Cables for automation industry

SPECIAL CABLES
SAB BRÖCKSKES

Cables for automation industry

Content

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Content

Customised connection solutions - quality & innovation since 1947

For three generations, SAB Bröckskes stands for customised connection solutions in cable and measurement technology. Having grown from a one-man business, we now employ approx. 550 people and realise more than 1,500 customised special constructions every year. Our strength lies in the development and production of special solutions that are perfectly tailored to our customers' requirements.

As a manufacturer and service provider, we combine technological expertise with maximum flexibility and real partnership. Our products are use in more than 100 countries and fulfil the highest quality standards, certified in accordance with DIN EN ISO 9001. In addition, we set a clear example of sustainability and responsibility with environmental, labour and energy management systems in accordance with international standards.

Today as in future we follow the slogan:

WE GO FORWARD!

FOUNDATION

» 1947 by Peter Bröckskes sen.
» an independent, medium-sized company

MANAGEMENT

» Peter Bröckskes and Sabine Bröckskes-Wetten

EMPLOYEES

» approx. 550 employees worldwide, approx. 430 at the location in Viersen

PRODUCTS

» Special Cables
» Measurement Technology
» Cable Harnessing

YEARLY SALES

» over 134 Mio. € worldwide

HEAD OFFICE & PRODUCTION

» in Viersen-Süchteln (Lower Rhine), with a floor area of 110,000 m²
» own manufacturing in Germany from copper conductor to outer sheath
» VDE approved burnchamber and technical centre with own test laboratory

CERTIFICATES AND APPROVALS

» Quality management system acc. to DIN EN ISO 9001 for every manufacturing field
» Environmental management system acc. to DIN EN ISO 14001
» Occupational Safety and Health Management System acc. to NLF/ILO-OSH and DIN ISO 45001
» Energy management system acc. to DIN EN ISO 50001
» UL, CSA, CE, VDE, HAR, IEC, EN, ISO, DNV, ABS, BSI

Cables for automation industry

Applications
dynamic cable track and robotic cables

Cables for dynamic applications are indispensable in industry wherever moving machine and system parts need to be reliably supplied with power, signals or data. They are specially designed for permanent bending and torsional loads. These cables usually have a robust polyurethane (PUR) sheath and are primarily used in industrial environments that require high mechanical loads, continuous movement and demanding conditions.

In order to remain at the cutting edge of technology, SAB Bröckskes continuously develops and optimises its range of dynamic cables together with its customers. These cables are specifically designed for applications with extreme alternating bending stresses. An outstanding product in the SAB flex class is the SABdynamic, which emphasises the highest quality standards for dynamic drag chain and robot cables with UL, CSA and VDE approvals, among others.

Thanks to their high abrasion resistance, oil and chemical resistance and exceptional flexibility over millions of bending cycles, dynamic drag chain and robot cables guarantee a reliable and long-lasting power and data supply. This makes them the ideal solution for demanding industrial applications.

Automation & Robotics	Used in industrial robots, handling systems and assembly and production lines. Also suitable for linear axes and multi-axis movements.
Machine tools	Reliable supply in CNC milling and turning machines, grinding and drilling machines as well as for moving spindles and slides.
Conveying & storage technology	Indispensable in storage and retrieval machines, high-bay warehouses, automated guided vehicles (AGVs) and conveyor belts with flexible control.
Crane & lifting technology	Proven in bridge and gantry cranes, lift and hoist systems as well as in telescopic arms and swivelling systems.
Packaging & food industry	Used in highly dynamic packaging machines, filling systems with flexible motion sequences and in washing and cleaning systems with frequent changes of direction.
Medical technology & laboratory automation	Can be found in imaging systems (e.g. MRI, CT), high-precision laboratory robots and analysing and dosing systems.
Automotive & supplier industry	Used in car body and assembly systems, painting robots and welding cells as well as in test benches with moving components.
Wood & plastics processing	Ideal for injection moulding machines with moving moulds, sawing and milling robots and flexible machining centres.

Applications
Industrial Ethernet cables

Industrial Ethernet is the use of Ethernet technology in industrial environments for the networking of machines, control units and other devices. It offers high reliability, speed and real-time communication that is decisive for automation processes. Compared to standard data network it is robust in order to withstand extreme environmental conditions as for example dust, humidity, vibration and temperature fluctuations. Industrial protocols as Profinet enlarge the Ethernet technology in order to guarantee real-time capability.

Industrial Ethernet supports small local networks as well as big geographically spread facilities. In general Industrial Ethernet forms the basis for modern, connected and intelligent production systems.

Industrial Ethernet cables are different from standard network cables due to their robustness and their special construction for industrial environments. They are more robust against mechanical stress as for example bending, traction, vibration and abrasion. Furthermore, they are often resistant against extreme temperatures, humidity, oil and chemicals. The screen is reinforced in order to minimize electromagnetic interferences that may arise in industrial plants by machines and motors.

Industrial Ethernet cables have a longer service life and can be used for flexible applications as cable chains or robots. The cable sheath is often made of halogen free or flame retardant materials in order to meet higher safety requirements. Furthermore, they accomplish more stringent standards and certifications with regard to flame protection or environmental resistance. In total industrial Ethernet cables have been developed especially for the requirements of industrial and automation environments.

Industrial Ethernet supports different transfer rates that vary depending on protocol, application or used hardware. The most current transfer rates are:

100 Mbit/s (Fast Ethernet - 100BaseTX)
CATLine CAT 5 / Profinet
1 Gbit/s (Gigabit Ethernet - 1000BaseT)
CATLine CAT 5e / CAT 6

Standard in modern industrial Ethernet networks, offer a higher bandwidth for data intensive applications.

10 Gbit/s (High-Speed Ethernet - 10GBaseT)
CATLine Cat 6A / Cat 7A

Increasingly in High-End-Applications as industry 4.0, image processing and big data networks.

Applications
Industrial Ethernet cables

Applications of Profinet cables

Profinet is mainly used in industrial automation where a reliable, quick and often real time communication between machines, control units (SPS), sensor and actuator is necessary. As industrial Ethernet protocol Profinet uses in general 2 pairs of cores and reaches 100 Mbit/s (Fast Ethernet).

For the industrial application optimised Profinet cables offer a better screening, a higher resistance against oils and chemicals as well as a higher mechanical resistance compared with standard Ethernet cables.

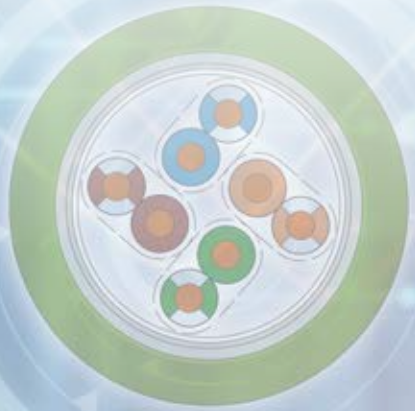
Applicationen of Single-Pair Ethernet (SPE)

Single Pair Ethernet (SPE) plays a major role with regard to efficient network of devices in the field. It enables the direct connection of sensors and actuators to industrial networks. In this way additional gateways become redandant. SPE supports the communication of numerous IoT devices which are an integral part of smart factories. In control and automation systems SPE is the connection between subordinated end devices and superior networks.

A special advantage of SPE is the support of Power over Data Line (PoDL). Herewith, devices can be supplied with data and current via one single pair. This technology reduces not only the installation efforts and costs but also makes possible a robust and future oriented network for industrial applications.

Applications of USB 2.0 and USB 3.0 cables

The SAB robot cable USB 2.0 and USB 3.0 was developed for high frequency data transmission in industry. In the industry intelligent image processing systems are very important. They are the key to more efficiency, precision and productivity with the installation and treatment by robots for the most different applications. Whether for the identification of parts and components, for visual inspection, welded seam control or for the collection of bar codes or type tests; wherever a quick and reliable collection and transmission of data from the camera to the industrial PC are absolutely important. Our highly flexible robot cable USB 2.0 and USB 3.0 was especially developed for this application. It guarantees excellent transmission characteristics as it is demanded for intelligent image processing ander extreme industrial application conditions. The use of PC compatible components make possible the recourse to established standards and simplifies further treatment in electronic data processing systems.



Applications
Servo Motor Cables

Applications motor connection cables for pulse converter fed three-phase drives

These cables are suitable for the fixed installation and flexible use e.g. in machine and industrial plant construction with average mechanical demand in dry, damp and wet conditions.

Applications motor feedback and transmission cables

Feedback cables are used for controlling motor speed and for giving feedback values. Transmission cables produce transmit control pulses for positioning and procedure characteristics. Exemplary applications: Highly flexible, mobile connection cables for e.g. speedo, brake, temperature control in motors, for continuously flexible applications in automation technology, control and production engineering, in cable tracks on wood-working machines, machine and industrial plant construction, even with high mechanical demands and in dry, damp and wet conditions, as well as at low temperatures flexible connection cables e.g. for speedo, brake, temperature control in motors, for continuously flexible applications in automation technology, control and product engineering.

Applications combined motor connection cables

These flexible motor connection cables are used for the power supply of motors. Depending on the construction type supply and control conductors are possible. The cables are suitable for high mechanical demands in dry, damp and wet conditions as well as at low temperatures. Exemplary applications: Applications in industries with intelligent servo drives, e.g. automation technologies, motive power, control and manufacturing engineering, in handling systems, car manufacturing industry, in cable tracks.

DESINA® - **D**istribut**E**d and **S**tandardized **IN**st**A**llation technology

DESINA® is an extensive concept for standardizing and distributing fluid and electric installations of machines and plants. A co-operation of machine construction, car manufacturing and supply industries has, furthermore, set up the specification of necessary components.

DESINA® applies already existing solutions such as open bus systems, industrial standards for connectors, etc. By standardizing components, interfaces and connecting systems, e.g. an optical fibre copper hybrid cable, most varying systems can be realised on a physical basis.

The following sheath colours are defined as a function code:

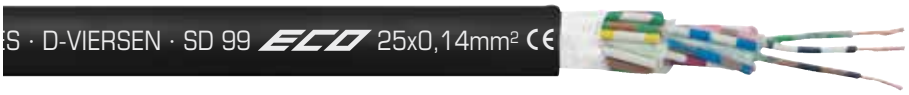
orange	RAL 2003:	servo cable, screened
green	RAL 6018:	measuring systems, screened
violet	RAL 4001:	field bus, hybrid cables
yellow	RAL 1021:	sensor/actuator cable, unscreened 4 x 0.34 mm² copper
black	RAL 9005:	power cable, unscreened
grey	RAL 7001:	24 V control cable, unscreened

The sheaths of all cables are to be resistant against industrial lubricants.

Note: DESINA® is a registered trademark of the German Machine Tool Builders' Association.

SD 99 ECO

continuously flexible SABIX®/PUR data cable with coloured cores



marking example:
SAB BRÖCKSKES · D-VIERSEN · SD 99 ECO 25x0,14mm² CE

Construction:

Conductor:	bare copper strands, extra fine wires
Insulation:	SABIX®
Colour code:	with reference to DIN 47100
Stranding:	specially adjusted layering with non-woven tape over each layer
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 with mat surface
Sheath colour:	black (RAL 9005)

Outstanding features:

- **low capacity**
- **PWIS uncritical**
  (PWIS = paint-wetting impairment substances)
- **flexible at low temperatures**
- **halogen-free**
- **high abrasion resistance**
- **small bending radius**
- **small outer diameter**
- **PFAS free**

Technical Data:

Peak operating voltage:	max. 350 V acc. to VDE 0812
Testing voltage:	core/core 1500 V
Torsion angle:	± 60°/1 m
Min. bending radius *fixed laying:* *flexible application:*	 3 x d 7,5 x d
Temperature range *fixed laying:* *flexible application:*	 -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous Flexibility:	very good
Sunlight resistance:	acc. to HD 605
Ozone resistance:	acc. to DIN EN 50396
Salt water resistance:	acc. to UL 1309
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
09730402	4 x 0,25	0,11	3,6	9,6	18
09730702	7 x 0,25	0,11	4,6	16,8	31
09730203	2 x 0,34	0,11	3,2	6,6	13
09730403	4 x 0,34	0,11	3,9	13,2	22

Other dimensions and colours are possible on request.

