

CABLES FOR RAILWAY TECHNOLOGY



www.sab-cable.com





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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.

fulfils fire protection requirements acc. to NFPA 130 section 8.6.7.1.1.1 and section 12.2.1 (1)

Family business in the third generation

75 years of experience in cable and wire manufacturing as well as in temperature measurement technology turned a one-man business into a company with more than 550 employees. We prove our strength every year with more than 1500 special products according to customers' requirements. Each product is a new challenge for our creative technical team. We at **SAB** see ourselves as a manufacturer and a service provider – in the sense of true partnership and the greatest possible customer orientation.

Today, the quality of our products is known and appreciated in more than 100 countries around the world. In all product ranges, we are certified according to DIN EN ISO 9001. Furthermore, we have implemented an environmental management system for our company according to DIN EN ISO 14001, an occupational health and safety management system according to NLF/ILO-OSH and DIN ISO 45001, and an energy management system according to DIN EN ISO 50001.

And also for the future, our slogan is: **"WE GO FORWARD!"**

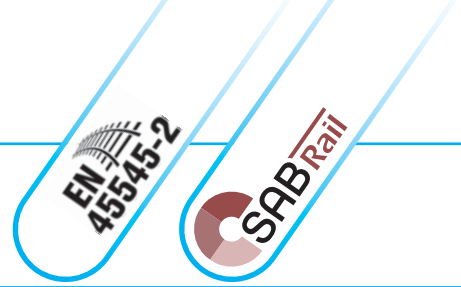
| | |
|-----------------------------|---|
| FOUNDED: | 1947 by Peter Bröckskes sen. an independent, medium-sized company. |
| CEO: | Peter Bröckskes and Sabine Bröckskes-Wetten |
| PLANT/LOCATION: | In Viersen (Lower Rhine) 110.000 m ² company site. Own manufacturing from copper conductor to outer sheath. VDE approved burnchamber and laboratory within the company. |
| EMPLOYEES/WORKERS: | approx. 430 at the plant in Viersen, 550 worldwide |
| YEARLY SALES: | over 134 Mio. € worldwide |
| PRODUCTS: | Special Cables Measurement Technology Cable Harnessing |
| 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 health and safety management acc. to NLF/ILO-OSH and DIN ISO 45001 Energy management system acc. to DIN EN ISO 50001 |





| Extract from EN 45545-2 table 5 requirement set R15 (EL1A) for the respective hazard classes | | | | | | |
|--|--|-----------------------------|--------------------|--|--|--|
| Short name of requirement set (used for) | Test method reference | Parameter Unit | Maximum or Minimum | HL1 | HL2 | HL3 |
| R15 (EL1A) | T09.01 EN 60332-1-2 | Unburned 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 60332-3-24 (for d ≥ 12 mm) | m | Maximum | 2,5 | 2,5 | 2,5 |
| | T09.03 EN 50305 (for 6 mm < d < 12 mm) | m | Maximum | 2,5 | 2,5 | 2,5 |
| | T09.04 EN 50305 (for d ≤ 6 mm) | m | Maximum | 1,5 | 1,5 | 1,5 |
| | T13 EN 61034-2 | Transmission % | Minimum | 25 | 50 | 70 |
| | T15 EN 50305 | <i>ITC</i> dimensionless | Maximum | 10 | 10 | 6 |

| Hazard level classification (HL) | | | | |
|--|-------------------------|--|------------------------------|---------------------------------------|
| Extract from EN 45545-2 table 5 requirement set R15 (EL1A) for the respective hazard classes | | | | |
| 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 |



Selection table

Cables for Railway Technology acc. to EN 45545-2

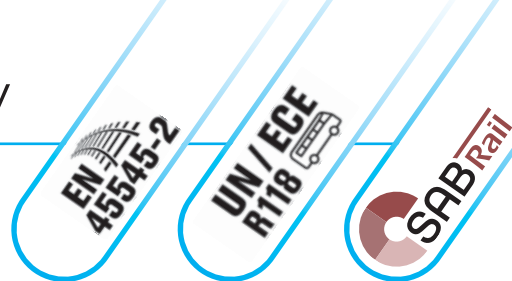
| | | Cable type | SABIX® A 146 FRNC | SABIX® A 156 FRNC | SABIX® R 600 FRNC | SABIX® R 638 FRNC | SABIX® R 605 FRNC | SABIX® R 615 FRNC | SABIX® R 645 FRNC TP | SABIX® R flex | SAB RailLine 560 | CATLine CAT 5e R | CATLine CAT 6A R | CATLine CAT 7A R | CATLine CAT 5e R flex | CATLine CAT 6A R flex | CATLine CAT 7A R flex | SABIX® A 280 FRNC X | SABIX® A 285 FRNC X | SABIX® A 280 FRNC X (FR) | R 107 | SABIX® USB 2.0 R flex | | |
|---------------------------------------|--|------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------|---------------|------------------|------------------|------------------|------------------|-----------------------|-----------------------|-----------------------|---------------------|---------------------|--------------------------|-------|-----------------------|---|---|
| Applications | Single conductor | | ● | ● | | | | | | | | | | | | | | ● | | | | ● | | |
| | Multi-core cable | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● |
| | screened | | | | | | | | | | | | | | | | | | | | | | | |
| | Wiring cable | | ● | ● | | | | | | | | | | | | | | | | | | | | |
| | Data cable | | | | | | | ● | ● | ● | | | | | | | | | | | | | | |
| | Control cable | | | | | ● | ● | | | | ● | ● | | | | | | | ● | ● | ● | | | |
| | Ethernet cable | | | | | | | | | | | | | ● | | | | | | | | | | |
| | USB 2.0 cable | | | | | | | | | | | | | | | | | | | | | | | ● |
| cross linked type | | | | | | | | | | | ● | | | | | | | ● | ● | ● | | | | |
| Standards | tested acc. to EN 45545-2 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| | 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 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 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 U ₀ /U 300/500 V | | ● | | ● | ● | | | | | ● | ● | | | | | | | ● | ● | ● | | | |
| | Nominal voltage U ₀ /U 450/750 V | | | ● | | | | | | | | | | | | | | | | | | | | |
| | Nominal voltage U ₀ /U 0,6/1 kV | | | | | | | | | | | ● | | | | | | | | | | | | |
| | Nominal voltage U ₀ /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 particular catalogue page

Cables for Railway Technology

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



BRÜCKSKES · D-VIERSEN · SABIX® A 146 FRNC 300/500 V 0,5 mm² CE

Marking for SABIX® A 146 FRNC 61460150:

SAB BRÜCKSKES · 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* |

Technical Data:

| | | |
|--|---|--|
| Nominal voltage: | SABIX® A 146 FRNC: U _o /U 300/500 V | SABIX® A 156 FRNC: U _o /U 450/750 V |
| Testing voltage: | SABIX® A 146 FRNC: 2000 V | SABIX® A 156 FRNC: 2500 V |
| Min. bending radius: For one single bend: | 7,5 x d 5 x d | |
| Temperature range <i>fixed laying:</i> <i>flexible application:</i> | -40/+90 °C -30/+90 °C | |
| Halogen-free: complementary for railway technology: | acc. to IEC 60754-1 + VDE 0482-754-1 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 | |

Outstanding 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

SABIX® A 146 FRNC

| item no. | nominal cross-section mm ² | largest single wire ø mm | outer-ø ± 5% 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.

SABIX® A 156 FRNC

| item no. | nominal cross-section mm ² | largest single wire ø mm | outer-ø ± 5% 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.

* 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 |



On request with
tinned copper strands

Cables for Railway Technology

SABIX® R 600 FRNC

SABIX® Rail Control with numbered cores



S · D-VIERSEN · SABIX® R 600 FRNC 12 x 1,5 mm² CE



Marking for SABIX® R 600 FRNC 66001215:

SAB BRÜCKSKES · D-VIERSEN · SABIX® R 600 FRNC 12 x 1,5 mm² CE

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) |

Outstanding 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

Technical Data:

| | |
|---------------------------------------|---|
| Nominal voltage: | U ₀ /U 300/500 V |
| Testing voltage: | core/core 3000 V |
| Min. bending radius | |
| <i>fixed laying:</i> | 4 x d |
| <i>flexible application:</i> | 6 x d |
| Temperature range | |
| <i>fixed laying:</i> | -40/+90 °C |
| <i>flexible application:</i> | -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 mm ² | largest single wire ø mm | outer-ø ± 5% 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 |
| 66004205 | 42 x 0,50 | 0,21 | 15,7 | 201,6 | 365 |
| 66006105 | 61 x 0,50 | 0,21 | 18,5 | 292,8 | 510 |
| 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 |
| 66004207 | 42 x 0,75 | 0,21 | 18,4 | 302,4 | 515 |
| 66006107 | 61 x 0,75 | 0,21 | 21,6 | 439,2 | 721 |
| 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 |
| 66004210 | 42 x 1,00 | 0,21 | 19,4 | 403,2 | 616 |
| 66006110 | 61 x 1,00 | 0,21 | 22,7 | 585,6 | 873 |
| 66000215 | 2 x 1,50 | 0,26 | 6,4 | 28,8 | 69 |
| 66000315 | 3 x 1,50 | 0,26 | 6,8 | 43,2 | 81 |

| item no. | no. of cores x cross section n x mm ² | largest single wire ø mm | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|--------------------------------|-----------------------|---------------------------|----------------------------|
| 66000415 | 4 x 1,50 | 0,26 | 7,6 | 57,6 | 99 |
| 66000515 | 5 x 1,50 | 0,26 | 8,3 | 72,0 | 124 |
| 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 |
| 66004215 | 42 x 1,50 | 0,26 | 22,0 | 604,8 | 867 |
| 66006115 | 61 x 1,50 | 0,26 | 25,8 | 878,4 | 1217 |
| 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 | 276 |
| 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.

