Shortform catalogue 2018

Lapp Southern Africa

legend

Industries

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

Product Characteristics

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

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

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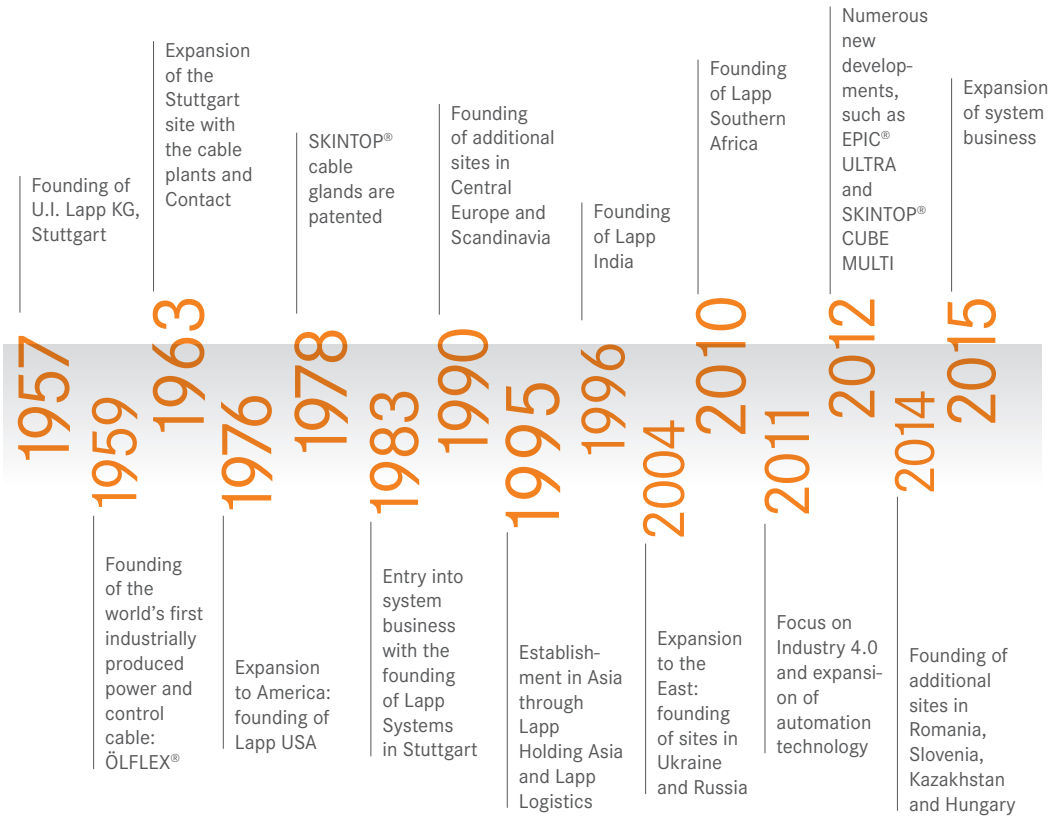
from small start-up to global player

The name Lapp not only stands for innovative strength and quality, it also stands for continuity. The Lapp company was founded by Ursula Ida and Oskar Lapp in 1957 as an ambitious family company – and to this day has remained as such.

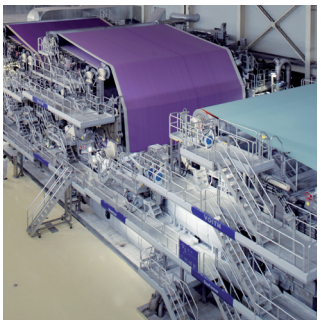
The desire to actively shape the future and the courage to embrace change and to think in a visionary way that is focused on solutions and customers are what make the company great. Our relationships with our employees, suppliers and customers which are based on partnership have always played a central role here. In less than 50 years, the small Stuttgart-based family business has evolved into a global player with around 3,200 employees – and into an international market leader for cable technology.

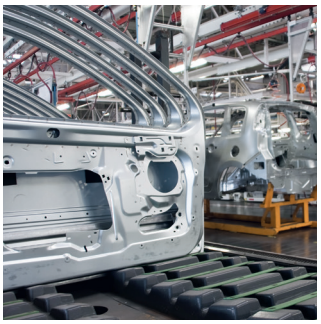
All the signs are pointing towards the future. This has not only become clear at Lapp's new, state-of-the-art European headquarters in Stuttgart-Vaihingen. The third generation of the Lapp family has now taken on responsibilities within the company. Thinking and acting in a value-oriented way is and remains an important component of the company philosophy. After all, the name Lapp also stands for this.



close to customers, close to the market

Our perception of trends, sectors and markets allows us to develop products today that will be used all over the world tomorrow. The Lapp Group offers the ideal solution for every complex solution – from tried and tested standard products to sophisticated customized production. Through international production sites and local storage of Lapp branded products, we ensure that we are able to supply all around the world. With our 18 production plants, over 40 sales companies, around 100 sales partners and many competent consultation teams, we offer comprehensive service on every continent.





8 strong brands

more than **40,000** standard products

over **40** of its ownsales companies

employees from **152** countries

1 innovation after another

around **100** sales partners

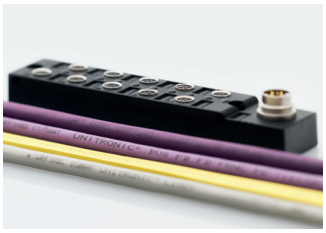
3,200 employees

8 brands

one promise: 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

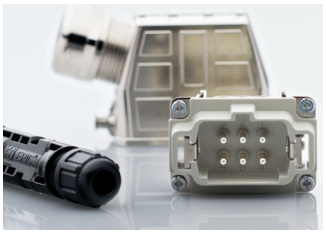
Our high-quality UNITRONIC® data network cables and field bus components provide a forward-looking solution for all applications in industrial machinery and plant engineering. From transmission of simple control signals to field bus signals in complex network structures – we offer a dependable cabling 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. The systems are made up of durable and robust cables and connection components for passive network technology, and deliver an effective solution for almost any application, particularly in an industrial environment.

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.

1

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.

Application range

- Industrial machinery, machine tools, plant and equipment engineering
- Measurement, control, heating and air conditioning systems
- Wind power and photovoltaic systems
- Public buildings, airports and stations.
- Medical technology, chemical industry, composting plants and sewage works
- Food and beverage industry
- Power drive systems
- Robot applications
- Railway applications

always a perfect connection

ÖLFLEX® CONNECT

Systems Solutions made by Lapp

With our systems service ÖLFLEX® CONNECT, we offer customized cabling solutions assembled exactly to your requirements.

Everything is possible – from cable assemblies to industry standard servo connections right up to sophisticated high-speed drag-chain systems. Do it all with ÖLFLEX® CONNECT.

Systems Solutions made by Lapp.

With our three distinctive offers, you get made-to-measure solutions, covering all your connectivity needs:

ÖLFLEX® CONNECT CABLES
Cable Systems made by Lapp

ÖLFLEX® CONNECT SERVO
Servo Systems made by Lapp

ÖLFLEX® CONNECT CHAIN
Chain Systems made by Lapp

ÖLFLEX ® Connect

Whether you need an assembled cable with a lug or ferrule, servo cable assemblies for moving applications or a populated drag chain,LAPP has the ideal solution for your requirements.

Systems Solutions made by LAPP

ÖLFLEX® CONNECT CABLES

Cable systems made by LAPP

With ÖLFLEX® CONNECT, we completed the step from component supplier to system supplier, offering complete solutions from a single source – from specialised cable assemblies and industry-standard servo connections to complex high-speed drag chain systems. We are constantly expanding our engineering, production and assembly capacities around the world.

The benefits for you:
- No capital expenditure for own production facilities
- Lean supply base leads to lower operating costs
- Low inventory levels thanks to complete assemblies
- Excellent functional reliability

Our product range stretches from single cores and multi-core cables through to EMC-shielded cables, all of which can be fitted with a wide selection of crimp contacts, connectors and housings. We also offer highly flexible and durable spiral cables in premium quality, as well as glass fibre assemblies, which we can produce, test and deliver in both standard and custom lengths.

Our comprehensive range of services:
- Cable cutting as required
- Unwinding with specified bending radius
- Stripping, crimping, heat shrinking
- Markings & printings
- Testing

ÖLFLEX® CONNECT SERVO

Servo Systems made by LAPP

basic line | **core line** | **extended line**

As a leading manufacturer of assembled servo cable systems, we offer solutions for all industry standards for customers from different areas of mechanical engineering and drive systems.

These range from the cost-effective **basic line** for applications free of aggressive environmental influences, to the **core line** that is specially designed for dynamic applications, right up to the highly dynamic performance class of the **extended line**.

LAPP therefore offers the right solution for every set of requirements

ÖLFLEX® CONNECT CHAIN

Chain Systems made by LAPP

basic chain | **core chain** | **extended chain**

Power chain systems made by LAPP
When it comes to assembled drag chains, you can benefit from our extensive know-how and many years of experience.

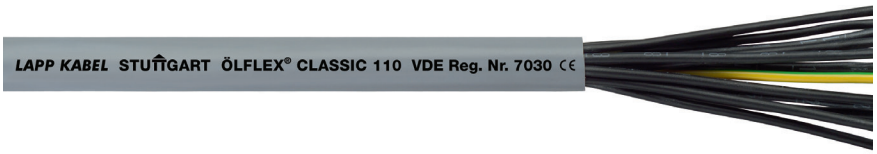
basic chain
Nylon or steel drag chains with highly flexible cables, cable protection conduits, hydraulic or pneumatic hoses with **no termination** such as connectors or flanges

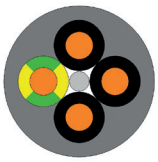
core chain
Nylon or steel drag chains with highly flexible cables, cable protection conduits, hydraulic or pneumatic hoses **including termination** (connectors, flanges)

extended chain
Nylon or steel drag chains with highly flexible cables, cable protection conduits, hydraulic or pneumatic hoses **including termination** (connectors, flanges) **and functional units** such as towing arms or supporting structures

ÖLFLEX® CLASSIC 110

VDE-registered oil-resistant PVC control cable for a wide range of applications





Info

- VDE certificate of conformity with factory surveillance
- More than 140 items with up to 100 conductors

Benefits

- Wide choice of standardized lengths and individual cuts
- Very broad range, items with up to 100 conductors

Application range

- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- Dry or damp rooms that are subject to medium mechanical loads
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- In power chains for a travelling distance up to 5 m and 0,2 ... 1 million bending cycles, for following dimensions: 0,5 to 2.5mm² and 2 to 7 conductors

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- Oil-resistant according to DIN EN 50290-2-22 (TM54)

Norm references / Approvals

- VDE reg. no. 7030 for the following sizes:
  up to 2.5 mm²: 2 - 65 cores
  from 4 mm²: 2 - 7 cores
  from 25 mm²: 2 - 5 cores

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC outer sheath, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description:
Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

Conductor stranding
Fine wire according to DIN EN 60228 (VDE 0295), class 5 / IEC 60228 class 5

Torsion movement in WTG
TW-0 & TW-1, refer to Appendix T0

Minimum bending radius
Occasional flexing: 10 x outer diameter
In power chains: 15 x outer diameter
Fixed installation: 4 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
4000 V

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

Temperature range
Occasional flexing: -15°C to +70°C
In power chains: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Standard length (m) and standard packaging							Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
		25	50	100	200	300	500	1000			
ÖLFLEX® CLASSIC 110											
1119752	2 X0.5			100	200	300	500	1000	4.8	9.6	35
1119003	3 G0.5			100	200	300	500	1000	5.1	14.4	42
1119753	3 X0.5			100	200	300	500	1000	5.1	14.4	42
1119004	4 G0.5			100	200	300	500	1000	5.7	19.2	54
1119754	4 X0.5			100	200	300	500	1000	5.7	19.2	54
1119005	5 G0.5			100	200	300	500	1000	6.2	24	63
1119755	5 X0.5			100	200	300	500	1000	6.2	24	63
1119007	7 G0.5		50	100	200	300	500	1000	6.7	33.6	81
1119757	7 X0.5		50	100	200	300	500	1000	6.7	33.6	81
1119010	10 G0.5		50	100	200	300	500	1000	8.6	48	116
1119012	12 G0.5		50	100	200	300	500	1000	8.9	58	131
1119014	14 G0.5		50	100			500	1000	9.5	67	153
1119018	18 G0.5		50	100			500	1000	10.5	86.4	188
1119021	21 G0.5		50	100			500	1000	11.7	101	221
1119025	25 G0.5		50	100			500	1000	12.4	120	261
1119030	30 G0.5		50	100			500	1000	13.3	144	304
1119035	35 G0.5		50	100			500	1000	14.5	168	356
1119040	40 G0.5		50	100			500	1000	15.4	192	400
1119052	52 G0.5		50	100			500		17.3	250	517
1119061	61 G0.5		50	100			500		18.5	293	603
1119065	65 G0.5		50	100			500		19.6	312	644

ÖLFLEX® CLASSIC 110

VDE-registered oil-resistant PVC control cable for a wide range of applications

Article number	Number of cores and mm² per conductor	Standard length (m) and standard packaging							Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
		25	50	100	200	300	500	1000			
1119080	80 G0.5		50	100			500		21.1	384	780
1119100	100 G0.5		50	100			500		23.6	480	975
1119802	2 X0.75			100	200	300	500	1000	5.4	14.4	45
1119103	3 G0.75			100	200	300	500	1000	5.7	21.6	55
1119803	3 X0.75			100	200	300	500	1000	5.7	21.6	55
1119104	4 G0.75			100	200	300	500	1000	6.2	28.8	66
1119804	4 X0.75			100	200	300	500	1000	6.2	28.8	66
1119105	5 G0.75		50	100	200	300	500	1000	6.7	36	79
1119805	5 X0.75		50	100	200	300	500	1000	6.7	36	79
1119107	7 G0.75		50	100	200	300	500	1000	7.3	50	101
1119807	7 X0.75		50	100	200	300	500	1000	7.3	50	101
1119109	9 G0.75		50	100	200	300	500	1000	9.4	65	137
1119110	10 G0.75		50	100	200	300	500	1000	9.6	72	150
1119112	12 G0.75		50	100	200	300	500	1000	9.9	86	171
1119812	12 X0.75		50	100	200	300	500	1000	9.9	86	171
1119115	15 G0.75		50	100			500	1000	10.9	108	209
1119117	15 X0.75		50	100			500	1000	10.9	108	209
1119116	16 G0.75		50	100			500	1000	11.1	115.2	220
1119118	18 G0.75		50	100			500	1000	11.7	130	244
1119121	21 G0.75		50	100			500	1000	13.0	151	286
1119125	25 G0.75		50	100			500	1000	13.8	180	337
1119126	26 G0.75		50	100			500	1000	14.2	187.2	350
1119134	34 G0.75		50	100			500	1000	15.9	245	448
1119141	41 G0.75		50	100			500	1000	17.4	296	538
1119150	50 G0.75		50	100			500		19.2	360	648
1119151	51 G0.75		50	100			500		19.2	367	646
1119161	61 G0.75		50	100			500		20.5	439	779
1119165	65 G0.75		50	100			500		21.8	468	832
1119180	80 G0.75		50	100			500		23.6	576	1019
1119200	100 G0.75		50	100			500		26.4	718	1271
1119852	2 X1.0			100	200	300	500	1000	5.7	19.2	53
1119203	3 G1.0			100	200	300	500	1000	6.0	28.8	65
1119853	3 X1.0			100	200	300	500	1000	6.0	28.8	65
1119204	4 G1.0		50	100	200	300	500	1000	6.5	38.4	79
1119854	4 X1.0		50	100	200	300	500	1000	6.5	38.4	79
1119205	5 G1.0		50	100	200	300	500	1000	7.1	48	94
1119855	5 X1.0		50	100	200	300	500	1000	7.1	48	94
1119206	6 G1.0		50	100	200	300	500	1000	8.0	58	113
1119207	7 G1.0		50	100	200	300	500	1000	8.0	67	126
1119857	7 X1.0		50	100	200	300	500	1000	8.0	67	126
1119208	8 G1.0		50	100	200	300	500	1000	9.5	77	149
1119209	9 G1.0		50	100	200	300	500	1000	10.0	86	164
1119210	10 G1.0		50	100	200	300	500	1000	10.2	96	180
1119212	12 G1.0		50	100	200	300	500	1000	10.5	115	205
1119862	12 X1.0		50	100	200	300	500	1000	10.5	115	205
1119214	14 G1.0		50	100			500	1000	11.2	134	238
1119216	16 G1.0		50	100			500	1000	11.8	153.6	266
1119218	18 G1.0		50	100			500	1000	12.7	173	320
1119868	18 X1.0		50	100			500	1000	12.7	173	320
1119220	20 G1.0		50	100			500	1000	13.4	192	330
1119870	20 X1.0		50	100			500	1000	13.4	192	330
1119225	25 G1.0		50	100			500	1000	14.7	240	408
1119226	26 G1.0		50	100			500	1000	15.1	249	424
1119234	34 G1.0		50	100			500	1000	17.1	326	551
1119236	36 G1.0		50	100			500	1000	17.4	346	578
1119241	41 G1.0		50	100			500	1000	18.8	394	661
1119250	50 G1.0		50	100			500		20.6	480	797
1119256	56 G1.0		50	100			500		21.4	538	888
1119261	61 G1.0		50	100			500		22.1	586	958
1119265	65 G1.0		50	100			500		23.6	624	1033
1119280	80 G1.0		50	100			500		25.3	768	1251
1119300	100 G1.0		50	100			500		28.3	960	1560
1119902	2 X1.5			100	200	300	500	1000	6.3	29	68
1119303	3 G1.5	25	50	100	200	300	500	1000	6.7	43	84
1119903	3 X1.5		50	100	200	300	500	1000	6.7	43	84
1119304	4 G1.5	25	50	100	200	300	500	1000	7.2	58	104
1119904	4 X1.5		50	100	200	300	500	1000	7.2	58	104
1119305	5 G1.5	25	50	100	200	300	500	1000	8.1	72	128
1119905	5 X1.5		50	100	200	300	500	1000	8.1	72	128
1119306	6 G1.5		50	100	200	300	500	1000	8.4	86.4	157
1119307	7 G1.5	25	50	100	200	300	500	1000	8.9	101	166
1119907	7 X1.5		50	100	200	300	500	1000	8.9	101	166
1119308	8 G1.5		50	100			500	1000	10.6	115	210
1119313	8 X1.5		50	100			500	1000	10.6	116	210
1119309	9 G1.5		50	100			500	1000	11.4	130	221
1119310	10 G1.5		50	100			500	1000	11.6	143	243

