Cables for Railway Technology

SPECIAL CABLES
SAB BRÖCKSKES

Cables for Railway Technology

Content

In case that you don't find a suitable cable for your special application, we are always prepared to design a cable according to your individual construction requirements.

Fire protection requirements EN 45545-2

Extract from EN 45545-2 table 5 Requirement set R15 (EL1A) for the respective hazard levels						
Short name of requireme nt set (used for)	**Test methode reference**	**Parameter Unit**	**Maximum or Minimum**	**HL1**	**HL2**	**HL3**
R15 (EL1A)	T09.01 EN 60332-1-2	Unbured length mm	Minimum	burned part ≤ 540 and unburned part > 50	burned part ≤ 540 and unburned part > 50	burned part ≤ 540 and unburned part > 50
	T09.02 EN IEC 60332-3-24 (for d ≥ 12 mm)	Height of the charred area on the front and back m	Maximum	2,5	2,5	2,5
	T09.03 EN 50305 (for 6 mm < d < 12 mm)	Height of the charred area on the front and back m	Maximum	2,5	2,5	2,5
	T09.04 EN 50305 (for d ≤ 6 mm)	Height of the charred area on the front and back m	Maximum	1,5	1,5	1,5
	T13 EN 61034-2	Transmission %	Minimum	25	50	70
	T15 EN 50305	*ITC* dimensionless	Maximum	10	10	6

Extract from EN 45545-2 table 1 Hazard level classification (HL)				
Operation category	**Design category**			
	N: Standard vehicles	**A: Vehicles forming part of an automatic train having no emergency trained staff on board**	**D: Double decked vehicles**	**S: Sleeping and couchette vehicles**
1	HL1	HL1	HL1	HL2
2	HL2	HL2	HL2	HL2
3	HL2	HL2	HL2	HL3
4	HL3	HL3	HL3	HL3

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

Family business in its third generation

1947 - 1989
Peter Bröckskes sen.

Visionary with a thirst for action: Peter Bröckskes Senior was a successful company founder with determination, hard work and a pioneering spirit. He started in 1947 as a one-man alarm system company and continuously developed new products. In the course of his entrepreneurial career, he overcame setbacks and repeatedly managed to recognise gaps in the market and develop new products.

1989 - 2017
Peter Bröckskes

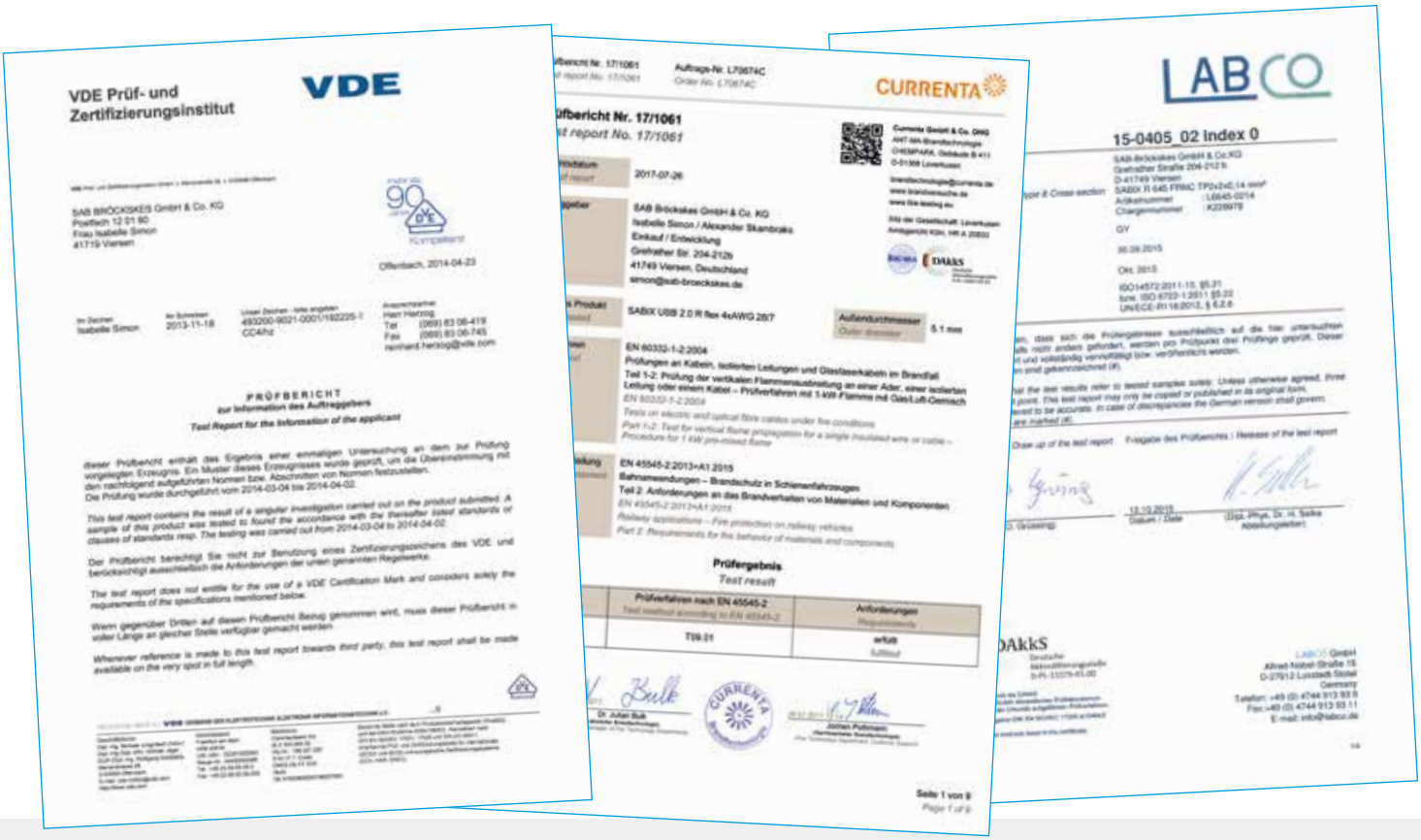
After studying business administration, Peter Bröckskes joined the company in 1980 as sales manager and took over the management in 1989. Under his leadership, the company's strategy shifted away from trading to speciality cable manufacturing and problem solving. Despite economic challenges, the company grows.

since 2011
Sabine Bröckskes-Wetten

In the summer of 2000, Sabine Bröckskes-Wetten began her training as a cable production mechanic at SAB Bröckskes. After completing her studies in industrial engineering, Sabine Bröckskes-Wetten rejoined the company in 2007. She becomes head of the production department and later has overall responsibility for the technical area. In 2011, she became the owner of the company and successfully focussed on expansion, quality and service.

Cables for Railway Technology

Test results



Good results are not determined by luck and chance, but rather by years of experience, sophisticated technology, technical expertise and the ability to develop and test new things and improve existing ones. We are **constantly developing and refining** our products in order to round off our range of services and consolidate and expand our position in the market.

With our extensive testing and inspection machines, we ensure that our products are **intensively tested** and **checked** before they are ready for the market. Further tests are often carried out in cooperation with our customers and partners under real conditions at the place of use.

SAB Bröckskes has all the test procedures required by the VDE as well as numerous international certifications. In addition, we use many other test facilities, such as the self-developed alternating bending test machine for extreme hardness and long-term tests. We are convinced of the quality of our products and this is one of the ways we create trust with our customers.

TESTING

CHECKING

Selection table

Cables for Railway Technology acc. to EN 45545-2

	Cable type	SABIX® A 146 FRNC	SABIX® A 156 FRNC	SABIX® R 600 FRNC	SABIX® R 638 FRNC	SABIX® R 605 FRNC	SABIX® R 615 FRNC	SABIX® R 645 FRNC TP	SABIX® R flex	SAB RailLine 560	SABIX® A 280 FRNC X	SABIX® A 285 FRNC X	SABIX® A 280 FRNC X (FR)	CATLine CAT 5e R CATLine CAT 6A R CATLine CAT 7A R	CATLine CAT 5e R flex CATLine CAT 6A R flex CATLine CAT 7A R flex	SABIX® USB 2.0 R flex	SABIX® R flex Data IQ	R 107
Applications	single conductor	●	●								●							●
	multi-core cable			●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	screened				●		●	●	●	●		●		●	●	●	●	
	wiring cable	●	●								●							
	data cable					●	●	●									●	
	control cable			●	●				●	●	●	●	●					
	Ethernet cable													●	●			
	USB 3.0 resp. 2.0 cable															●	●	
	cross linked type									●	●	●	●					
Standards	tested acc. to EN 45545-2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Halogen-free	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to DIN EN 50267-2-1. pH-value is > 4,3 acc. to DIN EN 50267-2-2. Conductivity is < 10,0 µS/mm acc. to DIN EN 50267-2-2. Fluoric content < 0,1% acc. to DIN EN 60684-2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fire performance	no flame propagation acc. to IEC 60332-3-24, IEC 60332-3-25 + EN 50305 section 9.1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	flame retardant acc. to UL 1685 section 12, FT4/IEEE 1202 (NFPA 130)					●	●	●										
	burning test acc. to ASTM E 162-09						●	●										
	flame retardant acc. to ISO 6722 (UN/ECE R118)	●	●	●	●	●	●	●	●	●							●	
	insulation integrity in case of fire acc. to EN 50200 PH 30, VDE 0482-200, IEC 60331-21 FE 180 + VDE 0482-331-21												●				●	
	toxicity acc. to EN 50305 + VDE 0260-305	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	smoke density acc. to IEC 61034 + VDE 0482-1034	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	smoke density acc. to ASTM E 662-09				●	●												
	oil and fuel resistance acc. to EN 50264-1 + VDE 0260-264-1								●	●					●	●	●	
	good ozone, UV and weather resistance								●	●							●	●
Temperature range fixed laying*	+250 °C																	●
	+180 °C																	
	+125 °C																	
	+ 90 °C																	
	+ 70 °C																	
	– 40 °C																	
	– 50 °C																	
Voltage	peak operating voltage max. 30 V															●		
	peak operating voltage max. 90 V													●	●		●	
	peak operating voltage: < 0,25 mm² = max. 350 V ≥ 0,25 mm² = max. 500 V					●	●	●										
	nominal voltage Uo/U 300/500 V	●		●	●				●	●	●	●	●					
	nominal voltage Uo/U 450/750 V		●															
	nominal voltage Uo/U 0,6/1 kV									●								
	nominal voltage Uo/U 1,8/3 kV																	●
	testing voltage 600 V															●		
	testing voltage 1500 V					●	●	●						●	●			
	testing voltage 2000 V	●							●	●	●	●	●					
	testing voltage 2500 V		●														●	
	testing voltage 3000 V			●	●													
	testing voltage 4000 V									●								
	testing voltage 6500 V																	●

from / to

short time use

*The temperature range for flexible application is mentioned on the corresponding catalogue page

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SABIX® A 146 FRNC wiring cable 300/500 V
SABIX® A 156 FRNC wiring cable 450/750 V

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® A 146 FRNC 300/500 V 0,5 mm² CE

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 5
Insulation:	SABIX®
Colour code:	see table*

Outstandiung features:

- halogen-free
- no flame propagation
- flame retardant and self-extinguishing
- very good stripping
- flexible
- fulfils fire protection requirements R15 (EL1A) acc. to EN 45545-2 for hazard levels HL1-3
- flame retardant acc. to UN/ECE R118
- PFAS free

Technical Data:

	SABIX® A 146 FRNC:	SABIX® A 156 FRNC:
Nominal voltage:	Uo/U 300/500 V	Uo/U 450/750 V
Testing voltage:	2000 V	2500 V
Min. bending radius: For one single bend:	7,5 x d 5 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	
complementary for railway technology:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2	
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)	
Corrosiveness of conflagration gases:	in compliance with IEC 60754-2 + VDE 0482-754-2 - no development of corrosive conflagration gases	
Smoke density:	acc. to IEC 61034 + VDE 0482-1034	
Flexibility:	good	
Absence of harmful substances:	acc. to RoHS directive of the European Union	

SABIX® A 146 FRNC

item no.	nominal cross-section mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
6146 .. 50*	0,50	0,21	2,1	4,8	9
6146 .. 75*	0,75	0,21	2,4	7,2	12
6146 .. 80*	1,00	0,21	2,5	9,6	14

Other dimensions and colours are possible on request.

