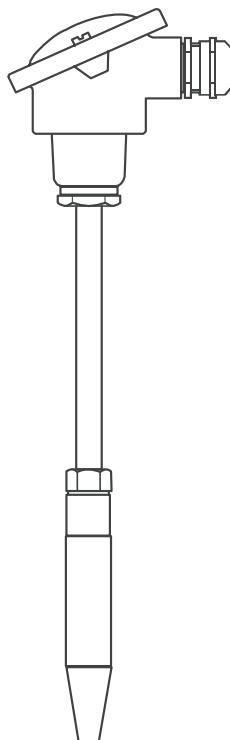


TRG 5-63
TRG 5-64



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

TRG 5-6... temperature sensors are used in combination with TRS 5-50 and TRS 5-52 temperature switches or the TRV 5-60 temperature transmitter for measuring the temperature in steam and hot water.

Function

Each TRG 5-63, TRG 5-65, TRG 5-66 and TRG 5-67 temperature sensor has a Pt100 platinum resistance thermometer.

On the other hand, TRG 5-64 and TRG 5-68 temperature sensors each feature two Pt100 platinum resistance thermometers for the connection of additional indicating equipment.

The ohmic resistance of the resistance thermometer changes as a function of the temperature. When supplied with a constant current, the voltage produced due to the change of resistance is measured in the temperature switch or temperature transmitter, and further processed.

The temperature sensor can be used as a measuring transducer for

- a safety temperature monitor/limiter, in combination with the TRV 5-60 temperature transmitter and URS 60/61 control unit
- a temperature monitor/limiter, in combination with the TRV 5-60 temperature transmitter and URS 60/61 control unit
- a safety temperature monitor/limiter, in combination with the TRS 5-50 temperature switch
- a temperature monitor in combination with the TRS 5-52 temperature switch.

Functional safety as per IEC 61508

In combination with the TRG 5-6... temperature sensors, the TRS 5-50 temperature switch and TRV 5-60 temperature transmitter (with URS 60/61 control unit) are certified to IEC 61508. This standard describes the functional safety of electrical, electronic and programmable electronic safety-related systems.

The TRG 5-6... + TRS 5-50 combination produces a Type B subsystem with safety integrity level (SIL) 3.

The TRG 5-6... + TRV 5-60 combination (with URS 60/61) produces a Type B subsystem with safety integrity (SIL) 3.

Use in potentially explosive atmospheres

Do not use the equipment in potentially explosive atmospheres.

Technical data

Sensor unit (3-wire connection)

TRG 5-63

1 x Pt100 to EN 60751, Class A

TRG 5-64

2 x Pt100 to EN 60751, Class A

TRG 5-65, TRG 5-66

1 x Pt100 to EN 60751, Class A up to 300 °C, Class B > 300 °C

TRG 5-67

1 x Pt100 to EN 60751, Class A

TRG 5-68

2 x Pt100 to EN 60751, Class A

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

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 ½, 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 protective tube

