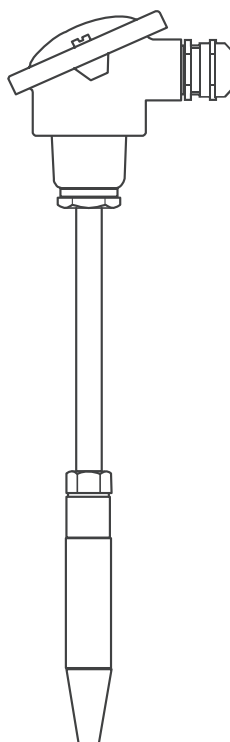

 TRG 5-63
 TRG 5-64

 TRG 5-65
 TRG 5-66
 TRG 5-67
 TRG 5-68

Temperature Sensor

TRG 5-63, TRG 5-64, TRG 5-65, TRG 5-66, TRG 5-67, TRG 5-68

Description

The temperature sensor TRG 5-6.. in conjunction with temperature switches TRS 5-50, TRS 5-52 or with temperature transmitter TRV 5-40 are designed for measuring temperatures in steam or hot water.

Function

The temperature sensors TRG 5-63, TRG 5-65, TRG 5-66 and TRG 5-67 feature one integrated platinum resistance thermometer Pt100 each.

The temperature sensors TRG 5-64 and TRG 5-68 are equipped with two platinum resistance thermometers Pt 100 for the connection of additional indicating equipment.

The ohmic resistance of the resistance thermometer changes as a function of temperature. If a constant current is applied, the voltage produced by the change of resistance is measured and further processed in the temperature switch or temperature transmitter.

The temperature sensor can be used as measuring transducer for

- a safety temperature monitor/limiter in conjunction with temperature transmitter TRV 5-40 and control unit NRS 1-40.1
- a temperature monitor/controller in conjunction with temperature transmitter TRV 5-40 and switching controller TRS 5-40
- a safety temperature monitor/limiter in conjunction with temperature switch TRS 5-50
- a temperature monitor in conjunction with temperature switch TRS 5-52

Directives and standards

Pressure Equipment Directive 2014/68/EU

Safety temperature limiters/monitors are safety accessories as defined in the Pressure Equipment Directive (PED). The temperature switch TRS 5-50 and the temperature transmitter TRV 5-40 (together with control unit NRS 1-40.1) in conjunction with temperature sensors TRG 5-6.. are EC type approved according to EN 12952/EN 12953. These Directives state, among other things, the requirements made on limiting systems and equipment for steam boiler plants and (pressurised) hot-water installations.

Functional Safety acc. to IEC 61508

The temperature switch TRS 5-50 and the temperature transmitter TRV 5-40 (together with control unit NRS 1-40.1) in conjunction with temperature sensors TRG 5-6.. are certified to IEC 61508. This standard describes the functional safety of safety-related electrical/electronic/programmable electronic systems.

The equipment combination TRG 5-6.. + TRS 5-50 corresponds to a type B subsystem with Safety Integrity Level (SIL) 3.

The combination TRG 5-6.. + TRV 5-40 (with NRS 1-40.1) corresponds to a type B subsystem with Safety Integrity Level (SIL) 2.

Directives and standards - continued -

DIN EN 14597

The temperature sensor TRG 5-6.. is type approved according to DIN EN 14597 as measuring transducer for

- a safety temperature monitor (STM) / limiter (STL) in conjunction with temperature transmitter TRV 5-40 and control unit NRS 1-40.1
DIN Registration number DIN STM (STL) 117908
- a temperature monitor (TM) / controller (TC) in conjunction with temperature transmitter TRV 5-40 and switching controller TRS 5-40
DIN Registration number DIN TM / TC 1182
- a safety temperature monitor (STM) / limiter (STL) in conjunction with temperature switch TRS 5-50
DIN Registration number DIN STM (STL) 1230
- a temperature monitor (TM) in conjunction with temperature switch TRS 5-52
DIN Registration number DIN TM 1232

DIN EN 14597 describes and specifies the requirements made on (safety) temperature limiters/monitors.

Approvals for Marine Applications

The temperature sensor TRG 5-6.. in conjunction with temperature switch TRS 5-50 is approved for marine applications. Germanischer Lloyd 47399-12 HH

ATEX (Atmosphère Explosible)

According to the European Directive 2014/34/EU the equipment must **not** be used in explosion risk areas.