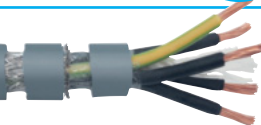
Cables for Railway Technology

SABIX® R 638 FRNC

SABIX® Rail Control with numbered cores and overall copper screen



SKES · D-VIERSEN · SABIX® R 638 FRNC 5 x 1,5 mm² CE



Marking for SABIX® R 638 FRNC 66380515:

SAB BRÜCKSKES · D-VIERSEN · SABIX® R 638 FRNC 5 x 1,5 mm² CE

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) |

Technical Data:

| | |
|---------------------------------------|---|
| Nominal voltage: | U ₀ /U 300/500 V |
| Testing voltage: | core/core 3000 V core/screen 2000 V |
| Min. bending radius | |
| fixed laying: | 5 x d |
| flexible application: | 10 x d |
| Temperature range | |
| fixed laying: | -40/+90 °C |
| flexible application: | -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 |

Outstanding 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

Tested at reference types.

| item no. | no. of cores x cross section n x mm ² | largest single wire ø mm | outer-ø ± 5% 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 mm ² | largest single wire ø mm | outer-ø ± 5% 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.

Cables for Railway Technology

SABIX® R 605 FRNC

SABIX® Rail Data



D-VIERSEN · SABIX® R 605 FRNC 32 x 0,5 mm² CE



Marking for SABIX® R 605 FRNC 66053250:

SAB BRÜCKSKES · 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) |

Outstanding 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 and section 12.2.1 (1)
- flame retardant acc. to UN/ECE R118

Technical Data:

| | |
|--|--|
| Peak operating voltage: | < 0,25 mm ² = max. 350 V ≥ 0,25 mm ² = max. 500 V |
| Testing voltage: | core/core 1500 V |
| Min. bending radius <i>fixed laying:</i> | 5 x d |
| <i>flexible application:</i> | 10 x d |
| Temperature range <i>fixed laying:</i> | -40/+90 °C |
| <i>flexible application:</i> | -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 mm ² | outer-ø ± 5% 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 mm ² | outer-ø ± 5% 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.
Continued on next page

Cables for Railway Technology

SABIX® R 605 FRNC

SABIX® Rail Data



D-VIERSEN · SABIX® R 605 FRNC 32 x 0,5 mm² CE



Marking for SABIX® R 605 FRNC 66053250:

SAB BRÜCKSKES · D-VIERSEN · SABIX® R 605 FRNC 32 x 0,5 mm² CE

| item no. | no. of cores x cross section n x mm ² | outer-ø ± 5% 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 mm ² | outer-ø ± 5% 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.

Cables for Railway Technology

SABIX® R 615 FRNC

SABIX® Rail Data with overall copper screen



SEN · SABIX® R 615 FRNC 5 x 0,5 mm² CE



Marking for SABIX® R 615 FRNC 66150550:

SAB BRÜCKSKES · 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) |

Outstanding 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 and section 12.2.1 (1)
- tested acc. to American ASTM standard
- flame retardant acc. to UN/ECE R118

Technical Data:

| | |
|---------------------------------------|--|
| Peak operating voltage: | < 0,25 mm ² = max. 350 V ≥ 0,25 mm ² = max. 500 V |
| Testing voltage: | core/core 1500 V core/screen 1200 V |
| Min. bending radius | |
| fixed laying: | 5 x d |
| flexible application: | 10 x d |
| Temperature range | |
| fixed laying: | -40/+90 °C |
| flexible application: | -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 mm ² | outer-ø ± 5% 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 |
| 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 |

| item no. | no. of cores x cross section n x mm ² | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|-----------------------|---------------------------|----------------------------|
| 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 |
| 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 |

NFPA 130 / FT4 only up to outer-ø < 13 mm.
Continued on next page

Cables for Railway Technology

SABIX® R 615 FRNC

SABIX® Rail Data with overall copper screen



SEN · SABIX® R 615 FRNC 5 x 0,5 mm² CE



Marking for SABIX® R 615 FRNC 66150550:

SAB BRÜCKSKES · D-VIERSEN · SABIX® R 615 FRNC 5 x 0,5 mm² CE

| item no. | no. of cores x cross section n x mm ² | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|-----------------------|---------------------------|----------------------------|
| 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 |
| 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 |

| item no. | no. of cores x cross section n x mm ² | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|-----------------------|---------------------------|----------------------------|
| 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.

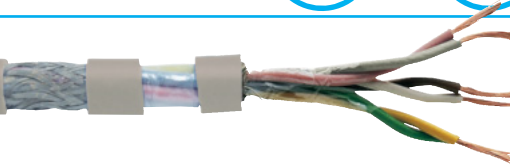
Cables for Railway Technology

SABIX® R 645 FRNC TP

SABIX® Rail Data paired with overall copper screen



645 FRNC TP 3 x 2 x 0,25 mm² CE



Marking for SABIX® R 645 FRNC TP 66450325:

SAB BRÜCKSKES · 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) |

Outstanding features:



- halogen-free
- no flame propagation
- good EMC characteristics
- 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 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

Technical Data:

| | |
|---------------------------------------|--|
| Peak operating voltage: | < 0,25 mm ² = max. 350 V ≥ 0,25 mm ² = max. 500 V |
| Testing voltage: | core/core 1500 V core/screen 1200 V |
| Min. bending radius | |
| fixed laying: | 5 x d |
| flexible application: | 10 x d |
| Temperature range | |
| fixed laying: | -40/+90 °C |
| flexible application: | -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 mm ² | 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 mm ² | 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.

Cables for Railway Technology

SABIX® R flex

continuously flexible SABIX® Rail cable with numbered cores



BRÖCKSKES · D-VIERSEN · SABIX® R flex 5G0,75 mm² CE



Marking for SABIX® R flex 66701105:

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) |

Outstanding 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

Technical Data:

| | | |
|---------------------------------------|---|--------------------|
| Nominal voltage: | Uo/U 300/500 V | |
| Testing voltage: | core/core 2000 V | core/screen 2000 V |
| Min. bending radius | unshielded | shielded |
| <i>fixed laying:</i> | 4 x d | 5 x d |
| <i>flexible application:</i> | 6 x d | 10 x d |
| <i>continuously flexible:</i> | 12 x d | 15 x d |
| Temperature range | -50/+90 °C | |
| <i>fixed laying:</i> | -40/+90 °C | |
| <i>flexible application:</i> | | |
| 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 ± 5% 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 ± 5% 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 |
| 66700032 | 32 x 0,50 | 0,16 | 12,8 | 153,6 | 267 |
| 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 |
| 66700273 | 73 x 1,00 | 0,16 | 23,0 | 700,8 | 989 |
| 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 |

Other dimensions and colours are possible on request.

| item no. | no. of pairs x cross section n x 2 x mm² | largest single wire ø mm | outer-ø ± 5% 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 | 89,9 | 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.

Cables for Railway Technology

SAB RailLine 560

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



-VIERSEN · SAB RailLine 560 5x0,75mm² C 6560-1105 CE 

Marking for SAB RailLine 560 65601105:

SAB BRÜCKSKES · 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) |

Outstanding 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

Technical Data:

| | | | |
|---------------------------------------|---|-----------|----------|
| Nominal voltage: | Uo/U 300/500 V resp. 0.6/1 kV | | |
| Testing voltage: | core/core | 300/500 V | 0.6/1 kV |
| | 2000 V | | 4000 V |
| | core/screen | 2000 V | 4000 V |
| Min. bending radius | | | |
| <i>fixed laying:</i> | 4 x d | | |
| <i>flexible application:</i> | 6 x d | | |
| <i>continuously flexible:</i> | 10 x d | | |
| Torsion angle: | ± 15°/1 m | | |
| Temperature range | | | |
| <i>fixed laying:</i> | -50/+90 °C | | |
| <i>flexible application:</i> | -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 mm ² | nominal voltage | outer-ø 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 mm ² | nominal voltage | outer-ø 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 mm ² | nominal voltage | outer-ø 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 |
| 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 |

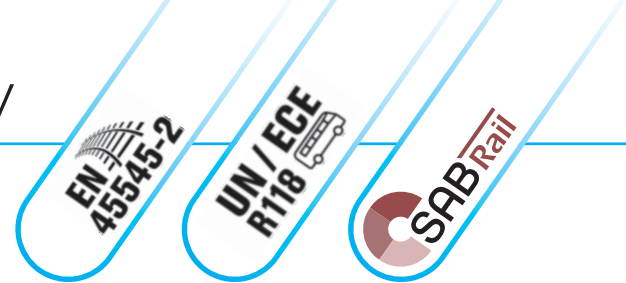
Other dimensions and colours are possible on request.

