Diaphragm seal with sterile connection
With union nut (milk thread fitting)
Models 990.18, 990.19, 990.20 and 990.21

for further approvals see page 7

Applications

- Food and beverage production
- For dairies, dairy products
- Breweries
- Filling systems
- Filtration, separation, pasteurisation

Special features

- Quick mounting and dismounting
- Quick cleaning of measuring point, without residue
- Suitable for cleaning out of place (COP)
- 3-A compliant



Diaphragm seal with sterile connection, models 990.18, 990.19, 990.20 and 990.21

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 990.18, 990.19, 990.20 and 990.21 diaphragm seals with threaded connection are particularly suited for use in the food industry. The diaphragm seals can withstand the cleaning vapour temperatures occurring in the SIP processes and thus ensure a sterile connection between the medium to be measured and the diaphragm seal.

Mounting of the diaphragm seal to the measuring instrument may be made via a direct connection, for high temperatures via a cooling element or via 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. The wetted parts can, as an option, be electropolished.

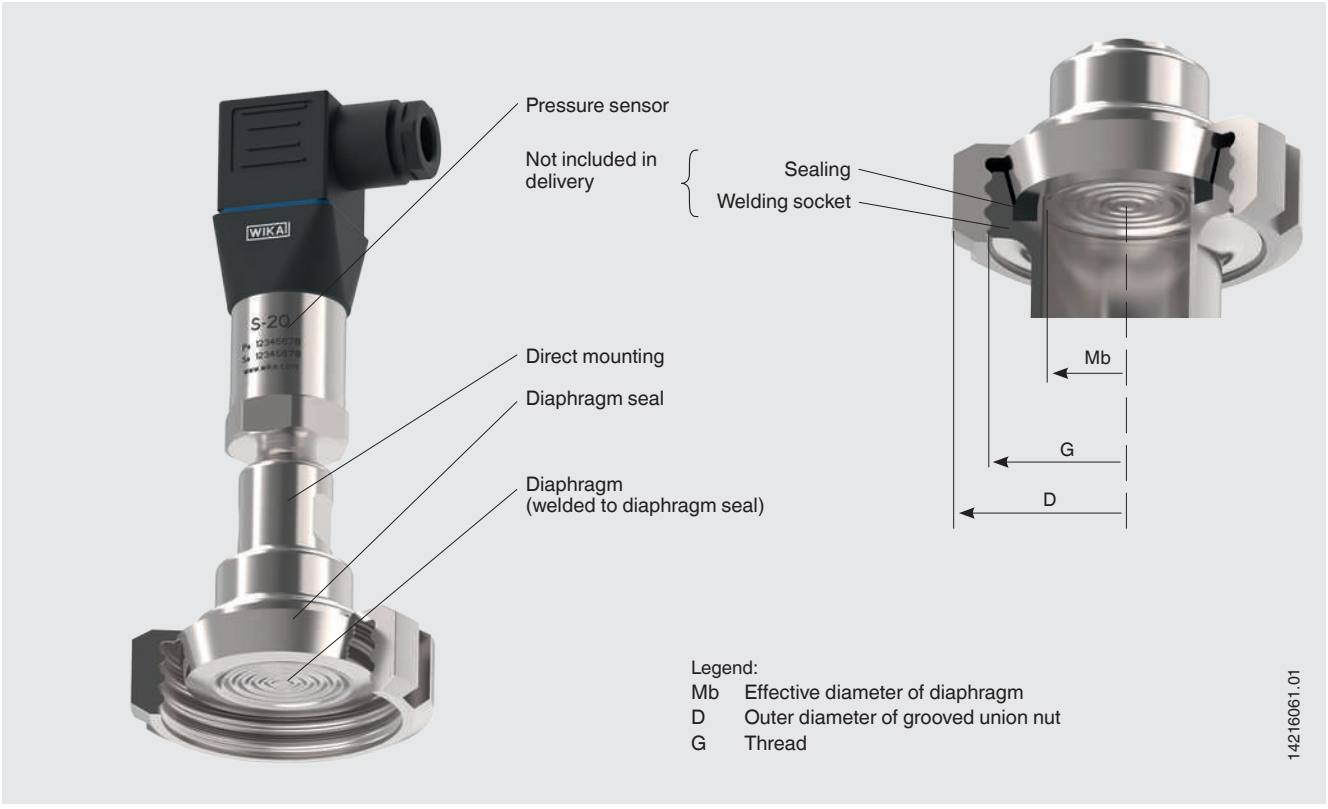
Data sheets showing similar products:
Diaphragm seal with sterile connection; models 990.22, 990.52 and 990.53; see data sheet DS 99.40

