

# Resistance thermometer

## For sanitary applications, for orbital welding

### Model TR22-B

WIKA data sheet TE 60.23



for further approvals,  
see page 7

#### Applications

- Sanitary applications
- Food and beverage industry
- Bio and pharmaceutical industry, production of active ingredients

#### Special features

- Simplified calibration through removable measuring inserts
- Stainless steel head in optimised hygienic design, easily cleanable in all mounting positions (patent, property right: GM 000984349)
- Pt100, 4 ... 20 mA or HART® protocol
- Self-draining and dead-space minimised



#### Model TR22-B with flow-through housing for orbital welding

Options: Sealing combination at neck tube, cable gland in hygienic design

#### Description

The model TR22-B resistance thermometer is used for temperature measurement in sanitary applications. To integrate it into the process, the patented protection tube model TW61 (patent, property right No. DE 102010037994 and US 12 897.080) is directly orbitally welded into a pipeline.

The connection ends are smooth and prepared for orbital welding. The process connections meet the stringent requirements, in terms of materials and design, of hygienic measuring points.

For easy calibration or maintenance, the sensor is interchangeable without having to open the process or to disconnect the electrical connection. Thus hygiene risks can be minimised and downtimes can be reduced.

The spring-loaded measuring insert guarantees the contact between the sensor tip and the bottom of the protection tube and thus ensures a fast response time and high accuracy.

## Specifications


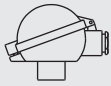
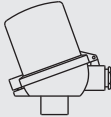

Measuring element		
Type of measuring element	<ul style="list-style-type: none"> <li>■ Pt100 (thin-film)</li> <li>■ Face-sensitive Pt100 (thin-film) <sup>1)</sup></li> </ul> → For detailed specifications for Pt sensors, see Technical information IN 00.17 at <a href="http://www.wika.com">www.wika.com</a> .	
Measuring current		
Transmitter version	Model T15	< 0.2 mA
	Model T32	< 0.3 mA
Pt100 version (without transmitter)	0.1 ... 1.0 mA	
Connection method		
Transmitter version	<ul style="list-style-type: none"> <li>■ 1 x 3-wire</li> <li>■ 1 x 4-wire</li> </ul>	
	<ul style="list-style-type: none"> <li>■ 1 x 3-wire</li> <li>■ 1 x 4-wire</li> <li>■ 2 x 3-wire</li> </ul>	
Pt100 version (without transmitter)	<ul style="list-style-type: none"> <li>■ 1 x 3-wire</li> <li>■ 1 x 4-wire</li> <li>■ 2 x 3-wire</li> </ul>	
Tolerance value of the measuring element <sup>2)</sup> per IEC 60751	<ul style="list-style-type: none"> <li>■ Class AA</li> <li>■ Class A</li> <li>■ Class B</li> </ul>	0 ... 150 °C -30 ... +250 °C -50 ... +250 °C




- 1) Face-sensitive measuring resistors, through their small design they serve to reduce the heat dissipation with short insertion lengths. Available for the temperature range up to 150 °C [302 °F]. For protection tube insertion lengths of less than 50 mm, face-sensitive measuring resistors are recommended. For protection tube insertion lengths of less than 11 mm, face-sensitive measuring resistors are generally used.
- 2) Specification is only valid for the measuring element. Depending on the process connection, the deviation can be bigger.

→ For accuracy specifications of built-in temperature transmitters, see respective transmitter data sheet

Measuring range	
Temperature range	-50 ... +150 °C [-58 ... +302 °F] <sup>1)</sup>

- 1) The connection head should therefore be protected from temperatures over 80 °C [176 °F].

Connection head						
Model	Material	Cable inlet thread size	Ingress protection (max.) <sup>1)</sup> IEC/EN 60529	Cap	Surface	
 BS	Aluminium	<ul style="list-style-type: none"> <li>■ M20 x 1.5</li> <li>■ M12 x 1 coupler connector (4-pin)</li> </ul>	IP65 <sup>3)</sup>	Flat cover with 2 screws	Blue, painted (RAL 5022)	
	BSZ	<ul style="list-style-type: none"> <li>■ M20 x 1.5</li> <li>■ M12 x 1 coupler connector (4-pin)</li> </ul>	IP65 <sup>3)</sup>	Spherical hinged cover with cylinder head screw	Blue, painted (RAL 5022)	
	BSZ-K	PAV antistatic PA12	<ul style="list-style-type: none"> <li>■ M20 x 1.5</li> <li>■ M12 x 1 coupler connector (4-pin)</li> </ul>	IP65	Spherical hinged cover with cylinder head screw	Black
	BSZ-H	<ul style="list-style-type: none"> <li>■ M20 x 1.5</li> <li>■ M12 x 1 coupler connector (4-pin)</li> </ul>	IP65 <sup>3)</sup>	Raised hinged cover with cylinder head screw	Blue, painted (RAL 5022)	
	BSZ-HK	PAV antistatic PA12	<ul style="list-style-type: none"> <li>■ M20 x 1.5</li> <li>■ M12 x 1 coupler connector (4-pin)</li> </ul>	IP65	Raised hinged cover with cylinder head screw	Black
 BSZ-H / DIH10 <sup>2)</sup>	Aluminium	<ul style="list-style-type: none"> <li>■ M20 x 1.5</li> <li>■ M12 x 1 coupler connector (4-pin)</li> </ul>	IP65	Raised hinged cover with cylinder head screw	Blue, painted (RAL 5022)	