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VDE-registered oil-resistant PVC control cable for a wide range of applications

Article number	Number of cores and mm² per conductor	Standard length (m) and standard packaging							Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
		25	50	100	200	300	500	1000			
1119311	11 G1.5		50	100			500	1000	11.6	158	258
1119312	12 G1.5	25	50	100			500	1000	12.0	173	279
1119912	12 X1.5		50	100			500	1000	12.0	173	279
1119314	14 G1.5		50	100			500	1000	12.7	202	323
1119316	16 G1.5		50	100			500	1000	13.4	230.4	361
1119318	18 G1.5	25	50	100			500	1000	14.4	259	407
1119321	21 G1.5		50	100			500	1000	15.7	302	469
1119325	25 G1.5	25	50	100			500	1000	16.9	360	560
1119326	26 G1.5		50	100			500	1000	17.3	374.4	582
1119332	32 G1.5		50	100			500	1000	18.7	461	704
1119334	34 G1.5		50	100			500	1000	19.4	490	746
1119341	41 G1.5		50	100			500	1000	21.3	591	895
1119350	50 G1.5		50	100			500		23.5	720	1089
1119361	61 G1.5		50	100			500		25.2	878	1309
1119365	65 G1.5		50	100			500		26.7	936	1398
1119952	2 X2.5	25	50	100	200	300	500	1000	7.5	48	101
1119403	3 G2.5	25	50	100	200	300	500	1000	8.1	72	132
1119404	4 G2.5	25	50	100	200	300	500	1000	8.9	96	163
1119405	5 G2.5	25	50	100	200	300	500	1000	10.0	120	200
1119407	7 G2.5	25	50	100			500	1000	11.1	168	267
1119412	12 G2.5	25	50	100			500	1000	14.8	288	445
1119414	14 G2.5		50	100			500	1000	15.8	336	515
1119418	18 G2.5	25	50	100			500	1000	17.8	432	648
1119425	25 G2.5	25	50	100			500	1000	20.8	600	890
1119434	34 G2.5		50	100			500	1000	24.4	816	1208
1119450	50 G2.5		50	100			500		29.4	1200	1754
1119503	3 G4	25	50	100			500	1000	9.9	115	201
1119504	4 G4	25	50	100			500	1000	10.8	154	249
1119505	5 G4	25	50	100			500	1000	12.1	192	294
1119507	7 G4	25	50	100			500	1000	13.4	269	407
1119511	11 G4		50	100			500	1000	17.6	422	634
1119512	12 G4		50	100			500	1000	18.1	461	660
1119603	3 G6	25	50	100			500	1000	11.7	172.8	289
1119604	4 G6	25	50	100			500	1000	13.0	230	365
1119605	5 G6	25	50	100			500	1000	14.5	288	447
1119607	7 G6	25	50	100			500	1000	16.0	403	600
1119613	3 G10	25	50	100			500	1000	14.6	288	466
1119614	4 G10	25	50	100			500	1000	16.2	384	590
1119615	5 G10	25	50	100			500	1000	18.1	480	722
1119617	7 G10	25	50	100			500	1000	20.0	672	968
1119624	4 G16		50	100			500		18.8	614	1087
1119625	5 G16		50	100			500		21.2	768	1370
1119627	7 G16		50	100			500		23.4	1075	1779
1119634	4 G25		50	100			500		23.5	960	1582
1119635	5 G25		50	100			500		26.4	1200	1998
1119636	7 G25		50	100			500		29.1	1680	2825
1119644	4 G35		50	100			500		26.4	1344	2106
1119645	5 G35		50	100			500		29.6	1680	2635

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

Similar products

- ÖLFLEX® 191 refer to page 52

Accessories

- SKINTOP® CLICK refer to page 715

ÖLFLEX® CLASSIC 110 CY

Screened PVC control cable with transparent outer sheath

Info

- EMC-compliant
- VDE reg. no. 7030

Benefits

- Space-saving installation due to small cable diameters
- High electrical performance due to 4 kV test voltage

Application range

- Plant engineering
  Industrial machinery
  Heating and air-conditioning systems
- Conveyor and transport systems
- In EMC-sensitive environments (electromagnetic compatibility)

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- High degree of screening
  low transfer impedance
  (max. 250 Ω/km at 30 MHz)

Norm references / Approvals

- VDE reg. no. 7030

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- PVC inner sheath, grey
- Tinned-copper braiding
- PVC outer sheath, transparent

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description:
Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

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

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
4000 V

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

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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 110 CY				
1135752	2 X0.5	7.0	41	75
1135003	3 G0.5	7.3	45.5	83
1135753	3 X0.5	7.3	45.5	83
1135004	4 G0.5	7.9	55	99
1135754	4 X0.5	7.9	55	99
1135005	5 G0.5	8.4	66	112
1135755	5 X0.5	8.4	66	112
1135007	7 G0.5	8.9	80.5	132
1135757	7 X0.5	8.9	80.5	132
1135012	12 G0.5	11.3	138.5	202
1135762	12 X0.5	11.3	138.5	202
1135018	18 G0.5	13.3	156.4	289
1135025	25 G0.5	15.2	250	378
1135030	30 G0.5	16.1	297	429
1135040	40 G0.5	18.2	343	542
1135802	2 X0.75	7.4	46	86
1135103	3 G0.75	7.9	57.9	100
1135803	3 X0.75	7.9	57.9	100
1135104	4 G0.75	8.4	64	115
1135804	4 X0.75	8.4	64	115
1135105	5 G0.75	8.9	77.4	130
1135805	5 X0.75	8.9	77.4	130
1135107	7 G0.75	9.7	102	161
1135807	7 X0.75	9.7	102	161
1135112	12 G0.75	12.3	177	247
1135812	12 X0.75	12.3	177	247
1135118	18 G0.75	14.5	243	356
1135818	18 X0.75	14.5	243	356
1135125	25 G0.75	16.6	307.3	465
1135134	34 G0.75	18.9	323.2	601
1135840	40 X0.75	20.5	369.4	734
1135141	41 G0.75	20.6	488	728
1135852	2 X1.0	7.9	56	98
1135203	3 G1.0	8.2	65.3	111
1135853	3 X1.0	8.2	65.3	111
1135204	4 G1.0	8.7	78.1	130
1135854	4 X1.0	8.7	78.1	130
1135205	5 G1.0	9.5	89.4	153
1135207	7 G1.0	10.2	113.3	185
1135212	12 G1.0	13.3	188.1	307
1135216	16 G1.0	14.6	216	390
1135218	18 G1.0	15.5	286	418
1135225	25 G1.0	17.5	388.5	544

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1135234	34 G1.0	20.3	505	738
1135241	41 G1.0	22.0	578	864
1135250	50 G1.0	23.8	688	1011
1135902	2 X1.5	8.5	65	117
1135303	3 G1.5	8.9	83	136
1135903	3 X1.5	8.9	83	136
1135304	4 G1.5	9.6	100	163
1135904	4 X1.5	9.6	100	163
1135305	5 G1.5	10.3	125	188
1135905	5 X1.5	10.3	125	188
1135307	7 G1.5	11.3	149	237
1135907	7 X1.5	11.3	149	237
1135312	12 G1.5	14.8	280	393
1135318	18 G1.5	17.2	389	538
1135325	25 G1.5	20.1	535	745
1135334	34 G1.5	22.8	702	964
1135341	41 G1.5	24.7	844.6	1123
1135350	50 G1.5	27.1	1006	1372
1135402	2 X2.5	9.9	112	165
1135403	3 G2.5	10.3	146	192
1135404	4 G2.5	11.3	167	233
1135405	5 G2.5	12.6	200	283
1135407	7 G2.5	13.9	288	371
1135412	12 G2.5	17.6	477.3	585
1135502	2 X4	11.4	120	247
1135504	4 G4	13.4	237	347
1135505	5 G4	14.7	280	413
1135602	2 X6	13.6	180	353
1135604	4 G6	15.8	318	485
1135605	5 G6	17.3	441	702
1135607	7 G6	18.8	530	950
1135702	2 X10	16.4	256	492
1135615	3 G10	17.4	362.4	507
1135614	4 G10	19.0	518	735
1135616	5 G10	21.3	595	847
1135617	7 G10	23.2	796	1039
1135622	2 X16	18.6	390	698
1135624	4 G16	22.2	804	1395
1135623	5 G16	24.4	935	1440
1135626	4 G25	26.9	1161	1730
1135627	5 G25	30.0	1400	2090
1135625	4 G35	30.2	1543	2210
1135628	5 G35	33.2	1901	2710

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

ÖLFLEX® CLASSIC 115 CY

Screened PVC control cable with small outer diameter

Info

- EMC-compliant
- Thin and light, without inner sheath

Benefits

- Space-saving installation due to small cable diameters

Application range

- Measurement and control technology
- Office machines and systems for data processing

Product features

- Flame-retardant according IEC 60332-1-2
- Good chemical resistance, see catalogue appendix T1
- High degree of screening low transfer impedance (max. 250 Ω/km at 30 MHz)

Norm references / Approvals

- Based on EN 50525-2-51

Product Make-up

- Fine-wire strand made of bare copper wires
- PVC insulation LAPP P8/1
- Cores twisted in layers
- Plastic foil wrapping
- Tinned-copper braiding
- PVC outer sheath, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

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

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
U_0/U: 300/500 V

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

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

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

Similar products

- ÖLFLEX® ROBUST 215 C refer to page 74
- ÖLFLEX® CLASSIC 110 CY refer to page 40

Accessories

- SKINTOP® BRUSH ADD-ON refer to page 734
- 3M Scotch™ 1183 screening tape refer to page 1044
- SKINTOP® MS-M BRUSH refer to page 733

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 115 CY				
1136752	2 X0.5	5.8	36	45
1136003	3 G0.5	6.1	43	59
1136753	3 X0.5	6.1	43	59
1136004	4 G0.5	6.5	49	71
1136754	4 X0.5	6.5	49	71
1136005	5 G0.5	7.0	57	86
1136755	5 X0.5	7.0	57	86
1136007	7 G0.5	7.5	69	105
1136757	7 X0.5	7.5	69	105
1136012	12 G0.5	9.9	104	200
1136762	12 X0.5	9.9	104	200
1136018	18 G0.5	11.5	141	275
1136768	18 X0.5	11.5	141	275
1136025	25 G0.5	13.4	211	350
1136775	25 X0.5	13.4	211	350
1136802	2 X0.75	6.2	43	56
1136103	3 G0.75	6.5	52	70
1136803	3 X0.75	6.5	52	70
1136104	4 G0.75	7.0	61	95
1136804	4 X0.75	7.0	61	95
1136105	5 G0.75	7.7	72	108
1136805	5 X0.75	7.7	72	108
1136107	7 G0.75	8.3	89	127
1136807	7 X0.75	8.3	89	127
1136112	12 G0.75	10.9	138	232
1136118	18 G0.75	12.7	211	315
1136125	25 G0.75	14.8	280	435
1136825	25 X0.75	14.8	280	435
1136852	2 X1.0	6.5	51	71
1136203	3 G1.0	6.8	62	86
1136853	3 X1.0	6.8	62	86
1136204	4 G1.0	7.3	74	98
1136854	4 X1.0	7.3	74	98
1136205	5 G1.0	8.1	88	121
1136855	5 X1.0	8.1	88	121

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
1136207	7 G1.0	8.8	112	147
1136857	7 X1.0	8.8	112	147
1136212	12 G1.0	11.5	185	285
1136218	18 G1.0	13.9	268	395
1136225	25 G1.0	15.9	354	486
1136902	2 X1.5	7.1	65	86
1136303	3 G1.5	7.5	82	112
1136903	3 X1.5	7.5	82	112
1136304	4 G1.5	8.2	100	135
1136904	4 X1.5	8.2	100	135
1136305	5 G1.5	8.9	119	148
1136905	5 X1.5	8.9	119	148
1136307	7 G1.5	9.9	154	192
1136907	7 X1.5	9.9	154	192
1136312	12 G1.5	13.0	268	365
1136318	18 G1.5	15.6	373	520
1136325	25 G1.5	17.9	530	734
1136334	34 G1.5	20.8	683	944
1136403	3 G2.5	8.9	118	151
1136404	4 G2.5	9.9	147	188
1136405	5 G2.5	11.0	176	270
1136407	7 G2.5	11.9	253	340
1136412	12 G2.5	16.0	355	540
1136418	18 G2.5	19.0	569	782
1136425	25 G2.5	22.2	827	1358
1136504	4 G4	11.6	248	305
1136507	7 G4	14.4	355	500
1136604	4 G6	14.2	343	440
1136607	7 G6	17.0	505	672
1136614	4 G10	17.2	495	680
1136615	5 G10	19.5	592	824
1136624	4 G16	20.2	800	1050
1136625	5 G16	22.6	895	1285
1136634	4 G25	25.1	1075	1413
1136635	5 G25	28.0	1400	1976
1136638	4 G35	28.0	1576	2070

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

ÖLFLEX® CLASSIC FD 810

Highly flexible control cable with PVC core insulation and PVC sheath

Info

- Core Line for ordinary duty in power chain applications
- The classic for multi-functional use

Benefits

- Well-proven and reliable
- Cost-effective solution
- Low particle emission at moved chain application

Application range

- In power chains or moving machine parts
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines
- In damp or wet interiors
- Only for outdoor use within the indicated operating temperature range, with UV-protection

Product features

- Designed for 5 million alternating bending cycles and travel distances up to 10 meter
- Flame-retardant according IEC 60332-1-2
- Low-adhesive surface

Norm references / Approvals

- Core based on VDE 0245/0285
- Outer sheath based on VDE 0245/0285
- Clean room classification for individual items on request
- For use in power chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires (class 6)
- Core insulation: PVC
- Cores twisted in layers in short lay lengths
- Non-woven wrapping
- PVC outer sheath, grey (RAL 7001)

Technical data

Classification
ETIM 5.0 Class-ID: EC000104
ETIM 5.0 Class-Description: Control cable

