Sterile Process Connection, Diaphragm In-line Seals for Food, Biochemical and Pharmaceutical Industry Aseptic connection per DIN 11 864, Model 981.51

Applications

- For direct, fast installation and removal in pipelines
- For flowing, pure media
- Food and beverage industry
- Biochemical and pharmaceutical industry, production of active ingredients
- Painting lines

Special Features

- Completely round diaphragm (Europ. Pat. No. 0609846) to avoid dead spaces
- Self-draining in all mounting positions
- Quick measuring point cleaning without residues
- Suitable for SIP and CIP
- 3A and EHEDG certified

Diaphragm In-line Seal, Aseptic Connection DIN 11 864-3 Model 981.51 with Pressure Gauge Model 232.50 NS 100

Description

Process connection
Aseptic threaded pipe connection per DIN 11 864-1
Aseptic flanged connection per DIN 11 864-2
Aseptic clamp connection per DIN 11 864-3
Nominal sizes (DN) see dimensions starting page 3

Pressure rating
See dimensions starting page 3

Pressure ranges
0 ... 0.6 bar to 0 ... 25 or 40 bar

Material of wetted parts
Stainless steel 1.4435 (AISI 316L)

Instrument connection
Pressure gauge or transmitter directly welded,
process pressure transmitter with threaded adaptor

System fill fluid
KN 7 Glycerine, food compatible, FDA approved, according to standard US Pharmacopoeia XXIV and European Pharmacopoeia (1998)

Optional extras

Process connection
- Other nominal sizes (DN) and further hygienic process connections on inquiry

Pressure rating
- Higher pressure ratings on inquiry

Material of wetted parts
- Stainless steel 1.4435 electropolished
- Special materials on inquiry

Surface roughness and design
- Hygienic standard H4 per DIN 11 864, surface roughness of wetted parts Ra < 0.4 µm

Sealing ring
- Material NBR, PTFE or EPDM

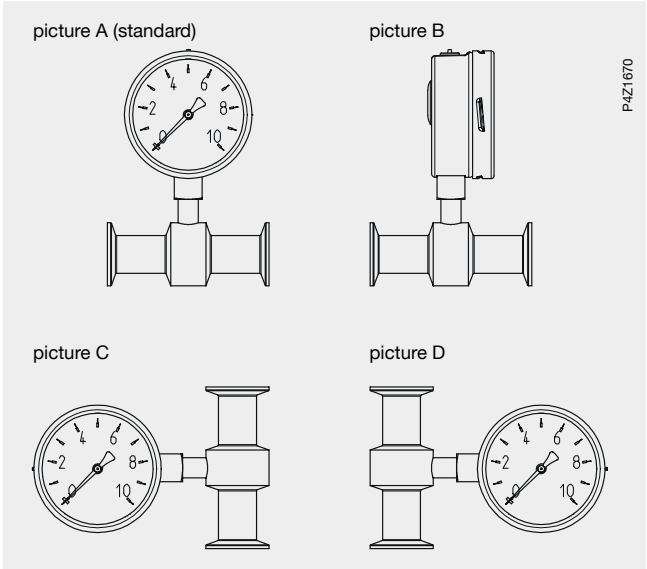
Pressure instrument assembly
- Pressure gauge direct mounting, horizontal pipe, please specify: pointer axis crosswise to flow direction (picture A) or in flow direction (picture B)
- Pressure gauge direct mounting, vertical pipe, please specify: instrument on the left side (picture C) or on the right side of pipe (picture D)
- Pressure gauge mounting via cooling tower, horizontal pipe, please specify: pointer axis crosswise to flow direction (picture A) or in flow direction (picture B)
- Pressure gauge mounting via cooling tower, vertical pipe, please specify: instrument on the left side (picture C) or on the right side of pipe (picture D)
- Assembly via cooling tower to pressure transmitter
- Assembly via capillary, when ordering please specify: length of capillary

System fill fluid
- KN 59 Neobee® M-20, FDA approved
- KN 12 Glycerine/water, FDA approved