Connection head						
Model		Material	Cable inlet thread size	Ingress protection (max.) <sup>1)</sup> IEC/EN 60529	Cap	Surface
	<b>BVS</b>	Stainless steel (1.4308)	<ul style="list-style-type: none"> <li>■ M20 x 1.5</li> <li>■ M12 x 1 coupler connector (4-pin)</li> </ul>	IP65	Screw-on lid, hygienic design	Natural finish, electropolished
	<b>BVC</b>	Stainless steel (1.4571)	<ul style="list-style-type: none"> <li>■ M16 x 1.5</li> <li>■ M12 x 1 coupler connector (4-pin)</li> </ul>	IP68 <sup>4)</sup>	Flat screw-on lid	Natural finish
	<b>KN4-A</b>	Aluminium	<ul style="list-style-type: none"> <li>■ M20 x 1.5</li> <li>■ M12 x 1 coupler connector (4-pin)</li> </ul>	IP65 <sup>3)</sup>	Screw-on lid	Blue, painted (RAL 5022)
	<b>KN4-P</b>	Polypropylene	<ul style="list-style-type: none"> <li>■ M20 x 1.5</li> <li>■ M12 x 1 coupler connector (4-pin)</li> </ul>	IP65 <sup>3)</sup>	Screw-on lid	White

1) IP ingress protection of the connection head. The IP ingress protection of the complete TR22-A instrument does not necessarily have to correspond to the connection head.

2) DIH10 LED display



3) Ingress protections describing temporary or permanent immersion, on request

4) Max. IP65 for cable inlet with M12 x 1 coupler connector (4-pin)

Further thread sizes on request

### Cable inlet with M12 x 1 coupler connector (4-pin)



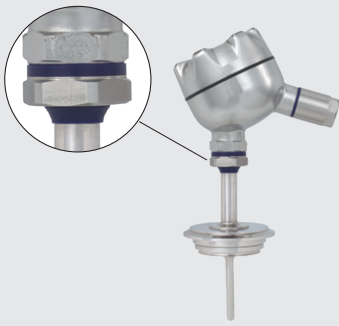
Transmitter	Model T15	Model T32
Transmitter data sheet	TE 15.01	TE 32.04
Figure		
Analogue output	4 ... 20 mA	<input type="checkbox"/> 4 ... 20 mA <input type="checkbox"/> HART® protocol
<b>Possible assembly combinations</b>		
BVC	<input type="radio"/>	<input type="radio"/>
BVS	<input type="radio"/>	<input type="radio"/>
BS	<input type="radio"/>	-
BSZ / BSZ-K	<input type="radio"/>	<input type="radio"/>
BSZ-H / BSZ-HK	<input checked="" type="radio"/>	<input checked="" type="radio"/>
KN4-P / KN4-A	<input type="radio"/>	<input type="radio"/>

Mounting of 2 transmitters on request

Legend

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

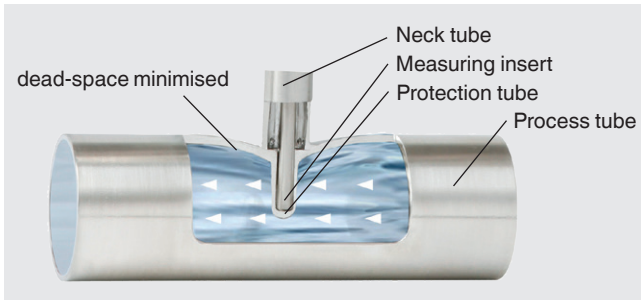
Process connection	
Type of process connection	<input type="checkbox"/> Flow-through housing <input type="checkbox"/> Angular housing
Measuring insert diameter (Pt100 version)	3 mm [0.12 in]
<b>Protection tube</b>	
Protection tube model	TW61
Protection tube diameter	→ see tables on page 13 and 14
Surface roughness	Per DIN 11866 row A, B <ul style="list-style-type: none"> <li><input type="checkbox"/> <math>R_a &lt; 0.8 \mu\text{m}</math></li> <li><input type="checkbox"/> <math>R_a &lt; 0.4 \mu\text{m}</math> electropolished</li> </ul>
	Per DIN 11866 row C, ASME-BPE <ul style="list-style-type: none"> <li><input type="checkbox"/> <math>R_a &lt; 0.76 \mu\text{m}</math></li> <li><input type="checkbox"/> <math>R_a &lt; 0.38 \mu\text{m}</math> electropolished</li> </ul>
	Others on request
Connection to thermometer	M24 x 1.5
Insertion length $U_1$ , tube length TL and $L_1$ , protection tube insertion length $U_1$	→ see tables on page 13 and 14
Neck tube length M	125 mm [4.92 in]
	The use of uniform measuring insert lengths, even for different nominal widths of pipes, reduces the inventory of the measuring inserts, particularly for larger plants. Additionally, the measuring insert length is optimised for an on-site calibration, for example with a WIKA temperature dry-well calibrator model CTD9x00.
	Other lengths on request
Material (wetted)	Per DIN 11866 row A, B Stainless steel 1.4435
	Per DIN 11866 row C, ASME-BPE Stainless steel 316L

Process connection	
<b>Sealing combination (option)</b>	<p>Transition from the connection head to the protection tube is effected via an optional sealing combination (polyurethane) of flat gasket and wiper</p> <ul style="list-style-type: none"> <li>■ Permanently prevents the penetration and depositing of humidity and impurities in this area (IP68)</li> <li>■ Simplifies cleaning considerably (in combination with the patented BVS head and the hygienic cable gland, an easy to clean and hygienic measuring location results, even in areas which are not in contact with the product)</li> </ul> 
<b>Patented hygienic design (for flow-through housing)</b>	<ul style="list-style-type: none"> <li>■ Dead-space minimised, invasive temperature measurement</li> <li>■ Flexible mounting position due to self-draining</li> <li>■ With horizontal installation, make sure that the pipeline is slightly inclined for self-draining</li> <li>■ The installation is carried out by means of orbital welding; thus, the weld seams are reproducible and controllable</li> </ul>

1) For the TR22-A design without protection tube, the insertion length is defined by the dimension  $l_1$  from the lower edge of the connection head to the tip of the measuring insert (see "Dimensions of the connection heads in mm"). The tip thickness of the protection tube can be neglected for dimensioning. It is offset by the spring travel of the measuring insert.