Core identification code
Black with white numbers acc. to VDE 0293-1

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

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

Nominal voltage
U_0/U: 300/500 V

Test voltage
4000 V

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

Alternating bending cycles
5 mio. cycles

Temperature range
Flexing: 0°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC FD 810				
0026100	2 X 0.5	5.3	10	40
0026101	3 G 0.5	5.7	15	48
0026102	4 G 0.5	6.3	19.2	58
0026103	5 G 0.5	6.8	24	67
0026104	7 G 0.5	8	34	88
0026105	12 G 0.5	9.5	58	136
0026106	18 G 0.5	11.4	86.4	195
0026107	25 G 0.5	13.7	120	274
0026108	30 G 0.5	14.3	144	312
0026109	34 G 0.5	15.6	164	359
0026110	50 G 0.5	18.5	240	515
0026119	2 X 0.75	5.7	15	49
0026120	3 G 0.75	6.2	22	60
0026121	4 G 0.75	6.8	29	73
0026122	5 G 0.75	7.4	37	86
0026123	7 G 0.75	8.9	51	117
0026124	12 G 0.75	10.6	87	181
0026125	16 G 0.75	12	116	234
0026126	18 G 0.75	12.7	130	259
0026127	25 G 0.75	15.2	181	363
0026130	2 X 1.0	6.1	19	58
0026131	3 G 1.0	6.6	29	72
0026132	4 G 1.0	7.3	39	88
0026133	5 G 1.0	8	48	104
0026134	7 G 1.0	9.6	67	142
0026135	12 G 1.0	11.4	115	221
0026136	14 G 1.0	12.3	134.4	258
0026137	16 G 1.0	13	153	287
0026138	18 G 1.0	13.9	173	324
0026139	25 G 1.0	16.4	240	445
0026140	26 G 1.0	16.4	249.6	459

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0026141	34 G 1.0	18.9	326.4	595
0026142	41 G 1.0	20.6	394	712
0026143	50 G 1.0	22.3	480	854
0026144	65 G 1.0	25.4	624	1097
0026149	2 X 1.5	6.8	29	74
0026150	3 G 1.5	7.4	43.2	93
0026151	4 G 1.5	8.1	58	114
0026152	5 G 1.5	9.1	72	139
0026153	7 G 1.5	10.9	101	189
0026154	12 G 1.5	12.9	173	295
0026156	18 G 1.5	15.6	259	429
0026157	25 G 1.5	18.6	360	597
0026158	26 G 1.5	18.6	374.4	615
0026159	34 G 1.5	21.1	489.6	783
0026160	41 G 1.5	23	613	936
0026161	42 G 1.5	23	629	954
0026162	50 G 1.5	25	720	1134
0026170	3 G 2.5	9	72	145
0026171	4 G 2.5	10	96	179
0026172	5 G 2.5	11.2	120	218
0026173	7 G 2.5	13.6	168	303
0026174	12 G 2.5	16	288	473
0026175	14 G 2.5	17.2	336	548
0026180	3 G 4	10.6	120	214
0026181	4 G 4	11.7	160	266
0026182	5 G 4	13.1	200	325
0026183	4 G 6	13.9	230.4	396
0026184	5 G 6	15.5	288	484
0026185	4 G 10	17.6	384	644
0026186	5 G 10	19.6	480	785
0026187	4 G 16	21	615	922
0026188	5 G 16	23.6	768	1133

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

Similar products

- ÖLFLEX® FD 891 refer to page 127

Accessories

- SILVYN® CHAIN cable protection and guiding systems

ÖLFLEX® HEAT 180 SiF

Versatile single core cable with extended temperature range

Info

- Flexible fine-wire copper conductor

Benefits

- Possesses insulating properties after combustion due to remaining SiO_2 ash on the conductor

Application range

- Areas with high ambient temperatures where conventional core insulation materials will embrittle after a short while
- Typical fields of application
  - Control cabinet manufacturing
  - Appliances and apparatus engineering
  - Electric motor industry
  - Sauna/solarium construction
  - Thermal and heating elements
  - Lighting technology
  - Ventilator engineering
  - Air-conditioning technology
  - Furnace construction
  - Polymer processing
  - Generator and transformer manufacturing

Product features

- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Flame-retardant according IEC 60332-1-2
- Resistant to a multitude of oils, alcohols, vegetable and animal fats and chemical substances
- Adequate ventilation must be ensured, since the mechanical properties of silicone cables decrease from +100°C in the absence of air

Product Make-up

- Fine-wire, tinned-copper conductor
- Silicone-based insulation

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 Class-Description:
Single core cable

Conductor stranding
Fine wire acc. to
VDE 0295, class 5 / IEC 60228 class 5
from 0.5 mm²

Minimum bending radius
Fixed installation: 6 x core diameter
One bend at end of core:
3 x cable diameter

Nominal voltage
U_0/U: 300/500 V

Test voltage
2000 V

Temperature range
-50 °C to +180 °C
(adequate ventilation required)
Short-term: +200°C

Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/yellow	orange	white
ÖLFLEX® HEAT 180 SiF										
0.25	1.9	2.4	5.4	0047003	0047001	0047106	0047002	0047000	0047009	0047105
0.5	2.1	4.8	9	0048003	0048001	0048106	0048002	0048000	0048009	0048105
0.75	2.4	7.2	12	0049003	0049001	0049106	0049002	0049000	0049009	0049105
1	2.5	9.6	15	0050003	0050001	0050106	0050002	0050000	0050009	0050105
1.5	2.8	14.4	20	0051003	0051001	0051106	0051002	0051000	0051009	0051105
2.5	3.4	24	32	0052003	0052001	0052106	0052002	0052000		0052105
4	4.2	38	50	0053003	0053001	0053106	0053002	0053000	0053009	0053105
6	5.0	58	73	0054003	0054001	0054106	0054002	0054000		0054105
10	6.6	96	118	0055003	0055001	0055106	0055002	0055000	0055009	0055105
16	7.4	154	177		0056001	0056106	0056002	0056000		0056105
25	9.2	240	277		0057001	0057106	0057002	0057000		
35	10.3	336	374		0058001		0058002	0058000		
50	12.2	480	530		0059001			0059000		
70	14.2	672	724		0060001		0060002			
95	16.6	912	982		0061001			0061000		0061105
120	18.0	1152	1219		0062001			0062000		
150	20.0	1440	1524		0063001					
185	22.5	1776	1915		0064001					

Conductor cross-section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)	green	yellow	violet	red	pink
ÖLFLEX® HEAT 180 SiF								
0.25	1.9	2.4	5.4	0047006	0047005	0047007	0047104	0047008
0.5	2.1	4.8	9	0048006	0048005	0048007	0048104	0048008
0.75	2.4	7.2	12	0049006	0049005	0049007	0049104	0049008
1	2.5	9.6	15	0050006	0050005	0050007	0050104	0050008
1.5	2.8	14.4	20	0051006	0051005	0051007	0051104	0051008
2.5	3.4	24	32	0052006	0052005	0052007	0052104	
4	4.2	38	50	0053006	0053005		0053104	
6	5.0	58	73	0054006	0054005		0054104	
10	6.6	96	118				0055104	
16	7.4	154	177				0056104	
25	9.2	240	277				0057104	
35	10.3	336	374				0058104	
50	12.2	480	530				0059104	

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).
Also available on large spools and non-returnable drums.
Photographs are not to scale and do not represent detailed images of the respective products.
Other colours are available upon request

Similar products

- ÖLFLEX® HEAT 180 SiF A refer to page 192

H1Z2Z2-K

Cross-linked solar cables - type H 1Z2Z2-K, certified according to EN 50618

Info

- CPR: Article number choice under www.lappkabel.com/cpr
- H1Z2Z2-K (type according to EN 50618)
- Substitutes 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
- Gable and flat roof photovoltaic systems
- Photovoltaic plants and solar parks
- Flexible or building-integrated PV systems

Product features

- Weather/UV-resistant acc. to EN 50618, appendix E
- Weather/UV-resistant acc. to EN 50618, appendix E
- Ozone-resistant according to EN 50396
- Halogen-free and flame-retardant
- XLR-E = X-Linked Radiated-EN Standard Proven electron beam cross-linked quality

Norm references/Approvals

- H 1Z2Z2-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 5.0 Class-ID: EC001578
ETIM 5.0 Class-Description: Flexible cable

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

Minimum bending radius
Fixed installation: 4 x outer diameter

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

Test voltage
AC 6500 V

Current rating
In 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

Accessories

- EPIC® CRIMPTOOL
- Cable shears with double edge refer to page 980
- EPIC® SOLAR 4 M refer to page 673
- EPIC® SOLAR 4 F refer to page 673
- KS 20 cable shears

H05V-K <HAR>

European <HAR> cable type certification

Info

- <HAR>

Benefits

- Cables' <HAR>marking also stands for the international endorsement of national certification institutes' testing marks and certificates, e. g. <VDE><HAR>. The <HAR>marking is of special importance in case of goods traffic between European countries.

Application range

- Internal wiring of devices
- Protected installation in and on lighting equipments
- Signal systems in and on plaster in tubes

Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 Class-Description: Single core cable

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

Minimum bending radius
According to EN 50565-1
4 x outer diameter (OD) for normal use;
2 x OD for cautions bending

Nominal voltage
U_0/U: 300/500 V

Test voltage
2000 V

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

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

Conductor cross-section (mm²)	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/ yellow
0.5	2.1 - 2.5	100		4.8	9	4510031	4510011	4510061	4510021	4510001
0.75	2.2 - 2.7	100		7.2	12	4510032	4510012	4510062	4510022	4510002
1	2.4 - 2.8	100		9.6	15	4510033	4510013	4510063	4510023	4510003
0.5	2.1 - 2.5		250	4.8	9	4510031S	4510011S	4510061S	4510021S	4510001S
0.75	2.2 - 2.7		250	7.2	12	4510032S	4510012S	4510062S	4510022S	4510002S
1	2.4 - 2.8		250	9.6	15	4510033S	4510013S	4510063S	4510023S	4510003S

Conductor cross-section (mm²)	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	orange	dark blue	white	green	yellow
0.5	2.1 - 2.5	100		4.8	9	4510091	4510141	4510051	4510121	4510111
0.75	2.2 - 2.7	100		7.2	12	4510092	4510142	4510052	4510122	4510112
1	2.4 - 2.8	100		9.6	15	4510093	4510143	4510053	4510123	4510113
0.5	2.1 - 2.5		250	4.8	9	4510091S	4510141S	4510051S	4510121S	4510111S
0.75	2.2 - 2.7		250	7.2	12	4510092S	4510142S	4510052S	4510122S	4510112S
1	2.4 - 2.8		250	9.6	15	4510093S	4510143S	4510053S	4510123S	

Conductor cross-section (mm²)	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	violet	red	ultra-marine blue	Dark blue/ white	transparent
0.5	2.1 - 2.5	100		4.8	9	4510071	4510041	4510161	4510921	
0.75	2.2 - 2.7	100		7.2	12	4510072	4510042		4510922	
1	2.4 - 2.8	100		9.6	15	4510073	4510043	4510163	4510923	
0.5	2.1 - 2.5		250	4.8	9	4510071S	4510041S			
0.75	2.2 - 2.7		250	7.2	12	4510072S	4510042S	4510162S		4510102S
1	2.4 - 2.8		250	9.6	15	4510073S	4510043S	4510163S		4510103S

Conductor cross-section (mm²)	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	pink
0.5	2.1 - 2.5	100		4.8	9	4510081
0.75	2.2 - 2.7	100		7.2	12	4510082
1	2.4 - 2.8	100		9.6	15	4510083
0.75	2.2 - 2.7		250	7.2	12	4510082S

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.
The outer diameters stated in the part number table are maximum values.

H07V-K <HAR>

European <HAR> cable type certification

Info

- <HAR>

Benefits

- Cables' <HAR>marking also stands for the international endorsement of national certification institutes' testing marks and certificates, e. g. <VDE><HAR>. The <HAR>marking is of special importance in case of goods traffic between European countries.

Application range

- Laying in tubes, exposed or buried in plaster, and in closed installation ducts
- For direct laying on racks, troughs and tubes only as potential equalisation conductor

Product features

- Flame-retardant according IEC 60332-1-2
- Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

Norm references / Approvals

- <HAR> cable type certification acc. EN 50525-2-31
- No cable type certified core insulation colours according to EN 50525-1/ VDE 0285-525-1: transparent, green (single colour), yellow (single colour), all double colours (except of green-yellow and yellow-green)

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- Core insulation: Based on PVC

Technical data

Classification
ETIM 5.0 Class-ID: EC000993
ETIM 5.0 Class-Description: Single core cable

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

Minimum bending radius
According to EN 50565-1
OD ≤ 8 mm: 4 x OD*/2 x OD**;
8 < OD ≤ 12 mm: 5 x OD*/3 x OD**;
OD > 12 mm: 6 x OD*/4 x OD**

Nominal voltage
U_0/U: 450/750 V

Test voltage
2500 V

Current rating
VDE 0298 Part 4
EN 50565-1/ VDE 0298-565-1

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

Conductor cross-section (mm²)	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	brown	black	grey	blue	green/ yellow
1.5	2.8 - 3.4		150	14.4	22	4520031S	4520011S	4520061S	4520021S	4520001S
2.5	3.4 - 4.1		100	24	37	4520032S	4520012S	4520062S	4520022S	4520002S
1.5	2.8 - 3.4	100		14.4	22	4520031	4520011	4520061	4520021	4520001
2.5	3.4 - 4.1	100		24	37	4520032	4520012	4520062	4520022	4520002
4	3.9 - 4.8	100		38.4	45	4520033	4520013	4520063	4520023	4520003
6	4.4 - 5.3	100		57.6	71	4520034	4520014	4520064	4520024	4520004
10	5.7 - 6.8	100		96	120	4520035	4520015	4520065	4520025	4520005
16	6.7 - 8.1			153.6	187	4520036	4520016	4520066	4520026	4520006
25	8.4 - 10.2			240	290	4521031	4521011		4521021	4521001
35	9.7 - 11.7			336	399	4521032	4521012	4521062	4521022	4521002
50	11.5 - 13.9			480	559		4521013		4521023	4521003
70	13.2 - 16			672	776		4521014		4521024	4521004
95	15.1 - 18.2			912	1031		4521015		4521025	4521005
120	16.7 - 20.2			1152	1285		4521016			4521006
150	18.6 - 22.5			1440	1563		4521017			4521007
185	20.6 - 24.9			1776	1915		4521018			4521008
240	23.5 - 28.4			2304	2550		4521019			4521009

Conductor cross-section (mm²)	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	orange	dark blue	white	green	yellow
1.5	2.8 - 3.4		150	14.4	22		4520141S	4520051S		
2.5	3.4 - 4.1		100	24	37		4520142S	4520052S		
1.5	2.8 - 3.4	100		14.4	22	4520091	4520141	4520051	4520121	4520111
2.5	3.4 - 4.1	100		24	37	4520092	4520142	4520052	4520122	4520112
4	3.9 - 4.8	100		38.4	45	4520093	4520143	4520053	4520123	4520113
6	4.4 - 5.3	100		57.6	71	4520094	4520144	4520054	4520124	4520114
10	5.7 - 6.8	100		96	120	4520095	4520145	4520055		
16	6.7 - 8.1			153.6	187	4520096	4520146	4520056	4520126	
25	8.4 - 10.2			240	290	4521091				
35	9.7 - 11.7			336	399	4521092				

Conductor cross-section (mm²)	Outer diameter (mm)	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)	violet	red	ultra-marine blue
1.5	2.8 - 3.4		150	14.4	22		4520041S	
2.5	3.4 - 4.1		100	24	37		4520042S	
1.5	2.8 - 3.4	100		14.4	22	4520071	4520041	4520161
2.5	3.4 - 4.1	100		24	37	4520072	4520042	4520162
4	3.9 - 4.8	100		38.4	45		4520043	4520163
6	4.4 - 5.3	100		57.6	71	4520074	4520044	4520164
10	5.7 - 6.8	100		96	120		4520045	
16	6.7 - 8.1			153.6	187		4520046	
25	8.4 - 10.2			240	290		4521041	
35	9.7 - 11.7			336	399		4521042	
50	11.5 - 13.9			480	559		4521043	
70	13.2 - 16			672	776		4521044	

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, otherwise drum
Photographs are not to scale and do not represent detailed images of the respective products.
*for conventional use, **for careful bending; “OD” = outer diameter
The outer diameters stated in the part number table are maximum values.

