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Success through values

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

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

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

since our founding in 1959 is based on the daily commitment of our skilled staff and partnerships with our customers based on trust. Each of them has made a decisive contribution to our mutual success.

Today, Lapp is one of the world's leading manufacturers of cables, leads, cable accessories and systems of the highest level of quality. We have approximately 3,440 employees worldwide. With 17 production sites on four continents, more than 40 sales companies and hundreds of dedicated consulting experts, we are always close by. And not just physically:

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

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

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

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

- Founded in 1959
- A leading manufacturer of cables, leads, accessories and complete system solutions for connection technology
- Approximately 3,440 employees worldwide
- 17 production facilities
- More than 40 sales companies
- Hundreds of dedicated consulting experts worldwide
- Years of experience in the rail industry



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

Lapp makes it into the TOP 100

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



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

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

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

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

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

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

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

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



Eight 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.

Reliably connecting the world

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

No matter where you are – we are always by your side. Our plants, sales companies,

partners and, above all, our competent teams of advisers ensure we offer you a comprehensive service on every continent. We do not simply distribute cable technology, we also manufacture our products ourselves – which represents another advantage for you. As a manufacturer with 17 of our own production facilities, you will benefit from our expertise in the development, design and manufacture of cables, system

products and cable accessories. Thanks to this expertise, we can guarantee that Lapp will provide you with the quality that you require and that you demand.

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

8

strong
brands

100

sales partners

1

innovation
after
another

Employees from
152

countries

More than

40,000
standard products

40

proprietary sales
companies

3,440
employees

Cables & The Construction Product Regulation (CPR)

The use of cables in construction works is practically as old as the transmission of electrical power itself. However, the classification of cables as a construction product only gained momentum when (CPR) Regulation (EU) no. 305/2011 came into effect in July 2013, and when the European standard EN 50575 was published

in September 2014. There is often insufficient knowledge regarding the rules for classifying the performance of the respective construction product cables, the product marking and the related documentation. Lapp Kabel would like to assist manufacturers, distributors and users alike.

This refers to cables within the scope of application of a harmonised standard, namely EN 50575:2014+ A1:2016.

As an example please find below relevant documentation of our product ÖLFLEX® CLASSIC 100 H and references/links.

Declaration of Performance (DoP)



LEISTUNGSEKLÄRUNG
Gemäß Anhang III der Verordnung (EU) Nr. 305/2011
Declaration of Performance
According to Annex III of Regulation (EU) no. 305/2011

Dokument-Nr.
Document no. **UILCPRDoP17_0014150-1_A**

1. Eindeutiger Kenncode des Produkttyps
Unique identification code of the product type **ÖELFLEX_CLASSIC_100_H-1**

2. Verwendungszweck
Usage
Kabel und Leitungen für allgemeine Anwendungen in Bauwerken in Bezug auf die Anforderungen an das Brandverhalten
Cables for general applications in construction works subject to reaction to fire requirements

3. Hersteller
Manufacturer
U.I. Lapp GmbH
Schulze-Delitzsch-Straße 25
D-70565 Stuttgart

4. System zur Bewertung und Überprüfung der Leistungsbeständigkeit
System of assessment and verification of consistency of performance
System 1+

5. Diese Leistungserklärung betrifft ein Bauprodukt, das von der harmonisierten Norm **EN 13501-6** erfasst ist
This declaration of performance concerns a construction product which is covered by the harmonised standard **EN 13501-6**

6. Produktzertifizierungsstelle
product certification body
No. 0366

7. Erklärte Leistung
Declared Performance

Wesentliche Merkmale Essential characteristics	Leistung Performance	Harmonisierte technische Spezifikation Harmonized technical standard
Brandverhalten Reaction to fire	Cca-s2-d2-a1	EN 50575:2014 + A1:2016
Gefährliche Stoffe Hazardous substances	NPD	

8. Die Leistung des in Nummer 1 genannten Produkts ist in Übereinstimmung mit der erklärten Leistung in Punkt 7.
The performance of the referred product in paragraph 1 is in conformity with the declared performance in Section 7.

Diese Leistungserklärung ist ausgestellt unter der allgemeinen Verantwortung des unter Punkt 3 genannten Herstellers.
This declaration of performance is issued under the general responsibility listed in section 3. Manufacturer.

Unterschiedet für und im Namen des Herstellers von:
Signed for and in name of the manufacturer by:

Stuttgart, 01/04/2017
U.I. Lapp GmbH
Leiter Kabelentwicklung
Head of Cable Development

i.A. Harry Pfeiffer

Detailed information on our website:

www.lappkabel.com/cpr

This is where you can access the Lapp Kabel downloads concerning the European Construction Product Regulation (EU) No. 305/2011 within the scope of application of EN 50575:2014 + A1:2016:

(Power, control and communication cables – cables for general applications in construction works subject to reaction to fire requirements).

The download includes the declaration of performance (DoP) – (currently) in German and English.

There are two ways to find the relevant download.

1. Via the product name in the table below
2. Via the **list of Lapp article/order numbers (CPR articles)** with assignment of the DoP doc. no. and the product type identification code

There is a Readme text file in the download (CPR package) for guidance.

The legal obligation to ensure the consistency/continuity of CE marking on a product is not a new concept for the retail chain, but it is particularly important in relation to CPR. Manufacturers and distributors need to reach agreements on this matter. The Lapp CPR package offers a solution.

The answers in the Lapp Kabel **FAQs** go into more detail on this subject.

CE-Marking, Label

<http://www.lappkabel.de/cpr> 

U.I. Lapp GmbH Schulze-Delitzsch-Straße 25 D-70565 Stuttgart

CE 0366

Document No. DoP: **UILCPRDoP17_0014150-1_A**

Ident.Code Producttype: **ÖELFLEX®_CLASSIC_100_H-1**

First time labeling, year:
Erstmalige Kennz., Jahr: 17

European standard: **EN 50575:2014+A1:2016**

Intended use/ Vorgesehene Verwendung:
Cables for general applications in construction works subject to reaction to fire requirements.
Kabel und Leitungen für allgemeine Anwendungen in Bauwerken in Bezug auf die Anforderungen an das Brandverhalten.

React. to fire/ Brandverhalten: **Cca-s2-d2-a1**
Hazardous substances/ gefährliche Stoffe: **NPD**

	Productname
1	ÖLFLEX® CLASSIC 100 H
2	ÖLFLEX® CLASSIC 110 H
3	ÖLFLEX® HEAT 125 MC

Article number - Table

Lapp Art. No.	Description	Number cores, Cross-Sect. mm², G: with Protect. core			Declar.o.Perform. Reaction-to-fire
0014150	ÖLFLEX® CLASSIC 100 H 2X1.5	2	X	1.5	Cca-s2-d2-a1
0014151	ÖLFLEX® CLASSIC 100 H 3G1.5	3	G	1.5	Cca-s2-d2-a1
0014152	ÖLFLEX® CLASSIC 100 H 4G1.5	4	G	1.5	Cca-s2-d2-a1
0014153	ÖLFLEX® CLASSIC 100 H 5G1.5	5	G	1.5	Cca-s2-d2-a1
0014156	ÖLFLEX® CLASSIC 100 H 2X2.5	2	X	2.5	Cca-s2-d2-a1
0014157	ÖLFLEX® CLASSIC 100 H 3G2.5	3	G	2.5	Cca-s2-d2-a1



ÖLFLEX® CLASSIC 100 H

Halogen-free power and control cable, oil resistant and very flexible



Info

- CPR: Article number choice under www.lappkabel.com/cpr

LAPP KABEL STUTTGART ÖLFLEX® CLASSIC 100 H HFFR CE

Benefits

- Easy handling and installation due to very flexible cable type
- Wide application range due to excellent product features

Application range

- Public buildings like airports or railway stations
- Plant engineering, Industrial machinery Heating and air-conditioning systems Stage applications
- Particularly where human and animal life as well as valuable property are exposed to high risk of fire hazards
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Flame-retardant according to IEC 60332-1-2 (flame spread on a single cable)
- No flame-propagation according to IEC 60332-3-24 respectively IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)

- Halogen-free according to IEC 60754-1 (amount of halogen acid gas) Corrosiveness of combustion gases according to IEC 60754-2 (degree of acidity)
- Low smoke density according to IEC 61034-2
- Oil-resistant according to EN 50363-4-1 (TM5) and UL OIL RES I and UL OIL RES II
- Ozone-resistant according to EN 50396

Norm references / Approvals

- Based on IEC 60227-5 and EN 50525-2-51
- Based on EN 50525-3-11

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation: Halogen-free
- Outer sheath made of special halogen-free compound, grey (RAL 7001)

Technical data



Classification

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



Core identification code

Colours according to VDE 0293-308



Conductor stranding

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



Torsion movement in WTG

TW-0 & TW-2, refer to Appendix T0



Minimum bending radius

Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter



Nominal voltage

U0/U: 450/750 VAC
In protected and fixed installations:
U0/U: 600/1000 V



Test voltage

4000 V



Protective conductor

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



Temperature range

Occasional flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm ² per conductor	Outer diameter (mm)	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® CLASSIC 100 H				
0014150	2 X 1.5	7.6	28.8	91
0014151	3 G 1.5	8.3	43.2	114
0014152	4 G 1.5	9.0	57.6	140
0014153	5 G 1.5	10.1	72	176
0014156	2 X 2.5	9.0	48	133
0014157	3 G 2.5	9.7	72	167
0014158	4 G 2.5	10.8	96	207
0014159	5 G 2.5	11.9	120	260
0014162	3 G 4	11.4	115.2	240
0014163	4 G 4	12.7	153.6	303
0014164	5 G 4	13.9	192	372
0014166	3 G 6	12.7	172.8	320
0014167	4 G 6	13.9	230.4	400
0014168	5 G 6	15.8	288	510
0014170	4 G 10	17.9	384	662
0014171	5 G 10	19.9	480	826
0014173	4 G 16	20.7	614.4	957
0014174	5 G 16	23.0	768	1193
0014176	4 G 25	25.4	960	1480
0014177	5 G 25	28.5	1200	1860
0014179	4 G 35	28.8	1344	1985
0014180	5 G 35	32.3	1680	2490
0014182	4 G 50	35.0	1920	2830
0014184	4 G 70	40.0	2688	3890
0014186	4 G 95	46.0	3648	5110
0014188	4 G 120	51.0	4608	6315

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).

