

Measuring insert for thermocouple

For thermometers with flameproof enclosure model TC10-L Model TC10-K

WIKA data sheet TE 65.11



for further approvals
see page 4

Applications

- Replacement measuring insert for servicing

Special features

- Application ranges from -200 ... +600 °C
- Made of mineral-insulated sheathed cable
- For all standard thermowell designs
- Spring-loaded design
- Explosion-protected versions



**Measuring insert for thermocouple, model TC10-K,
for Ex d thermometer model TC10-L**

Description

The measuring inserts for thermocouples described here are designed for installation in a thermometer model TC10-L. Operation without thermowell is appropriate only in special cases. The measuring insert is made of flexible, mineral insulated sheathed cable. The sensor is located in the tip of the measuring insert. This model is spring-loaded to ensure that the measuring insert is firmly pressed down on the thermowell bottom.

The following versions are possible:

- with mounted sleeve to suit inner diameter of the thermowell
- without terminal block
- with transmitter

Type and number of sensors, accuracy and method of connection can each be selected to suit the respective application.

Only correct measuring insert length and correct measuring insert diameter ensure sufficient heat transfer from thermowell to the measuring insert.

The range of applications is completed by designs without terminal block for direct transmitter installation. Optionally, analogue or digital transmitters from the WIKA range can be installed.

Sensor

Sensor type

Model	Recommended max. operating temperature
K (NiCr-Ni)	1,200 °C
J (Fe-CuNi)	800 °C
E (NiCr-CuNi)	800 °C
T (Cu-CuNi)	350 °C
N (NiCrSi-NiSi)	1,200 °C

Thermocouple Model	Class	
	DIN EN 60584 part 2	ISA MC96.1
K	1 and 2	Standard, special
J	1 and 2	Standard, special
N	1 and 2	-
E	1 and 2	-
T	1 and 2	-

Tolerance value

For the tolerance value of thermocouples, a cold junction temperature of 0 °C has been taken as the basis.

For detailed specifications for thermocouples, see Technical information IN 00.23 at www.wika.com.

Listed models are available both as single or dual thermocouples. The thermocouple will be delivered with an insulated measuring point, unless explicitly specified otherwise.

The actual application range of these thermometers is limited both by the permissible maximum temperature of the thermocouple and the sheath material as well as by the permissible maximum temperature of the thermowell material.

Measuring insert

The measuring insert is made of a vibration-resistant, sheathed, mineral-insulated cable (MI cable).

The diameter of the measuring insert should be approx. 1 mm smaller than the bore diameter of the thermowell.

Gaps of more than 0.5 mm between thermowell and the measuring insert will have a negative effect on the heat transfer, and they will result in unfavourable response behaviour from the thermometer.

Using two screws and springs, the measuring insert can be mounted into a connection head (Form B), replaceable and mounted spring-loaded.

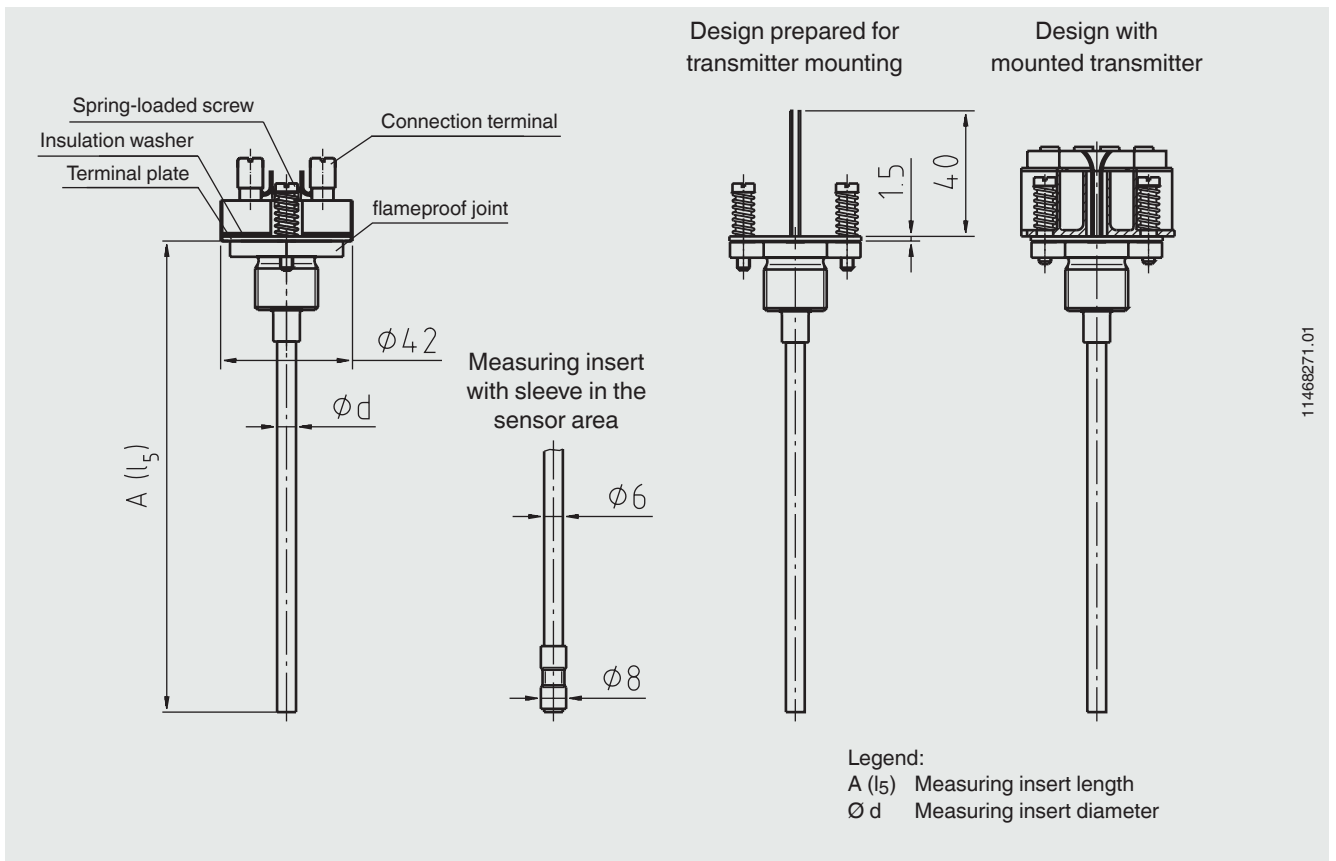
When fitting the measuring insert into a thermowell, it is very important to determine the correct insertion length (= thermowell length for bottom thicknesses of ≤ 5.5 mm). In order to ensure that the measuring insert is firmly pressed down onto the bottom of the thermowell, the insert must be spring-loaded (spring travel: max 10 mm).

