

Thermowell

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 designs
- Self-draining
- Minimised dead-space
- 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 thermowell 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 thermowell 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The measuring insert can be withdrawn together with the connection head.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 rotatable threaded connection of the connection head or the display can be loosened and turned to the desired orientation.

Specifications

Designs

- Flow-through housing
- Angular housing

Nominal width of pipe

Pipe classes per DIN, ISO and ASME BPE, see dimension tables

Pressure ratings

See table of dimensions

Permissible temperature ranges

- Ambient -40 ... +85 °C
- Medium -50 ... +150 °C

Materials

- Pipes per DIN 11866 row A (metric) and DIN 11866 row B (ISO)
wetted parts: stainless steel 1.4435
- Pipes per DIN 11866 row C and ASME BPE
wetted parts: stainless steel 316L
- Special materials on request

Surface roughness of wetted parts

- Pipes per DIN 11866 row A, B
Standard: $R_a < 0.8 \mu\text{m}$
Option: $R_a < 0.4 \mu\text{m}$ electropolished
- Pipes per DIN 11866 row C, ASME BPE
Standard: $R_a < 0.51 \mu\text{m}$ (SF1)
Option: $R_a < 0.38 \mu\text{m}$ electropolished (SF4)
- Others on request

Connection to thermometer

Model TR21-B: G 3/8 male

Model TR22-B: M24 x 1.5 rotatable male nut

Thermowell diameter

$\varnothing d = 4.8 \text{ mm}$

Neck tube length M

For assembly with a resistance thermometer, the neck tube length, M (see tables) is matched to the following insertion lengths

- Model TR21-B to the insertion length (A length) of 60 mm
- Model TR22-B to the measuring insert length of 150 mm and/or insertion length (A length) of 125 mm, suitable for on-site calibration with WIKA dry-well calibrator.
- Further neck tube lengths on request

For the customer, this reduces the stock-holding of measuring inserts, particularly for larger plants, through the use of uniform measuring insert lengths - even for different nominal tube sizes.

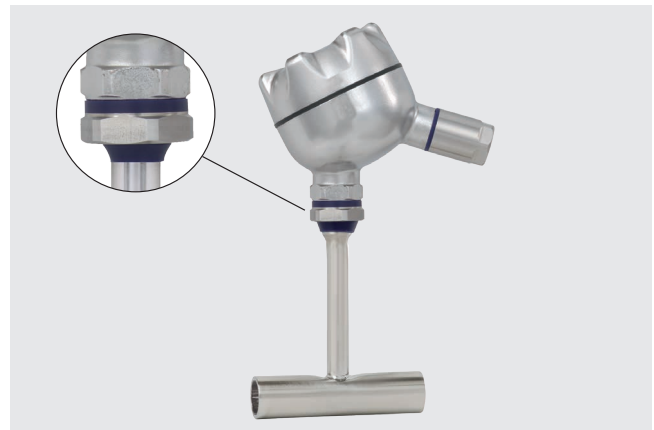
Pipe lengths T_L and L_1 , thermowell insertion length U_1

See table of dimensions

Sealing combination at neck tube (option)

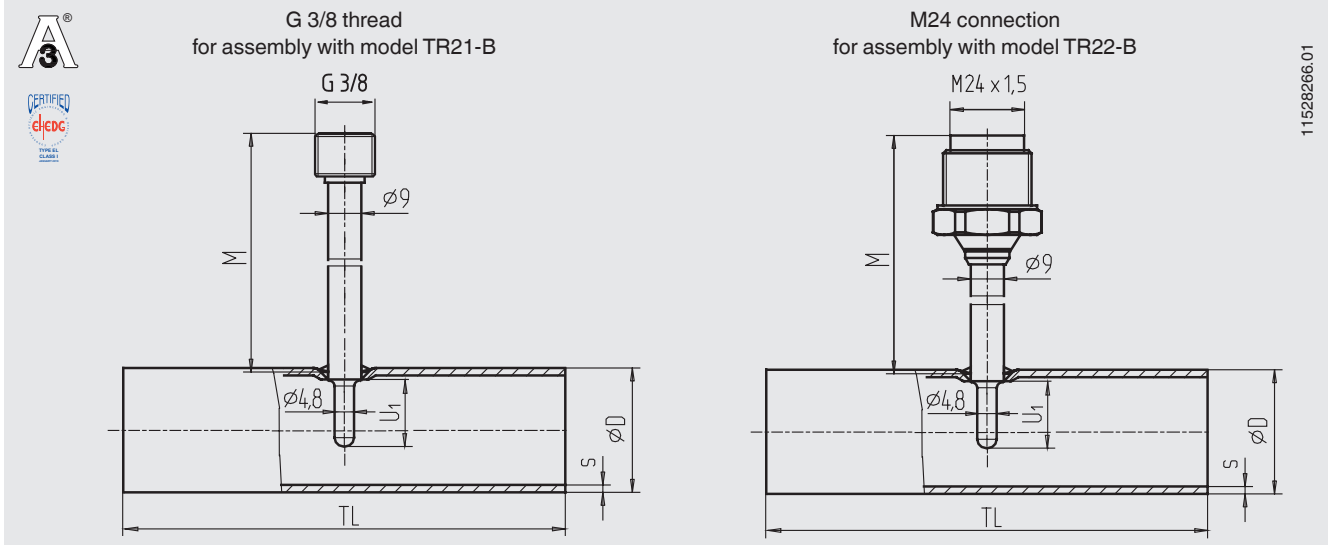
The transition from the connection head for model TR22-B to the thermowell is effected via an optional sealing combination (polyurethane) of flat gasket and wiper. This combination permanently prevents the penetration and depositing of humidity and impurities in this area (IP68). Additionally, the sealing combination simplifies the cleaning process significantly.

