

# Threaded resistance thermometer With perforated thermowell model TW35 Model TR10-J

WIKA data sheet TE 60.10



for further approvals  
see page 7

## Applications

- Ventilation ducts
- Air-conditioning systems
- Temperature measurement under difficult conditions
- Building control systems
- Sanitary, heating and air-conditioning technology

## Special features

- Application ranges from -200 ... +600 °C
- With integrated perforated thermowell model TW35

## Description

Resistance thermometers of this series are designed for screw-fitting directly in ventilation ducts.

Due to the perforation, the measuring insert is in direct contact with the medium. This considerably improves the response time. The measuring insert is sealed towards the connection head so that no medium can escape outside.

Insertion length, process connection, thermowell design, connection head, type and number of sensors, accuracy and method of connection can each be selected to suit the respective application.

Optionally we can fit analogue or digital transmitters from the WIKA range into the connection head of the TR10-J.



**Threaded resistance thermometer model TR10-J with  
perforated thermowell model TW35**

## Sensor

The sensor is located in the tip of the measuring insert.

### Sensor connection method

- 2-wire
- 3-wire
- 4-wire

### Sensor tolerance value per DIN EN 60751

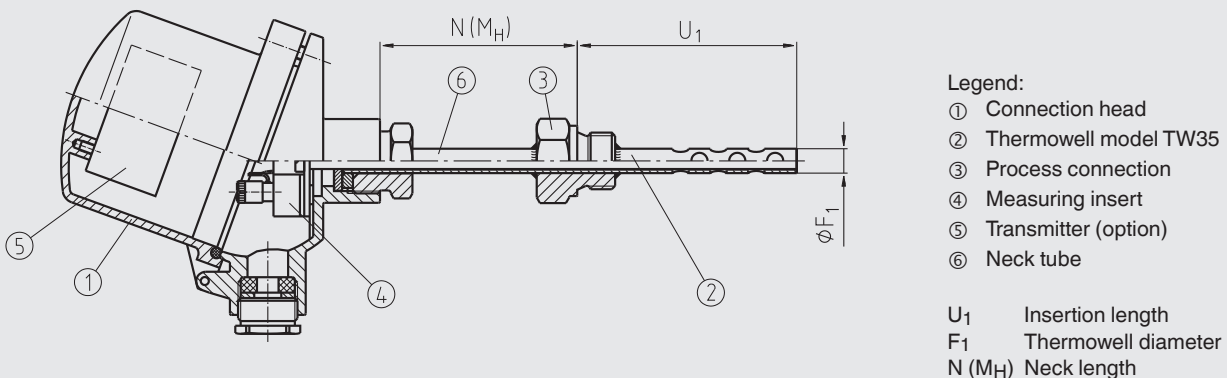
- Class B
- Class A
- Class AA

The combinations of a 2-wire connection with class A or class AA are not advisable, since the lead resistance of the measuring insert negates the higher sensor accuracy.

For detailed information on Pt100 sensors, see Technical information IN 00.17 at [www.wika.com](http://www.wika.com).

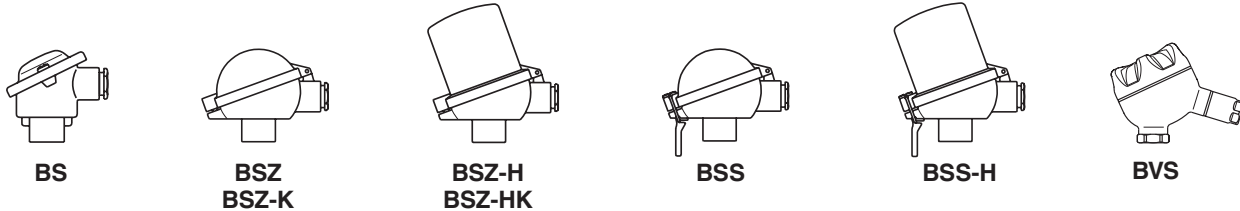
## Components model TR10-J

Fig. with parallel thread, for tapered thread see "Process connection"



