

Sterile Process Connection, Diaphragm In-line Seals for Food, Biochemical and Pharmaceutical Industry

Aseptic connection per DIN 11 864, Model 981.51

WIKA Data Sheet DS 98.51



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 $Ra < 0.4 \mu m$

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

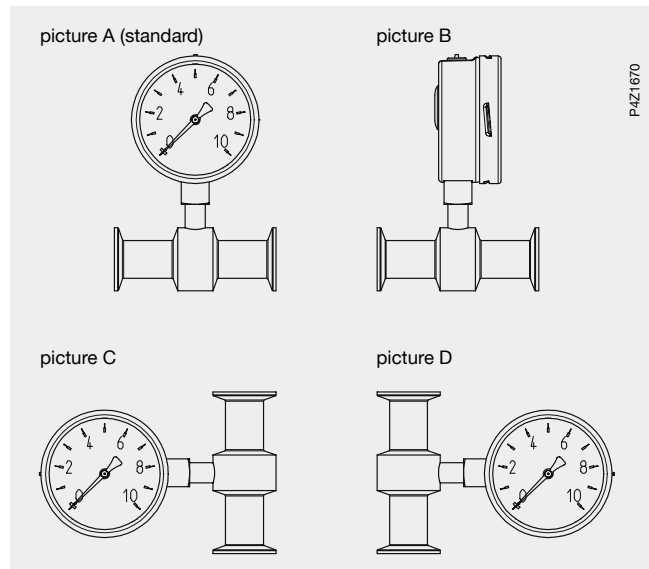
Documentation

- 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

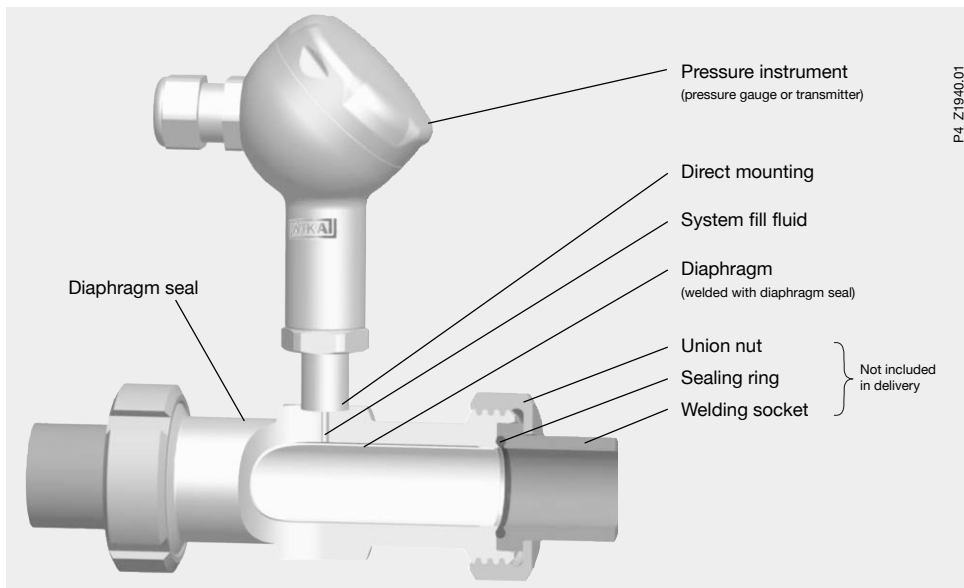
Further certificates and documents on inquiry