The SD 99 ECO is also available as

- shielded type
- shielded type, twisted pairs

SABorganic S 1000 Data

continuously flexible SABIX®/PUR data cable
with coloured cores

reduced carbon footprint

SABorganic

CE RoHS PFAS FREE

marking example:
SABorganic S 1000 Data 25x0,14mm² 27892501 CE

Application: The data cable SABorganic S 1000 Data is suitable for cable chains and equipped with an outer sheath made of bio-based PUR material that is mainly obtained of sustainable resources. This reduces the carbon footprint by a quarter compared to conventional types. The SABorganic S 1000 Data is particularly suitable for use in cable chains and moveable machine parts. The halogen-free and flame-retardant characteristics of the new sheath material reduce potential fire hazards. The SABorganic S 1000 Data is also resistant against mineral oil-based lubricants and many chemicals.

Construction:

Conductor:	bare copper strands, extra fine wires
Insulation:	SABIX®
Colour code:	with reference to DIN 47100
Stranding:	specially adjusted layering with non-woven tape over each layer
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 with mat surface
Sheath colour:	grey (RAL 7000)

Outstanding features:

- reduced carbon footprint
- low capacity
- sustainable plastic materials
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- flexible at low temperatures
- halogen-free
- flame retardant and self-extinguishing
- travel > 10 m is possible
- high abrasion resistance
- small bending radius
- small outer diameter
- PFAS free

Technical Data:

Peak operating voltage:	max. 350 V
Testing voltage:	core/core 1500 V
Torsion angle:	± 60°/1 m
Min. bending radius *fixed laying:* *flexible application:*	 3 x d 7,5 x d
Temperature range *fixed laying:* *flexible application:* *limited time of use:*	 -50/+90 °C -40/+90 °C +125 °C (up to 2000h)
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous flexibility:	very good
Sunlight resistance:	acc. to HD 605
Ozone resistance:	acc. to DIN EN 50396
Salt water resistance:	acc. to UL 1309
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
27740402	4 x 0,25	0,11	3,6	9,6	18
27740702	7 x 0,25	0,11	4,6	16,8	31
27740403	4 x 0,34	0,11	3,9	13,2	22

Other dimensions and colours are possible on request.

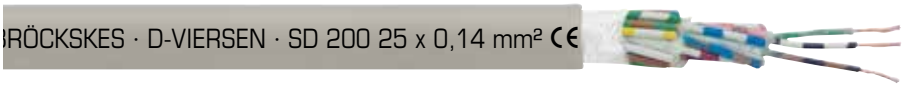
The SABorganic S 1000 Data is also available as

- shielded type
- shielded type, twisted pairs

Dynamic cables

SD 200

continuously flexible TPE/PUR data cable with coloured cores



marking example:
SAB BRÖCKSKES · D-VIERSEN · SD 200 25 x 0,14 mm²

Construction:

Conductor:	bare copper strands, extra fine wires
Insulation:	TPE
Colour code:	with reference to DIN 47100
Stranding:	specially adjusted layering with non-woven tape over each layer
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 with mat surface
Sheath colour:	grey (RAL 7032)

Technical Data:

Peak operating voltage:	max. 350 V acc. to VDE 0812
Testing voltage:	core/core 1500 V
Min. bending radius *continuously flexible:*	7,5 x d
Radiation resistance:	1 x 10^7 cJ/kg
Temperature range *fixed laying:* *flexible application:*	 -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous Flexibility:	very good
Weather resistance:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union

Outstanding features:

- **PWIS uncritical**
  (PWIS = paint-wetting impairment substances)
- **flexible at low temperatures**
- **halogen-free**
- **travel > 10 m is possible**
- **high abrasion resistance**
- **small bending radius**
- **small outer diameter**
- **PFAS free**

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
07740201	2 x 0,14	0,11	2,8	2,7	9
07740301	3 x 0,14	0,11	2,9	4,0	11
07740401	4 x 0,14	0,11	3,2	5,4	16
07740501	5 x 0,14	0,11	3,6	6,7	17
07740701	7 x 0,14	0,11	4,2	9,4	22
07741001	10 x 0,14	0,11	4,9	13,4	28
07741201	12 x 0,14	0,11	5,0	16,1	32
07741401	14 x 0,14	0,11	5,2	18,8	36
07741801	18 x 0,14	0,11	5,9	24,2	46
07742501	25 x 0,14	0,11	7,1	33,6	63
07743201	32 x 0,14	0,11	7,6	43,0	78
07740202	2 x 0,25	0,11	3,1	4,8	12
07740302	3 x 0,25	0,11	3,3	7,2	15
07740402	4 x 0,25	0,11	3,7	9,6	19
07740502	5 x 0,25	0,11	4,1	12,0	24
07740702	7 x 0,25	0,11	4,7	16,8	32

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
07741202	12 x 0,25	0,11	5,7	28,8	47
07741402	14 x 0,25	0,11	5,9	33,6	54
07741802	18 x 0,25	0,11	6,8	43,2	71
07742502	25 x 0,25	0,11	8,1	60,0	94
07743202	32 x 0,25	0,11	8,9	76,8	120
07740203	2 x 0,34	0,11	3,3	6,5	17
07740303	3 x 0,34	0,11	3,7	9,8	19
07740403	4 x 0,34	0,11	4,0	13,1	23
07740503	5 x 0,34	0,11	4,3	16,3	30
07740703	7 x 0,34	0,11	5,0	22,8	39
07741003	10 x 0,34	0,11	5,9	32,6	50
07741203	12 x 0,34	0,11	6,3	39,2	60
07741403	14 x 0,34	0,11	6,6	45,7	68
07741803	18 x 0,34	0,11	7,3	58,8	84
07742503	25 x 0,34	0,11	8,9	81,6	118
07743203	32 x 0,34	0,11	9,5	104,4	147

Other dimensions and colours are possible on request.

The SD 200 is also available as

- shielded type
- shielded type, twisted pairs

Possible on request:

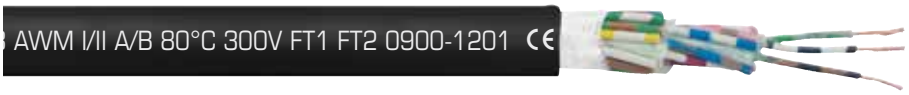
In dimensions
0,50 mm² and 0,75 mm²

low capacity

SABFlex

SABdynamic 900 Data

continuously flexible SABIX®/PUR data cable,
robust, oil resistant and flame retardant with coloured cores



marking example:
SAB BRÖCKSKES · D-VIERSEN · SABdynamic 900 Data 12x0,14mm² cULus AWM Style 20233 AWM I/II A/B 80°C 300V FT1 FT2 0900-1201

Construction:

Conductor:	bare copper strands with reference to IEC 60228, VDE 0295, class 6
Insulation:	SABIX®
Colour code:	with reference to DIN 47100
Stranding:	specially adjusted layering with non-woven tape over each layer
Sheath material:	PUR with mat surface
Sheath colour:	black (RAL 9005)

Outstanding features:

- **cULus recognized**
- **PWIS uncritical**
  (PWIS = paint-wetting impairment substances)
- **low capacity**
- **extremely large temperature range**
- **halogen-free**
- **high abrasion resistance**
- **suitable for long travel**
- **small bending radius**
- **small outer diameter**
- **PFAS free**

Technical Data:

Peak operating voltage:	max. 350 V
Voltage cULus:	300 V
Testing voltage:	core/core 2000 V
Min. bending radius *fixed laying:* *flexible application:* *bending cycles:*	 3 x d 7,5 x d > 10 million
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **cULus:** up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, cULus FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous Flexibility:	very good
Sunlight resistance:	acc. to HD 605
Ozone resistance:	acc. to DIN EN 50396
Salt water resistance:	acc. to UL 1309
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
09000201	2 x 0,14	0,11	3,5	2,6	13
09001201	12 x 0,14	0,11	5,5	15,6	36
09000702	7 x 0,25	0,11	5,2	16,8	36

Other dimensions and colours are possible on request.

The SABdynamic 900 Data is also available as

- shielded type, twisted pairs

Dynamic cables

S 99 ECO

continuously flexible SABIX®/PUR control cable with numbered cores

marking example:
SAB BRÖCKSKES · D-VIERSEN · S 99 ECO 12x1,5mm²

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	SABIX®
Colour code from 2 conductors:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering with non-woven tape over each layer
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 with mat surface
Sheath colour:	black (RAL 9005)

Outstanding features:

- low capacity
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- flexible at low temperatures
- halogen-free
- high abrasion resistance
- small bending radius
- small outer diameter
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	core/core 2000 V
Torsion angle:	± 60°/1 m
Min. bending radius *fixed laying:* *flexible application:*	 3 x d 7,5 x d
Temperature range *fixed laying:* *flexible application:*	 -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous Flexibility:	very good
Sunlight resistance:	acc. to HD 605
Ozone resistance:	acc. to DIN EN 50396
Salt water resistance:	acc. to UL 1309
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
09740505	5 x 0,50	0,16	5,4	24,0	43
09740705	7 x 0,50	0,16	6,4	33,6	60
09741205	12 x 0,50	0,16	7,6	57,6	86
09741805	18 x 0,50	0,16	9,0	86,4	123
09742505	25 x 0,50	0,16	11,0	120,0	173
09740207	2 x 0,75	0,16	4,9	14,4	30
09740307	3 x 0,75	0,16	5,2	21,6	37
09740407	4 x 0,75	0,16	5,6	28,8	48
09740507	5 x 0,75	0,16	6,1	36,0	63
09740707	7 x 0,75	0,16	7,1	50,4	78
09741807	18 x 0,75	0,16	10,6	129,6	184
09740210	2 x 1,00	0,16	5,1	19,2	35
09740710	7 x 1,00	0,16	7,6	67,2	98
09741210	12 x 1,00	0,16	9,1	115,2	146
09741810	18 x 1,00	0,16	11,0	172,8	226
09742510	25 x 1,00	0,16	13,2	240,0	297
09743610	25 x 1,00	0,16	15,1	345,6	428

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
09740215	2 x 1,50	0,16	5,7	28,8	47
09740315	3 x 1,50	0,16	6,0	43,2	63
09740415	4 x 1,50	0,16	6,5	57,6	78
09740515	5 x 1,50	0,16	7,3	72,0	97
09740715	7 x 1,50	0,16	8,5	100,8	136
09741215	12 x 1,50	0,16	10,7	172,8	213
09742515	25 x 1,50	0,16	15,4	360,0	432
09740225	2 x 2,50	0,16	6,7	48,0	67
09740325	3 x 2,50	0,16	7,5	72,0	97
09740425	4 x 2,50	0,16	8,3	96,0	125
09740525	5 x 2,50	0,16	9,1	120,0	140
09740360	3 x 6,00	0,21	10,9	172,8	223
09740560	5 x 6,00	0,21	13,2	288,0	351
09740361	3 x 10,0	0,21	13,0	288,0	357
09740162	1 x 16,0	0,21	7,9	153,6	169
09740163	1 x 25,0	0,21	9,3	240,0	250
09740164	1 x 35,0	0,21	11,1	336,0	356

Other dimensions and colours are possible on request.

The S 99 ECO is also available as

- shielded type

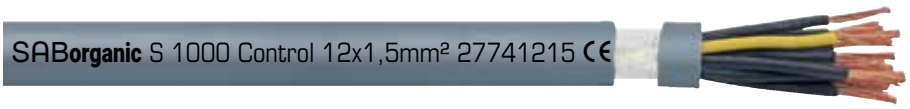
SABorganic S 1000 Control

continuously flexible SABIX®/PUR control cable
with numbered cores

reduced carbon footprint

SABorganic

CE RoHS PFAS FREE



marking example:
SABorganic S 1000 Control 12x1,5mm² 27741215 CE

Application: The control cable SABorganic S 1000 Control is suitable for cable chains and equipped with an outer sheath made of bio-based PUR material that is mainly obtained of sustainable resources. This reduces the carbon footprint by a quarter compared to conventional types. The SABorganic S 1000 Control is particularly suitable for use in cable chains and moveable machine parts. The halogen-free and flame-retardant characteristics of the new sheath material reduce potential fire hazards. The SABorganic S 1000 Control is also resistant against mineral oil-based lubricants and many chemicals.

