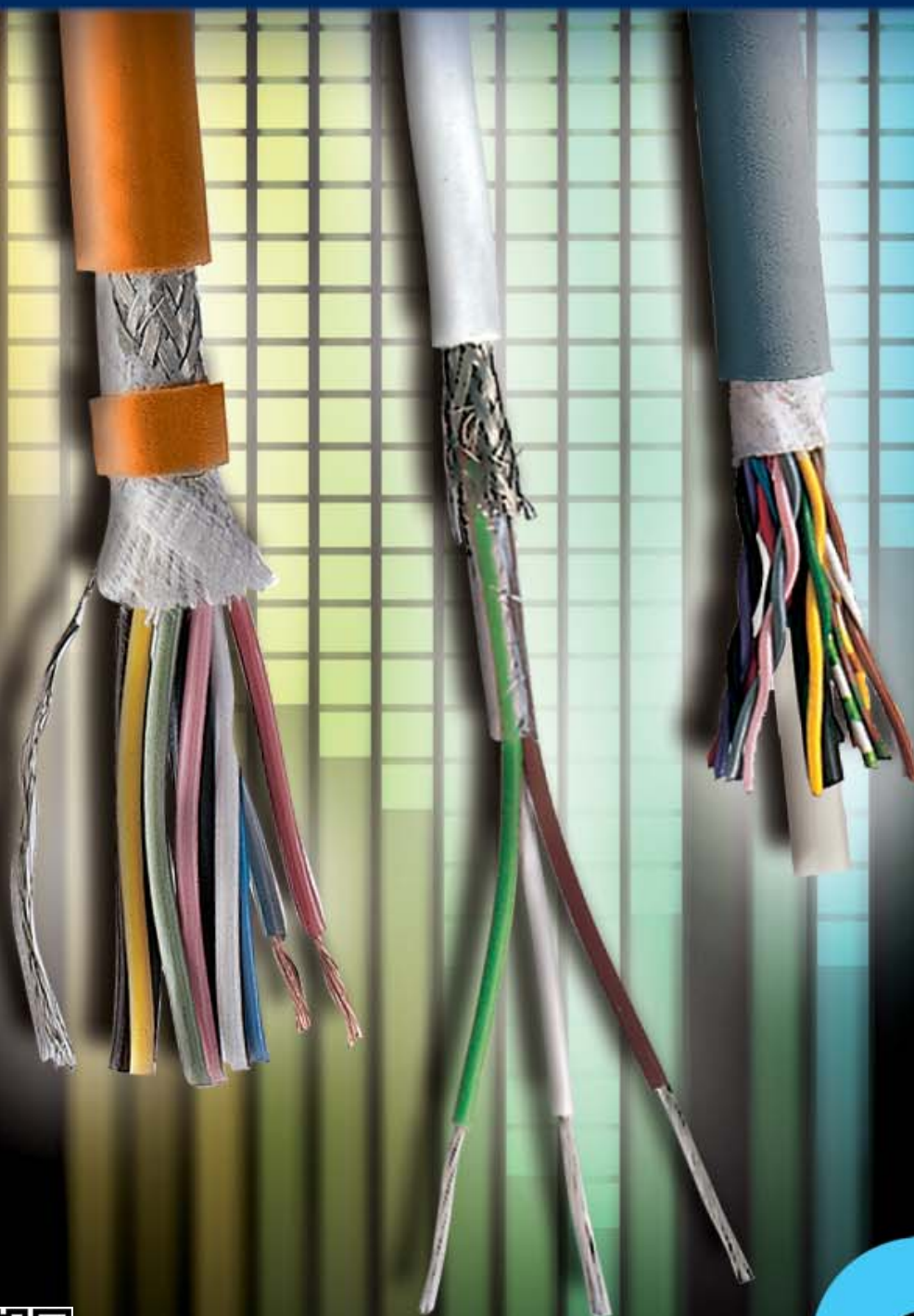


# Cables for sensors



[www.sab-worldwide.com](http://www.sab-worldwide.com)





## DIN EN ISO 9001

More than 60 years of experience in temperature measurement and control technique as well as in cable production have made a one man business a company with nearly 500 staff members. Our strength is not only the production of standard products but also the development and manufacturing of special products acc. to customers' specifications. Every year we manufacture more than 1500 special products on our customer's request. Every single product is a challenge for our technical team.

