

Protection tube For sanitary applications Model TW61, for orbital welding

WIKA data sheet TW 95.61



for further approvals,
see page 5

Applications

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

Special features

- Materials and surface finish quality in accordance with the standards of hygienic design
- Self-draining
- Dead-space minimised
- For orbital welding



Fig. left: G 3/8 thread for model TR21-B

**Fig. right: M24 threaded connection for model TR22-B
Options: Sealing combination at neck tube**

Description

The patented protection tube model TW61 (patent, property right: DE 102010037994 and US 12 897.080) is used to adapt a model TR21-B or TR22-B resistance thermometer to the process and to protect the sensor from harsh process conditions.

To integrate it into the process, the protection tube is directly orbitally welded into a pipeline. The connection ends are smooth and prepared for orbital welding.

The measuring insert can be withdrawn together with the connection head. This makes it possible to calibrate the thermometer with the entire measuring chain, on-site, without disconnecting the electrical connections. In addition, this avoids having to open the process, and thus the risk of contamination is minimised.

In combination with a model TR22-B resistance thermometer, the swivel connection of the connection head or the display can be loosened and turned to the desired orientation.

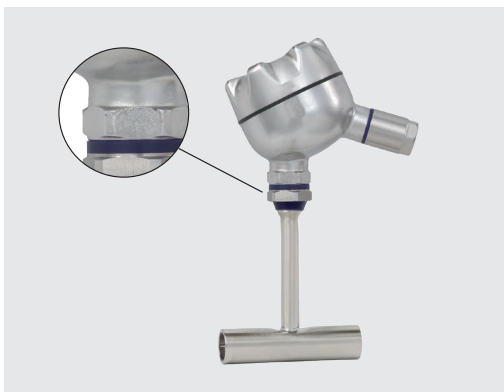
Specifications

Specifications		
Basic information		
Version	<ul style="list-style-type: none"> ■ G 3/8, male thread, suitable for thermometer model TR21-B ■ M24 x 1.5, swivel connection, suitable for thermometer model TR22-B 	
Material (wetted)	<ul style="list-style-type: none"> ■ DIN 11866 row A (metric) ■ DIN 11866 row B (ISO) 	Stainless steel 1.4435
	DIN 11866 row C, ASME BPE	Stainless steel 316L
	Other materials on request	
Process connection		
Protection tube form	<ul style="list-style-type: none"> ■ Flow-through housing ■ Angular housing 	
Protection tube diameter	Ø = 4.8 mm [0.19 in]	
Surface roughness	DIN 11866 row A, B	<ul style="list-style-type: none"> ■ Ra < 0.8 µm ■ Ra < 0.4 µm, electropolished
	DIN 11866 row C, ASME BPE	<ul style="list-style-type: none"> ■ Ra < 0.51 µm (SF1) ■ Ra ≤ 0.38 µm, electropolished (SF4)
	Others on request	
Operating conditions		
Medium temperature range	-50 ... +150 °C [-58 ... +302 °F]	
Ambient temperature range	-40 ... +85 °C [-40 ... +185 °F]	
Storage temperature range	-40 ... +85 °C [-40 ... +185 °F]	
Neck tube length	For assembly with a resistance thermometer, the neck tube length is matched to the following insertion lengths. The inventory of the measuring inserts, particularly for larger plants, is reduced through the use of uniform measuring insert lengths, even for different nominal widths of pipes.	
Model TR21-B	Insertion length (A-length) of 60 mm [2.36 in]	
Model TR22-B	<ul style="list-style-type: none"> ■ Measuring insert length of 150 mm [4.92 in] ¹⁾ ■ Insertion length (A-length) of 125 mm [4.92 in] ¹⁾ 	
	Further neck tube lengths on request	

1) Suitable for on-site calibration using the WIKA dry-well calibrator.