Similar products

- MULTI-STANDARD SC 2.1 refer to page 212
- MULTI-STANDARD SC 2.2 refer to page 214

Accessories

- Mobile crimp tool crimping pliers refer to page 1033
- DIN-assorted boxes conductor end sleeves refer to page 1011
- PEW 8.87 crimping pliers refer to page 1016
- FLEXIMARK® Collar Snap-on refer to page 985

2 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.

Application range

- Industrial machinery and plant engineering
- Sensors and actuating elements
- Appliances
- Measurement and control technology
- Automated production processes and industrial robots
- Bus systems
- Computing and communication systems

UNITRONIC® LiYY

Data transmission cable with colour code acc. to DIN 47100

Info

- The classic for multi-functional use

Benefits

- Space-saving installation due to small cable diameters
- Multifunctional application possibilities
- Depending on the quantity, the outer sheath can also be produced in other colours to match your application needs

Application range

- UNITRONIC® LiYY is also used as a control and signal cable in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- Dry or damp rooms
- Occasional flexing

Product features

- Despite the large number of cores, LiYY data cables have small outer diameters
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

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

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
At 0.14 mm²: 1200 V

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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiYY				
0028202	2 x 0.14	3.2	2.7	13.2
0028203	3 x 0.14	3.4	4.05	16
0028204	4 x 0.14	3.6	5.4	18.9
0028205	5 x 0.14	3.9	6.72	22.2
0028207	7 x 0.14	4.2	9.45	28.4
0028208	8 x 0.14	4.9	10.2	35.2
0028210	10 x 0.14	5.2	13.5	41.2
0028212	12 x 0.14	5.6	16.2	48.4
0028214	14 x 0.14	5.8	18.9	52.9
0028216	16 x 0.14	6.1	21.6	59.1
0028220	20 x 0.14	7	27	70.8
0028225	25 x 0.14	7.8	33.6	87.2
0028236	36 x 0.14	8.6	48.6	126.8
0028237	37 x 0.14	8.9	49.7	118
0028240	40 x 0.14	9.3	54	139.1
0028250	50 x 0.14	10.4	67.5	170.9
0028256	56 x 0.14	10.7	78.4	187
0028302	2 x 0.25	3.8	4.8	18
0028303	3 x 0.25	4	7.2	22
0028304	4 x 0.25	4.3	9.6	26.2
0028305	5 x 0.25	4.7	12	31
0028306	6 x 0.25	5.1	14.4	39
0028307	7 x 0.25	5.1	16.8	42
0028308	8 x 0.25	6.2	19.2	49.2
0028310	10 x 0.25	6.8	24	58
0028312	12 x 0.25	7	28.8	67
0028314	14 x 0.25	7.3	33.6	75.3
0028316	16 x 0.25	7.7	38.4	84.3
0028318	18 x 0.25	8.1	43.2	93
0028320	20 x 0.25	8.6	48	102
0028325	25 x 0.25	9.6	60	134
0028330	30 x 0.25	10.3	72	155
0028332	32 x 0.25	10.7	76.8	164
0028336	36 x 0.25	11.1	86.4	182.2
0028337	37 x 0.25	11.4	88.8	185
0028340	40 x 0.25	12	96.1	200
0028350	50 x 0.25	12.9	120	257.1
0028402	2 x 0.34	4.2	6.6	25
0028403	3 x 0.34	4.4	9.9	31
0028404	4 x 0.34	4.8	13.1	43.2

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0028405	5 x 0.34	5.5	16.5	53.8
0028406	6 x 0.34	5.9	19.6	55
0028407	7 x 0.34	5.9	22.8	62
0028408	8 x 0.34	7.1	26.1	73.1
0028410	10 x 0.34	7.6	32.6	82
0028412	12 x 0.34	7.8	39.1	102
0028414	14 x 0.34	8.2	45.7	109
0028416	16 x 0.34	8.7	52	127
0028420	20 x 0.34	9.6	65.2	159.3
0028421	21 x 0.34	10.4	68.6	167
0028425	25 x 0.34	11.2	81.6	190
0028430	30 x 0.34	11.6	98	226
0028436	36 x 0.34	12.5	118	284
0028440	40 x 0.34	13.5	131	317
0028450	50 x 0.34	15	163	407
0028502	2 x 0.50	4.7	9.6	40
0028503	3 x 0.50	5	14.4	47
0028504	4 x 0.50	5.6	19.2	56
0028505	5 x 0.50	6.1	24	65
0028507	7 x 0.50	6.9	33.6	82
0028508	8 x 0.50	8	38.4	90
0028510	10 x 0.50	8.6	48	117
0028512	12 x 0.50	8.9	58	133
0028516	16 x 0.50	10.2	77	170
0028520	20 x 0.50	11.4	96	214
0028525	25 x 0.50	12.7	120	265
0028530	30 x 0.50	13.2	144	304
0028540	40 x 0.50	15.8	192	392
0028602	2 x 0.75	5.1	14.4	48
0028603	3 x 0.75	5.6	21.6	57
0028604	4 x 0.75	6.1	28.8	69
0028605	5 x 0.75	6.9	36	78
0028607	7 x 0.75	7.5	50	112
0028608	8 x 0.75	8.7	58	126
0028610	10 x 0.75	9.4	72	149
0028612	12 x 0.75	10.1	86	176
0028616	16 x 0.75	11.2	115	218
0028620	20 x 0.75	12.4	144	274
0028625	25 x 0.75	14	180	285
0028702	2 x 1.00	5.6	19.2	55
0028703	3 x 1.00	5.9	29	70

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0028704	4 x 1.00	6.4	38.4	79
0028705	5 x 1.00	7.3	48	98
0028802	2 x 1.50	6.2	29	74

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0028803	3 x 1.50	6.8	43	89
0028804	4 x 1.50	7.4	58	105

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

Similar products
- UNITRONIC® LiYY (TP) refer to page 281
- UNITRONIC® LiYY A refer to page 300

Accessories
- SKINTOP® ST-M refer to page 712
- STAR STRIP stripping tool refer to page 1000
- SENSOR STRIP stripping tool refer to page 1003

UNITRONIC® LiYCY

Screened data transmission cable with colour code acc. to DIN 47100

Benefits
- Overall braid minimises electrical interference
- Multifunctional application possibilities

Application range
- Screened cables with small dimensions are suitable for use in computer systems, insturmentation technology, office equipment, balances.
- Dry or damp rooms

Product features
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals
- Based on VDE 0812

Product Make-up
- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

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

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

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

Test voltage
At 0.14 mm²: 1200 V

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

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiYCY				
0034302	2 x 0.14	3.9	12	20
0034303	3 x 0.14	4.1	13	28
0034304	4 x 0.14	4.3	14.3	33
0034305	5 x 0.14	4.6	15.5	38
0034306	6 x 0.14	4.9	18.2	38
0034307	7 x 0.14	4.9	19	49
0034308	8 x 0.14	5.8	21.2	56
0034310	10 x 0.14	6.1	28.5	66
0034312	12 x 0.14	6.3	30.4	78
0034314	14 x 0.14	6.7	32	80
0034315	15 x 0.14	6.9	37.8	86
0034316	16 x 0.14	7	43	90
0034318	18 x 0.14	7.3	48.8	104
0034320	20 x 0.14	7.7	53.9	116
0034321	21 x 0.14	7.9	55.5	121
0034324	24 x 0.14	8.4	61	132
0034325	25 x 0.14	8.5	63	149
0034328	28 x 0.14	8.5	66.1	153
0034330	30 x 0.14	8.7	69	158
0034336	36 x 0.14	9.3	83	183
0034340	40 x 0.14	10.4	87.5	210
0034344	44 x 0.14	10.7	110.5	225
0034350	50 x 0.14	11.1	122.5	253
0034402	2 x 0.25	4.5	16	32
0034403	3 x 0.25	4.7	21	37
0034404	4 x 0.25	5	24	41.3
0034405	5 x 0.25	5.6	29	51.2

Article number	Number of cores and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0034406	6 x 0.25	6	30	58
0034407	7 x 0.25	6	37	65
0034408	8 x 0.25	7.1	42	73
0034410	10 x 0.25	7.5	46	82
0034412	12 x 0.25	7.7	53	98
0034414	14 x 0.25	8	59	99
0034415	15 x 0.25	8.3	61	111
0034416	16 x 0.25	8.4	64	124
0034418	18 x 0.25	8.8	83	143
0034420	20 x 0.25	9.3	88	152.3
0034421	21 x 0.25	9.6	93	161
0034425	25 x 0.25	10.7	114	172
0034428	28 x 0.25	10.8	126	181.1
0034432	32 x 0.25	11.4	138	203
0034436	36 x 0.25	11.8	148	220
0034440	40 x 0.25	12.7	157	248
0034450	50 x 0.25	13.8	178	318
0034461	61 x 0.25	15	205	365.2
0034502	2 x 0.34	4.9	21	37
0034503	3 x 0.34	5.1	27	49
0034504	4 x 0.34	5.7	28	59
0034505	5 x 0.34	6.2	30	66
0034506	6 x 0.34	6.8	45	79
0034507	7 x 0.34	6.8	48	83
0034508	8 x 0.34	7.8	52	94
0034510	10 x 0.34	8.3	74	129.2
0034512	12 x 0.34	8.5	80	142
0034514	14 x 0.34	8.9	86	154
0034515	15 x 0.34	9.2	90	155
0034516	16 x 0.34	9.4	94	160
0034518	18 x 0.34	10.2	103	173
0034520	20 x 0.34	10.7	112	192
0034521	21 x 0.34	11.1	116	199.2
0034525	25 x 0.34	11.9	135	259
0034528	28 x 0.34	12	153	280
0034530	30 x 0.34	12.3	159	291.1
0034532	32 x 0.34	13	165	305
0034536	36 x 0.34	13.4	179	331
0034540	40 x 0.34	14.8	200	365
0034550	50 x 0.34	15.9	235	431
0034602	2 x 0.50	5.6	29	54
0034603	3 x 0.50	5.9	38	67
0034604	4 x 0.50	6.3	43	77
0034605	5 x 0.50	7	51	90
0034606	6 x 0.50	7.6	59	104
0034607	7 x 0.50	7.6	65	112
0034608	8 x 0.50	8.7	70	135
0034610	10 x 0.50	9.3	88	160
0034612	12 x 0.50	9.6	99	177
0034618	18 x 0.50	11.8	134	239
0034620	20 x 0.50	12.1	149	276
0034625	25 x 0.50	13.7	211	352
0034630	30 x 0.50	14.5	230	397
0034702	2 x 0.75	6	38	64
0034703	3 x 0.75	6.3	49	76
0034704	4 x 0.75	7	58	92
0034705	5 x 0.75	7.6	67	109
0034707	7 x 0.75	8.2	100	156
0034710	10 x 0.75	10.5	130	187
0034712	12 x 0.75	10.8	154	218
0034718	18 x 0.75	13	195	327
0034725	25 x 0.75	15.3	280	454
0034730	30 x 0.75	15.8	312	486
0034802	2 x 1.00	6.3	43	72
0034803	3 x 1.00	6.8	56	90
0034804	4 x 1.00	7.3	68	109
0034805	5 x 1.00	8	79	126
0034807	7 x 1.00	8.6	118	171
0034810	10 x 1.00	11.1	140	228
0034812	12 x 1.00	11.4	168	259
0034818	18 x 1.00	13.4	252	389
0034825	25 x 1.00	16.2	335	517
0034902	2 x 1.50	7.1	58	90
0034903	3 x 1.50	7.5	74	115
0034904	4 x 1.50	8.1	108	153
0034905	5 x 1.50	8.8	129	176
0034907	7 x 1.50	9.5	164	220
0034912	12 x 1.50	12.7	254	376
0034918	18 x 1.50	15.3	350	519
0034925	25 x 1.50	17.9	550	901

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

Similar products

- UNITRONIC® LiYCY (TP) refer to page 282
- UNITRONIC® PUR CP refer to page 289
- UNITRONIC® LiYCY A refer to page 301

Accessories

- SKINTOP® MS-SC refer to page 794
- Multipurpose shears A and B refer to page 998
- UNIVERSAL STRIP stripping tool refer to page 1006

UNITRONIC® LiYCY (TP)

Screened data transmission cable with colour code acc. to DIN 47100 and twisted pairs

Info

- TP = twisted pair

Benefits

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

Application range

- Can be used multifunctional in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- Dry or damp rooms

Product features

- Good protection against capacitive interference from electric fields (e.g. power cable)
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

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

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

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

Test voltage
At 0.14 mm²: 1200 V

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

Article number	Dimension and cross section in mm²	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiYCY (TP)				
0035131	2 x 2 x 0,14	5.3	18.5	39
0035141	3 x 2 x 0,14	5.8	23	48
0035132	4 x 2 x 0,14	6.2	26.6	54
0035133	6 x 2 x 0,14	7.1	48.5	85
0035150	8 x 2 x 0,14	8.2	53.7	97
0035134	10 x 2 x 0,14	8.7	59	110
0035135	12 x 2 x 0,14	8.9	66	142
0035136	16 x 2 x 0,14	10.2	79	154
0035142	20 x 2 x 0,14	11.3	97	184
0035137	25 x 2 x 0,14	12.5	113	238
0035800	2 x 2 x 0,25	6.3	28	54
0035801	3 x 2 x 0,25	7.1	39.6	68.5
0035802	4 x 2 x 0,25	7.6	44.9	81
0035803	6 x 2 x 0,25	8.5	69.5	115
0035804	8 x 2 x 0,25	10.3	76.9	130
0035805	10 x 2 x 0,25	11	102	158
0035806	12 x 2 x 0,25	11.3	120	190
0035807	16 x 2 x 0,25	12.5	146.5	238

Article number	Dimension and cross section in mm²	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
0035808	25 x 2 x 0,25	16.1	205	344
0035810	2 x 2 x 0,5	7.9	48.1	93
0035811	3 x 2 x 0,5	8.7	73.7	129
0035812	4 x 2 x 0,5	9.4	82	146
0035813	6 x 2 x 0,5	11.1	110	198
0035814	8 x 2 x 0,5	13.1	139	259
0035816	12 x 2 x 0,5	14.9	198.3	354
0035817	16 x 2 x 0,5	16.5	240	459
0035820	2 x 2 x 0,75	8.5	58	106
0035821	3 x 2 x 0,75	9.4	84	140
0035822	4 x 2 x 0,75	10.7	108	179
0035827	5 x 2 x 0,75	11.1	126	215
0035823	6 x 2 x 0,75	12.1	146	246
0035824	8 x 2 x 0,75	14.7	180	305
0035825	12 x 2 x 0,75	16.2	261	456
0035830	2 x 2 x 1	9	84	142
0035831	3 x 2 x 1	10.4	96	173
0035832	4 x 2 x 1	11.3	121	212
0035836	5 x 2 x 1	11.8	161	266

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

Similar products

- UNITRONIC® CY PiDY (TP) refer to page 286
- UNITRONIC® PUR CP (TP) refer to page 290
- UNITRONIC® Li2YCY (TP) fine-wire refer to page 291
- UNITRONIC® LiYCY (TP) A refer to page 302

Accessories

- SKINTOP® MS-SC-M refer to page 732
- Multipurpose shears A and B refer to page 998
- STAR STRIP stripping tool refer to page 1000

UNITRONIC® LiYY (TP)

Data transmission cable with colour code acc. to DIN 47100 and twisted pairs

Info

- TP = twisted pair

Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Electronic devices tend to leave little room for installing cables, meaning short travel distances and small bending radii are required. This cable ideally meets these requirements.
- Dry or damp rooms

Product features

- Twisted in pairs to reduce decoupling. As a result, additional screening is often not required.
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

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

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Peak operating voltage
(not for power applications)
at 0.14 mm²: 350 V
at ≥ 0.25 mm²: 500 V

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x Outer diameter

Test voltage
At 0.14 mm²: 1200 V

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

Article number	Number of pairs and conductor cross section (mm²)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiYY (TP)				
0035101	2 x 2 x 0.14	4.8	5.4	25.5
0035102	3 x 2 x 0.14	4.9	8	32
0035103	4 x 2 x 0.14	5.5	10.7	38.5
0035104	5 x 2 x 0.14	5.7	13.4	45.5
0035105	6 x 2 x 0.14	6.2	16.1	51
0035108	10 x 2 x 0.14	8	26.9	77.5
0035110	12 x 2 x 0.14	8.2	32.3	94.5
0035113	16 x 2 x 0.14	9.1	43	110.5
0035160	2 x 2 x 0.25	6.1	9.6	38
0035161	3 x 2 x 0.25	6.2	14.4	48
0035162	4 x 2 x 0.25	6.9	19.2	59
0035163	6 x 2 x 0.25	7.8	28.8	80
0035164	8 x 2 x 0.25	9.2	38.4	98
0035170	2 x 2 x 0.5	7.9	19.2	72
0035171	3 x 2 x 0.5	8	28.8	83
0035172	4 x 2 x 0.5	8.7	38.4	115
0035174	8 x 2 x 0.5	12.2	76.8	206
0035175	10 x 2 x 0.5	13.2	96	247