→ For dimensions, see dimension tables from page 13

### Hygienic design




Output signal (transmitter version)		
<b>Analogue output</b>		
Transmitter models T15, T32	4 ... 20 mA	
Transmitter model T32	HART® protocol	
<b>Factory configuration (transmitter)</b>	→ Customer-specific configuration available on request	
Sensor	Pt100	
Connection method	3-wire	
Measuring range	Measuring range 0 ... 150 °C [32 ... 302 °F]	
	Other measuring ranges are adjustable	
<b>Time response</b>		
Response time per IEC 60751 <sup>1)</sup>	Transmitter version	t <sub>50</sub> < 3.2 s or t <sub>90</sub> < 7.3 s + response time of the respective transmitter → see data sheet for the respective transmitter
	Pt100 version	t <sub>50</sub> < 3.2 s t <sub>90</sub> < 7.3 s

1) Flow-through housing OD 26.9 mm







→ For further details on built-in temperature transmitters, see respective transmitter data sheet









Operating conditions	
<b>Ambient temperature range</b>	-40 ... +85 °C [-40 ... +185 °F]
<b>Storage temperature range</b>	-40 ... +85 °C [-40 ... +185 °F]

## Approvals

Logo	Description	Region
	<b>EU declaration of conformity</b>	European Union
	EMC directive <sup>1)</sup> EN 61326 emission (group 1, class B) and immunity (industrial application)	
	Pressure equipment directive For thermowells/protection tubes > DN 25 [1"] and for the associated marking on the measuring instrument or thermowell/protection tube, WIKA confirms conformity with the pressure equipment directive in accordance with the conformity assessment procedure, module H.  For thermowells/protection tubes with nominal widths of ≤ DN 25 [1"], a CE marking in accordance with the pressure equipment directive (PED) is not permitted and therefore, they are designed and manufactured without CE marking in line with the applicable sound engineering practice.	
	RoHS directive	

### Optional approvals

Logo	Description	Region
 	<b>EU declaration of conformity</b>	European Union
	ATEX directive Hazardous areas - Ex i Zone 0 gas II 1G Ex ia IIC T1 ... T6 Ga Zone 1 mounting to zone 0 gas II 1/2G Ex ia IIC T1 ... T6 Ga/Gb Zone 1 gas II 2G Ex ia IIC T1 ... T6 Gb Zone 20 dust II 1D Ex ia IIIC T125 ... T65 °C Da Zone 21 mounting to zone 20 dust II 1/2D Ex ia IIIC T125 ... T65 °C Da/Db Zone 21 dust II 2D Ex ia IIIC T125 ... T65 °C Db - Ex e <sup>2)</sup> Zone 1 gas II 2G Ex eb IIC T1 ... T6 Gb <sup>4)</sup> Zone 2 gas II 3G Ex ec IIC T1 ... T6 Gc X Zone 21 dust II 2D Ex tb IIIC TX °C Db <sup>4)</sup> Zone 22 dust II 3D Ex tc IIIC TX °C Dc X - Ex n <sup>2)</sup> Zone 2 gas II 3G Ex nA IIC T1 ... T6 Gc X Zone 22 dust II 3D Ex tc IIIC TX °C Dc X	
 	<b>IECEx - in combination with ATEX</b> Hazardous areas - Ex i Zone 0 gas Ex ia IIC T1 ... T6 Ga Zone 1 mounting to zone 0 gas Ex ia IIC T1 ... T6 Ga/Gb Zone 1 gas Ex ia IIC T1 ... T6 Gb Zone 20 dust Ex ia IIIC T125 ... T65 °C Da Zone 21 mounting to zone 20 dust Ex ia IIIC T125 ... T65 °C Da/Db Zone 21 dust Ex ia IIIC T125 ... T65 °C Db	International
	<b>EAC</b>	Eurasian Economic Community
	EMC directive <sup>1)</sup> Hazardous areas - Ex i Zone 0 gas 0Ex ia IIC T6 ... T1 Ga X Zone 1 gas 1Ex ia IIC T6 ... T1 Gb X Zone 20 dust Ex ia IIIC T80 ... T440 Da X Zone 21 dust Ex ia IIIC T80 ... T440 Db X - Ex n Zone 2 gas 2Ex nA IIC T6 ... T1 Gc X	
	<b>Ex Ukraine</b> Hazardous areas - Ex i Zone 0 gas II 1G Ex ia IIC T1 ... T6 Ga Zone 1 gas II 2G Ex ia IIC T1 ... T6 Gb Zone 20 dust II 1D Ex ia IIIC T65°C Da Zone 21 dust II 2D Ex ia IIIC T65°C Db	Ukraine

