

Diaphragm seal for high pressure applications

welded design with screw-in thread

Type series DD8050



Application area

- Plant and mechanical engineering
- Chemical and petrochemical industry
- General process technology

Features

- Completely welded design
- Suitable for pressure up to 1050 bar
- Volume optimised diaphragm base
- Process connection G1/2 B, G1/4 B, 1/2" NPT
- System fillings for different applications
- Measuring device connection:
 - directly welded
 - directly screwed
 - with temperature decoupler
 - with capillary

Options

- Gold coating of sensor diaphragm (thickness 6 µm)
- Labom REconnect quick coupling device for easy and safe separation and connection of diaphragm seal systems. Available with a wide range of pressure gauges and pressure transmitters; Type series MK1000, see data sheet DB_D6-022
- Certificates
 - Material certificate per EN 10204-3.1
 - Certificate for hydrogen resistance per EN 10204-3.1
- Oxygen free of oil and grease
- Negative pressure and vacuum service

Application

Suitable for mounting to bourdon tube pressure gauges and pressure transmitters. The diaphragm seal welded design is suited for measuring aggressive media and for high process temperatures.

Especially for use in hydrogen applications a calculation tool is available with which it can be determined on the basis of the available process data whether gold plating of the diaphragm is necessary.

Technical data

Constructional design

- Variants:
- Pressure range up to 60 bar overload protected up to 90 bar process temperatures -40...200 °C
 - Pressure range up to 400 bar overload protected up to 400 bar process temperatures -40...180 °C
 - Pressure range up to 1050 bar overload protected up to 1050 bar process temperatures -40...100 °C

Further pressure and temperature ranges upon request.

For information on definitions of terms regarding the Pressure Equipment Directive, see Technical Instruction TA_068.

- Diaphragm: Flat diaphragm
- Material wetted parts: Diaphragm: Stainless steel mat.-no. 1.4435 (316L), alternative Hastelloy C276
- Process connection: Stainless steel mat.-no. 1.4404/1.4435 (316L) alternative Hastelloy C276
- Further materials upon request.

Process connection

- Design:
- G1/2 B per EN 837-1
 - G1/4 B per EN 837-1
 - 1/2" NPT

Sealing are not included in the scope of delivery.

Measuring device connection

See order code

material stainless steel mat.-no. 1.4404/1.4435 (316L)

System filling

See order details; further upon request.

Further details about pressure transmission fluids see general technical information TA_038.

Negative pressure and vacuum service

Labom pressure transmission fluids can be used in vacuum conditions at room temperature if the diaphragm seal is installed correctly. Special treatment during manufacturing is necessary, if the system will be exposed to higher temperatures later during operation.

A differentiation is made between negative pressure service and vacuum service. Which treatment is required (standard, negative pressure service or vacuum service) depends on the critical process condition, when the system is exposed to min. pressure at max. temperature.

Upon request, we provide an optimised design of the system.

For further details on pressure transmission fluids and negative pressure and vacuum service, see general technical information TA_038.

Temperature error

In order to optimise the system we provide a detailed error calculation upon request.

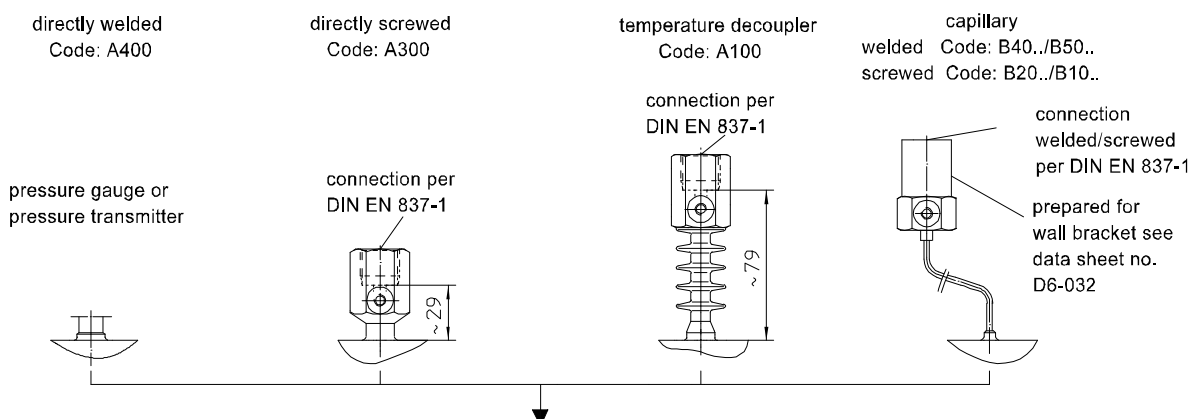
Weight

Without measuring device connection approx. 400 g.

