

Resistance thermometer

For sanitary applications, exchangeable sensor

Model TR22-A

WIKA data sheet TE 60.22



for further approvals
see page 15

Applications

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

Special features

- Simplified calibration through removable measuring inserts
- Materials and surface finish quality in accordance with the standards of hygienic design
- Stainless steel head in optimised hygienic design, easily cleanable in all mounting positions (patent, industrial property right: GM 000984349)
- Pt100, 4 ... 20 mA or HART® protocol, FOUNDATION™ Fieldbus and PROFIBUS® PA output possible



Model TR22-A with VARIVENT® connection
Options: Sealing combination at neck tube, cable gland in hygienic design

Description

The model TR22-A resistance thermometer is used for temperature measurement in sanitary applications. The process connections meet the stringent requirements, in terms of materials and design, of hygienic measuring points. With increased hygienic requirements for the ambient areas around the measuring point, a stainless steel head is available in an optimised hygienic design. This enables easy cleaning of the measuring instrument, particularly for splash zones in food production.

Due to the rotatable screw connection to the connection head, it is possible to loosen the connection head and to adjust it in the desired position. The connection head can be

removed together with the measuring insert. This allows the resistance thermometer to be calibrated along with the whole measuring chain, i.e. without disconnecting the electrical connections. In addition, this avoids having to open the process, and thus the risk of contamination is minimised.

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

The welded junction between the thermowell and the flange makes the use of a sealing as additional material in those areas redundant which are in contact with the product.

Specifications

Output signal Pt100	
Temperature range	Measuring range -50 ... +250 °C (-58 ... +482 °F)
Sensor	
<ul style="list-style-type: none"> ■ Measuring element (measuring current: 0.1 ... 1.0 mA) 	<ul style="list-style-type: none"> ■ Pt100 (thin-film) ■ Face-sensitive Pt100 (thin-film) ¹⁾
<ul style="list-style-type: none"> ■ Connection method 	<ul style="list-style-type: none"> ■ 1 x 3-wire ■ 1 x 4-wire ■ 2 x 3-wire
Tolerance value/range of use of the measuring element ²⁾ per IEC 60751 (class accuracy)	<ul style="list-style-type: none"> ■ Class AA 0 ... 150 °C ■ Class A -30 ... +250 °C ■ Class B -50 ... +250 °C
Response time (measurement per IEC 60751)	t ₅₀ < 4.7 s t ₉₀ < 12.15 s
Measuring insert diameter	3 mm

For detailed specifications for Pt100 sensors, see Technical information IN 00.17 at www.wika.com.

Output signal 4 ... 20 mA, HART® protocol, FOUNDATION™ Fieldbus and PROFIBUS® PA			
Transmitter (selectable versions)	Model T15	Model T32	Model T53
Output			
<ul style="list-style-type: none"> ■ 4 ... 20 mA 	x	x	
<ul style="list-style-type: none"> ■ HART® protocol 		x	
<ul style="list-style-type: none"> ■ FOUNDATION™ Fieldbus and PROFIBUS® PA 			x
Connection method			
<ul style="list-style-type: none"> ■ 1 x 3-wire or 1 x 4-wire 	x	x	x
Measuring current	< 0.2 mA	< 0.3 mA	< 0.2 mA
Temperature range	Measuring range -50 ... +250 °C (-58 ... +482 °F) ³⁾ , other measuring ranges are adjustable		
Response time (measurement per IEC 60751)	t ₅₀ < 4.7 s or t ₉₀ < 12.15 s + response time of the respective transmitter (see the data sheet for the respective transmitter)		
Configuration	Basic configuration: Pt100, 3-wire, 0 ... 150 °C (32 ... 302 °F) customer-specific configuration available on request		

1) Through their small design, face-sensitive measuring resistors serve to reduce the heat dissipation with short insertion lengths. Available for temperature ranges up to 150 °C (302 °F). For thermowell insertion lengths of less than 50 mm, face-sensitive measuring resistors are recommended.
For thermowell 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 greater.

3) The connection head should therefore be protected from temperatures over 80 °C (176 °F).

Thermowell model TW22

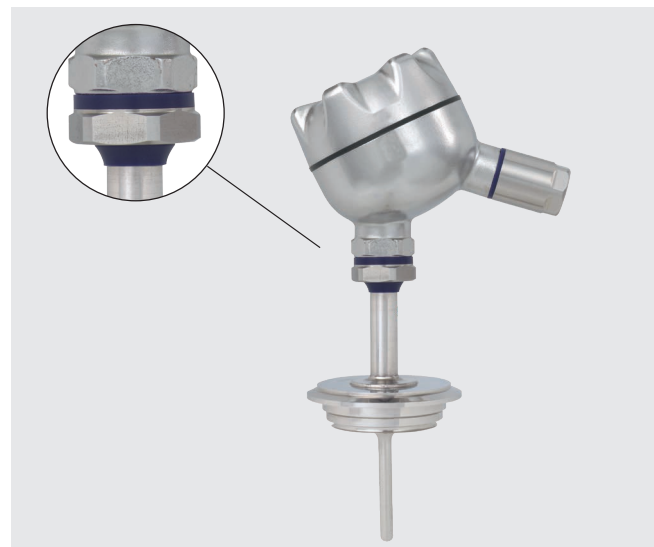
Process connections	<ul style="list-style-type: none"> ■ Tri-clamp and clamp per DIN 32676, ISO 2852 ■ VARIVENT® ■ BioControl® ■ Union nut DIN 11851 ■ Aseptic connections per DIN 11864 ■ Union nut SMS ■ Process connection, straight ■ Welding ball ■ Ball-/Collar-type compression fitting other process connections on request
Thermowell diameter	6 mm Option: thermowell tip stepped down to 4.5 mm (from $U_1 > 25$ mm) 0.25 inch Option: thermowell tip stepped down to 0.2 inch (from $U_1 > 1$ inch)
Materials (wetted)	Stainless steel 1.4435 (316L, UNS S31603)
Surface roughness	Standard: $R_a \leq 0.76 \mu\text{m}$ (SF3 per ASME BPE) Option: $R_a \leq 0.38 \mu\text{m}$ (SF4 per ASME BPE) $R_a \leq 0.38 \mu\text{m}$ electropolished (SF4 per ASME BPE)
Insertion length U_1 ⁴⁾	Standard: 25, 50, 75, 100, 150, 200 mm or 1, 2, 3, 4, 6, 8 inch other insertion lengths are available as options
Neck tube diameter	up to DN 20: 9 mm (0.35 inch); except per DIN 11851, milk thread fitting: 12 mm from DN 25: 12 mm (0.5 inch)
Neck tube length M	85 mm (3.35 inch), others on request
Connection to thermometer	M24 x 1.5

4) For the TR22-A design without thermowell, 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 thickness of bottom of the thermowell can be neglected for dimensioning. It is offset by the spring travel of the measuring insert.

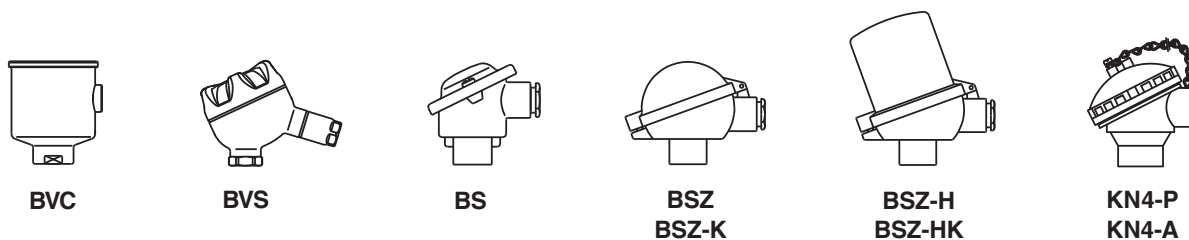
Sealing combination (option)

The transition from the connection head 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 and the cable gland in hygienic design, it delivers an easy-to-clean and hygienic measuring point, even in those areas not in contact with the product. 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.