Special version

- Complete measuring system suitable for autoclaving, on inquiry

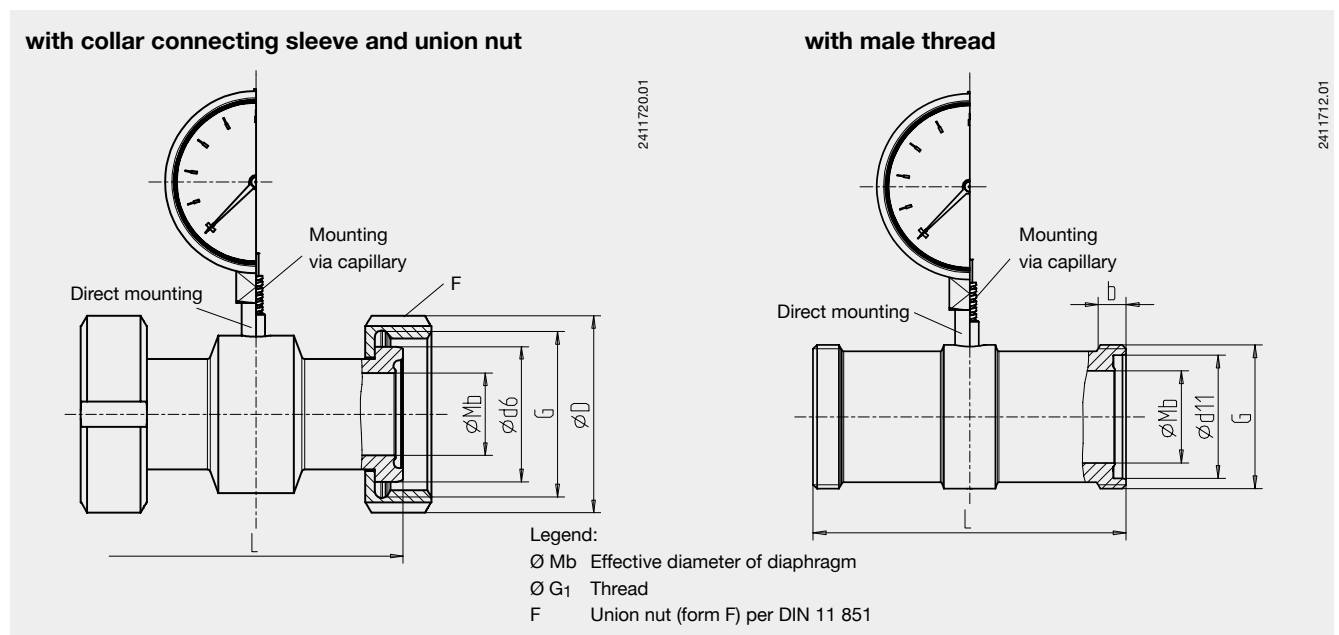


Mounting example of diaphragm in-line seal Model 981.51 with male thread for threaded pipe connection DIN 11 864-1 form A (O-ring) directly connected pressure transmitter Model F-20 with field case



Dimensions in mm

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



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

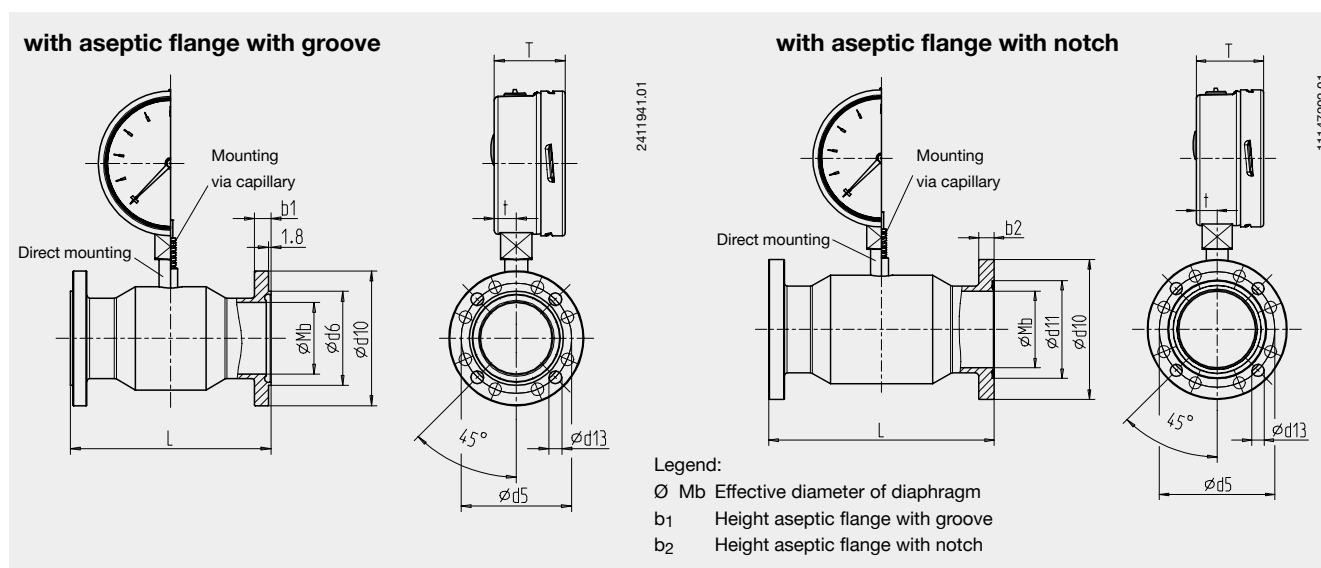
Dimensions for corresponding pipes per DIN 11 866 - column C (pipe dimensions per ASME BPE 1997)