Logo	Description	Region
	<b>INMETRO</b> Metrology, measurement technology Hazardous areas - Ex i Zone 0 gas Ex ia IIC T3 ... T6 Ga Zone 1 mounting to zone 0 gas Ex ib IIC T3 ... T6 Ga/Gb Zone 20 dust Ex ia IIIC T125 ... T65 °C Da Zone 21 mounting to zone 20 dust Ex ib IIIC T125 ... T65 °C Da/Db	Brazil
	<b>CCC</b> <sup>3)</sup> Hazardous areas - Ex i Zone 0 gas Ex ia IIC T1~T6 Ga Zone 1 gas Ex ia IIC T1~T6 Gb Zone 2 gas Ex ic IIC T1~T6 Gc Zone 20 dust Ex iaD 20 T65/T95/T125 Zone 21 dust Ex iaD 21 T65/T95/T125 - Ex e Zone 1 gas Ex eb IIC T1~T6 Gb Zone 2 gas Ex ec IIC T1~T6 Gc - Ex n Zone 2 gas Ex nA IIC T1~T6 Gc	China
	<b>KCs</b> Hazardous areas - Ex i Zone 0 gas Ex ia IIC T4 ... T6 Zone 1 gas Ex ib IIC T4 ... T6	Korea
-	<b>PESO</b> Hazardous areas - Ex i Zone 0 gas Ex ia IIC T1 ... T6 Ga Zone 1 mounting to zone 0 gas Ex ib IIC T3 ... T6 Ga/Gb Zone 1 gas Ex ib IIC T3 ... T6 Gb	India
	<b>PAC Russia</b> Metrology, measurement technology	Russia
	<b>PAC Kazakhstan</b> Metrology, measurement technology	Kazakhstan
-	<b>MChS</b> Permission for commissioning	Kazakhstan
	<b>PAC Uzbekistan</b> Metrology, measurement technology	Uzbekistan
	<b>3-A</b> <sup>4)</sup> Sanitary Standard Flow-through housing: yes, for all dimensions Angular housing: yes, from DIN 11866 row A: DN 32 ... 100 DIN 11866 row B: DN 25 ... 80 DIN 11866 row C: DN 1 ½" ... 4"	USA
	<b>EHEDG</b> <sup>4)</sup> Hygienic Equipment Design Flow-through housing: yes, for all dimensions Angular housing: yes, from DIN 11866 row A: DN 32 ... 100 DIN 11866 row B: DN 25 ... 80 DIN 11866 row C: DN 1 ½" ... 4"	European Union

1) Only for built-in transmitter

2) Only with connection head, model BSZ, BSZ-H (see "Connection head")

3) Without transmitter

4) Confirmation of 3-A or EHEDG conformity only valid with separately selectable 2.2 test report

Instruments marked with "ia" may also be used in areas only requiring instruments marked with "ib" or "ic".

If an instrument with "ia" marking has been used in an area with requirements in accordance with "ib" or "ic", it can no longer be operated in areas with requirements in accordance with "ia" afterwards.



## Certificates (option)

Certificates	
<b>Certificates</b>	<ul style="list-style-type: none"><li>■ 2.2 test report</li><li>■ 3.1 inspection certificate</li><li>■ DAkkS calibration certificate, traceable and accredited in accordance with ISO/IEC 17025</li><li>■ Manufacturer's declaration regarding regulation (EC) 1935/2004</li><li>■ Certificate of the surface roughness of wetted parts</li></ul>
<b>Hygienic certificates</b>	3-A approval EHEDG approval

For calibration, the measuring insert is removed from the thermometer. The minimum length (metal part of the probe) for carrying out a 3.1 measurement accuracy test or DAkkS is 100 mm [3.94 in].

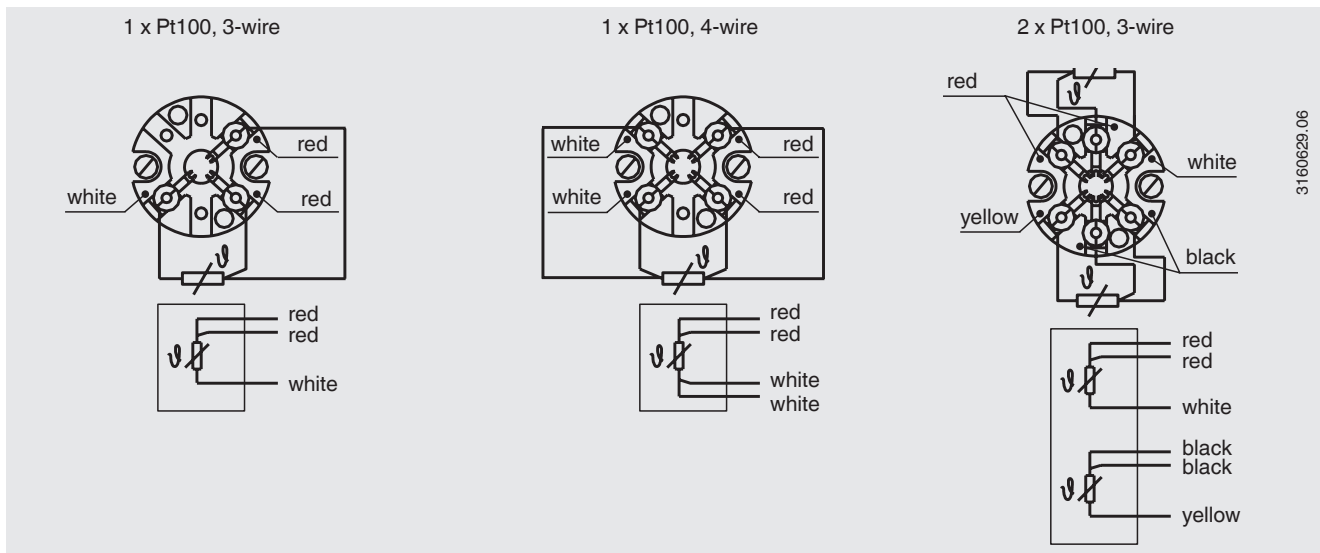
Calibration of shorter minimum lengths on request.

