

Diaphragm seal variable connections Type series DD111.



Application area

- Machinery construction
- Chemical and petrochemical industry
- General process technology

Features

- Separating diaphragm of stainless steel or special material
- Volume optimised diaphragm base
- System fillings for different applications
- Various process connections; screw-in thread, flanges per EN and ASME
- Measuring device connection:
 - directly welded
 - directly screwed
 - with temperature decoupler
 - with capillary

Options

- 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 acc. to 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 for variable connections is suited for measuring aggressive, highly viscous media and for high process temperatures.

Technical data

Constructional design

Basic body:	Volume reduced diaphragm base Material: Stainless steel mat.-no. 1.4404 (316L)
Diaphragm:	Flat diaphragm
Material wet- ted parts:	Diaphragm: See order details Basic body: Stainless steel mat.-no. 1.4404 (316L)

Process connection

Design:	See order details
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Gasket

See order details.

In case of diaphragm with PTFE foil: gasket PTFE

Measuring device connection

See order details.

Material stainless steel mat.-no. 1.4301 (304)

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

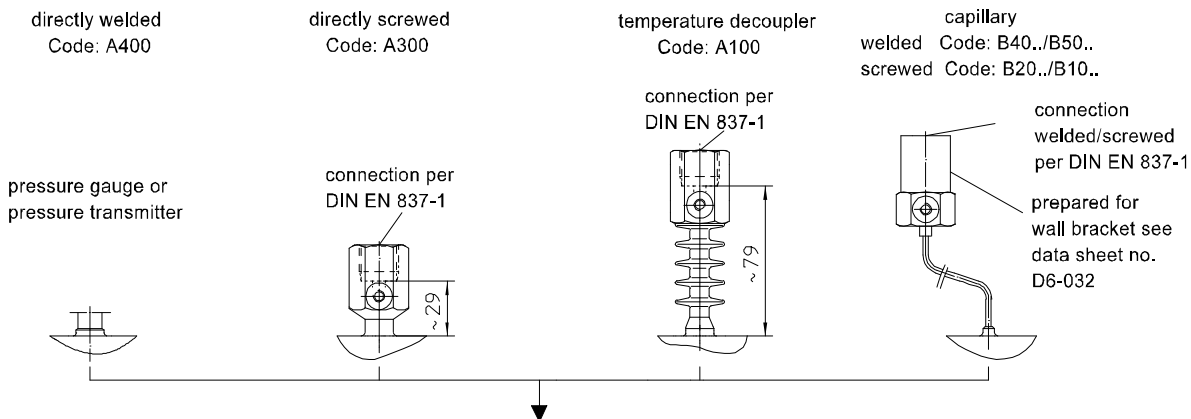
With measuring device connection G1/2:

G1/2 , PN 100:	approx. 1.5 kg
G1/2 , PN 250:	approx. 2.1 kg
DN 25, PN 10-40:	approx. 2.5 kg
DN 50, PN 10-40:	approx. 3.5 kg