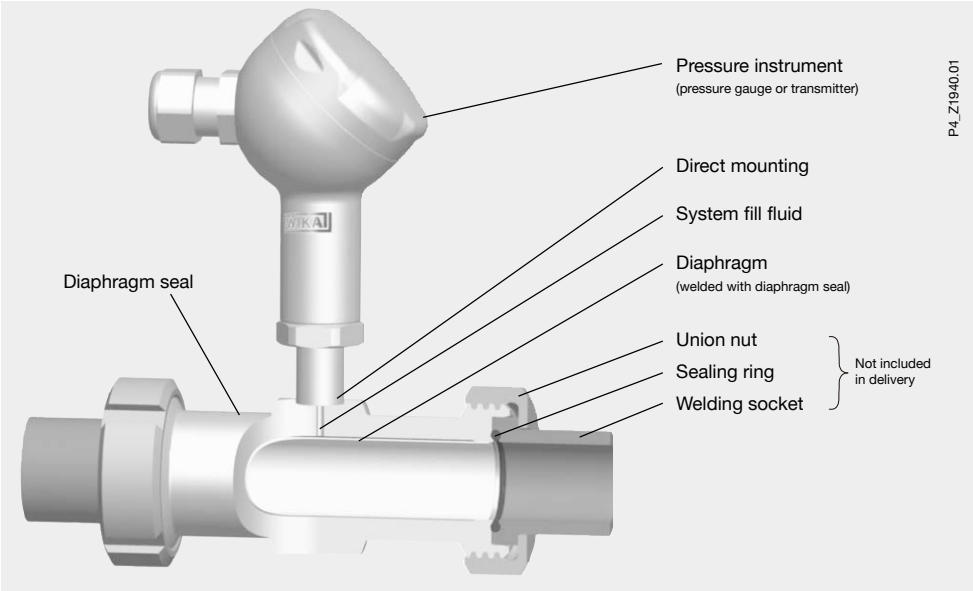
Documentation
- Material certificate 2.2 or 3.1, DIN 10 204
- Test and calibration certificates
- Pressure and stability tests
- Confirmation of FDA approval
- 3-A symbol and approval certificate

Further certificates and documents on inquiry

Special version
- Complete measuring system suitable for autoclaving, on inquiry



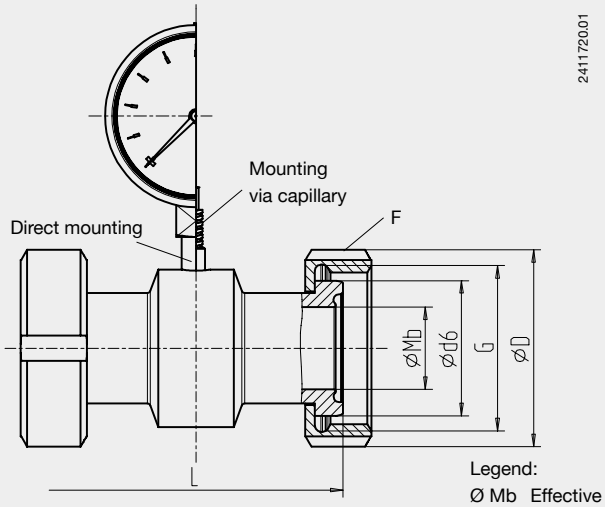
Mounting example of diaphragm in-line seal Model 981.51 with male thread for threaded pipe connection DIN 11 864-1 form A (O-ring) directly connected pressure transmitter Model F-20 with field case



Dimensions in mm

Model 981.51 for aseptic threaded pipe connection DIN 11 864-1 form A (O-ring)

with collar connecting sleeve and union nut



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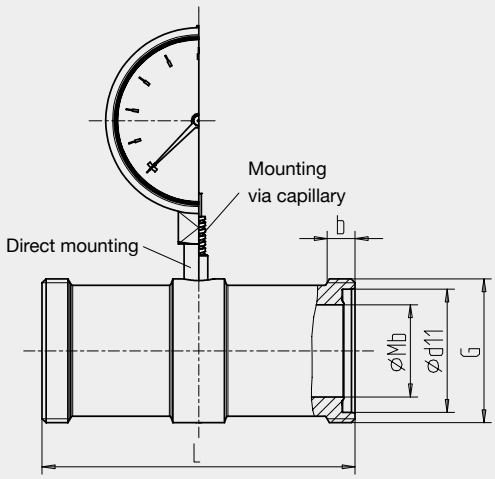
with male thread



