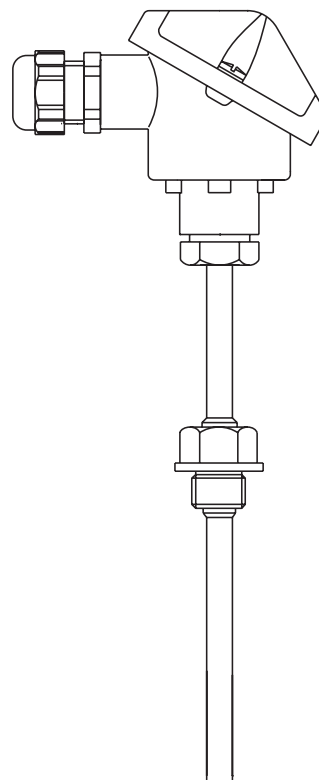


# RTD Thermometer *omnigrad TST90*

**Process thermometer - Building automation**  
**Ø 6 mm M.I. replaceable inset**  
**Straight and Reduced Tip - Matched pairs**



## Description

TST90 RTD thermometer assembly includes a replaceable single Pt100 inset in mineral insulated cable, a terminal head and a thermowell.

The inset is equipped with special matched Pt100 for thermal energy measurement.

The terminal head can be selected from a wide choice of standard items (see the Order key or the TA20 Technical Information for more details).

The thermowell can be delivered with a reduced tip for fast response time.

TST90 is always delivered in matched pairs.

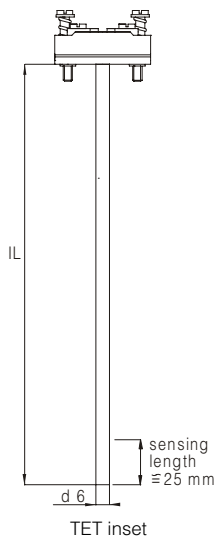
## Application

Typical application can be found in heat exchangers for inlet and outlet differential temperature measurement.

The thermal energy can be calculated knowing  $\Delta T$  between inlet and outlet, flowrate and other parameters.

## Technical data

### Mineral insulated replaceable inset



Version:	TET90
Sensing element:	Platinum resistance, 1 Pt100 $\Omega$ at 0°C, thinfilm type
Tolerances:	matched pairs, $\pm 0.05$ K (0÷120°C) or $\pm 0.1$ K (-40÷0°)
Wiring:	2 or 4 wire connections
Insulation resistance:	$\geq 100$ M $\Omega$ , test voltage 250 V at ambient temperature
Electrical connections:	terminal block
Stem:	mineral insulated cable (MgO)
Sheath:	AISI 316L/W.1.4404
Standard diameter:	6 mm straight tip type or 3x50 reduced tip type
Operating temperature:	-50 ... +200 °C
Response time values:	according to IEC751 in moving water at 0.4 m/s $T_{50} = 24$ s ; $T_{90} = 72$ s (straight tip) $T_{50} = 7.5$ s ; $T_{90} = 20.5$ s (reduced tip)
Internal resistance:	for 2 wire electrical connection compensation 0.06 $\Omega$ /m for each single conductor (straight tip) 0.12 $\Omega$ /m for each single conductor (reduced tip)
Replacement:	inset length IL is calculated as follows $IL = L + 155$ mm

### Protecting tube

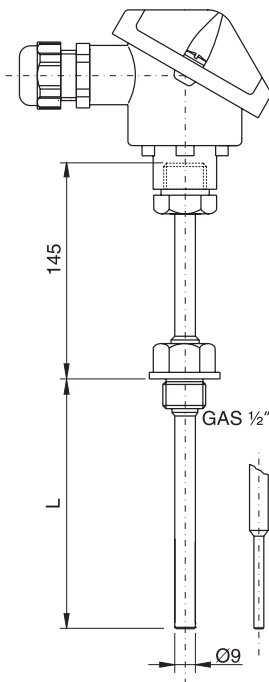
Version:	TA10 thermowell
Standard diameter:	9x7 mm
Reduced tip:	see drawing next page
Standard material:	AISI 316Ti/W.1.4404
Connection to head:	M24 x 1.5
Process connection:	G 1/2" - M
Max. operat. condition:	50 bar @ 20°C; 1 bar @ 400°C

### Terminal head

Version, protection class and electrical connection: refer to order key

## Order key

- For inset replacement see Technical data
- Accuracy statement is referred to the replaceable inset only as defined by IEC 751 without any protecting thermowell which may introduce thermal drift due to process connection heat dissipation in conjunction to short immersion lengths. For a correct temperature measurement the thermowell immersion length must be 20 times its diameter. Shorter immersion lengths can be supplied but the thermometer requires an external (process connection, neck and connection head) thermal insulation.



**TST90- RTD THERMOMETER** - Building automation  
 Ø 6 mm M.I. replaceable inset - Straight and Reduced Tip - Matched pairs

**Material of the thermowell**

- 1 AISI 316TI-W1.4571
- 9 Material to specification

**Insertion Length L (75-3700mm)**

- U 100 mm insertion length
- D 160 mm insertion length
- F 250 mm insertion length
- K 400 mm insertion length
- X mm insertion length to spec.
- Y mm special insertion length

**Sensor material**

- 1 Thermowell AISI 316TI-W1.4571
- 9 Thermowell material to spec.

**Shape of the tip**

- S Straight tip, standard response
- T Reduced tip, fast response

**Type of terminal**

- 3 Terminal block
- 9 To specification

**Class and type of inset**

- 1S2 1 Pt100, 2 wire, cal. 0,05K (0 - 120 °C)
- 1S4 1 Pt100, 4 wire, cal. 0,05K (0 - 120 °C)
- 1U4 1 Pt100, 4 wire, cal. 0,1K (-40 - 0 °C)
- 9Y9 To specification

**Terminal head**

- A TA20A:M24 bottom, Pg16 Grey, IP67
- B TA20B:M24 bottom, Pg16 Grey, IP67
- D TA20D:M24 bottom, Pg16 Grey, IP66
- Y To specification

**TST90-** [ ] **Complete Order Code**

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**S supplementary  
Documentation**

- Technical Information TET90 Ø6 mm M.I. Inset (TI 225T/02/en)
- Technical Information TA20 terminal heads (TI 072T/02/en)

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