

# Diaphragm seal with sterile connection VARINLINE® connection Model 990.24

WIKA data sheet DS 99.49



for further approvals  
see page 4

## Applications

- Sanitary applications
- Food and beverage production
- Dairies, dairy products
- Breweries
- Soft drink production

## Special features

- Quick cleaning, without residue
- Suitable for SIP and CIP
- EHEDG-certified and 3-A-compliant
- For installation into VARINLINE® components
- 100 % material traceability for wetted parts

## 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 is 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".

Due to their hygienic process connection, the model 990.24 diaphragm seals are particularly well suited for food production.

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Diaphragm seal with sterile connection, model 990.24

With this diaphragm seal, pressure measuring instruments can be integrated, dead-space free, into a pipeline using a VARINLINE® access unit or in tanks using a connecting flange for VARINLINE® access units. The diaphragm seals can withstand the cleaning vapour temperatures occurring in the CIP and 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 alternative, be electropolished.

## Specifications

Model 990.24	Standard	Option
<b>Pressure range</b>	0 ... 1 bar to 0 ... 25 bar [0 ... 14.5 psi to 0 ... 360 psi] or all other equivalent vacuum or combined pressure and vacuum ranges	
<b>Level of cleanliness of wetted parts</b>	Oil and grease free per ASTM G93-03 level F WIKA standard (< 1,000 mg/m <sup>2</sup> )	<ul style="list-style-type: none"> <li>■ Oil and grease free per ASTM G93-03 level C and ISO 15001 (&lt; 66 mg/m<sup>2</sup>)</li> <li>■ Oil and grease free per ASTM G93-03 level D and ISO 15001 (&lt; 220 mg/m<sup>2</sup>)</li> </ul>
<b>Origin of wetted parts</b>	International	EU, CH, USA
<b>Surface roughness of wetted parts</b>	Ra ≤ 0.76 µm [30 µin] per ASME BPE SF3 (except for weld seam)	Ra ≤ 0.38 µm [15 µin] per ASME BPE SF4, only with electropolished surface (except for weld seam)
<b>Connection to the measuring instrument</b>	Axial gauge adapter	Axial gauge adapter with G 1/2, G 1/4, 1/2 NPT or 1/4 NPT (female)
<b>Type of mounting</b>	Direct mounting	<ul style="list-style-type: none"> <li>■ Capillary</li> <li>■ Cooling element</li> </ul>
<b>Vacuum service (see IN 00.25)</b>	Basic service	<ul style="list-style-type: none"> <li>■ Premium service</li> <li>■ Advanced service</li> </ul>
<b>Marking of the diaphragm seal</b>	-	Per valid 3-A standard
<b>Instrument mounting bracket (only for capillary option)</b>	-	<ul style="list-style-type: none"> <li>■ Form H per DIN 16281, 100 mm, aluminium, black</li> <li>■ Form H per DIN 16281, 100 mm, stainless steel</li> <li>■ Bracket for pipe mounting, for pipe Ø 20 ... 80 mm, steel (see data sheet AC 09.07)</li> </ul>