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Legend:
Ø Mb Effective diameter of diaphragm
Ø G_1 Thread
F Union nut (form F) per DIN 11 851

Dimensions for corresponding pipes per DIN 11 866 - column A (pipe dimensions per DIN 11 850)

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm							Aseptic O-ring
			L	Mb	d_6	d_{11}	G	D	b	
20	23 x 1.5	40	114	20	35.9	36	Rd 44 x 1/6	54	14	22 x 3.5
25	29 x 1.5	40	128	26	42.9	43	Rd 52 x 1/6	63	14	28 x 3.5
32	35 x 1.5	40	128	32	48.9	49	Rd 58 x 1/6	70	14	34 x 5
40	41 x 1.5	40	160	38	54.9	55	Rd 65 x 1/6	78	14	40 x 5
50	53 x 1.5	25	170	50	66.9	67	Rd 78 x 1/6	92	14	52 x 5
65	70 x 2.0	25	182	66	84.9	85	Rd 95 x 1/6	112	16	68 x 5
80	85 x 2.0	25	182	81	98.9	99	Rd 110 x 1/4	127	20	83 x 5
100	104 x 2.0	25	182	100	118.9	119	Rd 130 x 1/4	148	20	102 x 5

Dimensions for corresponding pipes per DIN 11 866 - column B (pipe dimensions per DIN EN ISO 1127)

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm							Aseptic O-ring
			L	Mb	d_6	d_{11}	G	D	b	
26.9	26.9 x 1.6	40	128	23.7	42.9	43	Rd 52 x 1/6	63	14	26 x 3.5
33.7	33.7 x 2.0	40	128	29.7	48.9	49	Rd 58 x 1/6	70	14	32 x 5
42.4	42.4 x 2.0	25	160	38.4	54.9	55	Rd 65 x 1/6	78	14	40.5 x 5
48.3	48.3 x 2.0	25	170	44.3	66.9	67	Rd 78 x 1/6	92	14	46.5 x 5
60.3	60.3 x 2.0	25	182	56.3	84.9	85	Rd 95 x 1/6	112	16	58.5 x 5
76.1	76.1 x 2.0	25	182	72.1	98.9	99	Rd 110 x 1/4	127	20	73.5 x 5
88.9	88.9 x 2.3	25	182	84.3	118.9	119	Rd 130 x 1/4	148	20	86.5 x 5

Dimensions for corresponding pipes per DIN 11 866 - column C (pipe dimensions per ASME BPE 1997)

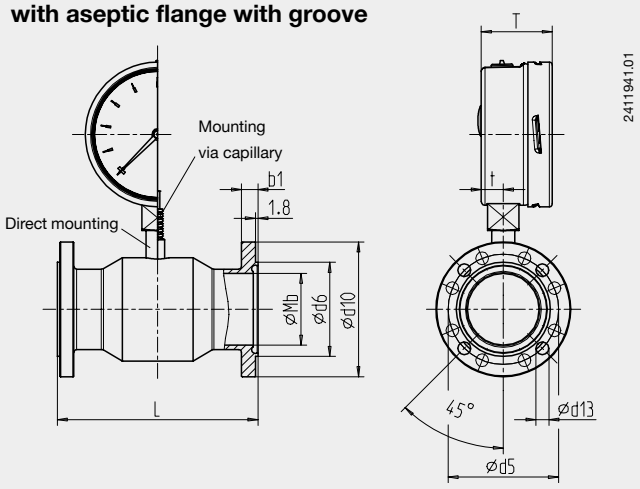
DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm							Aseptic O-ring
			L	Mb	d_6	d_{11}	G	D	b	
1"	25.4 x 1.65	40	128	22.1	42.9	43	Rd 52 x 1/6	63	14	24 x 3.5
1 ½"	38.1 x 1.65	40	160	34.8	54.9	55	Rd 65 x 1/6	78	14	37 x 5
2"	50.8 x 1.65	25	170	47.5	66.9	67	Rd 78 x 1/6	92	14	50 x 5
2 ½"	63.5 x 1.65	25	182	60.2	84.9	85	Rd 95 x 1/6	112	16	62 x 5
3"	76.2 x 1.65	25	182	72.9	98.9	99	Rd 110 x 1/4	127	20	75 x 5
4"	101.6 x 2.11	25	182	97.4	118.9	119	Rd 130 x 1/4	148	20	100 x 5

1) Permissible pressure in bar; pressure may only be applied together with use of the appropriate O-ring material up to temperatures of -10 ... +140°C.