Single lengths for sizes: ≥ 4G50 max. 500 m; ≥ 4G120 max. 400 m

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

Similar products

- ÖLFLEX® HEAT 125 MC
- ÖLFLEX® CLASSIC 130 H BK 0,6/1 kV

Accessories

- SKINTOP® ST-HF-M

Power and control cables

Servo applications • PVC sheath, certified



ÖLFLEX® SERVO 719

Low capacitance servo cable with PVC outer sheath for static use - certified for North America

LAPP KABEL STUTTGART ÖLFLEX® SERVO 719 CE



Info

- Successor of ÖLFLEX® SERVO 700
- Low-capacitance design

Benefits

- One common cable for multiple circuits
- Longer installation lengths thanks to low capacitance cable design
- Multi-standard certification reduces part varieties and saves costs
- Space and weight-saving installation due to small cable diameters

Application range

- Connecting cable between servo controller and motor
- For fixed installation and applications with occasional movements
- Plant construction
- Industrial machinery and machine tools
- Printing machines

Product features

- Low capacitance
- Flame retardance:
UL/CSA: VW-1, FT1
IEC/EN: 60332-1-2
- Oil-resistant

Norm references / approvals

- USA: UL AWM Style 2570
Canada: cUL AWM Style I/II A/B FT1
- UL File No. E63634

Design

- Fine-wire, bare copper conductor
- Core insulation: Polypropylene (PP)
- Individual design depending on the item:
Power cores without or with one or two individually shielded control core pairs twisted together in short lay lengths
- PVC sheath, black (RAL 9005)

Technical data



Classification

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



Core identification code

Power cores: black with marking
U/L1/C/L+; V/L2; W/L3/D/L; GN/YE
protective conductor
Single-paired versions: black; white
Double-paired versions: black with
white numbers 5; 6; 7; 8
0.34 mm² pairs: WH/BN/GN/YE



Conductor design

Fine wire according to VDE 0295
class 5 / IEC 60228 class 5



Minimum bending radius

Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter



Nominal voltage

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



Test voltage

Core/Core: 4 kV
Core/Shield: 4 kV



Protective conductor

G = with GN-YE protective conductor



Temperature range

Occasional flexing:
-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter (mm) approx.	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO 719				
1020060	4 G 1,5 + (2 x 0,75)	9.7	83	177
1020065	4 G 1,5 + (2 x 1,5)	10.8	108	214
1020061	5 G 1,5 + (2 x 0,75)	10.6	98	203
1020062	7 G 1,5 + (2 x 0,75)	11.5	127	241
1020063	4 G 2,5 + (2 x 0,75)	11.1	122	238
1020066	4 G 2,5 + (2 x 1,5)	12.2	147	276
1020064	7 G 2,5 + (2 x 0,75)	12.7	194	325
1020067	4 G 4 + (2 x 1,5)	13.9	204	360
1020068	4 G 6 + (2 x 1,5)	16.1	281	478
1020069	4 G 10 + (2 x 1,5)	18.2	435	654
1020071	4 G 0,75 + 2 x (2 x 0,34)	9.0	62	121
1020072	4 G 1,5 + 2 x (2 x 0,75)	11.6	112	203
1020073	4 G 2,5 + 2 x (2 x 1,0)	13.6	160	286
1020074	4 G 4 + 2 x (2 x 1,0)	15.3	217	377
1020075	4 G 4 + (2 x 1,0) + (2 x 1,5)	15.5	238	396
1020076	4 G 6 + (2 x 1,0) + (2 x 1,5)	17.4	314	512

Unless otherwise specified, the product values shown are nominal values. You can receive further values, such as tolerances, upon request if they available and have been released for publication.

Copper price basis: EUR 150/100 kg; see catalogue appendix T17 for the application and definition of "Metal price basis" and "Metal index"

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

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

Similar products

- ÖLFLEX® SERVO 719 CY refer to page 13

Accessories

- EPIC® POWER LS1
- SKINTOP® ST-M



ÖLFLEX® SERVO 719 CY

Shielded, low capacitive servo cable with PVC sheath for fixed installation - certified for North America

Info

- Successor of ÖLFLEX® SERVO 700 CY and ÖLFLEX® SERVO 709 CY
- Low-capacitance design
- EMC-compliant

LAPP KABEL STUTTGART ÖLFLEX® SERVO 719 CY DESINA. CE



Benefits

- Suitable for use with servomotor systems from leading drive manufacturers
- Longer installation lengths thanks to low capacitance cable design
- Multi-standard certification reduces part varieties and saves costs
- Space and weight-saving installation due to small cable diameters
- Copper braiding complies with EMC requirements and screens the cable against electromagnetic interference

Application range

- Connecting cable between servo controller and motor
- For fixed installation and applications with occasional movements
- Plant construction
- Industrial machinery and machine tools
- Printing machines

Product features

- Low capacitance
- Flame retardance:
UL/CSA: VW-1, FT1
IEC/EN: 60332-1-2
- Oil-resistant
- EMC-compliant

Norm references / approvals

- USA: UL AWM Style 2570
Canada: cUL AWM Style I/II A/B FT1
- UL File No. E63634

Design

- Fine-wire, bare copper conductor
- Core insulation: Polypropylene (PP)
- Individual design depending on the item:
Power cores without or with one or two individually shielded control core pairs twisted together in short lay lengths;
Power cores with control core triplet twisted together in short lay lengths
- Tin-plated copper braiding
- PVC sheath, orange (RAL 2003)

Technical data



Classification

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



Core identification code

Power cores: black with marking U/L1/C/L+; V/L2; W/L3/D/L-; GN/YE protective conductor
Single-paired versions: individual design depending on the item black; white or brown; white
Double-paired versions: black with white numbers 5; 6; 7; 8
0.34 mm² pairs: WH/BN/GN/YE
Triplet: black with white numbers 1; 2; 3



Conductor design

Fine wire according to VDE 0295 class 5 / IEC 60228 class 5



Minimum bending radius

Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter



Nominal voltage

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



Test voltage

Core/Core: 4 kV
Core/Shield: 4 kV



Protective conductor

G = with GN-YE protective conductor



Temperature range

Occasional flexing:
-5°C to +70°C (UL: +80°C)
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter (mm) approx.	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® SERVO 719 CY				
1020010	4 G 1,5	8.4	83	130
1020011	4 G 2,5	9.9	125	190
1020012	4 G 4	11.7	191	273
1020013	4 G 6	13.7	290	394
1020014	4 G 10	16.7	452	581
1020015	4 G 16	20.1	721	884
1020016	4 G 25	24.3	1100	1348
1020017	4 G 35	27.7	1548	1840
1020018	4 G 50	33.7	2151	2645
1020040	4 G 0,75 + (2 x 0,5)	8.9	78	159
1020041	4 G 1 + (2 x 0,5)	9.3	88	147
1020044	4 G 1 + (2 x 1,0)	10.2	107	204
1020042	4 G 1,5 + (2 x 0,5)	10.3	111	180
1020045	4 G 1,5 + (2 x 1,0)	10.8	130	230
1020053	4 G 1,5 + (3 x 1,0)	11.5	145	225
1020019	4 G 1,5 + (2 x 1,5)	11.5	146	242
1020043	4 G 2,5 + (2 x 0,5)	11.7	158	247
1020046	4 G 2,5 + (2 x 1,0)	12.1	173	293
1020054	4 G 2,5 + (3 x 1,0)	12.9	188	290
1020020	4 G 2,5 + (2 x 1,5)	12.9	189	306
1020047	4 G 4 + (2 x 1,0)	14.3	250	373
1020055	4 G 4 + (3 x 1,0)	14.8	270	402
1020021	4 G 4 + (2 x 1,5)	15.0	271	420

Power and control cables

Servo applications • PVC sheath, certified

Article number	Number of cores and mm ² per conductor	Outer diameter (mm) approx.	Copper index (kg/km)	Weight (kg/km)
1020048	4 G 6 + (2 x 1,0)	16.0	334	485
1020022	4 G 6 + (2 x 1,5)	17.0	351	529
1020056	4 G 6 + (3 x 1,5)	17.0	370	537
1020049	4 G 10 + (2 x 1,0)	18.8	526	712
1020023	4 G 10 + (2 x 1,5)	19.5	540	752
1020057	4 G 10 + (3 x 1,5)	19.5	559	758
1020050	4 G 16 + (2 x 1,0)	22.3	772	991
1020058	4 G 16 + (3 x 1,5)	23.0	805	1151
1020024	4 G 0,75 + 2 x (2 x 0,34)	9.7	99	163
1020035	4 G 1 + 2 x (2 x 0,75)	11.3	126.4	207
1020025	4 G 1,5 + 2 x (2 x 0,75)	12.3	150	245
1020026	4 G 2,5 + 2 x (2 x 1,0)	14.7	223	357
1020027	4 G 4 + 2 x (2 x 1,0)	16.4	288	452
1020028	4 G 4 + (2 x 1,0) + (2 x 1,5)	16.6	307	469
1020029	4 G 6 + (2 x 1,0) + (2 x 1,5)	18.5	421	617
1020030	4 G 10 + (2 x 1,0) + (2 x 1,5)	22.1	588	852
1020031	4 G 16 + 2 x (2 x 1,5)	25.0	876	1162
1020032	4 G 25 + 2 x (2 x 1,5)	28.7	1227	1590
1020033	4 G 35 + 2 x (2 x 1,5)	30.6	1652	2023
1020034	4 G 50 + 2 x (2 x 2,5)	37.0	2264	2876

Unless otherwise specified, the product values shown are nominal values. You can receive further values, such as tolerances, upon request if they are available and have been released for publication.

Copper price basis: EUR 150/100 kg; see catalogue appendix T17 for the application and definition of "Metal price basis" and "Metal index"

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

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

Accessories

- EPIC® POWER LS1
- SKINTOP® MS-M BRUSH
- SKINTOP® MS-HF-M BRUSH



ÖLFLEX® VFD 2XL

Multi-listed, flexible VFD cable

Info

- Suitable for inverter drives of various manufacturers
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- EMC-compliant

Benefits

- Reduced insulation wall thickness, therefore a space-saving installation
- Multi-standard certification reduces part varieties and saves costs
- Cost-saving, easy installation due to omission of closed cable systems (suitable for open wiring)
- Longer cable connection possible between converter and drive due to low capacitance design
- UL TC-ER and c(UL) CIC/TC approval

Application range

- Connecting cable between frequency converter and motor
- For fixed installation and applications with occasional movements
- Areas at risk of explosion (class 1 division 2) in accordance with NEC articles 336, 501
- Plant construction
- Industrial machinery and machine tools

Product features

- Oil-resistant according to UL OIL RES I & II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- 90°C Wet or Dry; -40°C Cold Bend; -25°C Cold Impact
- Sunlight resistant (UV-resistant); direct burial (can be buried in the ground according to US standards)

Norm references / approvals

- UL TC-ER (exposed run) according to UL 1277
- Class 1 division 2 in accordance with NEC art. 336, 501
- Flexible motor supply cable according to UL
- c(UL) CIC/TC FT4; cRU AWM I/II A/B FT4
- CE (50V - 1kV)

Design

- Fine-wire, tin-plated copper conductor
- Core insulation: XLPE
- Aluminium-coated foil
- Screening braid made of tin-plated copper wires
- Outer sheath: Specially designed thermoplastic elastomer (TPE), black

Technical data

	Classification ETIM 5.0 Class-ID: EC000057 ETIM 5.0 Class-Description: Power cable
	Core identification code Black with white numbers
	Certifications USA: UL TC-ER, WTTTC, Flexible Motor Supply Canada: c(UL) CIC/TC FT4, cRU AWM I/II A/B FT4
	Conductor design Fine wire
	Minimum bending radius Occasional flexing: 15 x outer diameter Fixed installation: 7.5 x outer diameter
	Nominal voltage UL TC: 600V/2000V UL Flexible Motor Supply: 1000V c(UL) CIC/TC: 600V cRU AWM: 1000V IEC U ₀ /U: 600/1000 V
	Test voltage 6000 V
	Protective conductor G = with GN-YE protective conductor
	Temperature range Occasional flexing: -25°C to +90°C Fixed installation: -40°C to +90°C

Article number	Number of cores and mm ² /AWG sizes per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® VFD 2XL				
700700	4 G 1,5	12.9	104	238
700701	4 G 2,5	14.8	149	292
700702	4 G 4	16.7	214	384
700703	4 G 6	18.0	296	476
700704	4 G 10	22.5	443	856
700705	4 G 16	25.9	771	1317
700706	4 G 4AWG	29.4	955	1570
700707	4 G 2AWG	33.8	1458	2173

Unless otherwise specified, the product values shown are nominal values. You can receive further values, such as tolerances, upon request if they are available and have been released for publication.