For approvals and certificates, see website

## Patents, property rights

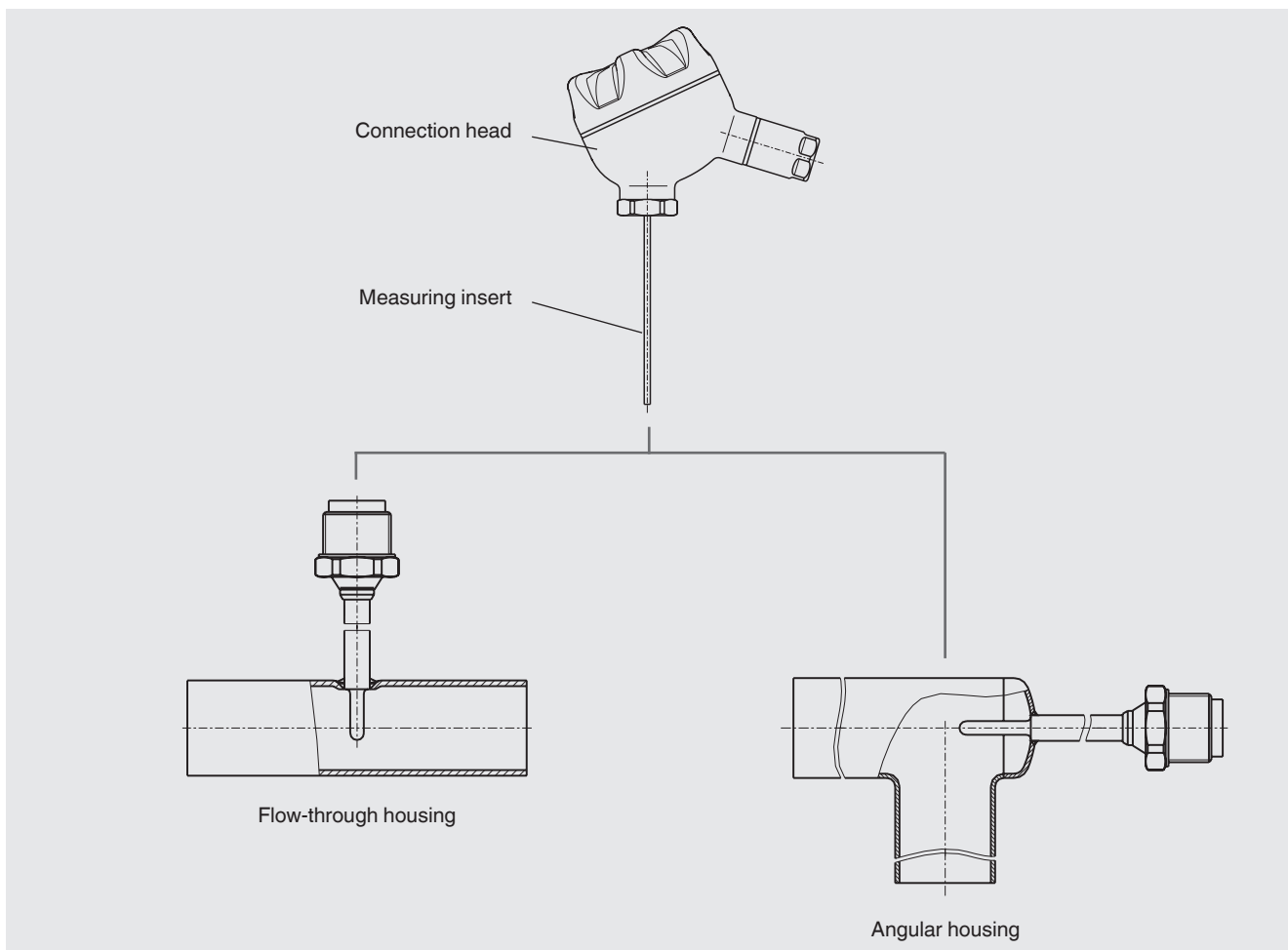
- Case with easily cleanable twist crown, integrated into the case cap (GM 000984349)
- Dead-space free welding nipple for protection tube model TW61 (DE 102010037994 and US 12 897.080)

