Diaphragm seal

flange-type per DIN EN and ASME

Type series DA….

Application area

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

Features

- Flush-mounted separating diaphragm of stainless steel or special material
- Volume optimised diaphragm base
- Alternative with reinforced diaphragm in LTC technology (reduced temperature influence)
- System fillings for different applications
- 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 flange-type diaphragm seal 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. 1.4404/1.4435 (316L)
Diaphragm:	Flush-mounted diaphragm, laser welded; alternative with reduced temperature influence and reinforced diaphragm in LTC technology. (LTC=Low Temperature Coefficient) Further details see General technical information TA_031.
Material wetted parts:	Diaphragm: See order details Basic body: Stainless steel mat.-no. 1.4404/1.4435 (316L) Further materials upon request.

Process connection

Design:	Flange connection per EN 1092-1 and ASME B16.5 Further designs upon request.
Nominal pressure/Nominal width:	See table

Sealing are not included in the scope of delivery.

Sealing surfaces

per:

- EN 1092-1, model B1, B2, C, D, E
- ASME B 16.5, RFSF, RF 125-250AA, RJF

Special material surface upon request.

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.

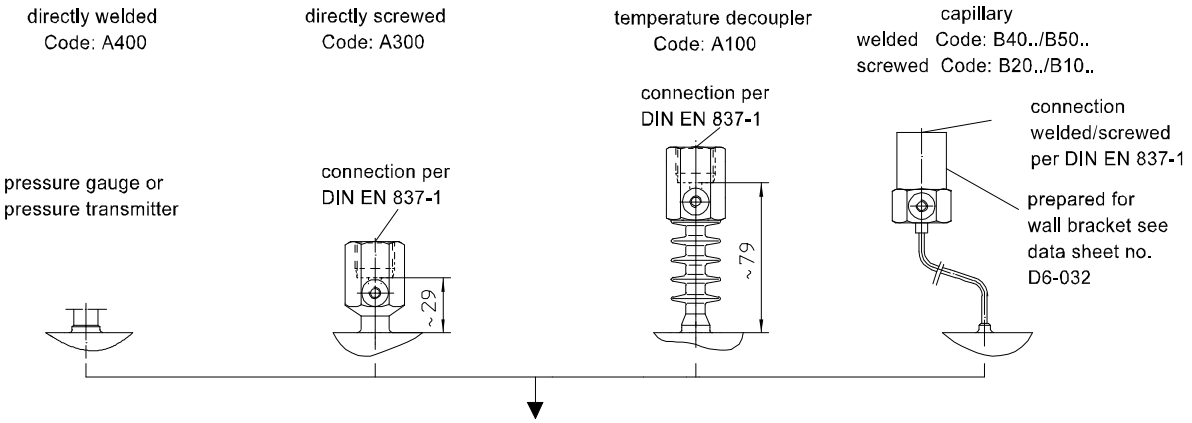
Weight

See table.

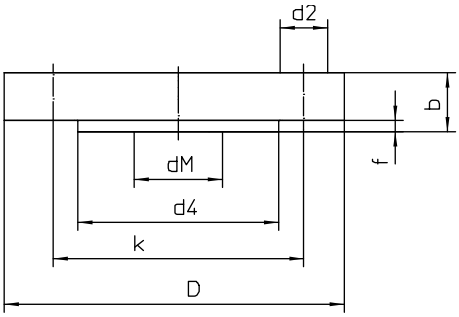
Further information about diaphragm seals see general technical information TA_031.

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

Measuring device connection



Dimensions



Dimensions (mm) ASME B 16.5										
DN	**Class**	**D**	**dM**	**d4**	**k**	**d2**	**no. bore holes**	**b**	**f**	**Weight approx.**
1“	150	110	30	51	79.4	16	4	14.7	2	1.3 kg
1“	300	125	30	51	88.9	19	4	17.9	2	2.5 kg
2“	150	150	51	92	120.7	19	4	19.5	2	3.2 kg
2“	300	165	51	92	127.0	19	8	22.7	2	4.1 kg
3“	150	190	86	127	152.4	19	4	24.3	2	5.2 kg
3“	300	210	86	127	168.3	22	8	29.0	2	5.7 kg
4“	150	230	116	158	190.5	19	8	24.3	2	7.0 kg
4“	300	255	116	158	200.0	22	8	32.2	2	11.0 kg

Dimensions (mm) EN 1092-1										
DN	**PN**	**D**	**dM**	**d4**	**k**	**d2**	**no. bore holes**	**b**	**f**	**Weight**
25	10/40	115	27	68	85	14	4	18	2	1.5 kg
25	63/100	140	27	68	100	18	4	24	2	2.0 kg
50	10/40	165	51	102	125	18	4	20	2	3.2 kg
50	63	180	51	102	135	22	4	26	2	4.1 kg
80	10/40	200	86	138	160	18	8	24	2	5.0 kg
100	10/16	220	86	158	180	18	8	20	2	6.0 kg
100	25/40	235	86	162	190	22	8	24	2	10.0 kg
125	10/16	250	116	188	210	18	8	22	2	10.0 kg
125	25/40	270	116	188	220	26	8	26	2	11.0 kg

Order details

Diaphragm seal flange-type per EN und ASME
Type series DA . . . .

Order details diaphragm seal DA			
DA1 . . .	design per EN 1092-1	sealing surface	model B1
DA2 . . .			model B2 [1]
DA4 . . .			model C
DA3 . . .			model D
DA7 . . .			model E
120		nominal width	DN 25, PN 10-40
150			DN 25, PN 63-100
420			DN 50, PN 10-40
430			DN 50, PN 63
620.			DN 80, PN 10-40
710.			DN 100, PN 10-16
720.			DN 100, PN 25-40
810.			DN 125, PN 10-16
820.			DN 125, PN 25-40
DA5 . . .	design per ASME B 16.5	sealing surface	RFSF [1]
DA51 . .			RF125-250 AA
DA6 . . .			RJF
110		nominal width	DN 1" Class 150
120			DN 1" Class 300
310			DN 2" Class 150
320			DN 2" Class 300
510			DN 3" Class 150
520			DN 3" Class 300
610			DN 4" Class 150
620			DN 4" Class 300

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
1	material wetted parts	stainless steel mat.-no. 1.4404/1.4435 (316 L), standard	
1L		stainless steel mat.-no. 1.4404/1.4435 (316 L), diaphragm in LTC technology [2]	
2		Tantal	
3		Hastelloy C276	
8		Hastelloy C4	
14		PFA coating on stainless steel[3]	
6		PTFE foil, on stainless steel [3]	
62		PTFE foil, high vacuum-resistent, on stainless steel [3]	

	system filling [4]	pressure transmission fluid	temperature range[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)	
W1020	material certificate per EN 10204-3.1, wetted parts
W4001	oxygen free of oil and grease
X1	negative pressure service[8]
X2	vacuum service[8]

Order code (example): DA1420 - A4001 - L22 - ...

[1] necessary in case of special materials. Diaphragms made of special materials cover the complete sealing surface area. The use of metallic seals is not permissible in this case. The maximum pressure level then depends on the design and properties of the sealing material.

[2] for DN 50 and DN 80

[3] in combination with model B2 and ASME B 16.5 RFSF, only

[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)