Copper price basis: EUR 150/100 kg; see catalogue appendix T17 for the application and definition of "Metal price basis" and "Metal index"

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

Packaging: Ring ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred packaging (e.g. 1 x 610 m drum or 8 x 76 m rings)

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

Similar products

- ÖLFLEX® SERVO 719 CY refer to page 13
- ÖLFLEX® TRAY II CY

Accessories

- SKINTOP® BRUSH ADD-ON
- SKINTOP® MS-SC-M
- SKINTOP® MS-M BRUSH

Power and control cables

Servo applications • TPE sheath, certified



ÖLFLEX® VFD 2XL with Signal

Multi-listed, flexible VFD cable with a pair for brake or temperature sensor

LAPP KABEL STUTTGART ÖLFLEX® VFD 2XL WITH SIGNAL

Info

- Suitable for inverter drives of various manufacturers
- Wide application range (NFPA 70/NEC)/ compliance with NFPA 79 for industrial machinery
- EMC-compliant

Benefits

- One common cable for multiple circuits
- Multi-standard certification reduces part varieties and saves costs
- Cost-saving, easy installation due to omission of closed cable systems (suitable for open wiring)
- Longer cable connection possible between converter and drive due to low capacitance design
- UL TC-ER and c(UL) CIC/TC approval

Application range

- Connecting cable between frequency converter and motor
- For fixed installation and applications with occasional movements
- Areas at risk of explosion (class 1 division 2) in accordance with NEC articles 336, 501
- Plant construction
- Industrial machinery and machine tools

Product features

- Oil-resistant according to UL OIL RES I & II
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- 90°C Wet or Dry; -40°C Cold Bend; -25°C Cold Impact
- Sunlight resistant (UV-resistant); direct burial (can be buried in the ground according to US standards)

Norm references / approvals

- UL TC-ER (exposed run) according to UL 1277
- Class 1 division 2 in accordance with NEC art. 336, 501
- Flexible motor supply cable according to UL
- c(UL) CIC/TC FT4; cRU AWM I/II A/B FT4
- CE (50V - 1kV)

Design

- Fine-wire, tin-plated copper conductor
- Core insulation: XLPE
- Control pair with laminated aluminium film and tin-plated drain wire
- Barrier tape
- Aluminium-coated foil
- Tin-plated copper braiding with drain wire
- Outer sheath: Specially designed thermoplastic elastomer (TPE), black

Technical data

Classification

ETIM 5.0 Class-ID: EC000057
ETIM 5.0 Class-Description:
Power cable



Core identification code

Black with white numbers



Certifications

USA: UL TC-ER, WTTTC, Flexible Motor Supply
Canada: c(UL) CIC/TC FT4, cRU AWM I/II A/B FT4



Conductor design

Fine wire



Minimum bending radius

Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter



Nominal voltage

UL TC: 600V/2000V
UL Flexible Motor Supply: 1000V
c(UL) CIC/TC: 600V
cRU AWM: 1000V
IEC U₀/U: 600/1000 V



Test voltage

6000 V



Protective conductor

G = with GN-YE protective conductor



Temperature range

Occasional flexing: -25°C to +90°C
Fixed installation: -40°C to +90°C

Article number	Number of cores and mm ² /AWG sizes per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
ÖLFLEX® VFD 2XL with Signal				
700710	4 G 1,5 + (2 x 1,0)	16.6	135	298
700711	4 G 2,5 + (2 x 1,0)	17.4	196	375
700712	4 G 4 + (2 x 1,0)	19.1	238	438
700713	4 G 6 + (2 x 1,0)	20.3	320	527
700714	4 G 10 + (2 x 2,5)	25.0	497	1027
700715	4 G 16 + (2 x 2,5)	28.2	750	1347
700716	4 G 4AWG + (2 x 2,5)	32.0	993	1674
700717	4 G 2AWG + (2 x 2,5)	35.6	1528	2351

Unless otherwise specified, the product values shown are nominal values. You can receive further values, such as tolerances, upon request if they available and have been released for publication.

Copper price basis: EUR 150/100 kg; see catalogue appendix T17 for the application and definition of "Metal price basis" and "Metal index"

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

Packaging: Ring ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred packaging (e.g. 1 x 610 m drum or 8 x 76 m rings)

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

Similar products

- ÖLFLEX® SERVO 719 CY refer to page 13
- ÖLFLEX® TRAY II CY

Accessories

- SKINTOP® BRUSH ADD-ON
- SKINTOP® MS-SC-M
- SKINTOP® MS-M BRUSH



ÖLFLEX® SOLAR XLWP

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

Info

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



Benefits

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

Application range

- For underground installation in protective pipes, in which water, heat and moisture can accumulate
- For floating PV / canal top installations where cables are in contact with water or exposed to high humidity (see data sheet for more details)
- Gable and flat roof photovoltaic systems
- Photovoltaic and solar parks
- Suitable for direct burial: see data sheet

Product features

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

Norm references / approvals

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

Design

- Fine-wire, tin-plated copper conductor
- Core insulation made of electron beam cross-linked copolymer
- Core colour: white
- Outer sheath made of electron beam cross-linked copolymer
- Outer sheath colour: black or black with red stripe

Technical data

	Classification ETIM 5.0 Class-ID: EC001578 ETIM 5.0 Class-Description: Flexible cable
	Conductor design Fine wire according to VDE 0295, class 5 / IEC 60228 class 5
	Minimum bending radius Fixed installation: 4 x outer diameter
	Nominal voltage AC U_0/U : 1.0/1.0 kV DC U_0/U : 1.5/1.5 kV Max. permissible operating voltage: DC 1.8 kV
	Test voltage AC 6500 V
	Current load capacity 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)
ÖLFLEX® SOLAR XLWP				
Core insulation: white / outer sheath: black				
1023601	4.0	5.8	38	68
1023602	6.0	6.4	58	92
1023603	10.0	7.6	96	139
1023604	16.0	9.1	154	210
Core insulation: white / outer sheath: black with red stripe				
1023621	4.0	5.8	38	68
1023622	6.0	6.4	58	92
1023623	10.0	7.6	96	139
1023624	16.0	9.1	154	210

Unless otherwise specified, the product values shown are nominal values. You can receive further values, such as tolerances, upon request if they are available and have been released for publication.

Copper price basis: EUR 150/100 kg; see catalogue appendix T17 for the application and definition of "Metal price basis" and "Metal index"

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

Packaging: Ring 100 m; drum (500; 1000) m

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

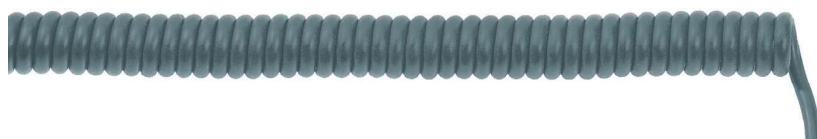
Accessories

- Kabelschere mit Doppelschneide refer to page 51
- EPIC® SOLAR 4 M
- EPIC® SOLAR 4 F
- UNIVERSAL STRIP stripping tool
- KS 20 cable shears



UNITRONIC® SPIRAL LiF2Y11Y

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



Info

- New: the unshielded spiral cable with small cross-sections
- High recoiling forces
- PUR outer sheath

Benefits

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

Application range

- For electronic industry requirements
- In measurement, regulation and control engineering
- Handling and measurement equipment
- Conveyor and transport systems

Product features

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

Design

- Conductor made of bare copper wires
- Polyolefin-based core insulation
- Outer sheath: Polyurethane (PUR) compound
- Outer sheath colour: grey
- Lengths of the straight ends:
1st end 200 mm, 2nd end 600 mm
- Versions without the mandatory LAPP designation, but with other block lengths, end lengths and end forms available on request

Technical data



Classification

ETIM 5.0 Class-ID: EC000247
ETIM 5.0 Class-Description:
Helical cable



Core identification code

DIN 47100



Peak operating voltage

250 V (not for power applications)



Conductor design

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



Test voltage

1200 V



Temperature range

Flexing: -5°C to +50°C

Article number	Number of cores and mm ² per conductor	Spiral length, extended max. (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
UNITRONIC® SPIRAL LiF2Y11Y					
73220300	2 x 0.14	400	100	3.4	14
73220301	2 x 0.14	800	200	3.4	14
73220302	2 x 0.14	1200	300	3.4	14
73220303	2 x 0.14	1600	400	3.4	14
73220304	2 x 0.14	2000	500	3.4	14
73220305	3 x 0.14	400	100	3.9	15
73220306	3 x 0.14	800	200	3.9	15
73220307	3 x 0.14	1200	300	3.9	15
73220308	3 x 0.14	1600	400	3.9	15
73220309	3 x 0.14	2000	500	3.9	15
73220310	4 x 0.14	400	100	4.2	17
73220311	4 x 0.14	800	200	4.2	17
73220312	4 x 0.14	1200	300	4.2	17
73220313	4 x 0.14	1600	400	4.2	17
73220314	4 x 0.14	2000	500	4.2	17
73220315	5 x 0.14	400	100	4.5	19
73220316	5 x 0.14	800	200	4.5	19
73220317	5 x 0.14	1200	300	4.5	19
73220318	5 x 0.14	1600	400	4.5	19
73220319	5 x 0.14	2000	500	4.5	19
73220320	6 x 0.14	400	100	4.8	19
73220321	6 x 0.14	800	200	4.8	19
73220322	6 x 0.14	1200	300	4.8	19
73220323	6 x 0.14	1600	400	4.8	19
73220324	6 x 0.14	2000	500	4.8	19
73220325	7 x 0.14	400	100	5.1	20
73220326	7 x 0.14	800	200	5.1	20
73220327	7 x 0.14	1200	300	5.1	20
73220328	7 x 0.14	1600	400	5.1	20
73220329	7 x 0.14	2000	500	5.1	20
73220330	12 x 0.14	400	100	5.9	21
73220331	12 x 0.14	800	200	5.9	21
73220332	12 x 0.14	1200	300	5.9	21
73220333	12 x 0.14	1600	400	5.9	21
73220334	12 x 0.14	2000	500	5.9	21
73220335	18 x 0.14	400	100	6.8	27
73220336	18 x 0.14	800	200	6.8	27
73220337	18 x 0.14	1200	300	6.8	27
73220338	18 x 0.14	1600	400	6.8	27
73220339	18 x 0.14	2000	500	6.8	27
73220340	2 x 0.25	400	100	4.3	18
73220341	2 x 0.25	800	200	4.3	18
73220342	2 x 0.25	1200	300	4.3	18

Article number	Number of cores and mm² per conductor	Spiral length, extended max. (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
73220343	2 x 0.25	1600	400	4.3	18
73220344	2 x 0.25	2000	500	4.3	18
73220345	3 x 0.25	400	100	4.5	19
73220346	3 x 0.25	800	200	4.5	19
73220347	3 x 0.25	1200	300	4.5	19
73220348	3 x 0.25	1600	400	4.5	19
73220349	3 x 0.25	2000	500	4.5	19
73220350	4 x 0.25	400	100	4.9	20
73220351	4 x 0.25	800	200	4.9	20
73220352	4 x 0.25	1200	300	4.9	20
73220353	4 x 0.25	1600	400	4.9	20
73220354	4 x 0.25	2000	500	4.9	20
73220355	5 x 0.25	400	100	5.3	20
73220356	5 x 0.25	800	200	5.3	20
73220357	5 x 0.25	1200	300	5.3	20
73220358	5 x 0.25	1600	400	5.3	20
73220359	5 x 0.25	2000	500	5.3	20
73220360	6 x 0.25	400	100	5.4	20
73220361	6 x 0.25	800	200	5.4	20
73220362	6 x 0.25	1200	300	5.4	20
73220363	6 x 0.25	1600	400	5.4	20
73220364	6 x 0.25	2000	500	5.4	20
73220365	7 x 0.25	400	100	6.1	21
73220366	7 x 0.25	800	200	6.1	21
73220367	7 x 0.25	1200	300	6.1	21
73220368	7 x 0.25	1600	400	6.1	21
73220369	7 x 0.25	2000	500	6.1	21
73220370	12 x 0.25	400	100	6.7	25
73220371	12 x 0.25	800	200	6.7	25
73220372	12 x 0.25	1200	300	6.7	25
73220373	12 x 0.25	1600	400	6.7	25
73220374	12 x 0.25	2000	500	6.7	25
73220375	18 x 0.25	400	100	8.5	31
73220376	18 x 0.25	800	200	8.5	31
73220377	18 x 0.25	1200	300	8.5	31
73220378	18 x 0.25	1600	400	8.5	31
73220379	18 x 0.25	2000	500	8.5	31

Unless otherwise specified, the product values shown are nominal values. You can receive further values, such as tolerances, upon request if they are available and have been released for publication.