Connection head



Model	Material	Cable entry thread size	Ingress protection	Cap	Surface
BVC	Stainless steel (1.4571)	M16 x 1.5 ¹⁾	IP68	Flat screw-on lid	Natural finish
BVS	Stainless steel (1.4308)	M20 x 1.5 ¹⁾	IP65	Screw-on lid, hygienic design	Precision casting, electropolished
BS	Aluminium	M20 x 1.5 ¹⁾	IP65 (IP68)	Cap with 2 screws	Blue, lacquered ²⁾
BSZ	Aluminium	M20 x 1.5 ¹⁾	IP65 (IP68)	Hinged cover with cylinder head screw	Blue, lacquered ²⁾
BSZ-K	PAV antistatic PA12	M20 x 1.5 ¹⁾	IP65	Hinged cover with cylinder head screw	Black
BSZ-H	Aluminium	M20 x 1.5 ¹⁾	IP65 (IP68)	Hinged cover with cylinder head screw	Blue, lacquered ²⁾
BSZ-HK	PAV antistatic PA12	M20 x 1.5 ¹⁾	IP65	Hinged cover with cylinder head screw	Black
KN4-P	Polypropylene	M20 x 1.5	IP65	Screw-on lid	White
KN4-A	Aluminium	M20 x 1.5	IP65	Screw-on lid	Blue, lacquered ²⁾

1) Standard
2) RAL 5022

Cable entry with M12 x 1 coupler connector / 4-pin (option)

Instead of a standard cable gland, the cable entry of a connection head can optionally be designed with a M12 x 1 (4-pin) coupler connector. The maximum resulting ingress protection is IP65. Connecting with single strands for operation is not needed as pre-assembled cables can be used.



Connection head with M12 x 1 coupler connector (4-pin)

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.



Connection head with digital indicator, model DIH10

Transmitter (option)

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

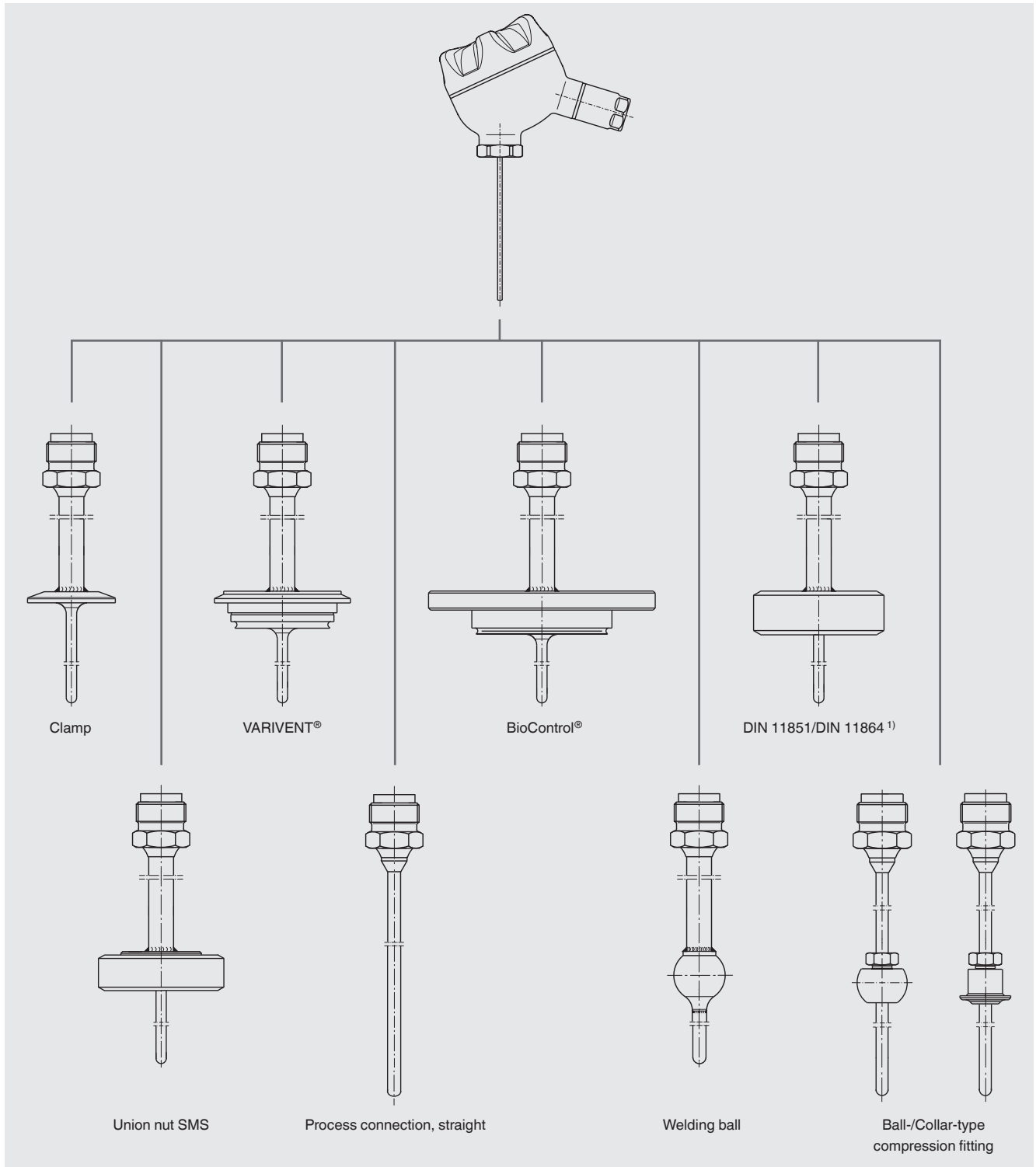
- Mounted instead of terminal block
- Mounted within the cap of the connection head
- Mounting not possible

Mounting of 2 transmitters on request.

