

# Gas-actuated thermometer For sanitary applications Model 74, stainless steel version

WIKA data sheet TM 74.01



for further approvals  
see page 10

## Applications

- Food industry
- Sanitary applications
- Bio and pharmaceutical industries

## Special features

- Dead space free
- Hygienic design
- Aseptic process connections
- Material and surface finish quality in accordance with pharmaceutical industry directives and standards



Gas-actuated thermometer model R74.100  
with liquid damping and VARIVENT® connection

## Description

This series of thermometers has been designed as an addition to the standard range of thermometers in order to meet the special requirements of the food, bio and pharmaceutical industries as well as in the paints and varnishes industry.

The model 74 gas-actuated thermometer is ideally suited to fulfil the high standard requirements of sanitary applications. Based on a third party verification, the thermometer complies with the 3-A standard and is marked by us accordingly.

Stem and case are made of stainless steel. The surface of the wetted parts is polished, and a wide variety of process connections is available to ensure the optimal adaptation to many different process requirements. The stem is free of dead space.

## Standard version

### Measuring principle

Inert gas expansion system

### Nominal size in mm

100

### Process connection

- Clamp connection
- Threaded connection per DIN 11851
- VARIVENT® connection  
for pipes DN 40 to DN 125 and 1 ½" to 4", PN 25
- NEUMO BioControl®  
Size 50 (mounting diameter 50 mm) for pipes DN 25 to DN 100, PN 16 or  
Size 65 (mounting diameter 68 mm) for pipes DN 40 to DN 100, PN 16
- Aseptic threaded pipe connection DIN 11864-1 form A
- Aseptic threaded pipe connection DIN 11864-2 form A
- Aseptic threaded pipe connection DIN 11864-3 form A

### Model overview

Model	NS	Version
A74.100	100	Back mount (axial)
R74.100	100	Lower mount (radial)

### Indication accuracy

±1 °C within measuring range, at 23 °C ±10 °C

### Working range

Normal (1 year): Measuring range (EN 13190)  
Short time (24 h max.): Scale range (EN 13190)

### Rated operating ranges and conditions

EN 13190

### Temperature sensor

- Wetted parts stainless steel 1.4435
- Diameter 21 mm
- Length 30 mm

### Surface of the wetted parts

$R_a \leq 0.8 \mu\text{m}$

### Case

Stainless steel 1.4301

### Ring

Bayonet ring bezel, stainless steel 1.4301

### Stem, process connection

Stainless steel 1.4435

### Dial

Aluminium, white, black lettering

### Window

Laminated safety glass

### Pointer

Aluminium, black, micro adjustment

### Temperature limits for storage and transport

-50 ... +70 °C without liquid damping  
-40 ... +70 °C with liquid damping  
0 ... +60 °C with food-compatible liquid damping

### Permissible ambient temperature

-40 ... +60 °C without/with liquid damping  
0 ... +60 °C with food-compatible liquid damping

### Permissible operating pressure at the temperature sensor

max. 25 bar, static

### Ingress protection

IP 65 per EN/IEC 60529

## Options

- Scale range °F, °C/°F (dual scale)
- Other process connection
- Surface of the wetted parts
  - $R_a \leq 0.4 \mu\text{m}$
  - Electropolished  $R_a \leq 0.4 \mu\text{m}$
  - Polished and electropolished  $R_a \leq 0.25 \mu\text{m}$
- Case with food-compatible liquid damping (medicinal white mineral oil KN 92)
- Window from clear non-splintering plastic
- Ingress protection IP 66
- Thermometer with switch contacts (data sheet TV 27.02)
- Version per ATEX Ex II 2 GD c TX

**Scale ranges, measuring ranges <sup>1)</sup>, error limits  
Scale graduation per WIKA standard**

Scale range in °C	Measuring range in °C	Scale spacing in °C	Error limit ±°C
-30 ... +50	-20 ... +40	1	1 <sup>2)</sup>
-20 ... +100	0 ... 80	1	1
0 ... 120	20 ... 100	1	1
0 ... 160	20 ... 100	1	1

1) The measuring range is indicated on the dial by two triangular marks.  
The stated error limit is valid within this range.

