
<td></td>
<td>Short-range crosstalk attenuation</td>
</tr>
<tr>
<td></td>
<td>Up to 1 MHz min. 50 dB</td>
</tr>
<tr>
<td></td>
<td>Up to 10 MHz min. 40 dB</td>
</tr>
<tr>
<td></td>
<td>Inductivity approx. 0.65 mH/km</td>
</tr>
<tr>
<td></td>
<td>Conductor stranding</td>
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<td></td>
<td>Stranded conductor, based on VDE 0881, 7-wire</td>
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<tr>
<td></td>
<td>Minimum bending radius</td>
</tr>
<tr>
<td></td>
<td>Up to 1 MHz min. 50 dB</td>
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<td></td>
<td>Up to 10 MHz min. 40 dB</td>
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<td>Core/core: 2000 V</td>
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<td>Core/screen: 1000 V</td>
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<tr>
<td></td>
<td>Characteristic impedance</td>
</tr>
<tr>
<td></td>
<td>100 ± 15 Ohm (&gt; 1 MHz)</td>
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<tr>
<td></td>
<td>Temperature range</td>
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<tr>
<td></td>
<td>Occasional flexing: 15 × outer diameter</td>
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<tr>
<td></td>
<td>Fixed installation: 6 × outer diameter</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Article number</th>
<th>Number of pairs and mm² per conductor</th>
<th>Outer diameter (mm)</th>
<th>Copper index (kg/km)</th>
<th>Weight (kg/km)</th>
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<tbody>
<tr>
<td>0031350</td>
<td>2 × 2 × 0.22</td>
<td>8.1</td>
<td>24.2</td>
<td>79</td>
</tr>
<tr>
<td>0031351</td>
<td>3 × 2 × 0.22</td>
<td>8.7</td>
<td>28.6</td>
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<tr>
<td>0031352</td>
<td>4 × 2 × 0.22</td>
<td>8.9</td>
<td>34.2</td>
<td>100</td>
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<tr>
<td>0031353</td>
<td>8 × 2 × 0.22</td>
<td>10.7</td>
<td>70</td>
<td>156</td>
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<tr>
<td>0031354</td>
<td>10 × 2 × 0.22</td>
<td>12</td>
<td>76</td>
<td>185</td>
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<tr>
<td>0031355</td>
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<tr>
<td>0031356</td>
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<td>0031357</td>
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<td>0031358</td>
<td>4 × 2 × 0.34</td>
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<td>52.8</td>
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<tr>
<td>0031359</td>
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<td>0031360</td>
<td>1 × 2 × 0.5</td>
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<td>29</td>
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<tr>
<td>0031361</td>
<td>2 × 2 × 0.5</td>
<td>10.1</td>
<td>37</td>
<td>120</td>
</tr>
<tr>
<td>0031362</td>
<td>3 × 2 × 0.5</td>
<td>10.9</td>
<td>55</td>
<td>142</td>
</tr>
<tr>
<td>0031363</td>
<td>4 × 2 × 0.5</td>
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<td>60</td>
<td>160</td>
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<tr>
<td>0031364</td>
<td>8 × 2 × 0.5</td>
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<td>113.3</td>
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<tr>
<td>0031365</td>
<td>10 × 2 × 0.5</td>
<td>16</td>
<td>148</td>
<td>303</td>
</tr>
</tbody>
</table>

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

For current information see: www.lappgroup.com
**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
- 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

**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
- Based on UL AWM Style 2092 / 2093

**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

<table>
<thead>
<tr>
<th>Article number</th>
<th>Number of conductors and AWG size</th>
<th>Conductor cross-section (mm²)</th>
<th>Core insulation material</th>
<th>Outer sheath material</th>
<th>Outer diameter (mm)</th>
<th>Copper index (kg/km)</th>
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</thead>
<tbody>
<tr>
<td>0033000</td>
<td>2 × AWG 20/7</td>
<td>0.52</td>
<td>PE</td>
<td>PVC</td>
<td>5.2</td>
<td>17.2</td>
</tr>
<tr>
<td>0033001</td>
<td>3 × AWG 20/7</td>
<td>0.52</td>
<td>PE</td>
<td>PVC</td>
<td>5.3</td>
<td>23</td>
</tr>
</tbody>
</table>

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

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum.