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	SABIX®
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering with non-woven tape over each layer
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 with mat surface
Sheath colour:	grey (RAL 7000)

Outstanding features:

- reduced carbon footprint
- low capacity
- sustainable plastic materials
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- flexible at low temperatures
- halogen-free
- flame retardant and self-extinguishing
- travel > 10 m is possible
- high abrasion resistance
- small bending radius
- small outer diameter
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	core/core 2000 V
Torsion angle:	± 60°/1 m
Min. bending radius *fixed laying:* *flexible application:*	 3 x d 7,5 x d
Temperature range *fixed laying:* *flexible application:* *limited time of use:*	 -50/+90 °C -40/+90 °C +125 °C (up to 2000h)
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous flexibility:	very good
Sunlight resistance:	acc. to HD 605
Ozone resistance:	acc. to DIN EN 50396
Salt water resistance:	acc. to UL 1309
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
27740505	5 x 0,50	0,16	5,4	24,0	43
27740705	7 x 0,50	0,16	6,4	33,6	60
27741205	12 x 0,50	0,16	7,6	57,6	86
27741805	18 x 0,50	0,16	9,0	86,4	125
27742505	25 x 0,50	0,16	11,0	120,0	173
27741210	12 x 1,00	0,16	9,1	115,2	148
27741810	18 x 1,00	0,16	11,0	172,8	226
27740315	3 x 1,50	0,16	6,0	43,2	63
27740515	5 x 1,50	0,16	7,3	72,0	99
27740361	3 x 10,0	0,21	13,6	288,0	394

Other dimensions and colours are possible on request.

The SABorganic S 1000 Control is also available as

- shielded type

Dynamic cables

S 200

continuously flexible TPE/PUR control cable with numbered cores

marking example:
SAB BRÖCKSKES · D-VIERSEN · S 200 1 x 10,0 mm² CE

marking example:
SAB BRÖCKSKES · D-VIERSEN · S 200 12 x 1,5 mm² CE

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Colour code from 2 conductors:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering with non-woven tape over each layer
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 with mat surface
Sheath colour:	grey (RAL 7000)

Outstanding features:

- **PWIS uncritical**
  (PWIS = paint-wetting impairment substances)
- **flexible at low temperatures**
- **halogen-free**
- **travel > 10 m is possible**
- **high abrasion resistance**
- **small bending radius**
- **small outer diameter**
- **PFAS free**

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	core/core 2000 V
Min. bending radius *continuously flexible:*	7,5 x d
Radiation resistance:	1 x 10^7 cJ/kg
Temperature range *fixed laying:* *flexible application:*	 -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous Flexibility:	very good
Weather resistance:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union

Also available as hybrid cable for example
3G1,0 + 16 x 0,34 mm²
3G1,0 + 8 x 0,34 mm²
1G0,5 + 4 x 0,34 mm²

Peak operating voltage of data conductors: max. 500 V

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
07740205	2 x 0,50	0,16	4,9	9,6	28
07740305	3 x 0,50	0,16	5,1	14,4	34
07740405	4 x 0,50	0,16	5,5	19,2	41
07740505	5 x 0,50	0,16	6,0	24,0	51
07740705	7 x 0,50	0,16	6,9	33,6	69
07741205	12 x 0,50	0,16	8,3	57,6	99
07741805	18 x 0,50	0,16	9,9	86,4	143
07742505	25 x 0,50	0,16	11,9	120,0	197
07743605	36 x 0,50	0,16	13,7	172,8	282
07745005	50 x 0,50	0,16	16,1	240,0	381
07746505	65 x 0,50	0,16	18,2	312,0	478
07740207	2 x 0,75	0,16	5,4	14,4	36
07740307	3 x 0,75	0,16	5,7	21,6	44
07740407	4 x 0,75	0,16	6,1	28,8	54
07740507	5 x 0,75	0,16	6,7	36,0	67
07740707	7 x 0,75	0,16	7,9	50,4	93
07741207	12 x 0,75	0,16	9,6	86,4	137

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
07741807	18 x 0,75	0,16	11,3	129,6	202
07742507	25 x 0,75	0,16	13,9	180,0	279
07743607	36 x 0,75	0,16	15,4	259,2	384
07745007	50 x 0,75	0,16	18,4	360,0	528
07746507	65 x 0,75	0,16	20,8	468,0	688
07740210	2 x 1,00	0,16	5,8	19,2	45
07740310	3 x 1,00	0,16	6,1	28,8	54
07740410	4 x 1,00	0,16	6,6	38,4	67
07740510	5 x 1,00	0,16	7,2	48,0	82
07740710	7 x 1,00	0,16	8,6	67,2	116
07741210	12 x 1,00	0,16	10,4	115,2	173
07741810	18 x 1,00	0,16	12,3	172,8	256
07742510	25 x 1,00	0,16	15,1	240,0	353
07743610	36 x 1,00	0,16	17,0	345,6	496
07745010	50 x 1,00	0,16	20,3	480,0	682
07746510	65 x 1,00	0,16	22,9	624,0	885

Continued on next page

Dynamic cables

S 200

continuously flexible TPE/PUR control cable with numbered cores

marking example:
SAB BRÖCKSKES · D-VIERSEN · S 200 1 x 10,0 mm² CE

marking example:
SAB BRÖCKSKES · D-VIERSEN · S 200 12 x 1,5 mm² CE

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
07740115	1 x 1,50	0,16	4,0	14,4	25
07740215	2 x 1,50	0,16	6,4	28,8	57
07740315	3 x 1,50	0,16	6,7	43,2	70
07740415	4 x 1,50	0,16	7,3	57,6	89
07740515	5 x 1,50	0,16	8,0	72,0	110
07740715	7 x 1,50	0,16	9,6	100,8	159
07741215	12 x 1,50	0,16	11,8	172,8	242
07741815	18 x 1,50	0,16	14,2	259,2	362
07742515	25 x 1,50	0,16	17,1	360,0	490
07743615	36 x 1,50	0,16	19,3	518,4	691
07745015	50 x 1,50	0,16	23,0	720,0	950
07746515	65 x 1,50	0,16	26,0	936,0	1240
07740125	1 x 2,50	0,16	4,7	24,0	39
07740225	2 x 2,50	0,16	7,8	48,0	85
07740325	3 x 2,50	0,16	8,3	72,0	110
07740425	4 x 2,50	0,16	9,2	96,0	142
07740525	5 x 2,50	0,16	10,2	120,0	175
07740725	7 x 2,50	0,16	12,2	168,0	256
07741225	12 x 2,50	0,16	15,4	288,0	399
07741825	18 x 2,50	0,16	18,1	432,0	588
07742525	25 x 2,50	0,16	22,1	600,0	802
07743625	36 x 2,50	0,16	24,8	864,0	1128
07740140	1 x 4,00	0,16	5,4	38,4	56
07740240	2 x 4,00	0,16	9,3	76,8	129
07740340	3 x 4,00	0,16	9,8	115,2	172
07740440	4 x 4,00	0,16	10,8	153,6	217
07740540	5 x 4,00	0,16	12,1	192,0	268
07740740	7 x 4,00	0,16	14,6	268,8	394
07740160	1 x 6,00	0,21	6,1	57,6	76

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
07740260	2 x 6,00	0,21	10,8	115,2	176
07740360	3 x 6,00	0,21	11,7	172,8	246
07740460	4 x 6,00	0,21	12,8	230,4	316
07740560	5 x 6,00	0,21	14,5	288,0	388
07740760	7 x 6,00	0,21	17,3	403,2	504
07740161	1 x 10,0	0,21	7,1	96,0	120
07740361	3 x 10,0	0,21	14,1	288,0	395
07740461	4 x 10,0	0,21	15,8	384,0	507
07740561	5 x 10,0	0,21	17,2	480,0	610
07740162	1 x 16,0	0,21	8,3	153,6	177
07740362	3 x 16,0	0,21	17,0	460,8	597
07740462	4 x 16,0	0,21	19,0	614,4	782
07740562	5 x 16,0	0,21	21,2	768,0	981
07740163	1 x 25,0	0,21	9,9	240,0	263
07740363	3 x 25,0	0,21	20,6	720,0	848
07740463	4 x 25,0	0,21	22,8	960,0	1155
07740563	5 x 25,0	0,21	25,4	1200,0	1359
07740164	1 x 35,0	0,21	11,5	336,0	367
07740464	4 x 35,0	0,21	26,4	1344,0	1533
07740564	5 x 35,0	0,21	29,8	1680,0	1894
07740165	1 x 50,0	0,31	14,0	480,0	538
07740465	4 x 50,0	0,31	31,8	1920,0	2266
07740166	1 x 70,0	0,31	16,7	672,0	754
07740167	1 x 95,0	0,31	20,5	912,0	1028
07740168	1 x 120,0	0,31	21,5	1152,0	1260
07740169	1 x 150,0	0,31	24,6	1440,0	1618
07740170	1 x 185,0	0,41	26,7	1776,0	1942
07740171	1 x 240,0	0,41	30,1	2304,0	2483

Other dimensions and colours are possible on request.

Die S 200 is also available as

» shielded type

Possible on request:

Singlecore with green-yellow insulation and black outer sheath or 0,6/1 kV

low capacity

SABFlex

SABdynamic 900 Control

continuously flexible SABIX®/PUR control cable,
robust, oil resistant and flame retardant with numbered cores

Marking example:
SAB BRÖCKSKES · D-VIERSEN · SABdynamic 900 Control 25G1,0mm² cULus AWM Style 21223 AWM I/II A/B 80°C 600V FT1 FT2 0900-2510 CE

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, Klasse 6
Insulation:	SABIX®
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering with non-woven tape over each layer
Sheath material:	PUR with mat surface
Sheath colour:	black (RAL 9005)

Outstanding features:

- cULus recognized
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- low capacity
- extremely large temperature range
- halogen-free
- high abrasion resistance
- suitable for long travel
- small bending radius
- small outer diameter
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Voltage cULus:	600 V
Testing voltage:	core/core 2000 V
Min. bending radius *fixed laying:* *flexible application:* *bending cycles:*	 3 x d 7,5 x d > 10 million
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **cULus:** up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, cULus FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous Flexibility:	very good
Sunlight resistance:	acc. to HD 605
Ozone resistance:	acc. to DIN EN 50396
Salt water resistance:	acc. to UL 1309
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
09000205	2 x 0,50	0,16	4,7	9,6	26
09002505	25 x 0,50	0,16	11,5	120,0	200
09003605	36 x 0,50	0,16	12,9	172,8	276
09000407	4 x 0,75	0,16	5,8	28,8	49
09000507	5 x 0,75	0,16	6,3	36,0	60
09000707	7 x 0,75	0,16	7,4	50,4	82
09001207	12 x 0,75	0,16	8,9	86,4	121
09001807	18 x 0,75	0,16	10,8	129,6	186
09002507	25 x 0,75	0,16	12,8	180,0	246
09000210	2 x 1,00	0,16	5,3	19,2	38
09000410	4 x 1,00	0,16	6,1	38,4	60
09001210	12 x 1,00	0,16	9,3	115,2	151
09001810	18 x 1,00	0,16	11,2	172,8	230

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
09002510	25 x 1,00	0,16	13,4	240,0	307
09003010	30 x 1,00	0,16	13,8	288,0	359
09003610	36 x 1,00	0,16	15,1	345,6	439
09000215	2 x 1,50	0,16	5,9	28,8	50
09000315	3 x 1,50	0,16	6,2	43,2	64
09000415	4 x 1,50	0,16	6,7	57,6	81
09000515	5 x 1,50	0,16	7,5	72,0	101
09000715	7 x 1,50	0,16	8,6	100,8	140
09001215	12 x 1,50	0,16	10,9	172,8	221
09002515	25 x 1,50	0,16	15,6	360,0	444
09000325	3 x 2,50	0,16	7,8	72,0	101
09000425	4 x 2,50	0,16	8,5	96,0	130

Other dimensions and colours are possible on request.

