

# Diaphragm seal with sterile connection For homogeniser machines Model 990.30

WIKA data sheet DS 99.33



for further approvals  
see page 6

## Applications

- Homogeniser machines for milk, beverages, cosmetics and pharmaceutical preparations
- Machines for the production of emulsions

## Special features

- Process connection with flush, all welded diaphragm, with or without retainer flange
- For highest dynamic pressures  $\leq 2,500$  bar
- System fill fluids FDA and USP conform
- Robust, all welded design



**Diaphragm seal model 990.30 with directly mounted Bourdon tube pressure gauge with electrical output signal model PGT23.100**

## Description

Diaphragm seals are used for the protection of pressure measuring instruments in applications with difficult media. In diaphragm seal systems, the diaphragm of the diaphragm seal effects the separation of the instrument and the medium. The pressure is transmitted to the measuring instrument via the system fill fluid which is inside the diaphragm seal system.

For the implementation of demanding customer applications, there are a wide variety of designs, materials and system fill fluids available.

For further technical information on diaphragm seals and diaphragm seal systems see IN 00.06 "Application, operating principle, designs".

The model 990.30 diaphragm seal is a special development for homogeniser machines in sanitary applications. This diaphragm seal is available with process connections in various designs and is thus suitable for all common measuring points. The diaphragm seal systems ensure reliable measurements, even with high loading through vibrations and pressure spikes.

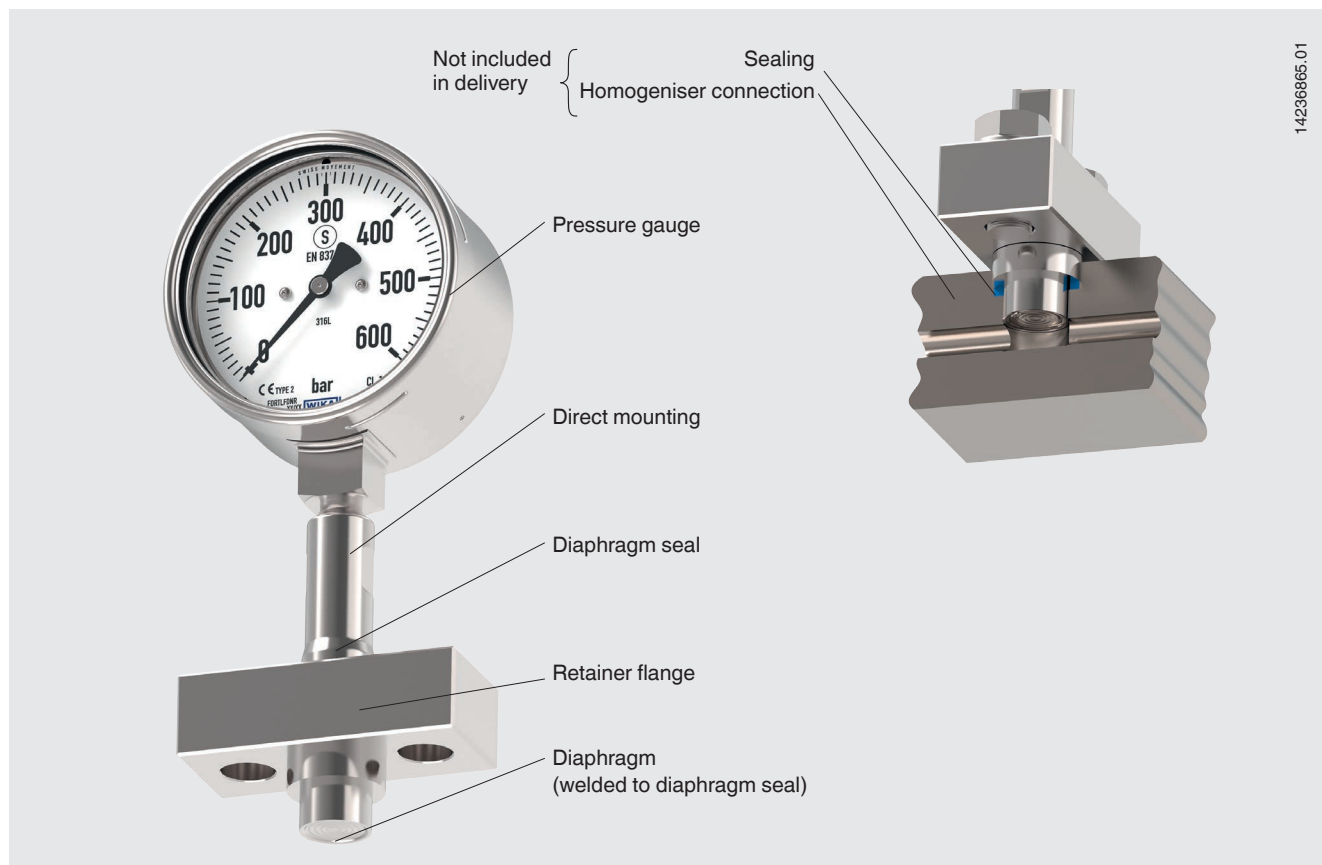
Mounting of the diaphragm seal to the measuring instrument may be made via a direct connection or a flexible capillary.