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

Similar products

- UNITRONIC® LiYCY (TP) refer to page 282
- UNITRONIC® LiYCY (TP) A refer to page 302

Accessories

- SKINTOP® CLICK refer to page 715
- KS 15 cable shears

UNITRONIC® BUS ASI

Info

- “LD” = Long Distance

Benefits

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

Application range

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

Product features

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

Norm references / Approvals

- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- PVC version with UL/CSA (CMG) certification
- UL/CSA version: CMG c(UL)us or (UL) CL2 or AWM 300V FT4 certified

Product Make-up

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

Technical data

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

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

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

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

Test voltage
Core/core: 2000 V

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

Article number	Article designation	Outer sheath material	Outer sheath colour	Application	Number of cores and mm² per conductor	Copper index (kg/km)	Weight (kg/km)
For fixed and flexible applications (19-wire stranded conductor)							
2170228	UNITRONIC® BUS ASI (G)	EPDM (rubber)	yellow	Data and power transmission	2 x 1,5	29	85
2170229	UNITRONIC® BUS ASI (G)	EPDM (rubber)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	85
2170371	UNITRONIC® BUS ASI LD (G)	EPDM (rubber)	yellow	Data and power transmission	2 x 2,5	48	85
2170372	UNITRONIC® BUS ASI LD (G)	EPDM (rubber)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48	85
2170230	UNITRONIC® BUS ASI (TPE)	TPE	yellow	Data and power transmission	2 x 1,5	29	64
2170231	UNITRONIC® BUS ASI (TPE)	TPE	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	64
2170232	UNITRONIC® BUS ASI (TPE)	TPE	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29	64
2170842	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	yellow	Data and power transmission	2 x 1,5	29	70
2170843	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	70
2170844	UNITRONIC® BUS ASI (PVC) A	PVC UL/CSA (CMG)	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29	70

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 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
Lapp Kabel is a member of the AS-International Association
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- SKINTOP® DIX-M AUTOMATION refer to page 741
- UNIVERSAL STRIP stripping tool refer to page 1006
- AS-I clip clamp / AS-I end sealing refer to page 1072
- AS-I STRIP special stripping tool refer to page 1002
- AS-I STRIP special
- SKINTOP® DIX ASI

UNITRONIC® BUS CAN

UNITRONIC® BUS CAN FD P

Info

- CAN = Controller Area Network

Application range

UNITRONIC® BUS CAN
- Fixed installation

UNITRONIC® BUS CAN FD P
- For highly flexible applications

Product features

UNITRONIC® BUS CAN
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

UNITRONIC® BUS CAN FD P
- Halogen-free outer sheath
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Standardised internationally in ISO 11898
- UL/CSA type CMX (UL 444)

Product Make-up

UNITRONIC® BUS CAN
- 0.22 + 0.34 + 0.5: bare stranded conductor, 7-wire
  0.75: bare stranded conductor, fine-wire
- Colour-coded in accordance with DIN 47100
- Copper braid
- PVC sheath
- Colour: violet (RAL 4001)

UNITRONIC® BUS CAN FD P
- Stranded bare conductor
- Screening: wrapped with braided copper wires
- PUR outer sheath
- Colour: violet (RAL 4001)
- UV-resistant (but colour may change after some time)

Suitable connectors

UNITRONIC® BUS CAN
- EPIC® DATA CAN Sub-D Page 362
- EPIC® DATA CAN Sub-D PRO Page 363

Technical data

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

Mutual capacitance
UNITRONIC® BUS CAN
(800 Hz): max. 40 nF/km
UNITRONIC® BUS CAN FD P
(800 Hz): max. 60 nF/km

Peak operating voltage
UNITRONIC® BUS CAN
(not for power applications) 250 V
UNITRONIC® BUS CAN FD P
250 V (not for power transmission)

Conductor resistance
UNITRONIC® BUS CAN
(loop): max. 186 ohm/km
UNITRONIC® BUS CAN FD P
(loop): max. 159.8 ohm/km

Minimum bending radius
UNITRONIC® BUS CAN
Fixed installation: 8 x outer diameter
UNITRONIC® BUS CAN FD P
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
120 ohm

Temperature range
UNITRONIC® BUS CAN
Fixed installation:
-30°C to +80°C
Flexing: -5°C to +70°C
UNITRONIC® BUS CAN FD P
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

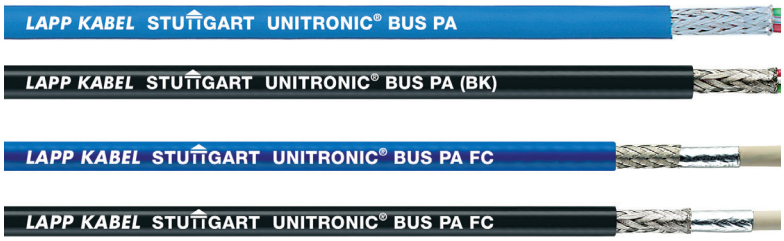
Article number	Article designation	Number of pairs/ conductor cross section (mm²)	Outer diameter (mm)	Conductor resistance	Copper index (kg/km)	Weight (kg/km)
for fixed installation						
2170260	UNITRONIC® BUS CAN	1 x 2 x 0,22	5.7	186	16.7	42
2170261	UNITRONIC® BUS CAN	2 x 2 x 0,22	7.6	186	34.8	68
2170263	UNITRONIC® BUS CAN	1 x 2 x 0,34	6.8	115	25	55
2170264	UNITRONIC® BUS CAN	2 x 2 x 0,34	8.5	115	46.4	88
2170266	UNITRONIC® BUS CAN	1 x 2 x 0,5	7.5	78	41.6	90
2170267	UNITRONIC® BUS CAN	2 x 2 x 0,5	9.6	78	59.4	106
2170269	UNITRONIC® BUS CAN	1 x 2 x 0,75	8.7	52	52.7	108
2170270	UNITRONIC® BUS CAN	2 x 2 x 0,75	11.5	52	80.6	142
For highly flexible applications (power chains, moving machine parts)						
2170272	UNITRONIC® BUS CAN FD P	1 x 2 x 0,25	6.4	159.8	24	40
2170273	UNITRONIC® BUS CAN FD P	2 x 2 x 0,25	8.4	159.8	33	65
2170275	UNITRONIC® BUS CAN FD P	1 x 2 x 0,34	6.8	122	32.8	60
2170276	UNITRONIC® BUS CAN FD P	2 x 2 x 0,34	9.6	122	52.4	88
2170278	UNITRONIC® BUS CAN FD P	1 x 2 x 0,5	8	72.8	41.9	74
2170279	UNITRONIC® BUS CAN FD P	2 x 2 x 0,5	10.8	72.8	59.4	100

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

Accessories

UNITRONIC® BUS CAN
- Multipurpose shears A and B refer to page 998
- SMART STRIP stripping tool
- SENSOR STRIP stripping tool refer to page 1003

UNITRONIC® BUS PA



Info

- PA = Process Automation
- Variant with UL/CSA CMG

Benefits

- FC (Fast Connect) version is oil and UV-resistant

Application range

- Process-automation application for connecting sensors and actuators - including areas with risks of explosion.
- Fixed installation

Product features

- Bit rate = 31.25 kbit/s. Transmission technology RS485 also possible but bit rate is limited to 1.5 Mbit/s
- Maximum cable length is dependent on several factors (e.g. supply voltage, current demand).
- Technical Data: refer to the overview on "UNITRONIC® Bus Cables"
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- PROFIBUS® PA is standardised in EN 50170 as PROFIBUS® DP and PROFIBUS® FMS
- Transmission technology for PROFIBUS-PA in accordance with international standard IEC 61158-2
- FC variant with UL/CSA certification (CMG / PLTC)

Product Make-up

- UNITRONIC® BUS PA (BU/BK)
  Stranded conductor, core colours: red and green, copper braiding, PVC sheath, colour: blue (intrinsically safe area), colour: black (non-instrinsically safe area)
- UNITRONIC® BUS PA FC (BU/BK)
  Solid core, UL/CSA CMG certification and "Fast Connect" cable design, which enables rapid connection of the IDC connector (Insulation Displacement Connection).

Technical data

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

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 44 ohm/km

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 ± 20 Ohm

Temperature range
Fixed installation:
-30°C to +80°C
During installation: -5°C to +50°C

Article number	Article designation	Number of pairs and cable diameter per conductor in mm	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
For fixed installation - conventional cable assembly					
2170234	UNITRONIC® BUS PA (BU)	1 x 2 x 1,3	8	45	84
2170235	UNITRONIC® BUS PA (BK)	1 x 2 x 1,3	8	45	84
For fixed installation - "Fast Connect" cable assembly - UL/CSA CMG certification					
2170334	UNITRONIC® BUS PA FC (BU)	1 x 2 x 1.00	8	45.5	103
2170335	UNITRONIC® BUS PA FC (BK)	1 x 2 x 1.00	8	45.5	103

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

Accessories

- Multipurpose shears A and B refer to page 998
- STAR STRIP stripping tool refer to page 1000
- FC STRIP stripping tool refer to page 1002

UNITRONIC® DeviceNet THICK + THIN

Application range

- Fixed installation
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

Product features

- Resistant to oils
- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- FRNC Version: Halogene free and flame retardant
- Refer to data sheet for more details

Norm references / Approvals

- CMG UL/CSA certification 75°C or PLTC, Sun Res
- FRNC variant additionally with Germanischer Lloyd certification

Product Make-up

- Core insulation made of foam skin
- Outer sheath: Halogene free (FRNC) or Polyvinylchlorid (PVC)

Technical data

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

Core identification code
Data pair: light blue + white
Power supply: red + black

Mutual capacitance
(800 Hz): max. 39.8 nF/km

Peak operating voltage
300 V (not for power applications)

Conductor resistance
Thick (loop): max. 45 ohm/km
Thin (loop): max. 180 ohm/km

Minimum bending radius
Fixed installation: 15 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
120 ohm

Temperature range
Fixed installation: -25°C to +80°C

Article number	Article designation	Number of pairs and AWG size	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Halogen-free					
2170340	UNITRONIC® BUS DN THICK FRNC	1x2xAWG18 + 1x2xAWG15	12.2	82.8	195
2170341	UNITRONIC® BUS DN THIN FRNC	1x2xAWG24 + 1x2xAWG22	6.9	33.4	69.5
With PVC outer sheath					
2170342	UNITRONIC® BUS DN THICK Y	1x2xAWG18 + 1x2xAWG15	12.2	88.4	192
2170343	UNITRONIC® BUS DN THIN Y	1x2xAWG24 + 1x2xAWG22	6.9	33.4	66.9

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
FRNC means Flame-Retardant, Non-Corrosive; and DeviceNet is a registered trademark of ODVA.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
ECO is the cost-efficient version of article no. 2170342 and 2170343, with a slight modification to the outer sheath and UL/CSA-approved (CMG).
Photographs are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB

Fixed installation

Info

- Lapp is a member of the PROFIBUS User Organisation (PNO)
- A for Advanced here: UL and CSA certifications

Application range

- For fixed installation
  Maximum electromagnetic screening
- Dry or damp rooms
- Item nos. 2170233, 2170333, 2170820, 2170824, 2170826 are all UV-resistant

Product features

- These bus cables can be used for PROFIBUS-DP as well as for PROFIBUS-FMS and FIP
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)
- See below for UL certification type

Product Make-up

- FC: “Fast Connect” cable design
- P: Polyurethane
  H: Halogen-free
- PE: polyethylene, black Outer sheath, e.g. for the food and beverage industry
- 7-W: 7-wire, e.g. for applications where vibrations occur
- COMBI: Data transmission and power supply in one cable

Technical data

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

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

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 186 Ohm/km.
see also datasheet

Minimum bending radius
Fixed installation: see data sheet

Test voltage
Core/core: 1500 V rms

Characteristic impedance
150 ± 15 Ohm

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
For fixed installation - conventional cable assembly					
2170220	UNITRONIC® BUS PB	1 x 2 x 0.64	8	30.1	74
2170233	UNITRONIC® PB PE	1 x 2 x 0.64	8	30.1	57
2170226	UNITRONIC® BUS PB H 7-W	1 x 2 x 0.64	8	30.1	55
2170225	UNITRONIC® BUS PB COMBI 7-W	1 x 2 x 0,64 Ø + 3 x 1,0 mm²	9.8	59	92
For fixed installation - UL/CSA CMX certification					
2170219	UNITRONIC® BUS PB A	1 x 2 x 0.64	8	30.1	57
For fixed installation - UL/CSA CMG certification					
2170824	UNITRONIC® BUS PB 7-W A	1 x 2 x 0.64	8	30.1	55
For fixed installation - “Fast Connect” cable assembly					
2170333	UNITRONIC® BUS PB PE FC	1 x 2 x 0.64	8	26	67
For fixed installation - UL/CSA CMX certification					
2170330	UNITRONIC® BUS PB P FC	1 x 2 x 0.64	8	26	71
For fixed installation - “Fast Connect” cable assembly - UL/CSA CMG certification					
2170820	UNITRONIC® BUS PB FC	1 x 2 x 0.64	8	26	84
2170826	UNITRONIC® BUS PB 7-W FC	1 x 2 x 0.64	8	26	67
2170326	UNITRONIC® BUS PB-H FC	1 x 2 x 0.64	8	26	72

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

Similar products

- UNITRONIC® BUS PB ROBUST refer to page 330
- UNITRONIC® BUS PB 105 refer to page 331

Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 1002
- SENSOR STRIP stripping tool refer to page 1003

UNITRONIC® BUS LD

Info

- LD is a LAPP abbreviation for long distance

Benefits

- Suitable for multiple Bus systems based on RS485 / RS422

Application range

- For fixed installation
  Maximum electromagnetic screening
- Bus cables for bus systems such as e.g. Modbus, SUCOnet P, Modulink P, VariNet-P)
- Dry or damp rooms

Product features

- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 9.6-93.75 kbit/s = 1200m
- 187.5 kbit/s = max. 1,000 m
- 500 kBit/s = max. 400 m
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- UL versions with certification:
  UL/CSA type CMX acc. to UL 444
  and CSA C22.2 no. 214-02

Product Make-up

- Stranded bare 7-wire conductor, colour-coded according to DIN 47100
- Copper braid
- PVC sheath
- Colour: violet (RAL 4001)
- UNITRONIC® BUS LD A as UNITRONIC® BUS LD, but with UL/CSA certification

Technical data

ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description:
Sensor-actuator patch cord

Mutual capacitance
(800 Hz): max. 60 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 186 ohm/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 - 120 Ohm

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

Article number	Article designation	Number of pairs and mm² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
for fixed installation					
2170203	UNITRONIC® BUS LD	1 x 2 x 0,22	5.7	18	37
2170204	UNITRONIC® BUS LD	2 x 2 x 0,22	7.1	28	45
2170205	UNITRONIC® BUS LD	3 x 2 x 0,22	7.2	37	72
For fixed installation - UL/CSA CMX certification					
2170803	UNITRONIC® BUS LD A	1 x 2 x 0,22	5.7	18	39

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).
Modubus is owned by the Modbus-IDA Organisation. SUCOnet P is a registered trademark of the Moeller Group. Modulink P is a registered trademark of Weidmüller GmbH & Co. VariNet is a registered trademark of Pepperl+Fuchs GmbH.
Photographs are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB Sub-D

PROFIBUS connectors with screw terminals | REPEATER function | ATEX

Info

- Optional with LED diagnostic
- ATEX and REPEATER Version
- Versions with 2th Sub-D ports

Benefits

- Easy connection with proven srew clamp connection
- Compact design: small space requirements
- Terminating resistor (integrated) can be switched
- REPEATER version: Regeneration of data signal (slope, power and mark-to-space ratio)
- ATEX version: For use within intrinsically-safe circuits in zone 2 areas with an explosion hazard (explosive gas atmosphere occurs only rarely and briefly)

Product features

- Max. transmission rate 12 Mbit/s possible
- Current consumption max. 12,5 mA (with LED 35 mA / REPEATER 100 mA)
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)
- Terminating resistor “ON” - the outbound bus cable is disconnected
- REPEATER version: Easy extension of the PROFIBUS network:
  - up to 3 repeaters
  - 1 additional PROFIBUS segment
  - galvanic isolation

Norm references / Approvals

- IEC 61158, IEC 61784
- UL File: E331560
- ATEX version: DIN EN 60079-0:2006, DIN 60079-15:2005 (category 3G zone 2)

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Versions with additional Sub-D interface for programming/diagnostic (‘PG’)
- For cable outer diameter: 5 - 8 mm
- LED Version indicate:
  bus operation - (green)
  station transmission - (blue)
  terminating resistor “on” - (orange)

Suitable cables

- Bus system PROFIBUS-DP/FMS/FIP

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set refer to page 1078

Technical data

ETIM 5.0 Class-ID: EC001132
ETIM 5.0 Class-Description:
D-Sub connector

Dimensions
54 mm x 40 mm x 17 mm - 35°
64 mm x 40 mm x 17 mm - 90°
68 mm x 40 mm x 17 mm - 180°
(LxWxH)

Connection type
Screwing

Protection rating
IP20

Terminating resistor
150 Ω

Interfaces
PROFIBUS station:
D-Sub socket, 9-pin
PROFIBUS cable:
4 terminal blocks for wires up to 1.0 mm²
(solid/flexible 7/19 wire)

Permissble ambient conditions
Operating temperature:
-25°C to +85°C
*The max. temperature for UL is 60 °C.