Cables for Railway Technology

CATLine CAT 5e R

CATLine CAT 6A R halogen-free Industrial Ethernet Cables
for Railway Technology

CATLine CAT 7A R



S · D-VIERSEN · CATLine Cat. 7A R 4x2x24AWG 1767-4621 CE 



Marking for CATLine Cat. 7A R 4x2x24AWG 17674621:

SAB BRÜCKSKES · D-VIERSEN · CATLine Cat. 7A R 4x2x24AWG 1767-4621 CE

| Construction: | CATLine CAT 5e R <i>flexible</i> | | CATLine CAT 6A R <i>flexible</i> | CATLine CAT 7A R <i>flexible</i> |
|-------------------------|--|---|-------------------------------------|---|
| 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 | cores twisted to pairs, pairs together | | twisted to pairs with alu foil, pairs together |
| Wrapping: | foil | | | --- |
| Screen: | alu foil und tinned copper braiding | | | tinned copper braiding |
| Sheath material: | special SABIX® | | | |
| Sheath colour: | green (similar RAL 6018) | | | |

| Technical data: | CATLine CAT 5e R <i>flexible</i> | | CATLine CAT 6A R <i>flexible</i> | CATLine CAT 7A R <i>flexible</i> |
|--|--|---|--|-------------------------------------|
| 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 | | | |
| Absence of harmful substances: | acc. to RoHS directive of the European Union | | | |

| item no. | type | dimension | max. core-ø mm | outer-ø mm | copper figure kg/km | cable weight ≈kg/km |
|----------|------------------|----------------|----------------|------------|---------------------|---------------------|
| 15672625 | CATLine CAT 5e R | 2 x 2 x 26 AWG | 1,05 | 4,0 ± 5% | 16,4 | 25 |
| 15679002 | CATLine CAT 5e R | 2 x 2 x 24 AWG | 1,30 | 5,2 ± 5% | 22,7 | 41 |
| 15679004 | CATLine CAT 5e R | 2 x 2 x 22 AWG | 1,60 | 5,9 ± 5% | 29,1 | 52 |
| 15674421 | CATLine CAT 5e R | 4 x 2 x 24 AWG | 1,30 | 8,0 ± 10% | 41,2 | 70 |
| 16674621 | CATLine CAT 6A R | 4 x 2 x 26 AWG | 1,05 | 6,8 ± 10% | 31,9 | 55 |
| 17674621 | CATLine CAT 7A R | 4 x 2 x 26 AWG | 1,60 | 7,8 ± 10% | 38,5 | 75 |

Other dimensions and colours are possible on request.

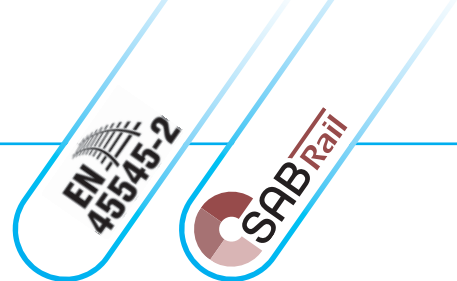
Also possible
as harnessed cable
with M12 or RJ 45 plug!



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



D-VIERSEN · CATLine Cat. 7A R flex 4x2x24AWG 1769-4431 CE 

Marking for CATLine CAT 7A R flex 17694431:

SAB BRÜCKSKES · D-VIERSEN · CATLine Cat. 7A R flex 4x2x24AWG 1769-4431 CE

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 <i>continuously flexible</i> | | CATLine CAT 6A R flex <i>continuously flexible</i> | CATLine CAT 7A R flex <i>continuously flexible</i> |
|-------------------------|---|---|---|---|
| Dimension: | 2 x 2 x 24 AWG 2 x 2 x 22 AWG | 4 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 | cores twisted to pairs, pairs together | | twisted to pairs with alu foil, pairs together |
| Wrapping: | foil | | | --- |
| Screen: | alu foil und tinned copper braiding | | | tinned copper braiding |
| Sheath material: | special SABIX® | | | |
| Sheath colour: | green (similar RAL 6018) | | | |

| Technical data: | CATLine CAT 5e R flex <i>continuously flexible</i> | | CATLine CAT 6A R flex <i>continuously flexible</i> | CATLine CAT 7A R flex <i>continuously flexible</i> |
|--|--|--|--|---|
| 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-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 | | | |
| 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 | | | |
| Absence of harmful substances: | acc. to RoHS directive of the European Union | | | |

| item no. | type | dimension | max. core-ø mm | outer-ø 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.

Also possible as harnessed cable with M12 or RJ 45 plug!



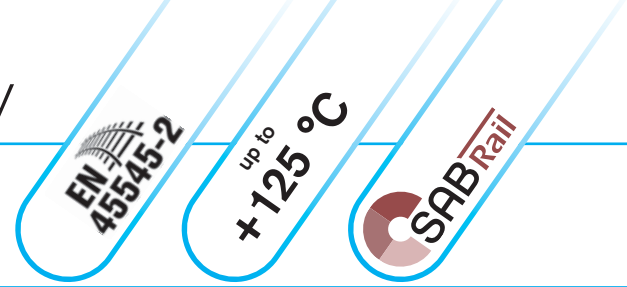
CABLE ASSEMBLY POSSIBLE



Cables for Railway Technology

SABIX® A 280 FRNC X

wiring cable / control cable, cross linked type



BRÜCKSKES · D-VIERSEN · SABIX® A 280 FRNC X 1 x 1,0 mm² CE



Marking for SABIX® A 280 FRNC X 62800110:

SAB BRÜCKSKES · D-VIERSEN · SABIX® A 280 FRNC X 1 x 1,0 mm² CE

BRÜCKSKES · D-VIERSEN · SABIX® A 280 FRNC X 5 x 0,5 mm² CE



Marking for SABIX® A 280 FRNC X 62800505:

SAB BRÜCKSKES · D-VIERSEN · SABIX® A 280 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® |
| 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) |

Technical Data:

| | |
|--|---|
| Nominal voltage: | U ₀ /U 300/500 V |
| Testing voltage: | core/core 2000 V |
| Min. bending radius: | 5 x d |
| Temperature range <i>during protected, fixed laying:</i> | -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, 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 |
| 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 |

Outstanding 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

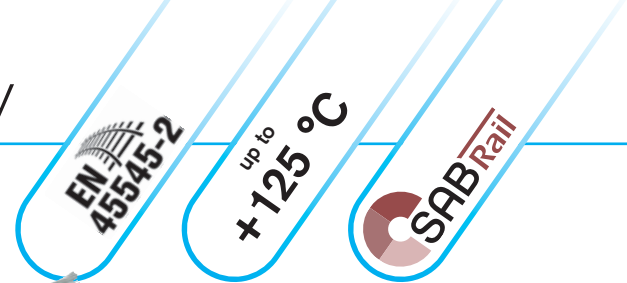
| item no. | no. of cores x cross section | largest single wire | outer-ø ± 5% | copper figure | cable weight | ohmic resistance at 20 °C max. Ω/km | heating value approx. kWh/km |
|----------|---------------------------------|------------------------|-----------------|------------------|-----------------|--|---------------------------------------|
| | n x mm ² | ø mm | mm | kg/km | ≈ kg/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.

Cables for Railway Technology

SABIX® A 285 FRNC X

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



Marking for SABIX® A 285 FRNC X 62850505:

SAB BRÜCKSKES · 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) |

Technical Data:

| | |
|--|---|
| Nominal voltage: | U ₀ /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, 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 |
| 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 |

Outstanding 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

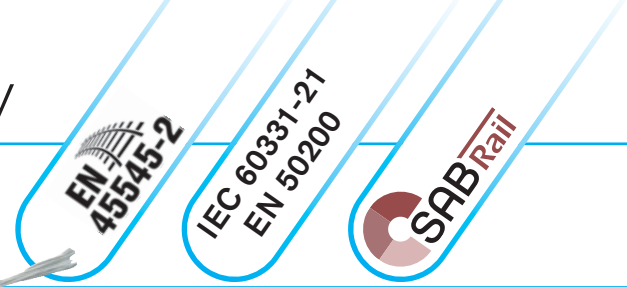
| item no. | no. of cores x cross section | largest single wire | outer-ø ± 5% | copper figure | cable weight | ohmic resistance at 20 °C max. Ω/km | heating value approx. kWh/km |
|----------|---------------------------------|------------------------|-----------------|------------------|-----------------|--|---------------------------------------|
| | n x mm ² | ø mm | mm | kg/km | ≈ kg/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 |

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



BRÜCKSKES · D-VIERSEN · SABIX® A 280 FRNC X (FR) 5 x 0,5 mm² CE



Marking for SABIX® A 280 FRNC X (FR) 62809505:

SAB BRÜCKSKES · 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) |

Outstanding 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

Technical Data:

| | |
|--|---|
| Nominal voltage: | U ₀ /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, 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 |
| 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 mm ² | outer-ø ± 5% 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 mm ² | outer-ø ± 5% 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

R 107

highly flexible Besilen® insulated HV single core

EN 45545-2

Nominal voltage up to
Uo/U 1.8/3 kV



ES · D-VIERSEN · R 107 1,8/3 kV 95,0mm² 6107-0894



Marking for R 107 61070894:

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) |

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: | 5 x d |
| Temperature range | |
| fixed laying: | -50/+180 °C |
| flexible application: | -25/+180 °C |
| short-time use: | +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 |

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

| item no. | nominal cross section mm ² | largest single wire ø mm | outer-ø ± 5% 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!

Besilen® is a specially developed Silicone rubber-based material with good electrical characteristics and it is a registered trademark of SAB BRÖCKSKES GmbH & Co. KG.