*** Colour code for single conductors, position 5 and 6 of the item no.:**

01 = black	07 = violet
02 = blue	08 = white
03 = brown	09 = orange
04 = grey	11 = red
05 = yellow	16 = gentian blue
06 = green	27 = green-yellow

SABIX® A 156 FRNC

item no.	nominal cross-section mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
6156 .. 82*	1,50	0,26	3,0	14,4	20
6156 .. 84*	2,50	0,26	3,6	24,0	32
6156 .. 86*	4,00	0,31	4,2	38,4	48
6156 .. 87*	6,00	0,31	4,7	57,6	67
6156 .. 88*	10,00	0,41	6,3	96,0	117
6156 .. 89*	16,00	0,41	8,0	153,6	181
6156 .. 90*	25,00	0,41	9,9	240,0	292
6156 .. 91*	35,00	0,41	11,1	336,0	394
6156 .. 92*	50,00	0,41	12,6	480,0	563
6156 .. 93*	70,00	0,41	14,8	672,0	751
6156 .. 94*	95,00	0,51	18,2	912,0	1034
6156 .. 95*	120,00	0,51	19,7	1152,0	1241
6156 .. 96*	150,00	0,51	21,8	1440,0	1544
6156 .. 97*	185,00	0,51	23,2	1776,0	1866
6156 .. 98*	240,00	0,51	26,9	2304,0	2507
6156 .. 99*	300,00	0,51	30,0	2880,0	3125

Other dimensions and colours are possible on request.

On request
with tinned copper strands

Cables for Railway Technology

SABIX® R 600 FRNC

SABIX® Rail Control with numbered cores

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R 600 FRNC 12 x 1,5 mm²

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 5
Insulation:	special SABIX®
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	in layers
Sheath material:	special SABIX®
Sheath colour:	grey (RAL 7000)

Outstandiung features:

- halogen-free
- no flame propagation
- flame retardant and self-extinguishing
- fulfils fire protection requirements R15 (EL1A) acc. to EN 45545-2 for hazard levels HL1-3
- flame retardant acc. to UN/ECE R118
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	core/core 3000 V
Min. bending radius *fixed laying:* *flexible application:*	 4 x d 6 x d
Temperature range *fixed laying:* *flexible application:*	 -40/+90 °C -30/+90 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034
Flexibility:	good
Absence of harmful substances:	acc. to RoHS directive of the European Union

Tested at reference types.

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
66000205	2 x 0,50	0,21	4,8	9,6	33
66000305	3 x 0,50	0,21	5,1	14,4	38
66000405	4 x 0,50	0,21	5,5	19,2	46
66000505	5 x 0,50	0,21	6,2	24,0	57
66000705	7 x 0,50	0,21	6,7	33,6	69
66001005	10 x 0,50	0,21	8,6	48,0	96
66001205	12 x 0,50	0,21	9,1	57,6	110
66001805	18 x 0,50	0,21	10,7	86,4	169
66002505	25 x 0,50	0,21	12,9	120,0	221
66003205	32 x 0,50	0,21	14,0	153,6	287
66000207	2 x 0,75	0,21	5,4	14,4	44
66000307	3 x 0,75	0,21	5,7	21,6	51
66000407	4 x 0,75	0,21	6,4	28,8	63
66000507	5 x 0,75	0,21	7,0	36,0	77
66000707	7 x 0,75	0,21	7,8	50,4	96
66001007	10 x 0,75	0,21	10,0	72,0	144
66001207	12 x 0,75	0,21	10,5	86,4	163
66001807	18 x 0,75	0,21	12,4	129,6	230
66002507	25 x 0,75	0,21	15,1	180,0	316
66003207	32 x 0,75	0,21	16,4	230,4	388
66000210	2 x 1,00	0,21	5,6	19,2	50
66000310	3 x 1,00	0,21	6,1	28,8	62
66000410	4 x 1,00	0,21	6,6	38,4	76
66000510	5 x 1,00	0,21	7,5	48,0	94
66000710	7 x 1,00	0,21	8,1	67,2	117
66001010	10 x 1,00	0,21	10,6	96,0	172
66001210	12 x 1,00	0,21	10,9	115,2	196
66001810	18 x 1,00	0,21	12,9	172,8	280
66002510	25 x 1,00	0,21	15,7	240,0	381
66003210	32 x 1,00	0,21	17,1	307,2	486
66000215	2 x 1,50	0,26	6,4	28,8	69
66000315	3 x 1,50	0,26	6,8	43,2	81
66000415	4 x 1,50	0,26	7,6	57,6	99
66000515	5 x 1,50	0,26	8,3	72,0	124

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
66000715	7 x 1,50	0,26	9,2	100,8	170
66001015	10 x 1,50	0,26	12,0	144,0	229
66001215	12 x 1,50	0,26	12,4	172,8	263
66001815	18 x 1,50	0,26	14,8	259,2	289
66002515	25 x 1,50	0,26	18,0	360,0	537
66003215	32 x 1,50	0,26	19,5	460,8	661
66000225	2 x 2,50	0,26	7,8	48,0	105
66000325	3 x 2,50	0,26	8,9	72,0	127
66000425	4 x 2,50	0,26	9,2	96,0	155
66000525	5 x 2,50	0,26	10,1	120,0	199
66000725	7 x 2,50	0,26	11,2	168,0	252
66001025	10 x 2,50	0,26	14,8	240,0	362
66001225	12 x 2,50	0,26	15,3	288,0	416
66001825	18 x 2,50	0,26	18,2	432,0	615
66002525	25 x 2,50	0,26	22,3	600,0	837
66000340	3 x 4,00	0,31	9,7	115,2	185
66000440	4 x 4,00	0,31	10,8	153,6	234
66000540	5 x 4,00	0,31	12,1	192,0	290
66000740	7 x 4,00	0,31	13,4	268,8	375
66000360	3 x 6,00	0,31	11,4	172,8	270
66000460	4 x 6,00	0,31	12,7	230,4	336
66000560	5 x 6,00	0,31	14,2	288,0	415
66000760	7 x 6,00	0,31	15,7	403,2	545
66000461	4 x 10,0	0,41	16,7	384,0	579
66000561	5 x 10,0	0,41	18,6	480,0	740
66000761	7 x 10,0	0,41	20,7	672,0	960
66000462	4 x 16,0	0,41	20,6	614,4	887
66000562	5 x 16,0	0,41	23,0	768,0	1105
66000762	7 x 16,0	0,41	25,5	1075,2	1445
66000463	4 x 25,0	0,41	24,9	960,0	1388
66000563	5 x 25,0	0,41	28,1	1200,0	1750
66000464	4 x 35,0	0,41	28,8	1344,0	1927
66000564	5 x 35,0	0,41	32,5	1680,0	2413

Other dimensions and colours are possible on request.

Cables for Railway Technology

SABIX® R 638 FRNC

SABIX® Rail Control with numbered cores and overall copper screen

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R 638 FRNC 5 x 1,5 mm²

Construction:

Conductor:	bare copper strands acc. to IEC 60228, VDE 0295, class 5
Insulation:	special SABIX®
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	in layers
Wrapping:	foil
Screen:	tinned copper braiding
Sheath material:	special SABIX®
Sheath colour:	grey (RAL 7000)

Outstandiung features:

- halogen-free
- good EMC characteristics
- no flame propagation
- flame retardant and self-extinguishing
- fulfils fire protection requirements R15 (EL1A) acc. to EN 45545-2 for hazard levels HL1-3
- flame retardant acc. to UN/ECE R118
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	core/core 3000 V core/screen 2000 V
Min. bending radius *fixed laying:* *flexible application:*	 5 x d 10 x d
Temperature range *fixed laying:* *flexible application:*	 -40/+90 °C -30/+90 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034
Flexibility:	good
Absence of harmful substances:	acc. to RoHS directive of the European Union

Tested at reference types.

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
66380205	2 x 0,50	0,21	5,3	25,5	38
66380305	3 x 0,50	0,21	5,6	30,7	45
66380405	4 x 0,50	0,21	6,2	48,0	61
66380505	5 x 0,50	0,21	6,7	55,9	70
66380705	7 x 0,50	0,21	7,2	71,1	81
66381205	12 x 0,50	0,21	9,6	108,1	150
66381805	18 x 0,50	0,21	11,4	143,5	206
66382505	25 x 0,50	0,21	13,8	189,7	272
66380207	2 x 0,75	0,21	6,1	31,1	50
66380307	3 x 0,75	0,21	6,4	50,6	61
66380407	4 x 0,75	0,21	6,9	61,1	73
66380507	5 x 0,75	0,21	7,7	73,7	96
66380707	7 x 0,75	0,21	8,3	90,9	121
66381207	12 x 0,75	0,21	11,2	142,4	193
66381807	18 x 0,75	0,21	13,3	197,9	280
66382507	25 x 0,75	0,21	16,2	284,6	395
66380210	2 x 1,00	0,21	6,3	48,0	56
66380310	3 x 1,00	0,21	6,6	58,2	68
66380410	4 x 1,00	0,21	7,1	75,7	94
66380510	5 x 1,00	0,21	8,0	86,1	110
66380710	7 x 1,00	0,21	8,6	108,2	138
66381210	12 x 1,00	0,21	11,8	172,1	226
66381810	18 x 1,00	0,21	13,8	242,1	315
66382510	25 x 1,00	0,21	16,8	346,5	454

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
66380215	2 x 1,50	0,26	6,9	60,7	63
66380315	3 x 1,50	0,26	7,2	80,5	90
66380415	4 x 1,50	0,26	8,1	95,6	110
66380515	5 x 1,50	0,26	9,0	113,2	135
66380715	7 x 1,50	0,26	9,7	151,2	178
66381215	12 x 1,50	0,26	13,9	240,8	300
66381815	18 x 1,50	0,26	15,7	362,3	454
66382515	25 x 1,50	0,26	19,1	492,1	613
66380225	2 x 2,50	0,26	8,3	86,3	100
66380325	3 x 2,50	0,26	9,0	113,0	128
66380425	4 x 2,50	0,26	9,7	146,2	163
66380525	5 x 2,50	0,26	11,0	175,0	215
66380725	7 x 2,50	0,26	12,1	225,1	276
66381225	12 x 2,50	0,26	16,4	392,0	466
66381825	18 x 2,50	0,26	19,3	564,1	666
66382525	25 x 2,50	0,26	23,4	770,1	931
66380440	4 x 4,00	0,31	11,5	210,7	250
66380540	5 x 4,00	0,31	12,8	260,0	309
66380460	4 x 6,00	0,31	13,6	298,4	353
66380560	5 x 6,00	0,31	15,1	358,7	420
66380461	4 x 10,00	0,41	17,8	517,1	616
66380462	4 x 16,00	0,41	21,9	756,0	917

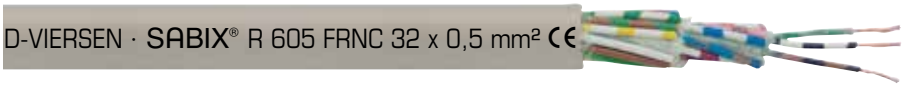
Other dimensions and colours are possible on request.