We at SAB Bröckskes see ourselves as manufacturer and service provider - in the sense of real partnership and customer oriented work. The quality of our products is known in more than 40 countries of the world. Our customers have tested our products intensively and confirm that they have a longer service life than others. In all product ranges we are certified acc. to ISO 9001:2008. Besides we established an environmental management system for our company acc. to ISO 14001:2004, an occupational health and safety management acc. to NLF/ILO-OSH 2001 and OHSAS 18001:2007 as well as an energy management system acc. to DIN EN ISO 50001:2011. And our future slogan is: **We go forward!**

### founded:

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

### CEO:

- Peter Bröckskes

### plant/location:

- in Viersen (lower Rhine) 110.000 m<sup>2</sup> company site
- manufacturing from copper conductor to outer sheath,
- own VDE proofed burnchamber and laboratory

### employees/workers:

- approx. 420 at the plant in Viersen, 500 worldwide

### yearly sales:

- approx. 95 Mio. € worldwide

### products:

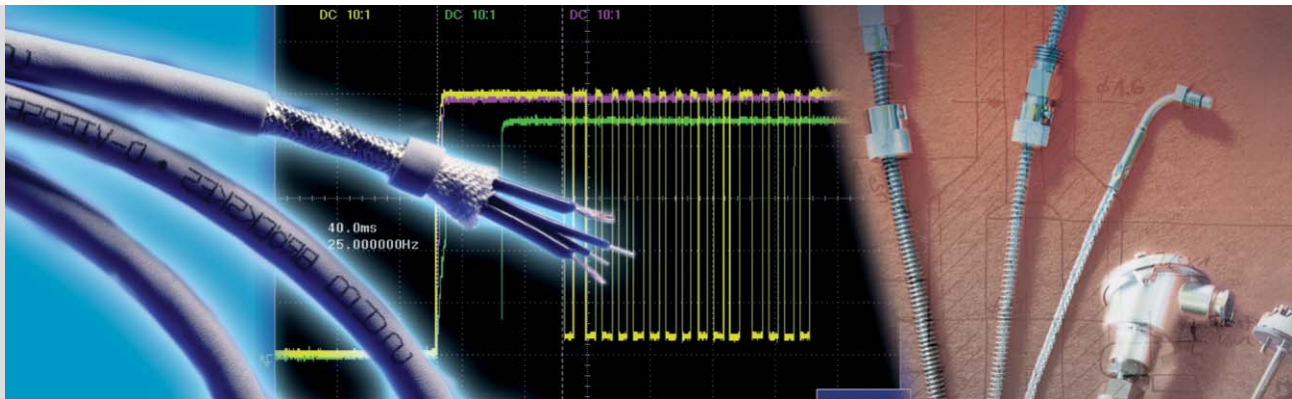
- Special Cables   ■ Temperature Measurement   ■ Cable Harnessing

### certificates and approvals:

- quality management system acc. to ISO 9001:2008 for every manufacturing field
- environmental management system acc. to ISO 14001:2004
- occupational health and safety management acc. to NLF/ILO-OSH 2001 and OHSAS 18001:2007
- energy management system acc. to DIN EN ISO 50001:2011



**MIL, VDE, HAR, IEC, GL, DNV, BV, KR, ABS, NK, RINA, LR, C€**



In almost all industrial sectors an electronic measurement, control and automation are of greatest importance. Sensors and measuring technique are closely connected with each other and in many fields you can't do without. The application range of sensor technology is far reaching from the collection of factors in process technology via the analysis of product characteristics in the manufacturing industry as well as in the automated production to the control of products.

Herewith, the exact measurement of physical values like

- pressure
- temperature, humidity
- filling level
- positioning
- vibration
- flow rate
- power
- turning moment
- speed
- ultrasound
- infrared
- composition and concentration of gases and liquids

as well as the adherence of measuring tolerances and production control are of greatest importance.

With more than 60 years of experience in cable manufacturing we are a competent partner for the development and production of high quality sensor cables. The requirements of our customers are our main concern. We implement the tasks committed to us with creativity and competence and support the practical realization. It doesn't matter if a cable out of our production range has to be modified or if a completely new design is necessary. We guarantee solutions of highest quality with the help of innovation, flexibility, know-how and a quick realization.



# DIFFERENT INDUSTRIAL APPLICATIONS



**Railway technology**



**Aerospace**



**Automotive manufacturers and suppliers**



**Machinery and plant engineering**



**Metal processing industry**



**Mining**



**Drive, control and automation technology**



**Electrical and Power Engineering**



**Paper industry**



**Shipbuilding and offshore industry**



**Chemical, petrochemical, oil and gas industry**



**Food and beverage industry**



**Plastics industry**



**Medical, pharmacy, sports and biomechanics**



## APPLICATIONS:

### ■ Reeling sensor cables

e.g. in the seismic technology:  
borehole probes for the detection  
of hazardous substances in soil and water

methane studies with methane probe for  
offshore risk management or  
for climate change studies



## OUTSTANDING FEATURES:



- ✓ high tensile strength, abrasion and notch resistance
- ✓ extremely high winding and unwinding strength
- ✓ good oil resistance
- ✓ good chemical resistance
- ✓ supporting screen of high-tech yarn

### ■ Besilen® (silicone) sensor cables

e.g. in furnace construction:  
sensor cable for position sensors  
at oven doors  
in low pressure carburizing