The SABdynamic 900 Control is also available as

- shielded type
- 0,6/1 kV type
- shielded 0,6/1 kV type

Industrial Ethernet cables

S PN 668 PUR Profinet cable type C, continuously flexible, suitable for cable tracks

S PN 669 PUR Profinet cable type C, continuously flexible, suitable for cable tracks

617 24AWG/3pr AWM Style 2464 80°C 300V

marking example:
SAB BRÖCKSKES · D-VIERSEN · S PN 669 Profinet CAT 5 type C 2x2x22AWG AWM Style 21198 80° 300V

Construction:

Conductor:	tinned copper strands, fine wires
Insulation:	PE
Colour code:	blue, yellow, white, orange
Stranding:	in layers
Wrapping:	PETP-foil
Inner sheath:	thermoplastic material
Screen:	alu foil and tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	green (similar RAL 6018)

Outstanding features:

- **S PN 669: UL recognition**
- **suitable for cable tracks**
- **halogen-free**
- **very good oil resistance**
- **PFAS-free**

Technical data:

Peak operating voltage:	max. 350 V
Voltage UL:	**S PN 669:** 300 V
Testing voltage	**S PN 668:** core/core 1500 V core/screen 1200 V **S PN 669:** core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 10 x d 15 x d
Temperature range *fixed laying:* *flexible application:*	**S PN 668:** **S PN 669:** **DIN VDE** **UL:** up to +80 °C -40/+70 °C -30/+70 °C -30/+70 °C -20/+70 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Characteristic impedance (100 MHz):	100Ω ± 5Ω, fulfils the electrical and transmission requirements with high frequency acc. to EN 50288-2-2 + VDE 0819-2-2 (CAT 5 acc. to EN 50173-1)
UL Style:	**S PN 668:** **S PN 669:** — 21198
Application:	suitable for EtherCAT- and EtherNET/IP-applications
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	type	dimension	max. core-ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km	ohmic resistance at 20°C acc. to VDE 0812 max. Ω/km
06682202	S PN 668	2 x 2 x 22 AWG	1,55	6,4	36,7	58	58,0
06692202	S PN 669	2 x 2 x 22 AWG	1,55	6,5	36,7	69	58,0

Other dimensions and colours are possible on request.

Customized plug-and-play solutions
from cable manufacturing to customized cable assembly from a single source

CATLine CAT 6 S / CAT 6A S

CAT 6 Gigabit Ethernet cable, suitable for cable tracks with UL recognition, CSA approval

marking example:
SAB BRÖCKSKES · D-VIERSEN · CATLine Cat.6 S 4x2x26AWG 1677-4630 AWM Style 20549 80°C 300V CSA AWM I/II A/B 80°C 300V FT2

Construction:

Conductor:	bare copper strands, fine wires
Insulation:	special polymer
Colour code:	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Stranding:	cores twisted to pairs, pairs together
Wrapping:	non-woven tape
Screen:	alu foil and tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	green (similar RAL 6018)

Outstanding features:

- UL recognized, CSA approved
- suitable for cable tracks
- halogen-free
- flame retardant and self-extinguishing
- very good oil resistance
- good against aggressive chemicals
- PFAS-free

Technical data:

Peak operating voltage:	max. 90 V
Voltage UL/CSA:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 10 x d 15 x d
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL/CSA:** up to +80 °C -40/+70 °C -40/+70 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. UL Horizontal Flame Test FT2
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Characteristic impedance (100 MHz):	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to **CATLine CAT 6 S:** EN 50288-5-2 / CAT 6 **CATLine CAT 6A S:** EN 50288-10-2 / CAT 6A
Flexibility:	very good
UL Style:	20549
Application:	suitable for EtherCAT- and EtherNET/IP-applications
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	type	dimension	max. core-ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
16774630	CATLine CAT 6 S	4 x 2 x 26 AWG	1,05	7,1	32,0	57
16774631	CATLine CAT 6A S	4 x 2 x 26 AWG	1,05	7,1	32,0	57

Other dimensions and colours are possible on request.

+90°C on request!

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

CATLine CAT 7A S

CAT 7A Gigabit Ethernet cable, suitable for cable tracks with UL recognition, CSA approval

marking example:
SAB BRÖCKSKES · D-VIERSEN · CATLine Cat.7A S 4x2x26AWG 1777-4631 AWM Style 20549 80°C 300V CSA AWM I/II A/B 80°C 300V FT2

Construction:

Conductor:	bare copper strands, fine wires
Insulation:	special polymer
Colour code:	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Stranding:	cores twisted to pairs, pairs screened with foil, pairs together
Screen:	aluminized non-woven tape and tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	green (similar RAL 6018)

Outstanding features:

- **UL recognized, CSA approved**
- **suitable for cable tracks**
- **halogen-free**
- **flame retardant and self-extinguishing**
- **very good oil resistance**
- **good against aggressive chemicals**
- **PFAS-free**

Technical data:

Peak operating voltage:	max. 90 V
Voltage UL/CSA:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 10 x d 15 x d
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL/CSA:** up to +80 °C -40/+70 °C -40/+70 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. UL Horizontal Flame Test FT2
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Characteristic impedance (100 MHz):	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-9-2 + VDE 0819-9-2 / CAT 7A
Flexibility:	very good
UL Style:	20549
Application:	suitable for EtherCAT and EtherNET/IP applications
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	type	dimension	max. core-ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
17774631	CATLine CAT 7A S	4 x 2 x 26 AWG	1,50	8,5	38,5	81
17774431	CATLine CAT 7A S	4 x 2 x 24 AWG	1,60	10,4	46,6	101

Other dimensions and colours are possible on request.

+90°C on request!

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

Industrial Ethernet cables

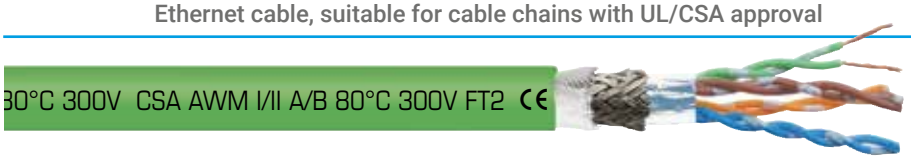
Transmission distance over 190 m resp. 130 m

SAB CATLine

CATLine XL

Class D / Class E

Ethernet cable, suitable for cable chains with UL/CSA approval



RoHS PFAS FREE

marking example:

SAB BRÖCKSKES · D-VIERSEN · CATLine XL 4x2x20AWG 1639-4020 AWM Style 20549 80°C 300V CSA AWM I/II A/B 80°C 300V FT2

Application: With the new flexible CATLine XL types with reduced insertion loss, a product family is available that has been tested and validated beyond the normative limit of 100 metres. In practical tests, these cables were also able to transmit distances of over 190 m (CATLine XL / Class D - 100 MBit) or over 130 m (CATLine XL / Class E - 1GBit) - confirmed by measurements with BERT systems.

Construction:

Conductor:	bare copper strands, fine wires
Insulation:	special polymer
Colour code:	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Stranding:	cores twisted in pairs, pairs together class E: pairs screened with foil
Screen:	braiding of tinned round copper wires
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	green (similar RAL 6018)

Outstanding features:

- suitable for cable tracks
- flame retardant and self-extinguishing
- suitable for PoE
- PFAS free

Technical data:

Peak operating voltage:	max. 90 V
Voltage UL/CSA:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *permanently flexible:*	 5 x d 10 x d 15 x d
Temperature range *fixed laying:* *flexible application:*	**UL/CSA:** up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2 UL Horizontal Flame Test FT2
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Characteristic impedance:	100Ω ± 10Ω CATline XL / Class D, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-2-2 / CAT 5 CATline XL / Class E, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-5-2 / CAT 6
Sunlight and weather resistance:	very good - acc. to HD 605 (VDE 0276-605)
Flexibility:	very good
UL Style:	20549
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km	Transmission distance ≈ m
15394020	CATLine XL / Class D	4 x 2 x 20 AWG	11,6	100,7	158	190
16394020	CATLine XL / Class E	4 x 2 x 20 AWG	15,7	144,3	266	130

Other dimensions and colours are possible on request.

CATLine SPE C-Track

Single Pair Ethernet cable, suitable for cable tracks with UL recognition

marking example:
SAB BRÖCKSKES · D-VIERSEN · CATLine SPE C-Track 2xAWG26/7 1777-1630 AWM Style 20549 80°C 300V

Construction:

Conductor:	bare copper strands
Insulation:	special polymer
Colour code:	white, blue
Stranding:	twisted to pairs
Inner sheath:	SABIX®
Screen:	alu foil and tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	green (similar RAL 6018)

Outstanding features:

- **UL recognized**
- **suitable for Power over Dataline (PoDL) from up to approx. 50 W at 48 V DC**
- **low cabling effort**
- **short latency periods**
- **small outer diameter**
- **PFAS free**
- **PWIS uncritical**
  (PWIS = paint-wetting impairment substances)

Technical data:

Peak operating voltage:	max. 90 V
Voltage UL:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 10 x d 15 x d
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL/CSA:** up to +80 °C -40/+70 °C -40/+70 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Characteristic impedance:	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to IEC 61156-12. Bandwidth 1 - 600 MHz.
Data transfer:	1 Gbit up to zu 40 m
UL Style:	20549
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
17771630	CATLine SPE C-Track	2 x 26/7 AWG	4,6	16,9	29
17771230	CATLine SPE C-Track	2 x 22/19 AWG	5,7	22,7	40

Other dimensions and colours are possible on request.

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

CATLine SPE C-Track Hybrid

Single Pair Ethernet cable, suitable for cable tracks with power supply and UL recognition

marking example:
SAB BRÖCKSKES · D-VIERSEN · CATLine SPE C-Track Hybrid 2xAWG26/7+2xAWG18 1707-4267 AWM Style 2023 80°C 300V CE

Construction:

Conductor:	bare copper strands
Insulation:	SPE-element: special polymer energy supply: special polymer
Colour code:	SPE-element: white, blue energy supply: red, black
Stranding:	in pairs
Screen:	alu foil white, blue
Stranding:	together
Screen:	tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	green (similar RAL 6018)

Technical data:

Peak operating voltage:	max. 90 V
Voltage UL:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 10 x d 15 x d
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL/CSA:** up to +80 °C -40/+70 °C -40/+70 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Characteristic impedance:	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to IEC 61156-12. Bandwidth 1 - 600 MHz.
Data transfer:	1 Gbit up to zu 40 m
UL Style:	20549
Absence of harmful substances:	acc. to RoHS directive of the European Union

Outstanding features:

- UL recognized
- appropriate for direct current supply from approx. 200 W with 24 V resp. 400 W with 48 V
- SPE plus energy supply
- short latency periods
- PFAS free
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
17074267	CATLine SPE C-Track Hybrid	2 x 26/7 AWG + 2 x AWG 18	6,2	38,2	66
17076267	CATLine SPE C-Track Hybrid	2 x 22/19 AWG + 2 x AWG 18	6,8	43,5	77

Other dimensions and colours are possible on request.

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

USB 3.0 (USB 3.2 Gen 1x1) cables

transmission length up to 3 m

SAB Bus

USB 3.0 S

USB 3.0 cable, continuously flexible with UL recognition suitable for cable tracks

marking example:
SAB BRÖCKSKES · D-VIERSEN · USB 3.0 S 3x(2x28AWG)ST+2x26AWG 0604-2098
AWM Style 20549 80° 300V

Construction:

Conductor:	silver plated and tinned copper strands
Insulation:	special polymer
Colour code:	yellow, blue + orange, violet (USB 3.0), green, white (USB 2.0), red, black (power supply)
Stranding:	twisted pairs and datapairs screened, all elements together
Wrapping:	non-woven tape
Screen:	tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	black (RAL 9005)

Technical data:

Peak operating voltage:	max. 350 V
Voltage UL:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 10 x d 12 x d
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL:** up to +80 °C -50/+90 °C -40/+90 °C
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + EN 60332-1-2
Oil resistance:	very good, TMPU acc. to EN 50363-10-2
UL Style:	20549
Absence of harmful substances:	acc. to RoHS directive of the European Union

Outstanding features:

- **UL recognized, CSA approved**
- **suitable for cable tracks**
- **flame retardant and self-extinguishing**
- **very good oil resistance**
- **transmission length up to 3 m**
- **excellent transmission characteristics**
- **PFAS-free**

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km	ohmic resistance at 20°C max.Ω/km 28 AWG	26 AWG	24 AWG
06042098	USB 3.0 S	3 x (2 x 28 AWG)ST + 2 x 26 AWG	6,1	26,5	45	223	140	–

Other dimensions and colours are possible on request.

For transmission lengths more than 3 m, please contact us!