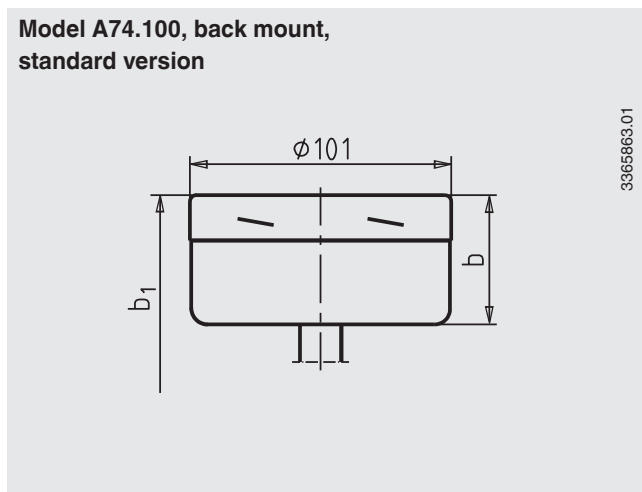
2) Exception process connection: Aseptic threaded pipe connection DIN 11864-1, DIN 11864-2, DIN 11864-3

VARIVENT® and VARINLINE® are registered trademarks of the company GEA Tuchenhagen GmbH.  
BioControl® is a registered trademark of the company NEUMO.

**Dimensions in mm**

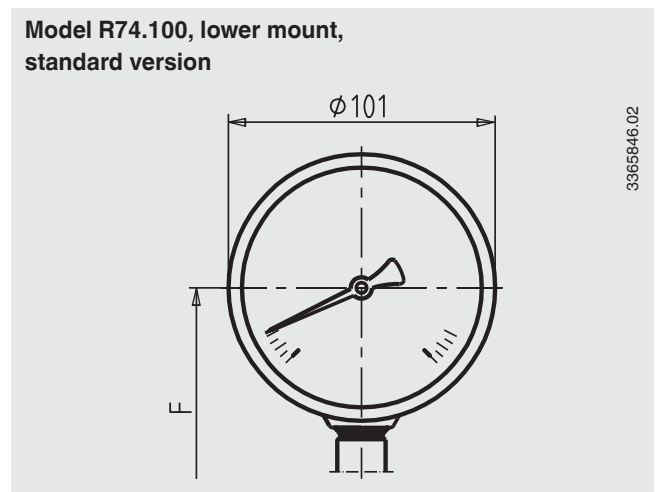
Both thermometers, model A74.100 back mount connection and model R74.100 lower mount connection, are available with all process connections shown.

**Model A74.100, back mount,  
standard version**



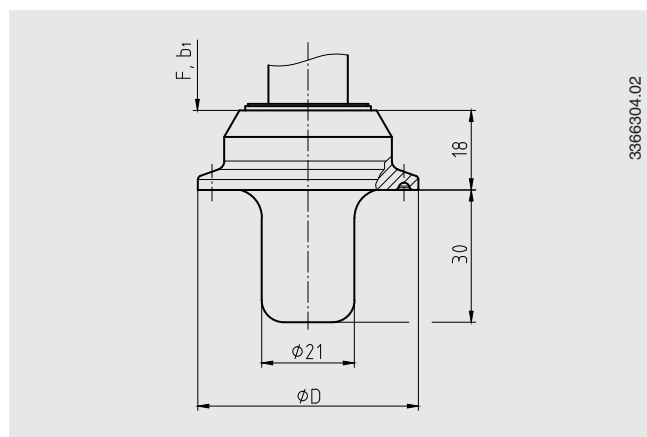
b = 50 mm  
b<sub>1</sub> = 80 mm  
F = 82 mm

**Model R74.100, lower mount,  
standard version**



## Process connections

Type of process connection: Clamp connection



Type of process connection: Clamp connection per DIN 32676  
Pipe standard: Pipes per DIN 11866 row B or ISO 1127 row 1

DN	For pipe Outer Ø x wall thickness	PN <sup>1)</sup>	Dimensions in mm
			Ø D
33.7 (DN 25)	33.7 x 2	40	50
42.4 (DN 32)	42.4 x 2	40	50
48.3 (DN 40)	48.3 x 2	40	64
60.3 (DN 50)	60.3 x 2	40	77.5
76.1 (DN 65)	76.1 x 2	25	91

Type of process connection: Clamp connection per DIN 32676  
Pipe standard: Pipes per DIN 11866 row C or ASME BPE

DN	For pipe Outer Ø x wall thickness	PN <sup>1)</sup>	Dimensions in mm
			Ø D
1 ½"	38.1 x 1.6	40	50
2"	50.8 x 1.6	40	64
2 ½"	63.5 x 1.6	25	77.5
3"	76.2 x 1.6	25	91