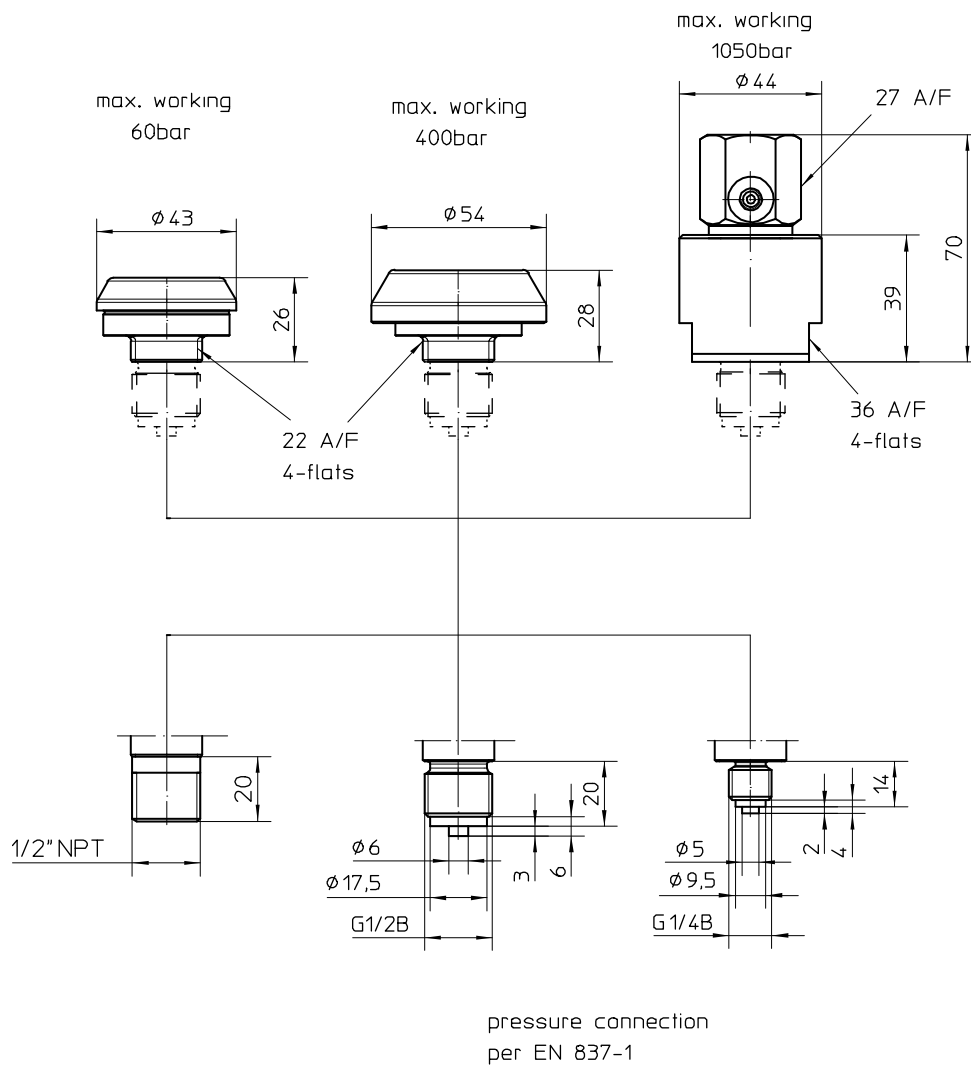
Further information about diaphragm seals see general technical information TA_031.

Flame arrester MF21xx for connection of measuring devices to zone 0 see data sheet D6-025.

Measuring device connection



Dimensions



Order details

Diaphragm seal for high pressure applications, welded design			
DD8050	Diaphragm seal for high pressure applications, welded design		
D3 . .	pressure range	60 bar	for process temperature -40...200 °C
D4		400 bar	for process temperature -40...180 °C
D7 . .		1050 bar ¹	for process temperature -40...100 °C
10	process connection	G1/2 B	
14		G1/4 B	
51		1/2" NPT	
E1	material	measuring device connection and process connection stainless steel mat.-no. 1.4404/1.4435 (316L)	
E3		measuring device connection stainless steel mat.-no. 1.4404/1.4435 (316L)	
G7		process connection Hastelloy C 276 ²	
G3		diaphragm	stainless steel mat.-no. 1.4435 (316L)
			Hastelloy C 276 ³
A400	measuring device connection	directly	welded
A300			screwed G1/2
A303			screwed G1/4 per DIN EN ISO 1179-1 ¹
A100		with temperature decoupler	screwed G1/2
B40 . .		with capillary	welded
B20 . .			screwed G1/2
B50 . .		with capillary and stainless steel protective tube	welded
B10 . .			screwed G1/2
11		capillary length	1 m
12			1.6 m
13			2.5 m
14			4 m
21			5 m
15			6 m
23			7 m
16			8 m
17			10 m
9			others
	system filling ⁴	<u>pressure transmission fluid</u>	<u>temperature range</u> ⁵
L22		synthetic oil, free of silicone FD1, standard	-10...140 °C
L23		synthetic oil, free of silicone FD1, pls. specify max. temperature	-40...230 °C
L34		vacuum oil FV4	-25...260 °C
L35		high temperature oil FH	-20...400 °C
L10		low temperature oil FM5 ⁶	-90...160 °C
L30		halocarbon oil FC	-50...190 °C ⁷

Additional features (to be indicated in case of need, only)	
J304	gold coating of sensor diaphragm (thickness 6 µm), for hydrogen applications
W1020	material certificate per EN 10204-3.1, wetted parts
W1251	certificate per EN 10204-3.1, for hydrogen resistance
W4001	oxygen free of oil and grease
X1	negative pressure service ⁸
X2	vacuum service ⁸

Order code (example): DD8050 - D310 - E1 - G7 - A400 - L22 - ...

¹ Pressure range 1050 bar only possible with measuring device connection A303.

² Not possible for pressure range 1050 bar.

³ Not possible with gold coating.

⁴ For more detailed information about pressure transmission fluids see TA_038. Please state temperature range to allow an accurate calculation of the system.

⁵ Max. media temperature for pressures > 0 bar rel.

⁶ Not possible with vacuum service (order code X2).

⁷ For oxygen applications (in combination with order code W4001), a temperature range of -50...60 °C applies.

⁸ Temperature limits see Technical Information TA_038 (Pressure transmission fluids).