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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For current information see: www.lappgroup.com
EPIC® Industrial connectors
Solar connectors • EPIC® SOLAR 4

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 according IEC 62852: Connectors for DC-application in photovoltaic systems

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

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

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

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

<table>
<thead>
<tr>
<th>Article number</th>
<th>Article designation</th>
<th>Cross-section (mm²)</th>
<th>Clamping range (in mm)</th>
<th>Rated current (A)</th>
<th>PU</th>
</tr>
</thead>
<tbody>
<tr>
<td>44428233</td>
<td>EPIC® SOLAR 4Plus M 2.5 mm²</td>
<td>2.5</td>
<td>5.2 - 7.1</td>
<td>22</td>
<td>100</td>
</tr>
<tr>
<td>44428235</td>
<td>EPIC® SOLAR 4Plus M 4 mm² ... 6 mm²</td>
<td>4 - 6</td>
<td>5.2 - 7.1</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>44428237</td>
<td>EPIC® SOLAR 4Plus M 10 mm²</td>
<td>10</td>
<td>5.2 - 7.1</td>
<td>35</td>
<td>100</td>
</tr>
<tr>
<td>44428217</td>
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<td>2.5</td>
<td>—</td>
<td>—</td>
<td>100</td>
</tr>
<tr>
<td>44428219</td>
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<td>4 - 6</td>
<td>—</td>
<td>—</td>
<td>100</td>
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<tr>
<td>44428239</td>
<td>EPIC® SOLAR 4Plus M 10 mm²</td>
<td>10</td>
<td>—</td>
<td>—</td>
<td>100</td>
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<tr>
<td>44428234</td>
<td>EPIC® SOLAR 4Plus F 2.5 mm²</td>
<td>2.5</td>
<td>5.2 - 7.1</td>
<td>22</td>
<td>100</td>
</tr>
<tr>
<td>44428236</td>
<td>EPIC® SOLAR 4Plus F 4 mm² ... 6 mm²</td>
<td>4 - 6</td>
<td>5.2 - 7.1</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>44428238</td>
<td>EPIC® SOLAR 4Plus F 10 mm²</td>
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<td>5.2 - 7.1</td>
<td>35</td>
<td>100</td>
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<tr>
<td>44428218</td>
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<td>—</td>
<td>—</td>
<td>100</td>
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<tr>
<td>44428220</td>
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<td>4 - 6</td>
<td>—</td>
<td>—</td>
<td>100</td>
</tr>
<tr>
<td>44428220</td>
<td>EPIC® SOLAR 4Plus PIN F 10 mm²</td>
<td>10</td>
<td>—</td>
<td>—</td>
<td>100</td>
</tr>
</tbody>
</table>

For current information see: www.lappgroup.com
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 parallel connection of PV-modules and strings
• Easy plug and play
• Fixing option for a clear installation with a Ø 5mm mounting hole

Application range
• Photovoltaic plants
• Crystalline and thin-film constructions
• Solartracker

Product features
• Mateable with EPIC® SOLAR 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

<table>
<thead>
<tr>
<th>Classification ETIM 5/6</th>
<th>ETIM 5.0/6.0 Class-ID: EC002635 ETIM 5.0/6.0 Class-Description: Circular connector (industrial connector)</th>
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</thead>
<tbody>
<tr>
<td>Rated voltage (V)</td>
<td>1000 V AC/DC</td>
</tr>
<tr>
<td>Rated impulse voltage</td>
<td>8 kV</td>
</tr>
<tr>
<td>Rated current (A)</td>
<td>30 A</td>
</tr>
</tbody>
</table>

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 |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>44428226</td>
<td>EPIC® SOLAR 4 Splitter MFF</td>
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<tr>
<td>44428227</td>
<td>EPIC® SOLAR 4 Splitter FMM</td>
<td>25</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Article number</th>
<th>Article description</th>
<th>Inserts</th>
<th>Version</th>
<th>Pieces / PU</th>
</tr>
</thead>
<tbody>
<tr>
<td>11147000</td>
<td>Crimping tool</td>
<td>without crimping dies, without locator</td>
<td>In tool case</td>
<td>1</td>
</tr>
</tbody>
</table>

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
EPIC® SOLAR TOOL CSC
Cutting, stripping and crimping with just one tool

**Info**

- Cutting, stripping and crimping with just 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

**Technical data**

- 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

**Suitable connectors**

**EPIC® SOLAR TOOL CSC**
- EPIC® SOLAR 4
- EPIC® SOLAR 4 Plus

**EPIC® SOLAR TOOL**
- EPIC® SOLAR 4
- EPIC® SOLAR 4 Plus

---

**Table**

<table>
<thead>
<tr>
<th>Article number</th>
<th>Article description</th>
<th>Cross-section (min) (in mm²)</th>
<th>Cross-section (max) (in mm²)</th>
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<tbody>
<tr>
<td>Multi-functional die CSC</td>
<td>EPIC® SOLAR TOOL CSC DIE 4 mm²</td>
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<td>44428992</td>
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<td>EPIC® SOLAR TOOL LOC 4, 6 mm²</td>
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<td>44428994</td>
<td>EPIC® SOLAR Tool DIE 2.5, 4, 6 mm²</td>
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<td>EPIC® SOLAR Tool LOC 2.5, 4, 6 mm²</td>
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<td>EPIC® SOLAR Tool LOC 4, 6, 10 mm²</td>
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</tbody>
</table>