## Material combinations

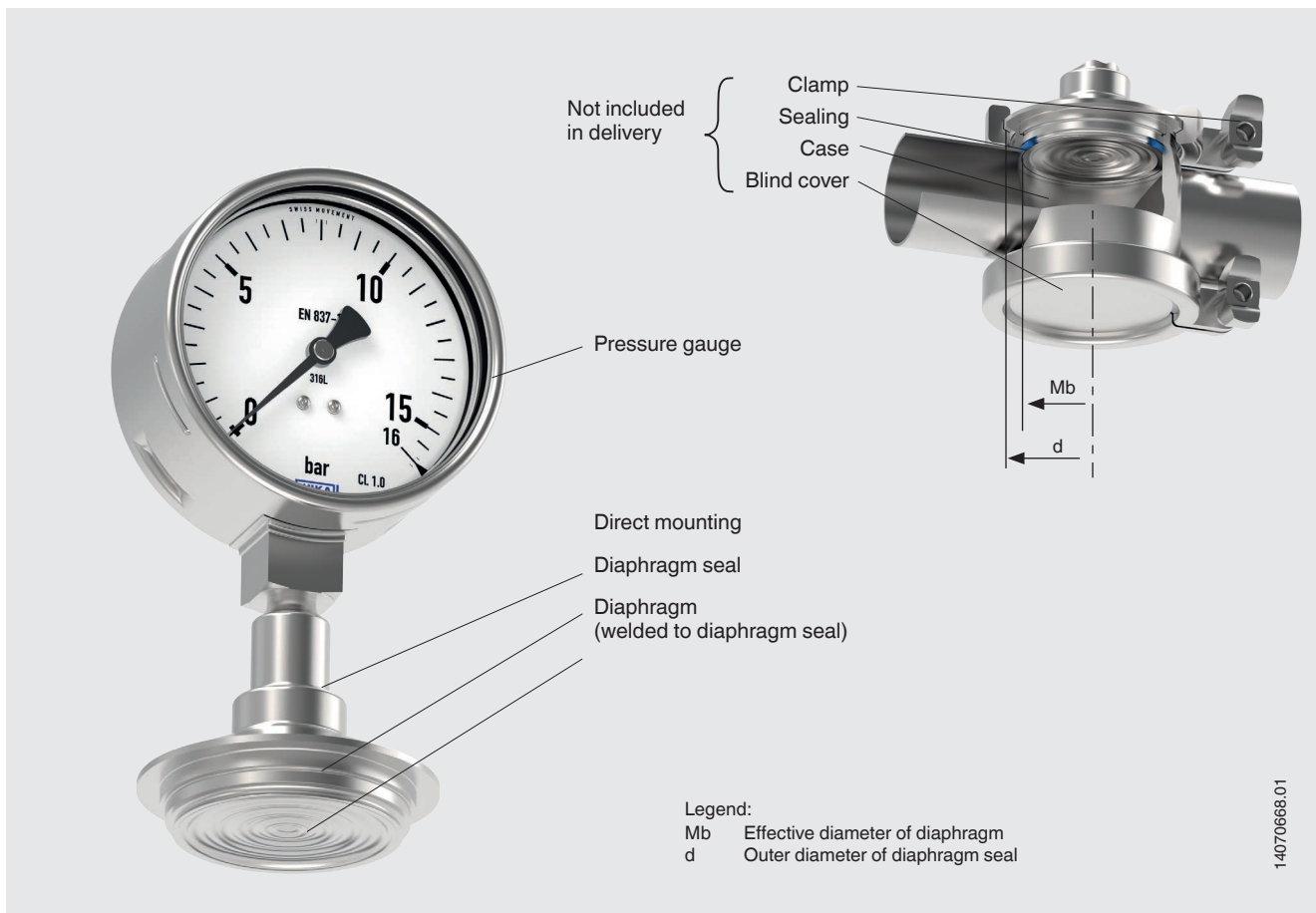
Upper body of diaphragm seal	Wetted parts <sup>1)</sup>
<b>Stainless steel 1.4435 (316L)</b>	Stainless steel 1.4435 (316L)
<b>Stainless steel 1.4435 (316L), electropolished <sup>2)</sup></b>	Stainless steel 1.4435 (316L), electropolished <sup>2)</sup>
<b>Stainless steel 1.4539 (904L)</b>	Stainless steel 1.4539 (904L)
<b>Hastelloy C22 (2.4602)</b>	Hastelloy C22 (2.4602)
<b>Hastelloy C276 (2.4819)</b>	Hastelloy C276 (2.4819)

1) Marking of the parts with the material code guarantees 100 % material traceability

2) Only in connection with a surface roughness of Ra ≤ 0.38 µm for the wetted parts

Further material combinations and process temperatures on request

Example: Model 990.24 with mounted pressure gauge, process connection with VARINLINE® component







To design the maximum permissible pressure load of a diaphragm seal system at a measuring location, all components <sup>1)</sup> used must be included.

The permissible operating pressure range of diaphragm seal systems is determined by the component(s) having the weakest performance data.

<sup>1)</sup> see manufacturer documentation (e.g. for VARINLINE® components)

## Approvals

Logo	Description	Country
	<b>EU declaration of conformity</b> Pressure equipment directive	European Union
	<b>EAC (option)</b> Pressure equipment directive	Eurasian Economic Community
	<b>3-A</b> Sanitary Standard	USA
	<b>EHEDG</b> Hygienic Equipment Design	European Union
-	<b>CRN</b> Safety (e.g. electr. safety, overpressure, ...)	Canada
-	<b>MTSCHS (option)</b> Permission for commissioning	Kazakhstan