Cables for Railway Technology

B 107

highly flexible Besilen® insulated HV single core

Nominal voltage up to
U_o/U 1,8/3 kV



BRÖCKSKES · D-VIERSEN · B 107 U_o/U 1,8/3 kV 95,0mm²



Marking for B 107 01079500:

SAB BRÖCKSKES · D-VIERSEN · B 107 U_o/U 1,8/3 kV 95,0mm²

Application: Highly flexible single core 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 |

Technical data:

| | |
|--|---|
| Nominal voltage | 4,0 - 6,0 mm ² : U _o /U 1,5/1,5 kV 10,0 - 185,0 mm ² : U _o /U 1,8/3,0 kV |
| Testing voltage | 4,0 - 6,0 mm ² : 4000 V 10,0 - 185,0 mm ² : 6500 V |
| Current-carrying capacity: | acc. to VDE 0298-4 |
| Min. bending radius: | 5 x d |
| Temperature range | |
| fixed laying: | -40/+180 °C |
| flexible application: | -25/+180 °C |
| short-time use: | +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 |
| 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 |

Outstanding features:



- halogen-free
- heat resistant
- flexible at low temperatures
- flame retardant and self-extinguishing
- weather resistant

| item no. | nominal cross section mm ² | largest single wire ø mm | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|---------------------------------------|--------------------------|-----------------|---------------------|----------------------|
| 01070400 | 4,00 | 0,07 | 5,3 | 38,4 | 54 |
| 01070600 | 6,00 | 0,07 | 5,7 | 57,6 | 74 |
| 01071000 | 10,00 | 0,07 | 9,0 | 96,0 | 146 |
| 01071600 | 16,00 | 0,07 | 9,3 | 153,6 | 196 |
| 01072500 | 25,00 | 0,10 | 12,0 | 240,0 | 314 |
| 01073500 | 35,00 | 0,10 | 13,8 | 336,0 | 426 |
| 01075000 | 50,00 | 0,10 | 15,7 | 480,0 | 581 |
| 01077000 | 70,00 | 0,10 | 17,7 | 672,0 | 777 |
| 01079500 | 95,00 | 0,10 | 18,8 | 912,0 | 1012 |
| 01071200 | 120,00 | 0,10 | 20,5 | 1152,0 | 1244 |
| 01071500 | 150,00 | 0,10 | 23,7 | 1440,0 | 1551 |
| 01071850 | 185,00 | 0,15 | 25,3 | 1776,0 | 1893 |

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 |



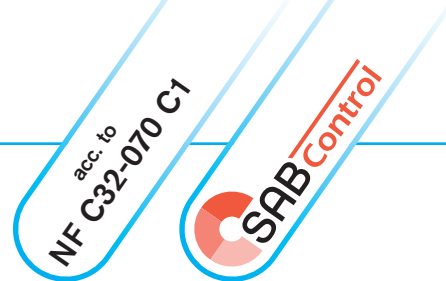
On request with
tinned copper strands!
Also available with
copper braiding as B 108!

Besilen® is a specially developed Silicone rubber-based material with good electrical characteristics and it is a registered trademark of SAB BRÖCKSKES GmbH & Co. KG.

Cables for Railway Technology

SABIX® A 224 FRNC C1

control cable with numbered cores, improved fire performance and extended temperature range



Marking for SABIX® A 224 FRNC C1 62241405:

SAB BRÜCKSKES · D-VIERSEN · SABIX® A 224 FRNC C1 14 x 0,5 mm² CE

Construction:

| | |
|-------------------------|--|
| Conductor: | bare copper strands acc. to IEC 60228, VDE 0295, class 5 |
| Insulation: | 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: | SABIX® |
| Sheath colour: | black (RAL 9005) |

Outstanding features:



- halogen-free
- no flame propagation
- flame retardant and self-extinguishing
- NF C32-070 C1

Technical Data:

| | |
|--|---|
| Nominal voltage: | U ₀ /U 450/750 V |
| Testing voltage: | core/core 3000 V |
| Min. bending radius | |
| <i>fixed laying:</i> | 4 x d |
| <i>flexible application:</i> | 6 x d |
| Radiation resistance: | 1 x 10 ⁷ cJ/kg (100 kGy) |
| Temperature range | |
| <i>fixed laying:</i> | -30/+90 °C |
| <i>flexible application:</i> | -20/+90 °C |
| Halogen-free: | acc. to IEC 60754-1 + VDE 0482-754-1 |
| 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 cat. C resp. D, acc. to RoHS directive of the European Union. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2 + NF C32-070 C1 |
| 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 |
| Absence of harmful substances: | acc. to RoHS directive of the European Union |

| item no. | no. of cores x cross section n x mm ² | largest single wire ø mm | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|--------------------------------|-----------------------|---------------------------|----------------------------|
| 62240205 | 2 x 0,50 | 0,21 | 5,8 | 9,6 | 36 |
| 62240305 | 3 x 0,50 | 0,21 | 6,3 | 14,4 | 49 |
| 62240405 | 4 x 0,50 | 0,21 | 6,8 | 19,2 | 59 |
| 62240505 | 5 x 0,50 | 0,21 | 7,7 | 24,0 | 76 |
| 62240705 | 7 x 0,50 | 0,21 | 8,3 | 33,6 | 94 |
| 62241205 | 12 x 0,50 | 0,21 | 11,1 | 57,6 | 159 |
| 62241805 | 18 x 0,50 | 0,21 | 13,1 | 86,4 | 228 |
| 62242505 | 25 x 0,50 | 0,21 | 15,9 | 120,0 | 315 |
| 62243005 | 30 x 0,50 | 0,21 | 16,6 | 144,0 | 369 |
| 62243405 | 34 x 0,50 | 0,21 | 18,1 | 163,2 | 424 |
| 62244005 | 40 x 0,50 | 0,21 | 19,6 | 192,0 | 497 |
| 62244205 | 42 x 0,50 | 0,21 | 19,6 | 201,6 | 514 |
| 62245005 | 50 x 0,50 | 0,21 | 21,4 | 240,0 | 602 |
| 62246105 | 61 x 0,50 | 0,21 | 22,9 | 292,8 | 718 |
| 62240207 | 2 x 0,75 | 0,21 | 6,4 | 14,4 | 45 |
| 62240307 | 3 x 0,75 | 0,21 | 7,0 | 21,6 | 61 |
| 62240407 | 4 x 0,75 | 0,21 | 7,8 | 28,8 | 79 |
| 62240507 | 5 x 0,75 | 0,21 | 8,5 | 36,0 | 95 |
| 62240707 | 7 x 0,75 | 0,21 | 9,4 | 50,4 | 125 |
| 62241207 | 12 x 0,75 | 0,21 | 12,6 | 86,4 | 209 |
| 62241807 | 18 x 0,75 | 0,21 | 15,0 | 129,6 | 308 |
| 62242507 | 25 x 0,75 | 0,21 | 18,2 | 180,0 | 424 |
| 62243007 | 30 x 0,75 | 0,21 | 18,8 | 216,0 | 487 |
| 62243407 | 34 x 0,75 | 0,21 | 20,4 | 244,8 | 557 |
| 62244007 | 40 x 0,75 | 0,21 | 22,2 | 288,0 | 661 |
| 62244207 | 42 x 0,75 | 0,21 | 22,2 | 302,4 | 685 |
| 62245007 | 50 x 0,75 | 0,21 | 24,4 | 360,0 | 803 |
| 62240210 | 2 x 1,00 | 0,21 | 6,8 | 19,2 | 53 |
| 62240310 | 3 x 1,00 | 0,21 | 7,2 | 28,8 | 69 |
| 62240410 | 4 x 1,00 | 0,21 | 8,0 | 38,4 | 89 |
| 62240510 | 5 x 1,00 | 0,21 | 8,8 | 48,0 | 108 |
| 62240710 | 7 x 1,00 | 0,21 | 9,7 | 67,2 | 142 |

