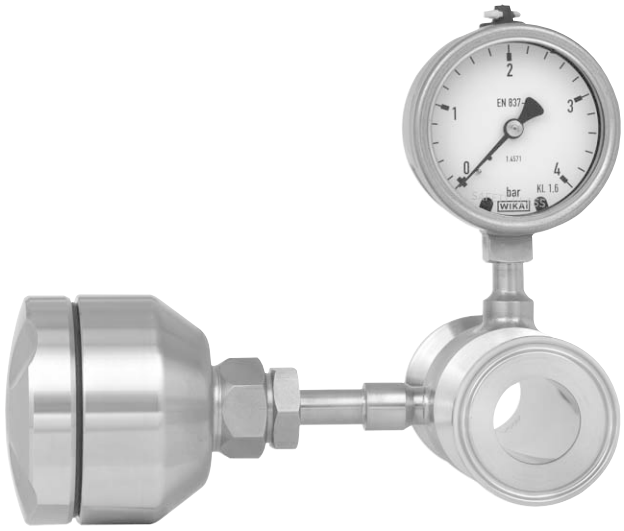
Sterile Process Connection, Diaphragm In-line Seal Model 983, with Integrated Temperature Measurement

WIKA Data Sheet DS 98.46

Applications

- Pressure and temperature measurement in pipelines
- For flowing, pure media
- Food and beverage industry
- Biochemical and pharmaceutical industry, production of active ingredients



Model 983.52 with Pressure Gauge Model 232.50 NS 63 and Temperature Transmitter in the Field Case Connection Head Model BVA

Special Features

- Pressure and temperature measurement in one measuring location
- 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

Description

Process connection
Model 983.18: male thread DIN 11 851
Model 983.22: Tri-clamp
Model 983.50: male thread NEUMO BioConnect
Model 983.51: male thread DIN 11 864-1 form A
Model 983.52: Clamp per DIN 32 676
Model 983.53: Clamp per ISO 2852
Nominal sizes (DN) see dimensions overleaf

Pressure rating
PN 40 up to DN 50 resp. DN 2"
PN 25 from DN 65 resp. DN 2½"

Suitable pressure ranges
0 ... 0.6 bar to 0 ... 25 resp. 40 bar

Material of wetted parts
Stainless steel 1.4435 (316L)

Instrument connection
Gauges directly welded, transmitter with adaptor screwed

Temperature measurement
with Pt100, 4 wire
Temperature ranges 0 ... +50 °C to 0 ... +150 °C

Model 983.22 with Pressure Transmitter Model S-10 and Temperature Transmitter in the Field Case Connection Head Model BSZ