WIKA
Part of your business

Specifications

Models 990.18, 990.19, 990.20 and 990.21	Standard	Option
Pressure range	0 ... 0.6 to 0 ... 40 bar (0 ... 8.7 to 0 ... 580 psi) or all other equivalent vacuum or combined pressure and vacuum ranges	
Level of cleanliness of wetted parts	Oil and grease free per ASTM G93-03 level F WIKA standard (< 1,000 mg/m²)	■ Oil and grease free per ASTM G93-03 level D and ISO 15001 (< 220 mg/m²) ■ Oil and grease free per ASTM G93-03 level C and ISO 15001 (< 66 mg/m²)
Origin of wetted parts	International	■ EU ■ CH ■ USA
Surface roughness of wetted parts	Ra ≤ 0.76 µm per ASME BPE SF3 (except for weld seam)	Ra ≤ 0.38 µm per ASME BPE SF4, only with electropolished surface (except for weld seam)
Connection to the measuring instrument	Axial adapter	Axial adapter with G ½, G 1/4, ½ NPT or ¼ NPT (female)
Type of mounting	Direct mounting	■ Capillary ■ Cooling element
Vacuum service (see IN 00.25)	Basic service	■ Premium service ■ Advanced service
Process connection	Union nut	With threaded coupling
Marking of the diaphragm seal	■ Material ■ Serial number ■ Manufacturer	Per valid 3-A standard
Instrument mounting bracket (only for capillary option)	-	■ Form H per DIN 16281, 100 mm, aluminium, black ■ Form H per DIN 16281, 100 mm, stainless steel ■ Bracket for pipe mounting, for pipe outer Ø 20 ... 80 mm, steel (see data sheet AC 09.07)

Example: Diaphragm seal model 990.18 with mounted pressure sensor



Material combinations

Upper body of diaphragm seal	Wetted parts	Maximum permissible process temperature [1] in °C (°F)
Stainless steel 1.4435 (316L)	Stainless steel 1.4435 (316L)	400 (752)
Hastelloy C22 (2.4602)	Hastelloy C22 (2.4602)	400 (752)
Hastelloy C276 (2.4819)	Hastelloy C276 (2.4819)	

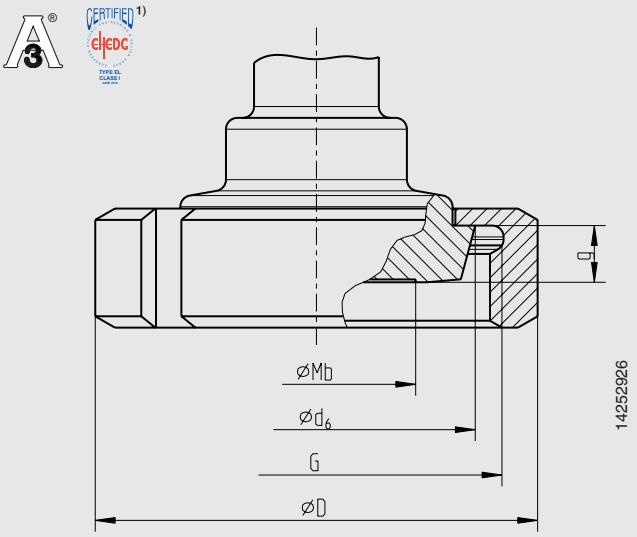
1) The maximum permissible process temperature is limited by the joining method and by the system fill fluid.