For the material selection WIKA offers a variety of solutions, in which the upper body of the diaphragm seal and the wetted parts can be made of identical or different materials.








## Specifications

Model 990.30	Standard	Option
<b>Measuring ranges in bar (psi)</b>	0 ... 160 bar (2,320 psi) 0 ... 250 bar (3,626 psi) 0 ... 400 bar (5,800 psi) 0 ... 600 bar (8,700 psi)	0 ... 1,000 bar (14,500 psi) 0 ... 1,600 bar (2,320 psi) 0 ... 2,500 bar (36,260 psi)
<b>Measuring ranges in psi</b>	0 ... 2,000 psi 0 ... 4,000 psi 0 ... 6,000 psi	0 ... 10,000 psi 0 ... 15,000 psi 0 ... 20,000 psi
<b>Level of cleanliness of wetted parts</b>	Oil and grease free per ASTM G93-03 level E (WIKA standard) and ISO 15001 (< 1,000 mg/m <sup>2</sup> )	<ul style="list-style-type: none"> <li>■ Oil and grease free per ASTM G93-03 level D and ISO 15001 (&lt; 220 mg/m<sup>2</sup>)</li> <li>■ Oil and grease free per ASTM G93-03 level C and ISO 15001 (&lt; 66 mg/m<sup>2</sup>)</li> </ul>
<b>Origin of wetted parts</b>	International	<ul style="list-style-type: none"> <li>■ EU</li> <li>■ CH</li> <li>■ USA</li> </ul>
<b>Type of mounting</b>	Direct mounting	Capillary
<b>System fill fluid</b>	KN 92	KN 7
<b>Surface roughness</b>	Ra ≤ 0.76 µm	Ra ≤ 0.38 µm (only with 1.4435)
<b>Permissible temperature range</b>		-
Medium	10 ... 100 °C (50 ... 212 °F)	
Ambient	10 ... 40 °C (50 ... 104 °F)	
CIP, SIP	≤ 130 °C (≤ 266 °F)	
Storage	10 ... 60 °C (50 ... 140 °F)	