Copper price basis: EUR 150/100 kg; see catalogue appendix T17 for the application and definition of "Metal price basis" and "Metal index"

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

Versions without the mandatory LAPP designation, but with other block lengths, end lengths and end forms available on request

Accessories

- SKINTOP® CLICK



UNITRONIC® SPIRAL

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



Info

- Secure against electrical interferences
- PUR outer sheath
- New: Now available in cross-section 0.25 mm²

Benefits

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

Application range

- In measurement, regulation and control engineering
- When shielded cables with smallest dimensions are required
- For electronic industry requirements
- Handling and measurement equipment
- Conveyor and transport systems

Product features

- Abrasion-resistant, cut-resistant
- Very high flexibility

Design

- Conductor made of bare copper wires
- PVC-based core insulation
- Screening with copper wrapping
- Outer sheath: Polyurethane (PUR) compound
- Outer sheath colour: Black
- Lengths of the straight ends:
1st end 200 mm, 2nd end 600 mm
- Versions without the mandatory LAPP designation, but with other block lengths, end lengths and end forms available on request

Technical data



Classification

ETIM 5.0 Class-ID: EC000247
ETIM 5.0 Class-Description:
Helical cable



Core identification code

DIN 47100



Peak operating voltage

250 V (not for power applications)



Conductor design

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



Test voltage

1200 V



Temperature range

Flexing: -5°C to +50°C

Article number	Number of cores and mm ² per conductor	Spiral length, extended max. (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
UNITRONIC® SPIRAL					
73220200	2 x 0.14	400	100	4.1	15
73220201	2 x 0.14	800	200	4.1	15
73220202	2 x 0.14	1200	300	4.1	15
73220203	2 x 0.14	1600	400	4.1	15
73220204	2 x 0.14	2000	500	4.1	15
73220205	3 x 0.14	400	100	4.3	18
73220206	3 x 0.14	800	200	4.3	18
73220207	3 x 0.14	1200	300	4.3	18
73220208	3 x 0.14	1600	400	4.3	18
73220209	3 x 0.14	2000	500	4.3	18
73220210	4 x 0.14	400	100	4.5	19
73220211	4 x 0.14	800	200	4.5	19
73220212	4 x 0.14	1200	300	4.5	19
73220213	4 x 0.14	1600	400	4.5	19
73220214	4 x 0.14	2000	500	4.5	19
73220215	5 x 0.14	400	100	4.8	20
73220216	5 x 0.14	800	200	4.8	20
73220217	5 x 0.14	1200	300	4.8	20
73220218	5 x 0.14	1600	400	4.8	20
73220219	5 x 0.14	2000	500	4.8	20
73220220	6 x 0.14	400	100	5.5	21
73220221	6 x 0.14	800	200	5.5	21
73220222	6 x 0.14	1200	300	5.5	21
73220223	6 x 0.14	1600	400	5.5	21
73220224	6 x 0.14	2000	500	5.5	21
73220225	7 x 0.14	400	100	5.9	23
73220226	7 x 0.14	800	200	5.9	23
73220227	7 x 0.14	1200	300	5.9	23
73220228	7 x 0.14	1600	400	5.9	23
73220229	7 x 0.14	2000	500	5.9	23
73220230	12 x 0.14	400	100	7.2	28
73220231	12 x 0.14	800	200	7.2	28
73220232	12 x 0.14	1200	300	7.2	28
73220233	12 x 0.14	1600	400	7.2	28
73220234	12 x 0.14	2000	500	7.2	28
73220235	18 x 0.14	400	100	8	29
73220236	18 x 0.14	800	200	8	29
73220237	18 x 0.14	1200	300	8	29
73220238	18 x 0.14	1600	400	8	29
73220239	18 x 0.14	2000	500	8	29
73220240	2 x 0.25	400	100	4.7	18
73220241	2 x 0.25	800	200	4.7	18
73220242	2 x 0.25	1200	300	4.7	18
73220243	2 x 0.25	1600	400	4.7	18

Article number	Number of cores and mm ² per conductor	Spiral length, extended max. (mm)	Spiral length, unextended (mm)	Cable diameter (mm)	Spiral outer diameter (mm)
73220244	2 x 0.25	2000	500	4.7	18
73220245	3 x 0.25	400	100	5.3	19
73220246	3 x 0.25	800	200	5.3	19
73220247	3 x 0.25	1200	300	5.3	19
73220248	3 x 0.25	1600	400	5.3	19
73220249	3 x 0.25	2000	500	5.3	19
73220250	4 x 0.25	400	100	5.6	20
73220251	4 x 0.25	800	200	5.6	20
73220252	4 x 0.25	1200	300	5.6	20
73220253	4 x 0.25	1600	400	5.6	20
73220254	4 x 0.25	2000	500	5.6	20
73220255	5 x 0.25	400	100	6	21
73220256	5 x 0.25	800	200	6	21
73220257	5 x 0.25	1200	300	6	21
73220258	5 x 0.25	1600	400	6	21
73220259	5 x 0.25	2000	500	6	21
73220260	6 x 0.25	400	100	6.8	25
73220261	6 x 0.25	800	200	6.8	25
73220262	6 x 0.25	1200	300	6.8	25
73220263	6 x 0.25	1600	400	6.8	25
73220264	6 x 0.25	2000	500	6.8	25
73220265	7 x 0.25	400	100	7.3	26
73220266	7 x 0.25	800	200	7.3	26
73220267	7 x 0.25	1200	300	7.3	26
73220268	7 x 0.25	1600	400	7.3	26
73220269	7 x 0.25	2000	500	7.3	26
73220270	12 x 0.25	400	100	8.4	30
73220271	12 x 0.25	800	200	8.4	30
73220272	12 x 0.25	1200	300	8.4	30
73220273	12 x 0.25	1600	400	8.4	30
73220274	12 x 0.25	2000	500	8.4	30
73220275	18 x 0.25	400	100	9.5	31
73220276	18 x 0.25	800	200	9.5	31
73220277	18 x 0.25	1200	300	9.5	31
73220278	18 x 0.25	1600	400	9.5	31
73220279	18 x 0.25	2000	500	9.5	31

Unless otherwise specified, the product values shown are nominal values. You can receive further values, such as tolerances, upon request if they are available and have been released for publication.

Copper price basis: EUR 150/100 kg; see catalogue appendix T17 for the application and definition of "Metal price basis" and "Metal index"

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

Versions without the mandatory LAPP designation, but with other block lengths, end lengths and end forms available on request

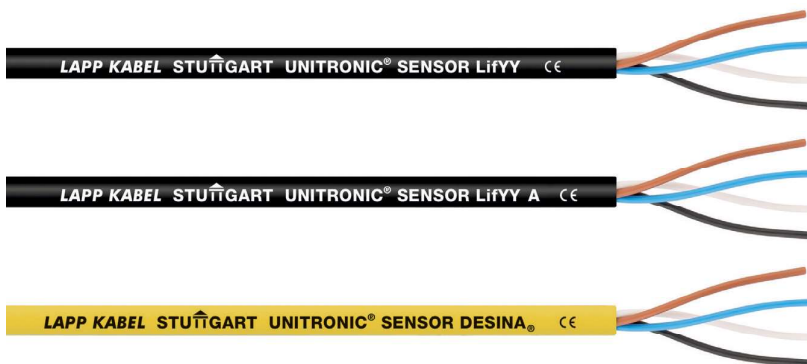
Accessories

- SKINTOP® CLICK



UNITRONIC® SENSOR

Flexible cable for sensor/actuator cabling



Info

- Good processability

Benefits

- Easy stripping and processing
- Space-saving due to compact dimensions

Application range

- Automation technology
- Sensor/actuator cabling
- For medium mechanical stress in dry conditions

Product features

- Core colour code in accordance with DIN EN 50044
- Black version: UV-resistant
- PWIS-free
- Partly oil- and chemical-resistant

Design

- Extra-fine wire strand made of bare copper wires
- Core insulation: PVC
- Core colours:
3-pin: bn, bu, bk
4-pin: bn, wh, bu, bk
5-pin: bn, wh, bu, bk, gy
- DESINA® 4x0.34: bn, wh, bu, bk, gy
- Outer sheath: PVC or PUR
- Sheath colour: black (RAL 9005)
- DESINA® yellow (RAL 1021)

Suitable tools

- SENSOR STRIP stripping tool

Technical data



Classification

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



Peak operating voltage

300 V (not for power applications)



Conductor design

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



Minimum bending radius

Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter



Temperature range

PVC/PVC:
Fixed installation: -40°C to +80°C
Flexing: -5°C to +80°C
PVC/PUR:
Fixed installation: -30°C to +80°C
Flexing: -10°C to +80°C

Norm references / approvals

- LifYY A: UL-Style 2464

Article number	Article designation	Dimensions (mm ²)	Outer diameter [mm]	Core/outer sheath material	Colour	UL	Copper index [kg/km]
UNITRONIC® SENSOR PVC							
7038898	LifYY	3x0.25	3.8	PVC/PVC	black		7.5
7038899	LifYY	4x0.25	4.2	PVC/PVC	black		10.2
7038900	LifYY	3 x 0.34	4.1	PVC/PVC	black		9.8
7038901	LifYY	4 x 0.34	4.4	PVC/PVC	black		13
7038902	LifYY	5 x 0.34	4.8	PVC/PVC	black		16
UNITRONIC® SENSOR PVC UL							
7038903	LifYY A	3x0.25	4.3	PVC/PVC	black	yes	7.5
7038904	LifYY A	4x0.25	4.6	PVC/PVC	black	yes	10.2
7038905	LifYY A	3 x 0.34	4.4	PVC/PVC	black	yes	9.8
7038906	LifYY A	4 x 0.34	4.8	PVC/PVC	black	yes	13
7038907	LifYY A	5 x 0.34	5.2	PVC/PVC	black	yes	16
UNITRONIC® SENSOR PVC/PUR							
7038861	LifY11Y	4 x 0.34	4.8	PVC/PUR	black		13.1
7038862	LifY11Y	5 x 0.25	4.9	PVC/PUR	black		12
0040434	DESINA	4 x 0.34	5.2	PVC/PUR	yellow		13.5

Unless otherwise specified, the product values shown are nominal values. You can receive further values, such as tolerances, upon request if they are available and have been released for publication.