Article number	Article designation	Version	PG-Interface	Diagnostic LEDs	PU
35° cable outlet					
21700507	ED-PB-35		no	no	1
21700506	ED-PB-35-PG		yes	no	1
90° cable outlet					
21700504	ED-PB-90		no	no	1
21700503	ED-PB-90-PG		yes	no	1
21700530	ED-PB-90-LED		no	yes	1
21700529	ED-PB-90-PG-LED		yes	yes	1
21700541	ED-PB-90-RP-PG	REPEATER	yes	yes	1
21700543	ED-PB-90-ATEX	ATEX	no	no	1
21700542	ED-PB-90-PG-ATEX	ATEX	yes	no	1
180° (AX) cable outlet					
21700505	ED-PB-AX		no	no	1

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

3 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.

Application range

- Industry and building networks
- Industrial machinery and plant engineering
- Automation technology
- Control engineering

ETHERLINE® Cat.5e

Fixed installation

Info

- Industrial Ethernet cable
- Cat.5e

Benefits

- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Can be used for Industrial Ethernet in harsh industrial environments
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

Application range

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- Suitable for EtherCAT and EtherNet/IP applications
- Industrial use
- Fixed installation

Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Halogen-free outer sheath

Norm references / Approvals

- PUR versions: UL AWM Style 21576
- Flame retardant acc. to IEC 60332-1-2
- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)

Product Make-up

- Solid conductor
- Core insulation made of foam skin
- 2 or 4-pair version
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath as either PUR or LSZH
- Colour: water blue (RAL 5021)

Technical data

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

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 7.5 x outer diameter (2 pair cable)
Fixed installation: 8 x outer diameter (4 pair cable)

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

Characteristic impedance
100 Ohm +- 15%

Temperature range
cable with PUR jacket
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
flexing: VDE -5°C to +50°C; UL/CSA -5°C to +80°C
cable halogenfree compound
fixed installation: -30°C to +80°C
moved: -5°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
2-pair version					
Halogen-free jacket					
2170280	ETHERLINE® H CAT.5e	2 x 2 x AWG24/1	6.1	22	45
PUR outer sheath, halogen-free					
2170281	ETHERLINE® P CAT.5e	2 x 2 x AWG24/1	6.1	22	53
4-pair version					
Halogen-free jacket					
2170296	ETHERLINE® H CAT.5e	4 x 2 x AWG24/1	6.3	32	54
2170298	ETHERLINE® H-H CAT.5e	4 x 2 x AWG24/1	6.3 / 8.3	32	80
PUR outer sheath, halogen-free					
2170297	ETHERLINE® P CAT.5e	4 x 2 x AWG24/1	6.3	32	62

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- Field-Terminable Connector RJ45 CAT.5e FM45 refer to page 476
- EPIC® DATA AX RJ45 Cat.6_A refer to page 462
- EPIC® DATA 90 RJ45 Cat.6_A refer to page 463
- EPIC® DATA HS RJ45F Cat.6_A refer to page 464
- EPIC® DATA M12D refer to page 464
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466
- SMART STRIP stripping tool
- DATA STRIP stripping tool refer to page 1001

ETHERLINE® PN Cat.5

Fixed installation

Info

- For PROFINET applications type A
- CAT.5/5e

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght für 100 Mbit/s is 100 m
- Suitable for EtherCAT and EtherNet/IP applications
- ETHERLINE® TRAY ER PN Y FC: installation in open cable trays without any conduit

Product features

- Fixed installation
- CAT.5-Performance
- FC: “Fast Connect” cable design
- Flame-retardant according IEC 60332-1-2
- ETHERLINE® Y FC, ETHERLINE® YY, ETHERLINE® TRAY ER PN Y FC : flame-retardant according to CSA FT-4

Norm references / Approvals

- ETHERLINE® Y FC with PLTC approbation and AWM Style 21694
- ETHERLINE® PN Cat.5e YY with UL CMG
- ETHERLINE® PN Cat.5e Y with UL CMX
- ETHERLINE® TRAY ER PN Y FC with PLTC ER approval

Product Make-up

- Solid bare copper wire AWG22
- Core insulation: PE
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC
- Colour: green (based on RAL 6018)

Technical data

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

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
See data sheet

Test voltage
See data sheet

Characteristic impedance
100 Ohm +- 15%

Temperature range
See data sheet

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
conventional cable assembly					
2170891	ETHERLINE® PN Cat.5e Y	2 x 2 x AWG22/1	6.5	30.4	56
FC: “Fast Connect” cable design					
2170893	ETHERLINE® Y FC Cat.5	2 x 2 x AWG22/1	6.8	30.4	70
2170879	ETHERLINE® TRAY ER PN Y FC	2 x 2 x AWG22/1	6.8	30.4	70
Suitable for outdoor use and direct burial					
2170494	ETHERLINE® PN Cat.5e YY	2 x 2 x AWG22/1	7.8	30.4	62

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA PN AX RJ45 refer to page 461
- EPIC® DATA PN 90 RJ45 refer to page 461
- EPIC® DATA AX RJ45 Cat.6_A IP68 refer to page 463
- EPIC® DATA RJ45F Cat.6_A refer to page 462
- EPIC® DATA M12D refer to page 464

ETHERLINE® Cat.6$_A$

Fixed installation

Info

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for 100 Mbit/s is 100 m max. cable lenght for 10 Gbit/s is 100 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Robust, halogen-free outer sheath
- The oil-resistant PVC sheath enables usage in industrial environments
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Product Make-up

- Solid bare copper wire AWG22
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Colour: green (based on RAL 6018)

Technical data

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

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 10 x outer diameter

Characteristic impedance
100 ohm at 1 - 100 MHz

Temperature range
cable with PUR jacket
Fixed installation: VDE -30°C to +80°C;
UL/CSA -30°C to +80°C
flexing: VDE -5°C to +50°C;
UL/CSA -5°C to +80°C
cable halogenfree compound
Fixed installation: -25°C to +80°C
cable with PVC jacket
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Max. outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
Halogen-free jacket					
2170466	ETHERLINE® Cat.6$_A$ H	4 x 2 x AWG22/1	9.0	53	99
PUR outer sheath, halogen-free					
2170465	ETHERLINE® CAT.6$_A$ P	4 x 2 x AWG22/1	9.0	53	91
PVC outer sheath					
2170464	ETHERLINE® Cat.6$_A$ Y	4 x 2 x AWG22/1	9.0	53	98

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).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs are not to scale and do not represent detailed images of the respective products.

Accessories

- EPIC® DATA AX RJ45 Cat.6$_A$ refer to page 462
- EPIC® DATA 90 RJ45 Cat.6$_A$ refer to page 463
- EPIC® DATA AX RJ45 Cat.6$_A$ IP68 refer to page 463
- EPIC® DATA RJ45F Cat.6$_A$ refer to page 462
- EPIC® DATA M12X refer to page 465
- EPIC® DATA CCR FA refer to page 466
- DATA STRIP stripping tool refer to page 1001

EPIC® DATA PN AX RJ45

Info

- For PROFINET applications
- Installation without tools

Product features

- For PROFINET applications
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accomodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Suitable for use in industrial applications
- Colour-coded in accordance with PROFINET for Cat.5 apllications

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

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

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. Core diameter in mm	Max. Core diameter in mm	AWG solid	AWG 7-wire
EPIC® DATA PN AX RJ45							
21700605	ED-IE-AX-5-PN-20-FC	5	9	1.6	1	24 - 22	27 - 22

Photographs are not to scale and do not represent detailed images of the respective products.
10 pieces in one blister

EPIC® DATA PN 90 RJ45

Info

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

Product features

- For PROFINET applications
- Cable outlet in 4 different 90° angles possible
- Housing: zinc die-casting, grey
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Suitable for use in industrial applications
- Colour-coded in accordance with PROFINET for Cat.5 apllications

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

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

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. Core diameter in mm	Max. Core diameter in mm	AWG solid	AWG 7-wire
EPIC® DATA PN 90 RJ45							
21700638	ED-IE-90-6$_A$-PN-20-FC	5.5	10	1	1.6	24 - 22	27 - 22

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

EPIC® DATA AX RJ45 Cat.6$_A$

Info

- CAT.6$_A$ qualified for 10Gbit/s
- Installation without tools

Product features

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accomodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG24/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

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

Protection rating
IP 20

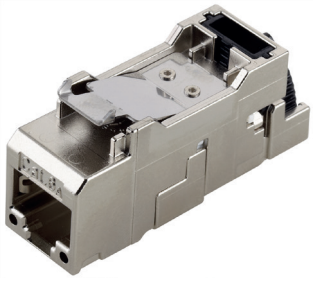
Ambient temperature (operation)
-40°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. Core diameter in mm	Max. Core diameter in mm	AWG solid	AWG 7-wire	AWG 19-wire
RJ45 connector acc. to T568A								
21700600	EPIC® DATA ED-IE-AX-6$_A$-A-20-FC	5	9	1	1.6	24 - 22	27 - 22	
RJ45 connector acc. to T568A, specifically for cables with 19-wire cores								
21700615	EPIC DATA ED-IE-AX-6$_A$-A-20-FD-FC	5	9	0.85	1.1	26 - 24	27 - 24	26
RJ45 connector acc. to T568B								
21700601	EPIC® DATA ED-IE-AX-6$_A$-B-20-FC	5	9	1	1.6	24 - 22	27 - 22	
RJ45 connector acc. to T568B, specifically for cables with 19-wire cores								
21700616	EPIC DATA ED-IE-AX-6$_A$-B-20-FD-FC	5	9	0.85	1.1	26 - 24	27 - 24	26

Photographs are not to scale and do not represent detailed images of the respective products.
10 pieces in one blister
An approval is necessary for 19-wire cables by Lapp Group

EPIC® DATA RJ45F Cat.6A

RJ45 female connector



Product features

- Field assembly Industrial Ethernet module RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit Ethernet
- Housing: zinc die-casting, grey
- By a multi-level relief setting the connector can accomodate a cable diameter from 5,0 mm up to 9,0 mm
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Norm references / Approvals

- Field assembly Industrial Ethernet connector, RJ45 according to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

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

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +70°C

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

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

4 SKINTOP®

Cable glands

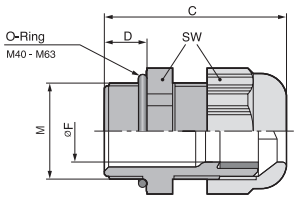
Simply feed in the cable and twist. That's it. Our SKINTOP® cable glands provide secure connections in no time. The universal systems are simple but effective. They secure and centre the cable, hermetically seal it and guarantee optimum strain relief.

Application range

- Industrial machinery and plant engineering
- Drive systems
- Measurement and control technology
- Renewable energies
- Wherever cables need to be fastened securely and quickly

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

SKINTOP® STR-M

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

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 EN 50262

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

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

Suitable tools

- SKINMATIC® QUICK Set 1 refer to page 782
- SKINMATIC® RZ refer to page 783
- SKINMATIC® MH Set refer to page 782

Technical data

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

Caution
SKINTOP® ST-M
Refer to Appendix T21 for the installation dimensions and torques
Size M 40 x 1,5 up tp M 63 x 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	ST-M 12 x 1,5	3,5-7	15	30.0	8	100
53111010	ST-M 16 x 1,5	4,5-10	19	34.0	8	100
53111020	ST-M 20 x 1,5	7-13	25	37.0	9	100
53111030	ST-M 25 x 1,5	10-17	30	40.0	10	50
53111040	ST-M 32 x 1,5	11-21	36	47.0	10	25
53111050	ST-M 40 x 1,5	19-28	46	52.0	10	10
53111060	ST-M 50 x 1,5	27-35	55	62.0	12	5
53111070	ST-M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST-M black						
53111200	ST-M 12 x 1,5	3,5-7	15	30.0	8	100
53111210	ST-M 16 x 1,5	4,5-10	19	34.0	8	100
53111220	ST-M 20 x 1,5	7-13	25	37.0	9	100
53111230	ST-M 25 x 1,5	10-17	30	40.0	10	50
53111240	ST-M 32 x 1,5	11-21	36	47.0	10	25
53111250	ST-M 40 x 1,5	19-28	46	52.0	10	10
53111260	ST-M 50 x 1,5	27-35	55	62.0	12	5
53111270	ST-M 63 x 1,5	34-45	66	71.0	12	5
SKINTOP® ST-M light grey						
53111400	ST-M 12 x 1,5	3,5-7	15	30.0	8	100
53111410	ST-M 16 x 1,5	4,5-10	19	34.0	8	100
53111420	ST-M 20 x 1,5	7-13	25	37.0	9	100
53111430	ST-M 25 x 1,5	10-17	30	40.0	10	50
53111440	ST-M 32 x 1,5	11-21	36	47.0	10	25
53111450	ST-M 40 x 1,5	19-28	46	52.0	10	10
53111460	ST-M 50 x 1,5	27-35	55	62.0	12	5
53111470	ST-M 63 x 1,5	34-45	66	71.0	12	5

Cable glands

SKINTOP® metric plastic cable glands • SKINTOP® Standard

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 ISO silver-grey (with long metric connecting thread)						
53017010	ST M 16 x 1,5	3,5-8	19	40.0	12	100
53017030	ST M 20 x 1,5	5-12	24	45.0	13	100
53017040	ST M 25 x 1,5	9-14	27	47.0	13	50
SKINTOP® ST M ISO black (with long metric connecting thread)						
53010000	ST-M 12 x 1,5	3,5-7	15	36.7	15	100
53017210	ST M 16 x 1,5	3,5-8	19	40.0	12	100
53017230	ST M 20 x 1,5	5-12	24	45.0	13	100
53017240	ST M 25 x 1,5	9-14	27	47.0	13	50
SKINTOP® STR-M silver grey						
53111100	STR-M 12 x 1,5	1-5	15	30.0	8	100
53111110	STR-M 16 x 1,5	2-7	19	34.0	8	100
53111120	STR-M 20 x 1,5	5-10	25	37.0	9	100
53111130	STR-M 25 x 1,5	6-13	30	40.0	10	50
53111140	STR-M 32 x 1,5	7-15	36	47.0	10	25
53111150	STR-M 40 x 1,5	15-23	46	52.0	10	10
53111160	STR-M 50 x 1,5	22-29	55	62.0	12	5
53111170	STR-M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR-M black						
53111300	STR-M 12 x 1,5	1-5	15	30.0	8	100
53111310	STR-M 16 x 1,5	2-7	19	34.0	8	100
53111320	STR-M 20 x 1,5	5-10	25	37.0	9	100
53111330	STR-M 25 x 1,5	6-13	30	40.0	10	50
53111340	STR-M 32 x 1,5	7-15	36	47.0	10	25
53111350	STR-M 40 x 1,5	15-23	46	52.0	10	10
53111360	STR-M 50 x 1,5	22-29	55	62.0	12	5
53111370	STR-M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR-M light grey						
53111500	STR-M 12 x 1,5	1-5	15	30.0	8	100
53111510	STR-M 16 x 1,5	2-7	19	34.0	8	100
53111520	STR-M 20 x 1,5	5-10	25	37.0	9	100
53111530	STR-M 25 x 1,5	6-13	30	40.0	10	50
53111540	STR-M 32 x 1,5	7-15	36	47.0	10	25
53111550	STR-M 40 x 1,5	15-23	46	52.0	10	10
53111560	STR-M 50 x 1,5	22-29	55	62.0	12	5
53111570	STR-M 63 x 1,5	28-39	66	71.0	12	5
SKINTOP® STR M ISO silver-grey (with long metric connecting thread)						
53017110	STR M 16 x 1,5	2-6	19	40.0	12	100
53017130	STR M 20 x 1,5	4-9	24	45.0	13	100
53017140	STR M 25 x 1,5	6-12	27	47.0	13	50
SKINTOP® STR M ISO black (with long metric connecting thread)						
53017310	STR M 16 x 1,5	2-6	19	40.0	12	100
53017330	STR M 20 x 1,5	4-9	24	45.0	13	100
53017340	STR M 25 x 1,5	6-12	27	47.0	13	50