Type of process connection: Clamp connection  
Pipe standard: Pipes per BS4825 part 3 and O.D.-tube

DN	For pipe Outer Ø x wall thickness	PN <sup>1)</sup>	Dimensions in mm
			Ø D
1 ½"	38.1 x 1.65	40	50
2"	50.8 x 1.65	40	64
2 ½"	63.5 x 1.65	25	77.5
3"	76.2 x 1.65	25	91

Type of process connection: Clamp connection per DIN 32676  
Pipe standard: Pipes per DIN 11866 row A or DIN 11850 row 2

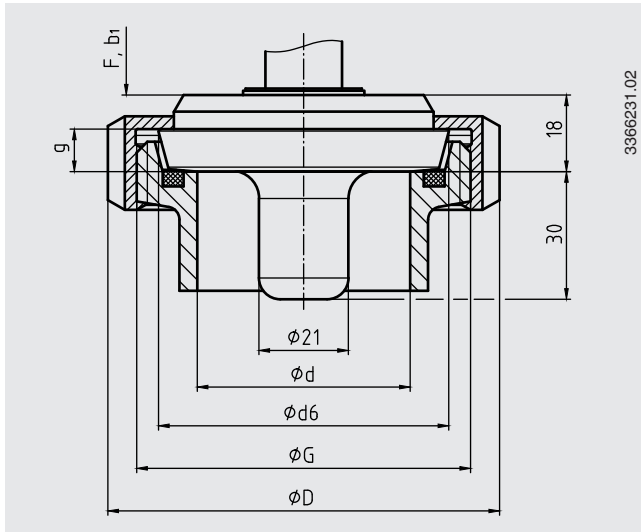
DN	For pipe Outer Ø x wall thickness	PN <sup>1)</sup>	Dimensions in mm
			Ø D
32	34 x 1	40	50
40	40 x 1	40	50
50	52 x 1	40	64
65	70 x 2	25	91

Type of process connection: Clamp connection per ISO 2852  
Pipe standard: Pipes per ISO 2037 and BS 4825 part 1

DN	For pipe Outer Ø x wall thickness	PN <sup>1)</sup>	Dimensions in mm
			Ø D
33.7	33.7 x 1.2	25	50
38	38 x 1.2	25	50
40	40 x 1.2	25	64
51	51 x 1.2	25	64
63.5	63.5 x 1.6	25	77.5
70	70 x 1.6	25	91
76.1	76.1 x 1.6	25	91

1) For maximum pressure range consider pressure rating of clamp.

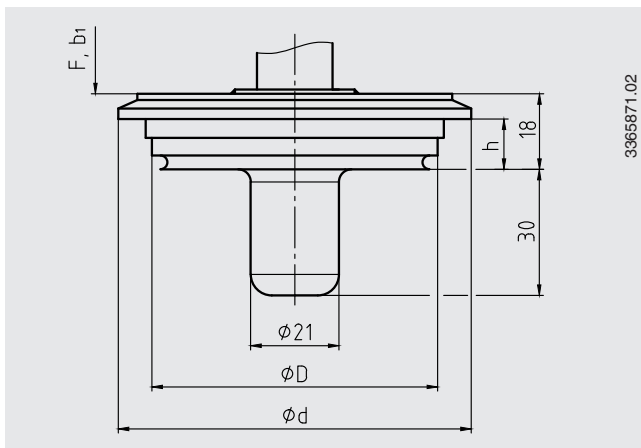
Type of process connection: Threaded connection per DIN 11851  
 Pipe standard: Pipes per DIN 11850 row 2



DN	For pipe	PN	Dimensions in mm				
	Outer $\phi$ x wall thickness		G	d	D	d <sub>6</sub>	g
40	41 x 1.5	40	Rd 65 x 1/6	38	78	56	10
50	53 x 1.5	25	Rd 78 x 1/6	50	92	68.5	10
80	85 x 2	25	Rd 110 x 1/4	20	127	100	12

3-A conformity only in combination with profile sealing from SKS Komponenten BV or Kieselmann GmbH.