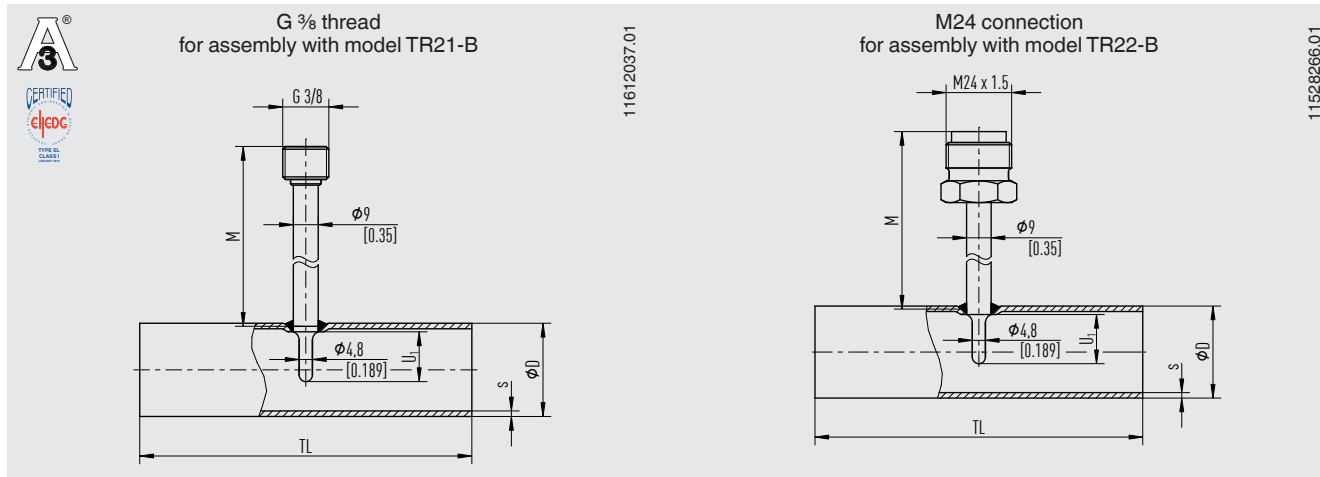
Example of sealing combination at neck tube

The transition from the connection head for model TR22-B to the protection tube is effected via an optional sealing combination (polyurethane) of flat gasket and wiper. This combination permanently prevents the penetration and depositing of humidity and impurities in this area (IP68). Additionally, the sealing combination simplifies the cleaning process significantly. In combination with the patented BVS head (patent, property right: GM 000984349) and the cable gland in hygienic design, an easy to clean and hygienic measuring location results, even in non-wetted areas. The BVS head is designed in such a way that cleaning agents can run off easily and that no residues can accumulate on the case.



Dimensions in mm [in]