Connection head	Transmitter model		
	T15	T32	T53
BVC	○	○	○
BVS	○	○	○
BS	-	-	○
BSZ / BSZ-K	○	○	○
BSZ-H / BSZ-HK	●	●	●
KN4-P / KN4-A	○	○	○

Model	Description	Explosion protection	Data sheet
T15	Digital transmitter, PC configurable	Optional	TE 15.01
T32	Digital transmitter, HART® protocol	Optional	TE 32.04
T53	Digital transmitter, FOUNDATION™ Fieldbus und PROFIBUS® PA	Standard	TE 53.01

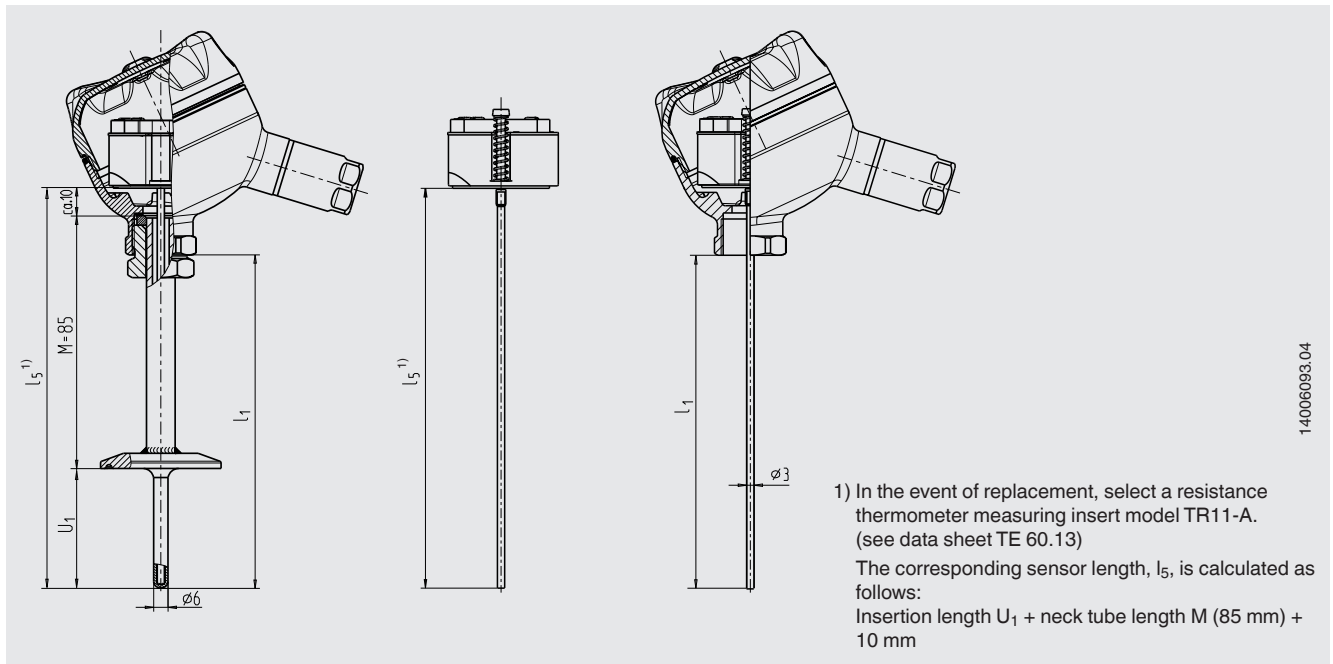
Overview of combinations



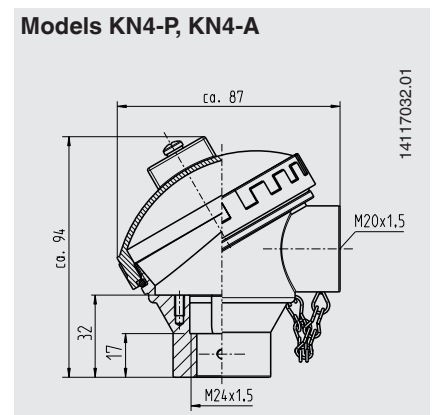
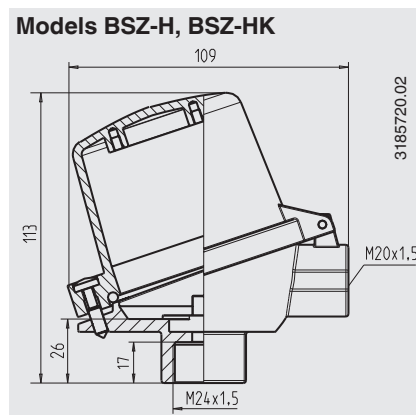
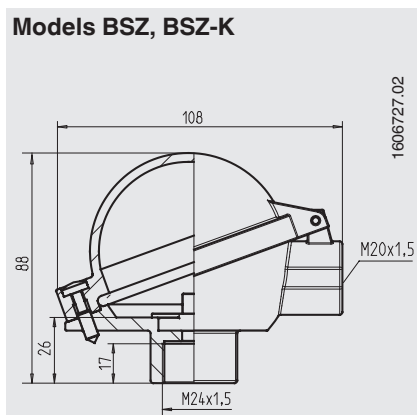
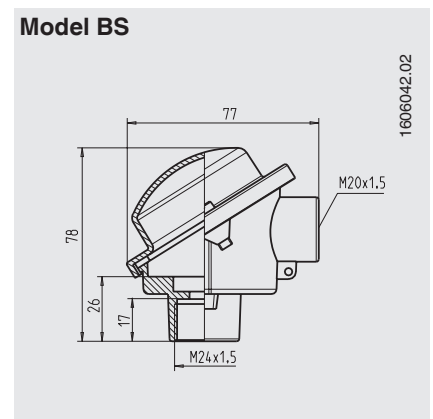
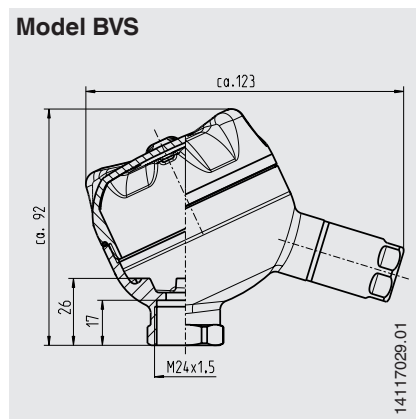
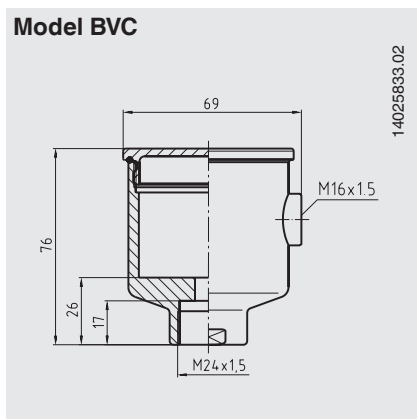
1) Process connections per DIN 11864-2 and DIN 11864-3, see "Dimensions of the process connections in mm"

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Dimensions in mm

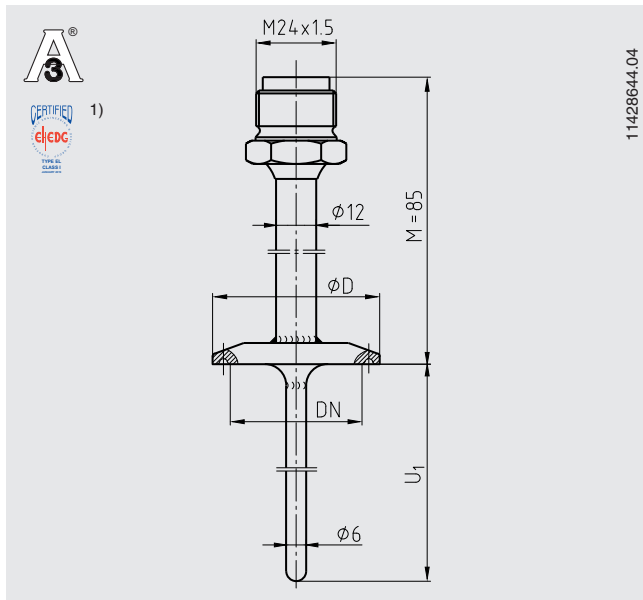


Dimensions of the connection heads in mm



Dimensions of the process connections in mm (thermowells model TW22)