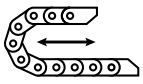
Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

USB 2.0 cables

transmission length up to 10 m

SAB Bus



USB 2.0 S USB 2.0 cable, continuously flexible, suitable for cable tracks

USB 2.0 S UL/CSA USB 2.0 cable, continuously flexible with UL recognition, CSA approval, suitable for robots

RoHS PFAS FREE

marking example:

SAB BRÖCKSKES · D-VIERSEN · USB 2.0 Leitung · (2x0,22mm²)ST+2x0,5mm² 0601-1122 AWM Style 21198 80°C 300V CSA AWM I/II A/B 80°C 300V FT2

Construction:

Conductor:	bare copper strands (0,50 mm²), silver plated copper (0,22 mm²)
Insulation:	SABIX®
Colour code:	black, red (0,50 mm²), white, green (0,22 mm²)
Stranding:	2 x 0,22 mm² wrapped with alu foil, together with 0,5 mm²
Wrapping:	non-woven tape
Screen:	tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	black (RAL 9005)

Outstanding features:

- **USB 2.0 S UL/CSA: UL recognized, CSA approved**
- **suitable for cable tracks**
- **halogen-free**
- **very good oil resistance**
- **transmission length up to 10 m**
- **excellent transmission characteristics**
- **PFAS-free**

Technical data:

Peak operating voltage:	max. 350 V	
Voltage UL/CSA:	**USB 2.0 S UL/CSA:** 300 V	
Testing voltage:	**USB 2.0 S:** core/core 600 V core/screen 600 V **USB 2.0 S UL/CSA:** core/core 2000 V core/screen 2000 V	
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 6 x d 7,5 x d	
Temperature range	**USB 2.0 S:** **DIN VDE**	**USB 2.0 S UL/CSA:** **UL/CSA:** up to +80 °C
fixed laying:	-50/+90 °C	-50/+90 °C
flexible application:	-40/+90 °C	-40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1	
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2	
UL Style:	**USB 2.0 S:** —	**USB 2.0 S UL/CSA:** 21198
Absence of harmful substances:	acc. to RoHS directive of the European Union	

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
06011022	USB 2.0 S	(2 x 0,22 mm²)ST + 2 x 0,50 mm²	7,0	34,1	59
06011122	USB 2.0 S UL/CSA	(2 x 0,22 mm²)ST + 2 x 0,50 mm²	7,2	34,1	66
06012022	USB 2.0 RT UL/CSA	(2 x 0,22 mm²)ST + 2 x 0,50 mm²	7,0	34,3	64

Other dimensions and colours are possible on request.

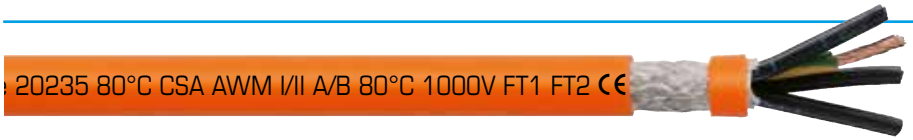
Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

Motor connection cables

SL 834 C

low capacity PUR motor connection cable with overall copper screen 0.6/1 kV



marking example:
SAB BBRÖCKSKES · D-VIERSEN · 08340415 4x1,5mm² SL 834 C 16 AWG/4c 1000V 08341604
DESINA AWM Style 20235 80°C CSA AWM I/II A/B 80°C 1000V FT1 FT2

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	special polymer
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334 and a green-yellow earth wire
Stranding:	in layers
Wrapping:	non-woven tape
Screen:	tinned copper braiding
Sheath material:	PUR
Sheath colour:	orange (RAL 2003)

Outstanding features:

- UL recognized, CSA approval
- low capacity construction
- very good EMC characteristics
- halogen-free
- very high flexibility
- suitable for cable tracks
- very good oil resistance
- very long service life
- adhesion-free installation
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- flexible at low temperatures
- PFAS free
- DESINA® colours

Technical data:

Nominal voltage:	Uo/U 0.6/1 kV
Voltage UL/CSA:	1000 V
Testing voltage:	core/core 4000 V core/screen 4000 V
Min. bending radius *fixed laying:* *flexible application:*	 5 x d 10 x d
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL/CSA:** up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, CSA FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Absence of harmful substances:	acc. to RoHS directive of the European Union

low capacity
for your frequency controlled drives and motors

item no.	no. of cores x cross section n x mm²	AWG	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
08340415	4 x 1,50	16/4c	0,16	9,0	83,5	126
08340425	4 x 2,50	14/4c	0,16	10,8	142,5	195
08340440	4 x 4,00	12/4c	0,16	12,4	206,5	270
08340460	4 x 6,00	10/4c	0,21	15,4	298,1	398
08340470	4 x 10,00	8/4c	0,21	17,6	494,7	604
08340480	4 x 16,00	6/4c	0,21	22,7	749,7	953
08340490	4 x 25,00	4/4c	0,21	25,6	1119,8	1303
08340495	4 x 35,00	2/4c	0,21	28,9	1532,9	1750
08340496	4 x 50,00	1/4c	0,31	34,5	2144,5	2486

Other dimensions and colours are possible on request.

Customized plug-and-play solutions
from cable manufacturing to customized cable assembly from a single source

Note: DESINA® is a registered trademark of the German Machine Tool Builders' Association.

Motor connection cables

SL 835 C

symmetrical PUR motor connection cable with optimized EMC characteristics 0.6/1 kV

marking example:
SAB BRÖCKSKES · D-VIERSEN · 0835-0315 SL 835 C 3x1,5mm²+3G0,25mm² cULus AWM Style 21223 I/II A/B 80°C 1000V FT1 FT2 E172204

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	special polymer
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334 and a green-yellow earth wire
Stranding:	in layers
Wrapping:	non-woven tape
Screen:	alu foil and tinned copper braiding
Sheath material:	PUR
Sheath colour:	orange (RAL 2003)

Outstanding features:

- cULus recognized
- low capacity construction
- very good EMC characteristics
- halogen-free
- very high flexibility
- suitable for cable tracks
- very good oil resistance
- very long service life
- adhesion-free installation
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- flexible at low temperatures
- PFAS free

Technical data:

Nominal voltage:	Uo/U 0.6/1 kV
Voltage cULus:	1000 V
Testing voltage:	core/core 4000 V core/screen 4000 V
Min. bending radius *fixed laying:* *flexible application:*	 5 x d 10 x d
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **cULus:** up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, cULus FT1, FT2
Oil resistance:	very good - TMPU acc. toEN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Weather resistance:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union

EMC optimised by low capacity and earth symmetrical cable construction

item no.	dimension	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
08350315	3 x 1,50 + 3 G 0,25	0,16	9,2	76,8	121
08350325	3 x 2,50 + 3 G 0,50	0,16	11,5	138,2	202
08350340	3 x 4,00 + 3 G 0,75	0,16	12,7	197,0	264
08350360	3 x 6,00 + 3 G 1,00	0,21	14,2	263,7	341
08350370	3 x 10,00 + 3 G 1,50	0,21	16,5	430,7	523
08350380	3 x 16,00 + 3 G 2,50	0,21	19,8	649,4	772
08350390	3 x 25,00 + 3 G 4,00	0,21	22,8	973,2	1096
08350395	3 x 35,00 + 3 G 6,00	0,21	26,4	1345,8	1526
08350396	3 x 50,00 + 3 G 10,0	0,31	30,7	1926,7	2180

Other dimensions and colours are possible on request.

high symmetry and low coupling for low capacity power transmission at frequency converters

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

Feedback and transmission cables

SL 893 C

low capacity PUR incremental encoder and feedback cable with overall copper screen

AWM Style 20233 I/II A/B 80°C 300V FT1 FT2 CE

marking example:
SAB BRÖCKSKES · D-VIERSEN · 0893-0003 SL 893 C 5x2x0,25mm²+2x0,50 mm² DESINA cULus AWM Style 20233 I/II A/B 80°C 300V FT1 FT2 CE

Construction:

Conductor:	bare copper strands with reference to VDE 0812 + IEC 60228, VDE 0295, class 6
Insulation:	special polymer
Colour code:	coloured
Stranding:	cores/pairs twisted together in layer
depending on construction:	
Screen:	wrapped with tinned copper braiding
Inner Sheath:	special polymer
Wrapping:	non-woven tape or foil
Screen:	tinned copper braiding
Wrapping:	non-woven tape or foil
Sheath material:	PUR
Sheath colour:	green (RAL 6018) or orange (RAL 2003)

Outstanding features:

- cULus recognized
- low capacity construction
- good EMC characteristics
- high flexibility
- suitable for cable tracks
- very good oil resistance
- long service life
- adhesion-free installation
- halogen-free
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- PFAS free
- DESINA® colours

Technical data:

Peak operating voltage:	30 V (UL AWM Style 20236) or 300 V (UL AWM Style 20233)
Testing voltage:	core/core 600 V (at 30 V) core/screen 600 V (at 30 V) core/core 2000 V (at 300 V) core/screen 2000 V (at 300 V
Min. bending radius *fixed laying:* *flexible application:*	 5 x d 10 x d
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **cULus:** up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. cULus FT1, FT2
Oil resistance:	very good - TMPU acc. toEN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Weather resistance:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union

suitable for resolvers, encoders and position signaling cable

item no.	dimension	peak operating voltage	sheath color	outer-ø mm	copper figure kg/km	cable weight ≈ kg/km
08930001	2 x 2 x 0,15 + 2 x 0,38	30 V	green	6,8 ± 0,3	46,9	62
08930002	2 x 2 x 0,20 + 2 x 0,38	30 V	green	6,8 ± 0,3	34,9	57
08930003	5 x 2 x 0,25 + 2 x 0,50	300 V	green	8,1 ± 0,3	57,3	85
08930004	(2x0,14) C + 6 x 2 x 0,14 + 2 x 0,50	300 V	green	8,8 ± 0,3	64,2	94
08930005	3 x 2 x 0,14 + 2 x 0,38	30 V	green	7,0 ± 0,3	49,6	67
08930006	4 x 2 x 0,14 + 4 x 0,50	300 V	green	8,5 ± 0,3	56,9	104
08930007	4 x 2 x 0,25 + 2 x 0,50	300 V	orange	8,8 ± 0,3	54,7	93
08930008	4 x 2 x 0,25 + 2 x 1,0	300 V	orange	8,2 ± 0,3	63,4	93
08930009	4 x 2 x 0,38 + 4 x 0,50	30 V	green	8,9 ± 0,3	71,8	106
08930010	3 x (2x0,14) D + 4 x 0,14 + 4 x 0,22 + 2 x0,50	30 V	green	9,6 ± 0,3	72,1	108

Other dimensions and colours are possible on request.

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

Note: DESINA® is a registered trademark of the German Machine Tool Builders' Association.

Motor connection cables

for all-in-one cable systems

SAB Servo

SL 875 C

low capacity PUR hybrid motor connection cable
with overall copper screen 0.6/1 kV

RoHS PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · 08750105 SL 875 C 4G1,5mm² (1000V) + (2x1,0mm²)C (1000V) + (2x22AWG)C (1000V)
DESINA AWM Style 20910 80°C CSA AWM I/II A/B 80°C 300V FT1 FT2

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6 < 0,50 mm² with reference to VDE 0812
Insulation:	special polymer
Colour code:	**item 087501 . .** supply cores: black cores with printing core 1: U/L1/C/L+ core 2: V/L2 core 3: W/L3/D/L- and a green-yellow earth wire control cores: black cores with number 5+6 feedback: white, blue **item 087505 . .** supply cores: black, blue, brown, green-yellow control cores: white-blue, white-green feedback: white-green, brown-green + grey, pink, yellow, violet
Stranding:	control cores pairwise, **item 087501 . .** feedbackcores pairwise **item 087505 . .** feedbackcores 0.09 mm² pairwise pairs with cores 0.24 mm² in layers optimally stranded
Wrapping:	non-woven tape resp. foil
Screen:	elements with tinned copper braiding **item 087501 . .** feedbackcores additional alu foil
Wrapping:	non-woven tape resp. foil
Stranding:	screened elements and supply cores in layers optimally stranded
Wrapping:	non-woven tape
Sheath material:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 with mat surface
Sheath colour:	orange (RAL 2003)

Technical Data:

Nominal voltage:	**DIN VDE:**	supply cores Uo/U 0,6/1 kV	
Peak operating voltage:	**DIN VDE:**	control cores + feedback cores max. 500 V	
Voltage:	**UL:**		1000 V
	CSA:	≥ 0,5 mm²	1000 V
		< 0,5 mm²	300 V
Testing voltage:	supply cores + control cores feedback cores	core/core core/screen core/core core/screen	4000 V 4000 V 3000 V 3000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	5 x d 10 x d 12 x d		
Radiation resistance:	5 x 10^7 cJ/kg		
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** -50/+90 °C -40/+90 °C	**UL/CSA:** up to +80 °C	
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1		
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, CSA FT1, FT2		
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2		
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.		
Weather resistance:	very good		
Absence of harmful substances:	acc. to RoHS directive of the European Union		

Outstanding features:

- used as all-in-one cable solution in motor feedback systems
- low capacity construction
- UL recognized, CSA approval
- very good EMC characteristics
- long service life
- adhesion-free installation
- suitable for cable tracks
- halogen-free
- very good oil resistance
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- flexible at low temperatures
- PFAS free
- DESINA® colours

item no.	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
acc. to SICK HIPERFACE DSL®				
08750101	4 x 0,50 + (2 x 0,34)C + (2 x 26 AWG)C	9,8	85,2	131
08750102	4 x 0,75 + (2 x 0,34)C + (2 x 26 AWG)C	10,0	95,4	139
08750103	4 x 1,00 + (2 x 0,75)C + (2 x 22 AWG)C	11,8	155,2	199
08750104	4 x 1,50 + (2 x 0,75)C + (2 x 22 AWG)C	12,6	176,5	230
08750105	4 x 1,50 + (2 x 1,00)C + (2 x 22 AWG)C	12,8	181,7	237
08750106	4 x 2,50 + (2 x 1,00)C + (2 x 22 AWG)C	13,9	222,0	286
08750107	4 x 4,00 + (2 x 1,00)C + (2 x 22 AWG)C	15,4	292,8	376
08750108	4 x 6,00 + (2 x 1,00)C + (2 x 22 AWG)C	18,1	414,2	520
08750109	4 x 10,00 + (2 x 1,50)C + (2 x 22 AWG)C	20,0	593,3	715
08750110	4 x 16,00 + (2 x 1,50)C + (2 x 22 AWG)C	24,4	851,9	1055
acc. to HEIDENHAIN HMC6®				
08750501	4 x 0,75 + (2 x 0,34)C + (2 x 0,24 + 2 x 2 x 0,09)C	10,8	122,7	163
08750502	4 x 1,50 + (2 x 0,75)C + (2 x 0,24 + 2 x 2 x 0,09)C	12,1	171,1	219
08750503	4 x 2,50 + (2 x 1,00)C + (2 x 0,24 + 2 x 2 x 0,09)C	13,7	224,0	282
08750504	4 x 4,00 + (2 x 1,00)C + (2 x 0,24 + 2 x 2 x 0,09)C	15,4	288,2	359

Other dimensions and colours are possible on request.

all-in-one cable solution in motor feedback systems

Note: SICK HIPERFACE DSL® is a registered trademark of SICK AG. It is only used for comparative purposes.
HEIDENHAIN HMC6® is a registered trademark of Dr. Johannes Heidenhain GmbH. It is only used for comparative purposes.
DESINA® is a registered trademark of the German Machine Tool Builders' Association.

Motor connection cables

SL 891 C

low capacity combined PUR motor connection cable with overall copper screen 0.6/1 kV

marking example:
SAB BRÖCKSKES · D-VIERSEN · 0891-1415 SL 891 C 4x1,5mm²+(2x1,5mm²) cULus AWM Style 21223 I/II A/B 80°C 1000V FT1 FT2 E172204

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	SABIX®
Colour code:	**Bosch Rexroth** supply cores: black, number coded 1-3 and a green-yellow earth wire, control cores: black, number coded 5-8 **Siemens** supply cores: core 1: black, (U/L1/C/L+) core 2: black, (V/L2) core 3: black, (W/L3/D/L-) and a green-yellow earth wire control cores: black BR1, white BR2
Stranding:	control cores: twisted to pairs
Wrapping:	control cores: alu-foil
Screen:	control cores: wrapped with tinned copper braiding
Wrapping:	control cores: foil
Stranding:	screened control pairs and supply cores twisted together with fillers in layers
Wrapping:	non-woven tape
Screen:	tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 with mat surface
Sheath colour:	orange (RAL 2003)

Technical Data:

Nominal voltage:	supply cores Uo/U 0.6/1 kV		
Peak operating voltage:	control cores max. 350 V		
Voltage cULus:	1000 V		
Testing voltage:	supply cores	core/core core/screen	4000 V 4000 V
	control cores	core/core core/screen	2000 V 2000 V
Min. bending radius			
fixed laying:	4 x d		
flexible application:	7,5 x d		
Temperature range	**DIN VDE**	**cULus:** up to +80 °C	
fixed laying:	-50/+90 °C		
flexible application:	-40/+90 °C		
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1		
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, cULus FT1, FT2		
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2		
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.		
Weather resistance:	very good		
Absence of harmful substances:	acc. to RoHS directive of the European Union		

Outstanding features:

- low capacity construction
- cULus recognized
- very good EMC characteristics
- long service life
- adhesion-free installation
- high flexibility
- suitable for cable tracks
- halogen-free
- very good oil resistance
- PWIS uncritical
  (PWIS = paint-wetting impairment substance)
- flexible at low temperatures
- PFAS free
- DESINA® colours

item no.	dimension	outer-ø ± 0,80 mm	copper figure kg/km	cable weight ≈ kg/km
08910415	4 x 1,50 + 2 x (2 x 0,75)	11,4	166,5	211
08910425	4 x 2,50 + 2 x (2 x 1,00)	13,1	225,2	276
08910441	4 x 4,00 + (2 x 1,00) + (2 x 1,50)	15,0	303,2	373
08910461	4 x 6,00 + (2 x 1,00) + (2 x 1,50)	17,1	422,9	497
08910471	4 x 10,00 + (2 x 1,00) + (2 x 1,50)	19,3	581,3	692
08910485	4 x 16,00 + 2 x (2 x 1,50)	22,9	860,1	1012
08910490	4 x 25,00 + 2 x (2 x 1,50)	28,2	1240,8	1447
08911410	4 x 1,00 + (2 x 0,50)	9,0	88,2	120
08911415	4 x 1,50 + (2 x 1,50)	10,7	150,5	189
08911416	4 x 1,50 + (2 x 0,50)	9,5	108,0	142
08911425	4 x 2,50 + (2 x 1,50)	12,2	195,5	244
08911440	4 x 4,00 + (2 x 1,50)	13,6	262,1	317
08911460	4 x 6,00 + (2 x 1,50)	16,3	376,8	450
08911470	4 x 10,00 + (2 x 1,50)	18,5	544,0	657
08911480	4 x 16,00 + (2 x 1,50)	22,1	797,1	946
08911490	4 x 25,00 + (2 x 1,50)	26,2	1170,6	1354
08911495	4 x 35,00 + (2 x 1,50)	31,7	1593,3	1872
08911496	4 x 50,00 + (2 x 1,50)	35,0	2194,6	2527

Other dimensions and colours are possible on request.

BOSCH REXROTH®
DESINA
SIEMENS®

low capacity solution
for your servo drive system

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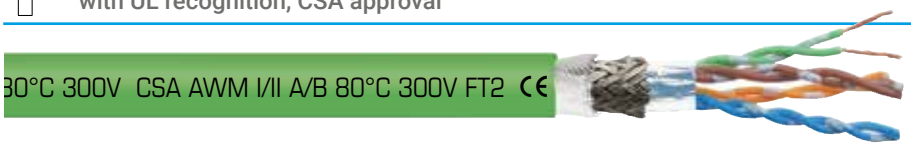
DESINA® is a registered trademark of the German Machine Tool Builders' Association.

CATLine CAT 6 RT / CAT 6A RT

CAT 6 Gigabit Ethernet cable, suitable for cable tracks and robots
with UL recognition, CSA approval



marking example:
SAB BRÖCKSKES · D-VIERSEN · CATLine Cat.7A S 4x2x26AWG 1687-4631 AWM Style 20549 80°C 300V CSA AWM I/II A/B 80°C 300V FT2

Construction:

Conductor:	bare copper strands, fine wires
Insulation:	special polymer
Colour code:	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Stranding:	cores twisted to pairs, pairs together
Wrapping:	non-woven tape
Screen:	alu foil and tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	green (similar RAL 6018)

Outstanding features:

- UL recognized, CSA approved
- suitable for cable tracks
- suitable for robots
- halogen-free
- flame retardant and self-extinguishing
- very good oil resistance
- good against aggressive chemicals
- PFAS-free

Technical data:

Peak operating voltage:	max. 90 V
Voltage UL/CSA:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 10 x d 15 x d
Torsion angle:	up to ±180°/m
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL/CSA:** up to +80 °C -40/+70 °C -40/+70 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. UL Horizontal Flame Test FT2
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Characteristic impedance (100 MHz):	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to **CATLine CAT 6 RT:** EN 50288-5-2 / CAT 6 **CATLine CAT 6A RT:** EN 50288-10-2 / CAT 6A
Flexibility:	very good
UL Style:	20549
Application:	suitable for EtherCAT- and EtherNET/IP-applications
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	type	dimension	max. core-ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
16874630	CATLine CAT 6 RT	4 x 2 x 26 AWG	1,05	7,1	32,0	57
16874631	CATLine CAT 6A RT	4 x 2 x 26 AWG	1,05	7,1	32,0	57

Other dimensions and colours are possible on request.

+90°C
on request!

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

CATLine CAT 7A RT

CAT 7A Gigabit Ethernet cable, suitable for robots with UL recognition, CSA approval

marking example:

SAB BRÖCKSKES · D-VIERSEN · CATLine Cat.7A RT 4x2x26AWG 1787-4631 AWM Style 20549 80°C 300V CSA AWM I/II A/B 80°C 300V FT2

Construction:

Conductor:	bare copper strands, fine wires
Insulation:	special polymer
Colour code:	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Stranding:	cores twisted to pairs, pairs screened with foil, pairs together
Screen:	aluminized non-woven tape and tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	green (similar RAL 6018)

Outstanding features:

- **UL recognized, CSA approved**
- **suitable for robots**
- **halogen-free**
- **flame retardant and self-extinguishing**
- **very good oil resistance**
- **good against aggressive chemicals**
- **PFAS-free**

Technical data:

Peak operating voltage:	max. 90 V
Voltage UL/CSA:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:*	 5 x d 10 x d
Torsion angle:	up to ±180°/m
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL/CSA:** up to +80 °C -40/+70 °C -40/+70 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. UL Horizontal Flame Test FT2
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Characteristic impedance (100 MHz):	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-9-2 + VDE 0819-9-2 / CAT 7A
Flexibility:	very good
UL Style:	20549
Application:	suitable for EtherCAT and EtherNET/IP applications
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	type	dimension	max. core-ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
17874631	CATLine CAT 7A RT	4 x 2 x 26 AWG	1,50	8,9	38,5	83
17874431	CATLine CAT 7A RT	4 x 2 x 24 AWG	1,60	9,3	44,0	98

Other dimensions and colours are possible on request.

+90°C on request!

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

Industrial Ethernet cables

RT PN 668 PUR Profinet cable, suitable for robots

PN 668 PUR Profinet cable type R, suitable for robots with UL recognition

2x2x22AWG 0668-9039 AWM Style 21198 80° 300V

marking example:
SAB BRÖCKSKES · D-VIERSEN · PN 668 type R 2x2x22AWG 0668-9039 AWM Style 21198 80° 300V

Construction:	RT PN 668 Profinet suitable for robots	PN 668 Profinet type R suitable for robots
Dimension:	2 x 2 x 22 AWG	
Conductor:	tinned copper strands, fine wires	
Insulation:	special polymer	
Colour code:	blue, yellow, white, orange	
Stranding:	star quad	twisted to pairs and pairs together
Wrapping:	tape	non-woven tape
Screen:	alu foil and tinned copper braiding	tinned copper braiding
Wrapping:	non-woven tape	special-non-woven tape
Sheath material:	PUR	
Sheath colour:	green (similar RAL 6018)	

Technical data:	RT PN 668 Profinet suitable for robots	PN 668 Profinet type R suitable for robots
Item number:	0668-9001	0668-9039
Peak operating voltage:	max. 350 V	max. 30 V
Voltage UL:	–	300 V
Testing voltage *core/core:* *core/screen:*	 1500 V 1200 V	 2000 V 2000 V
Min. bending radius *fixed laying:* *flexible application:*	 10 x d	 3 x d 10 x d
Temperature range *fixed laying:* *flexible application:*	 -40/+70 °C -30/+70 °C	UL: up to +80 °C -40/+70 °C -30/+70 °C
Torsion angle:	up to ±360°/m	
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1	
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2	
Characteristic impedance:	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-2-2 + VDE 0819-2-2 (CAT 5 acc. to EN 50173-1)	
UL Style:	–	21198
Application:	suitable for EtherCAT and EtherNET/IP applications	
Absence of harmful substances:	acc. to RoHS directive of the European Union	

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km	ohmic resistance at 20°C acc. to VDE 0812 max. Ω/km
06689001	RT PN 668	2 x 2 x 22 AWG	7,0	36,3	62	58,8
06689039	PN 668	2 x 2 x 22 AWG	7,8	36,7	68	58,8

Other dimensions and colours are possible on request.