Copper price basis: EUR 150 / 100 kg; see catalogue appendix T17 for the application and definition of "Metal price basis" and "Metal index"

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

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

Accessories

- EPIC® SENSOR M12
- EPIC® SENSOR M12 V4A
- EPIC® SENSOR M8

CANopen



UNITRONIC® BUS HEAT 6722



Info

- Designed according to ISO 6722
- Tested according to ECE-R 118.01

Benefits

- Twisted-quad strand, thus lower space requirement and weight
- Extended temperature range
- Good resistance to oil, petrol, acids and alkalis

Application range

- Connection cable for wiring camera systems, passenger infotainment systems, ticketing systems
- For fixed, occasionally flexible and protected use inside of utility vehicles

Product features

- Halogen-free outer sheath
- Maximum bit rate: 1 Mbit/s for 40 m Bus length
- Temperature class B on the basis of ISO 6722-1
- ISO 11898 makes recommendations for the segment length, cable cross-section and bit rate
- Flame-retardant according to IEC 60332-1-2

Norm references / approvals

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

Design

- Bare stranded wire
- PUR outer sheath
- Colour: black
- UV-resistant (colour may change over time)
- Screening with copper wrapping

Technical data

	Classification ETIM 5.0 Class-ID: EC000830 ETIM 5.0 Class-Description: Data cable
	Operating capacitance 40 nF/km (800 Hz)
	Peak operating voltage 250 V (not for power applications)
	Conductor resistance (loop): max. 159.8 ohm/km
	Minimum bending radius Flexing: 15 x outer diameter
	Test voltage Core/Core: 1500 V eff.
	Characteristic impedance 120 ohm
	Temperature range Fixed installation: -40 °C to +105 °C Flexing: -30 °C to +105 °C

Article number	Article designation	Number of cores and mm ² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® BUS HEAT 6722					
2170385	UNITRONIC® BUS HEAT 6722 1X4X0,25	1 x 4 x 0,25	6.45	26	46
2170386	UNITRONIC® BUS HEAT 6722 1X4X0,34	1 x 4 x 0,34	7.54	33	61
2170387	UNITRONIC® BUS HEAT 6722 1X4X0,5	1 x 4 x 0,5	8.36	41	70
2170388	UNITRONIC® BUS HEAT 6722 1X4X0,75	1 x 4 x 0,75	9.79	59	95

Unless otherwise specified, the product values shown are nominal values. You can receive further values, such as tolerances, upon request if they are available and have been released for publication.

Copper price basis: EUR 150/100 kg; see catalogue appendix T17 for the application and definition of "Metal price basis" and "Metal index"

Please find our standard lengths at: www.lappkabel.de/en/cable-standardlengths

Packaging: Ring ≤ 30 kg or ≤ 250 m, otherwise drum

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

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

Accessories

- SILVYN® CHAIN
- Multipurpose shears A and B
- SMART STRIP stripping tool
- SENSOR STRIP stripping tool

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®

ACCESSORIES



ETHERLINE® Cat.7 FLEX

Flexible use

LAPP KABEL STUTTGART ETHERLINE® Cat.7 FLEX 4x2xAWG26/7



Info

- Industrial Ethernet cable
- Cat.7 qualified for 10Gbit/s

Benefits

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

Application range

- Wiring machines, devices, and control cabinets
- Max. cable length for 100 Mbit/s is 60 m
max. cable length for 10 Gbit/s is 60 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
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / approvals

- Electrical requirements according to IEC 61156-6
- AWM certification for USA and Canada
- UL AWM Style 21576
- Flame-retardant according to IEC 60332-1-2

Design

- Braided conductor, bare, 7-wire
- Core insulation made of polyethylene (PE)
- S/FTP: Copper braid as overall shielding and pair screening with aluminium compound foil
- Colour: green (similar to RAL 6018)

Technical data

	Classification 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: 4 x outer diameter Flexing: 10 x outer diameter
	Characteristic impedance nom. 100 ohm according to IEC 61156-6
	Temperature range Fixed installation: -40°C to +80°C Flexing: -50°C to +80°C

Article number	Number of pairs and AWG per conductor	Outer diameter [mm]
ETHERLINE® Cat.7 FLEX		
2170934	4x2xAWG26	6.4

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

Accessories

- EPIC® DATA AX RJ45 Cat.6A
- EPIC® DATA 90 RJ45 Cat.6A
- EPIC® DATA AX RJ45 Cat.6A IP68
- EPIC® DATA M12X
- EPIC® DATA CCR FA



ETHERLINE® TORSION Cat.7

Highly flexible application

Info

- For Torsion applications ($\pm 180^\circ$)
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s

LAPP KABEL STUTTGART ETHERLINE® TORSION Cat.7 4x2x24/7AWG



Benefits

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- 4-pair: 100 Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Premium screening against electromagnetic interference
- Can be used for Industrial Ethernet in harsh industrial environments

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring machines, devices, and control cabinets
- Max. cable length for 100 Mbit/s is 85 m
Max. cable length for 10 Gbit/s is 85 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- Halogen-free according to IEC 60754-1
- Oil-resistant according to IEC 60811-2-1
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Cable suitable for high torsion stress. Tested with up to 5 million bending cycles and a right/left movement of 180° per metre.

Norm references / approvals

- Electrical requirements according to IEC 61156-6
- UL/CSA-certified (CMX)
- UL AWM Style 21576
- Flame-retardant according to IEC 60332-1-2

Design

- 7-wire stranded wire made of tin-plated copper wires
- Core insulation made of polyethylene (PE)
- S/FTP: Copper braid as overall shielding and pair screening with aluminium compound foil
- Colour: green (similar to RAL 6018)

Technical data

	Classification 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: 8 x outer diameter Flexing: 15 x outer diameter
	Characteristic impedance nom. 100 ohm according to IEC 61156-6
	Temperature range Fixed installation: -40°C to $+80^\circ\text{C}$ Flexing: -30°C to $+70^\circ\text{C}$

Article number	Number of pairs and AWG per conductor	Outer diameter [mm]	Copper index (kg/km)
ETHERLINE® TORSION Cat.7			
2170481	4x2xAWG24	9.4	44

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

Accessories

- EPIC® DATA 90 RJ45 Cat.6A
- EPIC® DATA M12X
- EPIC® DATA CCR FA

Customized Pre-Assembled FO Cable Solutions

ÖLFLEX® CONNECT – integrated solutions made by Lapp

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

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

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

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



Technical benefits

- No splice connections are necessary during installation. This saves time and costs for equipment and special tooling.
- Low attenuation values by factory preassembled plugs
- Trunk-system are easy to use without any further time consuming on-site processing
- Available with all major cable and connector types (Lapp HITRONIC® range)
- Ready to use fibre optic cabling system
- IP 68 metallic cable unit splitter for glass fibre (GOF) loose tube cables up to 48 fibres

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

1. Determination of the required fibre type

- POF (980/1000)
- PCF (200/230)
- GOF (single-mode 9/125 OS2)
(multimode 62,5/125 OM1)
(multimode 50/125 OM2; OM3; OM4)

2. Selection of cable type and version

See HITRONIC® cable range
(POF, PCF und GOF and number of fibers)

3. Determination of the system length

4. Connector configuration

Selection of connector type – side 1 and 2

5. Cable pulling device

Selection cable pulling device
side 1 and/or side 2

6. Specific requirements

Regarding packaging and marking

7. Lapp in-house

Lapp will check the technical feasibility and plausibility (fibre – cable – connector) and make a quotation

8. Easy ordering and fast shipping

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

Selection example:

Short designation:

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

Description:

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

**EPIC® MH 2**

High flexibility through any combination of inserts in one connector

Info

- Modular connector system, pluggable with the market standard
- High power module 2-pin for compact power transmission

Suitable housing

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Suitable contacts:

- EPIC MH 8.0mm Contacts Page 42

Benefits

- High power module 2-pin for compact power transmission
- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

Technical data**Classification**

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



Rated voltage (V)
1000 V

Rated impulse voltage
8 kV



Rated current in A
100 A



Pollution degree
3

Contact resistance
< 5 mOhm



Number of contacts
2



Cable connection
Crimp termination: 10 mm² 35 mm²



Material
Polyamide, glass-fibre reinforced



Plug cycles
500



Temperature range
-40°C
+125°C



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

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



EPIC® MH 3

High flexibility through any combination of inserts in one connector



Info

- Modular connector system, pluggable with the market standard
- Power module 3-pin for compact power transmission

Suitable housing

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Suitable contacts:

- EPIC MH 4.0mm Contacts Page 43

Benefits

- Power module 3-pin for compact power transmission
- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

Technical data

	Classification ETIM 5.0 Class-ID: EC002641 ETIM 5.0 Class-Description: Modular connector (industrial connector)	Contact resistance < 5 mOhm
	Rated voltage (V) 830 V	 Number of contacts 3
	Rated impulse voltage 8 kV	 Cable connection Crimp termination: 1.5 mm ² 10 mm ²
	Rated current in A 40 A	 Material Polyamide, glass-fibre reinforced
	Pollution degree 3	 Plug cycles 500
		 Temperature range -40 °C +125 °C

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

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



EPIC® MH 4

High flexibility through any combination of inserts in one connector

i Info

- Modular connector system, pluggable with the market standard
- Power module 4-pin for compact power transmission

Suitable housing

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Suitable contacts:

- EPIC MH 4.0mm Contacts Page 43

Benefits

- Power module 4-pin for compact power transmission
- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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



Technical data

	Classification ETIM 5.0 Class-ID: EC002641 ETIM 5.0 Class-Description: Modular connector (industrial connector)	Contact resistance < 5 mOhm
	Rated voltage (V) 830 V	Number of contacts 4
	Rated impulse voltage 8 kV	Cable connection Crimp termination: 1.5 mm ² 10 mm ²
	Rated current in A 40 A	Material Polyamide, glass-fibre reinforced
	Pollution degree 3	Plug cycles 500
	Flammability UL94 V-0	Temperature range -40 °C +125 °C

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

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

EPIC® industrial connectors

Rectangular connectors • EPIC® MH modular system



EPIC® MH 6

High flexibility through any combination of inserts in one connector



Info

- Modular connector system, pluggable with the market standard
- Module 6-pin for control signals

Suitable housing

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Suitable contacts:

- EPIC® H-BE 2.5 machined contacts

Benefits

- Module 6-pin for control signals
- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

Technical data

	Classification ETIM 5.0 Class-ID: EC002641 ETIM 5.0 Class-Description: Modular connector (industrial connector)	Contact resistance < 5 mOhm
	Rated voltage (V) 500 V	 Number of contacts 6
	Rated impulse voltage 6 kV	 Cable connection Crimp termination: 0.14 - 4.0 mm²
	Rated current in A 16 A	 Material Polyamide, glass-fibre reinforced
	Pollution degree 3	 Plug cycles 500
		 Temperature range -40 °C +125 °C

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

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

**EPIC® MH 8**

High flexibility through any combination of inserts in one connector

Info

- Modular connector system, pluggable with the market standard
- Module 8-pin for control signals

Suitable housing

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Suitable contacts:

- EPIC® H-BE 2.5 machined contacts]

Benefits

- Module 8-pin for control signals
- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