- ✓ heat resistant
- ✓ temperature range up to +180°C, short-time use up to +250°C
- ✓ flexible at low temperatures
- ✓ flame retardant and self-extinguishing
- ✓ no development of corrosive conflagration gases
- ✓ very good weather resistance

### ■ Servo sensor cables

e.g. in automation:  
encoders for position and  
speed determination

for collision protection at construction cranes,  
speed measurement and adjustment  
of the rotor position in wind power plants

Determination of the exact loading position  
of container bridges



- ✓ very high flexibility
- ✓ very long service life
- ✓ oil resistant
- ✓ labs uncritical  
(Labs = enamel moisturing interfering substances)
- ✓ flexible at low temperatures
- ✓ DESINA® colours

## APPLICATIONS:

## OUTSTANDING FEATURES:

### ■ Cable track sensor cables

e.g. in railway technology:  
sensor cable for door control

sensor cable for encoder for contactless measurement of revolution speed, angular and position at high speed milling machines or manufacturing centers for the processing of metal, wood, glass and aluminum



- continuously flexible
- flexible at low temperatures
- high abrasion resistance
- very good oil resistant
- good chemical resistance
- no flame propagation
- flame retardant and self-extinguishing

### ■ Halogen-free sensor cables

e.g. in railway technology:  
ticketing, pinch protection, door protection

sensor cable for capacitive plate electrode for the detection of electrical conductive liquids



- no flame propagation
- flame retardant and self-extinguishing
- extended temperature range

### ■ ETFE, FEP, PFA sensor cables for higher temperature ranges

e.g. in shipbuilding:  
sensor cable for temperature probe in the stern tube



- very good chemical and solvent resistance
- very good temperature resistance and temperature flexibility
- very good electrical insulating characteristics
- temperature range up to +180°C, limited time of use up to +200°C
- flame retardant and self-extinguishing

## APPLICATIONS:

## OUTSTANDING FEATURES:

### Special and hybrid sensor cables

e.g. for hydrostatic liquid level monitoring and liquid level measurement in drinking water, wastewater, process and river water

seismic investigations with a drilling hole geophone for soil investigations, monitoring of hydraulic fracturing

fiber optic cable system for marking of spare parts and for robot and portal applications



Version with integrated polyamide sleeve

- flame retardant and self-extinguishing
- oil resistant
- halogen-free



### Ethernet and hybrid sensor cables

e.g. in railway technology: sensor cable for a sensor for contactless measurement of speed, acceleration and braking distance



Version with integrated Industrial Ethernet CAT 5 cable

- halogen-free
- very good oil resistance
- very good fuel and acid resistance
- Compliance with the fire protection class 1-4 acc. to DIN 5510-1

### Free of harmful substances acc. to RoHS-guideline 2002/95/EG as well as the recast of RoHS directive 2011/65/EU and GefStoffV appendix IV-no. 24



#### All sensor cables are free of harmful substances acc. to RoHS directive of the European Union

The materials that are to be found in the indicated items are free of harmful substances according to directive 2002/95/EG as well as the recast of directive 2011/65/EU and according to the dangerous material regulation (GefStoffV) appendix IV no. 24 medium of flame protection.

This means that for the following substances based on the guidelines as well as on the customers' requirements of SAB Bröckskes GmbH & Co. KG, the following quantity and content limits were specified, below which a declaration can be dropped:

➤ lead	< 0,1 %
➤ mercury	< 0,1 %
➤ cadmium	< 0,01 %
➤ hexavalent chromium	< 0,1 %
➤ polybrominated biphenyl (PBB)	< 0,1 %
➤ polybrominated diphenyl ether (PBDE)	< 0,1 %
➤ decabromo diphenyl ether (DecaBDE)	< 0,1 %
➤ pentabrominated diphenyl ether	< 0,1 %
➤ octabrominated diphenyl ether	< 0,1 %



## FLEXIBLE CABLES

- Halogen-free cables ■ Cable track cables
- Servo motor cables ■ ETFE, FEP, PFA cables
  - Bus cables ■ Torsion cables
- Hybrid and special cables ■ Control and connection cables
  - Data cables ■ Besilen® (Silicone) cables
- Compensating and extension cables ■ Tray cables

## TEMPERATURE MEASUREMENT

- Protecting armatures and gauge slides
- Mineral insulated thermocouples and Mineral insulated resistance thermometers
- Temperature measurement in plastic processing industry/Hot runner technique
  - Diesel thermocouples ■ Probe with stainless steel sleeve
    - Temperature measurement in test vehicles
      - Measurement techniques

## CABLE HARNESSING

- Harnessed cables acc. to customer's specification
  - Harnessed cable track cables
  - Helix cables ■ Cable harnesses
- Harnessed motor and transmission cables for Siemens and Indramat drives