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## Connection head



Model	Material	Cable outlet	Ingress protection	Cap	Surface
BS	Aluminium	M20 x 1.5 <sup>1)</sup>	IP 65	Cap with 2 screws	Blue, lacquered <sup>2)</sup>
BSZ	Aluminium	M20 x 1.5 <sup>1)</sup>	IP 65	Hinged cover with cylinder head screw	Blue, lacquered <sup>2)</sup>
BSZ-K	Plastic	M20 x 1.5 <sup>1)</sup>	IP 65	Hinged cover with cylinder head screw	Black
BSZ-H	Aluminium	M20 x 1.5 <sup>1)</sup>	IP 65	Hinged cover with cylinder head screw	Blue, lacquered <sup>2)</sup>
BSZ-HK	Plastic	M20 x 1.5 <sup>1)</sup>	IP 65	Hinged cover with cylinder head screw	Black
BSS	Aluminium	M20 x 1.5 <sup>1)</sup>	IP 65	Hinged cover with clip	Blue, lacquered <sup>2)</sup>
BSS-H	Aluminium	M20 x 1.5 <sup>1)</sup>	IP 65	Hinged cover with clip	Blue, lacquered <sup>2)</sup>
BVS	Stainless steel	M20 x 1.5 <sup>1)</sup>	IP 65	Screw cover	Precision casting, electropolished

1) Standard  
 2) RAL 5022

## Connection head with digital indicator (option)

As an alternative to the standard connection head the thermometer can be fitted with an optional DIH10 digital indicator. The connection head used for this is similar to the model BSZ-H head. For operation, a 4 ... 20 mA transmitter is needed, which is mounted to the measuring insert. The indication range is configured identically to the measuring range of the transmitter.

Designs with ignition protection type "intrinsically safe", Ex i, are also available.



Connection head with digital indicator, model DIH10

## Transmitter (option)

Depending on the connection head used, a transmitter can be mounted within the thermometer.

- Mounted instead of terminal block
- Mounted within the cap of the connection head
- Mounting not possible

Mounting of 2 transmitters on request.

Connection head	Transmitter model				
	T12	T19	T24	T32	T53
BS	-	○	○	-	○
BSZ / BSZ-K	○	○	○	○	○
BSZ-H / BSZ-HK	●	●	●	●	●
BSS	○	○	○	○	○
BSS-H	●	●	●	●	●
BVS	○	○	○	○	○

Model	Description	Explosion protection	Data sheet
T19	Analogue transmitter, configurable	Without	TE 19.03
T24	Analogue transmitter, PC configurable	Optional	TE 24.01
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

## Thermowell model TW35

The thermowell is made of drawn tube with a welded bottom and is screwed into the connection head. The cable outlet can be aligned by rotating the connection head.

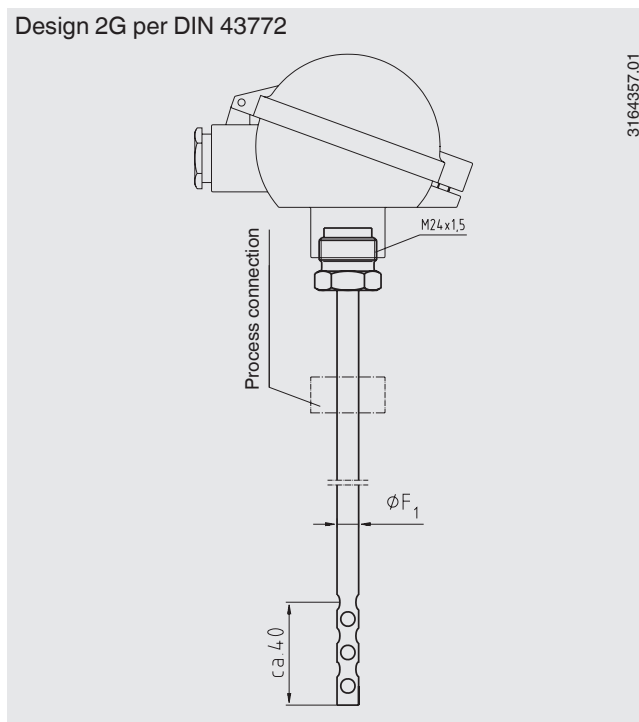
The process connection, in accordance with the customer specification, is welded onto the thermowell in the factory, which also fixes the insertion length. Insertion lengths to DIN standards are preferable.

Designs to DIN standards and also special designs (e.g. with tapered thermowell, reinforced neck tube, etc.) are available in 1.4571 stainless steel or special materials on request.

For further technical specifications on the thermowell please see WIKA data sheet TW 95.35.