In combination with the patented BVS head (patent, property right: GM 000984349) and the hygienic cable gland, 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

Flow-through housing



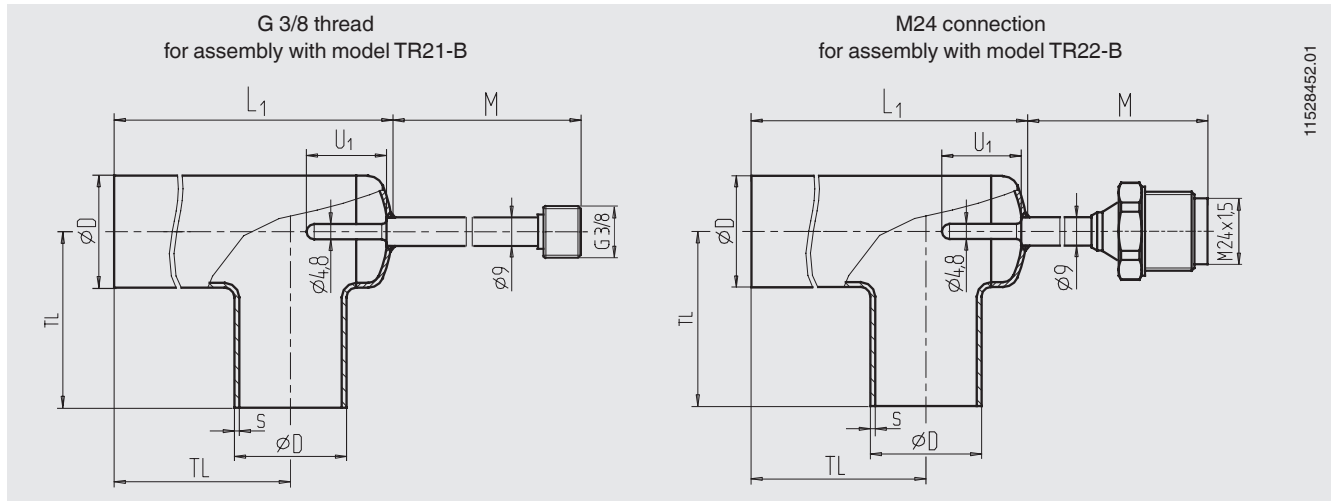
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Nominal width of pipe	Nominal pressure in bar	Outer diameter of pipe	Pipe wall thickness	Tube length	Thermowell insertion length	Neck tube length		
						TR21-B	TR22-B	
DN / OD	PN ^{1) 2)}	Ø D	s	TL	U ₁	M	M	
DIN 11866 row A or metric	10	25	13	1.5	70	6	51	129
	15	25	19	1.5	70	9	48	126
	20	25	23	1.5	80	11	46	124
	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
	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	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
	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
	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	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
	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
	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

2) All thermowells of this 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



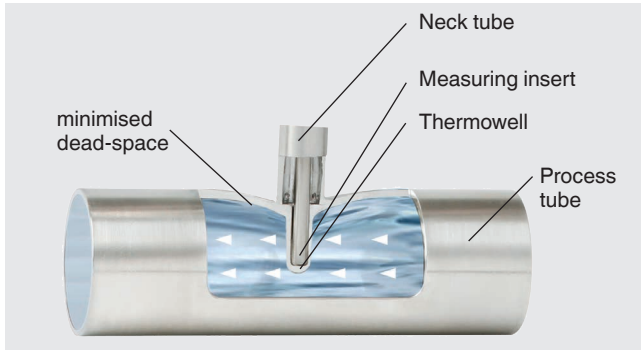
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Nominal width of pipe		Nominal pressure in bar PN ^{1) 2)}	Outer diameter of pipe Ø D	Pipe wall thickness s	Tube length		Thermowell insertion length U ₁	Neck tube length	
DN / OD					TL	L ₁		TR21-B M	TR22-B M
DIN 11866 row A or metric	10	25	13	1.5	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	121
	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
	80 (88.9)	16	88.9	2.3	130	203	45	12	90
DIN 11866 row C or ASME BPE	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

2) All thermowells of this series that are internally pressurised, with a nominal diameter (DN) > 25 mm, 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 a flexible mounting position through self-draining.

Approvals

Logo	Description	Country
	<p>EU declaration of conformity Pressure Equipment Directive PS > 200 bar, module H, pressure accessory</p> <p>For thermowells > DN 25 (1") and for the associated marking on the measuring instrument or thermowell, WIKA confirms conformity with the Pressure Equipment Directive in accordance with the conformity assessment procedure, module H.</p> <p>For thermowells with nominal widths of \leq 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 (PED article 3, chapter 3).</p>	European Union
	<p>EAC (option)</p> <ul style="list-style-type: none"> ■ Import certificate ■ Pressure equipment directive 	Eurasian Economic Community
-	<p>MTSCHS (option) Permission for commissioning</p>	Kazakhstan
	<p>3-A (option) ¹⁾ Sanitary Standard</p> <p>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 1/2" ... 4"</p>	USA
	<p>EHEDG (option) ¹⁾ Hygienic Equipment Design</p> <p>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 1/2" ... 4"</p>	European Community

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

Approvals and certificates, see website

Certificates (option)

- 2.2 test report
- 3.1 inspection certificate
- Manufacturer's declaration regarding Regulation (EC) 1935/2004
- Certificate of the surface roughness of wetted parts
- Hygiene certificate

Patents, property rights

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

Ordering information

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

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