## Electrical connection

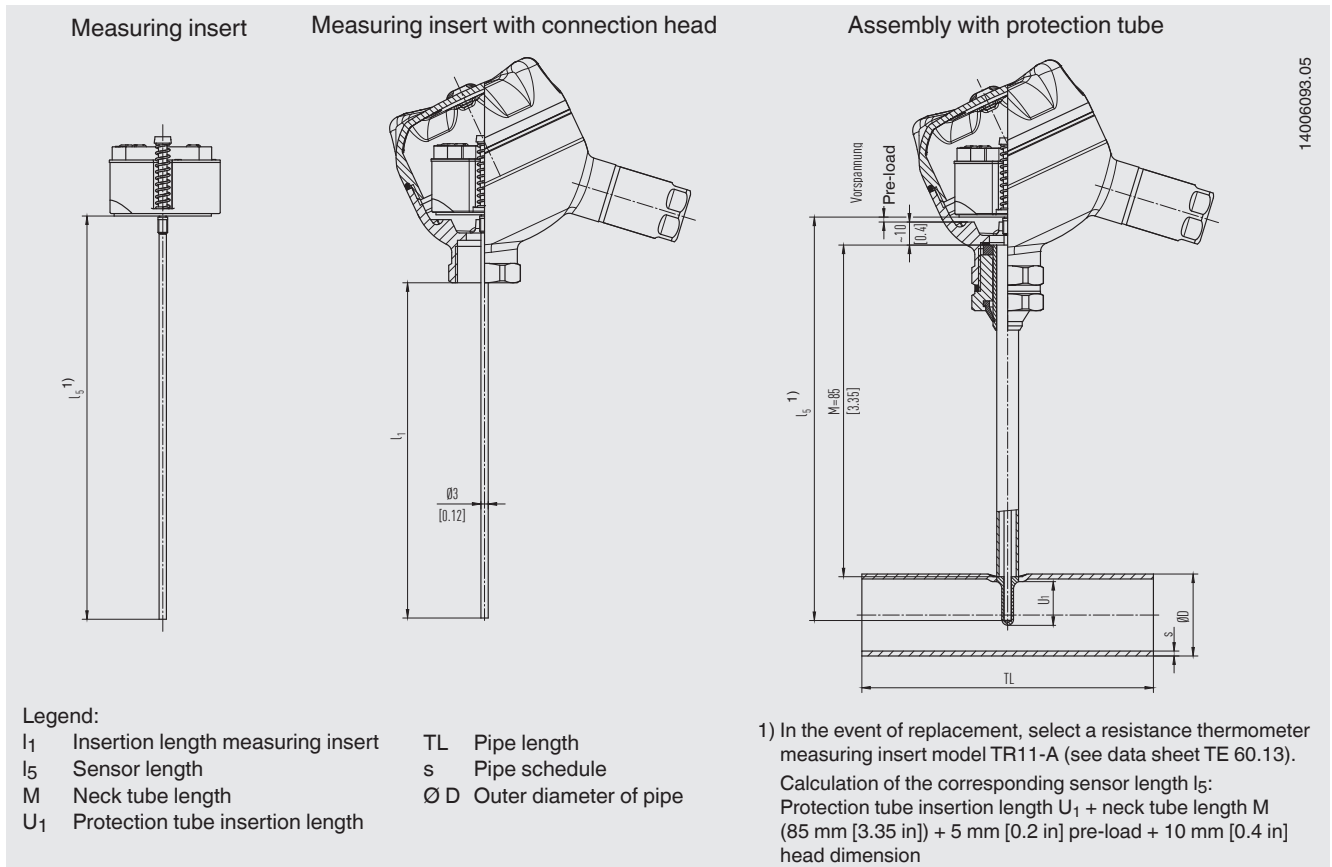


For the electrical connections of built-in temperature transmitters, see the corresponding data sheets or operating instructions.

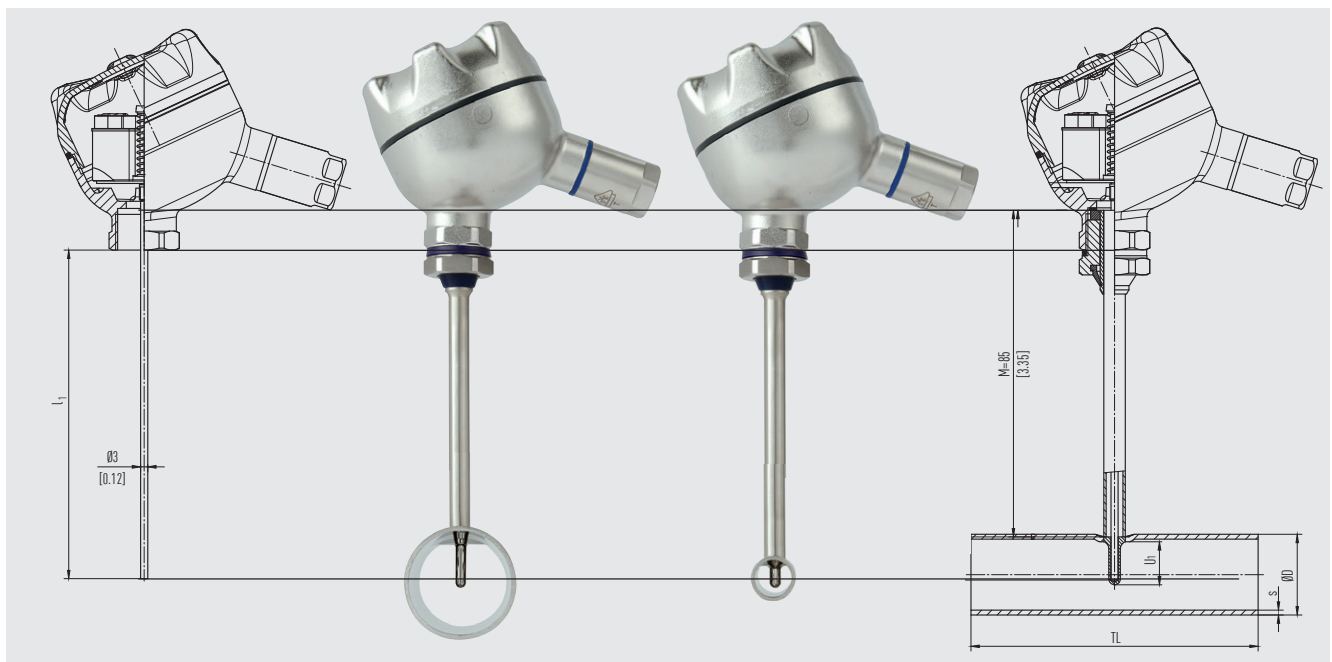
## Overview of combinations



## Dimensions in mm [in]



## Standardisation of measuring inserts for different nominal widths of pipes

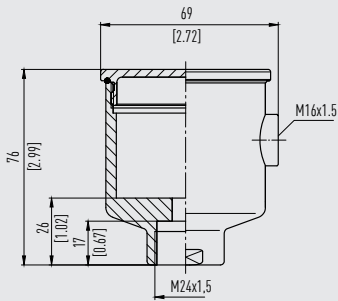


Due to the variable neck tube length M measuring inserts with standardised insertion lengths  $l_1$  can be used. This minimises the variations and, thus, the stockholding of spare parts. At the same time, it ensures the use of the correct insertion length in the event of replacement.