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

For current information see: www.lappgroup.com

23
Cable glands

SKINTOP® metric plastic cable glands • Standard

SKINTOP® ST-M / SKINTOP® STR-M

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 H07RN-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

Testa
GGVS: TÜ.EGG.020-95

Protection rating

IP 66 – 5 bar
IP 69

Temperature range

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

Table:

<table>
<thead>
<tr>
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Info

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

For current information see: www.lappgroup.com
For current information see: www.lappgroup.com
SKINTOP® SOLAR / SKINTOP® SOLAR plus

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

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/PF |
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Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Cable glands

**SKINTOP® metric cable gland accessories • Counter nuts**

**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

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

RAL
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

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Protective cable conduit systems and cable carrier systems
Parallel corrugated protective cable conduit systems • Reclosable

SILVYN® SPLIT

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
• Divisible corrugated conduit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC00175
ETIM 5.0/6.0 Class-Description: Corrugated plastic hose

On request
Polyamide 12 version (highly flexible) ETE 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

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| SILVYN® SPLIT PP | 6180615 | 6 | 6.3 × 10 | 15 | — | 50 |
| | 61806625 | 10 | 8.4 × 13.4 | 15 | M16/PG9 | 50 |
| | 61806616 | 11 | 11 × 16.1 | 15 | M20/PG13.5 | 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/P29 | 50 |
| | 61806655 | 23 | 23.4 × 30.8 | 45 | M32/P29 | 50 |
| | 61806618 | 29 | 27.3 × 35.5 | 50 | — | 25 |
| | 61806665 | 37 | 31 × 41.4 | 60 | M40/P29 | 25 |
| | 61806675 | 45 | 42.7 × 54.2 | 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 |
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| | 61806120 | 11 | 11 × 16.1 | 15 | M20/PG13.5 | 50 |
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| | 61806140 | 16 | 16 × 21.5 | 20 | — | 50 |
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| | 61806170 | 29 | 27.3 × 35.5 | 50 | — | 25 |
| | 61806180 | 37 | 31 × 41.4 | 60 | M40/P29 | 25 |
| | 61806190 | 45 | 42.7 × 54.2 | 75 | M50 | 25 |
| | 61806200 | 70 | 67.5 × 79.8 | 95 | — | 10 |

For current information see: www.lappgroup.com
ÖLFLEX® ACCESSORIES
FLEXIMARK®
SILVYN®
SKINTOP®
EPIC®
HITRONIC®
ETHERLINE®
UNITRONIC®

APPENDIX

Protective cable conduit systems and cable carrier systems

Parallel corrugated protective cable conduit systems • Reclosable

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
- High tensile strength
- Conduit retained by rib
- No loose parts

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

Suitable conduits
- SILVYN® SPLIT

Note
- UV-resistant and weather-resistant

Technical data
- Classification ETIM 5/6
  - SILVYN® SPLIT COV-M
  - ETIM 5.0/6.0 Class-ID: EC001 176
  - ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
  - SILVYN® SPLIT GMP-M
  - ETIM 5.0/6.0 Class-ID: EC001 176
  - ETIM 5.0/6.0 Class-Description: Screw connection for corrugated plastic hose
  - SILVYN® SPLIT COS
  - ETIM 5.0/6.0 Class-ID: EC001 171
  - 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

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

For current information see: www.lappgroup.com
SILVYN® RILL PA 6

Technical data

- Classification ETIM 5/6
  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

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
- Flame-retardant and self-extinguishing in accordance with UL 94V-0
- High dimensional stability
- Lightweight

Product Make-up
- Fine-profile corrugated polyamide 6 conduit

Technical data

- Classification ETIM 5/6
  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 x OD (mm) | Bending radius (mm) | Suitable for SILVYN® KLICK-M/90°
| | | | | M
| | | | | Suitable for SILVYN® KLICK PG/90°
| | | | | PG
| | | | | Suitable for SILVYN® KLICK-GPZ-M/GPZ
| | | | | PU (m)
| | | | | PU (m)

<table>
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<th>SILVYN® RILL PA 6 black</th>
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</table>

Note
- UV and weather-resistant in black

Product Make-up
- UV and weather-resistant in black

- 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

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

FLEXIMARK® Customized Marking • FLEXIMARK® FCC

FLEXIMARK® Stainless steel FCC

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
- 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 minimum 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

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
--- | --- | --- | --- | --- | ---
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