## Assembly of thermowell model TW35

Design 2G per DIN 43772



## Dimensions in mm

### Versions per DIN 43772

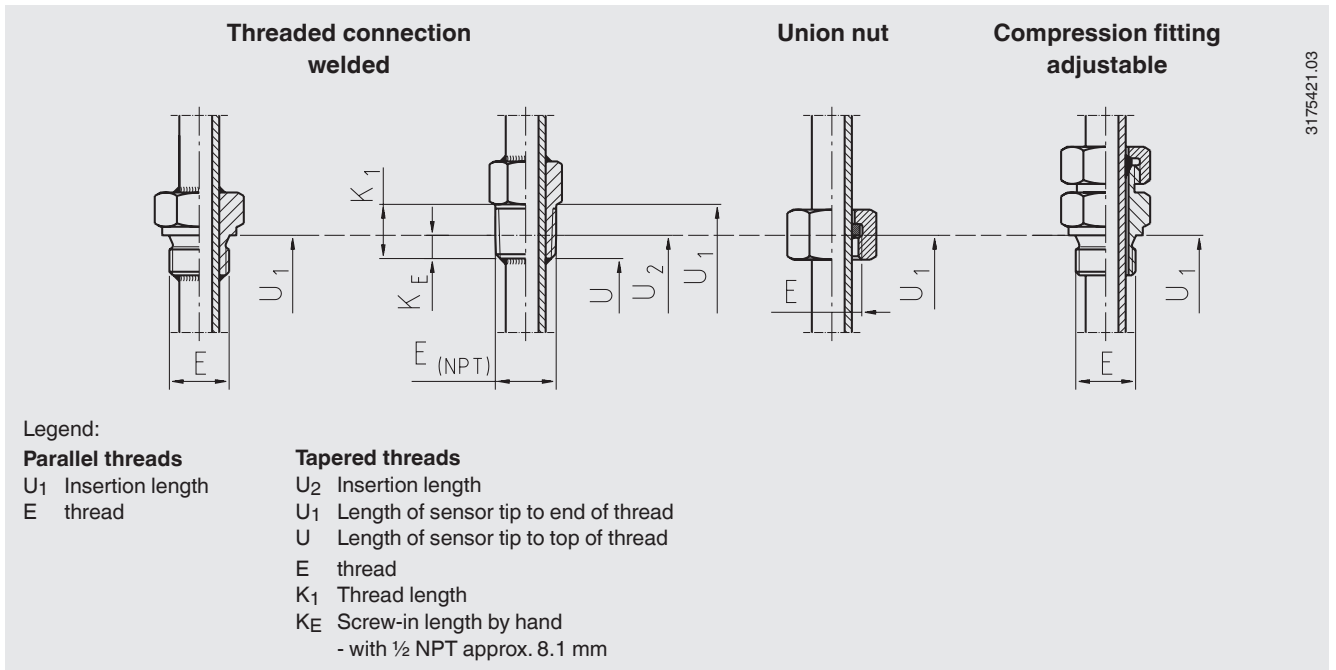
Design	Insertion length	Process connection	Thermowell outer Ø F <sub>1</sub>	Neck length N
Design 2G	160	G ½ B, G 1 B	8, 11, 12, 14	130
Design 2G	250	G ½ B, G 1 B	8, 11, 12, 14	130
Design 2G	400	G ½ B, G 1 B	8, 11, 12, 14	130

Above designs are also available with ½ NPT process connection. In this case, however, these will not conform to DIN 43772.