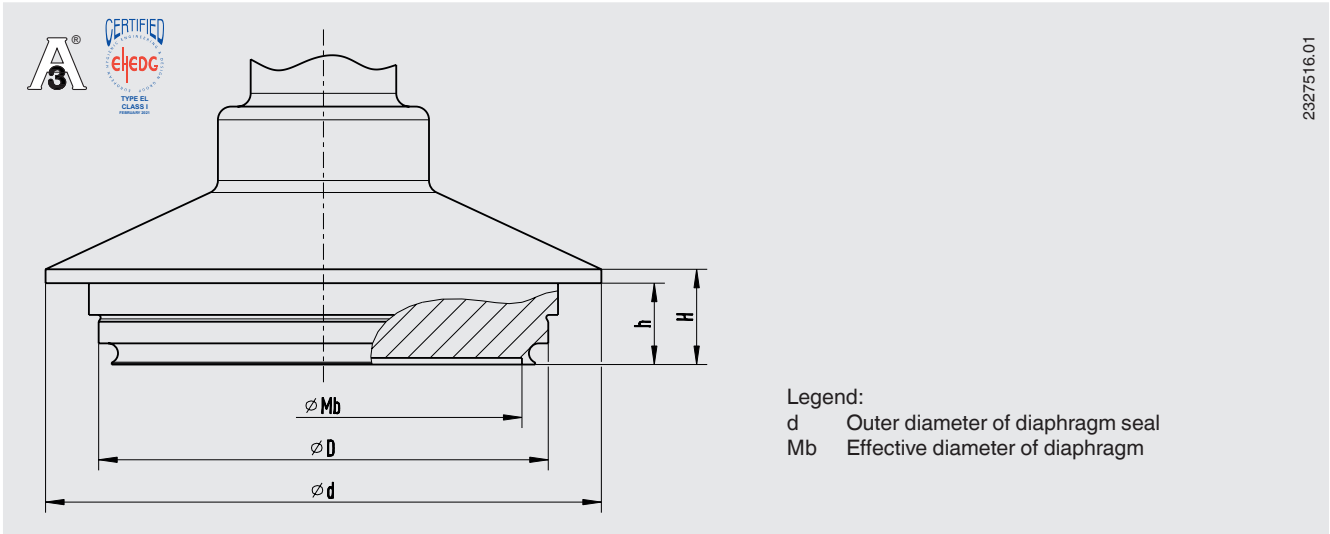
## Certificates (option)

- 2.2 test report per EN 10204
  - State-of-the-art manufacturing, material proof, 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
  - Manufacturer's declaration for food contact materials regarding regulation (EC) No. 1935/2004
- 3.1 inspection certificate per EN 10204
  - Material proof, wetted metal parts
  - Indication accuracy for diaphragm seal systems
- Manufacturer's declaration for food contact materials regarding regulation (EC) No. 1935/2004
- Others on request

Approvals and certificates, see website

## Dimensions in mm [in]

Model 990.24, with VARINLINE® connection



Legend:  
 $d$  Outer diameter of diaphragm seal  
 $Mb$  Effective diameter of diaphragm

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### For installation into VARINLINE® components

Size	PN in bar	Dimensions in mm [in]				
		Mb	D	d	H	h
<b>Form B</b> for DN 10 - DN 15, ISO 21,3 and ISO 17,2 (installation $\varnothing$ 31 mm, clamp $\varnothing$ 52.7 mm)	25	17 [0.669]	31 [1.22]	52.7 [2.075]	17.3 [0.681]	13.7 [0.539]
<b>Form F</b> for DN 25, ISO 33,7 and 1" (installation $\varnothing$ 50 mm, clamp $\varnothing$ 66 mm)	25	40 [1.575]	50 [1.969]	66 [2.598]	14.4 [0.567]	12.3 [0.484]
<b>Form N</b> for DN 40 - DN 125, ISO 42,4 - 114,3 and 1 1/2" - 6" (installation $\varnothing$ 68 mm, clamp $\varnothing$ 84 mm)	25	60 [2.362]	68 [2.677]	84 [3.307]	14.4 [0.567]	12.3 [0.484]

Suitable VARINLINE® component	EHEDG-compliant		
	Form B	Form F	Form N
Case	Yes	No	Yes
Type T case connecting flange	Yes	Yes	Yes
Type T-S case connecting flange	No	No	No
Type U case connecting flange	No	No	No
Type U-S case connecting flange	No	No	No
Type P tank connection flange	No	Yes	Yes

EHEDG-compliant only in combination with an EPDM O-ring

## Ordering information

Diaphragm seal:

Diaphragm seal model / Process connection (type of process connection) / Material (upper body, diaphragm) / Surface roughness of wetted parts / 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

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