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

Accessories

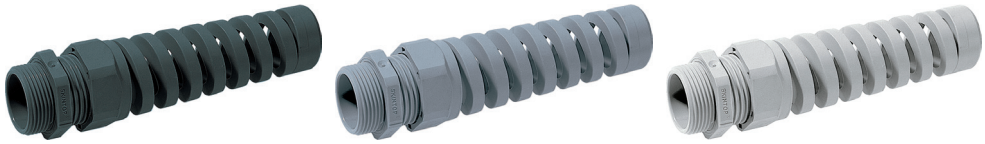
SKINTOP® ST-M

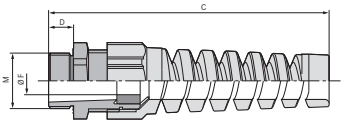
- SKINTOP® DIX-M refer to page 740
- SKINTOP® GMP-GL-M refer to page 738
- SKINTOP® DIX-M AUTOMATION refer to page 741
- SKINTOP® SDV-M ATEX refer to page 731
- SKINTOP® SD-M refer to page 742
- SKINTOP® DV-M refer to page 742

SKINTOP® STR-M

- SKINTOP® DIX-M refer to page 740
- SKINTOP® GMP-GL-M refer to page 738
- SKINTOP® DIX-M AUTOMATION refer to page 741

SKINTOP® BS-M





Benefits

- Reliable bending and anti-kink protection
- Cable conservation
- Functional reliability
- To protect flexible cables

Application range

- Cables for electrical appliances and machinery that are moved under normal use must be protected against excessive bending as required in accordance with VDE 0700-1
- Handheld device
- Robotics industry
- Light and sound applications
- Moving machine parts

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information EN 50262

Note

- Refer to SKINTOP® metric accessories for suitable accessories
- Counter nut to be used: SKINTOP® GMP-GL-M
- Version with reducing insert to seal smaller cable cross-sections SKINTOP® BSR-M on request
- SKINTOP® BS M ISO versions with extra-long connection thread, see table, no DNV approval

Technical data

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

Caution
Refer to Appendix T21 for the installation dimensions and torques

On request
with reducing sealing ring

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

Material
Body: Polyamide
Seal: CR

Protection rating
IP 68 - 5 bar

Temperature range
-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® BS-M silver grey						
53111600	BS-M 12x1,5	3,5-7	15	64.0	8	100
53111610	BS-M 16x1,5	4,5-10	19	86.0	8	100
53111620	BS-M 20x1,5	7-13	25	101.0	8	50
53111630	BS-M 25x1,5	9-17	30	125.0	9	25
53111640	BS-M 32x1,5	11-21	36	149.0	10	25
SKINTOP® BS-M black						
53111700	BS-M 12x1,5	3,5-7	15	64.0	8	100
53111710	BS-M 16x1,5	4,5-10	19	86.0	8	100
53111720	BS-M 20x1,5	7-13	25	101.0	8	50
53111730	BS-M 25x1,5	9-17	30	125.0	9	25
53111740	BS-M 32x1,5	11-21	36	149.0	10	25
SKINTOP® BS-M light grey						
53111800	BS-M 12x1,5	3,5-7	15	64.0	8	100
53111810	BS-M 16x1,5	4,5-10	19	86.0	8	100
53111820	BS-M 20x1,5	7-13	25	101.0	8	50
53111830	BS-M 25x1,5	9-17	30	125.0	9	25
53111840	BS-M 32x1,5	11-21	36	149.0	10	25
SKINTOP® BS M ISO silver-grey (with long metric connecting thread)						
53017610	BS M16 x 1,5 ISO	3,5-8	19	77.5	12	100
53017630	BS M 20 x 1,5 ISO	5-12	24	102.0	13	50
53017640	BS M 25 x 1,5 ISO	9-14	27	114.5	13	50
SKINTOP® BS M ISO black (with long metric connecting thread)						
53017810	BS M 16 x 1,5 ISO	3,5-8	19	77.5	12	100
53017830	BS M 20 x 1,5 ISO	5-12	24	102.0	13	50
53017840	BS M 25 x 1,5 ISO	9-14	27	114.5	13	50

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

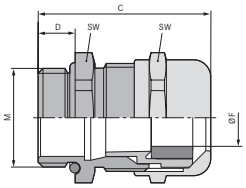
Accessories

- SKINTOP® GMP-GL-M refer to page 738

SKINTOP® MS-M / SKINTOP® MSR-M

SKINTOP® MS-M

SKINTOP® MSR-M



Benefits

SKINTOP® MS-M

- Maximum reliability
- Optimum strain relief
- Wide, variable clamping ranges
- For cable diameters up to 98 mm

Application range

SKINTOP® MS-M

- In areas where mechanical and chemical stability are critical
- Chemical industry
- Measurement and control technology
- Machine and equipment manufacturing
- Plant engineering

SKINTOP® MSR-M

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

Norm references / Approvals

- UL File Nr. E79903

Product Make-up

- Metric connection thread acc. to DIN EN 60423
- Basis for technical information EN 50262

Note

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

Info

- SKINTOP® MS-M sizes 75 x 1.5 to 110 x 2 with innovative double lamella gasket for easier assembling of cables with large diameters.
- Now with IP69 approval! Proven to withstand the most demanding cleaning procedures for industrial machinery with high-pressure cleaners and hot water!

Technical data

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

Caution
Refer to Appendix T21 for the installation dimensions and torques

Certifications
IP 69 approval from size M75 x 1.5 pending.
UL, CSA, DNV and VDE approval for sizes M90 x 2 to M110 x 2 pending.

Material
Body: nickel-plated brass
Insert: polyamide
Sealing ring: CR
O-ring: NBR

Protection rating
IP 68
IP 69 (M12 - M63)

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

Article number	Article designation / size	Clamping range ØF (mm)	SW wrench size mm	Overall length, C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® MS-M/SKINTOP® MSR-M						
53112000	12 x 1,5	3-7	16	26.5	6.5	100
53112010	16 x 1,5	4,5-10	20	32.0	7	100
53112020	20 x 1,5	7-13	24	35.5	8	50
53112030	25 x 1,5	9-17	29	37.5	8	25
53112040	32 x 1,5	11-21	36	42.2	9	25
53112050	40 x 1,5	19-28	45	49.5	9	10
53112060	50 x 1,5	27-35	54	52.0	10	5
53112070	63 x 1,5	34-45	67	61.3	15	5
53112080	63 x 1,5 plus	44-55	75	65.5	15	5
53112510	75 x 1,5	58-68	95	105.0	15	1
53112512	90 x 2	66-78	115	136.0	20	1
53112514	110 x 2	86-98	135	154.0	25	1
SKINTOP® MSR-M						
53112100	12 x 1,5	1-5	16	26.5	6.5	100
53112110	16 x 1,5	2-7	20	32.0	7	100
53112120	20 x 1,5	5-10	24	35.5	8	50
53112130	25 x 1,5	6-13	29	37.5	8	25
53112140	32 x 1,5	7-15	36	42.2	9	25
53112150	40 x 1,5	15-23	45	49.5	9	10
53112160	50 x 1,5	22-29	54	52.0	10	5
53112170	63 x 1,5	28-39	67	61.3	15	5
53112511	75 x 1,5	53-63	95	105.0	15	1
53112515	110 x 2	76-88	135	154.0	25	1

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

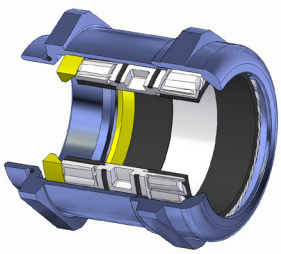
Accessories

SKINTOP® MS-M

- SKINDICHT® SM-M refer to page 763
- SKINTOP® DIX-M refer to page 740
- SKINMATIC® MH Set refer to page 782
- SKINTOP® DIX-M AUTOMATION refer to page 741
- SKINTOP® SDV-M ATEX refer to page 731
- SKINTOP® SD-M refer to page 742
- SKINTOP® DV-M refer to page 742

SKINTOP® MSR-M

- SKINDICHT® SM-M refer to page 763
- SKINTOP® DIX-M refer to page 740
- SKINMATIC® MH Set refer to page 782



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 EN 50262

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 5.0 Class-ID: EC000441
ETIM 5.0 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	12 x 1,5	17	100
53119010	16 x 1,5	22	100
53119020	20 x 1,5	27	100
53119030	25 x 1,5	34	100
53119040	32 x 1,5	41	100
53119050	40 x 1,5	50	25
53119060	50 x 1,5	60	25
53119070	63 x 1,5	75	25
SKINTOP® GMP-GL-M black			
53119100	12 x 1,5	17	100
53119110	16 x 1,5	22	100
53119120	20 x 1,5	27	100
53119130	25 x 1,5	34	100
53119140	32 x 1,5	41	100
53119150	40 x 1,5	50	25
53119160	50 x 1,5	60	25
53119170	63 x 1,5	75	25
SKINTOP® GMP-GL-M light grey			
53119003	12 x 1,5	17	100
53119013	16 x 1,5	22	100
53119023	20 x 1,5	27	100
53119033	25 x 1,5	34	100
53119043	32 x 1,5	41	100
53119053	40 x 1,5	50	25
53119063	50 x 1,5	60	25
53119073	63 x 1,5	75	25

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

5

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.

Application range

- Industrial machinery and plant engineering
- Automotive industry
- Machine tool manufacture
- Renewable energies
- Wherever cables require additional protection or guidance

Characterisics	Page	Inner diameter from – to mm	Temperature Range	Material	Flexibility	Compression strength	Tensile strength	Flexural behviour	Oil resistance	Solvent resistant	Protection against hot chips	Reverse bending fatigue behaviour	Flame retardant	Halogen Free	UV Resistance	Approvals
Protective conduits plastic																
SILVYN® BRAID PA 6	821	4.0 – 32.0	-55°C to +125°C	Polyamide 6.6	◑	○	◔	◔	●	◔	○	◕	◕	●	●	-
SILVYN® SNAP PET	821	25.0	-55°C to +150°C	Polyester – PET	◑	○	◔	◔	◔	◔	○	◔	◔	○	◔	-
SILVYN® SHRINK BRAID PET	821	6.0 – 35.0	-55°C to +125°C	Polyester – PET	◔	○	◔	◔	◑	◔	○	◑	◔	○	◔	-
SILVYN® SI	822	7.0 – 32.0	-5°C to +80°C	Soft PVC	◔	○	◔	◔	◑	◔	○	◔	◔	○	◔	-
SILVYN® SP	823	10.0 – 50.0	-20°C to +60°C	Soft PVC with Hard PVC Spiral	◔	◑	◑	◔	◑	◔	○	◔	◔	○	◔	-
SILVYN® SP-PU	824	10.0 – 38.0	-20°C to +90°C	PUR with Hard PVC Spiral	◔	◑	◑	◔	●	◑	○	◔	◑	○	●	-
SILVYN® EL	829	10.0 – 50.0	-20°C to +70°C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◑	◔	○	◔	◔	○	◔	CURus
SILVYN® ELU	830	10.0 – 50.0	-20°C to +70°C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◑	◔	○	◔	◔	○	●	CURus
SILVYN® ELÖ	831	10.0 – 50.0	-20°C to +70°C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◕	◔	○	◔	◔	○	◔	CURus
SILVYN® ELT	832	10.0 – 50.0	-20°C to +90°C	Soft PVC with Hard PVC Spiral	◑	◑	◑	◑	◔	◔	○	◔	◑	○	◔	CURus
SILVYN® FPS	837	7.0 – 48.0	-20°C to +80°C	Soft PVC with insul. Spring Steel Wire	●	◑	◑	●	◑	◑	○	●	◔	○	◑	VDE, CURus
SILVYN® FPS-EDU	838	9.0 - 48.0	-25°C to +80°C	PVC-insulated steel spring wire Soft PVC outer sheath Galvanised steel wire braiding	●	◑	◑	●	◑	◑	◕	●	◔	○	◑	-
SILVYN® FD-PU	839	7.0 – 48.0	-40°C to +80°C	PUR with insul. Spring Steel Wire	●	◑	◑	●	●	◑	○	●	◑	○	●	VDE
Protective corrugated conduits																
SILVYN® RILL PA 6	847	6.5 – 48.0	-40°C to +115°C	Polyamide 6	◑	◑	◑	◕	●	◑	○	◕	●	●	●	cURus, VDE, GGVS, DNV-GL, Lloyds
SILVYN® RILL PA12	848	6.5 – 48.0	-50°C to +100°C	Polyamide 12	●	◑	◑	◕	●	◕	○	●	◕	●	●	cURus, VDE, DNV-GL, Lloyds
SILVYN® FPAS	861	6.3 – 56.3	-40°C to +120°C	Polyamide 6	◑	◕	◕	◕	●	◑	○	◕	◕	●	●	cURus, Lloyds, Link up
SILVYN® HCC	875	8.9 – 52.5	-25°C to +100°C	Polyamide 6	◑	◑	◑	◕	●	◔	○	◕	◑	●	●	-
SILVYN® TC	879	6.6 – 45.6	-40°C to +120°C	Polyamide 6	◑	◑	◑	◑	●	◑	○	◕	◔	●	●	-
SILVYN® SPLIT PA 6	880	6.3 – 87.5	-40°C to +120°C	Polyamide 6	◑	◑	◔	◕	●	◑	○	◕	◕	●	●	-
SILVYN® SPLIT PP	880	6.3 – 87.5	-40°C to +135°C	Polypropylene	◑	◑	◔	◑	◑	◑	○	◑	◕	○	●	-
SILVYN® SINUS PA 6	882	6.7 – 23.2	-40°C to +140°C	Polyamide 6	◑	○	◑	◕	●	◑	○	◕	◕	●	●	-
SILVYN® MAXI PA 6	877	66.5 – 91.0	-40°C to +115°C	Polyamide 6	◔	◑	◑	◔	●	◑	○	◔	◔	●	●	CURus
Protective conduits metal																
SILVYN® AS	883	8.0 – 51.0	to +220°C	Galvanized Steel Strip	◕	◑	◑	●	●	●	◕	◔	●	●	●	VDE
SILVYN® AS-P	884	7.0 – 49.0	-25°C to +80°C	Galvanized Steel, Coating PVC	◕	◑	◑	◕	◑	◔	○	◑	◔	○	◔	VDE
SILVYN® EDU-AS	885	7.0 – 49.0	to +220°C	Galvanized Steel, Braiding: galvanized steel wire	◕	◑	◕	●	●	●	●	◕	●	●	●	VDE
SILVYN® EMC AS-CU	886	7.0 – 49.0	to +220°C	Galvanized Steel, Braiding: tinned copper	◕	◑	◕	●	●	●	◕	◕	●	●	●	VDE
SILVYN® SSUE	894	6.8 – 48.0	-100°C to +400°C	Stainless Steel AISI 316	●	●	◕	●	●	●	●	●	●	●	●	Link up
SILVYN® UI 511	898	9.5 – 52.0	-100°C to +600°C	Stainless Steel AISI 304	●	●	●	●	●	●	●	●	●	●	●	-
Protective conduits liquid tight (Metal conduit + jacket)																
SILVYN® LCC-2	901	6.8 – 70.0	-15°C to +70°C	Galvanized Steel, Coating PVC	◕	◕	◑	●	◑	◔	○	◕	◔	○	◕	-
SILVYN® LCCH-2	902	10.2 – 70.0	-25°C to +90°C	Galvanized Steel, Coating plastic halogen-free	◕	◕	◑	●	◑	◔	○	◕	●	●	◕	Lloyds, Link up
SILVYN® HTDL	907	12.6 – 51.6	-40°C to +105°C	Galvanized Steel, Copper wire, Coating PVC Mix	◑	●	◕	◑	◑	◔	○	◔	◑	○	●	cULus
SILVYN® EF	908	10.1 – 51.6	-25°C to +70°C	Galvanized Steel, Coating PVC Mix	◔	●	◕	◔	◑	◔	○	◔	◔	○	◔	-
SILVYN® OR	908	12.6 – 51.6	-20°C to +100°C	Galvanized Steel, Coating PVC Mix	◔	●	◕	◔	◕	◔	○	◔	◔	○	●	-
SILVYN® HCX	909	12.6 – 51.6	-55°C to +145°C	Galvanized Steel, Coating Elastomer plastic	◑	●	◕	◕	◑	◔	○	◑	◑	○	●	-
SILVYN® HFX	909	10.1 – 51.6	-55°C to +105°C	Galvanized steel, coating PUR	◔	●	◕	◔	◕	◔	○	◔	◔	●	●	-
SILVYN® LTP	913	7.0 – 51.6	-20°C to +105°C	Galvanized Steel, Coating soft PVC	◑	●	●	◕	◕	◔	○	◔	◔	○	●	Lloyds
Protective conduits for special applications																
SILVYN® HIPROJACKET	917	6.0 – 102.0	-55°C to +1640°C	Fibre glass with iron oxide silicone coat	●	○	◔	●	◕	◑	●	●	●	●	◕	EN 45545
SILVYN® CNP	923	12.6 – 40.7	-20°C to +60°C	PVC Mix with Nylon Braid	◑	○	◔	◑	◑	◔	○	◑	◔	○	◕	cULus
SILVYN® FG	919	12.6 – 51.6	-20°C to +80°C	Galvanized Steel, PVC-mix special sheath	◔	●	◕	◔	◕	◔	○	◔	◔	○	●	FDA, NSF
SILVYN® FG NM	920	12.6 – 51.6	-20°C to +60°C	Hard PVC inner spiral PVC-mix special sheath	◔	◑	◑	◔	◕	◔	○	◑	◔	○	◔	FDA, NSF