# Dimensions of the connection heads in mm [in]

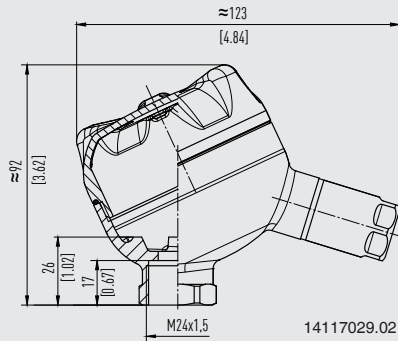
**Model BVC**

14025833.02



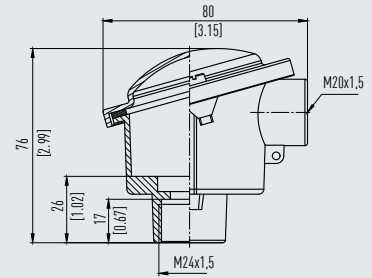
**Model BVS**

14117029.02



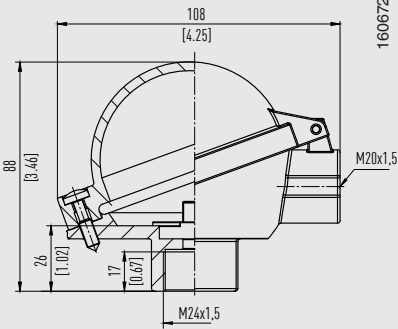
**Model BS**

1606042.12



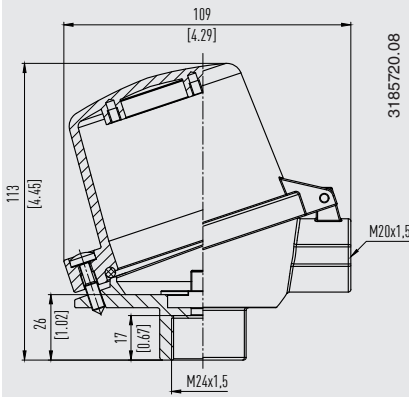
**Models BSZ, BSZ-K**

1606727.09



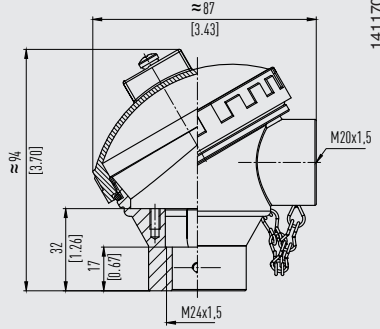
**Models BSZ-H, BSZ-HK**

3185720.08



**Models KN4-P, KN4-A**

14117032.02

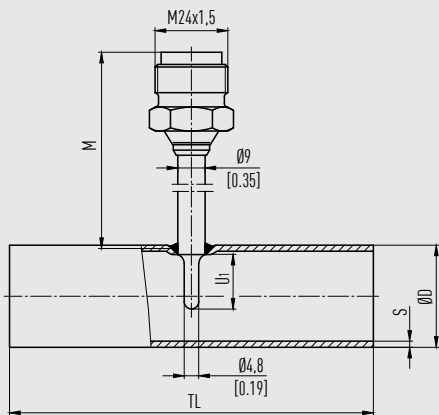


# Dimensions of the process connections in mm [in] (protection tubes model TW61)

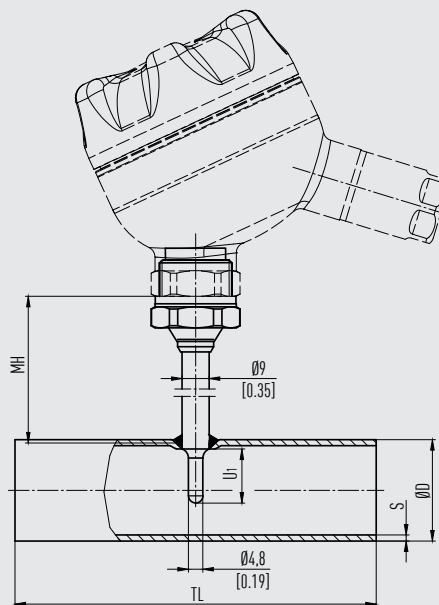
## Flow-through housing



11528266.02



11528274.02



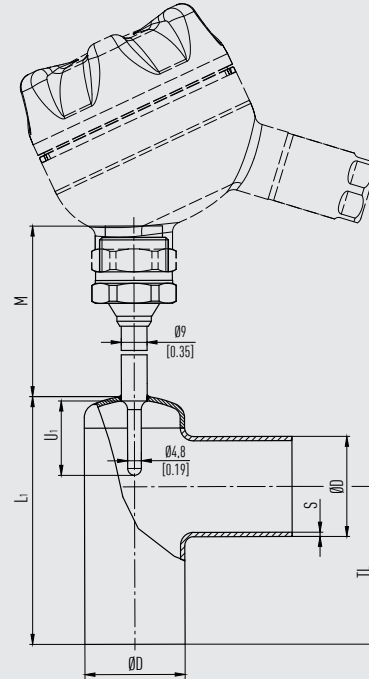
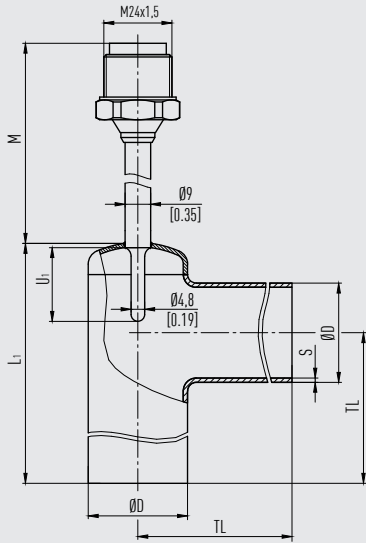
Nominal width of pipe		Max. permissible pressure in bar	Outer diameter of pipe	Pipe schedule	Pipe length	Protection tube insertion length	Neck tube length
DN / OD		PS	Ø D	s	TL	U <sub>1</sub>	M
DIN 11866 row A or metric	10	25	13	1.5	70	6	129
	15	25	19	1.5	70	9	126
	20	25	23	1.5	80	11	124
	25	25	29	1.5	100	18	117
	32	25	35	1.5	110	18	117
	40	25	41	1.5	120	18	117
	50	25	53	1.5	160	30	105
	65	16	70	2.0	210	30	105
	80	16	85	2.0	260	45	90
100	12.5	104	2.0	310	45	90	
DIN 11866 row B or ISO	8 (13.5)	25	13.5	1.6	64	6	129
	10 (17.2)	25	17.2	1.6	68	9	126
	15 (21.3)	25	21.3	1.6	72	11	124
	20 (26.9)	25	26.9	1.6	110	11	124
	25 (33.7)	25	33.7	2.0	120	18	117
	32 (42.4)	25	42.4	2.0	130	18	117
	40 (48.3)	25	48.3	2.0	130	18	117
	50 (60.3)	25	60.3	2.0	180	30	105
	65 (76.1)	16	76.1	2.0	220	30	105
80 (88.9)	16	88.9	2.3	260	45	90	
DIN 11866 row C or ASME BPE	1/2"	13.8	12.7	1.65	95.2	6	129
	3/4"	13.8	19.05	1.65	101.6	9	126
	1"	13.8	25.4	1.65	108.0	11	124
	1 1/2"	13.8	38.1	1.65	120.6	18	117
	2"	13.8	50.8	1.65	146.0	18	117
	2 1/2"	13.8	63.5	1.65	158.8	30	105
	3"	13.8	76.2	1.65	171.4	30	105
	4"	13.8	101.6	2.11	209.6	45	90




All protection tubes of the TW61 series that are internally pressurised, with a nominal diameter (DN) > 25 mm, are manufactured and tested to module H of the pressure equipment directive.