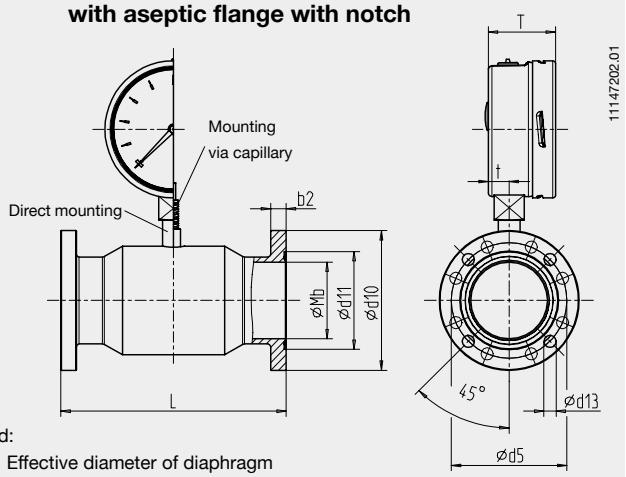
Dimensions in mm

Model 981.51 for aseptic flanged connection DIN 11 864-2 form A (O-ring)

with aseptic flange with groove



with aseptic flange with notch



Legend:
Ø Mb Effective diameter of diaphragm
b_1 Height aseptic flange with groove
b_2 Height aseptic flange with notch

Dimensions for corresponding pipes per DIN 11 866 - column A (pipe dimensions per DIN 11 850)

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm									Aseptic O-ring
			L	Mb	d_5	d_6	d_{13}	d_{11}	d_{10}	b_1	b_2	
25	29 x 1.5	25	114	26	53	38.3	4 x Ø 9	38.4	70	11.5	10	28 x 3.5
32	35 x 1.5	25	146	32	59	47.6	4 x Ø 9	47.7	76	11.5	10	34 x 5
40	41 x 1.5	25	146	38	65	53.6	4 x Ø 9	53.7	82	11.5	10	40 x 5
50	53 x 1.5	16	156	50	77	65.6	4 x Ø 9	65.7	94	11.5	10	52 x 5
65	70 x 2.0	16	156	66	95	81.6	8 x Ø 9	81.7	113	11.5	10	68 x 5
80	85 x 2.0	16	156	81	112	97.6	8 x Ø 11	97.7	133	13.5	12	83 x 5
100	104 x 2.0	16	156	100	137	116.6	8 x Ø 11	116.7	159	15.5	14	102 x 5

Dimensions for corresponding pipes per DIN 11 866 - column B (pipe dimensions per DIN EN ISO 1127)

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm									Aseptic O-ring
			L	Mb	d_5	d_6	d_{13}	d_{11}	d_{10}	b_1	b_2	
21.3	21.3 x 1.6	25	114	18.1	45	30.3	4 x Ø 9	30.4	62	11.5	10	22 x 3.5
26.9	26.9 x 1.6	25	114	23.7	52	36	4 x Ø 9	36.1	69	11.5	10	26 x 3.5
33.7	33,7 x 2.0	25	114	29.7	57	45.3	4 x Ø 9	45.4	74	11.5	10	32 x 5
42.4	42.4 x 2.0	16	146	38.4	65	54	4 x Ø 9	54.1	82	11.5	10	40.5 x 5
48.3	48.3 x 2.0	16	146	44.3	71	59.9	4 x Ø 9	60	88	11.5	10	46.5 x 5
60.3	60.3 x 2.0	16	156	56.3	85	71.9	4 x Ø 9	72	103	11.5	10	58.5 x 5
76.1	76.1 x 2.0	16	156	72.1	104	88.1	8 x Ø 11	88.2	125	13.5	12	73.5 x 5
88.9	88.9 x 2.3	16	156	84.3	116	100.9	8 x Ø 11	101	137	13.5	12	86.5 x 5

Dimensions for corresponding pipes per DIN 11 866 - column C (pipe dimensions per ASME BPE 1997)