SABIX® R 605 FRNC

SABIX® Rail Data

EN 45545-2 · NFPA 130 · UN / ECE R118 · SAB Rail

CE RoHS PFAS FREE



marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R 605 FRNC 32 x 0,5 mm² CE

Construction:

Conductor:	bare copper strands with reference to IEC 60228, VDE 0295, class 5
Insulation:	special SABIX®
Colour code:	with reference to DIN 47100
Stranding:	in layers
Sheath material:	special SABIX®
Sheath colour:	grey (RAL 7032)

Outstandiung features:

- halogen-free
- no flame propagation
- flame retardant and self-extinguishing
- fulfils fire protection requirements R15 (EL1A) acc. to EN 45545-2 for hazard levels HL1-3
- fulfils fire protection requirements acc. to NFPA 130 section 8.6.7.1.1.1 and section 12.2.1 (1)
- flame retardant acc. to UN/ECE R118
- PFAS free

Technical Data:

Peak operating voltage:	< 0.25 mm² = max. 350 V ≥ 0.25 mm² = max. 500 V
Testing voltage:	core/core 1500 V
Min. bending radius *fixed laying:* *flexible application:*	 5 x d 10 x d
Temperature range *fixed laying:* *flexible application:*	 -40/+90 °C -30/+90 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to UL 1685 section 12, FT4/IEEE 1202. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034
Flexibility:	good
Absence of harmful substances:	acc. to RoHS directive of the European Union

Tested at reference types.

item no.	no. of cores x cross section n x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
66050214	2 x 0,14	3,1	2,7	13
66050314	3 x 0,14	3,3	4,0	15
66050414	4 x 0,14	3,5	5,4	18
66050514	5 x 0,14	3,8	6,7	21
66050714	7 x 0,14	4,1	9,4	25
66050814	8 x 0,14	5,0	10,8	32
66051214	12 x 0,14	5,3	16,1	38
66051414	14 x 0,14	5,5	18,8	42
66051614	16 x 0,14	6,0	21,5	51
66051814	18 x 0,14	6,3	24,2	56
66052114	21 x 0,14	6,9	28,2	65
66052414	24 x 0,14	7,3	32,3	70
66052714	27 x 0,14	7,7	36,3	80
66053014	30 x 0,14	7,9	40,3	86
66053214	32 x 0,14	8,2	43,0	92
66053614	36 x 0,14	8,5	48,4	101
66054014	40 x 0,14	9,1	53,8	112
66054414	44 x 0,14	9,5	59,1	119
66055014	50 x 0,14	10,3	67,2	142
66056114	61 x 0,14	10,9	82,0	165
66050225	2 x 0,25	3,4	4,8	17
66050325	3 x 0,25	3,6	7,2	20
66050425	4 x 0,25	3,9	9,6	24
66050525	5 x 0,25	4,2	12,0	29
66050725	7 x 0,25	4,6	16,8	35
66050825	8 x 0,25	5,2	19,2	43
66051225	12 x 0,25	6,1	28,8	57
66051425	14 x 0,25	6,4	33,6	64
66051625	16 x 0,25	6,7	38,4	72

item no.	no. of cores x cross section n x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
66051825	18 x 0,25	7,1	43,2	80
66052125	21 x 0,25	7,9	50,4	96
66052425	24 x 0,25	8,4	57,6	104
66052725	27 x 0,25	8,6	64,8	114
66053025	30 x 0,25	8,9	72,0	125
66053225	32 x 0,25	9,2	76,8	132
66053625	36 x 0,25	10,0	86,4	156
66054025	40 x 0,25	10,6	96,0	173
66054425	44 x 0,25	11,1	105,6	184
66055025	50 x 0,25	11,6	120,0	204
66056125	61 x 0,25	12,3	146,4	241
66050234	2 x 0,34	4,0	6,5	24
66050334	3 x 0,34	4,2	9,8	27
66050434	4 x 0,34	4,6	13,1	33
66050534	5 x 0,34	5,0	16,3	40
66050734	7 x 0,34	5,5	22,8	49
66050834	8 x 0,34	6,5	26,1	63
66051234	12 x 0,34	7,3	39,2	80
66051434	14 x 0,34	7,9	45,7	94
66051634	16 x 0,34	8,3	52,2	106
66051834	18 x 0,34	8,8	58,8	117
66052134	21 x 0,34	10,0	68,5	146
66052434	24 x 0,34	10,6	78,3	157
66052734	27 x 0,34	10,8	88,1	172
66053034	30 x 0,34	11,2	97,9	187
66053234	32 x 0,34	11,6	104,4	199
66053634	36 x 0,34	12,1	117,5	220
66054034	40 x 0,34	12,9	130,6	244
66054434	44 x 0,34	13,5	143,6	261

NFPA 130 / FT4 only up to outer-ø < 13 mm.

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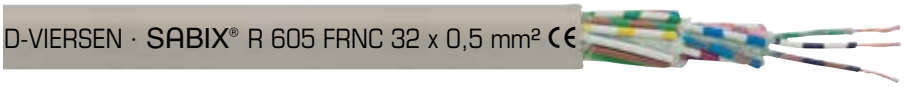
SABIX® R 605 FRNC

SABIX® Rail Data

EN 45545-2 · NFPA 130 · UN / ECE R118 · SAB Rail

CE RoHS PFAS FREE



marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R 605 FRNC 32 x 0,5 mm² CE

item no.	no. of cores x cross section n x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
66055034	50 x 0,34	14,5	163,2	304
66056134	61 x 0,34	15,4	199,1	358
66050250	2 x 0,50	4,3	9,6	28
66050350	3 x 0,50	4,5	14,4	33
66050450	4 x 0,50	4,9	19,2	40
66050550	5 x 0,50	5,4	24,0	49
66050750	7 x 0,50	6,1	33,6	63
66050850	8 x 0,50	7,1	38,4	79
66051250	12 x 0,50	8,1	57,6	102
66051450	14 x 0,50	8,5	67,2	115
66051650	16 x 0,50	9,0	76,8	131
66051850	18 x 0,50	9,5	86,4	145
66052150	21 x 0,50	10,9	100,8	180
66052450	24 x 0,50	11,5	115,2	195
66052750	27 x 0,50	11,7	129,6	213
66053050	30 x 0,50	12,1	144,0	232
66053250	32 x 0,50	12,6	153,6	248
66053650	36 x 0,50	13,1	172,8	274
66054450	44 x 0,50	15,1	211,2	341
66055050	50 x 0,50	15,7	240,0	411
66056150	61 x 0,50	16,7	292,8	448
66050275	2 x 0,75	4,9	14,4	38
66050375	3 x 0,75	5,2	21,6	45
66050475	4 x 0,75	5,9	28,8	58
66050575	5 x 0,75	6,4	36,0	70
66050775	7 x 0,75	7,0	50,4	87
66050875	8 x 0,75	8,3	57,6	111

item no.	no. of cores x cross section n x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
66051275	12 x 0,75	9,4	86,4	142
66051475	14 x 0,75	10,3	100,8	170
66051675	16 x 0,75	10,8	115,2	192
66051875	18 x 0,75	11,4	129,6	213
66052175	21 x 0,75	12,5	151,2	248
66052475	24 x 0,75	13,3	172,8	270
66052775	27 x 0,75	13,6	194,4	297
66053075	30 x 0,75	14,5	216,0	339
66053275	32 x 0,75	15,0	230,4	360
66053675	36 x 0,75	15,6	259,2	399
66054075	40 x 0,75	16,7	288,0	443
66054475	44 x 0,75	17,5	316,8	475
66055075	50 x 0,75	18,3	360,0	530
66056175	61 x 0,75	19,8	439,2	648
66050280	2 x 1,00	5,1	19,2	43
66050380	3 x 1,00	5,4	28,8	53
66050480	4 x 1,00	6,1	38,4	68
66050580	5 x 1,00	6,7	48,0	82
66050680	6 x 1,00	7,3	57,6	97
66050780	7 x 1,00	7,3	67,2	104
66050285	2 x 1,50	5,6	28,8	55
66050385	3 x 1,50	6,1	43,2	71
66050485	4 x 1,50	6,7	57,6	87
66050585	5 x 1,50	7,7	72,0	113
66050685	6 x 1,50	8,4	86,4	134
66050785	7 x 1,50	8,4	100,8	144

NFPA 130 / FT4 only up to outer-ø < 13 mm.
Other dimensions and colours are possible on request.

SABIX® R 615 FRNC

SABIX® Rail Data with overall copper screen

EN 45545-2 · NFPA 130 · UN / ECE R118 · SAB Rail

CE RoHS PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R 615 FRNC 5 x 0,5 mm² CE

Construction:

Conductor:	bare copper strands with reference to IEC 60228, VDE 0295, class 5
Insulation:	special SABIX®
Colour code:	with reference to DIN 47100
Stranding:	in layers
Wrapping:	foil
Screen:	tinned copper braiding
Sheath material:	special SABIX®
Sheath colour:	grey (RAL 7032)

Outstandiung features:

- halogen-free
- good EMC characteristics
- no flame propagation
- flame retardant and self-extinguishing
- fulfils fire protection requirements R15 (EL1A) acc. to EN 45545-2 for hazard levels HL1-3
- fulfils fire protection requirements acc. to NFPA 130 section 8.6.7.1.1.1 and section 12.2.1 (1)
- tested acc. to American ASTM standard
- flame retardant acc. to UN/ECE R118
- PFAS free

Technical Data:

Peak operating voltage:	< 0.25 mm² = max. 350 V ≥ 0.25 mm² = max. 500 V
Testing voltage:	core/core 1500 V core/screen 1200 V
Min. bending radius *fixed laying:* *flexible application:*	 5 x d 10 x d
Temperature range *fixed laying:* *flexible application:*	 -40/+90 °C -30/+90 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to UL 1685 section 12, FT4/IEEE 1202. Burning tests acc. to ASTM E 162-09. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034 + ASTM E 662-09
Flexibility:	good
Absence of harmful substances:	acc. to RoHS directive of the European Union

Tested at reference types.

item no.	no. of cores x cross section n x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
66150214	2 x 0,14	3,6	12,6	21
66150314	3 x 0,14	3,8	14,1	22
66150414	4 x 0,14	4,0	15,9	24
66150514	5 x 0,14	4,3	19,5	29
66150714	7 x 0,14	4,6	24,0	33
66150814	8 x 0,14	5,4	26,0	43
66151014	10 x 0,14	5,8	29,0	47
66151214	12 x 0,14	6,2	32,0	54
66151414	14 x 0,14	6,4	35,0	60
66151614	16 x 0,14	6,7	49,0	67
66151814	18 x 0,14	7,0	54,0	72
66152114	21 x 0,14	7,6	60,0	84
66152414	24 x 0,14	8,0	74,0	89
66152714	27 x 0,14	8,6	85,0	104
66153014	30 x 0,14	8,8	98,0	112
66153214	32 x 0,14	9,1	108,0	118
66153614	36 x 0,14	9,4	117,0	128
66154014	40 x 0,14	10,0	126,0	141
66154414	44 x 0,14	10,6	138,0	162
66155014	50 x 0,14	11,0	150,0	175
66155214	52 x 0,14	11,0	155,0	179
66156114	61 x 0,14	11,6	176,0	203

item no.	no. of cores x cross section n x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
66150225	2 x 0,25	3,9	15,0	24
66150325	3 x 0,25	4,1	18,0	26
66150425	4 x 0,25	4,4	22,0	31
66150525	5 x 0,25	4,9	25,0	38
66150725	7 x 0,25	5,3	32,0	46
66150825	8 x 0,25	6,1	35,0	58
66151025	10 x 0,25	6,6	42,0	64
66151225	12 x 0,25	6,8	50,0	72
66151425	14 x 0,25	7,1	64,0	80
66151625	16 x 0,25	7,4	71,0	89
66151825	18 x 0,25	7,8	80,0	98
66152125	21 x 0,25	8,8	105,0	122
66152425	24 x 0,25	9,3	115,0	130
66152725	27 x 0,25	9,5	120,0	142
66153025	30 x 0,25	9,8	132,0	152
66153225	32 x 0,25	10,1	138,0	161
66153625	36 x 0,25	10,7	152,0	189
66154025	40 x 0,25	11,3	164,0	209
66154425	44 x 0,25	11,8	180,0	221
66155025	50 x 0,25	12,7	222,0	254
66155225	52 x 0,25	12,7	234,0	260
66156125	61 x 0,25	13,4	287,0	295

NFPA 130 / FT4 only up to outer-ø < 13 mm.