**Technical data**

	Classification ETIM 5.0 Class-ID: EC002641 ETIM 5.0 Class-Description: Modular connector (industrial connector)	Contact resistance < 5 mOhm
	Rated voltage (V) 400 V	 Number of contacts 8
	Rated impulse voltage 6 kV	 Cable connection Crimp termination: 0.14 - 4.0 mm ²
	Rated current in A 16 A	 Material Polyamide, glass-fibre reinforced
	Pollution degree 3	 Plug cycles 500
		 Temperature range -40 °C +125 °C

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

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

EPIC® industrial connectors

Rectangular connectors • EPIC® MH modular system



EPIC® MH 12

High flexibility through any combination of inserts in one connector



Info

- Modular connector system, pluggable with the market standard
- Module 12-pin for control signals

Suitable housing

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Suitable contacts:

- EPIC® H-D 1.6 machined contacts

Benefits

- Module 12-pin for control signals
- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

Technical data

	Classification ETIM 5.0 Class-ID: EC002641 ETIM 5.0 Class-Description: Modular connector (industrial connector)	Contact resistance < 5 mOhm
	Rated voltage (V) 250 V	 Number of contacts 12
	Rated impulse voltage 4 kV	 Cable connection Crimp termination: 0.14 2.5 mm²
	Rated current in A 10 A	 Material Polyamide, glass-fibre reinforced
	Pollution degree 3	 Plug cycles 500
		 Temperature range -40°C +125°C

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

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

**EPIC® MH 17**

High flexibility through any combination of inserts in one connector

**Info**

- Modular connector system, pluggable with the market standard
- Universal module for 17 contacts in the smallest space

Suitable housing

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Suitable contacts:

- EPIC® H-D 1.6 machined contacts

Benefits

- Universal module for 17 contacts in the smallest space
- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

**Technical data****Classification**

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

**Rated voltage (V)**

160 V

Rated impulse voltage

2.5 kV

**Rated current in A**

10 A

**Pollution degree**

3

Contact resistance
< 5 mOhm

**Number of contacts**

17

**Cable connection**Crimp termination: 0.14 2.5 mm²**Material**

Polyamide, glass-fibre reinforced

**Plug cycles**

500

**Temperature range**-40°C
+125°C

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

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

EPIC® industrial connectors

Rectangular connectors • EPIC® MH modular system



EPIC® MH 20

High flexibility through any combination of inserts in one connector



Info

- Modular connector system, pluggable with the market standard
- Double module 20-pin for control signals

Suitable housing

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Suitable contacts:

- EPIC® H-BE 2.5 machined contacts

Benefits

- Double module 20-pin for control signals
- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

Technical data

	Classification ETIM 5.0 Class-ID: EC002641 ETIM 5.0 Class-Description: Modular connector (industrial connector)	Contact resistance < 5 mOhm
	Rated voltage (V) 500 V	Number of contacts 20
	Rated impulse voltage 6 kV	Cable connection Crimp termination: 0.14 - 4.0 mm²
	Rated current in A 16 A	Material Polyamide, glass-fibre reinforced
	Pollution degree 3	Plug cycles 500
		Temperature range -40°C +125°C

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

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

**EPIC® MH 36**

High flexibility through any combination of inserts in one connector

Info

- Modular connector system, pluggable with the market standard
- Double module for 36 contacts in the smallest space

Suitable housing

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Suitable contacts:

- EPIC® H-D 1.6 machined contacts

Benefits

- Double module for 36 contacts in the smallest space
- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

**Technical data****Classification**

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



Rated voltage (V)
250 V

Rated impulse voltage
4 kV



Rated current in A
10 A



Pollution degree
3

Contact resistance
< 5 mOhm



Number of contacts
36



Cable connection
Crimp termination: 0.14 2.5 mm²



Material
Polyamide, glass-fibre reinforced



Plug cycles
500



Temperature range
-40°C
+125°C

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

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



EPIC® MH Bus

High flexibility through any combination of inserts in one connector



Info

- Modular connector system, pluggable with the market standard
- Shielded module for data and signal transmission

EPIC® MH Bus PIN 1x(4) contact holder

High flexibility through any combination of inserts in one connector



Info

- Modular connector system, pluggable with the market standard
- Shielded module for data and signal transmission

Suitable housing

EPIC® MH Bus

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Suitable contacts:

EPIC® MH Bus

- EPIC® H-D 1.6 machined contacts
- EPIC MH Bus PIN 1x(4) Page 36
- EPIC MH Coax 1.6mm Page 37
- EPIC MH Coax 2.5mm Page 37

Technical data

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

Rated voltage (V)
50

Rated impulse voltage
0.8 kV

Rated current in A
10

Pollution degree
3



EPIC® MH Bus PIN 1x(4) contact holder
4



Cable connection
Crimp termination: 0.14 2.5 mm²



Material
PA



Plug cycles
500



Temperature range
-40°C
+125°C

Benefits

- Shielded module for data and signal transmission
- EPIC® MH system is pluggable with the market standard
- Crimp termination for permanent vibration-proof contact
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

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

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



EPIC® MH Coax 1.6mm

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



EPIC® MH Coax 2.5mm

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



Suitable contacts:

EPIC® MH Coax 1.6mm

- EPIC® H-D 1.6 machined contacts

EPIC® MH Coax 2.5mm

- EPIC® H-BE 2.5 machined contacts

Technical data



Classification

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



Rated voltage (V)
50

Rated impulse voltage
0.8 kV



Rated current in A
16



Pollution degree
3



Flammability
UL94 V-0



Number of contacts
1



Plug cycles
500



Temperature range
-40°C ... +125°C

Article number	Article description	Contact type	Number of working contacts	Pieces / PU
EPIC® MH Coax 1.6mm				
44423260	EPIC® MHS Coax D=1.6mm	male	1	10
44423261	EPIC® MHB Coax D=1.6mm	female	1	10
EPIC® MH Coax 2.5mm				
44423262	EPIC® MHS Coax D=2.5mm	male	1	10
44423263	EPIC® MHB Coax D=2.5mm	female	1	10

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

EPIC® industrial connectors

Rectangular connectors • EPIC® MH modular system



EPIC® MH Potential set

High flexibility through any combination of inserts in one connector



Info

- Equipotential springs for multi frame

Benefits

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

Application range

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

Technical data



Classification

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

Article number	Article description	Contact type	Pieces / PU
EPIC® MH Potential set			
44423265	EPIC® MHS Potential Set	male	20
44423275	EPIC® MHB Potential Set	female	20

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



EPIC® MH 0 dummy module

High flexibility through any combination of inserts in one connector

i Info

- Modular connector system, pluggable with the market standard
- Dummy module as a placeholder for future expansion



Suitable housing

- EPIC MH 6 R Page 40
- EPIC MH 10 R Page 40
- EPIC MH 16 R Page 40
- EPIC MH 24 R Page 40
- EPIC® H-B housing, use in high version

Benefits

- Dummy module as a placeholder for future expansion
- EPIC® MH system is pluggable with the market standard
- “Z” version with centring function for rack technology
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

Technical data



Classification

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



Number of contacts

0



Material

Polyamide, glass-fibre reinforced



Temperature range

-40 °C
+125 °C

Article number	Article description	Slots	Pieces / PU
EPIC® MH 0 dummy module			
44423232	EPIC® MH 0	1	10
EPIC® MH 0 dummy module with centring			
44423233	EPIC® MH 0 Z	1	10

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

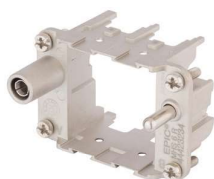
EPIC® industrial connectors

Rectangular connectors • EPIC® MH modular system frame



EPIC® MH 6 multi-frame

High flexibility through any combination of inserts in one connector

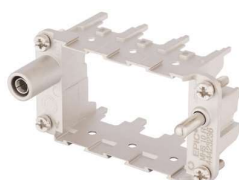


Info

- Modular connector system, pluggable with the market standard
- Frame system for mounting modules

EPIC® MH 10 multi-frame

High flexibility through any combination of inserts in one connector

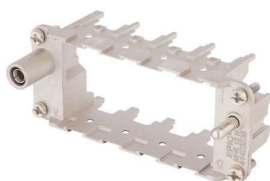


Info

- Modular connector system, pluggable with the market standard
- Frame system for mounting modules

EPIC® MH 16 multi-frame

High flexibility through any combination of inserts in one connector

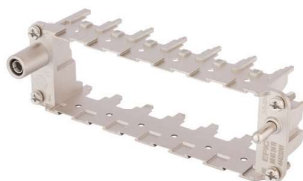


Info

- Modular connector system, pluggable with the market standard
- Frame system for mounting modules

EPIC® MH 24 multi-frame

High flexibility through any combination of inserts in one connector



Info

- Modular connector system, pluggable with the market standard
- Frame system for mounting modules

EPIC® MH Clip

High flexibility through any combination of inserts in one connector



Info

- Modular connector system, pluggable with the market standard
- Adapter clip for third-party modules

Suitable housing**EPIC® MH 6 multi-frame**

- EPIC® ULTRA H-B 6
- EPIC® H-B 6 housing
- EPIC® Quick & Easy assembly system
- EPIC® docking frame

EPIC® MH 10 multi-frame

- EPIC® ULTRA H-B 10
- EPIC® H-B 10 housing
- EPIC® Quick & Easy assembly system
- EPIC® docking frame

EPIC® MH 16 multi-frame

- EPIC® ULTRA H-B 16
- EPIC® H-B 16 housing
- EPIC® Quick & Easy assembly system
- EPIC® docking frame

EPIC® MH 24 multi-frame

- EPIC® ULTRA H-B 24
- EPIC® H-B 24 housing
- EPIC® Quick & Easy assembly system
- EPIC® docking frame

Technical data**Classification**

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

**Material**

EPIC® MH 6 multi-frame
Zinc die-cast

**Plug cycles**

EPIC® MH 6 multi-frame
500

**Temperature range**

-40°C
+125°C

Benefits**EPIC® MH 6 multi-frame**

- Multi-frame for mounting own and third-party modules
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.
- PE connection from 1mm² up to 6mm² with conductor end sleeve, 10mm² with adapter

EPIC® MH Clip

- EPIC® MH clip for mounting third-party modules in EPIC® MH frame
- EPIC® MH system is pluggable with the market standard
- The mix of different functions in one connector guarantees a high level of flexibility
- Railway applications
 - Fire protection on railway vehicles: Test according to EN 45545-2. Requirement set R22 and R23. Hazard level HL1, HL2 and HL3.