Type of process connection: VARIVENT®

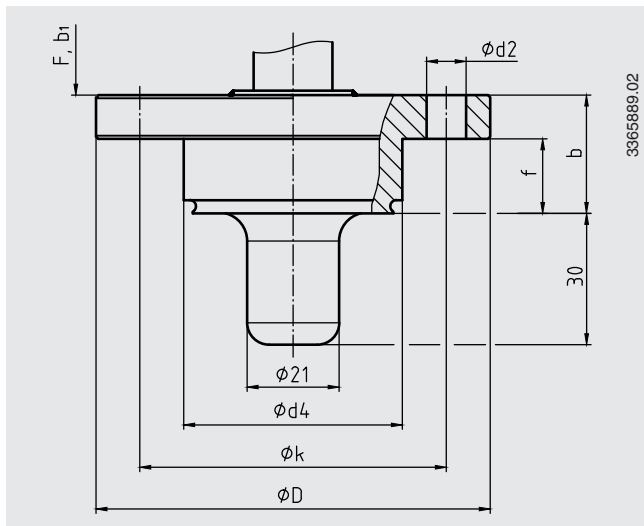


Access unit connection	PN <sup>2)</sup>	Dimensions in mm		
		D	d	h
Form F	25	50	66	12.3
Form N	25	68	84	12.3

2) Pay attention to the pressure rating of the VARINLINE® access unit.

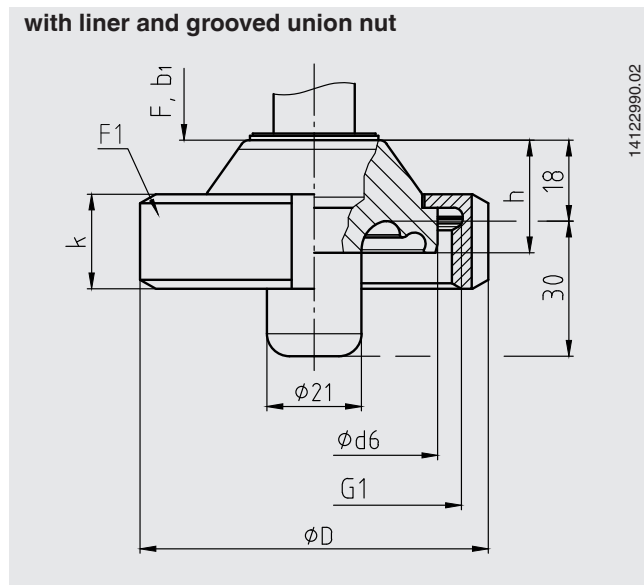
Note:  
 Suitable for installation into the VARINLINE® access unit from GEA Tuchenhausen.

Type of process connection: NEUMO BioControl®



BioControl® connection	PN	Dimensions in mm					
		$d_2$	$d_4$	D	f	b	k
Size 50	16	4 x $\phi 9$	50	90	17	27	70
Size 65	16	4 x $\phi 11$	68	120	17	27	95
Size 80	16	4 x $\phi 11$	87.5	140	25	37	115

Type of process connection: Aseptic threaded pipe connection DIN 11864-1 form A



Type of process connection: Aseptic threaded pipe connection per DIN 11864-1 form A  
 Pipe standard: Pipes per DIN 11866 row A or DIN 11850 row 2

DN	For pipe	Dimensions in mm							Weight in kg	
	Outer Ø x wall thickness	d <sub>6</sub>	G <sub>1</sub>	h	F <sub>1</sub>	D	k	Aseptic O-ring	Liner	Threaded coupling
40	41 x 1.5	54.9	RD 65 x 1/6	25	DN 40	78	21	40 x 5	1.5	1.5
50	53 x 1.5	66.9	RD 78 x 1/6	25	DN 50	92	22	52 x 5	2.2	2.3
65	70 x 2	84.9	RD 95 x 1/6	25	DN 65	112	25	68 x 5	3.6	3.6

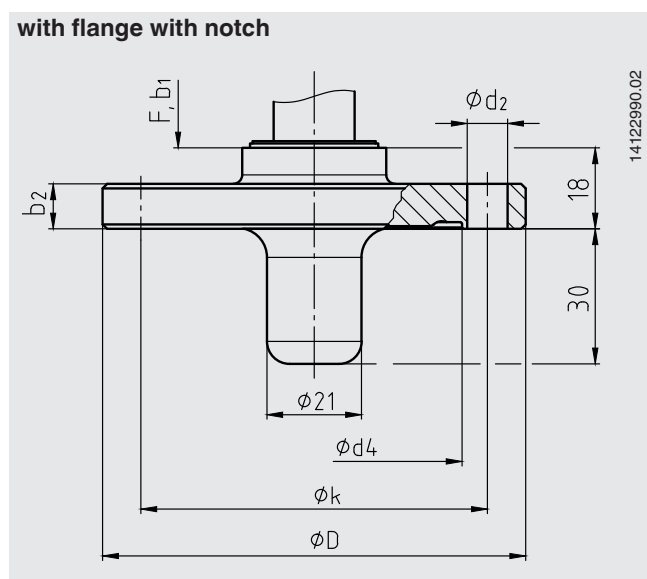
Type of process connection: Aseptic threaded pipe connection per DIN 11864-1 form A  
 Pipe standard: Pipes per DIN 11866 row B or DIN ISO 1127 row 1