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 1/2"	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 1/2"	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)



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

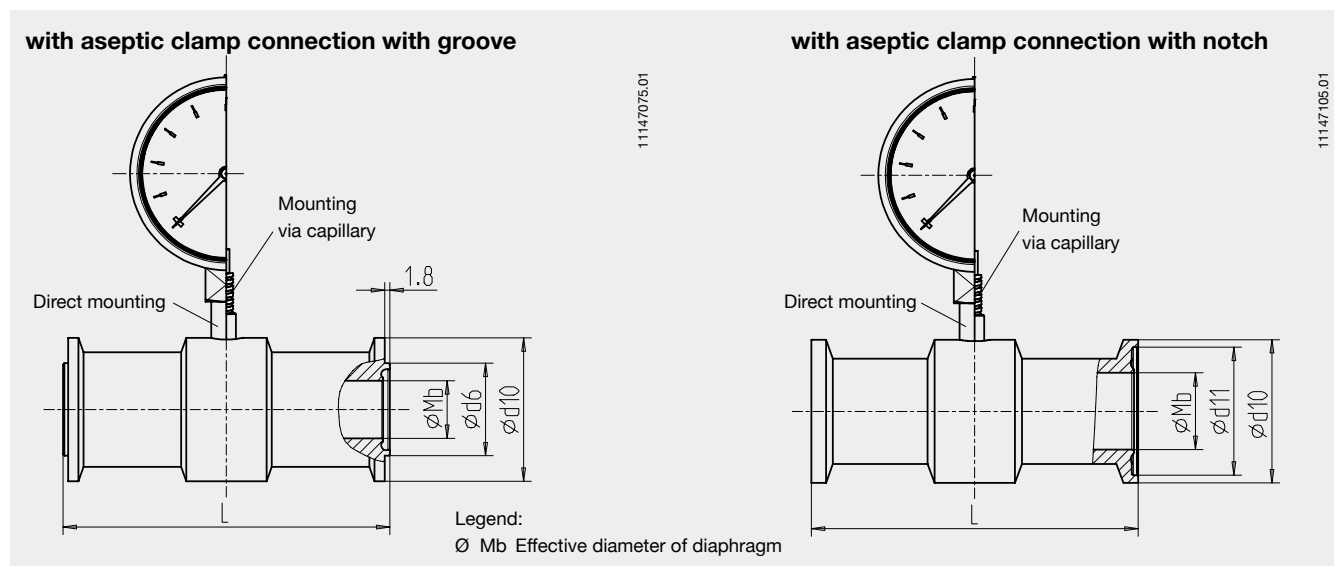
Dimensions for corresponding pipes per DIN 11 866 - column C (pipe dimensions per ASME BPE 1997)

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)



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

DN	For pipe Outside \varnothing x thickness	PN 1)	Dimensions in mm					Aseptic O-ring
			L	Mb	d_6	d_{11}	d_{10}	
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 \varnothing x thickness	PN 1)	Dimensions in mm					Aseptic O-ring
			L	Mb	d_6	d_{11}	d_{10}	
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 \varnothing x thickness	PN 1)	Dimensions in mm					Aseptic O-ring
			L	Mb	d_6	d_{11}	d_{10}	
1"	25.4 x 1.65	40	114	22.1	34.3	34.4	50.5	24 x 3.5
1 1/2"	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 1/2"	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	Model	Process connection with DN			
		20 ... 28 (1")	32 (1 1/2") ... 51 (2")	63.5 ... 70 (2 1/2")	76.1 (3") ...
Pressure gauge		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 1/2") ... 51 (2")	63,5 ... 70 (2 1/2")	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

Modifications may take place and materials specified may be replaced by others without prior notice.
Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing.