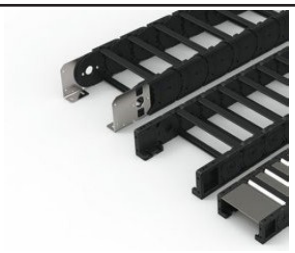
● = very high ◑ = high ◔ = low ○ = none

Protective cable conduit systems and cable carrier systems

SILVYN® CHAIN cable chain application • Overview cable chain application

SILVYN® CHAIN overview cable chain application

As a system provider, we offer one-stop complete systems such as cable guiding systems and suitable wires. You will find more detailed information in the SILVYN® CHAIN catalogue on our web page under: www.lappgroup.com/catalogues

		Characteristics	Application areas
Nylon cable chains for multiple applications		• 30 versions • Inner height from 12 - 75.5mm • Inner width from 12 - 400mm • Bending radius from 18 - 600mm • Self-supporting capacity up to 6.5m	• Medium sliding applications • Automation with high travel frequency • Handling equipment • CNC machines • Smaller robot gantries
Nylon cable chains for heavy duty applications		• 13 versions • Inner height from 53.5 - 112mm • Inner width from 64 - 600mm • Bending radius from 150 - 750mm • Self-supporting capacity up to 9m	• Dirty environment • Machine tool centers • Outdoor equipment • Movement with high lateral acceleration
Nylon cable chains for sliding applications		• 12 versions • Inner height from 37 - 80.5mm • Inner width from 61 - 539mm • Bending radius from 107 - 700mm	• Sliding with high speed and high charge weight • Long life-cycle applications (very long lifetime)
Steel cable chains for multiple applications		• 10 versions • Inner height from 32 - 182mm • Inner width from 79 - 600mm • Bending radius from 75 - 1500mm • Self-supporting capacity up to 13m	• Steel mills/steel works • Off-Shore • Long-travel machining centers • Heavy duty environment
Steel cable chains for sliding applications		• 9 versions • Inner height from 32 - 138mm • Inner width from 79 - 506mm • Bending radius from 115 - 850mm	• Steel mills/steel works • Off-Shore • Long-travel machining centers • Heavy duty environment • Sliding with high charge weight
Cable chains for robot applications		• 6 versions • Inner height from 30 - 59mm • Inner width from 45 - 210mm • Bending radius from 100 - 220mm	• Welding robots • Painting robots • Handling robots

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

SILVYN® RILL PA 6

Info

- Maximum safety in the event of a fire

Technical data

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

Certifications
IEC EN 61386-23
UL File No. E308201
DNV, Lloyd's Register
Rail:
DB DIN 5510 Part 2 (S4/SR2/ST2)
EN 45545-2 (HL-3)
SNCF NFF16 101 / 102 (I2/f2)
UNDERGROUND BS 6853

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

Norm references / Approvals

- UL FILENUMBER E308201

Product Make-up

- Fine-profile corrugated polyamide 6 conduit

Note

- UV and weather-resistant in black

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)
SILVYN® RILL PA 6 grey							
61746939	10	6.5 x 10.0	13	10 x 1,0	7/-	12 x 1,5/7	50
61746940	13	10.0 x 13.0	20	12 x 1,5/16 x 1,5	9/9	16x1,5/9	50
61746950	16	12.0 x 15.8	35	16 x 1,5/20 x 1,5	11/11	20x1,5/11	50
61747010	18	14.3 x 18.5	40		13,5/13,5	-/13,5	50
61746960	21	16.5 x 21.2	45	20 x 1,5	16/16	25x1,5/16	50
61746970	28	23.0 x 28.5	55	25 x 1,5	21/21	32x1,5/21	50
61746980	34	29.0 x 34.5	65	32 x 1,5	29/29	40x1,5/29	25
61746990	42	36.0 x 42.5	90	40 x 1,5	36/ -	50x1,5/36	25
61747000	54	48.0 x 54.5	100	50 x 1,5	48/-	63x1,5/48	25
SILVYN® RILL PA 6 black							
61746935	10	6.5 x 10.0	13	10 x 1,0	7/-	12 x 1,5/7	50
61746945	13	10.0 x 13.0	20	12 x 1,5/16 x 1,5	9/9	16x1,5/9	50
61746955	16	12.0 x 15.8	35	16 x 1,5/20 x 1,5	11/11	20x1,5/11	50
61747015	18	14.3 x 18.5	40		13,5/13,5	-/13,5	50
61746965	21	16.5 x 21.2	45	20 x 1,5	16/16	25x1,5/16	50
61746975	28	23.0 x 28.5	55	25 x 1,5	21/21	32x1,5/21	50
61746985	34	29.0 x 34.5	65	32 x 1,5	29/29	40x1,5/29	25
61746995	42	36.0 x 42.5	90	40 x 1,5	36/ -	50x1,5/36	25
61747005	54	48.0 x 54.5	100	50 x 1,5	48/-	63x1,5/48	25

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

Similar products

- SILVYN® FPAS refer to page 875
- SILVYN® RILL PA 12 refer to page 863

Accessories

- SILVYN® KLICK-M refer to page 864
- SILVYN® KLICK 90° M refer to page 865
- SILVYN® KLICK GPZ-M refer to page 866
- SILVYN® KSE refer to page 867
- SILVYN® KLICK PG refer to page 868
- SILVYN® KLICK 90° PG refer to page 869
- SILVYN® KLICK-GPZ refer to page 870
- SILVYN® KLICK-Y refer to page 871
- SILVYN® KLICK-RH refer to page 873
- SILVYN® K-EM refer to page 874

SILVYN® KLICK-M

Benefits
- Fast assembly
- Easy to disassemble
- High-tensile
- High sealing performance
- Can be rotated

Application range
- In combination with protective conduit:
- SILVYN® RILL PA6
- SILVYN® RILL PA12
- Robot-building
- Rotating applications

Norm references / Approvals
- UL FILENUMBER E308201

Product Make-up
- Metric connection thread
- Body with inner sealing
- Upper part with snap-in sleeve

Suitable conduits
- SILVYN® RILL PA 6 Page 862
- SILVYN® RILL PA 12 Page 863

Technical data

ETIM 5.0 Class-ID: EC001178
ETIM 5.0 Class-Description: Screw connection for protective plastic hose

Colour delivered
Grey (RAL 7001)
Black (RAL 9005), UV-resistant

Material
PA6

Protection rating
IP 68
IP 69 according to DIN 40050 T.9

Temperature range
-40 °C to +115 °C

Article number	Metric size	SW wrench size mm	Thread length mm	Clear opening (mm)	For conduit with outer Ø (mm)	Suitable for SILVYN® RILL	Pieces / PU
SILVYN® KLICK-M grey							
55501000	10 x 1.0	17	12	6	10.0	10	50
55501010	12 x 1.5	20	12	7	13.0	13	50
55501020	16 x 1.5/1	20	12	10	13.0	13	50
55501030	16 x 1.5/2	23	12	11	15.8	16	50
55501040	20 x 1.5/1	23	13	12	15.8	16	50
55501050	20 x 1.5/2	29.5	13	16	21.2	21	50
55501060	25 x 1.5	37	13	17	28.5	28	25
55501070	32 x 1.5	44	15	25.5	34.5	34	25
55501080	40 x 1.5	51.5	17	32	42.5	42	25
55501090	50 x 1.5	65.5	17	42.5	54.5	54	10
55500990	63 x 1.5	59	17	49	54.5	54	10
SILVYN® KLICK-M black							
55501005	10 x 1.0	17	12	6	10.0	10	50
55501015	12 x 1.5	20	12	7	13.0	13	50
55501025	16 x 1.5/1	20	12	10	13.0	13	50
55501035	16 x 1.5/2	23	12	11	15.8	16	50
55501045	20 x 1.5/1	23	13	12	15.8	16	50
55501055	20 x 1.5/2	29.5	13	16	21.2	21	50
55501065	25 x 1.5	37	13	20.5	28.5	28	25
55501075	32 x 1.5	44	15	25.5	34.5	34	25
55501085	40 x 1.5	51.5	15	32	42.5	42	25
55501095	50 x 1.5	65.5	15.3	42.5	54.5	54	10
55500995	63 x 1.5	59	16	49	54.5	54	10

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

Similar products
- SILVYN® KLICK GPZ-M refer to page 866

HITRONIC®

Optical transmission systems

HITRONIC® fibre optic cables make transmitting large data volumes easy, fault free, bug-proof and at almost light speed. Even electro-magnetic 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.

Application Range

- Telecommunications and network technology
- Industrial cabling and automation level
- Industrial machinery and plant engineering
- Data transmission under harsh conditions (mining and tunnel construction, oil and gas platforms and wind power plants

EPIC®

Industrial connectors

EPIC® industrial connectors can be found anywhere 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.

Application Range

- Electronics and telecommunications
- Measurement, testing and control technology
- Industrial machinery and appliances
- Drive technology and industrial automation
- Photovoltaic plants

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 hrough to electronic markings, the FLEXIMARK® range is guaranteed to be permanent.

Application Range

- Control cabinet manufacturing
- Automtion technology
- Industrial machinery and plant engineering
- Renewable energies
- Wherever cables are used

tools and cable accessories

reach us around the world

...or closer to home. You can order by phone, fax or e-mail.

Enter the world of Lapp:

Our apps are available from the following stores:

Google play | Available on the App Store

YouTube

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Open Monday to Thursday:

08h00 to 17h00

Friday: 08h00 to 15h00

THIS CATALOGUE IS VALID FROM JULY 2018

The following applies for the use of our products

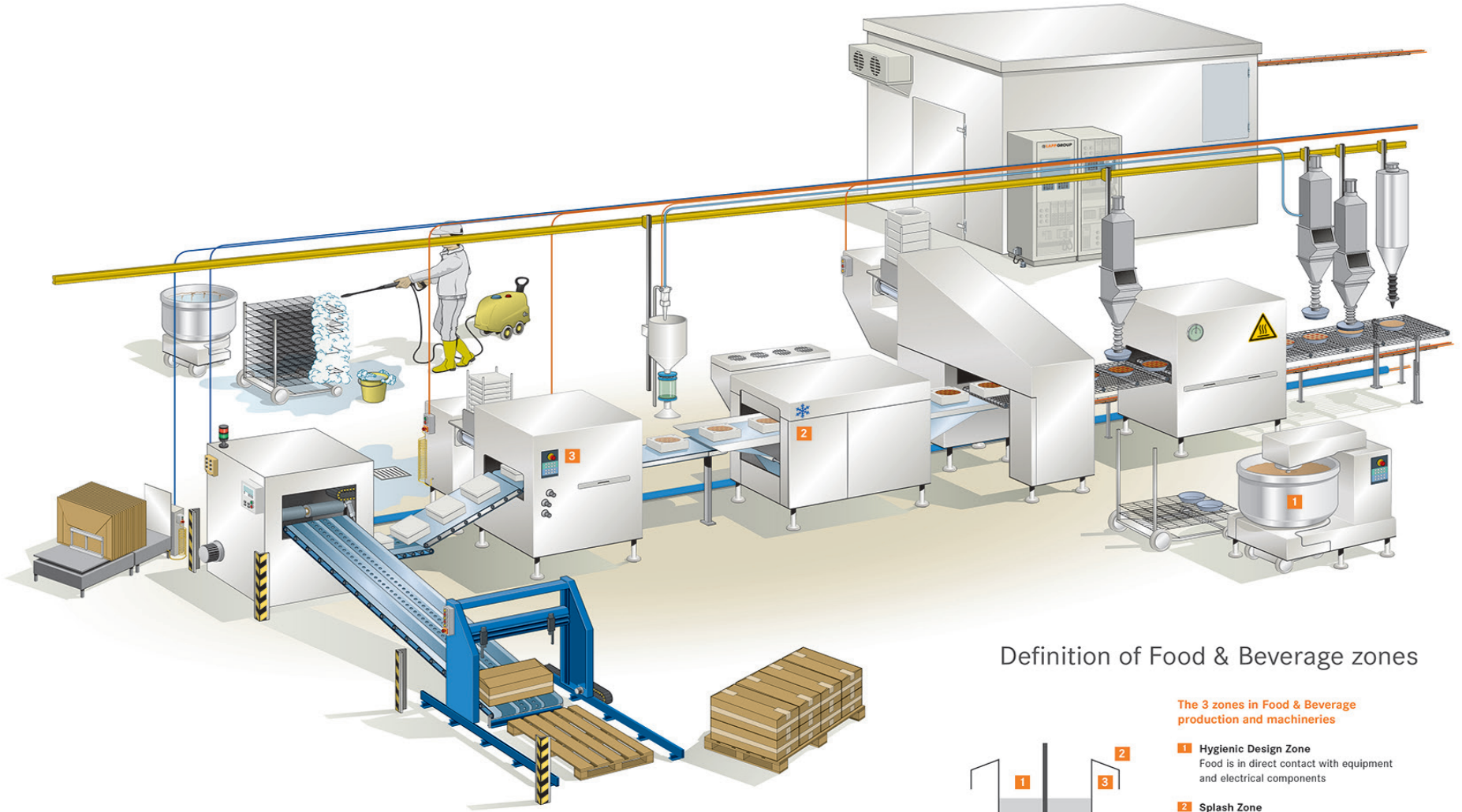
The conformity of our products to the relevant European directives and compliance with the provisions contained therein shall be indicated by the CE marking.

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.



Definition of Food & Beverage zones

The 3 zones in Food & Beverage production and machineries

1 **Hygienic Design Zone**
Food is in direct contact with equipment and electrical components

2 **Splash Zone**
Drips or splashes of food could return to the food manufacturing process, causing contamination

3 **Non-Product Zone**
No contact with food

ÖLFLEX®
Power and control cables

UNITRONIC®
Data communication systems

ETHERLINE®
Data communication systems
for ETHERNET technology

HITRONIC®
Optical transmission systems

EPIC®
Industrial connectors

SKINTOP®
Cable glands

SILVYN®
Protective cable conduit systems
and cable carrier systems

FLEXIMARK®
Marking systems

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