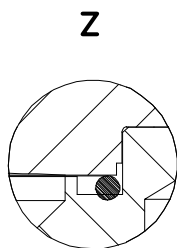
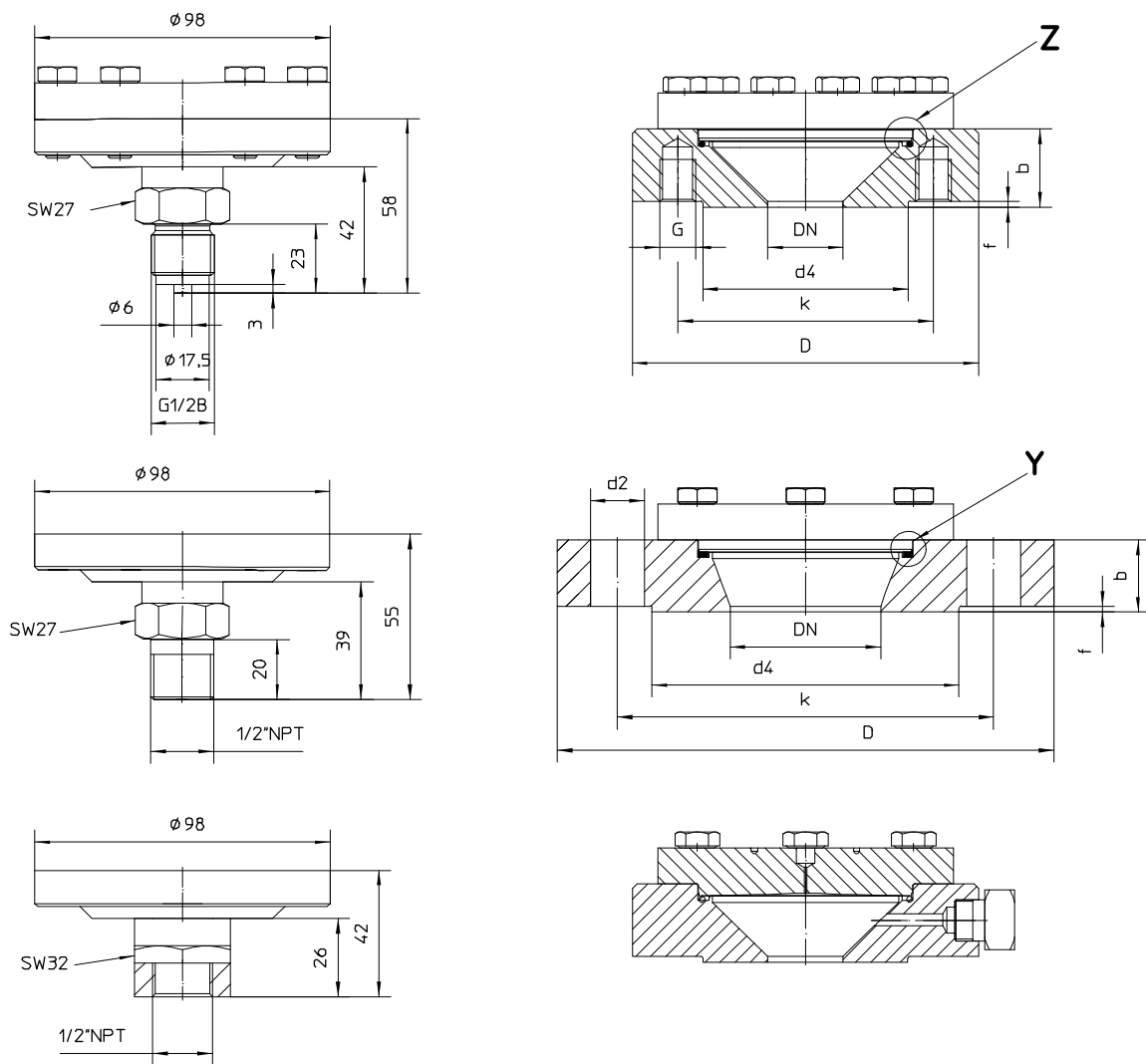
Further weights upon request.

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

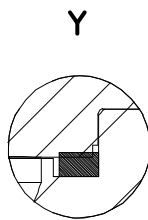
Measuring device connection



Dimensions



o-ring gasket



flat gasket

Dimensions (mm) per EN 1092-1

DN	PN	D	d4	k	G	d2	no. bore holes	b	f
25	10/40	115	68	85	M12		4	26	2
50	10/40	165	102	125		18	4	24	2

Dimensions (mm) per ASME B16.5

DN	Class	D	d4	k	G	d2	no. bore holes	b	f
1"	150	110	51	79.4	M12	-	4	32	2
1"	300	125	51	88.9	M16	-	4	32	2
2"	150	150	92	120.7	M16	-	4	24	2
2"	300	165	92	127	-	19	8	42	2
2"	400-600	165	92	127	-	19	8	45	7

Order details

Diaphragm seal, variable connections Type series DD111 .