see Dimensions

Materials

TRG 5-63, TRG 5-64

Protective 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 65 to EN 60529

Cable entry, electrical connection

EMC cable gland with integrated strain relief
M 20 x 1.5

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

Technical data
continued

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

Dimensions

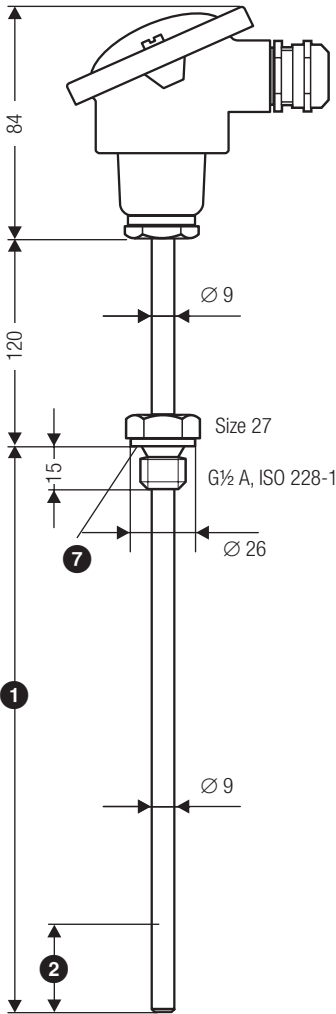


Fig. 1
TRG 5-63, TRG 5-64

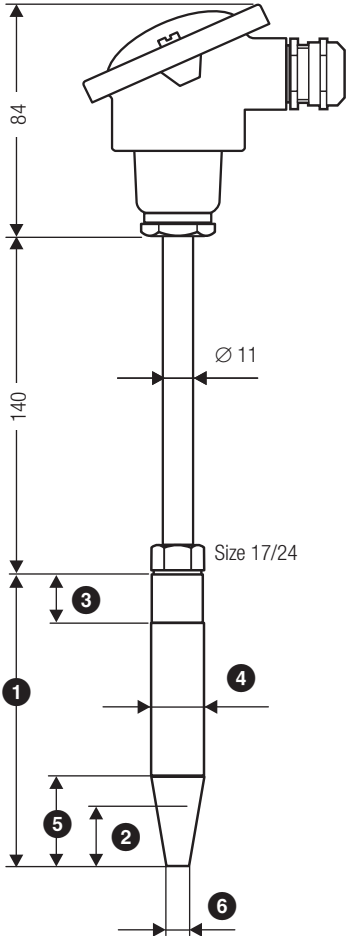
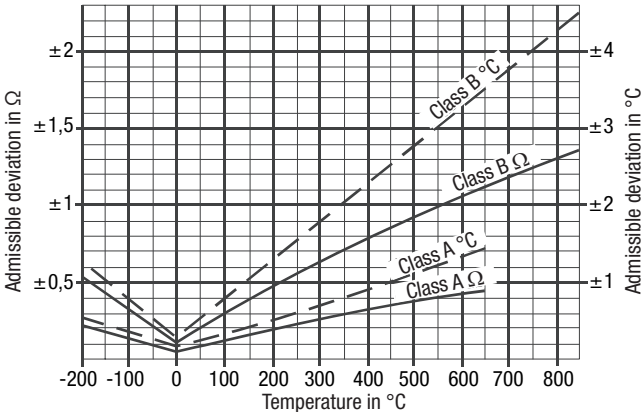


Fig. 2
TRG 5-65, TRG 5-66
TRG 5-67, TRG 5-68

	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
Values in mm						

Measuring resistor
tolerances
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, please weld on an elbow, **Fig. 5 and 6**. This ensures that the temperature-sensitive part of the temperature sensor is immersed in the fluid against the direction of flow.

Electrical connection

Please use the following to connect the temperature sensor:

- For connection to the **TRV 5-60 temperature transmitter**: screened four-core cable, e.g. Ölflex 110 CH from Lapp, 4 x 0.5 mm². Max. length 25 m.
- For connection to the **TRS 5-50 or TRS 5-52 temperature switch**: screened multicore control cable with a minimum conductor size of 0.5 mm², e.g. LiVCY 3 x 0.5 mm², max. length 100 m.

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

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

How to order and specify

GESTRA temperature sensor TRG 5-6..

PN Connection

Inspection mm

Nominal length..... mm

Matching temperature transmitter/switch

- Temperature transmitter TRV 5-60
- Temperature switch TRS 5-50
- Temperature switch TRS 5-52

Key

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

Installation examples

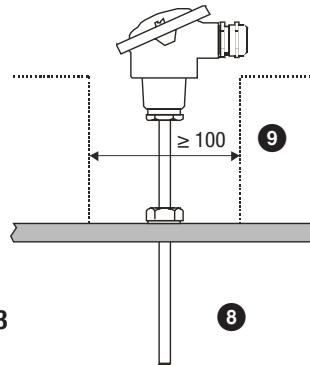


Fig. 3

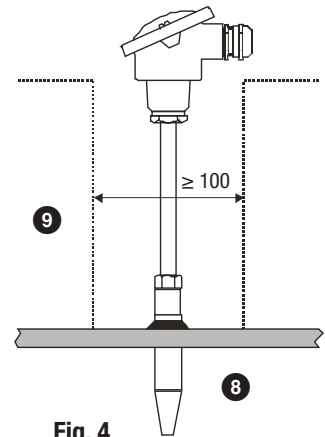


Fig. 4

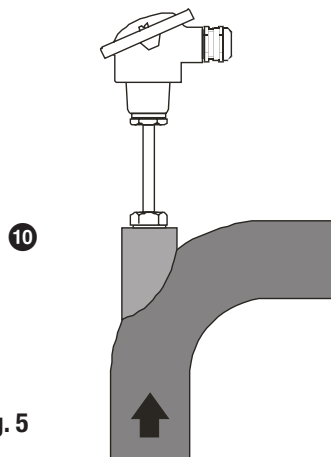


Fig. 5

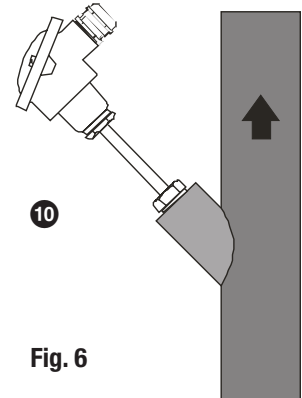


Fig. 6

Directives and standards

You can find details on the conformity of the equipment and the applicable standards and directives in our Declaration of Conformity and the relevant certificates or approvals.

Please note our general terms of business.

GESTRA GmbH

Münchener Straße 77, 28215 Bremen, Germany
Tel. +49 421 3503 0, Fax +49 421 3503 393
e-mail info@de.gestra.com, website www.gestra.com