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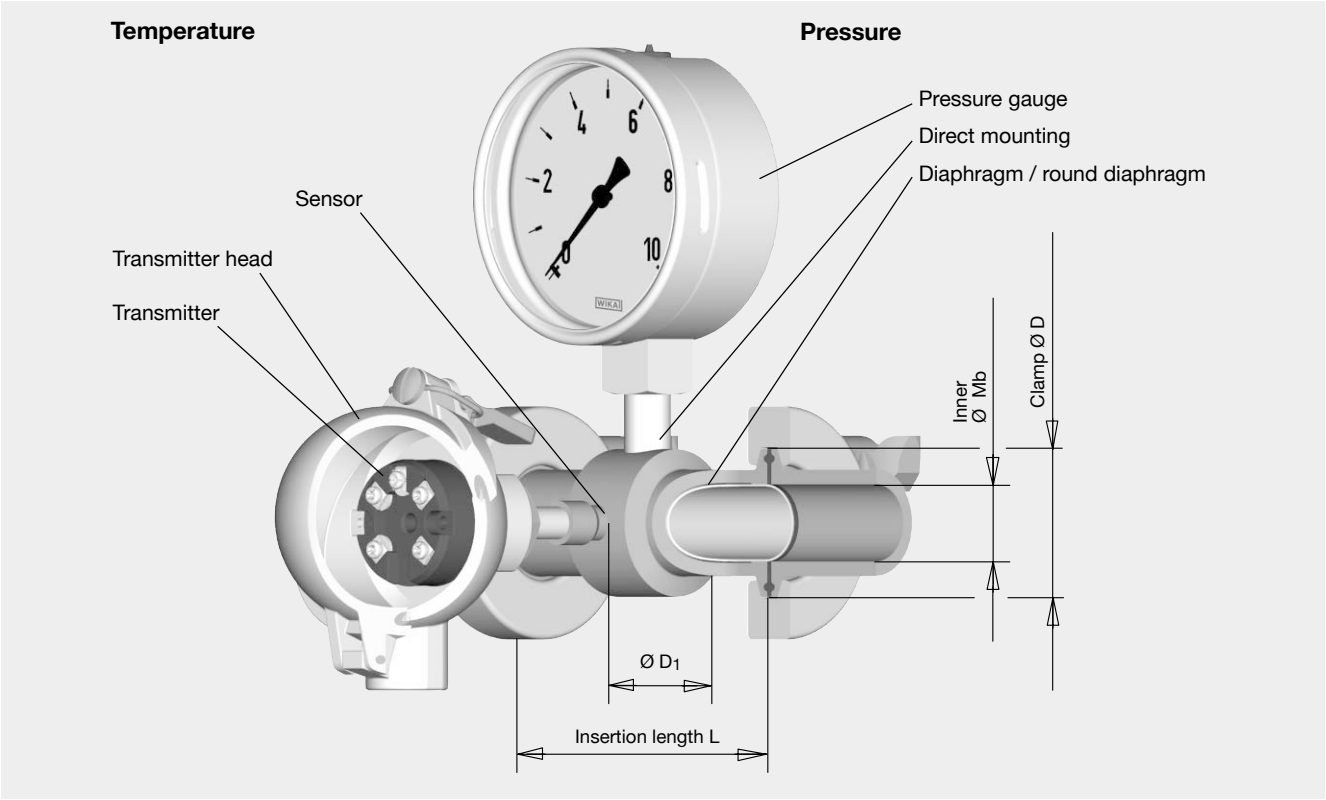
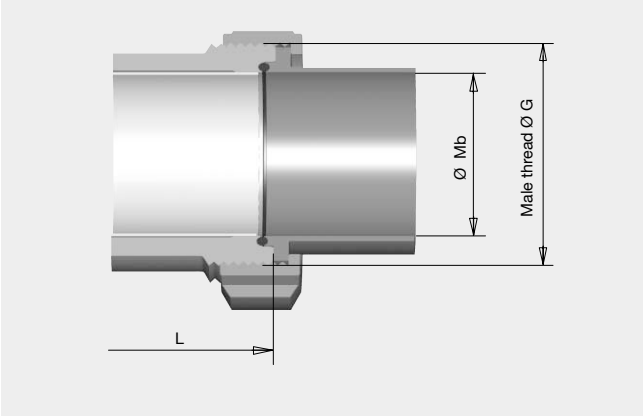
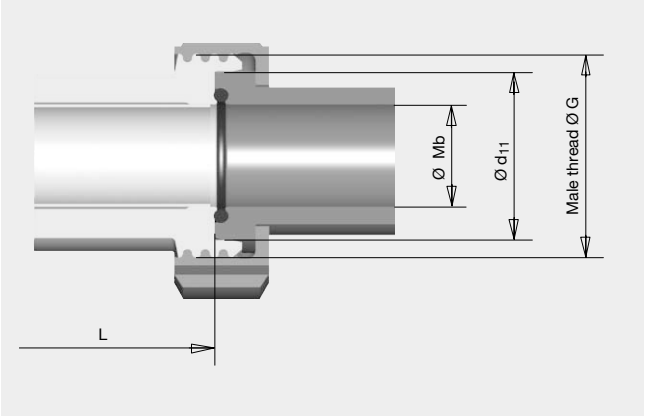
Example for mounting in a pipework of a diaphragm seal model 983.22 directly connected with temperature and pressure gauge