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SABIX® R 615 FRNC

SABIX® Rail Data with overall copper screen

EN 45545-2 · NFPA 130 · UN / ECE R118 · SAB Rail

CE RoHS PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R 615 FRNC 5 x 0,5 mm² CE

item no.	no. of cores x cross section n x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
66150234	2 x 0,34	4,5	17,0	31
66150334	3 x 0,34	4,9	21,0	36
66150434	4 x 0,34	5,3	25,0	43
66150534	5 x 0,34	5,7	30,0	51
66150734	7 x 0,34	6,4	42,0	63
66150834	8 x 0,34	7,2	45,0	78
66151034	10 x 0,34	7,8	63,0	87
66151234	12 x 0,34	8,0	70,0	97
66151434	14 x 0,34	8,8	78,0	118
66151634	16 x 0,34	9,2	87,0	129
66151834	18 x 0,34	9,7	108,0	144
66152134	21 x 0,34	10,7	127,0	177
66152434	24 x 0,34	11,3	140,0	193
66152734	27 x 0,34	11,5	151,0	207
66153034	30 x 0,34	11,9	162,0	222
66153234	32 x 0,34	12,7	171,0	247
66153634	36 x 0,34	13,2	188,0	272
66154034	40 x 0,34	14,0	208,0	301
66154434	44 x 0,34	14,6	223,0	319
66155034	50 x 0,34	15,8	248,0	386
66155234	52 x 0,34	15,8	273,0	395
66156134	61 x 0,34	16,7	316,0	366
66150250	2 x 0,50	5,0	23,5	39
66150350	3 x 0,50	5,2	28,4	42
66150450	4 x 0,50	5,6	35,1	50
66150550	5 x 0,50	6,3	41,6	63
66150750	7 x 0,50	6,8	53,1	76
66150850	8 x 0,50	7,8	62,0	94
66151050	10 x 0,50	8,8	74,5	113
66151250	12 x 0,50	9,0	84,2	126
66151450	14 x 0,50	9,4	93,5	139
66151650	16 x 0,50	9,9	105,9	156
66151850	18 x 0,50	10,6	133,9	185
66152150	21 x 0,50	11,6	154,9	220
66152450	24 x 0,50	12,6	169,7	240

item no.	no. of cores x cross section n x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
66152750	27 x 0,50	12,8	184,2	260
66153050	30 x 0,50	13,2	203,6	283
66153250	32 x 0,50	13,7	213,5	299
66153650	36 x 0,50	14,2	239,0	330
66154450	44 x 0,50	16,4	309,2	422
66155050	50 x 0,50	17,0	349,7	469
66156150	61 x 0,50	18,0	403,7	540
66150275	2 x 0,75	5,6	30,3	48
66150375	3 x 0,75	6,1	37,6	56
66150475	4 x 0,75	6,6	48,3	74
66150575	5 x 0,75	7,1	55,7	81
66150775	7 x 0,75	7,7	74,0	101
66150875	8 x 0,75	9,2	83,8	132
66151275	12 x 0,75	10,5	133,9	179
66151475	14 x 0,75	11,0	148,5	198
66151675	16 x 0,75	11,5	169,2	224
66151875	18 x 0,75	12,4	184,0	257
66152175	21 x 0,75	13,6	211,0	297
66152475	24 x 0,75	14,4	239,1	324
66152775	27 x 0,75	14,7	260,9	352
66153075	30 x 0,75	15,8	313,4	417
66153275	32 x 0,75	16,3	328,3	440
66153675	36 x 0,75	16,9	357,8	479
66150280	2 x 1,00	5,8	35,2	53
66150380	3 x 1,00	6,3	46,4	65
66150480	4 x 1,00	6,8	57,9	78
66150580	5 x 1,00	7,4	69,6	95
66150680	6 x 1,00	8,0	81,3	111
66150780	7 x 1,00	8,0	90,9	117
66150285	2 x 1,50	6,6	46,5	71
66150385	3 x 1,50	6,8	62,7	90
66150485	4 x 1,50	7,4	79,2	98
66150585	5 x 1,50	8,6	95,8	130
66150685	6 x 1,50	9,3	112,7	152
66150785	7 x 1,50	9,3	127,1	162

NFPA 130 / FT4 only up to outer-ø < 13 mm.
Other dimensions and colours are possible on request.

SABIX® R 645 FRNC TP

SABIX® Rail Data paired with overall copper screen

EN 45545-2 · NFPA 130 · UN / ECE R118 · SAB Rail

CE RoHS PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R 645 FRNC TP 3 x 2 x 0,25 mm² CE

Construction:

Conductor:	bare copper strands with reference to IEC 60228, VDE 0295, class 5
Insulation:	special SABIX®
Colour code:	with reference to DIN 47100
Stranding:	pairwise, pairs in layers
Wrapping:	foil
Screen:	tinned copper braiding
Sheath material:	special SABIX®
Sheath colour:	grey (RAL 7032)

Outstandiung features:

- halogen-free
- good EMC characteristics
- no flame propagation
- flame retardant and self-extinguishing
- fulfils fire protection requirements R15 (EL1A) acc. to EN 45545-2 for hazard levels HL1-3
- fulfils fire protection requirements acc. to NFPA 130 section 8.6.7.1.1.1 and section 12.2.1 (1)
- tested acc. to American ASTM standard
- flame retardant acc. to UN/ECE R118
- good transmission rates and crosstalk attenuation
- PFAS free

Technical Data:

Peak operating voltage:	< 0.25 mm² = max. 350 V ≥ 0.25 mm² = max. 500 V
Testing voltage:	core/core 1500 V core/screen 1200 V
Min. bending radius *fixed laying:* *flexible application:*	 5 x d 10 x d
Temperature range *fixed laying:* *flexible application:*	 -40/+90 °C -30/+90 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to UL 1685 section 12, FT4/IEEE 1202. Burning tests acc. to ASTM E 162-09. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034 + ASTM E 662-09
Flexibility:	good
Absence of harmful substances:	acc. to RoHS directive of the European Union

Tested at reference types.

item no.	no. of pairs x cross section n x 2 x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
66450214	2 x 2 x 0,14	5,2	19,1	38
66450314	3 x 2 x 0,14	5,7	23,4	44
66450414	4 x 2 x 0,14	6,5	27,8	54
66450514	5 x 2 x 0,14	7,0	31,9	64
66450614	6 x 2 x 0,14	7,2	36,2	71
66450814	8 x 2 x 0,14	7,8	43,4	83
66451014	10 x 2 x 0,14	8,9	50,6	105
66451214	12 x 2 x 0,14	9,7	58,2	121
66451614	16 x 2 x 0,14	10,5	71,4	147
66451814	18 x 2 x 0,14	11,1	92,8	174
66452414	24 x 2 x 0,14	12,8	114,8	223
66450225	2 x 2 x 0,25	5,7	24,9	46
66450325	3 x 2 x 0,25	6,4	31,4	61
66450425	4 x 2 x 0,25	7,2	39,3	72
66450525	5 x 2 x 0,25	7,7	45,8	83
66450625	6 x 2 x 0,25	7,9	50,7	92
66450825	8 x 2 x 0,25	9,0	62,1	119
66451025	10 x 2 x 0,25	9,8	73,9	138
66451225	12 x 2 x 0,25	10,9	102,3	173
66451625	16 x 2 x 0,25	11,9	126,8	213
66451825	18 x 2 x 0,25	12,7	136,6	245
66452425	24 x 2 x 0,25	14,2	170,3	296
66450234	2 x 2 x 0,34	6,8	31,5	63
66450334	3 x 2 x 0,34	7,4	39,7	79
66450434	4 x 2 x 0,34	8,8	49,8	102
66450534	5 x 2 x 0,34	9,5	58,5	121
66450634	6 x 2 x 0,34	9,7	65,1	125

item no.	no. of pairs x cross section n x 2 x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
66450834	8 x 2 x 0,34	10,6	80,7	159
66451234	12 x 2 x 0,34	13,4	133,1	248
66451634	16 x 2 x 0,34	14,6	165,0	305
66451834	18 x 2 x 0,34	15,1	178,3	334
66452434	24 x 2 x 0,34	17,6	255,1	449
66450250	2 x 2 x 0,50	7,2	39,3	72
66450350	3 x 2 x 0,50	7,9	50,1	92
66450450	4 x 2 x 0,50	9,4	64,6	119
66450550	5 x 2 x 0,50	10,2	76,3	141
66450650	6 x 2 x 0,50	10,4	86,0	155
66450850	8 x 2 x 0,50	11,4	126,6	179
66451050	10 x 2 x 0,50	13,2	146,5	252
66451250	12 x 2 x 0,50	14,4	175,6	294
66451650	16 x 2 x 0,50	16,3	241,3	380
66451850	18 x 2 x 0,50	16,9	261,0	436
66452450	24 x 2 x 0,50	19,0	330,4	508
66450275	2 x 2 x 0,75	8,5	52,4	102
66450375	3 x 2 x 0,75	9,4	69,4	128
66450475	4 x 2 x 0,75	10,9	101,9	166
66450575	5 x 2 x 0,75	11,7	121,9	201
66450675	6 x 2 x 0,75	12,5	136,5	239
66450875	8 x 2 x 0,75	13,7	170,1	279
66451275	12 x 2 x 0,75	17,1	261,2	419
66451675	16 x 2 x 0,75	18,6	329,9	522
66451875	18 x 2 x 0,75	19,3	369,3	580
66452475	24 x 2 x 0,75	21,8	469,2	714

NFPA 130 / FT4 only up to outer-ø < 13 mm.
Other dimensions and colours are possible on request.

SABIX® R flex

continuously flexible SABIX® Rail cable with numbered cores

EN 45545-2 · UN / ECE R118 · SAB Rail

CE RoHS PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R flex 5G0,75 mm² CE

Application: Suitable for flexible and protected installation in the interior for door control or in protecting tubes for outdoor laying at the bogie, railway machines or as connection cable between the waggons. Appropriate for light and medium mechanical stress.