## Example: Diaphragm seal model 990.30 with mounted pressure gauge and retainer flange



## Possible measuring instruments for a diaphragm seal system

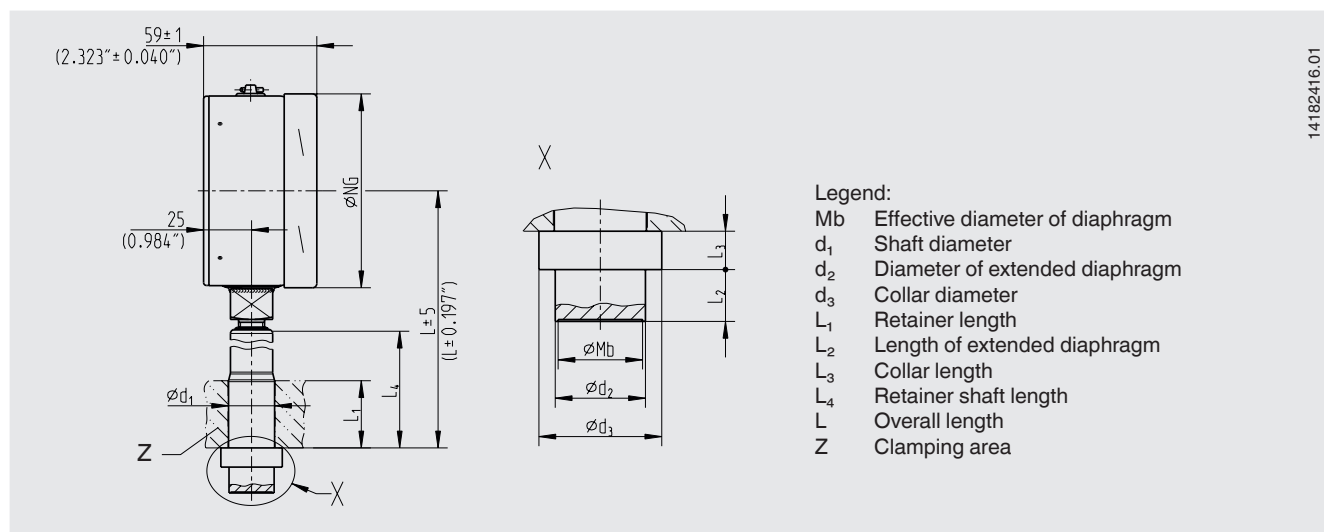
Model			Ex version	Data sheet
232.50.100	Bourdon tube pressure gauge		Option: Ignition protection type "c", constructive safety	PM 02.02
232.30.100	Bourdon tube pressure gauge, safety version		Option: Ignition protection type "c", constructive safety	PM 02.04
PGT23.100	Bourdon tube pressure gauge with electrical output signal		Option: Intrinsically safe Ex i	PV 12.04
S-20	Pressure sensor for superior industrial applications		-	PE 81.61
IS-3	Pressure transmitter intrinsically safe Ex i		Standard: Intrinsically safe Ex i	PE 81.58
PSD-4	Electronic pressure switch with display		-	PE 81.86
UPT-20	Process transmitter		Option: Intrinsically safe Ex i	PE 86.05
CPG1500	Precision digital pressure gauge		Standard: Intrinsically safe Ex i	CT 10.51

## Material combinations

Maximum permissible process pressure	Upper body of diaphragm seal	Wetted parts (diaphragm)
≤ PN 600	Stainless steel 1.4435 (316L)	Stainless steel 1.4435 (316L), standard version
> PN 600	Stainless steel 1.4542 (316L)	Stainless steel 1.4571 (316Ti)

## Process connection ≤ PN 600

(Example with mounted Bourdon tube pressure gauge model 233.30.100)



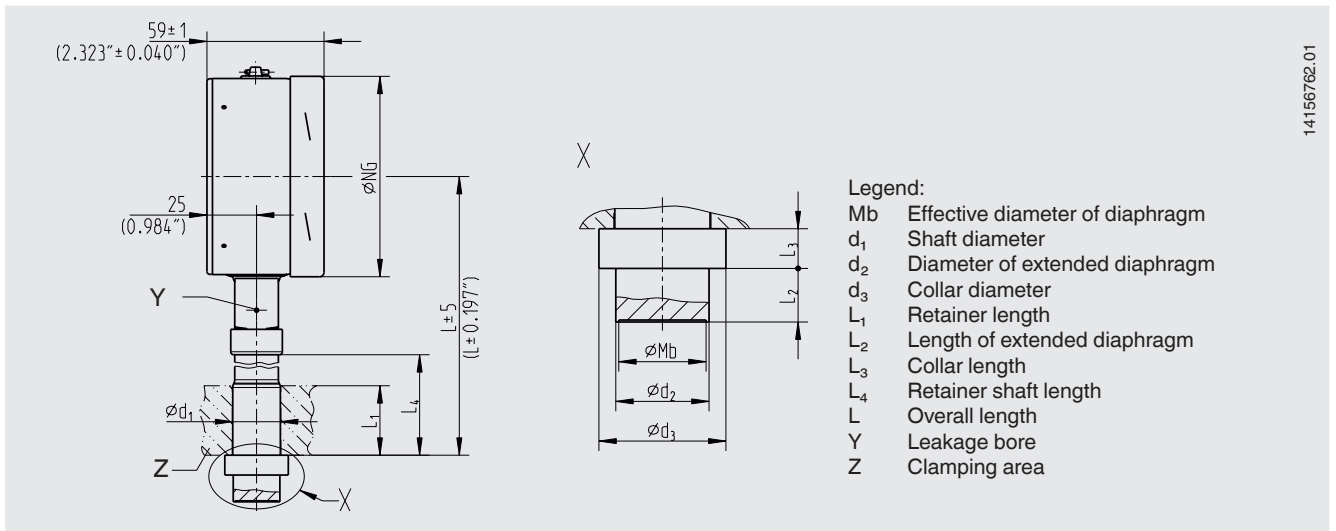
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Dimensions in mm (inch)								
Mb	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L
<b>22</b> <b>(0.866)</b>	24 / 31 (0.945 / 1.22)	23.8 / 26 (0.937 / 1.024)	34.9 / 37.5 (1.374 / 1.476)	30 (1.18)	13.5 / 10 (0.531 / 0.394)	10 / 10 (0.394 / 0.394)	77 (3.031)	150 (5.905)
				50 (1.968)			97 (3.819)	170 (6.693)
				80 (3.15)			127 (5)	200 (7.874)
				100 (3.937)			147 (5.787)	220 (8.661)