| item no. | no. of cores x cross section n x mm ² | largest single wire ø mm | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|--------------------------------|-----------------------|---------------------------|----------------------------|
| 62241210 | 12 x 1,00 | 0,21 | 13,0 | 115,2 | 239 |
| 62241810 | 18 x 1,00 | 0,21 | 15,5 | 172,8 | 352 |
| 62242110 | 21 x 1,00 | 0,21 | 17,2 | 201,6 | 415 |
| 62242510 | 25 x 1,00 | 0,21 | 18,8 | 240,0 | 485 |
| 62243010 | 30 x 1,00 | 0,21 | 19,6 | 288,0 | 568 |
| 62243410 | 34 x 1,00 | 0,21 | 21,3 | 326,4 | 649 |
| 62244010 | 40 x 1,00 | 0,21 | 23,0 | 384,0 | 759 |
| 62244210 | 42 x 1,00 | 0,21 | 23,0 | 403,2 | 787 |
| 62240215 | 2 x 1,50 | 0,26 | 7,4 | 28,8 | 65 |
| 62240315 | 3 x 1,50 | 0,26 | 8,0 | 43,2 | 89 |
| 62240415 | 4 x 1,50 | 0,26 | 8,7 | 57,6 | 111 |
| 62240515 | 5 x 1,50 | 0,26 | 9,8 | 72,0 | 140 |
| 62240715 | 7 x 1,50 | 0,26 | 10,8 | 100,8 | 185 |
| 62241215 | 12 x 1,50 | 0,26 | 14,4 | 172,8 | 309 |
| 62241815 | 18 x 1,50 | 0,26 | 17,2 | 259,2 | 456 |
| 62242515 | 25 x 1,50 | 0,26 | 21,0 | 360,0 | 643 |
| 62240225 | 2 x 2,50 | 0,26 | 8,8 | 48,0 | 96 |
| 62240325 | 3 x 2,50 | 0,26 | 9,5 | 72,0 | 132 |
| 62240425 | 4 x 2,50 | 0,26 | 10,6 | 96,0 | 170 |
| 62240525 | 5 x 2,50 | 0,26 | 11,6 | 120,0 | 208 |
| 62240725 | 7 x 2,50 | 0,26 | 12,8 | 168,0 | 275 |
| 62241225 | 12 x 2,50 | 0,26 | 17,3 | 288,0 | 469 |
| 62241825 | 18 x 2,50 | 0,26 | 20,8 | 432,0 | 700 |
| 62242525 | 25 x 2,50 | 0,26 | 25,3 | 600,0 | 971 |
| 62240340 | 3 x 4,00 | 0,31 | 11,0 | 115,2 | 187 |
| 62240440 | 4 x 4,00 | 0,31 | 12,2 | 153,6 | 243 |
| 62240540 | 5 x 4,00 | 0,31 | 13,6 | 192,0 | 304 |
| 62240740 | 7 x 4,00 | 0,31 | 15,0 | 268,8 | 403 |
| 62240360 | 3 x 6,00 | 0,31 | 12,7 | 172,8 | 263 |
| 62240460 | 4 x 6,00 | 0,31 | 14,1 | 230,4 | 341 |
| 62240560 | 5 x 6,00 | 0,31 | 15,7 | 288,0 | 426 |
| 62240760 | 7 x 6,00 | 0,31 | 17,3 | 403,2 | 568 |
| 62240461 | 4 x 10,0 | 0,41 | 18,0 | 384,0 | 566 |
| 62240561 | 5 x 10,0 | 0,41 | 25,1 | 480,0 | 984 |
| 62240761 | 7 x 10,0 | 0,41 | 25,1 | 672,0 | 1121 |
| 62240462 | 4 x 16,0 | 0,41 | 25,2 | 614,4 | 1026 |
| 62240562 | 5 x 16,0 | 0,41 | 25,3 | 768,0 | 1087 |
| 62240762 | 7 x 16,0 | 0,41 | 27,1 | 1075,2 | 1403 |
| 62240463 | 4 x 25,0 | 0,41 | 24,4 | 960,0 | 1273 |
| 62240563 | 5 x 25,0 | 0,41 | 27,2 | 1200,0 | 1598 |
| 62240464 | 4 x 35,0 | 0,41 | 27,8 | 1344,0 | 1750 |
| 62240465 | 4 x 50,0 | 0,41 | 34,6 | 1920,0 | 2465 |

Other dimensions and colours are possible on request.

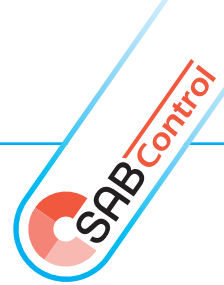


**Screened version
on request!**

Cables for Railway Technology

SABIX® CC 625 FRNC M

control cable with numbered cores



Marking for SABIX® CC 625 FRNC M 62521215:

SAB BRÖCKSKES · D-VIERSEN · 62521215 12 x 1,5 mm² SABIX® CC 625 FRNC M

16 AWG/12c 62521612 AWM Style 21089 75°C 600V CSA AWM I/II A/B 80°C 600V FT1 CE

Construction:

| | |
|-------------------------|--|
| Conductor: | bare copper strands acc. to IEC 60228, VDE 0295, class 5 |
| Insulation: | 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: | SABIX® |
| Sheath colour: | grey (RAL 7000) |

Outstanding features:



- halogen-free
- UL recognized, CSA approved
- no flame propagation
- flame retardant and self-extinguishing
- flexible

Technical Data:

| | |
|--|--|
| Nominal voltage: | U ₀ /U 300/500 V |
| Voltage UL/CSA: | 600 V |
| Testing voltage: | core/core 3000 V |
| Min. bending radius | |
| <i>fixed laying:</i> | 4 x d |
| <i>flexible application:</i> | 6 x d |
| Temperature range | UL: up to +75 °C CSA: up to + 80 °C |
| <i>fixed laying:</i> | DIN VDE: -40/+90 °C |
| <i>flexible application:</i> | -30/+90 °C |
| Halogen-free: | acc. to IEC 60754-1 + VDE 0482-754-1 |
| 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 cat. C resp. D, acc. to RoHS directive of the European Union. |
| | Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, CSA FT1 |
| 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 |

| item no. | no. of cores x cross section n x mm ² | largest single wire ø mm | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|--------------------------------|-----------------------|---------------------------|----------------------------|
| 62520205 | 2 x 0,50 | 0,21 | 5,2 | 10,3 | 40 |
| 62520305 | 3 x 0,50 | 0,21 | 5,5 | 15,4 | 47 |
| 62520405 | 4 x 0,50 | 0,21 | 5,9 | 20,5 | 56 |
| 62520505 | 5 x 0,50 | 0,21 | 6,4 | 25,6 | 65 |
| 62520705 | 7 x 0,50 | 0,21 | 7,0 | 35,9 | 83 |
| 62520805 | 8 x 0,50 | 0,21 | 8,2 | 41,0 | 104 |
| 62520905 | 9 x 0,50 | 0,21 | 8,9 | 46,1 | 118 |
| 62521005 | 10 x 0,50 | 0,21 | 9,1 | 51,3 | 120 |
| 62521205 | 12 x 0,50 | 0,21 | 9,3 | 61,5 | 136 |
| 62521405 | 14 x 0,50 | 0,21 | 9,8 | 71,8 | 154 |
| 62521605 | 16 x 0,50 | 0,21 | 10,5 | 82,0 | 177 |
| 62521805 | 18 x 0,50 | 0,21 | 11,1 | 92,3 | 196 |
| 62522505 | 25 x 0,50 | 0,21 | 13,5 | 128,2 | 270 |
| 62523005 | 30 x 0,50 | 0,21 | 13,9 | 153,8 | 310 |
| 62523405 | 34 x 0,50 | 0,21 | 15,2 | 174,3 | 355 |
| 62524005 | 40 x 0,50 | 0,21 | 16,5 | 205,1 | 421 |
| 62524105 | 41 x 0,50 | 0,21 | 16,5 | 210,2 | 428 |
| 62526105 | 61 x 0,50 | 0,21 | 19,3 | 312,8 | 608 |
| 62520207 | 2 x 0,75 | 0,21 | 5,7 | 14,4 | 48 |
| 62520307 | 3 x 0,75 | 0,21 | 6,0 | 21,6 | 57 |
| 62520407 | 4 x 0,75 | 0,21 | 6,5 | 28,8 | 69 |
| 62520507 | 5 x 0,75 | 0,21 | 7,1 | 36,0 | 81 |
| 62520707 | 7 x 0,75 | 0,21 | 7,9 | 50,4 | 106 |
| 62520807 | 8 x 0,75 | 0,21 | 9,3 | 57,6 | 132 |
| 62520907 | 9 x 0,75 | 0,21 | 9,9 | 64,8 | 145 |
| 62521007 | 10 x 0,75 | 0,21 | 10,1 | 72,0 | 149 |
| 62521207 | 12 x 0,75 | 0,21 | 10,6 | 86,4 | 175 |
| 62521407 | 14 x 0,75 | 0,21 | 11,1 | 100,8 | 197 |
| 62521607 | 16 x 0,75 | 0,21 | 11,9 | 115,2 | 226 |
| 62521807 | 18 x 0,75 | 0,21 | 12,5 | 129,6 | 250 |
| 62522507 | 25 x 0,75 | 0,21 | 15,2 | 180,0 | 344 |
| 62523007 | 30 x 0,75 | 0,21 | 15,7 | 216,0 | 397 |
| 62523407 | 34 x 0,75 | 0,21 | 17,1 | 244,8 | 453 |
| 62524007 | 40 x 0,75 | 0,21 | 18,6 | 288,0 | 535 |
| 62524107 | 41 x 0,75 | 0,21 | 18,6 | 295,2 | 545 |
| 62526107 | 61 x 0,75 | 0,21 | 22,0 | 439,2 | 786 |
| 62520210 | 2 x 1,00 | 0,21 | 5,9 | 19,2 | 54 |
| 62520310 | 3 x 1,00 | 0,21 | 6,3 | 28,8 | 66 |
| 62520410 | 4 x 1,00 | 0,21 | 6,8 | 38,4 | 80 |
| 62520510 | 5 x 1,00 | 0,21 | 7,5 | 48,0 | 97 |
| 62520710 | 7 x 1,00 | 0,21 | 8,2 | 67,2 | 124 |
| 62520810 | 8 x 1,00 | 0,21 | 9,6 | 76,8 | 152 |
| 62520910 | 9 x 1,00 | 0,21 | 10,5 | 86,4 | 173 |
| 62521010 | 10 x 1,00 | 0,21 | 10,7 | 96,0 | 179 |
| 62521210 | 12 x 1,00 | 0,21 | 11,0 | 115,2 | 204 |
| 62521410 | 14 x 1,00 | 0,21 | 11,5 | 134,4 | 231 |
| 62521810 | 18 x 1,00 | 0,21 | 13,0 | 172,8 | 294 |