# Angular housing

11528452.02

11575795.02



Nominal width of pipe		Max. permissible pressure in bar	Outer diameter of pipe	Pipe schedule	Pipe length		Protection tube insertion length	Neck tube length
DN / OD	PS				Ø D	s		
<b>DIN 11866 row A or metric</b>	10	25	13	1.5	35	55	14	121
	15	25	19	1.5	35	55	18	117
	20	25	23	1.5	40	63	18	117
	25	25	29	1.5	50	77	30	105
<b>DIN 11866 row A or metric</b> 	32	25	35	1.5	55	87	30	105
	40	25	41	1.5	60	97	30	105
	50	25	53	1.5	80	126	30	105
	65	16	70	2.0	105	165	45	90
	80	16	85	2.0	130	201	45	90
	100	12.5	104	2.0	155	241	45	90
<b>DIN 11866 row B or ISO</b>	8 (13.5)	25	13.5	1.6	32	55	14	121
	10 (17.2)	25	17.2	1.6	34	55	16	119
	15 (21.3)	25	21.3	1.6	36	58	18	117
	20 (26.9)	25	26.9	1.6	55	81	30	105
<b>DIN 11866 row B or ISO</b> 	25 (33.7)	25	33.7	2.0	60	91	30	105
	32 (42.4)	25	42.4	2.0	65	102	30	105
	40 (48.3)	25	48.3	2.0	65	108	30	105
	50 (60.3)	25	60.3	2.0	90	145	45	90
	65 (76.1)	16	76.1	2.0	110	173	45	90
	80 (88.9)	16	88.9	2.3	130	203	45	90
<b>DIN 11866 row C or ASME BPE</b>	1/2"	13.8	12.7	1.65	47.6	71	14	121
	3/4"	13.8	19.05	1.65	50.8	71	18	117
	1"	13.8	25.4	1.65	54.0	79	18	117
<b>DIN 11866 row C or ASME BPE</b> 	1 1/2"	13.8	38.1	1.65	60.3	94	30	105
	2"	13.8	50.8	1.65	73.0	118	30	105
	2 1/2"	13.8	63.5	1.65	79.4	134	45	90
	3"	13.8	76.2	1.65	85.7	150	45	90
	4"	13.8	101.6	2.11	104.8	190	45	90

All protection tubes of the TW61 series that are internally pressurised, with a nominal diameter (DN) > 25 mm, are manufactured and tested to module H of the pressure equipment directive.

### Ordering information

Model / Explosion protection / Output signal / Sensor / Class accuracy / Temperature range / Connection head / Cable gland / Transmitter / Protection tube / Process connection (nominal width of pipe) / Material of wetted parts / Neck tube length / Certificates / Optional further sealing combinations

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