DN	For pipe	Dimensions in mm							Weight in kg	
	Outer Ø x wall thickness	d <sub>6</sub>	G <sub>1</sub>	h	F <sub>1</sub>	D	k	Aseptic O-ring	Liner	Threaded coupling
42.4	42.4 x 2.0	54.9	RD 65 x 1/6	25	DN 40	78	21	40.5 x 5	1.5	1.5
48.3	48.3 x 2.0	66.9	RD 78 x 1/6	25	DN 50	92	22	46.5 x 5	2.2	2.3
60.3	60.3 x 2.0	84.9	RD 95 x 1/6	25	DN 65	112	25	58.5 x 5	3.6	3.6
76.1	76.1 x 2.0	98.9	RD 110 x 1/4	25	DN 80	127	29	73.5 x 5	5.0	4.9

Type of process connection: Aseptic threaded pipe connection per DIN 11864-1 form A  
 Pipe standard: Pipes per DIN 11866 row C or ASME BPE 1997

DN	For pipe	Dimensions in mm							Weight in kg	
	Outer Ø x wall thickness	d <sub>6</sub>	G <sub>1</sub>	h	F <sub>1</sub>	D	k	Aseptic O-ring	Liner	Threaded coupling
1 ½"	38.1 x 1.65	54.9	RD 58 x 1/6	25	DN 40	78	21	37 x 5	1.5	1.5
2"	50.8 x 1.65	66.9	RD 65 x 1/6	25	DN 50	92	22	50 x 5	2.2	2.3
2 ½"	63.5 x 1.65	84.9	RD 78 x 1/6	25	DN 65	112	25	62 x 5	3.6	3.6
3"	76.2 x 1.65	98.9	RD 95 x 1/6	25	DN 80	127	29	75 x 5	5.0	4.9

Type of process connection: Aseptic flange connection DIN 11864-2 form A



Type of process connection: Aseptic flange connection per DIN 11864-2 form A

Pipe standard: Pipes per DIN 11866 row A or DIN 11850 row 2

DN	For pipe	PN <sup>3)</sup>	Dimensions in mm					
	Outer Ø x wall thickness		d <sub>4</sub>	K	D	b <sub>2</sub>	d <sub>2</sub>	Aseptic O-ring
40	41 x 1.5	25	53.7	65	82	10	4 x Ø 9	40 x 5
50	53 x 1.5	16	65.7	77	94	10	4 x Ø 9	52 x 5
65	70 x 2.0	16	81.7	95	113	10	8 x Ø 9	68 x 5
80	85 x 2.0	16	97.7	112	133	12	8 x Ø 11	83 x 5

Type of process connection: Aseptic flange connection per DIN 11864-2 form A

Pipe standard: Pipes per DIN 11866 row B or DIN ISO 1127 row 1

DN	For pipe	PN <sup>3)</sup>	Dimensions in mm					
	Outer Ø x wall thickness		d <sub>4</sub>	K	D	b <sub>2</sub>	d <sub>2</sub>	Aseptic O-ring
42.4	42.4 x 2.0	16	54.1	65	82	10	4 x Ø 9	40.5 x 5
48.3	48.3 x 2.0	16	60	71	88	10	4 x Ø 9	46.5 x 5
60.3	60.3 x 2.0	16	72	85	103	10	8 x Ø 9	58.5 x 5
76.1	76.1 x 2.0	16	88.1	104	125	12	8 x Ø 11	73.5 x 5