Flow-through housing

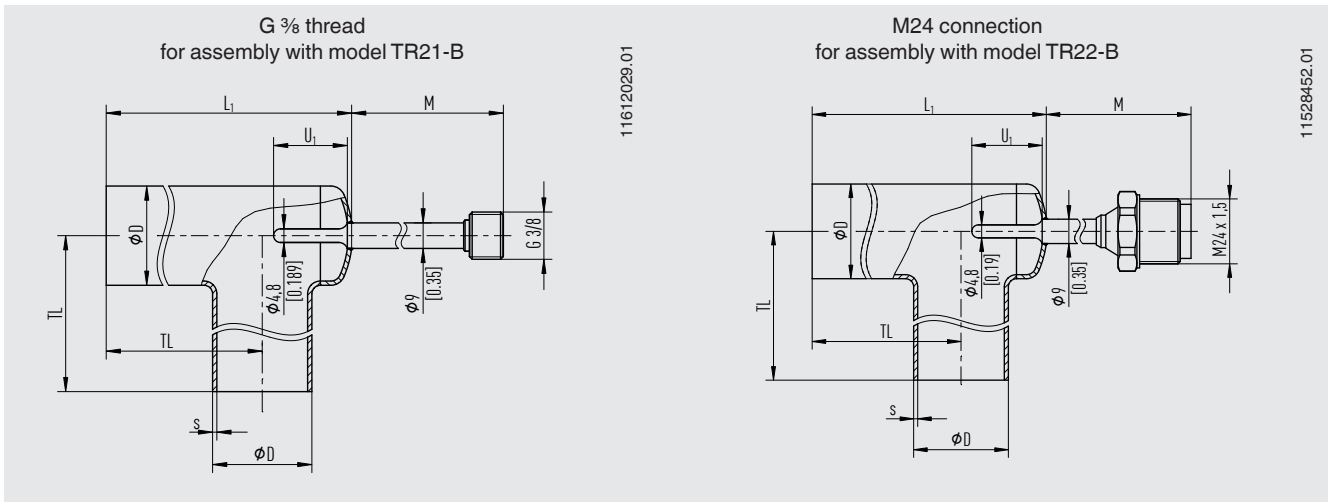


Nominal width of pipe		Nominal pressure in bar	Outer diameter of pipe	Pipe schedule	Tube length	Protection tube insertion length	Neck tube length		
							TR21-B	TR22-B	
DN / OD		PS ^{1) 2)}	Ø D	s	TL	U ₁	M	M	
DIN 11866 row A or metric	CERTIFIED ehec	10	25	13	1.5	70	6	51	129
		15	25	19	1.5	70	9	48	126
		20	25	23	1.5	80	11	46	124
	A3	25	25	29	1.5	100	18	39	117
		32	25	35	1.5	110	18	39	117
		40	25	41	1.5	120	18	39	117
	CERTIFIED ehec	50	25	53	1.5	160	30	27	105
		65	16	70	2.0	210	30	27	105
		80	16	85	2.0	260	45	12	90
100		12.5	104	2.0	310	45	12	90	
DIN 11866 row B or ISO	CERTIFIED ehec	8 (13.5)	25	13.5	1.6	64	6	51	129
		10 (17.2)	25	17.2	1.6	68	9	48	126
		15 (21.3)	25	21.3	1.6	72	11	46	124
	A3	20 (26.9)	25	26.9	1.6	110	11	46	124
		25 (33.7)	25	33.7	2.0	120	18	39	117
		32 (42.4)	25	42.4	2.0	130	18	39	117
	CERTIFIED ehec	40 (48.3)	25	48.3	2.0	130	18	39	117
		50 (60.3)	25	60.3	2.0	180	30	27	105
		65 (76.1)	16	76.1	2.0	220	30	27	105
80 (88.9)	16	88.9	2.3	260	45	12	90		
DIN 11866 row C or ASME BPE	CERTIFIED ehec	1/2"	13.8	12.7	1.65	95.2	6	51	129
		3/4"	13.8	19.05	1.65	101.6	9	48	126
	A3	1"	13.8	25.4	1.65	108.0	11	46	124
		1 1/2"	13.8	38.1	1.65	120.6	18	39	117
		2"	13.8	50.8	1.65	146.0	18	39	117
	CERTIFIED ehec	2 1/2"	13.8	63.5	1.65	158.8	30	27	105
		3"	13.8	76.2	1.65	171.4	30	27	105
		4"	13.8	101.6	2.11	209.6	45	12	90

1) Maximum operating temperature 150 °C [302 °F]

2) All protection tubes of this model series that are internally pressurised, with a nominal diameter (DN) > 25 mm [0.98 in], are manufactured and tested to module H of the Pressure Equipment Directive.