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

CATLine SPE Robot

Single Pair Ethernet cable, suitable for robots with UL recognition

marking example:
SAB BRÖCKSKES · D-VIERSEN · CATLine SPE Robot 2xAWG26/7 1787-1630 AWM Style 20549 80°C 300V

Construction:

Conductor:	bare copper strands
Insulation:	special polymer
Colour code:	white, blue
Stranding:	twisted to pairs
Wrapping:	SABIX®
Screen:	alu foil and tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	green (similar RAL 6018)

Outstanding features:

- **UL recognized**
- **suitable for Power over Dataline (PoDL) from up to approx. 50 W at 48 V DC**
- **low cabling effort**
- **short latency periods**
- **small outer diameter**
- **PFAS free**
- **PWIS uncritical**
  (PWIS = paint-wetting impairment substances)

Technical data:

Peak operating voltage:	max. 90 V
Voltage UL:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 10 x d 15 x d
Torsion angle:	up to ±180°/m
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL:** up to +80 °C -40/+70 °C -40/+70 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Characteristic impedance:	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to IEC 61156-12. Bandwidth 1 - 600 MHz.
Data transfer:	1 Gbit up to 40 m
UL Style:	20549
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
17871630	CATLine SPE Robot	2 x 26/7 AWG	4,6	16,9	29
17871230	CATLine SPE Robot	2 x 22/19 AWG	5,7	22,7	40

Other dimensions and colours are possible on request.

USB 3.0 (USB 3.2 Gen 1x1) cables

transmission length up to 3 m

SAB Bus

USB 3.0 RT

USB 3.0 cable, continuously flexible with UL recognition, suitable for robots

marking example:
SAB BRÖCKSKES · D-VIERSEN · USB 3.0 RT 3x(2x28AWG)ST+2x26AWG 0604-3098
AWM Style 20549 80° 300V

Construction:

Conductor:	silver plated and tinned copper strands
Insulation:	special polymer
Colour code:	yellow, blue + orange, violet (USB 3.0), green, white (USB 2.0), red, black (power supply)
Stranding:	twisted pairs and datapairs screened, all elements together
Wrapping:	netting tape + non-woven tape
Screen:	tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	black (RAL 9005)

Technical data:

Peak operating voltage:	max. 350 V
Voltage UL:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 10 x d 15 x d
Torsion angle:	up to ±180°/m
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL:** up to +80 °C -50/+90 °C -40/+90 °C
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + EN 60332-1-2
Oil resistance:	very good, TMPU acc. to EN 50363-10-2
UL Style:	20549
Absence of harmful substances:	acc. to RoHS directive of the European Union

Outstanding features:

- UL recognized, CSA approved
- suitable for robots
- flame retardant and self-extinguishing
- very good oil resistance
- transmission length up to 3 m
- excellent transmission characteristics
- PFAS-free

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km	ohmic resistance at 20°C max.Ω/km 28 AWG	26 AWG	24 AWG
06043098	USB 3.0 RT	3 x (2 x 28 AWG)ST + 2 x 26 AWG	6,4	28,1	50	223	140	—
06043096	USB 3.0 RT	3 x (2 x 26 AWG)ST + 2 x 24 AWG	8,0	38,9	73	—	130	83,3

Other dimensions and colours are possible on request.

For transmission lengths more than 3 m, please contact us!

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

transmission length up to 10 m

SAB Bus

USB 2.0 RT UL/CSA

USB 2.0 cable, continuously flexible with UL recognition, CSA approval, suitable for cable tracks

marking example:
SAB BRÖCKSKES · D-VIERSEN · USB 2.0 ROBOTERLEIRUNG · (2x0,22mm²)ST+2x0,5mm² 0601-2022
AWM Style 21198 80°C 300V CSA AWM I/II A/B 80°C 300V FT2

Construction:

Conductor:	bare copper strands (0,50 mm²), silver plated copper (0,22 mm²)
Insulation:	SABIX®
Colour code:	black, red (0,50 mm²), white, green (0,22 mm²)
Stranding:	2 x 0,22 mm² wrapped with alu foil, together with 0,5 mm²
Wrapping:	PTFE-foil
Screen:	wrapping with tinned copper round wires
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	black (RAL 9005)

Technical data:

Peak operating voltage:	max. 350 V
Voltage UL/CSA:	300 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 7,5 x d 10 x d
Torsion angle:	up to ±180°/m
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL/CSA:** up to +80 °C -50/+90 °C -40/+90 °C
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
UL Style:	21198
Absence of harmful substances:	acc. to RoHS directive of the European Union

Outstanding features:

- UL recognized, CSA approved
- suitable for robots
- very good oil resistance
- transmission length up to 10 m
- excellent transmission characteristics
- PFAS-free

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
06012022	USB 2.0 RT UL/CSA	(2 x 0,22 mm²)ST + 2 x 0,50 mm²	7,0	34,3	64

Other dimensions and colours are possible on request.

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

Torsion cables

RT 123

PUR torsion cable, torsion angle up to ± 450° over 0.5 m

marking example:
SAB BRÖCKSKES · D-VIERSEN · 07951815 18x1,5mm² RT 123 16 AWG/18c 07951618
AWM Style 21060 80°C 600V CSA AWM I/II A/B 80°C 600V FT1 FT2

Construction:

Conductor 0,14 mm² - 0,34 mm²:	bare copper strands, extra fine wires
Conductor from 0,50 mm²:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Colour code 0,14 mm² - 0,34 mm²:	acc. to colour code US 2
Colour code from 0,50 mm²:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering with netting tape over each layer and one additional non-woven tape over the outer layer
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Sheath colour:	black (RAL 9005)

Outstanding features:

- rugged and reliable
- torsion angle up to ± 450° over 0.5 m
- UL recognized, CSA approval
- PFAS free

Technical data:

Peak operating voltage 0,14 mm² - 0,34 mm²:	max. 350 V
Nominal voltage from 0,50 mm²:	Uo/U 300/500 V
Voltage UL/CSA 0,14 mm² - 0,34 mm²:	300 V
Voltage UL/CSA from 0,50 mm²:	600 V
Testing voltage 0,14 mm² - 0,34 mm²:	core/core 1500 V
Testing voltage from 0,50 mm²:	core/core 3000 V
Torsion angle:	up to ± 450°/0.5 m
Min. bending radius *continuously flexible:* *from 34 cores:*	12 x d 20 x d
Radiation resistance:	5 x 10^7 cJ/kg
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** -50/+90 °C -40/+90 °C **UL/CSA:** up to +80 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL VW-1, CSA FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous flexibility:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
07950301	3 x 0,14	0,11	5,5	4,0	31
07950401	4 x 0,14	0,11	4,7	5,4	26
07950302	3 x 0,25	0,11	4,6	7,2	25
07950402	4 x 0,25	0,11	4,8	9,6	28
07950702	7 x 0,25	0,11	5,4	16,8	39
07952502	25 x 0,25	0,11	9,1	60,0	117
07950203	2 x 0,34	0,11	4,8	6,6	27
07951805	18 x 0,50	0,16	12,5	95,0	216
07952505	25 x 0,50	0,16	14,6	132,0	303
07950407	4 x 0,75	0,16	7,8	28,8	78
07951407	14 x 0,75	0,16	12,6	100,8	207

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
07950210	2 x 1,00	0,16	7,3	19,2	64
07950310	3 x 1,00	0,16	7,6	28,8	75
07950410	4 x 1,00	0,16	8,1	38,4	91
07950610	6 x 1,00	0,16	9,4	57,6	127
07950710	7 x 1,00	0,16	10,0	67,2	147
07951210	12 x 1,00	0,16	12,2	115,2	214
07951810	18 x 1,00	0,16	14,7	172,8	316
07952510	25 x 1,00	0,16	16,6	240,0	428
07953410	34 x 1,00	0,16	19,7	326,4	559
07954010	40 x 1,00	0,16	20,9	384,0	659
07954110	41 x 1,00	0,16	20,9	393,6	670
07950715	7 x 1,50	0,16	11,3	100,8	197
07951215	12 x 1,50	0,16	14,3	172,8	303
07951815	18 x 1,50	0,16	16,6	259,2	435
07952515	25 x 1,50	0,16	19,1	360,0	609
07950325	3 x 2,50	0,16	9,9	72,0	136
07950425	4 x 2,50	0,16	10,3	96,0	166
07950525	5 x 2,50	0,16	11,8	120,0	210
07950340	3 x 4,00	0,16	11,5	115,2	211
07950361	3 x 10,00	0,21	16,5	288,0	471
07950362	3 x 16,00	0,21	19,4	460,8	682
07950363	3 x 25,00	0,21	24,0	720,0	1035
07950364	3 x 35,00	0,21	27,2	1008,0	1389

Other dimensions and colours are possible on request.

RT 123 D

PUR torsion cable with overall copper screen, torsion angle up to ± 450° over 0.5 m

marking example:
SAB BRÖCKSKES · D-VIERSEN · 07961815 18x1,5mm² RT 123 D 16 AWG/18c 07961618
AWM Style 21060 80°C 600V CSA AWM I/II A/B 80°C 600V FT1 FT2

Construction:

Conductor 0,14 mm² - 0,34 mm²:	bare copper strands, extra fine wires
Conductor from 0,50 mm²:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Colour code 0,14 mm² - 0,34 mm²:	acc. to colour code US 2
Colour code from 0,50 mm²:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering with netting tape over each layer and one additional non-woven tape over the outer layer
Screen:	wrapped with bare copper wires
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Sheath colour:	black (RAL 9005)

Outstanding features:

- rugged and reliable
- torsion angle up to ± 450° over 0.5 m
- UL recognized, CSA approval
- PFAS free

Technical data:

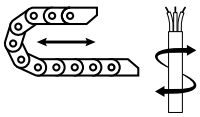
Peak operating voltage 0,14 mm² - 0,34 mm²:	max. 350 V
Nominal voltage from 0,50 mm²:	Uo/U 300/500 V
Voltage UL/CSA 0,14 mm² - 0,34 mm²:	300 V
Voltage UL/CSA from 0,50 mm²:	600 V
Testing voltage 0,14 mm² - 0,34 mm²:	core/core 1500 V core/screen 1200 V
Testing voltage from 0,50 mm²:	core/core 3000 V core/screen 2000 V
Torsion angle:	up to ± 450°/0.5 m
Min. bending radius *continuously flexible:* *from 34 cores:*	 12 x d 20 x d
Radiation resistance:	5 x 10^7 cJ/kg
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **UL/CSA:** up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	acc. to IEC 60332-1-2 + VDE 0482-332-1-2, UL VW-1, CSA FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous flexibility:	very good
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
07961201	12 x 0,14	0,11	6,9	30,2	62
07962502	25 x 0,25	0,11	10,0	90,9	156
07960505	5 x 0,50	0,16	8,2	40,5	94
07960710	7 x 1,00	0,16	10,7	108,5	178
07961215	12 x 1,50	0,16	14,9	214,7	338
07961815	18 x 1,50	0,16	17,1	326,0	496

Other dimensions and colours are possible on request.

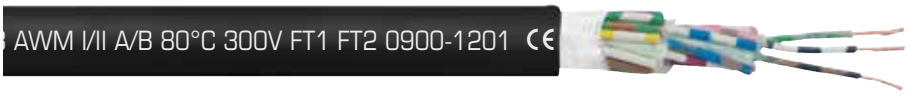
low capacity

SABFlex



SABdynamic 910 Data

continuously flexible SABIX®/PUR data cable, suitable for robots, robust, oil resistant and flame retardant with coloured cores



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SAB BRÖCKSKES · D-VIERSEN · SABdynamic 910 Data 12x0,14mm² cULus AWM Style 20233 AWM I/II A/B 80°C 300V FT1 FT2 0910-1201

Construction:

Conductor:	bare copper strands with reference to IEC 60228, VDE 0295, class 6
Insulation:	SABIX®
Colour code:	with reference to DIN 47100
Stranding:	specially adjusted layering with non-woven tape over each layer, from 23 cores twisted to pairs
Sheath material:	PUR with mat surface
Sheath colour:	black (RAL 9005)

Outstanding features:

- cULus recognized
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- suitable for robots
- low capacity
- extremely large temperature range
- halogen-free
- high abrasion resistance
- suitable for long travel
- small bending radius
- small outer diameter
- PFAS free

Technical Data:

Peak operating voltage:	max. 350 V
Voltage cULus:	300 V
Testing voltage:	core/core 2000 V
torsion cycles:	up to ± 180°/m > 10 million up to ± 360°/m > 5 million
Min. bending radius *fixed laying:* *flexible application:* *bending cycles:*	 3 x d ≤ 5 m 7,5 x d > 5 m 10 x d > 10 million
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **cULus:** up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, cULus FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous Flexibility:	very good
Sunlight resistance:	acc. to HD 605
Ozone resistance:	acc. to DIN EN 50396
Salt water resistance:	acc. to UL 1309
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
09101201	12 x 0,14	0,11	5,5	15,6	36

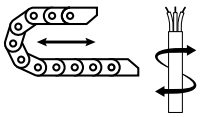
Other dimensions and colours are possible on request.