Application range

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

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

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

Accessories**EPIC® MH 6 multi-frame**

- EPIC MH Clip refer to page 40

EPIC® industrial connectors

Rectangular connectors • EPIC® MH modular system contacts and accessories



EPIC® MH 8.0 mm contacts

High flexibility through any combination of inserts in one connector



Info

- Modular connector system, pluggable with the market standard

Benefits

- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard

Application range

- Mechanical engineering
- Robot building
- Plant construction
- Renewable energy
- Railway applications / vehicle construction

Suitable tools

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

Technical data



Classification

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

Contact resistance

< 5 mOhm



Cable connection

Crimp termination: 10 mm² 35 mm²

Stripping length (mm)

18



Plug cycles

500

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

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



EPIC® MH 4.0 mm contacts

High flexibility through any combination of inserts in one connector

Info

- Modular connector system, pluggable with the market standard

Benefits

- Crimp termination for permanent vibration-proof contact
- EPIC® MH system is pluggable with the market standard

Application range

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

Suitable tools

- EPIC MH contact removal tool 4.0mm

Technical data



Classification

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

Contact resistance

< 5 mOhm



Cable connection

Crimp termination: 1.5 mm² 10 mm²

Stripping length (mm)

10



Plug cycles

500



Article number	Article description	Contact type	Connection cross section (mm²)	Pieces / PU
EPIC® MH 4.0 mm contacts				
44423250	EPIC® MH SCEM AG 1.5sqmm D=4.0	male	1.5	100
44423255	EPIC® MH BCEM AG 1.5sqmm D=4.0	female	1.5	100
44423251	EPIC® MH SCEM AG 2.5sqmm D=4.0	male	2.5	100
44423256	EPIC® MH BCEM AG 2.5sqmm D=4.0	female	2.5	100
44423252	EPIC® MH SCEM AG 4sqmm D=4.0	male	4	100
44423257	EPIC® MH BCEM AG 4sqmm D=4.0	female	4	100
44423253	EPIC® MH SCEM AG 6sqmm D=4.0	male	6	100
44423258	EPIC® MH BCEM AG 6sqmm D=4.0	female	6	100
44423254	EPIC® MH SCEM AG 10sqmm D=4.0	male	10	100
44423259	EPIC® MH BCEM AG 10sqmm D=4.0	female	10	100

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

EPIC® industrial connectors



Rectangular connectors • EPIC® MH modular system contacts and accessories

EPIC® TOOL DIE 8.0mm

High flexibility through any combination of inserts in one connector



Info

- Crimping insert for electro-hydraulic crimping tool

EPIC® MH contact removal tool 8.0 mm

High flexibility through any combination of inserts in one connector



Info

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

Suitable contacts:

EPIC® TOOL DIE 8.0mm

- EPIC MH 8.0mm Contacts Page 42

Benefits

EPIC® MH contact removal tool 8.0 mm

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

Suitable tools

EPIC® TOOL DIE 8.0mm

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

Article number	Article description	Connection cross section (mm²)	Pieces / PU
Crimping inserts			
44423271	EPIC® TOOL DIE D=8.0 16sqmm	16	1
44423272	EPIC® TOOL DIE D=8.0 25sqmm	25	1
44423273	EPIC® TOOL DIE D=8.0 35sqmm	35	1
EPIC® MH contact removal tool 8.0 mm			
44423269	EPIC® MH contact removal tool D=8.0		1

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

EPIC® industrial connectors



Rectangular connectors • EPIC® mounting systems

EPIC® docking frame



Info

- Mounting system for control cabinets
- For floating mounting of the inserts

Application range

- Control cabinet construction
- Wind power plants

Product features

- Scope of delivery for one article: 1 frame + 4 screws
- Special screws adapted to frame
- Pulling range in x and y axis: + -1.5mm

Technical data



Classification

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



Material

Docking frame: stainless steel
Screws: Galvanized steel



Plug cycles

500

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

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



EPIC® ULTRA H-A 3 TG

Housing EPIC® ULTRA: For higher functional reliability

i Info

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



EPIC® ULTRA H-A 3 TS

Housing EPIC® ULTRA: For higher functional reliability

i Info

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



EPIC® ULTRA H-A 3 TBF

Housing EPIC® ULTRA: For higher functional reliability

i Info

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



Benefits

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

Application range

- In EMC-sensitive environments
- For fixed and flexible applications in machine construction and wind turbine engineering
- Construction machinery
- Electric motor manufacturing

Technical data

Classification	IP	Protection rating
ETIM 5.0 Class-ID: EC000437		IP 65
ETIM 5.0 Class-Description: Housing for industrial connectors		NEMA 250, UL50E: 12, 4, 4X (latched)
Material	Temperature range	
Housing: Nickel-plated zinc die-cast		-40°C to +100°C, short-term up to +125°C
Lever: Stainless steel		
Seal: NBR		

Product features

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

Suitable inserts

- Refer to selection table A10 for help selecting inserts and housing

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

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



EPIC® ULTRA H-A 3 AG

Housing EPIC® ULTRA: For higher functional reliability



Info

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

EPIC® ULTRA H-A 3 AGS

Housing EPIC® ULTRA: For higher functional reliability



Info

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

EPIC® ULTRA H-A 3 AGSV

Housing EPIC® ULTRA: For higher functional reliability



Info

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

Benefits

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

Application range

- In EMC-sensitive environments
- For fixed and flexible applications in machine construction and wind turbine engineering
- Construction machinery
- Electric motor manufacturing

Technical data



Classification

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



Material

Housing: Nickel-plated zinc die-cast
Lever: Stainless steel
Seal: NBR



Protection rating

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



Temperature range

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

Product features

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

Suitable inserts

- Refer to selection table A10 for help selecting inserts and housing

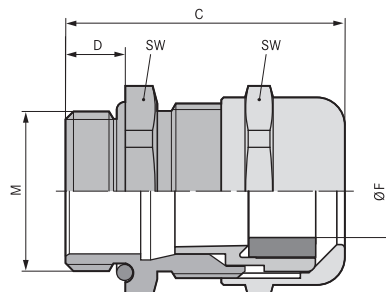
Article number	Article description	M	Pieces / PU
EPIC® ULTRA H-A 3 AG			
10423200	ULTRA H-A 3 AG		10
EPIC® ULTRA H-A 3 AGS			
10423202	ULTRA H-A 3 AGS		10
EPIC® ULTRA H-A 3 AGSV			
10423203	ULTRA H-A 3 AGSV	20	10

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


SKINTOP® COLD NPT

Info

- For extreme sub-zero temperatures


Benefits

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

Application range

- In areas where mechanical stability and high cold resistance are critical.
- Air-conditioning technology
- Refrigerated goods plants, cold storage
- Offshore sector
- Plant construction

Design

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

Note

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

Technical data

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

Material
Body: Nickel-plated brass
Insert: Special polyamide
Sealing ring: Silicone
O-ring: Silicone

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

Temperature range
-70°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW mm	Total length C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® COLD NPT						
53113700	1/4"	3,5 - 7	16	36.0	15	100
53113701	3/8"	4,5 - 10	20	39.7	15	100
53113702	1/2"	7 - 13	24	42.5	15	50
53113703	3/4"	9 - 17	29	44.5	15	25
53113704	1"	11 - 21	36	49.0	15	25
53113705	1 1/4"	19 - 28	45	57.5	15	10
53113706	1 1/2"	27 - 35	54	61.5	17	5
53113707	2"	34 - 45	67	63.5	17	5
SKINTOP® COLD-R NPT						
53113710	1/4"	1 - 5	16	36.0	15	100
53113711	3/8"	2 - 7	20	39.7	15	100
53113712	1/2"	5 - 10	24	42.5	15	50
53113713	3/4"	6 - 13	29	44.5	15	25
53113714	1"	7 - 15	36	49.0	15	25
53113715	1 1/4"	15 - 23	45	57.5	15	10
53113716	1 1/2"	22 - 29	54	61.5	17	5
53113717	2"	28 - 39	67	63.5	17	5

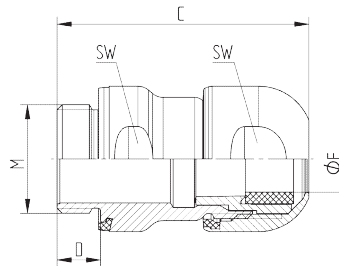
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Cable glands

SKINTOP® cable glands stainless steel metric • SKINTOP® stainless steel gland



SKINTOP® HYGIENIC SC / SKINTOP® HYGIENIC-R SC



Info

- Ideal for hygienic critical areas - resistant, edge-free, robust and reliable
- No gaps, cavities or outer lying thread - so no risk of contamination of food machines, facilities or components.

Benefits

- Low-resistance screen contact, optimum EMC protection
- Highly conductive, flexible EMC contact spring for easy installation of various screen diameters
- Hygienic design for optimum cleaning results
- Smooth surfaces and no edges prevent the accumulation of fluids and the formation of micro-organisms

Application range

- For EMC-compliant earthing of the copper braided shield, or for cables with copper corrugated sheath
- Food machinery, systems and components
- For use in the **product zone**
- Pharmaceutical industry

Norm references / approvals

- **EHEDG (TYPE EL Class I AUX)**
Hygienic design for machinery, apparatus and components
- **ECOLAB®**
Industry standard in the field of professional cleaning and disinfection in the food and beverage industry

• FDA 21 CFR 177.2600

Special sealing element for the food and beverage industry in North America

• DIN EN 1672-2

Food machines General principles for design

• DIN EN ISO 14159

Security of machinery hygienic requirements for the design of machinery

Design

- Material and shape mean it is easy and safe to clean
- The blue colouring makes the sealing material clearly distinguishable from foodstuffs
- A complete assembly is easily mounted from the outside
- Metric connection thread according to DIN EN 60423
- Basis for technical information DIN IEC 62444

Note

- UL pending
- Installation wrench for very high packing density on request

Technical data



Classification

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



Material

Body: Stainless steel V4A (1.4404 / 316L)
Insert: Polyamide
Sealing material: Special elastomer



Protection rating

IP 68 - 10 bar
IP 69



Temperature range

-20°C to +100°C

Article number	Article designation / size	Clamping range ØF (mm)	SW mm	Total length C (mm)	Thread length, D (mm)	Pieces / PU
SKINTOP® HYGIENIC SC						
53105300	M 12 x 1,5	4-6	16	39,9	6,5	5
53105301	M 16 x 1,5	6,5-9	20	43,4	7	5
53105302	M 20 x 1,5	9-12	24	46,4	8	5
53105303	M 25 x 1,5	11,5-15,5	29	48,9	8	5

Other sizes are available upon request

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

Similar products

- SKINTOP® INOX / SKINTOP® INOX-R
- SKINTOP® INOX SC / SKINTOP® INOX-R SC

Accessories

- Suitable counter nut SKINDICHT® SM CrNi M



SKINTOP® MULTI



Info

- Compact multi-insertion system with innovative gel technology



Benefits

- Large clamping range of 4 mm and AS-I BUS entry system by elastic gel technology with innovative membrane technology
- Easy assembly with high packing density
- Optimum strain relief at the entire cable bundle
- Error reduction through clear assignment of the cables to be installed by clear marking of the implementing points
- Unoccupied points remain securely sealed

Application range

- Used in areas where a lot of cables and wires need to be inserted into housing with minimum space requirements
- For cables that have not been assembled and media conduits
- Control system, control cabinet and apparatus construction
- Automation technology

Product features

- Integrated seal for the cable & housing (captive)
- Halogen-free
- UV-, ozone and oil-resistant
- The adhesive effect of the gel enables very easy positioning at the housing during assembling

Norm references / approvals

- UL 508A for SKINTOP® MULTI versions 1 + 2
- UL pending for SKINTOP® MULTI versions 3 + 4

Design

- For connector mounting cut-outs 24-pin (36 x 112 mm)

Included in delivery

- SKINTOP® MULTI including mounting material

Technical data



Classification

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



Certifications

UL File No. E349737
Fire behaviour according to UL94 V-2



Note

Individual hole configuration on request



Material

Frame: Polycarbonate
Seal: Gel



Protection rating

IP 68



Temperature range

-30°C to +100°C

Article number	Article designation / size	Max. number of executions	Number of cables x clamping range	Pieces / PU
SKINTOP® MULTI				
52220065	SKINTOP® MULTI Version 1	22	6 x 8-12 mm, 16 x 3-7 mm	1
52220073	SKINTOP® MULTI Version 2	21	5 x 2-6 mm, 8 x 4-8 mm, 3 x 5-9 mm, 2 x 8-12 mm, 1 x 12-16 mm, 2 x AS-I BUS oder 2 x 2-4 mm	1
52220080	SKINTOP® MULTI Version 3	30	30 x 2-6 mm	1
52220085	SKINTOP® MULTI Version 4	11	8 x 8-12 mm, 2 x 12-16 mm, 1 x 16-20 mm	1