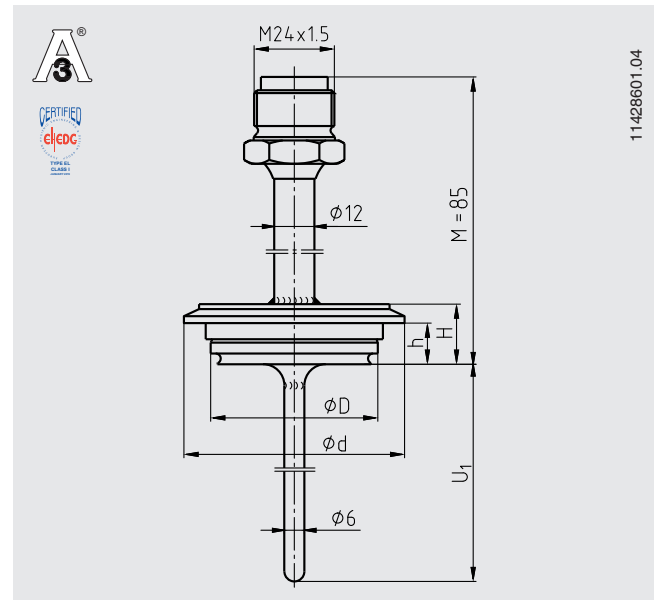
Clamp process connection



U_1 = variable insertion length

1) In combination with
T-ring seals from Combifit International B. V., Netherlands

VARIVENT® process connection



U_1 = variable insertion length

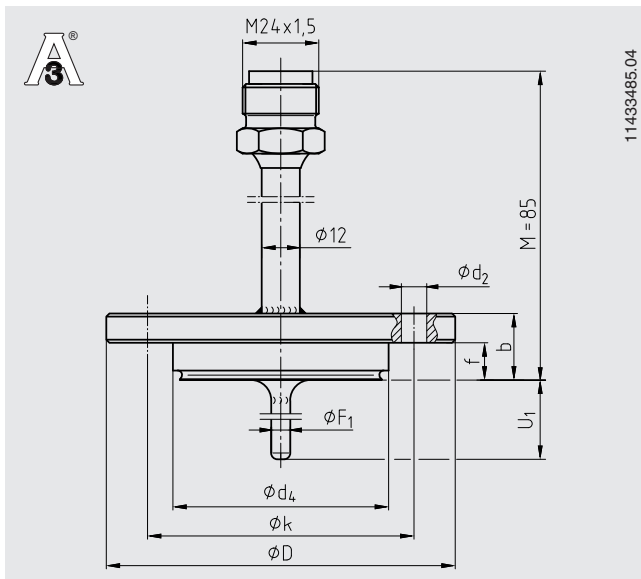
Dimensions for clamp process connection

Process connection	Nominal width in mm/inch	PN in bar	Dimensions in mm		Weight in kg
			ϕD		
DIN 32676 for pipes per DIN 11866 row A	DN 10 ... 20	25	34.0		0.2
	DN 25 ... 40	25	50.5		0.3
	DN 50	16	64.0		0.4
DIN 32676 for pipes per DIN 11866 row B	13.5 ... 17.2	25	25.0		0.2
	21.3 ... 33.7	25	50.5		0.3
	42.4 ... 48.3	16	64.0		0.3
DIN 32676 for pipes per DIN 11866 row C	1/2" ... 3/4"	25	25.0		0.2
	1" ... 1 1/2"	25	50.5		0.3
	2"	16	64.0		0.4
Tri-clamp per ASME BPE	1/2"	13.8	25.0		0.2
	3/4"	13.8	25.0		0.2
	1"	13.8	50.5		0.3
	1 1/2"	13.8	50.5		0.3
	2"	13.8	64.0		0.4
	2 1/2"	13.8	77.5		0.4
	3"	13.8	91.0		0.5
ISO 2852	DN 12 ... 21.3	16	34.0		0.2
	DN 25 ... 38	16	50.5		0.3
	DN 40 ... 51	16	64.0		0.4

Dimensions for VARIVENT® process connection

Process connection	Nominal width in mm	PN in bar	Dimensions in mm				Weight in kg
			ϕD	ϕd	H	h	
Form B	DN 10, DN 15	25	31	52.7	20	13.65	0.3
Form F	DN 25, DN 32	25	50	66.0	18	12.30	0.4
Form N	DN 40, DN 50	25	68	84.0	18	12.30	0.6

NEUMO BioControl® process connection



U_1 = variable insertion length

For fitting into a flow-through housing, the insertion length U_1 and the thermowell diameter must be matched. For angular housings, the insertion length U_1 must be specified by the customer.

The cases are not part of the scope of delivery of the resistance thermometers and can be ordered as a separate item. For a detailed description of the BioControl® cases, see data sheet AC 09.14.

Dimensions for NEUMO BioControl® process connection

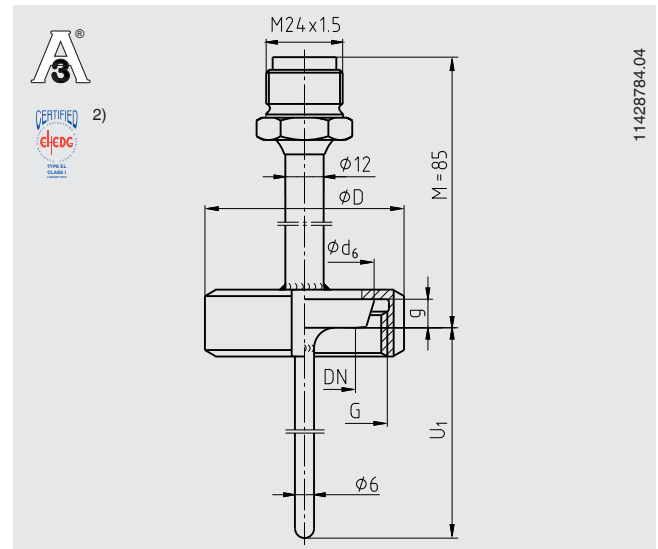
Case size	Nominal width of pipe	PN in bar	Dimensions in mm						Weight in kg	
			U_1 ³⁾	$\varnothing d_4$	$\varnothing D$	f	b	$\varnothing k$		$\varnothing d_2$
Size 25	DN 8	16	5	30.5	64	11	20	50	4 x $\varnothing 7$	0.4
	DN 10	16	6	30.5	64	11	20	50	4 x $\varnothing 7$	0.4
	DN 15	16	9	30.5	64	11	20	50	4 x $\varnothing 7$	0.4
	DN 20	16	11	30.5	64	11	20	50	4 x $\varnothing 7$	0.4
Size 50	DN 25	16	15	50.0	90	17	27	70	4 x $\varnothing 9$	0.8
	DN 40	16	20	50.0	90	17	27	70	4 x $\varnothing 9$	0.8
	DN 50	16	25	50.0	90	17	27	70	4 x $\varnothing 9$	0.8
	DN 65	16	35	50.0	90	17	27	70	4 x $\varnothing 9$	0.8
	DN 80	16	45	50.0	90	17	27	70	4 x $\varnothing 9$	0.8
	DN 100	16	55	50.0	90	17	27	70	4 x $\varnothing 9$	0.8
Size 65	DN 40	16	20	68.0	120	17	27	95	4 x $\varnothing 11$	1.4
	DN 50	16	25	68.0	120	17	27	95	4 x $\varnothing 11$	1.4
	DN 65	16	35	68.0	120	17	27	95	4 x $\varnothing 11$	1.4
	DN 80	16	45	68.0	120	17	27	95	4 x $\varnothing 11$	1.4
	DN 100	16	55	68.0	120	17	27	95	4 x $\varnothing 11$	1.4