| item no. | no. of cores x cross section n x mm ² | largest single wire ø mm | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|--------------------------------|-----------------------|---------------------------|----------------------------|
| 62522510 | 25 x 1,00 | 0,21 | 15,8 | 240,0 | 404 |
| 62523010 | 30 x 1,00 | 0,21 | 16,6 | 288,0 | 477 |
| 62523410 | 34 x 1,00 | 0,21 | 18,0 | 326,4 | 543 |
| 62524010 | 40 x 1,00 | 0,21 | 19,5 | 384,0 | 639 |
| 62524110 | 41 x 1,00 | 0,21 | 19,5 | 393,6 | 675 |
| 62526110 | 61 x 1,00 | 0,21 | 22,9 | 585,6 | 931 |
| 62520215 | 2 x 1,50 | 0,26 | 6,5 | 28,8 | 69 |
| 62520315 | 3 x 1,50 | 0,26 | 6,9 | 43,2 | 85 |
| 62520415 | 4 x 1,50 | 0,26 | 7,6 | 57,6 | 105 |
| 62520515 | 5 x 1,50 | 0,26 | 8,3 | 72,0 | 129 |
| 62520715 | 7 x 1,50 | 0,26 | 9,3 | 100,8 | 166 |
| 62520815 | 8 x 1,50 | 0,26 | 10,9 | 115,2 | 202 |
| 62520915 | 9 x 1,50 | 0,26 | 11,8 | 129,6 | 228 |
| 62521015 | 10 x 1,50 | 0,26 | 12,1 | 144,0 | 240 |
| 62521215 | 12 x 1,50 | 0,26 | 12,4 | 172,8 | 274 |
| 62521415 | 14 x 1,50 | 0,26 | 13,0 | 201,6 | 311 |
| 62521815 | 18 x 1,50 | 0,26 | 14,9 | 259,2 | 404 |
| 62522515 | 25 x 1,50 | 0,26 | 18,1 | 360,0 | 558 |
| 62523015 | 30 x 1,50 | 0,26 | 18,7 | 432,0 | 647 |
| 62523415 | 34 x 1,50 | 0,26 | 20,5 | 489,6 | 747 |
| 62524015 | 40 x 1,50 | 0,26 | 22,2 | 576,0 | 874 |
| 62524115 | 41 x 1,50 | 0,26 | 22,2 | 590,4 | 883 |
| 62526115 | 61 x 1,50 | 0,26 | 26,0 | 878,4 | 1281 |
| 62520225 | 2 x 2,50 | 0,26 | 7,8 | 48,0 | 104 |
| 62520325 | 3 x 2,50 | 0,26 | 8,3 | 72,0 | 128 |
| 62520425 | 4 x 2,50 | 0,26 | 9,2 | 96,0 | 161 |
| 62520525 | 5 x 2,50 | 0,26 | 10,1 | 120,0 | 195 |
| 62520725 | 7 x 2,50 | 0,26 | 11,2 | 168,0 | 257 |
| 62520825 | 8 x 2,50 | 0,26 | 13,4 | 192,0 | 316 |
| 62520925 | 9 x 2,50 | 0,26 | 14,3 | 216,0 | 348 |
| 62521025 | 10 x 2,50 | 0,26 | 14,8 | 240,0 | 375 |
| 62521225 | 12 x 2,50 | 0,26 | 15,3 | 288,0 | 431 |
| 62521825 | 18 x 2,50 | 0,26 | 18,2 | 432,0 | 632 |
| 62522525 | 25 x 2,50 | 0,26 | 22,3 | 600,0 | 871 |
| 62520340 | 3 x 4,00 | 0,31 | 9,7 | 115,2 | 188 |
| 62520440 | 4 x 4,00 | 0,31 | 10,8 | 153,6 | 238 |
| 62520540 | 5 x 4,00 | 0,31 | 12,1 | 192,0 | 295 |
| 62520740 | 7 x 4,00 | 0,31 | 13,4 | 268,8 | 388 |
| 62520360 | 3 x 6,00 | 0,31 | 11,4 | 172,8 | 271 |
| 62520460 | 4 x 6,00 | 0,31 | 12,7 | 230,4 | 343 |
| 62520560 | 5 x 6,00 | 0,31 | 14,2 | 288,0 | 425 |
| 62520461 | 4 x 10,00 | 0,41 | 17,2 | 384,0 | 608 |
| 62520561 | 5 x 10,00 | 0,41 | 19,3 | 480,0 | 756 |
| 62520462 | 4 x 16,00 | 0,41 | 21,1 | 614,4 | 909 |
| 62520463 | 4 x 25,00 | 0,41 | 26,5 | 960,0 | 1475 |
| 62520464 | 4 x 35,00 | 0,41 | 30,2 | 1344,0 | 2004 |

Other dimensions and colours are possible on request.

Cables for Railway Technology

SABIX® CC 625 S FRNC M

control cable with numbered cores and overall copper screen



Marking for SABIX® CC 625 S FRNC M 62341215:

SAB BRÖCKSKES · D-VIERSEN · 62341215 12 x 1,5 mm² SABIX® CC 625 S FRNC M

16 AWG/12c 62341612 AWM Style 21089 75°C 600V CSA AWM /I/II A/B 80°C 600V FT1 CE

Construction:

| | |
|-------------------------|--|
| Conductor: | bare copper strands acc. to IEC 60228, VDE 0295, class 5 |
| Insulation: | 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: | SABIX® |
| Sheath colour: | grey (RAL 7000) |

Outstanding features:



- halogen-free
- UL recognized, CSA approved
- no flame propagation
- good EMC characteristics
- flame retardant and self-extinguishing
- flexible

Technical Data:

| | |
|--|--|
| Nominal voltage: | U ₀ /U 300/500 V |
| Voltage UL/CSA: | 600 V |
| Testing voltage: | core/core 3000 V core/screen 2000 V |
| Min. bending radius | |
| fixed laying: | 5 x d |
| flexible application: | 10 x d |
| Temperature range | |
| fixed laying: | UL: up to +75 °C CSA: up to + 80 °C DIN VDE: -40/+90 °C |
| flexible application: | -30/+90 °C |
| Halogen-free: | acc. to IEC 60754-1 + VDE 0482-754-1 |
| 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 cat. C resp. D, acc. to RoHS directive of the European Union. |
| | Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2, CSA FT1 |
| 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 |

| item no. | no. of cores x cross section n x mm ² | largest single wire ø mm | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|--------------------------------|-----------------------|---------------------------|----------------------------|
| 62340205 | 2 x 0,50 | 0,21 | 5,7 | 20,8 | 45 |
| 62340305 | 3 x 0,50 | 0,21 | 6,0 | 26,0 | 54 |
| 62340405 | 4 x 0,50 | 0,21 | 6,4 | 32,2 | 64 |
| 62340505 | 5 x 0,50 | 0,21 | 7,0 | 38,7 | 76 |
| 62340705 | 7 x 0,50 | 0,21 | 7,6 | 50,3 | 96 |
| 62340905 | 9 x 0,50 | 0,21 | 9,4 | 63,6 | 131 |
| 62341205 | 12 x 0,50 | 0,21 | 9,8 | 80,9 | 152 |
| 62341605 | 16 x 0,50 | 0,21 | 11,2 | 113,8 | 206 |
| 62341805 | 18 x 0,50 | 0,21 | 12,0 | 128,3 | 234 |
| 62342505 | 25 x 0,50 | 0,21 | 13,8 | 168,2 | 306 |
| 62343005 | 30 x 0,50 | 0,21 | 15,0 | 198,0 | 361 |
| 62343405 | 34 x 0,50 | 0,21 | 16,3 | 239,4 | 429 |
| 62344005 | 40 x 0,50 | 0,21 | 17,6 | 278,3 | 503 |
| 62344105 | 41 x 0,50 | 0,21 | 17,6 | 283,4 | 514 |
| 62346105 | 61 x 0,50 | 0,21 | 20,2 | 395,6 | 693 |
| 62340207 | 2 x 0,75 | 0,21 | 6,2 | 25,1 | 52 |
| 62340307 | 3 x 0,75 | 0,21 | 6,5 | 33,3 | 64 |
| 62340407 | 4 x 0,75 | 0,21 | 7,0 | 41,8 | 77 |
| 62340507 | 5 x 0,75 | 0,21 | 7,8 | 50,4 | 94 |
| 62340707 | 7 x 0,75 | 0,21 | 8,4 | 67,8 | 118 |
| 62340907 | 9 x 0,75 | 0,21 | 10,8 | 100,4 | 181 |
| 62341207 | 12 x 0,75 | 0,21 | 11,3 | 122,2 | 207 |
| 62341607 | 16 x 0,75 | 0,21 | 12,6 | 151,5 | 259 |
| 62341807 | 18 x 0,75 | 0,21 | 13,2 | 169,3 | 286 |
| 62342507 | 25 x 0,75 | 0,21 | 16,3 | 245,1 | 416 |
| 62343007 | 30 x 0,75 | 0,21 | 16,8 | 281,4 | 468 |
| 62343407 | 34 x 0,75 | 0,21 | 18,2 | 318,5 | 534 |
| 62344007 | 40 x 0,75 | 0,21 | 19,7 | 370,3 | 625 |
| 62344107 | 41 x 0,75 | 0,21 | 19,7 | 377,5 | 635 |
| 62346107 | 61 x 0,75 | 0,21 | 22,9 | 532,4 | 879 |
| 62340210 | 2 x 1,00 | 0,21 | 6,4 | 30,9 | 58 |
| 62340310 | 3 x 1,00 | 0,21 | 6,8 | 41,8 | 73 |
| 62340410 | 4 x 1,00 | 0,21 | 7,3 | 51,5 | 87 |