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, green-yellow earth wire from 3 cores. Twisted pairs type without green-yellow earth wire
Stranding:	in layers resp. pairwise
Wrapping:	foil
Screen:	tinned copper braiding (if existing)
Sheath material:	SABIX® Ultra
Sheath colour:	black (RAL 9005)

Outstandiung features:

- halogen-free
- continuously flexible
- good EMC characteristics
- no flame propagation
- flame retardant and self-extinguishing
- good ozone, UV and weather resistance
- good oil and fuel resistance
- good acid and alkalines resistance
- fulfils fire protection requirements R15 (EL1A) and R16 (EL1B) acc. to EN 45545-2 for hazard levels HL1-2
- flame retardant acc. to UN/ECE R118
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius	unshielded / shielded
fixed laying:	4 x d / 5 x d
flexible application:	6 x d / 10 x d
continuously flexible:	12 x d / 15 x d
Temperature range	
fixed laying:	-50/+90 °C
flexible application:	-40/+90 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034
Oil and fuel resistance:	acc. to EN 50264-1 + VDE 0260-264-1
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
multi-core cable screened					
66701002	2 x 0,50	0,16	5,3	24,8	46
66701003	3 x 0,50	0,16	5,5	29,8	51
66701005	5 x 0,50	0,16	6,5	40,3	71
66701007	7 x 0,50	0,16	7,4	53,8	91
66701018	18 x 0,50	0,16	10,8	132,5	200
66701032	32 x 0,50	0,16	13,7	214,5	317
66701103	3 x 0,75	0,16	6,1	37,7	62
66701104	4 x 0,75	0,16	6,7	46,2	76
66701105	5 x 0,75	0,16	7,2	55,9	90
66701125	25 x 0,75	0,16	14,5	242,3	351
66701204	4 x 1,00	0,16	6,9	56,0	87
66701207	7 x 1,00	0,16	8,7	90,1	137
66701212	12 x 1,00	0,16	11,0	161,6	224
66701303	3 x 1,50	0,16	7,1	61,0	92
66701304	4 x 1,50	0,16	7,6	78,0	111
66701305	5 x 1,50	0,16	8,5	94,8	137
66701318	18 x 1,50	0,16	14,4	321,3	417
66701404	4 x 2,50	0,16	9,7	122,5	174
66701405	5 x 2,50	0,16	11,0	166,4	235
66701407	7 x 2,50	0,16	13,2	288,3	324
66701412	12 x 2,50	0,16	15,7	356,2	465
66701504	4 x 4,00	0,16	11,4	200,6	260
66701604	4 x 6,00	0,21	13,9	291,6	380
66701704	4 x 10,00	0,21	16,8	483,2	605
66701804	4 x 16,00	0,21	20,2	730,4	885
66701904	4 x 25,00	0,21	24,1	1113,6	1293

Other dimensions and colours are possible on request.

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
multi-core cable unscreened					
66700002	2 x 0,50	0,16	4,6	9,6	31
66700004	4 x 0,50	0,16	5,4	19,2	47
66700007	7 x 0,50	0,16	6,9	33,6	76
66700012	12 x 0,50	0,16	8,4	57,6	113
66700018	18 x 0,50	0,16	9,9	86,4	160
66700103	3 x 0,75	0,16	5,6	21,6	51
66700105	5 x 0,75	0,16	6,7	36,0	75
66700125	25 x 0,75	0,16	13,8	180,0	303
66700202	2 x 1,00	0,16	5,7	19,2	49
66700303	3 x 1,50	0,16	6,6	43,2	81
66700307	7 x 1,50	0,16	9,4	100,8	167
66700318	18 x 1,50	0,16	13,7	259,2	376
item no.	no. of pairs x cross section n x 2 x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
multi-pair cable screened					
66703002	2 x 2 x 0,50	0,16	7,0	36,9	69
66703003	3 x 2 x 0,50	0,16	8,0	49,4	90
66703004	4 x 2 x 0,50	0,16	10,0	65,3	121
66703006	6 x 2 x 0,50	0,16	10,4	103,4	161
66703008	8 x 2 x 0,50	0,16	12,5	129,4	229
66703012	12 x 2 x 0,50	0,16	14,3	177,1	278
66703103	3 x 2 x 0,75	0,16	8,9	69,2	113
66703108	8 x 2 x 0,75	0,16	14,6	177,6	306
66703202	2 x 2 x 1,00	0,16	8,9	64,4	111
66703203	3 x 2 x 1,00	0,16	9,5	83,9	135
66703206	6 x 2 x 1,00	0,16	12,6	168,0	249
66703208	8 x 2 x 1,00	0,16	15,1	220,8	357
66703302	2 x 2 x 1,50	0,16	10,3	103,2	157
66703304	4 x 2 x 1,50	0,16	12,7	168,1	243
66703306	6 x 2 x 1,50	0,16	14,3	234,7	345

Other dimensions and colours are possible on request.

SAB RailLine 560

continuously flexible **SABIX®** Rail Cable for outdoor use, cross linked type

EN 45545-2 · UN / ECE R118 · SAB Rail

CE RoHS PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · SAB RailLine 560 5x0,75mm² C 6560-1105 CE

Application: For flexible outdoor installation, e.g. bogies, railway machines. Also for flexible application inside rolling stock, e.g. door systems.

Construction:

Conductor:	tinned copper strands, extra fine wires
Insulation:	SABIX® X
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	in layers resp. pairwise
Wrapping:	foil
Screen:	tinned copper braiding (if existing)
Sheath material:	SABIX® X
Sheath colour:	black (RAL 9005)

Outstandiung features:

- weather resistant
- continuously flexible
- good ozone, UV and weather resistance
- good oil and fuel resistance
- good acid and alkalines resistance
- fulfils fire protection requirements R15 (EL1A) and R16 (EL1B) acc. to EN 45545-2 for hazard levels HL1-3
- flame retardant acc. to UN/ECE R118
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V resp. 0.6/1 kV
Testing voltage:	300/500 V 0.6/1 kV core/core 2000 V 4000 V core/screen 2000 V 4000 V
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 4 x d 6 x d 10 x d
Torsion angle:	± 15°/1 m
Temperature range *fixed laying:* *flexible application:*	 -50/+90 °C -50/+90 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2.
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034
Weather resistance:	very good
Oil and fuel resistance:	acc. to EN 50264-1 + VDE 0260-264-1
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	nominal voltage	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
multi-core cable unscreened					
65600002	2 x 0,50	300/500 V	4,9	9,6	37
65600105	5 x 0,75	300/500 V	6,4	36,0	73
65600203	3 x 1,00	300/500 V	5,3	28,8	55
65600205	5 x 1,00	300/500 V	6,7	48,0	86
65600207	7 x 1,00	300/500 V	7,9	67,2	127
65600225	25 x 1,00	300/500 V	13,4	240,0	346
65600304	4 x 1,50	300/500 V	6,9	57,6	101
65600307	7 x 1,50	300/500 V	9,3	100,8	175
65609001	5 x 35,0	0,6/1 kV	33,2	1680,0	2299

Other dimensions and colours are possible on request.

item no.	no. of cores x cross section n x mm²	nominal voltage	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
multi-core cable screened					
65601002	2 x 0,50	300/500 V	4,9	24,7	42
65601003	3 x 0,50	300/500 V	5,3	29,7	51
65601005	5 x 0,50	300/500 V	6,1	40,2	67
65601012	12 x 0,50	300/500 V	8,5	85,9	132
65601105	5 x 0,75	300/500 V	6,8	53,6	87
65601204	4 x 1,00	300/500 V	6,6	57,0	86
65601213	13 x 1,00	300/500 V	10,8	169,2	235
65601303	3 x 1,50	300/500 V	7,3	63,4	99
65601305	5 x 1,50	300/500 V	8,3	94,6	152
65601307	7 x 1,50	300/500 V	9,7	127,4	195
65609002	5 x 35,0	0,6/1 kV	34,1	1885,3	2455

Other dimensions and colours are possible on request.

item no.	no. of pairs x cross section n x 2 x mm²	nominal voltage	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
multi-pair cable screened					
65609004	6 x 2 x 0,25	300/500 V	8,0	46,3	98
65609005	12 x 2 x 0,34	300/500 V	11,9	131,4	204
65603002	2 x 2 x 0,50	300/500 V	6,7	35,5	69
65603004	4 x 2 x 0,50	300/500 V	8,5	60,1	108

item no.	no. of pairs x cross section n x 2 x mm²	nominal voltage	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
multi-pair cable screened					
65603006	6 x 2 x 0,50	300/500 V	9,8	84,3	153
65603008	8 x 2 x 0,50	300/500 V	12,3	129,3	230
65603103	3 x 2 x 0,75	300/500 V	8,4	65,9	124

Other dimensions and colours are possible on request.

SABIX® A 280 FRNC X

wiring cable / control cable, cross linked type

EN 45545-2 · up to +125 °C · SAB Rail

CE RoHS PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® A 280 FRNC X 1 x 1,0 mm² CE

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® A 280 FRNC X 5 x 0,5 mm² CE

Construction:

Conductor:	tinned copper strands, extra fine wires acc. to IEC 60228, VDE 0295, class 5
Insulation:	special SABIX®
Single conductor: **Colour code:**	white (similar RAL 9010)
Multi-core cable: **Colour code:**	white cores with consecutive numbers acc. to EN 50334 + VDE 0293-334
Multi-core cable: **Stranding:**	in layers
Multi-core cable: **Sheath material:**	special SABIX®
Multi-core cable: **Sheath colour:**	black (RAL 9005)

Outstandiung features:

- halogen-free
- no flame propagation
- flame retardant and self-extinguishing
- good ozone resistance
- good oil and chemical resistance
- fulfils fire protection requirements R15 (EL1A) acc. to EN 45545-2 for hazard levels HL1-3
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	core/core 2000 V
Min. bending radius:	5 x d
Temperature range *during protected, fixed laying:*	-40/+125 °C (single conductor) -50/+125 °C (multi-core cable)
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034
Absence of harmful substances:	acc. to RoHS directive of the European Union

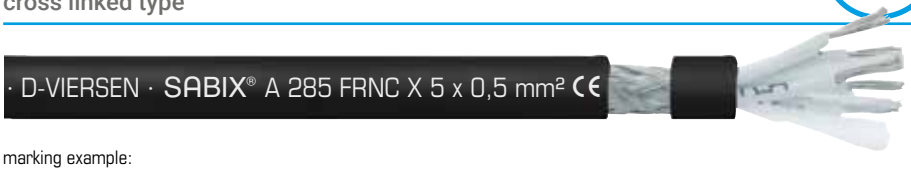
item no.	no. of cores x cross section n x mm²	largest single wire ø mm	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km	ohmic resistance at 20 °C max. Ω/km	heating value approx. kWh/km
62800105	1 x 0,50	0,21	1,7	4,8	7	40,1	13,0
62800305	3 x 0,50	0,21	4,7	14,4	35	40,1	115
62800505	5 x 0,50	0,21	5,8	24,0	50	40,1	170
62800805	8 x 0,50	0,21	7,3	38,4	83	40,1	246
62801005	10 x 0,50	0,21	8,1	48,0	97	40,1	275
62801205	12 x 0,50	0,21	8,4	57,6	112	40,1	306
62800607	6 x 0,75	0,21	7,2	43,2	86	26,7	237
62800807	8 x 0,75	0,21	7,3	57,6	101	26,7	245
62801007	10 x 0,75	0,21	9,4	72,0	133	26,7	345
62800110	1 x 1,00	0,21	2,1	9,6	12	20,0	16,0
62800310	3 x 1,00	0,21	5,5	28,8	55	20,0	162
62800410	4 x 1,00	0,21	6,2	38,4	71	20,0	186
62800610	6 x 1,00	0,21	7,5	57,6	101	20,0	252
62800810	8 x 1,00	0,21	9,0	76,8	135	20,0	338
62801010	10 x 1,00	0,21	10,1	96,0	164	20,0	402
62800115	1 x 1,50	0,21	2,5	14,4	17	13,7	22,5
62800315	3 x 1,50	0,21	6,6	43,2	68	13,7	210
62800125	1 x 2,50	0,26	3,1	24,0	27	8,21	34,0

Other dimensions and colours are possible on request.