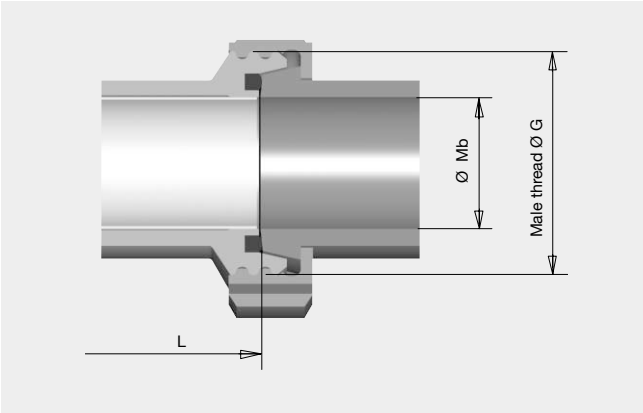
Connection dimensions Model 983.50 NEUMO BioConnect



Connection dimensions Model 983.51 DIN 11 864-1 form A



Connection dimensions Model 983.18 DIN 11 851



Dimensions in mm, version connection with clamp

Model 983.22

Tri-clamp for pipes per ISO 1127

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm			
			L	D	D_1	Mb
8	13.5 x 1.6	40	114	25	34	10.3
10	17.2 x 1.6	40	114	25	34	14.0
15	21.3 x 1.6	40	114	32	34	18.1
20	26.9 x 1.6	40	114	50.5	50	23.7
25	33.7 x 2	40	114	50.5	50	29.7
32	42.4 x 2	40	146	50.5	55	38.4
40	48.3 x 2	40	146	64	68	44.3
50	60.3 x 2	40	156	77.5	77.5	56.3
65	76.1 x 2	25	156	91	91	72.1

Tri-Clamp for pipes per BS4825 Part 3 and O.D.-Tube

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm			
			L	D	D_1	Mb
½"	12.7 x 1.6	40	114	25	34	9.55
¾"	19.05 x 1.6	40	114	25	34	15.7
1"	25.4 x 1.6	40	114	50.5	50	22.2
1 ½"	38.1 x 1.6	40	146	50.5	55	34.9
2"	50.8 x 1.6	40	156	64	64	47.6
2 ½"	63.5 x 1.6	25	156	77.5	77.5	60.3
3"	76.2 x 1.6	25	156	91	91	73.0

Tri-clamp for pipes per ASME BPE

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm			
			L	D	D_1	Mb
1"	25.4 x 1.65	40	114	50.5	50	22.2
1 ½"	38.1 x 1.65	40	146	50.5	55	34.8
2"	50.8 x 1.65	40	156	64	64	47.5
2 ½"	63.5 x 1.65	25	156	77.5	77.5	60.2
3"	76.2 x 1.65	25	156	91	91	72.9

1) For max. pressure range consider pressure range of clamp-ring.

Model 983.52

Clamp DIN 32 676 for pipes per DIN 11850

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm			
			L	D	D_1	Mb
25	28 x 1	40	114	50.5	50	26
32	34 x 1	40	146	50.5	50	32
40	40 x 1	40	146	50.5	55	38
50	52 x 1	40	156	64	68	50
65	70 x 2	25	156	91	91	66
80	85 x 2	25	156	106	106	81
100	104 x 2	25	156	119	119	100

Model 983.53

Clamp ISO 2852 for pipes per ISO 2037 and BS 4825 Part1

DN	For pipe Outside Ø x thickness	PN 1)	Dimensions in mm			
			L	D	D_1	Mb
25	25 x 1.2	40	114	50.5	50	22.6
28	28 x 1.2	40	114	50.5	50	25.6
33.7	33.7 x 1.2	25	146	50.5	50	31.3
38	38 x 1.2	25	146	50.5	55	35.6
40	40 x 1.2	25	146	64	64	37.6
51	51 x 1.2	25	156	64	64	48.6
63.5	63.5 x 1.6	25	156	77.5	77.5	60.3
70	70 x 1.6	25	156	91	91	66.8
76.1	76.1 x 1.6	25	156	91	91	72.9
88.9	88.9 x 2	25	156	106	106	84.9
101.6	101.6 x 2	25	156	119	119	97.6

1) For max. pressure range consider pressure range of clamp-ring.