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

Similar products

- SKINTOP® CUBE MULTI

Accessories

- SKINTOP® DIX-DV
- Kraftform Kompakt® 10

Cable glands

SKINDICHT® metric plastic or metal cable glands • SKINDICHT® special sealing cable glands

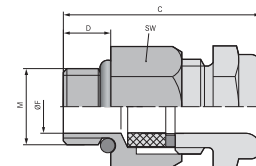
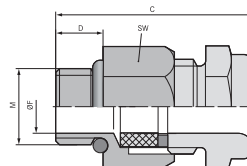


SKINDICHT® MINI NBR / SKINDICHT® MINI FKM



SKINDICHT® MINI NBR

SKINDICHT® MINI FKM



Benefits

- High protection rating
- For the smallest conductor cross-sections
- Low installation height
- Gentle cable clamping
- High packing density

Application range

- For use wherever a compact design is required due to limited space.
- Sensors
- Measurement, control and regulation technology

Product features

SKINDICHT® MINI FKM

- Particularly suitable for high temperatures and use in aggressive media

Technical data

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



Caution

Recommendation of torque
M 6 x 1 1.5 Nm
M 8 x 1 3.0 Nm



Material

SKINDICHT® MINI NBR
Body: Nickel-plated brass
Sealing: CR/NBR
SKINDICHT® MINI FKM
Body: Nickel-plated brass
Sealing: FKM



Protection rating

IP 66
IP 68 - 5 bar



Temperature range

SKINDICHT® MINI NBR
-20°C to +100°C
SKINDICHT® MINI FKM
-20°C to +200°C

Article number	Article designation / size	Clamping range ØF (mm)	SW mm	Total length C (mm)	Thread length, D (mm)	Clear opening F (mm)	Pieces / PU
SKINDICHT® MINI NBR							
52001860	MINI 6 x 1	2 - 3	9	19.7	5	3	50
52001880	MINI 8 x 1	3,5 - 5,5	11	20.5	5	5	50
52001895	MINI 10 x 1	5 - 7	14	22.3	5	7	50
SKINDICHT® MINI counter nut							
52102998	MINI 6 x 1	-	10	11.2	3.1		50
52102997	MINI 8 x 1	-	13	14.4	3.9		50
52102999	MINI 10 x 1	-	17	19.2	4.9		50
SKINDICHT® MINI FKM							
52001889	MINI 6 x 1	2 - 3	9	19.7	5	3	50
52001887	MINI 8 x 1	3,5 - 5,5	11	20.5	5	5	50
52001894	MINI 10 x 1	5 - 7	14	22.3	5	7	50

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

Diagnoal cutter



i Info

- Available from June 2017

Benefits

- SESI 16: narrow head style for use in confined areas
- SXSI 16: less force required due to optimum co-ordination of the cutting edge angle
- KSSI 18: high cutting performance with minimum effort
- High ergonomics thanks to multi-component handles
- Insulated handles allow working under voltage up to 1000V

Application range

- SESI 16: for soft and hard wire
- SXSI 16: for both thicker cables as well as for fine copper wires
- KSSI 18: for all sorts of wire including piano wire

Product features

- Precision ground, hardened blades
- Made in Germany

Technical data

Classification
ETIM 5.0 Class-ID: EC000142
ETIM 5.0 Class-Description: Cable shears

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

Material
Vanadium steel, forged, multi stage oil-hardened

Article number	Article designation	Soft wire mm	Medium hard wire mm	Hard wire mm	Pianowire mm	Cable diameter mm	Weight (kg)	Length (mm)
Diagnoal cutter								
62120520	SESI 16	4	3	2			0.216	160
X-Cut® Compact diagonal cutter								
62120521	SXSI 16	4.8	3.8	2.7	2.2	12	0.175	160
High leverage diagonal cutter								
62120522	KSSI 18		3.8	2.7	2.2		0.28	180

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Cable shear



Benefits

- Special two-blade structure divides the cutting process into pre-cut and post-cut
- Easy and clean cut by using only one hand
- Less power required due to favourable transmission ratio and new blade geometry
- High ergonomics thanks to multi-component handles
- Insulated handles allow working under voltage up to 1000V

Application range

- Cuts copper and aluminium cables

Product features

- Precision ground, hardened blades
- Made in Germany

Technical data

Classification
ETIM 5.0 Class-ID: EC000142
ETIM 5.0 Class-Description: Cable shears

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

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

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

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

Tools and cable accessories

Cutting, Holding, Stripping, Skinning • Cutting tools

Ratchet cutter



Info

- Available from June 2017

Benefits

- One-hand operation thanks to the ratchet principle
- Less power required due to very high transmission ratio
- High ergonomics thanks to multi-component handles
- Insulated handles allow working under voltage up to 1000V

Product features

- Precision ground, hardened blades
- Swivel knife can be unlocked in any cutting position with the press of a thumb
- Made in Germany

Technical data



Classification

ETIM 5.0 Class-ID: EC000142
ETIM 5.0 Class-Description:
Cable shears



Certifications

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



Material

High-grade special tool steel, forged, oil-hardened

Application range

- Cuts copper and aluminium cables
- Not suitable for steel wire and wire ropes

Article number	Article designation	Cable diameter mm	Weight (kg)	Length (mm)
Ratchet cutter				
62120524	KSRI 525	32	0.652	250
62120525	KSRI 628	52	0.835	280

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Tools and cable accessories

Cutting, Holding, Stripping, Skinning • Pliers

Flat nose and snipe nose side cutting pliers



Benefits

- High ergonomics thanks to multi-component handles
- Insulated handles allow working under voltage up to 1000V

Product features

- FLZI 16: flat, short, wide jaws, knurled gripping surfaces
- FRZI 16: pointed, half-rounded jaws, knurled gripping surfaces, with cutting edges
- Made in Germany

Technical data



Classification

ETIM 5.0 Class-ID: EC000833
ETIM 5.0 Class-Description:
Flat nose plier



Certifications

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



Material

Vanadium electric steel, forged, oil-hardened

Article number	Article designation	Medium hard wire mm	Hard wire mm	Weight (kg)	Length (mm)
Flat nose plier					
62120502	FLZI 16			0.176	160
Snipe nose side cutting plier					
62120503	FRZI 16	2.5	1.6	0.144	160

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

High leverage combination plier



Benefits

- 35 % less effort required than with conventional combination pliers
- Easier work due to optimised leverage
- High ergonomics thanks to multi-component handles
- Insulated handles allow working under voltage up to 1000V

Application range

- With gripping zones for suitable for versatile use
- With cutting edges for heavy duty and thicker cables

Product features

- Long cutting edges for thicker cables
- Made in Germany

Technical data



Classification

ETIM 5.0 Class-ID: EC000836
ETIM 5.0 Class-Description:
Combination pliers



Certifications

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



Material

High-grade special tool steel, forged,
multi stage oil-hardened

Article number	Article designation	Hard wire mm	Pianowire mm	Cable diameter mm	Weight (kg)	Length (mm)
62120504	KKZI 20	2.8	2.2	13	0.343	200

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

Info

- Available from June 2017

Water pump plier



Benefits

- Good access to the workpiece due to slim size
- Self-locking on pipes and nuts: no slipping on the workpiece and low handforce required
- High ergonomics thanks to multi-component handles
- Insulated handles allow working under voltage up to 1000V

Application range

- Insensitive to dirt due to robust construction, hence particularly suitable for outdoor work

Product features

- 9-notch adjustment positioning
- High wear resistance of the gripping surfaces
- Made in Germany

Technical data



Classification

ETIM 5.0 Class-ID: EC000164
ETIM 5.0 Class-Description:
Water pump plier



Certifications

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



Material

Chrome vanadium electric steel,
forged, multi stage oilhardened

Article number	Article designation	Clamping width mm	Jaw distance mm	Weight (kg)	Length (mm)
62120505	WPZI 25	50	46	0.374	250

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Tools and cable accessories



Cutting, Holding, Stripping, Skinning • Electronics pliers

Electronics pliers



Benefits

- Smoothly movement for minimum operator fatigue
- Electrically discharging handles
- High ergonomics thanks to multi-component handles

Application range

- For fine assembly and cutting work, e.g. in electronics and fine mechanics
- EGZE 12: For gripping, holding and bending

- ESSE 12: Precise cutting through hardened cutting edges
- ESKE 13: Also for cutting wires resting on a board

Product features

- EGZE 12, ESSE 12: Head mirror polished, hence good rust protection
- ESKE 13: Head polished
- Made in Germany

Technical data

Classification
ETIM
ETIM 5.0 Class-ID: EC000836
ETIM 5.0 Class-Description:
Combination pliers

Material
EGZE 12, ESSE 12: High-grade special tool steel, forged, oil-hardened
ESKE 13: INOX - stainless steel

Article number	Article designation	Soft wire mm	Medium hard wire mm	Hard wire mm	Weight (kg)	Length (mm)
Electronics plier ESD						
62120530	EGZE 12				0.074	115
Electronics diagonal cutter ESD						
62120531	ESSE 12	1.6	1.2	0.6	0.082	115
Electronic Super Knips® ESD						
62120532	ESKE 13	1.6	1		0.055	125

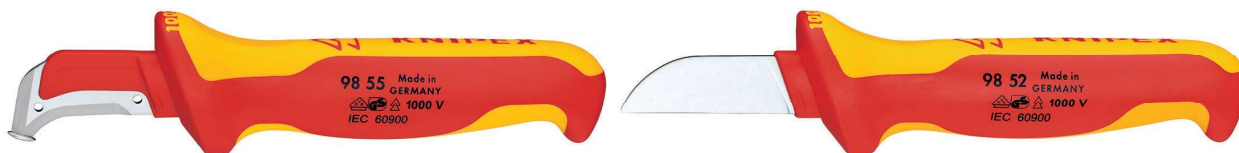
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Tools and cable accessories



Cutting, Holding, Stripping, Skinning • Stripping tools

Cable and dismantling knives



Benefits

- Particularly confident grip thanks to slip-proof soft components
- Thumb recess and "finger hook" at the end of the handle ensure a good transmission of force when the blade is pulled
- High ergonomics thanks to multi-component handles
- Insulated handles allow working under voltage up to 1000V

Application range

- KAMI 19: Solid straight blade for insulation of large cables
- ABMI 18: Dismantling without damaging the conductor insulation

Product features

- Transparent protective cap
- ABMI 18: With guide shoe at the blade point
- Made in Germany

Technical data

Classification
ETIM
ETIM 5.0 Class-ID: EC000155
ETIM 5.0 Class-Description:
Cable knife

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

Material
KAMI 19: Special tool steel, oil-hardened
ABMI 18: Surgical steel, stainless, vacuum-hardened

Article number	Article designation	Blade length mm	Radius mm	Weight (kg)	Length (mm)
Cable knife					
62120510	KAMI 19	50		0.067	190
Dismantling knife					
62120511	ABMI 18	38	23.5	0.068	180

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Notes

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Notes

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The following applies for the use of our products

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

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

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

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

Safety

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

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

guidelines, are contained in the tables in the appendix to the current main catalogue. Our machines and installation tools are – where necessary – designed in accordance with the machine guidelines and display the CE identification mark. It must be noted, however, that our machines and installation tools must only be used by trained specialist personnel and for the purpose for which they were designed.

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