| item no. | no. of cores x cross section n x mm ² | largest single wire ø mm | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|--------------------------------|-----------------------|---------------------------|----------------------------|
| 62340510 | 5 x 1,00 | 0,21 | 8,0 | 63,7 | 107 |
| 62340710 | 7 x 1,00 | 0,21 | 8,9 | 84,6 | 139 |
| 62340910 | 9 x 1,00 | 0,21 | 11,2 | 118,2 | 200 |
| 62341210 | 12 x 1,00 | 0,21 | 11,9 | 151,2 | 241 |
| 62341810 | 18 x 1,00 | 0,21 | 13,9 | 216,7 | 340 |
| 62342510 | 25 x 1,00 | 0,21 | 16,9 | 312,8 | 483 |
| 62343010 | 30 x 1,00 | 0,21 | 17,7 | 361,3 | 556 |
| 62343410 | 34 x 1,00 | 0,21 | 19,1 | 400,7 | 629 |
| 62344010 | 40 x 1,00 | 0,21 | 20,6 | 467,1 | 730 |
| 62344110 | 41 x 1,00 | 0,21 | 20,6 | 476,7 | 742 |
| 62346110 | 61 x 1,00 | 0,21 | 24,0 | 687,8 | 1042 |
| 62340215 | 2 x 1,50 | 0,26 | 7,0 | 41,8 | 71 |
| 62340315 | 3 x 1,50 | 0,26 | 7,5 | 57,5 | 92 |
| 62340415 | 4 x 1,50 | 0,26 | 8,1 | 73,4 | 113 |
| 62340515 | 5 x 1,50 | 0,26 | 9,0 | 89,4 | 139 |
| 62340715 | 7 x 1,50 | 0,26 | 9,8 | 120,1 | 178 |
| 62340915 | 9 x 1,50 | 0,26 | 12,5 | 165,8 | 259 |
| 62341215 | 12 x 1,50 | 0,26 | 13,3 | 212,5 | 313 |
| 62341815 | 18 x 1,50 | 0,26 | 15,8 | 324,1 | 464 |
| 62342515 | 25 x 1,50 | 0,26 | 19,2 | 441,8 | 644 |
| 62343015 | 30 x 1,50 | 0,26 | 19,8 | 514,5 | 734 |
| 62343415 | 34 x 1,50 | 0,26 | 21,4 | 581,2 | 835 |
| 62344015 | 40 x 1,50 | 0,26 | 23,1 | 669,4 | 963 |
| 62344115 | 41 x 1,50 | 0,26 | 23,1 | 683,8 | 972 |
| 62346115 | 61 x 1,50 | 0,26 | 27,1 | 992,6 | 1403 |
| 62340225 | 2 x 2,50 | 0,26 | 8,3 | 63,8 | 101 |
| 62340325 | 3 x 2,50 | 0,26 | 9,0 | 89,4 | 136 |
| 62340425 | 4 x 2,50 | 0,26 | 9,7 | 115,3 | 168 |
| 62340525 | 5 x 2,50 | 0,26 | 11,0 | 151,7 | 220 |
| 62340725 | 7 x 2,50 | 0,26 | 12,1 | 204,1 | 286 |
| 62340925 | 9 x 2,50 | 0,26 | 15,2 | 260,4 | 386 |
| 62341225 | 12 x 2,50 | 0,26 | 16,4 | 353,1 | 493 |
| 62341825 | 18 x 2,50 | 0,26 | 19,3 | 513,9 | 712 |
| 62342525 | 25 x 2,50 | 0,26 | 23,4 | 693,5 | 965 |
| 62340340 | 3 x 4,00 | 0,31 | 10,6 | 146,8 | 205 |
| 62340440 | 4 x 4,00 | 0,31 | 11,5 | 189,5 | 256 |
| 62340540 | 5 x 4,00 | 0,31 | 12,8 | 231,6 | 316 |
| 62340740 | 7 x 4,00 | 0,31 | 14,1 | 312,8 | 412 |
| 62340360 | 3 x 6,00 | 0,31 | 12,3 | 208,9 | 284 |
| 62340460 | 4 x 6,00 | 0,31 | 13,6 | 270,2 | 362 |
| 62340560 | 5 x 6,00 | 0,31 | 15,1 | 332,3 | 449 |
| 62340461 | 4 x 10,00 | 0,31 | 18,3 | 457,8 | 636 |
| 62340561 | 5 x 10,00 | 0,31 | 20,2 | 562,9 | 783 |
| 62340462 | 4 x 16,00 | 0,41 | 22,2 | 706,7 | 927 |
| 62340463 | 4 x 25,00 | 0,41 | 27,4 | 1074,8 | 1450 |
| 62340464 | 4 x 35,00 | 0,41 | 31,3 | 1471,8 | 1959 |

Other dimensions and colours are possible on request.



Also available with
inner sheath!

Cables for Railway Technology

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. We are your specialist for hybrid and special cables in railway technologies. 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:

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.

- ✓ 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)

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

USB 2.0 Cables

SABIX® USB 2.0 R flex

halogen-free continuously flexible SABIX® USB 2.0 Rail cable



D-VIERSEN · SABIX USB 2.0 R flex 4x28AWG 0601-9013 



Marking for SABIX® USB 2.0 R flex 06019013:
SAB BRÜCKSKES · 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 under the braid |
| Sheath material: | SABIX® |
| Sheath colour: | black (RAL 9005) |

Technical data:

| | |
|---------------------------------------|---|
| Peak operating voltage: | max. 30 V |
| Testing voltage: | core/core 600 V core/screen 600 V |
| Min. bending radius | |
| fixed laying: | 5 x d |
| flexible application: | 10 x d |
| Temperature range | |
| fixed laying: | -50/+90 °C |
| flexible application: | -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 |
| 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 |

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

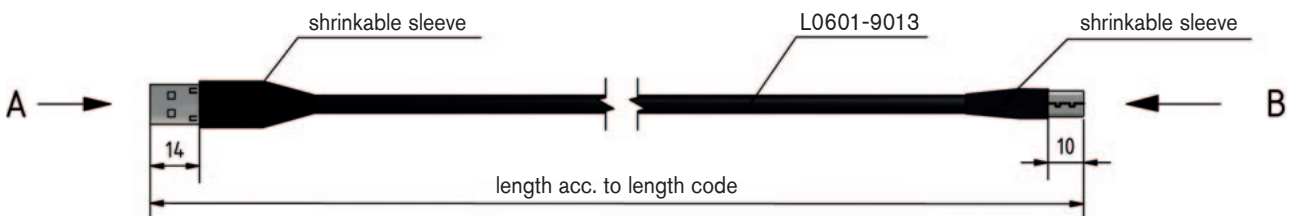
| Art.-Nr. | type | dimension | outer-ø approx. mm | copper figure kg/km | cable weight ≈kg/km | ohmic resistance at 20°C max. Ω/km |
|----------|-----------------------|--------------|--------------------|---------------------|---------------------|------------------------------------|
| 06019013 | SABIX® USB 2.0 R flex | 4 x 28/7 AWG | 5,2 | 14,3 | 41 | 223,8 |

Other dimensions and colours are possible on request.

Also possible as harnessed cable with USB type A and USB type B plug!



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



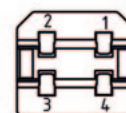
view A (2:1)



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

CAN-Bus cable halogen-free combined cable with overall copper screen

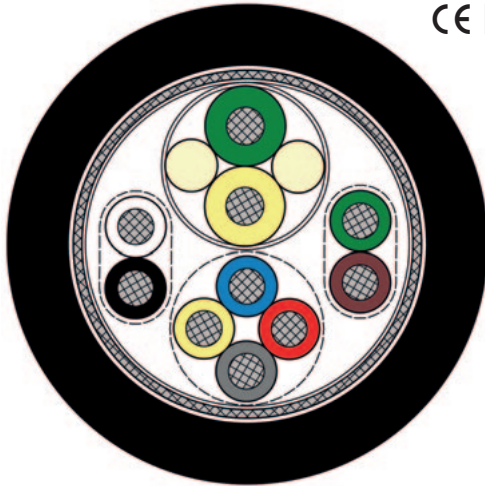
Coupling cable T 790 torsion able connecting cable

Halogen-free combined cable with overall copper screen

item no. 63359002

cross section:

$2 \times 2 \times 0,50 \text{ mm}^2 + 4 \times 0,50 \text{ mm}^2 + 2 \times 0,50 \text{ mm}^2$

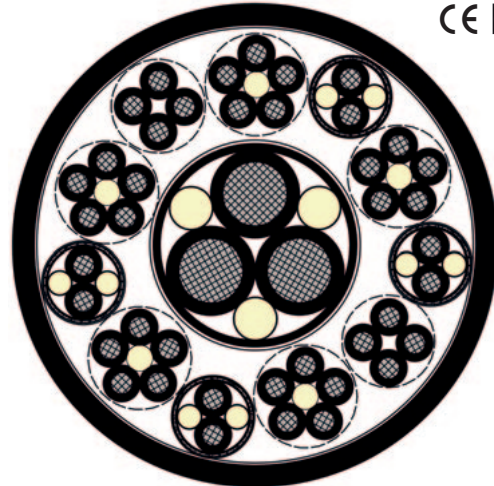


Torsion able connecting cable

item no. 07909008

cross section:

$33 \times 1,5 \text{ mm}^2 + 3 \times 10,0 \text{ mm}^2 + 4 \times (2 \times 1,5) \text{ mm}^2$



Construction:

| | |
|-------------------------|--|
| Conductor: | tinned copper strands, fine wires with reference to VDE 0812 |
| Insulation: | SABIX® thermoplastic material and O2Y11 acc. to EN 50290-2-23 + VDE 0819-103 (for 2 x 0.50 mm ²) |
| Stranding: | pairs and quads twisted together in layers |
| Screen: | tinned copper braiding, optical coverage ≥ 85% |
| Sheath material: | SABIX® thermoplastic material |
| Sheath colour: | black (RAL 9005) |