Further material combinations for special process temperatures on request

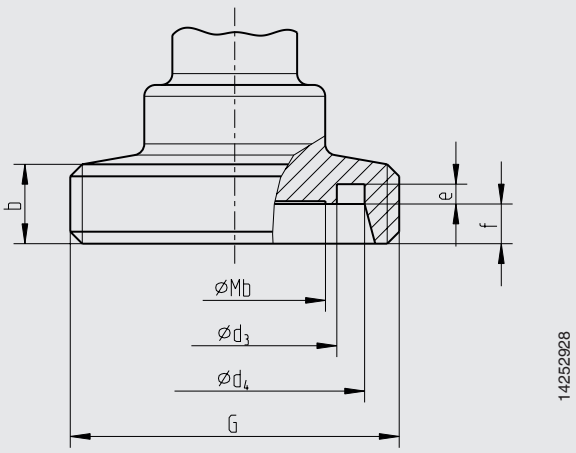
Model 990.18, threaded pipe connection DIN 11851

Pipe standard: Pipes per DIN 11850 row 2

with grooved union nut



with threaded coupling



DN	Pipe outer Ø x wall thickness	PN	Dimensions in mm (in)									
			G	b	Mb	D	d_3	d_4	d_6	e	f	g
25	29 x 1.5 (1.142 x 0.059)	40	RD 52 x ⅙	14 (0.551)	25 (0.984)	63 (2.48)	30 (1.181)	39.8 (1.567)	44 (1.732)	3.5 (0.138)	7 (0.276)	10 (0.394)
32	35 x 1.5 (1.378 x 0.059)		RD 58 x ⅙		32 (1.26)	70 (2.756)	36 (1.417)	45.8 (1.803)	50 (1.968)			
40	41 x 1.5 (1.614 x 0.059)		RD 65 x ⅙		35 (1.378)	78 (30.71)	42 (1.653)	51.8 (2.039)	56 (2.205)			
50	53 x 1.5 (2.087 x 0.059)	25	RD 78 x ⅙		52 (2.047)	92 (3.622)	54 (2.126)	63.8 (2.512)	68.5 (2.697)			11 (0.433)
65	70 x 1.5 (2.756 x 0.059)		RD 95 x ⅙	16 (0.63)		112 (4.409)	71 (2.795)	80.8 (3.181)	86 (3.386)			12 (0.472)
80	85 x 2 (3.345 x 0.059)		RD 110 x ¼	20 (0.787)	71 (2.795)	127 (5)	85 (3.346)	94.8 (3.732)	100 (3.937)		8 (0.3156)	

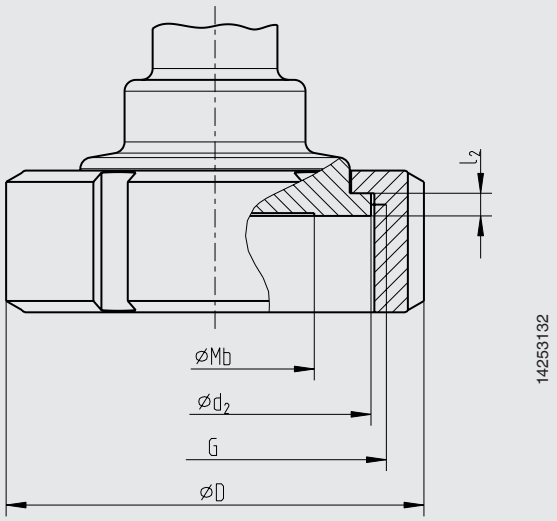
1) EHEDG conformity only in combination with ASEPTO-STAR k-flex upgrade, sealing from Kieselmann GmbH.