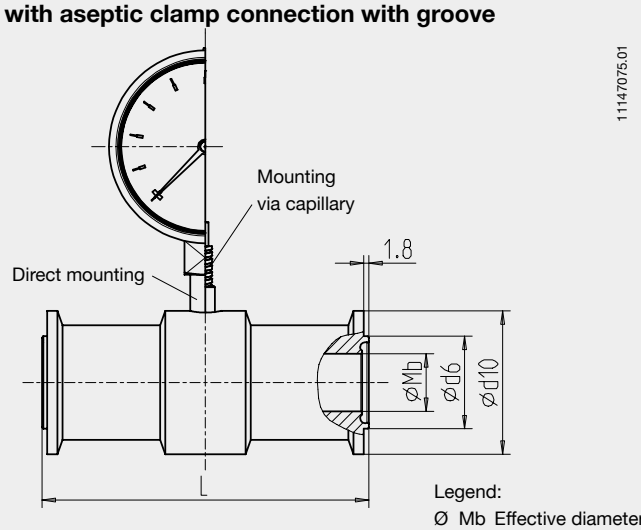
DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm									Aseptic O-ring
			L	Mb	d_5	d_6	d_{13}	d_{11}	d_{10}	b_1	b_2	
1"	25.4 x 1.65	25	114	22.1	49	34.3	4 x Ø 9	34.4	66	11.5	10	24 x 3.5
1 ½"	38.1 x 1.65	25	146	34.8	62	50.4	4 x Ø 9	50.5	79	11.5	10	37 x 5
2"	50.8 x 1.65	16	156	47.5	75	63.4	4 x Ø 9	63.5	92	11.5	10	50 x 5
2 ½"	63.5 x 1.65	16	156	60.2	89	75.8	8 x Ø 9	75.9	107	11.5	10	62 x 5
3"	76.2 x 1.65	16	156	72.9	104	89.5	8 x Ø 11	89.6	125	13.5	12	75 x 5
4"	101.6 x 2.11	16	156	97.4	135	114.2	8 x Ø 11	114.3	157	13.5	14	100 x 5

1) Permissible pressure in bar; pressure may only be applied together with use of the appropriate O-ring material up to temperatures of -10 ... +140°C.

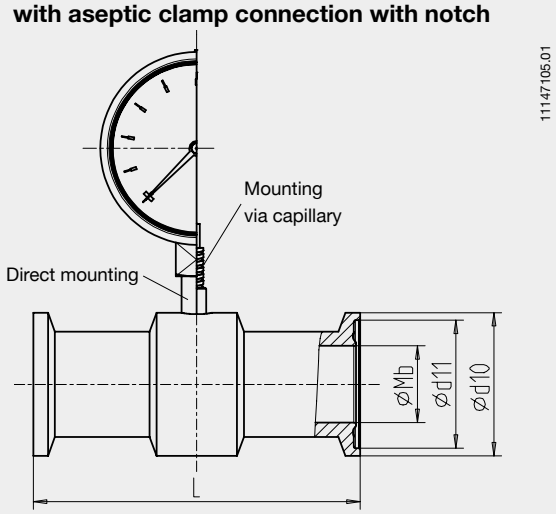
Dimensions in mm

Model 981.51 Aseptic clamp connection DIN 11 864-3 form A (O-ring)

with aseptic clamp connection with groove



with aseptic clamp connection with notch



Legend:
Ø Mb Effective diameter of diaphragm

Dimensions for corresponding pipes per DIN 11 866 - column A (pipe dimensions per DIN 11 850)

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm					
			L	Mb	d_6	d_{11}	d_{10}	Aseptic O-ring
20	23 x 1.5	40	114	20	32.3	32.4	50.5	22 x 3.5
25	29 x 1.5	40	114	26	38.3	38.4	50.5	28 x 3.5
32	35 x 1.5	40	146	32	47.6	47.7	50.5	34 x 5
40	41 x 1.5	40	146	38	53.6	53.7	64	40 x 5
50	53 x 1.5	25	156	50	65.6	65.7	77.5	52 x 5
65	70 x 2.0	25	156	66	81.6	81.7	91	68 x 5
80	85 x 2.0	16	156	81	97.6	97.7	106	83 x 5
100	104 x 2.0	16	156	100	116.6	116.7	130	102 x 5

Dimensions for corresponding pipes per DIN 11 866 - column B (pipe dimensions per DIN EN ISO 1127)