Type of process connection: Aseptic flange connection per DIN 11864-2 form A

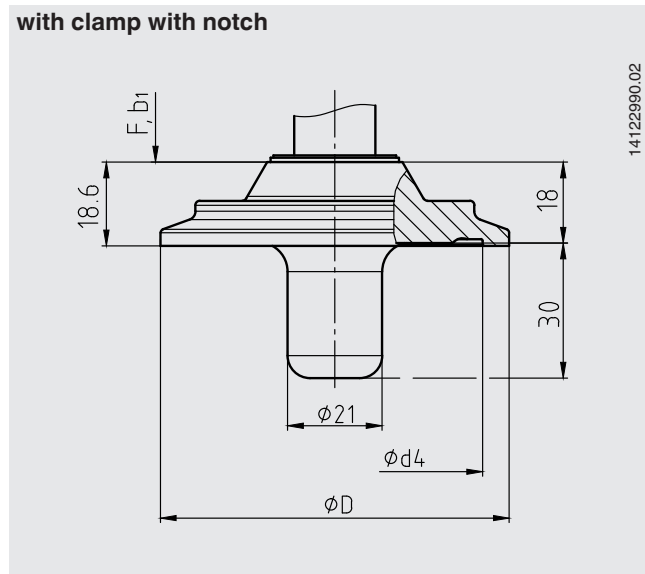
Pipe standard: Pipes per DIN 11866 row C or ASME BPE 1997

DN	For pipe	PN <sup>3)</sup>	Dimensions in mm					
	Outer Ø x wall thickness		d <sub>4</sub>	K	D	b <sub>2</sub>	d <sub>2</sub>	Aseptic O-ring
1 ½"	38.1 x 1.65	25	50.4	62	79	10	4 x Ø 9	37 x 5
2"	50.8 x 1.65	16	63.5	75	92	10	4 x Ø 9	50 x 5
2 ½"	63.5 x 1.65	16	75.9	89	107	10	4 x Ø 9	62 x 5
3"	76.2 x 1.65	16	89.6	104	125	12	8 x Ø 11	75 x 5

<sup>3)</sup> Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature from -10 to +140 °C.



Type of process connection: Aseptic clamp connection DIN 11864-3 form A



Type of process connection: Aseptic clamp connection per DIN 11864-3 form A  
Pipe standard: Pipes per DIN 11866 row A or DIN 11850 row 2

DN	For pipe	PN <sup>3)</sup>	Dimensions in mm		
	Outer $\phi$ x wall thickness		$d_4$	D	Aseptic O-ring
40	41 x 1.5	40	53.7	64	40 x 5
50	53 x 1.5	25	65.7	77.5	52 x 5
65	70 x 2.0	25	81.7	91	68 x 5
80	85 x 2.0	25	97.7	106	83 x 5

Type of process connection: Aseptic clamp connection per DIN 11864-3 form A  
Pipe standard: Pipes per DIN 11866 row B or DIN ISO 1127 row 1

DN	For pipe	PN <sup>3)</sup>	Dimensions in mm		
	Outer $\phi$ x wall thickness		$d_4$	D	Aseptic O-ring
42.4	42.4 x 2.0	25	54.1	64	40.5 x 5
48.3	48.3 x 2.0	25	60	64	46.5 x 5
60.3	60.3 x 2.0	25	72	91	58.5 x 5
76.1	76.1 x 2.0	16	88.2	106	73.5 x 5

Type of process connection: Aseptic clamp connection per DIN 11864-3 form A  
Pipe standard: Pipes per DIN 11866 row C or ASME BPE 1997

DN	For pipe	PN <sup>3)</sup>	Dimensions in mm		
	Outer $\phi$ x wall thickness		$d_4$	D	Aseptic O-ring
1 1/2"	38.1 x 1.65	40	50.5	64	37 x 5
2"	50.8 x 1.65	25	63.5	77.5	50 x 5
2 1/2"	63.5 x 1.65	25	75.9	91	62 x 5
3"	76.2 x 1.65	16	89.6	106	75 x 5

3) Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature from -10 to +140 °C.

## CE conformity

### ATEX directive (option)

94/9/EC, II 2 GD c TX

## Approvals (option)

- **EAC**, import certificate, ignition protection type "c" - constructive safety, customs union Russia/Belarus/Kazakhstan
- **GOST**, metrology/measurement technology, Russia
- **3-A**, food, USA
- **CRN**, safety (e.g. electr. safety, overpressure, ...), Canada

## Certificates (option)

- 2.2 test report
- 3.1 inspection certificate
- DKD/DAkkS calibration certificate

Approvals and certificates, see website

## Ordering information

Model / Scale range / Surface of wetted parts / Process connection / Options

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