Further dimensions and higher nominal pressures on request

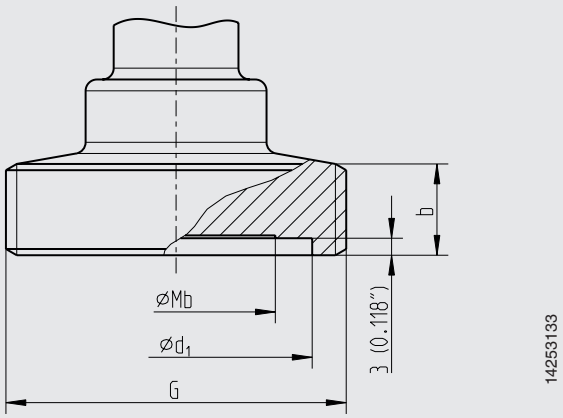
Model 990.19, threaded connection SMS standard (SMS 1145)

Pipe standard: Pipes per ISO 1127 row 2 or ISO 2037/1992

with grooved union nut



with threaded coupling



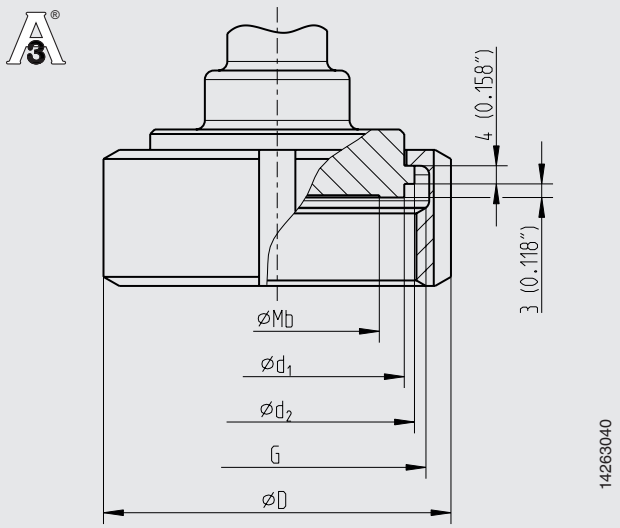
DN	Pipe outer Ø x wall thickness	PN	Dimensions in mm (in)						
			G	Mb	D	d_1	d_2	b	l_2
1 ½"	38 x 1.2 (1.496 x 0.047)	40	RD 60 x 1/6	35 (1.378)	74 (2.913)	48 (1.89)	55 (2.163)	25 (0.984)	4 (0.157)
2"	51 x 1.2 (2.008 x 0.047)	40	RD 70 x 1/6	45 (1.772)	84 (3.307)	61 (2.402)	65 (2.559)	26 (1.024)	

Further dimensions and higher nominal pressures on request

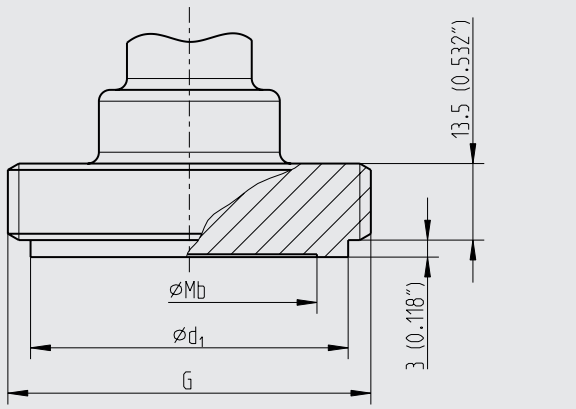
Model 990.20, threaded connection IDF standard (ISO/DIS 2853 and BS 4825 part 4)

Pipe standard: Pipes per ISO 1127 row 2 or ISO 2037/1992

with grooved union nut



with threaded coupling



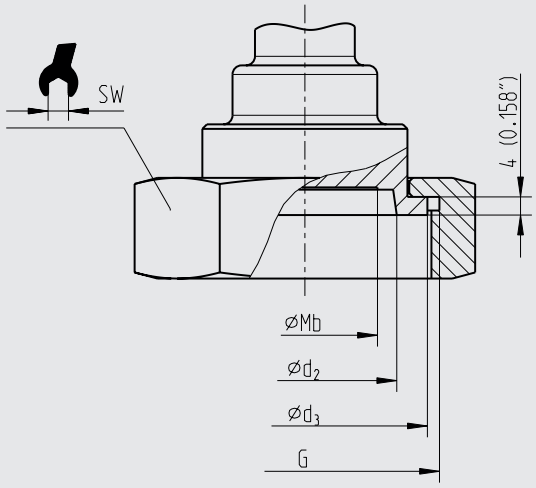
DN	Pipe outer Ø x wall thickness	PN	Dimensions in mm (in)				
			G	Mb	D	d_1	d_2
1 ½"	38.6 x 1.5 (1.52 x 0.059)	40	1 ½" IDF	32 (1.26)	64 (2.52)	42.7 (1.681)	47 (1.85)
2"	51.6 x 1.5 (2.031 x 0.059)	40	2" IDF	45 (1.771)	79 (3.11)	56.2 (2.213)	60.5 (2.382)

