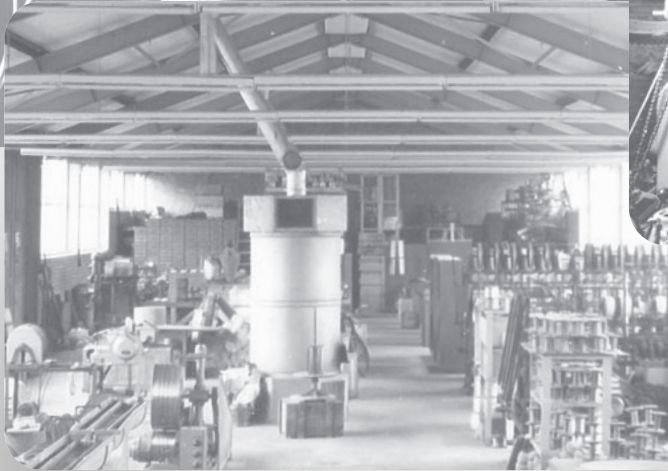


CABLES FOR E-MOBILITY



www.sab-cable.com





TRADITIONAL
FAMILY BUSINESS
SINCE 1947

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



Cables for E-mobility

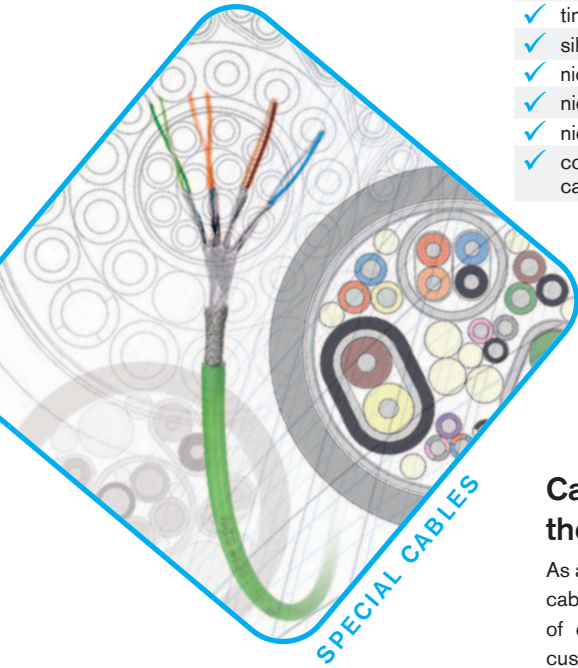
Production possibilities

Flexible cables and wires “Made in Germany”

As a leading manufacturer we develop and produce cables for industrial purposes.

Our wide range of materials offers a lot of possibilities for your individual product requirement.

The following survey shows an extract of our production possibilities:



Conductor Materials:

- ✓ bare copper
- ✓ tinned copper
- ✓ silver plated copper
- ✓ nickel plated copper
- ✓ nickel
- ✓ nickel pure
- ✓ compensating cable alloys

Insulation and Jacketing Materials:

- ✓ PVC
- ✓ Polyethylene
- ✓ Polypropylene
- ✓ Polyurethane
- ✓ TPE
- ✓ SABIX® (zero halogen)
- ✓ Besilen® - Silicone
- ✓ FEP, ETFE, PFA, PTFE
- ✓ PI foil
- ✓ Fibreglass

Temperature Ranges:

- Thermoplastic Elastomers
- ✓ -50°C up to +145°C
- SABIX®
- ✓ -50°C up to +220°C
- Besilen® - Silicone
- ✓ -40°C up to +220°C
- FEP, ETFE, PFA
- ✓ -90°C up to +260°C
- Fibreglass
- ✓ up to +600°C

Conductors:

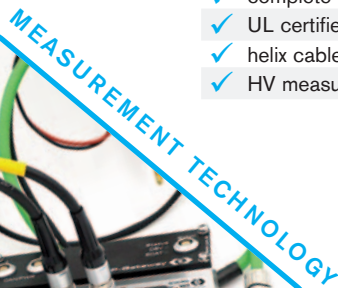
- ✓ cross sections 0,055 - 300 mm²
- ✓ unshielded and shielded over 100 conductors

Cable harnessing directly from the manufacturer SAB:

As a full service partner we are able to offer besides cable design and production the manufacturing of cable harnessing products according to customer's request. Please trust on our experience for decades in the treatment of cables and connectors.



- ✓ cable harness according to customer's demands
- ✓ complete cable harness
- ✓ UL certified assemblies
- ✓ helix cables
- ✓ HV measuring harness



Measuring technology for industrial applications

Manufacturer of temperature sensors for industrial applications with 75 years of experience!

- ✓ mineral insulated thermocouples
- ✓ mineral insulated resistance thermometers
- ✓ temperature sensors
- ✓ mobile high voltage measuring technology
- ✓ temperature sensors for vehicle testing

Cables for E-mobility

Development and production

SAB BRÖCKSKES – your cable specialist for E-mobility

The future energy concept can't be realized without electric mobility. E-mobility will be the key component for a smart and resource saving life style that will bring about a lot of intersectoral changes and product innovations.