Dimensions for union nut process connection DIN 11851 with conical coupling (milk thread fitting)

Nominal width in mm	PN in bar	Dimensions in mm				Weight in kg
		$\varnothing d_6$	G	$\varnothing D$	g	
DN 20	40	36.5	RD 44 x 1/6	54	8	0.4
DN 25	40	44.0	RD 52 x 1/6	63	10	0.5
DN 32	40	50.0	RD 58 x 1/6	70	10	0.6
DN 40	40	56.0	RD 65 x 1/6	78	10	0.8
DN 50	25	68.5	RD 78 x 1/6	92	11	0.9

³⁾ Recommended insertion length for installation in BioControl® flow-through housing; other insertion lengths are possible

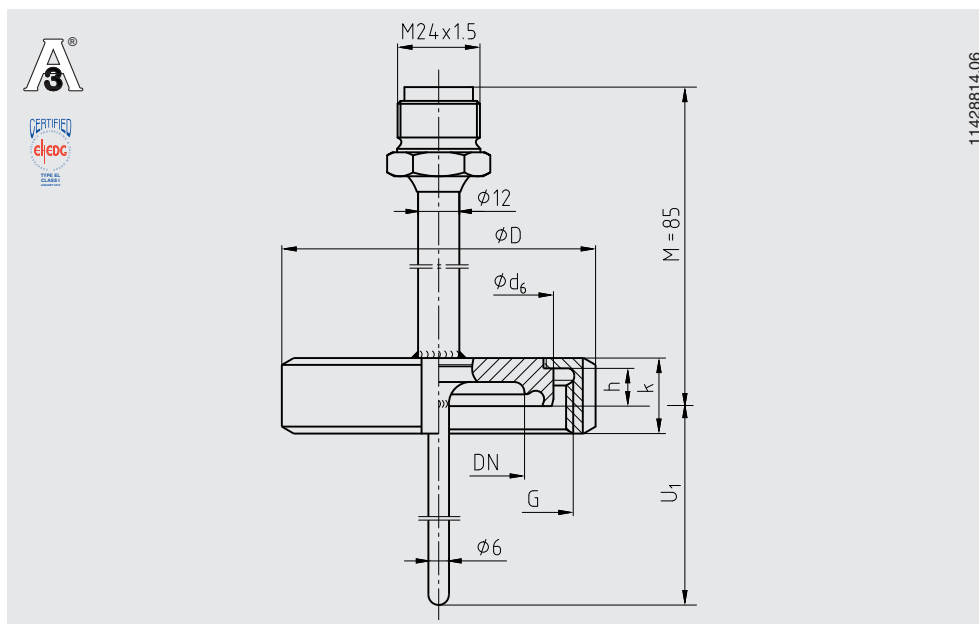
Union nut process connection DIN 11851 with conical coupling (milk thread fitting)



U_1 = variable insertion length

2) In combination with
 - ASEPTO-STAR k-flex upgrade gaskets from Kieselmann GmbH, Germany or
 - SKS gasket set DIN 11851 EHEDG from Siersema Komponenten

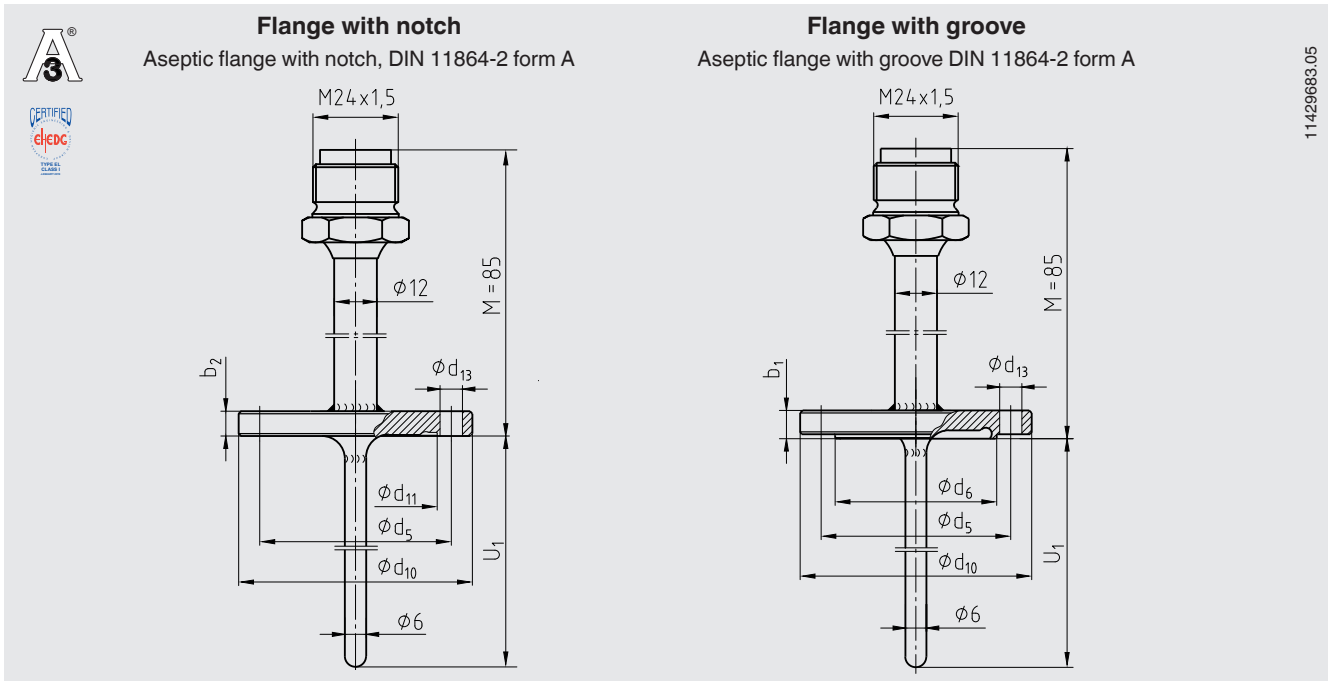
**Process connection, aseptic threaded pipe connection DIN 11864-1
with form A liner, for pipes in accordance with DIN 11866 row A, B and C**