Dimensions in mm, version connection with thread

Model 983.50

Thread NEUMO BioConnect for pipes per DIN 11 850

DN	For pipe Outside Ø x thickness	PN	Dimensions in mm G	L	D_1	Mb
15	19 x 1.5	40	M30 x 1.5	138	34	16
20	23 x 1.5	40	M36 x 2	138	38	20
25	29 x 1.5	40	M42 x 2	138	44	26
32	35 x 1.5	40	M52 x 2	138	52	32
40	41 x 1.5	40	M56 x 2	166	56	38
50	53 x 1.5	40	M86 x 2	166	68	50
65	70 x 2	25	M90 x 3	166	90	66
80	85 x 2	25	M100 x 3	166	100	81
100	104 x 2	25	M130 x 4	166	130	100

Thread NEUMO BioConnect for pipes per ISO 1127

DN	For pipe Outside Ø x thickness	PN	Dimensions in mm G	L	D_1	Mb
15	21.3 x 1.6	40	M30 x 1.5	138	38	18.1
20	26.9 x 1,6	40	M36 x 2	138	42	23.7
25	33.7 x 2	40	M42 x 2	138	44	29.7
32	42.4 x 2	40	M52 x 2	138	58	38.4
40	48.3 x 2	40	M56 x 2	166	62	44.3
50	60.3 x 2	40	M86 x 2	166	74	56.3
65	76.1 x 2.3	25	M90 x 3	166	90	71.5
80	88.9 x 2.3	25	M100 x 3	166	100	84.3
100	114.3 x 2.6	25	M130 x 4	166	130	109.1

Model 983.18

Thread DIN 11 851 for pipes DIN 11 850 column 2

DN	For pipe Outside Ø x thickness	PN	Dimensions in mm G	L	D_1	Mb
15	19 x 1.5	40	Rd 34 x ⅛	96	34	16
25	29 x 1.5	40	Rd 52 x ⅙	114	52	26
40	41 x 1.5	40	Rd 65 x ⅙	146	65	38
50	53 x 1.5	25	Rd 78 x ⅙	156	78	50
65	70 x 2	25	Rd 95 x ⅙	166	95	66
80	85 x 2	25	Rd 110 x ¼	166	110	81
100	104 x 2	25	Rd 130 x ¼	166	130	100

The masuring instruments with model 983.18 can also be used for tubes acc. to DIN 11 850 column 3.

Model 983.51

Thread DIN 11 864-1 for pipes DIN 11 850 column 2

DN	For pipe Outside Ø x thickness	PN	Dimensions in mm G	L	d_{11}	D_1	Mb
15	19 x 1.5	40	Rd 34 x ⅛	96	28	34	16
25	29 x 1.5	40	Rd 52 x ⅙	114	43	52	26
32	35 x 1.5	40	Rd 58 x ⅙	114	49	58	32
40	41 x 1.5	40	Rd 65 x ⅙	146	55	65	38
50	53 x 1.5	25	Rd 78 x ⅙	156	67	78	50
65	70 x 2	25	Rd 95 x ⅙	166	85	95	66
80	85 x 2	25	Rd 110 x ¼	166	99	110	81
100	104 x 2	25	Rd 130 x ¼	166	119	130	100

The measuring instruments with model 983.18 can also be used for tubes acc. to DIN 11 850 column 3.

Temperature measurement

Sensor

The temperature is measured with a Pt100 sensor, which is directly mounted onto the pipe probe. The sensor limiting error is 1/3 DIN B at 0 °C. Temperature measurement of the inner surface of the pipe at an ambient temperature of 20 °C results in a measuring deviation of < 1 K for process temperatures of 0 ... +100 °C and of < 2 K for process temperatures of +100 ... +150 °C. In the case of an approach flow with water 10 ... 50 °C the response time is < 5 s for $t_{(0 \ldots 90\%)}$ and < 0.5 s for $t_{(30 \ldots 60\%)}$.

