



Technical data

- Special insulation as per requirement of PVC, Silicone, Fluorinated polymeric or Glassfilament

Conductor resistance

according DIN 43713

Fe: 0,080 Ohm/m

CuNi: 0,327 Ohm/m

NiCr: 0,720 Ohm/m

Ni: 0, 270 Ohm/m

PtRh: 0,023 Ohm/m

Pt: 0,041 Ohm/m

Test voltage

for PVC-, Fluorinated polymeric- and Silicone cables

core/core 500 V

core/screen 500 V

screen/screen 500 V

Test voltage

Cables with Glassfilament

core/core 500 V

Insulation resistance

for PVC, Silicone and Fluorinated polymeric

min. 10 MOhm x km

Capacitance

(approx. value) – nF/km

| | Stranded wire 1,5 mm ² | Solid wire 1,5 mm ² | Stranded wire 0,22mm ² |
|--|--------------------------------------|-----------------------------------|--------------------------------------|
|--|--------------------------------------|-----------------------------------|--------------------------------------|

| | | | |
|------------|-----|-----|-----|
| • PVC | | | |
| core | 135 | 138 | 115 |
| pair | | | |
| screened | 240 | 245 | 180 |
| • FEP | | | |
| core | 60 | 60 | 45 |
| pair | | | |
| screened | 120 | 120 | 70 |
| • Silicone | | | |
| core | 80 | 70 | 45 |

Induction (guiding value)

for PVC, Fluorinated polymeric and Silicon cables < 1 mH/km

Corrosiveness of combustion gases (free from halogen)

• Silicone + Glassfilament

Test method to VDE 0472 part 813 and IEC 60754-1

- no evolution of corrosive gases

Behaviour in fire

PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Cable structure

- Conductors of stranded wires or solid, insulated with special material
- Conductors: Fe/CuNi, Ni/Cr Ni or Pt Rh/Pt
- Insulations: PVC, Silicone, Fluorinated polymeric or Glassfilament
- Core identification: colour coded, single colour (see also colour-identification table)
- Colour code for pairs from 3 pairs and above the individual pairs number coded
- Jacketing materials are of PVC, Silicone, Fluorinated polymeric or Glassfilament-braiding
- Screened braiding of galvanized steel wire (type SY) or galvanized copper wire braided screen.

Measuring

For temperature measuring the temperature dependent upon the characteristics of materials are taken into consideration, for example the expansion thermometer of the thermocouples etc. Temperature measuring appliances with a thermocouple as transmitter of the measured value consists generally of the thermocouple, the connection between the junction and a reference part, a comparative part where the temperature is known under a voltage measuring device. The fitted connection line between the thermocouple and the comparative part must have the same thermoelectrical characteristics as the thermocouple. The difference of temperature is measured between the measuring point and the comparative part of the cable. Tolerance of the meter resistance $\pm 10\%$.

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For hazardous areas

The compensating cables for thermoelements with plastic insulation are permitted to imprint colour longitudinal stripe of the same belonging thermoelement types, and as:
Cu/Cu-Ni = brown, Fe/Cu-Ni = dark blue, NiCr/Ni = green, Pt-Rh/Pt = white
The compensating cables for thermoelements with mineral insulation or with metal braiding must be identified with a light blue coloured tape of sufficient width for intrinsic safe, which can be webbed in the braiding.

- Flame test to DIN VDE 0482 part 266-2/HD 405.3, BS 4066 part 3/EN 50266-2/IEC 60332-3 (equivalent DIN VDE 0472 part 804 test method C)

Application

Compensating cables are an essential part of exact and precise measuring capabilities. They are used as extension leads from the thermocoupling elements to the measure gauge.

Compensating cables are made up of a positive and a negative core which, at a thermocouple temperature of up to $+200^{\circ}\text{C}$, retain the same properties as a Thermopair according to DIN 43710.

Materials

(Compensating wires and strands)
We distinguish between original raw materials and substitutes.

- Compensating wires and strands of **original raw materials** are made of the same material as the corresponding thermocouple and they are called Thermocable or Thermocouplecable.
- Compensating wires and strands of **substitute materials**, which consist of alloys and which are not identical with the corresponding thermocouple are called Compensating Cable.

- **Substitute materials** are used for the thermopairs Type **K** and Type **N**.

- **Precious metal thermopairs**

Type **R**, Type **S**, Type **B** consist of thermomaterials.

Thermocouple cables

Thermocouple cables consist of the same element material as the thermocouple and are tested to the same temperatures. These cables are manufactured to customers request.

Note

Thermomaterials consist of very expensive materials while the substitutes are much cheaper.