U₁ = variable insertion length

Nominal width of pipe DN / OD	Nominal pressure in bar PN	Outer diameter of pipe	Pipe schedule s	Inner diameter of pipe	Process connection				Aseptic O-ring	Weight in kg
					Ø D	G	h	k		
DIN 11866 row A or metric										
10	40	13	1.5	10	38	RD 28 x 1/8	9	18	12 x 3.5	0.2
15	40	19	1.5	16	44	RD 34 x 1/8	9	18	18 x 3.5	0.2
20	40	23	1.5	20	54	RD 44 x 1/6	10	20	22 x 3.5	0.25
25	40	29	1.5	26	63	RD 52 x 1/6	12	21	28 x 3.5	0.4
32	40	35	1.5	32	70	RD 58 x 1/6	13	21	34 x 5	0.45
40	40	41	1.5	38	78	RD 65 x 1/6	13	21	40 x 5	0.55
50	25	53	1.5	50	92	RD 78 x 1/6	14	22	52 x 5	0.7
DIN 11866 row B or ISO										
8 (13.5)	40	13.5	1.6	10.3	38	RD 28 x 1/8	9	18	12 x 3.5	0.2
10 (17.2)	40	17.2	1.6	14	44	RD 34 x 1/8	9	18	16 x 3.5	0.2
15 (21.3)	40	21.3	1.6	18.1	54	RD 44 x 1/6	10	20	20 x 3.5	0.3
20 (26.9)	40	26.9	1.6	23.7	63	RD 52 x 1/6	12	21	26 x 3.5	0.4
25 (33.7)	40	33.7	2	29.7	70	RD 58 x 1/6	13	21	32 x 5	0.5
32 (42.4)	25	42.4	2	38.4	78	RD 65 x 1/6	13	21	40.5 x 5	0.6
40 (48.3)	25	48.3	2	44.3	92	RD 78 x 1/6	14	22	46.6 x 5	0.7
DIN 11866 row C or ASME BPE										
1/2"	40	12.7	1.65	9.4	38	RD 28 x 1/8	9	18	12 x 3.5	0.2
3/4"	40	19.05	1.65	15.75	44	RD 34 x 1/8	9	18	18 x 3.5	0.2
1"	40	25.4	1.65	22.1	63	RD 52 x 1/6	12	21	24 x 3.5	0.4
1 1/2"	40	38.1	1.65	34.8	78	RD 65 x 1/6	13	21	37 x 5	0.6
2"	25	50.8	1.65	47.5	92	RD 78 x 1/6	14	22	50 x 5	0.7

Aseptic flange process connection DIN 11864-2, form A for pipes in accordance with DIN 11866 row A

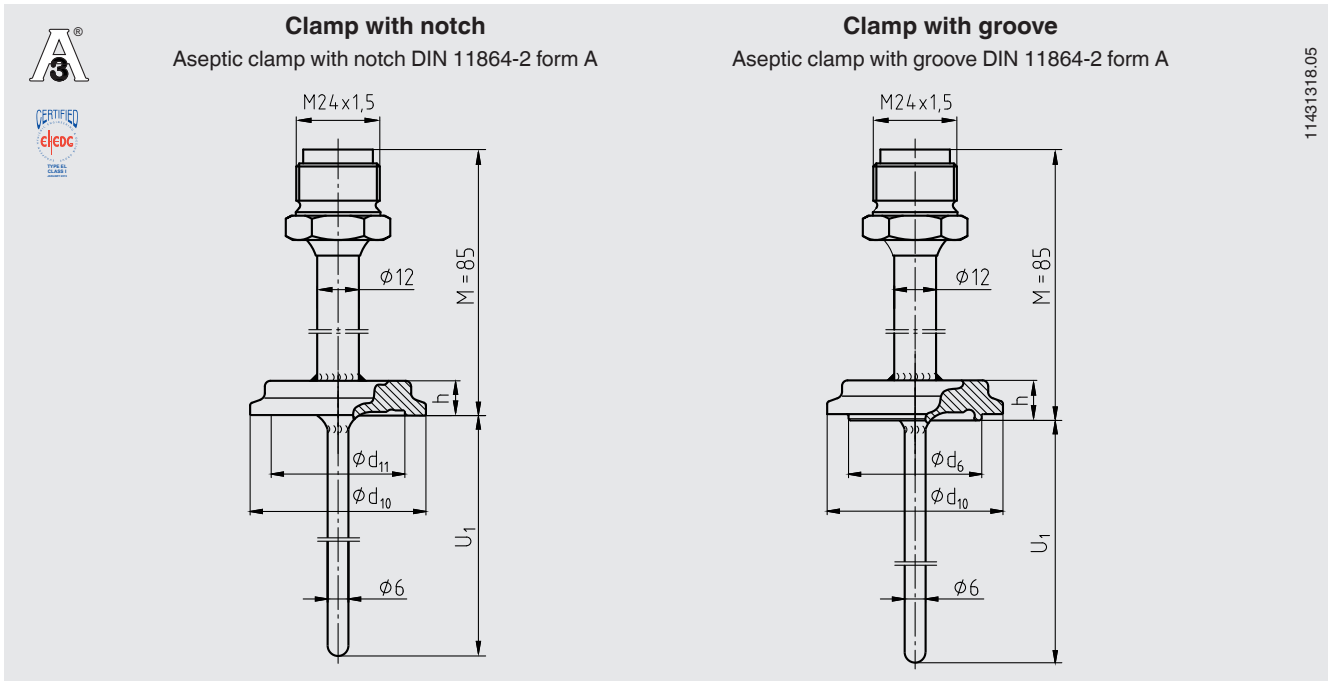


U₁ = variable insertion length

Process connection	Nominal width in mm	PN in bar	Dimensions in mm								Weight in kg
			b ₁	b ₂	Ø d ₅	Ø d ₆	Ø d ₁₀	Ø d ₁₁	Ø d ₁₃	Aseptic O-ring	
Flange with notch	DN 10	25	-	10	37	-	54	22.4	4 x Ø 9	12 x 3.5	0.2
	DN 15	25	-	10	42	-	59	28.4	4 x Ø 9	18 x 3.5	0.25
	DN 20	25	-	10	47	-	64	32.4	4 x Ø 9	22 x 3.5	0.3
	DN 25	25	-	10	53	-	70	38.4	4 x Ø 9	28 x 3.5	0.4
	DN 32	25	-	10	59	-	76	47.7	4 x Ø 9	34 x 5	0.5
	DN 40	25	-	10	65	-	82	53.7	4 x Ø 9	40 x 5	0.6
	DN 50	16	-	10	77	-	94	65.7	4 x Ø 9	52 x 5	0.7
Flange with groove	DN 10	25	11.5	-	37	22.3	54	-	4 x Ø 9	12 x 3.5	0.25
	DN 15	25	11.5	-	42	28.3	59	-	4 x Ø 9	18 x 3.5	0.3
	DN 20	25	11.5	-	47	32.3	64	-	4 x Ø 9	22 x 3.5	0.3
	DN 25	25	11.5	-	53	38.3	70	-	4 x Ø 9	28 x 3.5	0.4
	DN 32	25	11.5	-	59	47.6	76	-	4 x Ø 9	34 x 5	0.45
	DN 40	25	11.5	-	65	56.6	82	-	4 x Ø 9	40 x 5	0.6
	DN 50	16	11.5	-	77	65.6	94	-	4 x Ø 9	52 x 5	0.7

Connections for pipes in accordance with DIN 11866 row B (ISO pipes) and row C (ASME pipes) available on request.