SABIX® A 285 FRNC X

control cable with numbered cores and overall copper screen, cross linked type

EN 45545-2 · up to +125 °C · SAB Rail



CE RoHS PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® A 285 FRNC X 5 x 0,5 mm² CE

Construction:

Conductor:	tinned copper strands, fine wires acc. to IEC 60228, VDE 0295, class 5
Insulation:	special SABIX®
Colour code:	white cores with consecutive numbers acc. to EN 50334 + VDE 0293-334
Stranding:	in layers
Wrapping:	foil
Screen:	tinned copper braiding
Sheath material:	special SABIX®
Sheath colour:	black (RAL 9005)

Outstandiung features:

- halogen-free
- good EMC characteristics
- no flame propagation
- flame retardant and self-extinguishing
- good ozone resistance
- good oil and chemical resistance
- fulfils fire protection requirements R15 (EL1A) acc. to EN 45545-2 for hazard levels HL1-3
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	core/core 2000 V core/screen 2000 V
Min. bending radius:	10 x d
Temperature range *during protected, fixed laying:*	-50/+125 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2.
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2.
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034
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	ohmic resistance at 20 °C max. Ω/km	heating value approx. kWh/km
62850305	3 x 0,50	0,21	5,2	30,3	45	40,1	99
62850505	5 x 0,50	0,21	6,3	43,5	68	40,1	154
62850805	8 x 0,50	0,21	7,9	62,2	97	40,1	237
62851005	10 x 0,50	0,21	8,6	74,3	114	40,1	258
62851205	12 x 0,50	0,21	8,9	86,6	127	40,1	288
62850607	6 x 0,75	0,21	7,7	67,0	101	26,7	231
62850807	8 x 0,75	0,21	9,1	86,6	132	26,7	305
62851007	10 x 0,75	0,21	10,4	119,7	172	26,7	381
62850310	3 x 1,00	0,21	6,2	46,5	66	20,0	155
62850610	6 x 1,00	0,21	8,2	83,7	125	20,0	285
62850810	8 x 1,00	0,21	9,8	106,0	160	20,0	366
62851010	10 x 1,00	0,21	10,8	149,9	200	20,0	401
62851210	12 x 1,00	0,21	11,1	169,3	216	20,0	410

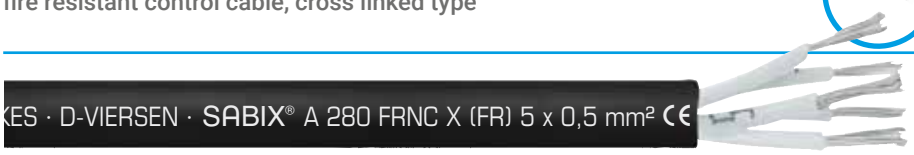
Other dimensions and colours are possible on request.

Cables for Railway Technology

SABIX® A 280 FRNC X (FR)

fire resistant control cable, cross linked type

EN 45545-2 · IEC 60331-21 · EN 50200 · SAB Rail · CE RoHS · PFAS FREE



marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® A 280 FRNC X (FR) 5 x 0,5 mm² CE

Construction:

Conductor:	tinned copper strands, fine wires
Wrapping:	mica tape
Insulation:	special SABIX®
Colour code:	white cores with consecutive numbers acc. to EN 50334 + VDE 0293-334
Stranding:	in layers
Sheath material:	special SABIX®
Sheath colour:	black (RAL 9005)

Outstandiung features:

- halogen-free
- no flame propagation
- fire resistant
- flame retardant and self-extinguishing
- good ozone resistance
- good oil and chemical resistance
- fulfils fire protection requirements R15 (EL1A) acc. to EN 45545-2 for hazard levels HL1-3
- EN 50200 PH 30 + VDE 0482-200, IEC 60331-21+ VDE 0482-331-21
- PFAS free

Technical Data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	core/core 2000 V
Min. bending radius:	10 x d
Temperature range *during protected, fixed laying:*	-50/+125 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2.
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2.
Insulation integrity in case of fire:	EN 50200 PH 30, VDE 0482-200, IEC 60331-21 FE 180 + VDE 0482-331-21
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	no. of cores x cross section n x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
62809502	2 x 0,50	5,8	9,6	47
62809503	3 x 0,50	6,1	14,4	58
62809504	4 x 0,50	6,7	19,2	65
62809505	5 x 0,50	7,4	24,0	79
62809507	7 x 0,50	8,3	33,6	102
62809510	10 x 0,50	10,9	48,0	151
62809512	12 x 0,50	11,2	57,6	172
62809518	18 x 0,50	13,2	86,4	235
62809525	25 x 0,50	16,2	120,0	333
62809602	2 x 0,75	6,5	14,4	56
62809603	3 x 0,75	6,6	21,6	70
62809604	4 x 0,75	7,2	28,8	80
62809605	5 x 0,75	8,2	36,0	101
62809607	7 x 0,75	8,9	50,4	126
62809608	8 x 0,75	10,7	57,6	171
62809610	10 x 0,75	11,7	72,0	186
62809612	12 x 0,75	12,1	86,4	213
62809618	18 x 0,75	14,6	129,6	311
62809625	25 x 0,75	16,2	180,0	415
62809702	2 x 1,00	6,4	19,2	62
62809703	3 x 1,00	6,8	28,8	78
62809704	4 x 1,00	7,4	38,4	89
62809705	5 x 1,00	8,4	48,0	113
62809707	7 x 1,00	9,2	67,2	143

item no.	no. of cores x cross section n x mm²	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
62809710	10 x 1,00	12,1	96,0	210
62809712	12 x 1,00	12,5	115,2	240
62809718	18 x 1,00	15,1	172,8	353
62809725	25 x 1,00	18,1	240,0	472
62809802	2 x 1,50	7,2	28,8	83
62809803	3 x 1,50	7,7	43,2	107
62809804	4 x 1,50	8,6	57,6	128
62809805	5 x 1,50	9,8	72,0	163
62809807	7 x 1,50	10,7	100,8	207
62809808	8 x 1,50	12,5	115,2	264
62809810	10 x 1,50	13,7	144,0	291
62809812	12 x 1,50	14,6	172,8	351
62809818	18 x 1,50	17,1	259,2	495
62809825	25 x 1,50	21,0	360,0	686
62809902	2 x 2,50	8,6	48,0	121
62809903	3 x 2,50	9,1	72,0	156
62809904	4 x 2,50	10,3	96,0	189
62809905	5 x 2,50	11,4	120,0	230
62809907	7 x 2,50	12,5	168,0	297
62809910	10 x 2,50	16,5	240,0	434
62809912	12 x 2,50	17,0	288,0	498
62809918	18 x 2,50	20,5	432,0	731
62809925	25 x 2,50	25,0	600,0	1015

Other dimensions and colours are possible on request.

Cables for Railway Technology

CATLine CAT 5e R
CATLine CAT 6A R
CATLine CAT 7A R

halogen-free Industrial Ethernet cables for Railway Technology

EN 45545-2 · UN / ECE R118 · SAB Rail

marking example:
SAB BRÖCKSKES · D-VIERSEN · CATLine Cat.7A R 4x2x24AWG 1767-4621 CE

CE RoHS PFAS FREE

Fulfils fire protection requirements
R15 (EL1A) acc. to EN 45545-2
for hazard levels HL1-3

Construction:	CATLine CAT 5e R flexible		CATLine CAT 6A R flexible	CATLine CAT 7A R flexible
Dimension:	2 x 2 x 26 AWG 2 x 2 x 24 AWG 2 x 2 x 22 AWG	4 x 2 x 24 AWG	4 x 2 x 26 AWG	
Conductor:	bare copper strands, fine wires			
Insulation:	PE			
Colour code:	blue, yellow, white, orange	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown		
Stranding:	star quad	twisted to pairs, pairs together		twisted to pairs with alu foil, pairs together
Wrapping:	foil			–
Screen:	alu foil and tinned copper braiding			tinned copper braiding
Sheath material:	special SABIX®			
Sheath colour:	green (similar RAL 6018)			

Technical data:	CATLine CAT 5e R flexible		CATLine CAT 6A R flexible	CATLine CAT 7A R flexible
Item number:	1567-2625 1567-9002 1567-9004	1567-4421	1667-4621	1767-4621
Peak operating voltage:	max. 90 V			
Testing voltage *core/core:* *core/screen:*	 750 V 750 V			
Min. bending radius *fixed laying:* *flexible application:*	 5 x d 12 x d			
Temperature range VDE *fixed laying:* *flexible application:*	 -40/+70 °C -30/+70 °C			
Halogen-free:	acc. to EN 50306-1 + EN 50264-1. Development of HCl is ≤ 0,5% acc. to IEC 60754-1. pH-value is ≥ 4,3 acc. to IEC 60754-2. Conductivity is ≤ 10,0 µS/mm acc. to IEC 60754-2. Fluoric content ≤ 0,1% acc. to IEC 60684-2			
Fire performance:	no flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)			
Smoke density:	acc. to IEC 61034 + VDE 0482-1034			
Toxicity:	acc. to EN 50305 + VDE 0260-305			
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
Flexibility:	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
15672625	CATLine CAT 5e R	2 x 2 x 26 AWG	1,05	4,0	16,4	25
15679002	CATLine CAT 5e R	2 x 2 x 24 AWG	1,30	5,2	22,7	41
15679004	CATLine CAT 5e R	2 x 2 x 22 AWG	1,60	5,9	29,1	52
15674421	CATLine CAT 5e R	4 x 2 x 24 AWG	1,30	8,0	41,2	70
16674621	CATLine CAT 6A R	4 x 2 x 26 AWG	1,05	6,8	31,9	55
17674621	CATLine CAT 7A R	4 x 2 x 26 AWG	1,60	7,8	38,5	75

Other dimensions and colours are possible on request.

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

Cables for Railway Technology

CATLine CAT 5e R flex
CATLine CAT 6A R flex
CATLine CAT 7A R flex

continuously flexible halogen-free
Industrial Ethernet cables
for Railway Technology

EN 45545-2 · UN / ECE R118 · SAB Rail

marking example:
SAB BRÖCKSKES · D-VIERSEN · CATLine Cat.7A R flex 4x2x24AWG 1769-4431 CE

CE RoHS PFAS FREE

Fulfils fire protection requirements
R15 (EL1A) and R16 (EL1B)
acc. to EN 45545-2
for hazard levels HL1-3

Application: Suitable for flexible and protected installation in the interior for door control or in protecting tubes for outdoor laying at the bogie. Appropriate for light and medium mechanical stress.