SAB Bröckskes also follows the trend and develops DC charging cables for the most different fields of application. Our strength is the design of special solutions according to your individual application. Therefore, **SAB** is able to fulfil the most different requirements.

It doesn't matter if you need highly flexible cables, reeling cables or those that are suitable for highly flexible cable chain applications. Please contact us so that we can develop the customised solution for you.



Highly flexible DC charging cable



Outstanding features:



- high tensile strength
- high tear strength
- high abrasion resistance
- high notch resistance
- high shear strength

Construction:

Conductor:	bare copper strands, fine wires acc. to IEC 60228, VDE 0295, class 6
Insulation:	SABIX®
Colour code:	0,75mm ² : orange, blue, white, purple, brown, grey 25,0mm ² : green-yellow 35,0mm ² : black, red
Stranding:	0,75mm ² : cores twisted to pairs, pairs stranded in layers
Wrapping:	non-woven tape
Screen:	0,75 mm ² : tinned copper braiding
Inner sheath:	0,75 mm ² : PUR, black (RAL 9005)
Stranding:	all elements stranded in layers, filler in centre and interstices
Wrapping:	non-woven tape
Sheath material:	PUR
Sheath colour:	black (RAL 9005)
Marking:	SAB BRÖCKSKES · D-VIERSEN · DC-Ladekabel 2x35,00mm ² +1G25,0mm ² +(3x2x0,75 mm ²)C 0390-9594 CE

item no.	dimension	outer-ø approx. mm	copper figure kg/km	cable weight ≈kg/km
03909594	2 x 35,0 mm ² + 1 x 25,0 mm ² + (3 x 2 x 0,75 mm ²) C	25,6	979,0	1275

Construction:

Nominal voltage	Testing voltage at 50 Hz	Temperature range
0,75 mm ² : U _o /U 300/500 V DC 25,0 mm ² + 35,0 mm ² : U _o /U 0,6/1 kV DC	0,75 mm ² core/core: 2000 V AC 0,75 mm ² core/screen: 2000 V AC 25,0 mm ² + 35,0 mm ² core/core: 4000 V AC	fixed laying: -50/+90 °C flexible application: -40/+90 °C in case of short circuit: +160 °C (max 5 sec.)

Min. bending radius	Fire performance	Halogen-free	Hydrolysis resistance
fixed laying: 5 x d flexible application: 7,5 x d	flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2	acc. to IEC 60754-1 + VDE 0482-754-1	acc. to EN 50363-10-2

Ozone resistance	Sunlight resistance	Weather resistance	Low temperature flexibility
acc. to EN 50396	acc. to HD 605 S1	very good	very good

Oil resistance	Chemical resistance	Absence of harmful substances
very good - TMPU acc. to EN 50363-10-2 (tested acc. to EN 60811-404)	good against acids, alkalines, solvents, hydraulic liquids, etc.	acc. to RoHS directive of the European Union



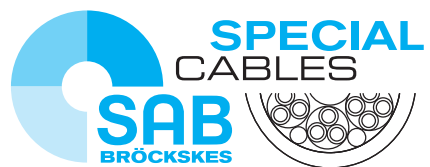
Construction:

Conductor:	bare copper strands
Insulation:	TPE
Colour code:	0,75 mm ² : white, violet, orange, blue, brown, grey 25,0 mm ² : green-yellow 50,0 mm ² : red, black
Stranding:	0,75mm ² : cores twisted to pairs, pairs stranded in layers
Wrapping:	non-woven tape
Inner sheath:	PUR, black (RAL 9005)
Stranding:	all elements stranded in layers, filler in centre and interstices
Wrapping:	non-woven tape
Supporting screen:	high-tech yarn
Sheath material:	PUR
Sheath colour:	black (RAL 9005)

Dimension	outer-ø ca. mm	copper Figure kg/km	cable weight ≈ kg/km
2 x 50,0 mm ² + 1 x 25,0 mm ² + (3 x 2 x 0,75 mm ²) C	28,0	1267,0	1604

Construction:

Nominal voltage	Testing voltage	Temperature range
U ₀ /U 0,6/1kV	core/core 4000 V	fixed laying: -50/+90 °C flexible application: -40/+90 °C
Min. bending radius	Tensile strength	Absence of harmful substances
for laying and installation: 5 x d for repeated winding action: 7,5 x d	suspension unit max. 4000 N	acc. to RoHS directive of the European Union



SAB Bröckskes GmbH & Co. KG

Grefrather Str. 204 - 212 b

41749 Viersen · GERMANY

Tel.: +49/2162/898-0

Fax: +49/2162/898-101

www.sab-cable.com

info@sab-broeckskes.de