Further dimensions and higher nominal pressures on request

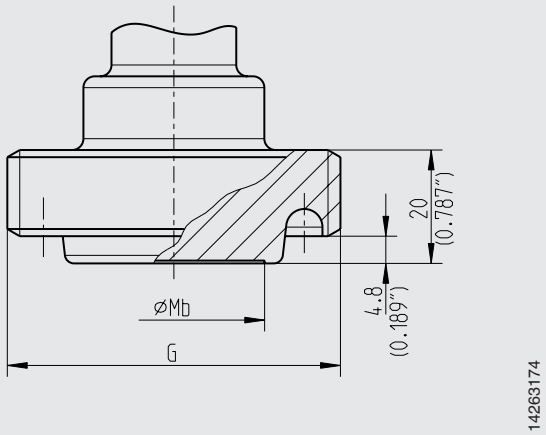
Model 990.21, threaded connection APV-RJT standard (BS 4825 part 5)

Pipe standard: Pipes per BS 4825 part 1 or O.D. tube

with union nut



with threaded coupling



DN	Pipe outer Ø x wall thickness	PN	Dimensions in mm (in)				
			G	Mb	d_2	d_3	SW
1 ½"	38.1 x 1.6 (1.5 x 0.063)	40	2 5/16 x 8"	32 (1.26)	40.5 (1.594)	54 (2.126)	65 (2.559)
2"	50.8 x 1.6 (2 x 0.063)	40	2 7/8 x 6"	40 (1.575)	53.2 (2.094)	66.7 (2.626)	80 (3.15)

Further dimensions and higher nominal pressures on request

Approvals

Logo	Description	Country
CE	**EU declaration of conformity** Pressure equipment directive	European Union
EAC	**EAC (option)** Pressure equipment directive	Eurasian Economic Community
3-A	**3-A** Sanitary Standard	USA
EHEDG	**EHEDG** Hygienic Equipment Design	European Union
-	**CRN** Safety (e.g. electr. safety, overpressure, ...)	Canada
-	**MTSCHS (option)** 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)
- FDA conformity of the system fill fluid
- 3-A conformity of the diaphragm seal, based on a third party verification
- EHEDG conformity
- Manufacturer‘s declaration for food contact materials regarding regulation (EC) No. 1935/2004
- Others on request

Approvals and certificates, see website

Ordering information
Diaphragm seal:
Diaphragm seal model / Process connection (type of process connection, pipe standard, pipe dimension) / Material (upper body, diaphragm) / Surface roughness of wetted parts / Sealing / Connection to the measuring instrument / Level of cleanliness of wetted parts / Origin of wetted parts / Certificates

Diaphragm seal system:
Diaphragm seal model / Process connection (type of process connection, pipe standard, pipe dimension) / Material (upper body, diaphragm) / Surface roughness of wetted parts / Sealing / Pressure measuring instrument model (per data sheet) / Mounting (direct mounting, cooling element, capillary) / min. and max. process temperature / min. and max. ambient temperature / Vacuum service / System fill fluid / Certificates / Height difference / Level of cleanliness of wetted parts / Origin of wetted parts / Instrument mounting bracket

© 05/2013 WIKA Alexander Wiegand SE & Co. KG, all rights reserved.
The specifications given in this document represent the state of engineering at the time of publishing.
We reserve the right to make modifications to the specifications and materials.

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.de
www.wika.de