Construction:	CATLine CAT 5e R flex continuously flexible		CATLine CAT 6A R flex continuously flexible	CATLine CAT 7A R flex continuously flexible
Dimension:	2 x 2 x 24 AWG 2 x 2 x 22 AWG	2 x 2 x 26 AWG 4 x 2 x 24 AWG	4 x 2 x 26 AWG, 4 x 2 x 24 AWG	
Conductor:	bare copper strands, fine wires			
Insulation:	special SABIX®			
Colour code:	blue, yellow, white, orange	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown		
Stranding:	star quad	twisted to pairs, pairs together		twisted to pairs with alu foil, pairs together
Wrapping:	foil			–
Screen:	alu foil and tinned copper braiding			tinned copper braiding
Sheath material:	special SABIX®			
Sheath colour:	green (similar RAL 6018)			

Technical data:	CATLine CAT 5e R flex continuously flexible		CATLine CAT 6A R flex continuously flexible	CATLine CAT 7A R flex continuously flexible
Item number:	1569-2435 1569-2235	1569-4431 1569-4631	1669-4431 1669-4631	1769-4431 1769-4631
Peak operating voltage:	max. 90 V			
Testing voltage *core/core:* *core/screen:*	 750 V 750 V			
Min. bending radius *fixed laying:* *flexible application:* *continuously flexible:*	 5 x d 12 x d 15 x d			
Temperature range VDE *fixed laying:* *flexible application:*	 -50/+90 °C -40/+90 °C			
Halogen-free:	acc. to EN 50306-1 + EN 50264-1. Development of HCl is ≤ 0,5% acc. to IEC 60754-1. pH-Wert ist ≥ 4,3 acc. to IEC 60754-2. Conductivity is ≤ 10,0 µS/mm acc. to IEC 60754-2. Fluoric content ≤ 0,1% acc. to IEC 60684-2			
Fire performance:	no flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)			
Smoke density:	acc. to IEC 61034 + VDE 0482-1034			
Toxicity:	acc. to EN 50305 + VDE 0260-305			
Oil and fuel resistance:	acc. to EN 50264-1 + VDE 0260-264-1			
Characteristic impedance:	100Ω ± 5Ω with reference to EN 50288-2-2 / CAT 5	100Ω ± 10Ω with reference to EN 50288-2-2 / CAT 5	100Ω ± 10Ω with reference to EN 50288-10-2 / CAT 6A	100Ω ± 10Ω with reference to EN 50288-9-2 / CAT 7A
Flexibility:	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
15692435	CATLine CAT 5e R flex	2 x 2 x 24 AWG	1,25	5,1	22,8	40
15692235	CATLine CAT 5e R flex	2 x 2 x 22 AWG	1,55	5,8	29,2	53
15694431	CATLine CAT 5e R flex	4 x 2 x 24 AWG	1,29	7,8	42,3	81
15694631	CATLine CAT 5e R flex	4 x 2 x 26 AWG	0,99	6,5	29,7	55
16694431	CATLine CAT 6A R flex	4 x 2 x 24 AWG	1,29	7,9	42,2	80
16694631	CATLine CAT 6A R flex	4 x 2 x 26 AWG	0,99	6,5	29,7	56
17694431	CATLine CAT 7A R flex	4 x 2 x 24 AWG	1,71	9,7	46,6	109
17694631	CATLine CAT 7A R flex	4 x 2 x 26 AWG	1,45	8,6	35,8	92

Other dimensions and colours are possible on request.

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

SABIX® USB 2.0 R flex

halogen-free continuously flexible SABIX® USB 2.0 Rail cable
acc. to EN 45545-2

EN 45545-2 · UN / ECE R118 · SAB Rail

RoHS PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® USB 2.0 R flex 4x28AWG 0601-9013

Construction:

Conductor:	bare copper strands, fine wires
Insulation:	SABIX®
Colour code:	white, green, red, black
Screen:	alu foil and tinned copper braiding, Drain AWG 30 of tinned copper ander the braid
Sheath material:	SABIX®
Sheath colour:	black (RAL 9005)

Outstanding features:

- halogen-free
- continuously flexible
- no flame propagation
- flame retardant and self-extinguishing
- good oil and fuel resistance
- fulfils fire protection requirements R15 (EL1A) and R16 (EL1B) acc. to EN 45545-2 for hazard levels HL1-3
- flame retardant acc. to UN/ECE R118
- PFAS free

Technical data:

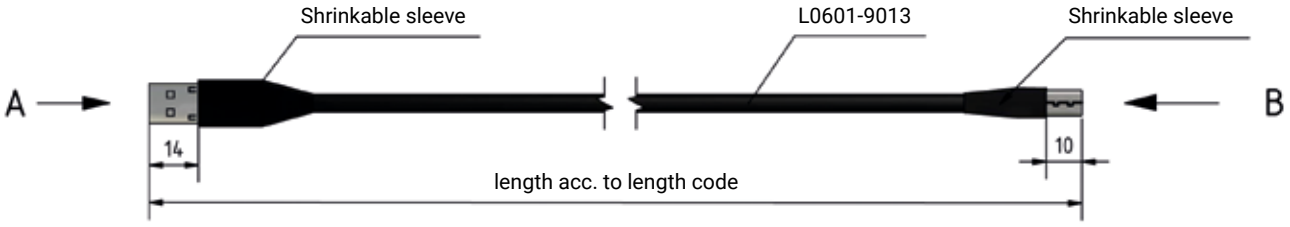
Peak operating voltage:	max. 30 V
Testing voltage:	core/core 600 V core/screen 600 V
Min. bending radius *fixed laying:* *flexible application:*	 5 x d 10 x d
Temperature range *fixed laying:* *flexible application:*	 -50/+90 °C -40/+90 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2.
Fire performance:	no flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)
Smoke density:	acc. to IEC 61034 + VDE 0482-1034
Toxicity:	acc. to EN 50305 + VDE 0260-305
Oil- and fuel resistance:	acc. to EN 50264-1 + VDE 0260-264-1
Absence of harmful substances:	acc. to RoHS directive of the European Union

item no.	dimension	outer-ø ± 10% mm	copper figure kg/km	cable weight ≈ kg/km	ohmic resistance at 20°C max. Ω/km
06019013	4 x 28/7 AWG	5,2	14,3	41	223,8

Other dimensions and colours are possible on request.

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

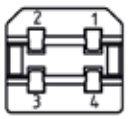
USB 2.0 cable with USB type A and USB type B plug



view A (2:1)

Pin configuration		
USB A	colour code	USB B
1	red	1
2	white	2
3	green	3
4	black	4
housing	screen	housing

view B (3:1)



view soldering side

SABIX® R flex Data IQ

digital signal and data cable
DVI Dual-Link / HDMI/DVI/DisplayPort / USB 3.0 (USB 3.2 Gen 1x1)

EN 45545-2 · UN / ECE R118 · SAB Rail

DVI Dual-Link

HDMI/DVI/DisplayPort

USB 3.0 (USB 3.2 Gen 1x1)

RoHS · PFAS FREE · UL · CE

Fulfils fire protection requirements
R15 (EL1A) and R16 (EL1B)
acc. to EN 45545-2
for hazard levels HL1-2

marking example:
SAB BRÖCKSKES · D-VIERSEN · SABIX® R flex Data IQ 3x(2xAWG30)ST+2xAWG28 USB 3.0 6650-0003 UL AWM Style 21080 75°C 300V CE

Application: For fixed and flexible installation with medium mechanical stress use in rail vehicles, indoor as well as outdoor.

Construction:	SABIX® R flex Data IQ DVI Dual-Link	SABIX® R flex Data IQ HDMI/DVI/DisplayPort	SABIX® R flex Data IQ USB 3.0 (USB 3.2 Gen 1x1)
Dimension:	7 x (2 x 28 AWG)ST + 5 x 28 AWG	5 x (2 x 28 AWG)ST + 5 x 28 AWG	3 x (2 x 30 AWG)ST + 2 x 28 AWG
Conductor:	tinned copper strands, fine wires		
Insulation:	special SABIX®		
Colour code:	acc. to drawing		
Stranding:	acc. to drawing		
Screen:	alu foil and tinned copper braiding		
Sheath material:	special SABIX®		
Sheath colour:	black (similar RAL 9005)		

Technical data:	SABIX® R flex Data IQ DVI Dual-Link	SABIX® R flex Data IQ HDMI/DVI/DisplayPort	SABIX® R flex Data IQ USB 3.0 (USB 3.2 Gen 1x1)
Item number:	6650-0001	6650-0002	6650-0003
Peak operating voltage:	max. 90 V		
Voltage UL:	300 V		
Testing voltage *core/core:* *core/screen:*	 2000 V 2000 V		
Min. bending radius *fixed laying:* *flexible application:*	 4 x d 12 x d		
Temperature range *fixed laying:* *flexible application:*	UL: up to +75 °C -50/+90 °C -40/+90 °C		
Halogen-free:	acc. to EN 50306-1 + EN 50264-1. Development of HCl is ≤ 0,5% acc. to IEC 60754-1. pH-value is ≥ 4,3 acc. to IEC 60754-2. Conductivity is ≤ 10,0 µS/mm acc. to IEC 60754-2. Fluoric content ≤ 0,1% acc. to IEC 60684-2		
Fire performance:	no flame propagation acc. to IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2. Flame retardant acc. to ISO 6722 (UN/ECE R118)		
Smoke density:	acc. to IEC 61034 + VDE 0482-1034		
Toxicity:	acc. to EN 50305 + VDE 0260-305		
Oil and fuel resistance:	acc. to EN 50264-1 + VDE 0260-264-1		
Characteristic impedance:	100Ω ± 10Ω		90Ω ± 10Ω
Flexibility:	good		
Weather resistance:	good		
Application:	appropriate for DVI Dual-Link applications	appropriate for HDMI, DVI and DisplayPort applications	appropriate for USB 3.0 applications
Absence of harmful substances:	acc. to RoHS directive of the European Union		

item no.	type	dimension	outer-ø mm	copper figure kg/km	cable weight ≈ kg/km
66500001	SABIX® R flex Data IQ – DVI Dual-Link	7 x (2 x 28 AWG)ST + 5 x 28 AWG	approx. 8,6 max. 8,9	49,7	98
66500002	SABIX® R flex Data IQ – HDMI/DVI/DisplayPort	5 x (2 x 28 AWG)ST + 5 x 28 AWG	approx. 7,8 max. 8,0	40,8	82
66500003	SABIX® R flex Data IQ – USB 3.0 (USB 3.2 Gen 1x1)	3 x (2 x 30 AWG)ST + 2 x 28 AWG	approx. 5,2 max. 5,6	22,5	39

Other dimensions and colours are possible on request.

Cables for Railway Technology

R 107

highly flexible Besilen® insulated HV single core

EN 45545-2 · Nominal voltage up to Uo/U 1.8/3 kV · SAB Rail

RoHS · PFAS FREE

marking example:
SAB BRÖCKSKES · D-VIERSEN · R 107 1,8/3 kV 95,0mm² 6107-0894

Application: Highly flexible single conductor for current or ground connection in railway technology.

Construction:

Conductor:	bare copper strands, extremely fine wires
Insulation:	Besilen® EI2 acc. to EN 50363-1 + VDE 0207-363-1
Colour:	slate-gray (RAL 7015)

Outstanding features:

- extremely flexible
- fulfils fire protection requirements acc. to EN 45545-2 / from 1,50 - 10,00 mm²: R15 (EL1A) HL 1 / R16 (EL1B) HL 1-2 from 16,00 mm²: R15 (EL1A) HL 1-2 / R16 (EL1B) HL 1-3
- halogen-free
- heat resistant
- flexible at low temperatures
- flame retardant and self-extinguishing
- good ozone, UV and weather resistance
- PFAS free

Technical data:

Nominal voltage:	Uo/U 1,8/3,0 kV
Testing voltage:	6500 V
Current-carrying capacity:	acc. to VDE 0298-4
Min. bending radius *fixed laying:* *flexible application:*	 2 x d 4 x d
Temperature range *fixed laying:* *flexible application:* *short-time use:*	 -50/+180 °C -25/+180 °C +250 °C
Halogen-free:	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to IEC 60754-1. pH-value is > 4,3 IEC 60754-2. Conductivity is < 10,0 µS/mm acc. to IEC 60754-2. Fluoric content < 0,1% acc. to IEC 60684-2.
Fire performance:	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2
Toxicity:	acc. to EN 50305 + VDE 0260-305
Smoke density:	acc. to IEC 61034 + VDE 0482-1034
Weather resistance:	very good
Ozone resistance:	acc. to EN 50382-2 + VDE 0260-382-2
Oil resistance:	good
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 ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
61070882	1,50	0,07	6,9	14,4	62
61070884	2,50	0,07	7,4	24,0	76
61070886	4,00	0,07	8,1	38,4	97
61070887	6,00	0,07	8,5	57,6	119
61070888	10,00	0,07	10,0	96,0	172
61070889	16,00	0,07	10,3	153,6	222
61070890	25,00	0,10	12,1	240,0	328
61070891	35,00	0,10	13,8	336,0	435
61070892	50,00	0,10	15,7	480,0	591
61070893	70,00	0,10	17,7	672,0	788
61070894	95,00	0,10	19,2	912,0	1041
61070895	120,00	0,10	20,9	1152,0	1281
61070896	150,00	0,10	24,1	1440,0	1588
61070897	185,00	0,15	25,3	1776,0	1912
61070898	240,00	0,15	29,8	2304,0	2476
61070899	300,00	0,15	31,7	2880,0	3094

Other dimensions and colours are possible on request.