Dimensions in mm (inch)								
Mb	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L
<b>22</b> <b>(0.866)</b>	22 (0.866)	23.8 (0.937)	34.9 (1.374)	30 (1.18)	13.5 (0.531)	10 (0.394)	77 (3.031)	150 (5.905)
				50 (1.968)			97 (3.819)	170 (6.693)
				80 (3.15)			127 (5)	200 (7.874)
				100 (3.937)			147 (5.787)	220 (8.661)

Other dimensions on request

**Process connection ≤ PN 1600 and ≤ PN 2500**  
 (Example with mounted Bourdon tube pressure gauge model 233.30.100)



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**Process connection ≤ PN 1600**




Dimensions in mm (inch)								
Mb	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L
<b>22</b> <b>(0.866)</b>	24 / 31 (0.945 / 1.22)	23.8 / 26 (0.937 / 1.024)	34.9 / 37.5 (1.374 / 1.476)	30 (1.18)	13.5 / 10 (0.531 / 0.394)	10 / 10 (0.394 / 0.394)	60.5 (2.382)	150 (5.905)
				50 (1.968)			80.5 (3.169)	170 (6.693)
				80 (3.15)			110.5 (4.35)	200 (7.874)
				100 (3.937)			130.5 (5.138)	220 (8.661)

**Process connection ≤ PN 2500**

Dimensions in mm (inch)								
Mb	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L
<b>22</b> <b>(0.866)</b>	22 (0.866)	23.5 (0.925)	32 (1.26)	30 (1.18)	13 (0.512)	1 (0.394)	60.5 (2.382)	150 (5.905)
				50 (1.968)			80.5 (3.169)	170 (6.693)
				80 (3.15)			110.5 (4.35)	200 (7.874)
				100 (3.937)			130.5 (5.138)	220 (8.661)

Other dimensions on request

## Approvals

Logo	Description	Country
	<b>EU declaration of conformity</b> <ul style="list-style-type: none"> <li>■ EMC directive EN 61326 emission (group 1, class B) and immunity (industrial application)</li> <li>■ Pressure equipment directive</li> </ul>	European Union
	<b>3-A</b> Sanitary Standard  This instrument is 3-A marked, based on a third party verification for conformance to the 3-A standard. Only in combination with COP (cleaning out of place).	USA
	<b>EAC (option)</b> Pressure equipment directive	Eurasian Economic Community
-	<b>CRN</b> Safety (e.g. electr. safety, overpressure, ...)	Canada
-	<b>MTSCHS (option)</b> Permission for commissioning	Kazakhstan

## Certificates (option)

- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy for diaphragm seal systems)
- 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metallic parts, indication accuracy for diaphragm seal systems)

Further approvals and certificates on request.

## Ordering information

Diaphragm seal:

Diaphragm seal model / Process connection (nominal width, nominal pressure rating, shaft diameter, shaft length, diameter of sealing collar, length of sealing collar, diameter of extended diaphragm, length of extended diaphragm) / Materials (extended diaphragm, diaphragm) / Level of cleanliness of wetted parts / Origin of wetted parts / Connection to the measuring instrument / Certificates / Retainer parts (flange)

Diaphragm seal system:

Diaphragm seal model / Pressure measuring instrument model (per data sheet) / Mounting (direct mounting, cooling element, capillary) / Materials (upper body, diaphragm) / Min. and max. process temperature / Min. and max. ambient temperature / System fill fluid / Certificates / Height difference / Level of cleanliness of wetted parts / Origin of wetted parts / Instrument mounting bracket / Process connection (nominal width, nominal pressure) / Retainer parts (flange)

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