Transmitter

The transmitter provides a standard output signal of the temperature sensor.
The following transmitters are recommended for installation into Model 983 in case head version.

Application	Universal for industrial and process industry for simple measuring tasks	Ideal solution for applications in the process industry	Bus technology, industrial automation and process industry
Features	■ universal, configurable via PC ■ analogue signal processing ■ EMC per NAMUR NE 21 ■ Output 4 ... 20 mA	■ universal for all temperature sensors ■ high accuracy ■ EMC per NAMUR NE 21 ■ galvanic isolation ■ Output 4 ... 20 mA, HART Protocol	■ universal for all temperature sensors ■ high accuracy ■ EMC per NAMUR NE 21 ■ galvanic isolation ■ Output PROFIBUS PA
Model **Data sheet** www.wika.de (download)	T24.10 TE 24.01	T32.10 TE 32.01	T42.10 TE 42.01
Configuration	measuring range and sensor remote configurable via the 4 ... 20 mA loop with easy to use Windows programme	measuring range and sensor configurable with easy to use Windows programme and all current asset management systems, as well as HART Communicator	measuring range and sensor configurable with all current asset management systems
Typ. measuring deviation	< 0.2 %	< 0.12 %	< 0.08 %
Approvals (optional)	Ex, CSA, FM APPROVED, UL	Ex, CSA, FM APPROVED	Ex

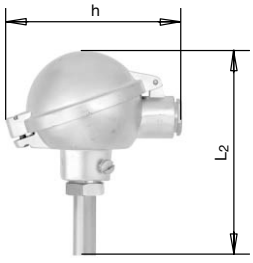
Available temperature measuring ranges

0 ... +50 °C, 0 ... +60 °C, 0 ... +100 °C, 0 ... +120 °C and 0 ... +150 °C

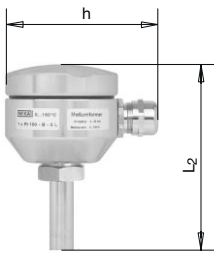
Connection head

The following connection heads are available:

■ Model: BSZ
Material: aluminium, silver bronze, painted
Cable entry: M20 x 1.5
Ingress protection: IP 65
Cap: flap cap with screw
Dimensions: h = approx. 115 mm
L_2 = approx. 137 mm



■ Model: BVA
Material: stainless steel, blank
Cable entry: M20 x 1.5
Ingress protection: IP 65
Cap: screw cover
Dimensions: h = approx. 95 mm
L_2 = approx. 128 mm



Pressure measurement

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
- Fill fluid KN 62 Liquid Paraffin (medical white oil), pharma-compatible, FDA approved, according to standard US Pharmacopoeia XXIII and European Pharmacopoeia (1993)

Choice	Process connection with DN				
	... 15 (¾")	20 ... 28 (1")	32 (1 ½") ... 51 (2")	63,5 ... 70 (2 ½")	76,1 (3") ...
Pressure gauge Model	23x.50.63	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 ... 6 bar -1 ... 5 bar	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

- Standard,
  for general applications
  Model S-10,
  (see data sheet PE 81.01)

- or with universal transmitter UniTrans,
  with scaleable measuring ranges
  Model UT-10,
  (see data sheet PE 81.01)

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

Choice	Process connection with DN				
	... 15 (¾")	20 ... 28 (1")	32 (1 ½") ... 51 (2")	63,5 ... 70 (2 ½")	76,1 (3") ...
Lowest measuring range	0 ... 6 bar	0 ... 2.5 bar	0 ... 1 bar	0 ... 600 mbar	0 ...400 mbar

Further gauge variants 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 / Clamp diameter resp. male thread diameter / Insertion length / Material / Sealing ring / Assembly / Fill fluid / Pressure gauge model ... as per data sheet / Temperature transmitter model / Temperature measuring range / Connection head model ... / Process conditions as per questionnaire / Optional extras resp. 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.