Technical data

Measuring element (3-wire connection)

TRG 5-63

1 x Pt 100 to EN 60751, class A

TRG 5-64

2 x Pt 100 to EN 60751, class A

TRG 5-65, TRG 5-66

1 x Pt 100 to EN 60751, up to 300 °C class A,
> 300 °C class B

TRG 5-67

1 x Pt 100 to EN 60751, class B

TRG 5-68

2 x Pt 100 to EN 60751, class B

Service pressure, service temperature

TRG 5-63

Nominal length 100, 160, 250 mm

36 bar at 251 °C

Nominal length 400 mm

18 bar at 400 °C

TRG 5-64

Nominal length 100, 160, 250 mm

36 bar at 251 °C

Nominal length 400 mm

18 bar at 400 °C

TRG 5-65, TRG 5-66

160 bar at 345 °C

120 bar at 540 °C

TRG 5-67, TRG 5-68

150 bar at 600 °C

Temperature Sensor

TRG 5-63, TRG 5-64, TRG 5-65, TRG 5-66, TRG 5-67, TRG 5-68

Technical data - continued -

Admissible flow velocity

TRG 5-63, TRG 5-64
Air 25 m/s
Superheated steam 25 m/s
Water 3 m/s (nominal length 400 mm: 2.4 m/s)

TRG 5-65, TRG 5-66, TRG 5-67, TRG 5-68
Air 60 m/s
Superheated steam 60 m/s
Water 5 m/s

Mechanical connection

TRG 5-63, TRG 5-64
Thread G 1/2, ISO 228-1

TRG 5-65
Welding sleeve form 4

TRG 5-66
Welding sleeve form 4

TRG 5-67, TRG 5-68
Welding sleeve form 4

Length of protection tube

see Dimensions

Materials

TRG 5-63, TRG 5-64
Protection tube 1.4571, X6 CrNiMoTi 17 122

TRG 5-65, TRG 5-66
Welding sleeve 1.7335

TRG 5-67, TRG 5-68
Welding sleeve 1.4961

Ambient temperature at terminal box

Max. 70°C

Protection

IP 66 to DIN EN 60529

Cable entry / Electrical connection

EMC cable gland with integrated cable strain relief
M 20 x 1.5

Weight

TRG 5-63, TRG 5-64: approx. 0.5 kg

TRG 5-65, TRG 5-66: approx. 0.6 kg

TRG 5-67, TRG 5-68: approx. 1 kg

Key

- ① Length of protection tube / welding sleeve
- ② Temperature-sensitive length
- ③ Threaded area
- ④ Diameter of welding sleeve
- ⑤ Cone-shaped part
- ⑥ Tip of cone-shaped part
- ⑦ Sealing surface

Dimensions

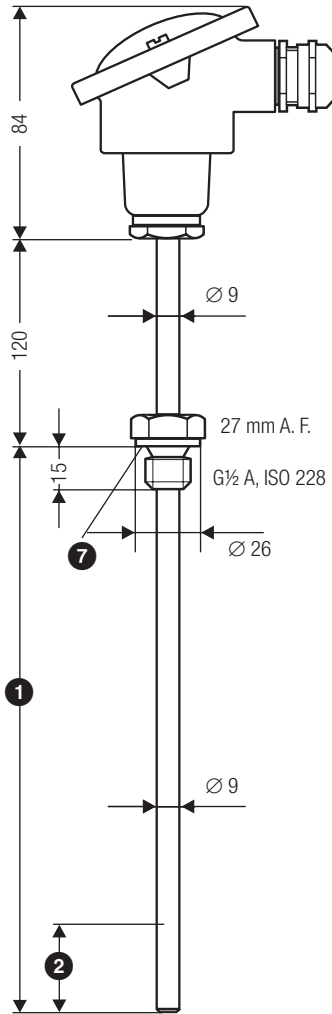


Fig. 1
TRG 5-63, TRG 5-64

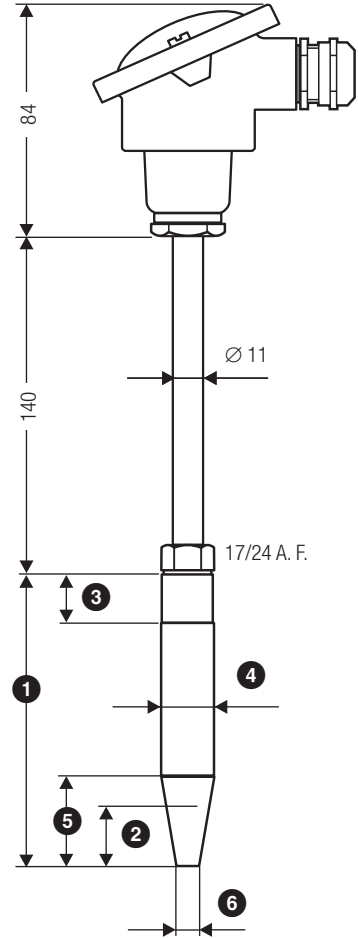
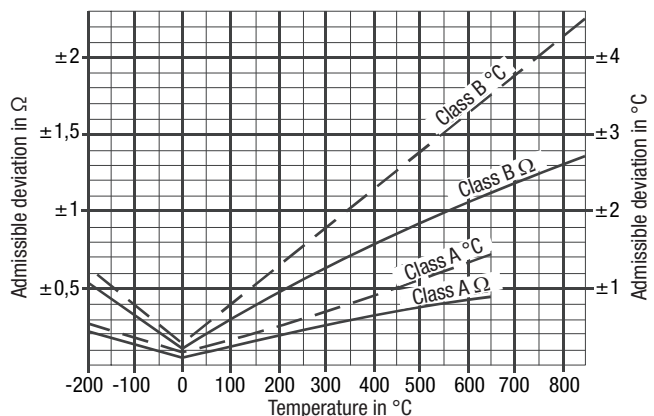