The standard material used for the measuring insert sheath is stainless steel. Other materials on request.

Besides twistability, this series is characterised by a high vibration resistance of the probe tip (6 g, optionally 20 g peak-to-peak ¹⁾).

¹⁾ In combination with TC10-L, vibration resistance data of the TC10-L apply.

Dimensions in mm



Standard measuring insert lengths

Measuring insert ϕ in mm	Standard measuring insert lengths in mm											
3	275	315		375		435						
6	275	315	345	375	405	435	525	555	585	655	735	
8	275	315	345	375	405	435	525	555	585	655	735	
8 (sleeve) ¹⁾	275	315	345	375	405	435	525	555	585	655	735	

The lengths specified in this table correspond to the standard lengths. Intermediate lengths or greater lengths are possible without any difficulty.

1) MI cable $\phi 6$ mm with sleeve $\phi 8$ mm in the sensor area

Transmitter (option)

A transmitter can be built upon the measuring insert. In this case, the transmitter replaces the terminal block and is directly attached to the terminal plate of the measuring insert.

Model	Description	Explosion protection	Data sheet
T91.10	Analogue transmitter, fixed measuring range	Without	TE 91.01
T12	Digital transmitter, PC configurable	Optional	TE 12.03
T32	Digital transmitter, HART® protocol	Optional	TE 32.04
T53	Digital transmitter FOUNDATION™ Fieldbus and PROFIBUS® PA	Standard	TE 53.01

Explosion protection (option)

Attention:

The measuring insert model TC10-K is designed for use in thermocouple model TC10-L only.

The ignition protection type Ex d is guaranteed only if the measuring insert including the supplied threaded sleeve (flameproof joint) is built into the connection head with flameproof enclosure of the thermocouple model TC10-L.

CE conformity

ATEX directive (option)

94/9/EC

Approvals (option)

- **IECEX**, international certification for the Ex area
- **NEPSI**, ignition protection type "i" - intrinsic safety, China
- **GOST-R**, import certificate, Russia
- **GOST**, metrology/measurement technology, Russia
- **KOSHA**, ignition protection type "i" - intrinsic safety, South Korea
- **PESO (CCOE)**, ignition protection type "i" - intrinsic safety, India

Certificates

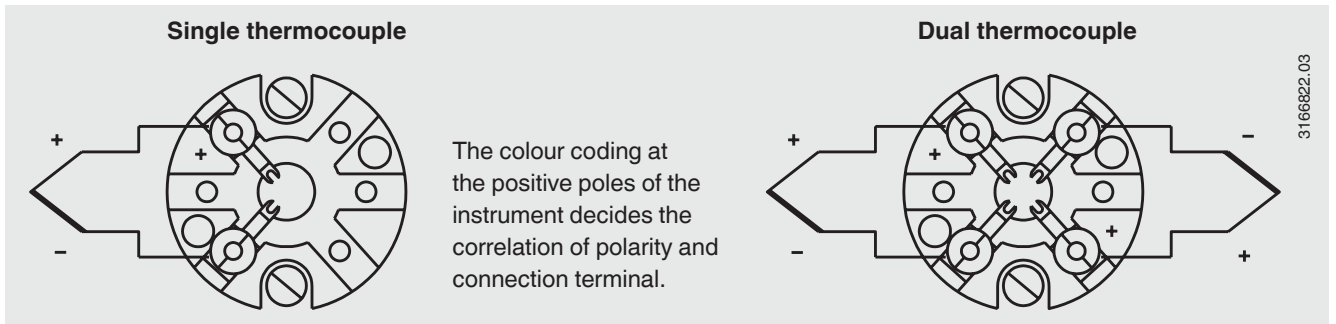
Certification type	Measuring accuracy	Material certificate
2.2 test report	x	x
3.1 inspection certificate	x	-
DKD/DAkkS calibration certificate	x	-

The different certifications can be combined with each other.

Approvals and certificates, see website

Electrical connection

(Colour code per EN/IEC 60584)



For the electrical connections of built-in temperature transmitters see the corresponding data sheets or operating instructions.

Ordering information

Model / Explosion protection / Terminal block, transmitter / Measuring element / Temperature range / Probe diameter / Sheath, raw material / Measuring insert length / Certificates / Options

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