On request with tinned copper strands!

Also available with copper braiding as R 108!

Cables for Railway Technology

B 107

highly flexible Besilen® insulated HV single core, cULus recognized

Nominal voltage up to Uo/U 1.8/3 kV

marking example:
SAB BRÖCKSKES · D-VIERSEN · B 107 Uo/U 1,8/3 kV 95,0mm² c us AWM Style 30122 AWM I A 150°C 3000V FT2

Application: Highly flexible single conductor for current or ground connection in railway technology, for switchboard wiring and the use in energy storage systems, test benches or power wiring.

Construction:

Conductor:	bare copper strands, extra fine wires
Insulation:	Besilen® EI2 acc. to EN 50363-1 + VDE 0207-363-1
Colour:	translucent

Outstanding features:

- extremely flexible
- halogen-free
- flexible at low temperatures
- heat resistant
- flame retardant and self-extinguishing
- weather resistant
- cULus recognized
- PFAS free

Technical data:

Nominal voltage:	Uo/U 1,8/3,0 kV AC Uo/U 2,7/5,4 kV DC
Voltage cULus:	3000 V
Testing voltage:	6500 V
Current-carrying capacity:	acc. to VDE 0298-4
Min. bending radius *fixed laying:* *flexible application:*	 2 x d 4 x d
Temperature range *fixed laying:* *flexible application:* *short-time use:*	**DIN VDE** **cULus:** up to +150 °C -40/+180 °C -25/+180 °C +250 °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 FT2
Corrosiveness of conflagration gases:	IEC 60754-2 + VDE 0482-754-2 - no development of corrosive conflagration gases
Weather resistance:	very good
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 ± 10% mm	copper figure kg/km	cable weight ≈ kg/km
01070100	1,00	0,07	4,3	9,6	25
01070150	1,50	0,07	4,7	14,4	31
01070250	2,50	0,07	5,2	24,0	43
01070400	4,00	0,07	5,9	38,4	60
01070600	6,00	0,07	6,3	57,6	80
01071000	10,00	0,07	9,0	96,0	146
01071600	16,00	0,07	9,3	153,6	194
01072500	25,00	0,10	12,0	240,0	314
01073500	35,00	0,10	13,8	336,0	431
01075000	50,00	0,10	15,7	480,0	581
01077000	70,00	0,10	17,7	672,0	792
01079500	95,00	0,10	18,8	912,0	1012
01071200	120,00	0,10	20,5	1152,0	1280
01071500	150,00	0,10	23,7	1440,0	1551
01071850	185,00	0,15	25,3	1776,0	1935
01072400	240,00	0,15	27,9	2304,0	2508
01073000	300,00	0,15	30,8	2880,0	3003

Other dimensions and colours are possible on request.

* Colour code for copper rope, position 8 of the item no.:

1 = green-yellow	5 = green
2 = blue	6 = white
3 = black	7 = orange
4 = brown	8 = red

Copper rope with orange sheath for E-Mobility HV test benches.

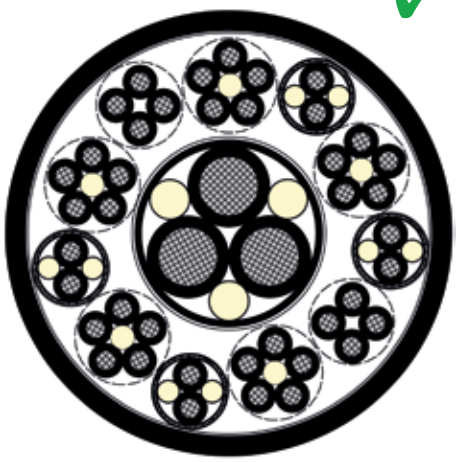
Coupling cable T 790 torsion able connecting cable
SABIX® A 883 Ö twisting and torsion connection cable

Torsion able connecting cable

item no. 07909008

cross section:
33 x 1,5 mm² + 3 x 10,0 mm² + 4 x (2 x 1,5) mm²

CE RoHS PFAS FREE



Construction:

Conductor:	special copper, fine wires
Insulation:	TPE
Screen:	tinned copper braiding, optical coverage ≥ 85%
Sheath material:	special PUR
Sheath colour:	black (RAL 9005)

Technical Data:

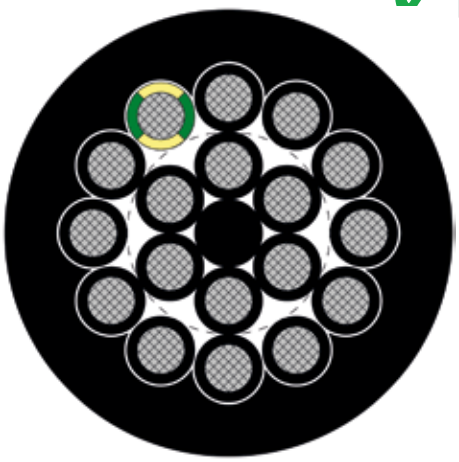
Nominal voltage:	1,50 mm²: Uo/U 0,6/1,0 kV 10,0 mm²: Uo/U 1,8/3,0 kV
Testing voltage:	1,50 mm²: core/core 4000 V core/screen 2000 V 10,0 mm²: core/core 12000 V core/screen 6000 V
Min. bending radius *flexible application:*	10 x d
Temperature range *fixed laying:* *flexible application:*	-50/+90 °C -40/+90 °C
Absence of harmful substances:	acc. to RoHS directive of the European Union

Twisting and torsion connection cable

item group 0883

Application: For the use in rail vehicles,
e. g. bogies and boxes.

CE RoHS PFAS FREE



Construction:

Conductor:	tinned copper strands, acc. to IEC 60228, VDE 0295, class 6
Insulation:	TPE
Colour code:	black cores with consecutive numbers acc. to EN 50334 + VDE 0293-334, green-yellow earth wire from 3 cores
Stranding:	in layers
Inner sheath:	SABIX®
Sheath material:	PUR, TMPU acc. to EN 50363-10-2 + VDE 0207-363-10-2
Sheath colour:	black (RAL 9005)

Technical data:

Nominal voltage:	Uo/U 300/500 V
Testing voltage:	core/core 2000 V
Min. bending radius *fixed laying:* *flexible application:*	 4 x d 6 x d
Temperature range *fixed laying:* *flexible application:*	 -50/+85 °C -40/+85 °C
Torsion angle:	± 15°
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 - PUR, TMPU acc. to EN 50363-10-2 + DIN VDE 0207-363-10-2
UV resistance:	good
Ozone resistance:	good
Weather resistance:	good
Absence of harmful substances:	acc. to RoHS directive of the European Union

Also possible without earth wire!

Cables for Railway Technology

Flexible cables

Due to faster and high-tech automation systems in all areas of production and application technology, the industry demands **innovative cables and wires** from the cable industry. To ensure that we are always at the cutting edge of technology, we develop and produce **customized special cables** to meet the exact technical requirements of our customers.

We can realize even the **smallest batch sizes.** Total lengths of 300 m, often even **as short as 100 m,** are based on individual requirements and are therefore also economically in the interest of our customers.

Insulating and sheath materials
PVC
polyethylene
polypropylene
polyurethane
TPE
SABIX® (zero halogen)
Besilen® - silicone
FEP, ETFE, PFA, PTFE
pi foil
fibre-glass

Conductor materials
bare copper
tinned copper
silver-plated copper
nickel-plated copper
nickel
pure nickel
alloys for compensating cable

Temperature ranges
thermoplastic elastomers -50°C up to +145°C
SABIX® -50°C up to +220°C
Besilen® - silicone -40°C up to +220°C
FEP, ETFE, PFA -50°C bis +220°C
fibre-glass up to +600°C

Conductors
cross sections 0,055 - 300 mm²
unshielded and shielded more than 100 conductors

Hybrid and Special Cables

Technical problems often arise that can not be solved properly by standard cables. Being a customer of SAB Bröckskes, you have the right to get the best solution.

Therefore, we are pleased being your specialist for special cables. No matter whether a cable of our standard range is to be modified or a completely new cable is to be constructed: we will work together with you intensively in order to realise your requests and needs. Anyway, you will profit from our variedness and flexibility, that besides our wide standard product range of cables count among the special strengths of our company.

We produce nearly every type of special cable for you already with minimum quantities of 500 m, in certain dimensions already 100 m - exactly according to your individual construction demands.

Please give us your requested details, such as:

- conductor material
- number of cores
- cross sections
- colours
- outer diameter
- flexibility
- low and high temperature resistance
- materials
- types of screening
- combined cables
- technical specifications
- optical waveguide
- number of fibres
- POF (polymeric optical fibres)

Of course, we also fulfil other parameters than the above-mentioned. Your requests are always most important and our highly motivated team will meet them applying our comprehensive know-how. By this means you will be able to improve the efficiency of your machines.

Are you interested in a special solution? Contact our sales team directly that is supported by sales representatives in many parts of Europe.

Cable harnessing

- Single wire harnesses
- Special cable harnesses
- Complete cable harnesses
- Customized cable harnesses
- Production acc. to UL Standard Wiring Harness category „ZPFW2“ (UL) and „ZPFW8“ (Canada)

Whether **standard- or special cable harnessing,** we design and produce high-quality cables and wires to the fully connected plug. As a manufacturer of **harnessed single cores, cables** or **complete cable sets.** We offer an extensive range of specially tailored product to your requirements and specifications, including **UL certification** in accordance with UL Standard Wiring Harness „category ZPFW2 (UL)“ and „ZPFW8 (Canada)“.

Our cable assemblies are already used in a wide range of industries. For example, they are used in the automotive industry, in machine, plant and control engineering and in the household appliance industry.

We pay particular attention to a **high quality standard** for our products through continuous quality control.

Cables for Railway Technology

Measurement technology

- Temperature measurement on test vehicles and test benches
- Development and production of special temperature sensors
- High-voltage measurement technology for components in electromobility
- Thermocouples with and without connection cable and thermocouple plugs
- Resistance thermometers acc. to individual requirements and technical specifications
- Gauge slides inserts for thermocouples and resistance thermometers

As a manufacturer of temperature sensors for industrial applications, we are characterized by over 75 years of experience in temperature measurement technology. We not only offer a wide range of standard sensors, but also focus on the development and manufacture of **special temperature sensors,** which we design together with the customer exactly for their application.

SPECIAL CABLES

SAB BRÖCKSKES

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03/2026