Fig. 2
TRG 5-65, TRG 5-66
TRG 5-67, TRG 5-68

	①	②	③	④	⑤	⑥
TRG 5-63	100					
TRG 5-64	160	30	-	-	-	-
	250					
	400					
TRG 5-65	115	30	25	18	40	9
TRG 5-66	140	30	25	18	65	9
TRG 5-67	200	30	25	24	65	12.5
TRG 5-68	200	30	25	24	65	12.5

Dimensions indicated in mm

Tolerances of the precision resistor according to EN 60751



Temperature Sensor

**TRG 5-63, TRG 5-64, TRG 5-65,
TRG 5-66, TRG 5-67, TRG 5-68**

Important Notes

Installation

To install the temperature sensor in a pipe, weld an elbow onto it. **Fig. 5, 6** This ensures that the temperature sensitive part of the temperature sensor is immersed in the fluid against the flow direction.

Electrical connection

To connect the temperature sensor please use:

- To connect it to the **temperature transmitter TRV 5-40**: screened four-core cable, e. g. Ölflex 110 CH, manufactured by Lapp, 4 x 0.5 mm². Max. length 25 m.
- To connect it to the **temperature switches TRS 5-50 and TRS 5-52**: Multi-core screened control cable, min. conductor size 0.5 mm², e. g. LiYCY 3 x 0.5 mm², max. length 100 m.

Additional equipment such as indicating devices can be connected to the terminals marked in yellow and black of the TRG 5-64 and TRG 5-68.

The EMC cable gland can be replaced by a cable entry gland twin.

Order & Enquiry Specification

GESTRA Temperature sensor TRG 5-6..

PN Connection

Inspection mm

Nominal length..... mm

Associated temperature transmitter/switch

- Temperature transmitter TRV 5-40
- Temperature switch TRS 5-50
- Temperature switch TRS 5-52

Key

- ⑧ Protection tube / welding sleeve
- ⑨ Thermal insulation
- ⑩ Elbow

Examples of installation

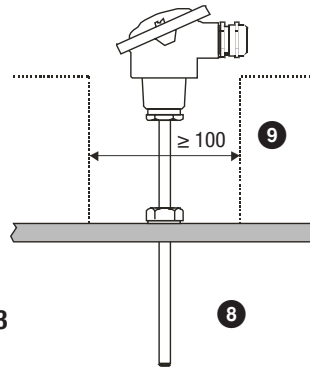


Fig. 3

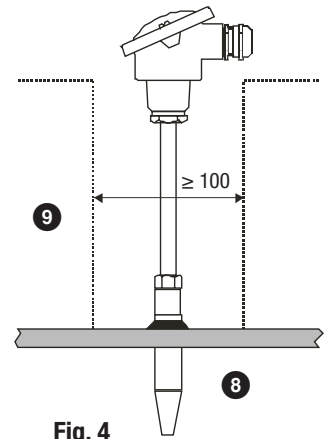


Fig. 4

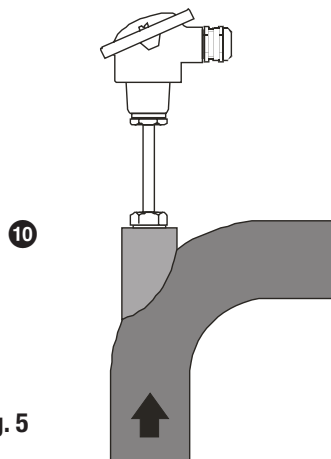


Fig. 5

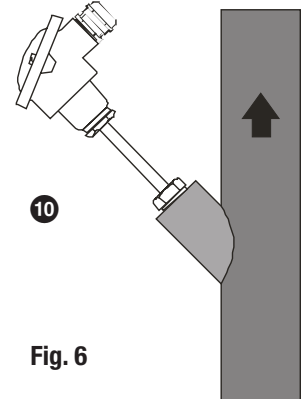


Fig. 6

Supply in accordance with our general terms of business.

GESTRA AG

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