Technical Data:

| | |
|--|---|
| Peak operating voltage: | max. 450 V |
| Testing voltage: | core/core 1000 V (DC) core/screen 1500 V (DC) |
| Min. bending radius flexible application: | 10 x d |
| Temperature range fixed laying: | -40/+70 °C |
| flexible application: | -30/+70 °C |
| Halogen-free: | acc. to IEC 60754-1 + VDE 0482-754-1 |
| Fire performance: | no flame propagation nach IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 cat. C resp. D. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2 |
| Characteristic impedance: | acc. to EN 50289-1-11 nom. 120Ω (CAN-Bus) |
| Oil resistance: | acc. to EN 60811-507 section 10 + VDE 0473-811-507 section 10 |
| Absence of harmful substances: | acc. to RoHS directive of the European Union |

| item no. | dimension | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|---|-----------------|---------------------|----------------------|
| 63359002 | $2 \times 2 \times 0,50 \text{ mm}^2 + 4 \times 0,50 \text{ mm}^2 + 2 \times 0,50 \text{ mm}^2$ | 11,0 | 79,6 | 160 |

Construction:

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

Technical data:

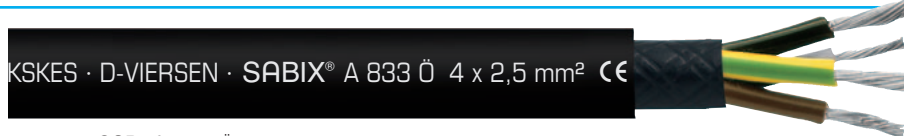
| | |
|--|---|
| Nominal voltage: | 1,50 mm ² : U _o /U 0,6/1,0 kV 10,0 mm ² : U _o /U 1,8/3,0 kV |
| Testing voltage: | core/core 1,50 mm ² : 4000 V, 10,0 mm ² : 12000 V core/screen 1,50 mm ² : 2000 V, 10,0 mm ² : 6000 V |
| Min. bending radius flexible application: | 10 x d |
| Temperature range fixed laying: | -50/+90 °C |
| flexible application: | -40/+90 °C |
| Absence of harmful substances: | acc. to RoHS directive of the European Union |

| item no. | dimension | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|-----------------|---------------------|----------------------|
| 62050715 | $33 \times 1,5 \text{ mm}^2 + 3 \times 10,0 \text{ mm}^2 + 4 \times (2 \times 1,5) \text{ mm}^2$ | 42,0 | 1136,2 | 2070 |

Cables for Railway Technology

SABIX® A 883 Ö

twisting and torsion connection cable



KSKES · D-VIERSEN · SABIX® A 883 Ö 4 x 2,5 mm² CE

Marking for SABIX® A 883 Ö 08830425:

SAB BRÜCKSKES · D-VIERSEN · SABIX® A 883 Ö 4 x 2,5 mm² CE

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

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, TPU acc. to EN 50363-10-2 + VDE 0207-363-10-2 |
| Sheath colour: | black (RAL 9005) |

Technical data:

| | |
|---------------------------------------|--|
| Nominal voltage: | U ₀ /U 300/500 V |
| Testing voltage: | core/core 2000 V |
| Min. bending radius | |
| <i>fixed laying:</i> | 4 x d |
| <i>flexible application:</i> | 6 x d |
| Temperature range | |
| <i>fixed laying:</i> | -50/+85 °C |
| <i>flexible application:</i> | -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, TPU 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 |

| item no. | no. of cores x cross section n x mm ² | largest single wire ø mm | outer-ø ± 5% mm | copper figure kg/km | cable weight ≈ kg/km |
|----------|--|--------------------------------|-----------------------|---------------------------|----------------------------|
| 08830215 | 2 x 1,50 | 0,16 | 8,1 | 28,8 | 92 |
| 08830315 | 3 x 1,50 | 0,16 | 8,4 | 43,2 | 107 |
| 08830415 | 4 x 1,50 | 0,16 | 9,0 | 57,6 | 128 |
| 08830715 | 7 x 1,50 | 0,16 | 10,4 | 100,8 | 189 |
| 08831815 | 18 x 1,50 | 0,16 | 15,2 | 259,2 | 417 |
| 08830325 | 3 x 2,50 | 0,16 | 9,7 | 75,5 | 158 |
| 08830425 | 4 x 2,50 | 0,16 | 10,5 | 100,6 | 192 |
| 08830525 | 5 x 2,50 | 0,16 | 11,5 | 125,8 | 233 |
| 08830725 | 7 x 2,50 | 0,16 | 12,2 | 176,1 | 291 |
| 08830540 | 5 x 4,00 | 0,16 | 13,6 | 192,0 | 335 |

Other dimensions and colours are possible on request.



**Also possible
without earth wire!**

Cables for Railway Technology

Our cables at a glance

Conductor Materials

- Bare copper
- Tinned copper
- Silver plated copper
- Nickel plated copper
- Nickel
- Nickel pure
- Compensating cable alloys

Conductor Sizes

- 0,14 mm² - 300 mm²
- variety of stranding styles

Insulation and Jacketing Materials

- PVC (varietals)
- Polyethylene
- Polypropylene
- TPE
- Fibreglass
- Besilen®/Silicone
- Pi foil
- FEP, ETFE, PFA, PTFE
- A zero halogen
- Polyurethane

Conductor Count Ranges

- unshielded - up to 125 conductors
- shielded - up to 100 conductors

Temperature Ranges (based on material)

- Thermoplastic Elastomers -50°C up to +145°C
- Besilen®/Silicone -40°C up to +220°C
- FEP, ETFE, PFA, PTFE -90°C up to +260°C
- Halogen-free -50°C up to +220°C
- Fibreglass up to +600°C

Shielding and Braiding Materials

- Bare copper
- Tinned copper
- Galvanized steel
- Stainless steel
- Aluminium foil
- Fibreglass
- Aramid



Approbationen

- UL, CSA, CE, EAC, VDE, HAR, IEC, EN, ISO, DNV-GL, LR, ABS, RINA, RMRS, BSI

Our temperature measurement at a glance

Protecting armatures and gauge slides

- Immersion protecting armatures
- Screwed protecting armatures
- Welding protecting armatures, etc.

Temperature measurement in test vehicles

- Thermo 8-plug connector
- Dipstick thermocouples
- Thermocouples for cooling water tube applications, etc.

Mineral insulated thermocouples/ Mineral insulated resistance thermometers

- with fixed connecting cable
- with bare connection ends
- with thermo-plug/miniature plug, etc.

Temperature measurement in plastics processing industry/Hot runner technique

- Hot runner mineral insulated thermocouples
- Plug-in thermocouples
- Molten mass thermocouples, etc.

Probe with stainless steel sleeve

- available as thermocouple
- available as resistance thermometer

Compensating and extension cables

- Compensating and extension cables for thermocouples
- Connection cables for resistance thermometers, etc.

Accessories

- Clamping screw connections
- Flanges
- Screw sockets
- Connection heads
- Welding protecting tubes
- Transmitters
- Thermo-plugs/sockets
- Screw-in nipples
- Miniature plugs/sockets



Cables for Railway Technology

Cable harnessing

Cable harnessing

Due to the good co-operation with our customers we get continuously new ideas. Therefore, SAB Bröckskes has enlarged the product range by the field of cable and wire harnessing. No matter whether you need cable looms, assembled single conductors or cables – SAB Bröckskes offers a wide range of products, especially adjusted to your demands and specifications. There are many possibilities in use of assembled cables. Some of these applications are in the car manufacturing industry, machine and industrial plant construction, control engineering, manufacturing of house hold appliances. Connection possibilities of the large variety of connectors and sling parts offer efficient and cost saving solutions. The variety of possible uses of materials that are processed by SAB Bröckskes at present:



- ✓ PUR (polyurethane)
 - ✓ TPE
 - ✓ Besilen® (silicone)
 - ✓ PVC (polyvinyl chloride)
 - ✓ SABIX® (halogen-free)
 - ✓ ETFE, FEP, PFA
 - ✓ Special materials (fibre glass, Pi foil, SABtex etc.)
- ... also offer a wide range of applications in industry.

Please do not hesitate to contact our specialists, who will help you with an individual advice fitting to your application.

Test results

VDE Prüf- und Zertifizierungsinstitut
 SAB BRÖCKSKES GmbH & Co. KG
 Postfach 12 01 60
 Frau Isabelle Simon
 41719 Viersen

Prüfbericht Nr. 17/1061
 Test report No. 17/1061

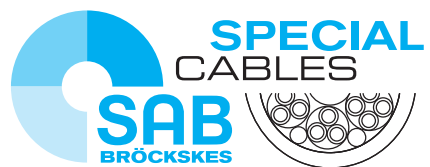
CURRENTA
 Currenta GmbH & Co. OHG
 AMT-BA-Broschwege
 CHEMPARK, Gebäude 8 411
 D-41360 Levertusen

LABCO
 15-0405_02 Index 0
 SAB Bröckskes GmbH & Co. KG
 Grefrath Str. 204-212/9
 D-41749 Viersen
 SABIX R 845 FRNC TP0x0x0,14 mm
 Artikelnummer : 1.6645-0214
 Chargennummer : K229978

Prüfergebnis
 Test result

| Prüfverfahren nach EN 45545-2 | Anforderungen |
|-------------------------------------|---------------|
| Test method according to EN 45545-2 | Requirements |
| T09.01 | erfüllt |
| | fulfilled |

Seite 1 von 6
Page 1 of 6



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