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm					
			L	Mb	d_6	d_{11}	d_{10}	Aseptic O-ring
26.9	26.9 x 1.6	40	114	23.7	36	36.1	50.5	26 x 3.5
33.7	33.7 x 2.0	40	114	29.7	45.3	45.4	50.5	32 x 5
42.4	42.4 x 2.0	25	146	38.4	54	54.1	64	40.5 x 5
48.3	48.3 x 2.0	25	146	44.3	59.9	60	64	46.5 x 5
60.3	60.3 x 2.0	25	156	56.3	71.9	72	91	58.5 x 5
76.1	76.1 x 2.0	16	156	72.1	88.1	88.2	106	73.5 x 5
88.9	88.9 x 2.3	16	156	84.3	100.9	101	119	86.5 x 5

Dimensions for corresponding pipes per DIN 11 866 - column C (pipe dimensions per ASME BPE 1997)

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm					
			L	Mb	d_6	d_{11}	d_{10}	Aseptic O-ring
1"	25.4 x 1.65	40	114	22.1	34.3	34.4	50.5	24 x 3.5
1 ½"	38.1 x 1.65	40	146	34.8	50.4	50.5	64	37 x 5
2"	50.8 x 1.65	25	156	47.5	63.4	63.5	77.5	50 x 5
2 ½"	63.5 x 1.65	25	156	60.2	75.8	75.9	91	62 x 5
3"	76.2 x 1.65	16	156	72.9	89.5	89.6	106	75 x 5
4"	101.6 x 2.11	16	156	97.4	114.2	114.3	130	100 x 5

1) Permissible pressure in bar; pressure may only be applied together with use of the appropriate O-ring material up to temperatures of -10 ... +140°C.

Possible combinations

Bourdon tube pressure gauges

Possibilities for combination with pressure gauge

- Stainless steel version
  Model 232.50/233.50,
  without/with liquid filling
  (see data sheet PM 02.02)

- Stainless steel, safety pattern version
  Model 232.30/233.30,
  without/with liquid filling
  (see data sheet PM 02.04)

if the following application conditions are taken into account:

- Pressure gauge directly combined with diaphragm seal
- Temperature range
  process: +10 ... +150 °C
  ambient: +10 ... +40 °C

Choice	Process connection with DN			
	20 ... 28 (1")	32 (1 ½") ... 51 (2")	63.5 ... 70 (2 ½")	76.1 (3") ...
Pressure gauge Model	23x.50.63 23x.50.100	23x.50.63 23x.50.100	23x.50.100 23x.30.100	23x.50.100 23x.30.100
Lowest measuring range	0 ... 4 bar -1 ... 3 bar	0 ... 2 bar -1 ... 3 bar	0 ... 1 bar -1 ... 1.5 bar	0 ... 0.6 bar -1 ... 1.5 bar
Overpressure safety (optional)	-	2 x full scale value	2 x full scale value	2 x full scale value
Inductive alarm sensors (optional), suitable in zone 1 and zone 2 (Model 831)	-	possible	possible	possible

Pressure transmitters

For the combination with

- Pressure transmitter
  Model S-10 or
  Model F-20,
  (see data sheet
  PE 81.01 or PE 81.19)

- Process pressure
  transmitter UniTrans,
  Model UT-10 / IUT-10,
  (see data sheet
  PE 86.01 / PE 86.02)

- or with process
  pressure transmitter,
  Model IPT-10,
  (see data sheet
  PE 86.11)

The following lowest pressure ranges apply taking the above mentioned application conditions into account:

Choice	Process connection with DN			
	20 ... 28 (1")	32 (1 ½") ... 51 (2")	63,5 ... 70 (2 ½")	76,1 (3") ...
Lowest measuring range	0 ... 2.5 bar	0 ... 1 bar	0 ... 600 mbar	0 ...400 mbar

Further versions of instruments and lower pressure ranges can be supplied after technical verification and clarification by WIKA.

Ordering information

Model / Pressure rating (PN) / Standard of pipe / Dimension of pipe / Inner diameter / Diameter of flange, clamp or male thread / Insertion length / Material / Sealing ring / Assembly, if necessary length of capillary / System fill fluid / Pressure instrument model / Process conditions as per questionnaire / Optional extras and/or special version required

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