Order details DD111 .							
DD111 .	Diaphragm seal, variable connection						
0	design	standard					
2		connection to zone 0					
	process connection	lower flange ¹	threatened connection per EN 837-1				
D10011			G1/2 B	PN 100	1.4404 (316L)		
D10021				PN 250	1.4404 (316L)		
D10013				PN 16	PVDF		
D10012				PN 25	1.4404 (316L) PTFE coated		
D10101			1/2" NPT-M	PN 100	1.4404 (316L)		
D10111				PN 250	1.4404 (316L)		
D10121			1/2" NPT-F	PN 100	1.4404 (316L)		
D10131				PN 250	1.4404 (316L)		
					open measuring flange per EN 1092-1		
D11201			DN 25	PN 10-40	model B1	1.4404 (316L)	
D12203					model B2	PVDF	
D12202				PN 25		1.4404 (316L) PTFE coated	
D11351				DN 50	PN 10-40	model B1	1.4404 (316L)
D12353					PN 16	model B2	PVDF
D12352					PN 25		1.4404 (316L) PTFE coated
					open measuring flange per ASME B16.5		
D51601			1"	Class 150	RF 125...250 AA	1.4404 (316L)	
D50603					RFSF	PVDF	
D50602				Class 300	RF 125...250 AA	1.4404 (316L) PTFE coated	
D51611					RFSF	1.4404 (316L) PTFE coated	
D50612				Class 150	RF 125...250 AA	1.4404 (316L)	
D51701					RFSF	PVDF	
D50703						1.4404 (316L) PTFE coated	
D50702					Class 300	RF 125...250 AA	1.4404 (316L)
D51711				RFSF		1.4404 (316L) PTFE coated	
D50712						1.4404 (316L) PTFE coated	
D51721				Class 400-600	RF 125...250 AA	1.4404 (316L)	
D90					without lower flange	PN 100	
D91					PN 250		
S1			design	lower flange without flush boring			
S2				lower flange with flush boring 1/4" NPT, including plug			
S3	lower flange with flush boring 1/4" NPT, without plug						
S4	lower flange with flush boring 1/8" NPT, including plug						
S5	lower flange with flush boring 1/8" NPT, without plug						
G1	diaphragm material	stainless steel mat.-no. 1.4404 / 1.4435 (316L), standard					
G2		Tantal					
G3		Hastelloy C276					
G6		PTFE foil on stainless steel					
G9		as in writing					
H1	gasket to pressure chamber ²	NBR (Perbunan), temperature range -25...120 °C					
H4		PTFE, temperature range -100...250 °C					
H7		FKM (Viton), temperature range -40...200 °C					
H13		spring washer (metal, silver coated)					

A400	measuring device connection	directly	welded
A300			screwed G1/2
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 ³	<u>pressure transmission fluid</u>	<u>temperature range⁴</u>
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 ⁵	-90...160 °C
L30		halocarbon oil FC	-50...190 °C ⁶

Additional features (to be indicated in case of need, only)	
W1020	material certificate per EN 10204-3.1, wetted parts
W4001	oxygen free of oil and grease
X1	negative pressure service ⁷
X2	vacuum service ⁷

Order code (example): DD1110 - D10021 - S3 - G1 - ...

¹ flange connection possible for ASME

² not possible for the process connection lower flange, PTFE coated

³ for more detailed information about pressure transmission fluids see TA_038. Please state temperature range to allow an accurate calculation of the system.

⁴ max. media temperature for pressures > 0 bar rel. The temperature range of the used gasket has to be observed

⁵ not possible with vacuum service (order code X2)

⁶ for oxygen applications (in combination with order code W4001), a temperature range of -50...60 °C applies

⁷ Temperature limits see Technical Information TA_038 (Pressure transmission fluids)