Aseptic clamp process connection, DIN 11864-3, form A for pipes in accordance with DIN 11866 row A

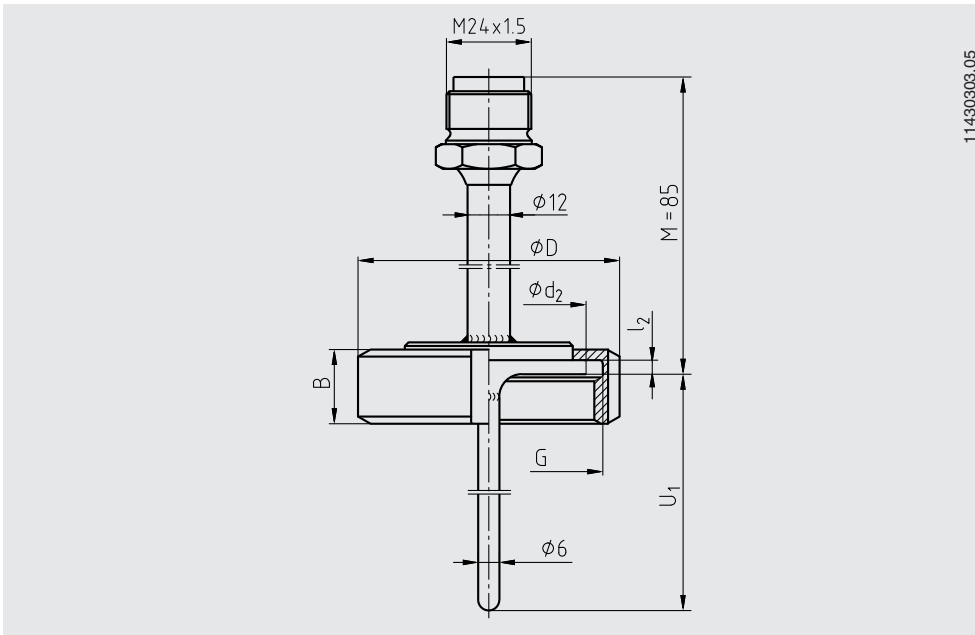


U1 = variable insertion length

Process connection	Nominal width in mm	PN in bar	Dimensions in mm				Aseptic O-ring	Weight in kg
			Ø d ₆	Ø d ₁₀	Ø d ₁₁	h		
Clamp with notch	DN 10	40	-	34	22.4	10	12 x 3.5	0.2
	DN 15	40	-	34	28.4	10	18 x 3.5	0.2
	DN 20	40	-	50.5	32.4	10	22 x 3.5	0.3
	DN 25	40	-	50.5	38.4	10	28 x 3.5	0.3
	DN 32	40	-	50.5	47.7	10	34 x 5	0.3
	DN 40	40	-	64	53.7	10	40 x 5	0.4
	DN 50	25	-	77.5	65.7	10	52 x 5	0.5
Clamp with groove	DN 10	40	22.3	34	-	11.5	12 x 3.5	0.2
	DN 15	40	28.3	34	-	11.5	18 x 3.5	0.2
	DN 20	40	32.3	50.5	-	11.5	22 x 3.5	0.3
	DN 25	40	38.3	50.5	-	11.5	28 x 3.5	0.3
	DN 32	40	47.6	50.5	-	11.5	34 x 5	0.3
	DN 40	40	53.6	64	-	11.5	40 x 5	0.4
	DN 50	25	65.6	77.5	-	11.5	52 x 5	0.5

Connections for pipes in accordance with DIN 11866 row B (ISO pipes) and row C (ASME pipes) available on request.

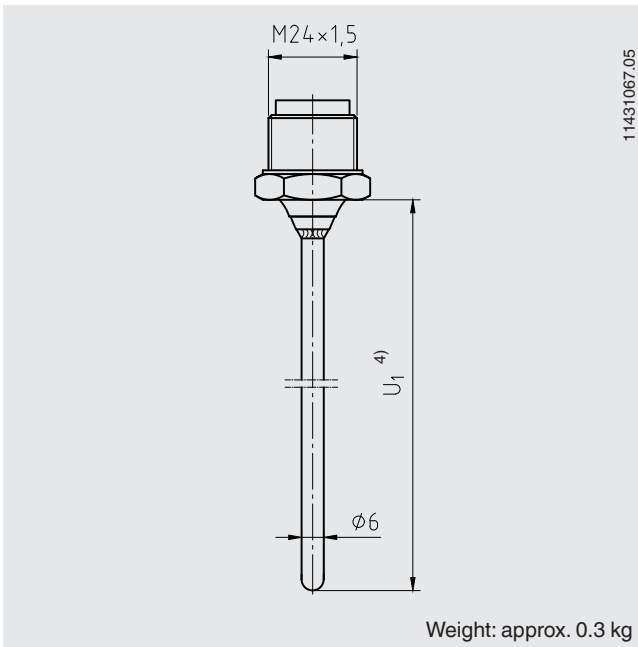
Union nut process connection SMS



U_1 = variable insertion length

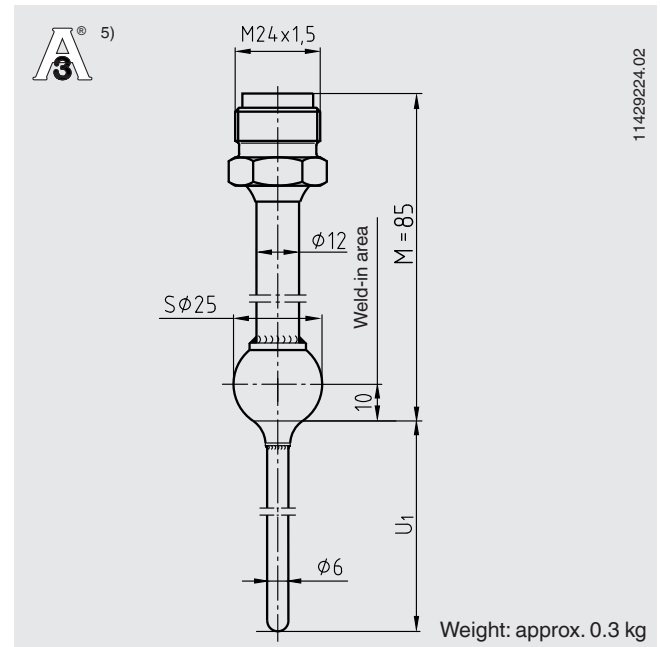
Nominal width in inch	PN in bar	Dimensions in mm					Weight in kg
		$\varnothing D$	$\varnothing d_2$	B	l_2	G	
1"	40	51	35.5	25	3.5	RD 40 x 1/6	0.4
1 1/2"	40	74	55	25	4	RD 60 x 1/6	0.8
2"	40	84	65	26	4	RD 70 x 1/6	1.0

Process connection, straight, $\varnothing 6$ mm, basic shape for compression fitting



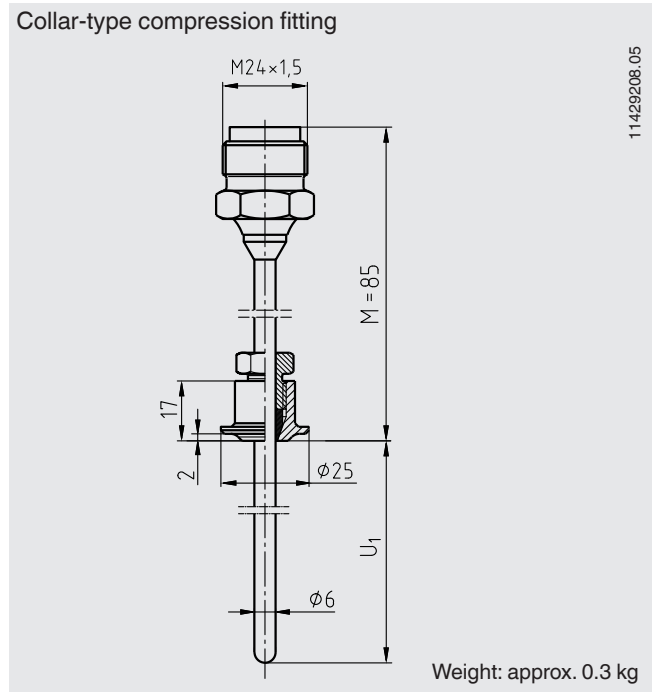
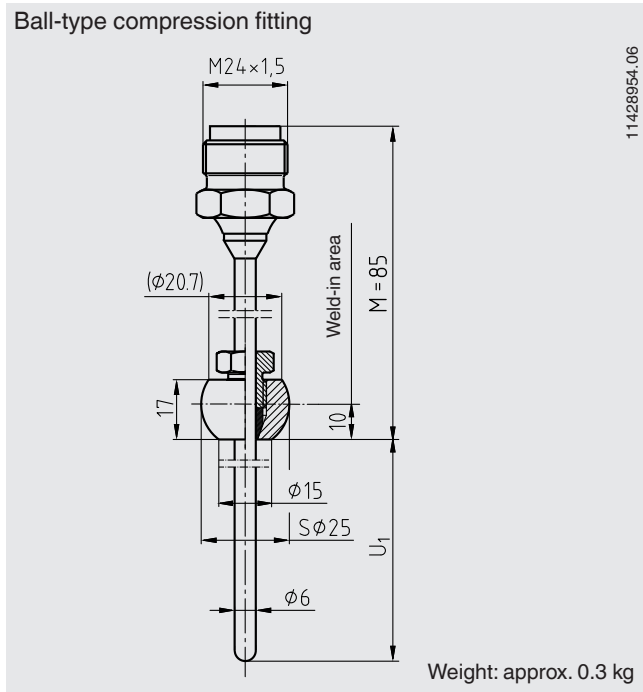
4) When using the optimal wiper the available insertion length is reduced by 12 mm.