Table: One line embossing with screw hole

<table>
<thead>
<tr>
<th>Article number</th>
<th>Article designation</th>
<th>Height (mm)</th>
<th>Product Make-up</th>
<th>Number of characters per line</th>
<th>Markers/PU</th>
</tr>
</thead>
</table>
| 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

Table: Two-line embossing with cable tie brackets

<table>
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<th>Article number</th>
<th>Article designation</th>
<th>Height (mm)</th>
<th>Product Make-up</th>
<th>Number of characters per line</th>
<th>Markers/PU</th>
</tr>
</thead>
</table>
| 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® Labels for thermal transfer printing • Cable and single core marking

**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. 83260260), 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
- **RAL**
  - 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 x length (mm)** | **Markers/PU** | **PU**
--- | --- | --- | --- | --- | ---
83280275 | FLEXIMARK® Cablelabel PUR 20×30 YE Diamond | yellow | 30 x 20 | 1000 | 1
83280276 | FLEXIMARK® Cablelabel PUR 20×30 WH Diamond | white | 30 x 20 | 1000 | 1
83280277 | FLEXIMARK® Cablelabel PUR 55×12 YE | yellow | 12 x 55 | 1000 | 1
83280278 | FLEXIMARK® Cablelabel PUR 55×12 WH | white | 12 x 55 | 1000 | 1
83280279 | FLEXIMARK® Cablelabel PUR 35×10 YE | yellow | 10 x 35 | 1000 | 1
83280280 | FLEXIMARK® Cablelabel PUR 35×10 WH | white | 10 x 35 | 1000 | 1
83280281 | FLEXIMARK® Cablelabel PUR 75×25 YE | yellow | 25 x 75 | 500 | 1
83280282 | FLEXIMARK® Cablelabel PUR 75×25 WH | white | 25 x 75 | 500 | 1
83280283 | FLEXIMARK® Cablelabel PUR 75×25 RD | red | 25 x 75 | 500 | 1
83280284 | FLEXIMARK® Cablelabel PUR 75×25 OR | orange | 25 x 75 | 500 | 1
83280285 | FLEXIMARK® Cablelabel PUR 75×25 GR | green | 25 x 75 | 500 | 1
83280286 | FLEXIMARK® Cablelabel PUR 75×25 BL | blue | 25 x 75 | 500 | 1
83280287 | FLEXIMARK® Cablelabel PUR 75×25 BN | white | 25 x 75 | 500 | 1
83280288 | FLEXIMARK® Cablelabel PUR 75×25 RD | red | 25 x 75 | 500 | 1
83280289 | FLEXIMARK® Cablelabel PUR 75×25 OR | orange | 25 x 75 | 500 | 1
83280290 | FLEXIMARK® Cablelabel PUR 75×25 GR | green | 25 x 75 | 500 | 1
83280291 | FLEXIMARK® Cablelabel PUR 75×25 BL | blue | 25 x 75 | 500 | 1
83280292 | FLEXIMARK® Cablelabel PUR 75×25 BN | white | 25 x 75 | 500 | 1
83280293 | FLEXIMARK® Cablelabel PUR 75×25 RD | red | 25 x 75 | 500 | 1
83280294 | FLEXIMARK® Cablelabel PUR 75×25 OR | orange | 25 x 75 | 500 | 1
83280295 | FLEXIMARK® Cablelabel PUR 75×25 GR | green | 25 x 75 | 500 | 1
83280296 | FLEXIMARK® Cablelabel PUR 75×25 BL | blue | 25 x 75 | 500 | 1

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

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

For current information see: www.lappgroup.com
Tools and cable accessories

Binding, bundling, fastening • Premium cable ties with steel nose

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

![Image of Ty-Rap cable tie]

**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. TyB 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

**Technical data**

<table>
<thead>
<tr>
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<th>ETIM 5.0/6.0 Class-ID: EC000046</th>
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<tbody>
<tr>
<td>Cable tie</td>
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</table>

**Norm references / Approvals**

- Colour delivered
  - RAL 9005 black/UV-resistant
- Material
  - Polyamide 6.6
  - Halogen-free and silicone-free
- Temperature range
  - -40°C to +85°C

<table>
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<tr>
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<th>Article description</th>
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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.
**KNIPEX Cable shear**

**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 handles 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

<table>
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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
- Certification
  - RAL Colour delivered: Orange
- Material
  - For mm²: 1.5 – 6
  - For insulation: XLPO

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<th>Article number</th>
<th>Article designation</th>
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<th>Pieces / PU</th>
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Reach us around the world.
Or closer to home.

To contact your local LAPP representative, please visit:
www.lappgroup.com/worldwide

Enter the world of LAPP:

Follow LAPP on:

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.

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.

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.

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