

Inline diaphragm seal flange connection Type series DP410.



Application area

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

Features

- Circular diaphragm of stainless steel, slightly grooved, laser welded
- Volume optimised diaphragm base
- Self-draining
- System fillings for different applications
- Measuring device connection:
 - directly welded
 - 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 per EN 10204-3.1
- Special materials upon request
- Oxygen free of oil and grease
- Negative pressure service

Application

Suitable for mounting to bourdon tube pressure gauges and pressure transmitters. The inline diaphragm seal with flange connection 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:	Inline diaphragm
Material wetted parts:	Diaphragm: See order details Basic body: Stainless steel mat.-no. 1.4404/1.4435 (316L)

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
- ASME B 16.5, RFSF, RF 125-250AA, RJF

With 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 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.

Which treatment is required (standard or negative pressure 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, see general technical information TA_038.

Temperature error

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

Weight

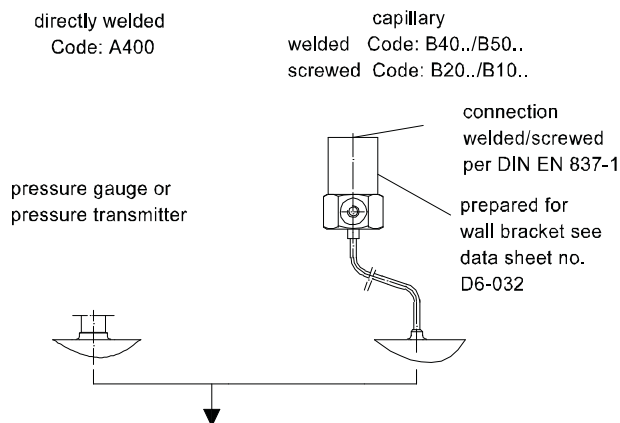
See table.

Further information about diaphragm seals see general technical information TA_031.

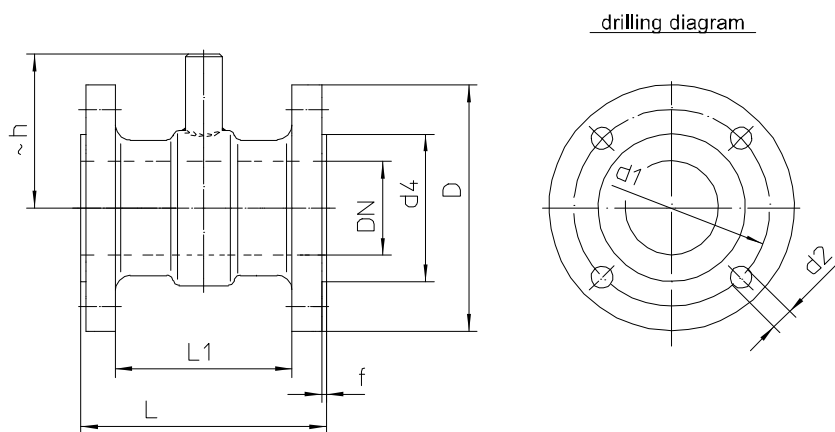
Flame arrester MF21xx for connection of measuring devices to zone 0 see data sheet D6-025.

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

Measuring device connection



Dimensions



Dimensions (mm) EN 1092-1												
DN	PN	di	D	d1	L	L1	d2	no. bore holes	h	f	d4	Weight approx.
25	10/40	28.5	115	85	114	78	14	4	67	2	68	3.2 kg
40	10/40	43.1	150	110	146	110	18	4	76	2	88	5.2 kg
50	10/40	54.5	165	125	156	116	18	4	84	2	102	6.8 kg
80	10/40	82.5	200	160	166	118	18	8	99	2	138	12.0 kg
100	10/16	107.1	220	180	166	126	18	8	110	2	158	15.4 kg
100	25/40	107.1	235	190	166	118	22	8	110	2	162	21.2 kg

Dimensions (mm) per ASME B 16.5												
DN	Class	di	D	d1	L	L1	d2	no. bore holes	h	f	d4	Weight approx.
1"	150	28.5	110	79.4	114	88	16	4	64	2	51	2.3 kg
1"	300	28.5	125	88.9	114	79	19	4	64	2	51	3.3 kg
2"	150	54.5	150	120.7	156	117	19	4	80	2	92	5.2 kg
2"	300	54.5	165	127.0	156	111	19	8	84	2	92	6.5 kg
3"	150	82.5	190	152.4	166	118	19	4	95	2	127	10.1 kg
3"	300	82.5	210	168.3	166	109	22	8	105	2	127	13.2 kg
4"	150	107.1	230	190.5	166	118	19	8	115	2	158	13.3 kg
4"	300	107.1	255	200.0	166	102	22	8	126	2	158	21.2 kg

Order details

Inline diaphragm seal, flange connection			
DP4100	Inline diaphragm seal, flange connection		
D11 . .	design per EN 1092-1	sealing surface ¹	model B1
D12 . .			model B2
D13 . .			model D
D14 . .			model C
12		nominal width	DN 25, PN 10-40
32			DN 40, PN 10-40
42			DN 50, PN 10-40
62			DN 80, PN 10-40
71			DN 100, PN 10-16
72			DN 100, PN 25-40
99			as in writing
D50 . .	design per ASME B16.5	sealing surface ¹	RF SF
D51 . .			RF 125-250 AA
D52 . .			RJ F
11		nominal width	DN 1", Class 150
12			DN 1", Class 300
31			DN 2", Class 150
32			DN 2", Class 300
51			DN 3", Class 150
52			DN 3", Class 300
61			DN 4", Class 150
62			DN 4", Class 300
99			as in writing
A400 .	measuring device connection	directly	welded
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	
3		Hastelloy C 276	
8		Hastelloy C 4	
9		as in writing	
F1	insertion length L	L = 114 mm standard at DN 25 and 1"	
F2		L = 146 mm standard at DN 40	
F3		L = 156 mm standard at DN 50 and 2"	
F4		L = 166 mm standard at DN 80/100 and 3"/4"	
F9		as in writing	
	system filling ²	<u>pressure transmission fluid</u>	<u>temperature range</u> ³
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	-90...160 °C
L30		halocarbon oil FC	-50...190 °C ⁴

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 ⁵

Order code (example): DP4100 - D1132 - A4001 - F2 - L22 - ...

¹ With plain sealing surface, roughness according to DIN 4768 : $R_z = 1,5$.

² For more detailed information about pressure transmission fluids see TA_038.
Please state temperature range to allow an accurate calculation of the system.

³ Max. media temperature for pressures > 0 bar rel.

⁴ For oxygen applications (in combination with order code W4001), a temperature range of -50...60 °C applies.

⁵ Temperature limits see Technical Information TA_038 (Pressure transmission fluids).