The SABdynamic 910 Data is also available as

- shielded type, twisted pairs

low capacity

SABFlex



SABdynamic 910 Control

continuously flexible SABIX®/PUR control cable, suitable for robots, robust, oil resistant and flame retardant with numbered cores

c UL us CE RoHS PFAS FREE

:

SAB BRÖCKSKES · D-VIERSEN · SABdynamic 910 Control 25G1,0mm² c UL us AWM Style 21223 AWM I/II A/B 80°C 600V FT1 FT2 0910-2510 CE

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, Klasse 6
Insulation:	SABIX®
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	specially adjusted layering with non-woven tape over each layer, from 15 cores twisted to bundles
Sheath material:	PUR with mat surface
Sheath colour:	black (RAL 9005)

Outstanding features:

- cULus recognized
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- low capacity
- suitable for robots
- extremely large temperature range
- halogen-free
- high abrasion resistance
- suitable for long travel
- small bending radius
- small outer diameter
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Voltage cULus:	600 V
Testing voltage:	core/core 2000 V
torsion cycles:	up to ± 180°/m > 10 million up to ± 360°/m > 5 million
Min. bending radius *fixed laying:* *flexible application:* *bending cycles:*	 3 x d ≤ 5 m 7,5 x d > 5 m 10 x d > 10 million
Temperature range *fixed laying:* *flexible application:*	**DIN VDE** **cULus:** up to +80 °C -50/+90 °C -40/+90 °C
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, cULus FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Continuous Flexibility:	very good
Sunlight resistance:	acc. to HD 605
Ozone resistance:	acc. to DIN EN 50396
Salt water resistance:	acc. to UL 1309
Absence of harmful substances:	acc. to RoHS directive of the European Union

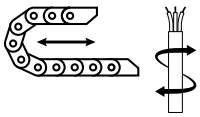
item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
09100205	2 x 0,50	0,16	4,7	9,6	26
09102505	25 x 0,50	0,16	14,4	120,0	264
09100407	4 x 0,75	0,16	5,8	28,8	49
09100507	5 x 0,75	0,16	6,3	36,0	60
09100707	7 x 0,75	0,16	7,4	50,4	77
09101207	12 x 0,75	0,16	8,9	86,4	121
09101807	18 x 0,75	0,16	13,8	129,6	238
09102507	25 x 0,75	0,16	15,7	180,0	321
09100210	2 x 1,00	0,16	5,3	19,2	38
09100710	7 x 1,00	0,16	7,8	67,2	102
09101210	12 x 1,00	0,16	9,3	115,2	151

item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
09101810	18 x 1,00	0,16	15,1	172,8	302
09102510	25 x 1,00	0,16	16,8	240,0	395
09103610	36 x 1,00	0,16	20,0	345,6	568
09100215	2 x 1,50	0,16	5,9	28,8	50
09100315	3 x 1,50	0,16	6,2	43,2	64
09100415	4 x 1,50	0,16	6,7	57,6	81
09100715	7 x 1,50	0,16	8,6	100,8	140
09101515	15 x 1,50	0,16	15,6	216,0	338
09102515	25 x 1,50	0,16	19,1	360,0	549
09103415	34 x 1,50	0,16	22,7	489,6	753
09100425	4 x 2,50	0,16	8,5	96,0	130

Other dimensions and colours are possible on request.

The SABdynamic 910 Control is also available as

- shielded type



HV Robot

highly flexible **SABIX®**/PUR high-voltage single conductor
with overall copper screen and cULus recognition

Nominal voltage up to
Uo/U 1,8/3,0 kV AC
Uo/U 2,7/5,4 kV DC

c UL us RoHS PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · HV Robot Uo/U 1,8/3 kV 95,0mm² c UL us AWM Style 12150 AWM I/II A/B 80°C 2000V FT1 FT2

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 6
Insulation:	SABIX®
Wrapping:	non-woven tape
Screen:	tinned copper braiding
Wrapping:	non-woven tape
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Sheath colour:	orange (RAL 2003)

Outstanding features:

- extremely flexible
- cULus recognized
- good EMC characteristics
- halogen-free
- flexible at low temperatures
- heat resistant
- flame retardant and self-extinguishing
- weather resistant
- high protection against environmental influences
- extremely high mechanical resistance
- 100% oil resistance acc. to standard
- suitable for cable tracks and robots
- PWIS uncritical
  (PWIS = paint-wetting impairment substances)
- PFAS free

Technical data:

Nominal voltage:	Uo/U 1,8/3,0 kV AC Uo/U 2,7/5,4 kV DC
Voltage cULus:	2000 V
Testing voltage:	6500 V
Current-carrying capacity:	acc. to VDE 0298-4
Min. bending radius *fixed laying:* *flexible application:*	 3 x d 6 x d
Temperature range *fixed laying:* *flexible application:* *limited:*	**DIN VDE** **cULus:** up to +80 °C -50/+90 °C -40/+90 °C +100 °C / 10000 h +125 °C / 2000 h
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1
Fire performance:	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, cULus FT1, FT2
Oil resistance:	very good - TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Chem. resistance:	good against acids, alkalines, solvents, hydraulic liquids etc.
Hydrolysis and microbial resistance:	very good acc. to EN 50363-10-2 + VDE 0207-363-10-2
Weather resistance:	very good acc. to HD 605
Salt water resistance:	very good acc. to UL 1309
Ozone resistance:	very good acc. to DIN EN 50396
MUD resistance:	very good - acc. to IEC 60092-360, IEC 61892-4, NEK TS 606
Mechanical characteristics:	the main mechanical characteristics accomplished by the PUR outer sheath are: - high tensile strength - high tear strength - high abrasion resistance - high notch resistance - high transverse strength
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	nominal cross-section mm²	largest single wire ø mm	outer-ø max. mm	copper figure kg/km	cable weight ≈ kg/km	ohmic resistance at 20°C acc. to VDE 0812 max. Ω/km
39142507	25,0	0,21	12,8	300,7	346	0,78
39143507	35,0	0,21	14,6	403,4	466	0,554
39145007	50,0	0,31	16,5	580,0	654	0,386
39147007	70,0	0,31	19,0	786,9	876	0,272
39149507	95,0	0,31	22,6	1050,0	1179	0,206
39141207	120,0	0,31	24,2	1309,9	1438	0,161

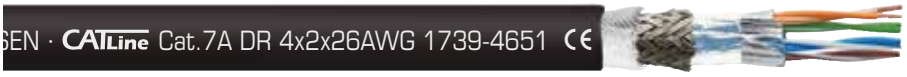
Other dimensions and colours are possible on request.

Industrial Ethernet cables

CATLine CAT 5e DR
reeling CAT 5e Industrial Ethernet cable

CATLine CAT 6A DR
reeling CAT 6A Gigabit Ethernet cable

CATLine CAT 7A DR
reeling CAT 7A Gigabit Ethernet cable



marking example:
SAB BRÖCKSKES · D-VIERSEN · CATLine Cat.7A DR 4x2x26AWG 1739-4651 CE

Construction:	CATLine CAT 5e DR reeling Ethernet cable	CATLine CAT 6A DR reeling Ethernet cable	CATLine CAT 7A DR reeling Ethernet cable
Dimension:	4 x 2 x 26 AWG		
Conductor:	bare copper strands, fine wires		
Insulation:	special polymer		
Colour code:	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown		
Stranding:	cores twisted to pairs, pairs together		cores twisted to pairs, pairs screened with foil, pairs together
Wrapping:	non-woven tape		–
Screen:	alu foil and tinned copper braiding		aluminized non-woven tape and tinned copper braiding
Wrapping:	non-woven tape		
Sheath material:	PUR / supporting braid / PUR		
Sheath colour:	black (RAL 9005)		

Technical data:	CATLine CAT 5e DR reeling Ethernet cable	CATLine CAT 6A DR reeling Ethernet cable	CATLine CAT 7A DR reeling Ethernet cable
Item number:	1539-4651	1639-4651	1739-4651
Peak operating voltage:	max. 90 V		
Testing voltage *core/core:* *core/screen:*	 750 V 750 V		
Min. bending radius:	for laying and installation (fixed laying): 5 x d for repeated winding action (flexible application): 10 x d guided on pulleys (flexible application): 12 x d		
Temperature range *fixed laying:* *flexible application:*	 -50/+90 °C -40/+90 °C		
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1		
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2		
Characteristic impedance:	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-2-2 / CAT 5	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-10-2 / CAT 6A	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-9-2 / CAT 7A
Weather resistance:	very good		
Application:	suitable for EtherCAT and EtherNET/IP applications		
Absence of harmful substances:	acc. to RoHS directive of the European Union		

item no.	type	dimension	max. core-ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km	tensile strength max. N
15394651	CATLine CAT 5e DR	4 x 2 x 26 AWG	1,05	8,5	32,0	79	200
16394651	CATLine CAT 6A DR	4 x 2 x 26 AWG	1,05	8,5	32,0	81	200
17394651	CATLine CAT 7A DR	4 x 2 x 26 AWG	1,05	10,5	38,5	117	200

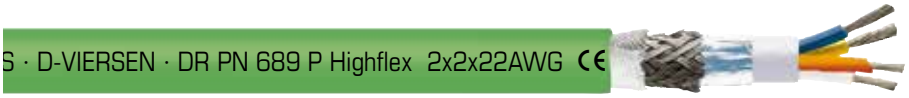
Other dimensions and colours are possible on request.

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

DR PN 689 P Highflex

reeling PUR Profinet cable / CAT 5 cable



marking example:
SAB BRÖCKSKES · D-VIERSEN · DR PN 689 P Highflex 2x2x22AWG CE

Construction:	DR PN 689 P Highflex reeling Profinet cable	DR PN 689 P Highflex reeling CAT 5 cable
Dimension:	2 x 2 x 22 AWG	4 x 2 x 26 AWG
Conductor:	tinned copper strands, fine wires	
Insulation:	SABIX®	
Colour code:	blue, yellow, white, orange	blue, orange, green, brown + 4 white cores with consecutive numbers
Stranding:	in layers	twisted to pairs and pairs together
Wrapping:	PETP-foil	
Inner sheath:	SABIX®	
Screen:	alu foil and tinned copper braiding	
Wrapping:	non-woven tape	
Sheath material:	PUR / supporting braid / PUR	
Sheath colour:	green (similar RAL 6018)	black (similar RAL 9005)

Technical data:	DR PN 689 P Highflex reeling Profinet cable	DR PN 689 P Highflex reeling CAT 5 cable
Item number:	0689-2202	0689-9001
Peak operating voltage:	max. 350 V	
Testing voltage *core/core:* *core/screen:*	 1500 V 1200 V	
Min. bending radius:	for laying and installation (fixed laying): 5 x d for repeated winding action (flexible application): 10 x d guided on pulleys (flexible application): 12 x d	
Temperature range *fixed laying:* *flexible application:*	 -40/+90 °C -30/+90 °C	
Halogen-free:	acc. to IEC 60754-1 + VDE 0482-754-1	
Oil resistance:	TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2	
Characteristic impedance:	100Ω ± 10Ω, fulfils the electrical and transmission requirements with high frequency with reference to EN 50288-2-2 + VDE 0819-2-2 (CAT 5 acc. to EN 50173-1)	
Application:	suitable for EtherCAT and EtherNET/IP applications	
Absence of harmful substances:	acc. to RoHS directive of the European Union	

item no.	type	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km	ohmic resistance at 20°C acc. to VDE 0812 max. Ω/km	tensile strength max. N	characteristic impedance
06892202	DR PN 689 P Highflex	2 x 2 x 22 AWG	8,2	36,2	83	58,8	200	100Ω
06899001	DR PN 689 P Highflex	4 x 2 x 26 AWG	8,7	34,3	85	139	200	100Ω

Other dimensions and colours are possible on request.

Customized plug-and-play solutions

from cable manufacturing to customized cable assembly from a single source

SPECIAL CABLES

SAB BRÖCKSKES

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