Angular housing

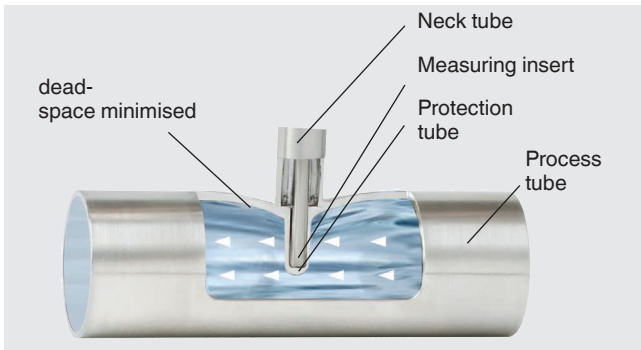


Nominal width of pipe		Nominal pressure in bar	Outer diameter of pipe	Pipe schedule	Tube length			Protection tube insertion length		
					TL	L ₁	U ₁	TR21-B	TR22-B	
DN / OD		PS ^{1) 2)}	Ø D	s	TL	L ₁	U ₁	M	M	
DIN 11866 row A or metric	10	25	13	1.5	35	55	14	43	121	
	15	25	19	1.5	35	55	18	39	117	
	20	25	23	1.5	40	63	18	39	117	
	25	25	29	1.5	50	77	30	27	105	
DIN 11866 row A or metric		32	25	35	1.5	55	87	30	27	105
		40	25	41	1.5	60	97	30	27	105
		50	25	53	1.5	80	126	30	27	105
		65	16	70	2.0	105	165	45	12	90
		80	16	85	2.0	130	201	45	12	90
		100	12.5	104	2.0	155	241	45	12	90
		DIN 11866 row B or ISO	8 (13.5)	25	13.5	1.6	32	55	14	43
10 (17.2)	25		17.2	1.6	34	55	16	41	119	
15 (21.3)	25		21.3	1.6	36	58	18	39	117	
20 (26.9)	25		26.9	1.6	55	81	30	27	105	
DIN 11866 row B or ISO		25 (33.7)	25	33.7	2.0	60	91	30	27	105
		32 (42.4)	25	42.4	2.0	65	102	30	27	105
		40 (48.3)	25	48.3	2.0	65	108	30	27	105
		50 (60.3)	25	60.3	2.0	90	145	45	12	90
		65 (76.1)	16	76.1	2.0	110	173	45	12	90
DIN 11866 row C or ASME BPE		80 (88.9)	16	88.9	2.3	130	203	45	12	90
		1/2"	13.8	12.7	1.65	47.6	71	14	43	121
		3/4"	13.8	19.05	1.65	50.8	71	18	39	117
		1"	13.8	25.4	1.65	54.0	79	18	39	117
DIN 11866 row C or ASME BPE		1 1/2"	13.8	38.1	1.65	60.3	94	30	27	105
		2"	13.8	50.8	1.65	73.0	118	30	27	105
		2 1/2"	13.8	63.5	1.65	79.4	134	45	12	90
		3"	13.8	76.2	1.65	85.7	150	45	12	90
4"	13.8	101.6	2.11	104.8	190	45	12	90		

1) Maximum operating temperature 150 °C [302 °F]


2) All protection tubes of this model series that are internally pressurised, with a nominal diameter (DN) > 25 mm [0.98 in], are manufactured and tested to module H of the Pressure Equipment Directive.

Hygienic design






The patented hygienic design of the TW61 flow-through housing enables dead-space minimised, invasive temperature measurement and, through self-draining, a flexible mounting position.

Approvals

Logo	Description	Region
	<p>EU declaration of conformity</p> <p>Pressure Equipment Directive</p> <p>For protection tubes > DN 25 (1") and for the associated marking on the measuring instrument or protection tube, WIKA confirms conformity with the Pressure Equipment Directive in accordance with the conformity assessment procedure, module H.</p> <p>For protection tubes with nominal widths of \leq DN 25 (1"), an EU conformity assessment 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 (PED article 4, chapter 3).</p>	European Union

Optional approvals

Logo	Description	Region
	<p>EAC</p> <p>Pressure Equipment Directive</p>	Eurasian Economic Community
-	<p>MChS</p> <p>Permission for commissioning</p>	Kazakhstan
	<p>3-A ¹⁾</p> <p>Sanitary Standard</p> <p>Flow-through housing: yes, from DIN 11866 row A: DN 20 ... 100 DIN 11866 row B: DN 20 ... 80 DIN 11866 row C: DN 1" ... 4"</p> <p>Angular housing: yes, from DIN 11866 row A: DN 32 ... 100 DIN 11866 row B: DN 32 ... 80 DIN 11866 row C: DN 1 1/2" ... 4"</p>	USA
	<p>EHEDG ¹⁾</p> <p>Hygienic Equipment Design</p> <p>Flow-through housing: yes, for all dimensions</p> <p>Angular housing: yes, from DIN 11866 row A: DN 32 ... 100 DIN 11866 row B: DN 32 ... 80 DIN 11866 row C: DN 1 1/2" ... 4"</p>	European Union

¹⁾ Confirmation of 3-A or EHEDG conformity only valid with separately selectable 2.2 test report

Certificates (option)

Certificates	
Certificates	<ul style="list-style-type: none">■ 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy)■ 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts, indication accuracy, calibration certificate)■ Manufacturer's declaration regarding regulation (EC) 1935/2004■ Certificate of the surface roughness of wetted components■ Hygiene certificate

Patents, property rights

Patent number	Description
DE 102010037994 US 12 897.080	Dead-space free welding nipple
GM 000984349	Case with easily cleanable twist crown, integrated into the case cap (option: with BVS head)

→ For approvals and certificates, see website

Ordering information

Model / Design (flow-through or angular housing) / Nominal width / Material of wetted parts / Connection to thermometer / Certificates / Option further sealing combinations

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