## Process connection

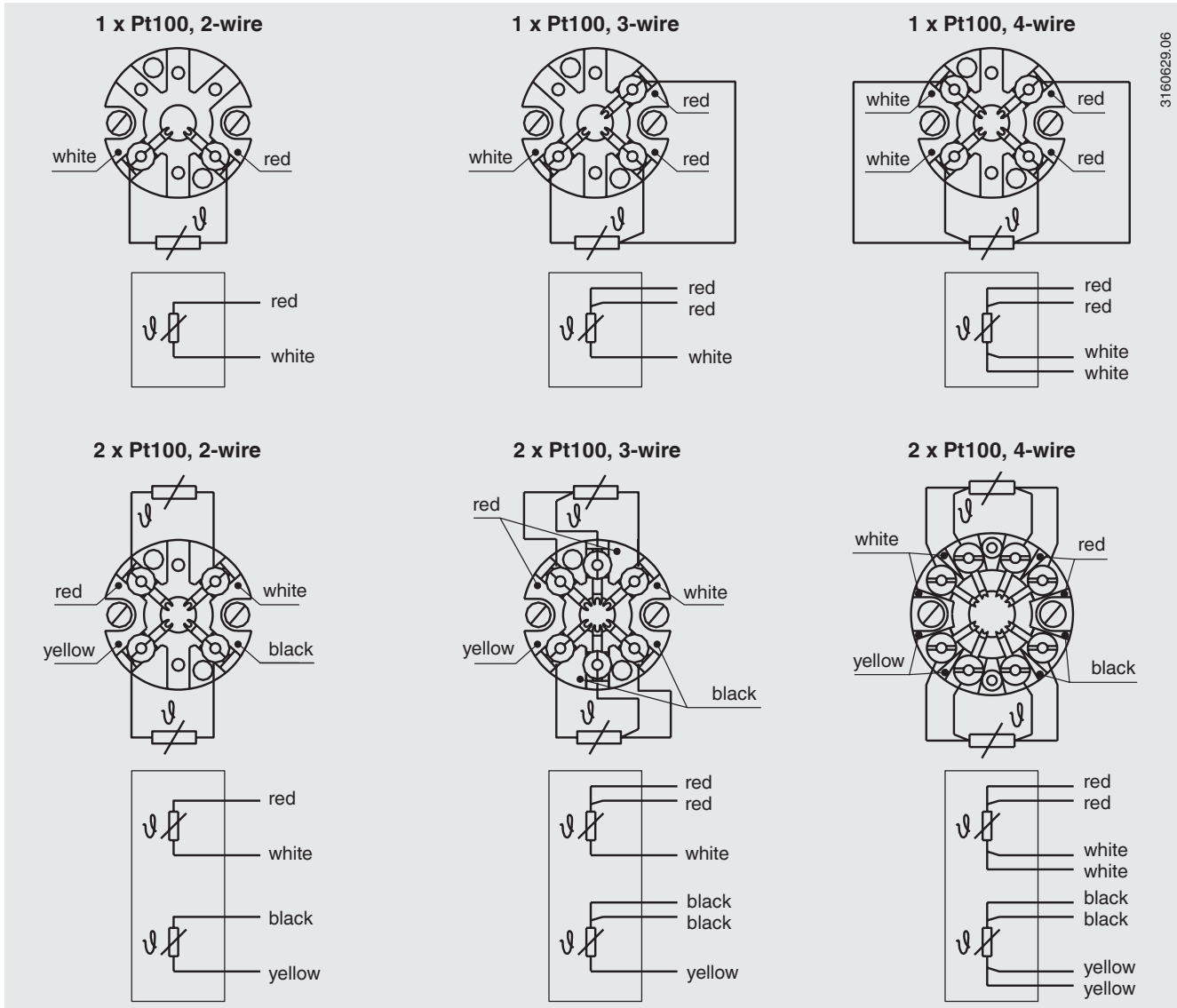
Screw type:

- Male thread, welded with thermowell
- Compression fitting, primarily with 12 mm diameter thermowells  
(Compression fittings allow simple adjustment to the required insertion length at the installation point.  
After tightening, the compression fitting can no longer be moved along the thermowell.)
- Union nut



Connection type	Thermowell diameter			
	9 mm	11 mm	12 mm	14 mm
Threaded connection	G ½ B	G ½ B	G ½ B	G ½ B
	-	G 1 B	G 1 B	G 1 B
	½ NPT	½ NPT	½ NPT	½ NPT
	M20 x 1.5	M20 x 1.5	M20 x 1.5	M20 x 1.5
Compression fitting	-	-	G ½ B	-
	-	-	½ NPT	-
Union nut	G ½ B	G ½ B	G ½ B	G ½ B

## Electrical connection



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

## Explosion protection (option)

Thermocouples of the TR10-J series are available with an EC-type examination certificate for "intrinsically safe", Ex i, ignition protection.

These instruments comply with the requirements of 94/9/EC (ATEX) directive for gas. Versions in accordance with NAMUR NE24 are also possible.

The classification/suitability of the instrument (permissible power  $P_{max}$  as well as the permissible ambient temperature) for the respective category can be seen on the EC-type examination certificate and in the operating instructions.

Built-in transmitters have their own EC type-examination certificate. The permissible ambient temperature ranges of the built-in transmitters can be taken from the corresponding transmitter approval.

## CE conformity

### EMC directive <sup>1)</sup>

2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application)

### ATEX directive (option)

94/9/EC, EN 60079-0, EN 60079-11

1) Only for built-in transmitter

## Approvals (option)

- **IECEX**, international certification for the Ex area
- **NEPSI**, ignition protection type "i" - intrinsic safety, China
- **GOST-R**, import certificate, ignition protection type "i" - intrinsic safety, 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 (option)

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

## Ordering information

Model / Sensor / Explosion protection / Process connection / Thread size / Measuring element / Connection method / Temperature range / Sensor diameter / Insertion length A / Neck length N (M<sub>H</sub>) / Certificates / Options

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