Welding ball process connection



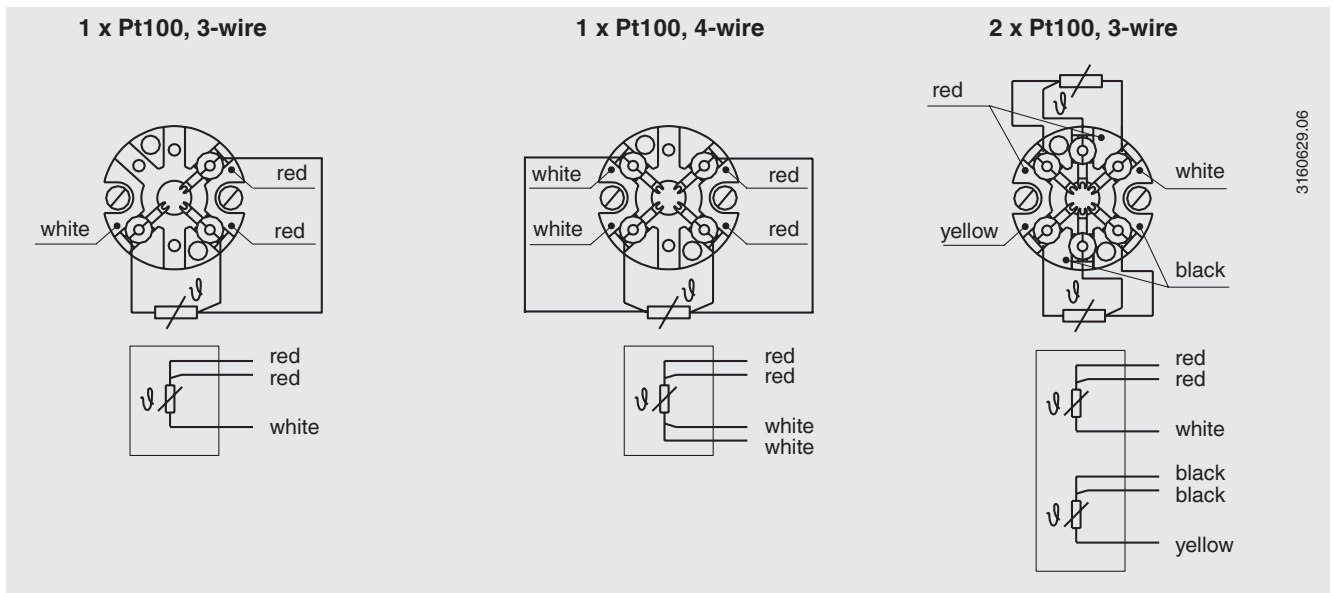
5) In order to meet the 3-A standard, the weld seam must be finished with a minimum radius of 3.2 mm on the product side. In this way, no weld defects, such as recesses or gaps, remain.

Compression fitting process connection



Other process connections and nominal widths available on request.

Electrical connection



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

Explosion protection (option)







Resistance thermometers of the TR22-A series are available with an EC-type examination certificate for “intrinsically safe”, Ex i, ignition protection.







These instruments comply with the requirements of the ATEX directive for gas and dust.

The 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 the certificate for hazardous areas or 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. The system operator is responsible for using suitable thermowells.

Approvals

Logo	Description	Country
 	EU declaration of conformity <ul style="list-style-type: none"> ■ EMC directive ¹⁾ EN 61326 emission (group 1, class B) and interference immunity (industrial application) ■ RoHS directive ■ ATEX directive (option) Hazardous areas 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] 	European Union
 	IECEx (option) - in conjunction with ATEX Hazardous areas 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
	EAC (option) <ul style="list-style-type: none"> ■ EMC directive ¹⁾ ■ Hazardous areas Zone 0 gas [0 Ex ia IIC T6...T1 Ga X] Zone 1 gas [1 Ex 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] 	Eurasian Economic Community
	INMETRO (option) <ul style="list-style-type: none"> ■ Metrology, measurement technology ■ Hazardous areas Zone 0 gas [Ex ia IIC T3 ... 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] 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] Zone 21 dust [Ex ib IIIC T125 ... T65 °C Db] 	Brazil

Logo	Description	Country
	KCs - KOSHA (option) Hazardous areas Zone 0 Gas [Ex ia IIC T4 ... T6] Zone 1 Gas [Ex ib IIC T4 ... T6]	South Korea
-	PESO (option) Hazardous areas 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
	GOST (option) Metrology, measurement technology	Russia
	KazInMetr (option) Metrology, measurement technology	Kazakhstan
-	MTSCHS (option) Permission for commissioning	Kazakhstan
	Uzstandard (option) Metrology, measurement technology	Uzbekistan
	3-A (option) ²⁾ Sanitary Standard	USA
	EHEDG (option) ²⁾ Hygienic Equipment Design	European Community

1) Only for built-in transmitter

2) 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)

- 2.2 test report
- 3.1 inspection certificate
- DKD/DAkkS calibration certificate
- Manufacturer's declaration regarding Regulation (EC) 1935/2004
- Certificate of the surface roughness of wetted parts
- Hygienic design conformity

Process connection	3-A	EHEDG
Clamp	yes	yes ⁴⁾
VARIVENT®	yes	yes
BioControl®	yes	no
DIN 11851	yes ³⁾	yes ⁴⁾
DIN 11864	yes	yes
Welding ball	yes	no
Compression fitting	no	no
SMS	no	no

3) In combination with
- ASEPTO-STAR k-flex upgrade gaskets from Kieselmann GmbH, Germany or
- SKS gasket set DIN 11851 EHEDG from Siersema Komponenten

4) In combination with
T-ring seals from Combifit International B. V., Netherlands

Approvals and certificates, see website

Patents, property rights

Case with easily cleanable twist crown, integrated into the case cap (GM 000984349)

Ordering information

Model / Explosion protection / Sensor / Accuracy class / Connection head / Cable gland / Transmitter / Thermowell / Process connection / Thermowell diameter / Wetted-parts materials / Insertion length U_1 / Neck tube length / Certificates / Optional further sealing combinations

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