

Diaphragm seal

per DIN 11851, IDF and SMS
Type series DL1/2.., DL6/7..



Application area

- Food industry
- Pharmaceutical industry
- Biotechnology

Features

- Flush-mounted separating diaphragm of stainless steel, laser welded
- Alternative with reinforced diaphragm in LTC technology (reduced temperature influence)
- Volume optimised diaphragm base
- DIN 11851 and IDF with EHEDG certificate
- Dead-zone free design
- 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 per EN 10204-3.1
- Electropolishing (wetted parts)
- Hygienic design with advanced surface quality
- Special materials upon request

Application

Suitable for mounting to bourdon tube pressure gauges and pressure transmitters. The diaphragm seal is used mainly for dead-zone free pressure measurement.

Technical data

Constructional design

Basic body:	Volume reduced diaphragm base Material: stainless steel mat.-no. 1.4404/1.4435 (316L)
Union nut:	Material: stainless steel mat.-no. 1.4301 (304)
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: Stainless steel mat.-no. 1.4435 (316L) Further materials upon request Basic body: Stainless steel mat.-no. 1.4404/1.4435 (316L) Further materials upon request.

Process connection

Design:	Sanitary connections design with union nut or threaded coupling: <ul style="list-style-type: none">■ DIN 11851■ IDF■ SMS
Nominal pressure/nominal width:	See table

Sealing are not included in the scope of delivery.

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.

Hygienic design

The surface roughness of the wetted parts made of stainless steel are executed per EHEDG Doc.8 and ASME BPE SF3.
In case of choosing the additional feature HY, we guarantee the following surface roughness values:

Diaphragm foil:	$Ra \leq 0.38 \mu\text{m}$
Laser welds:	$Ra \leq 0.76 \mu\text{m}$
Turned parts:	$Ra \leq 0.76 \mu\text{m}$

Further versions of hygienic design upon request.

Temperature error

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

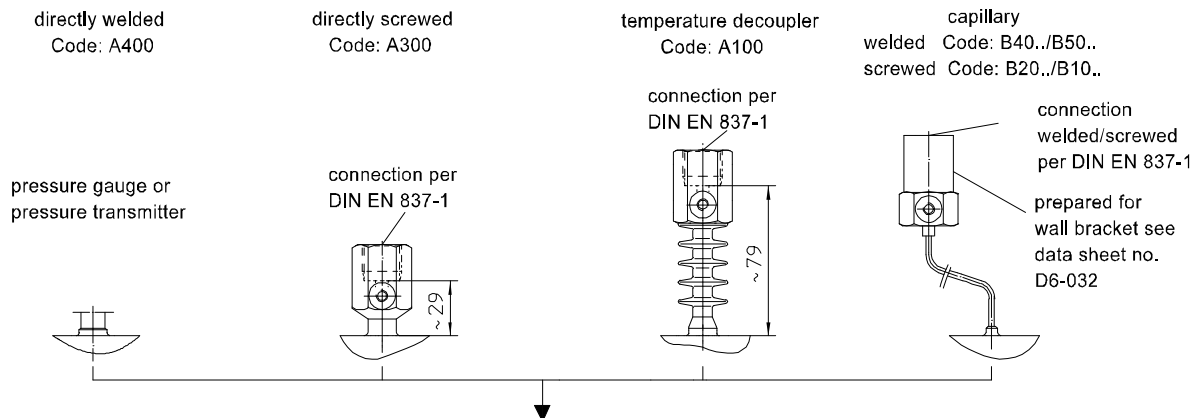
Weight

See table.

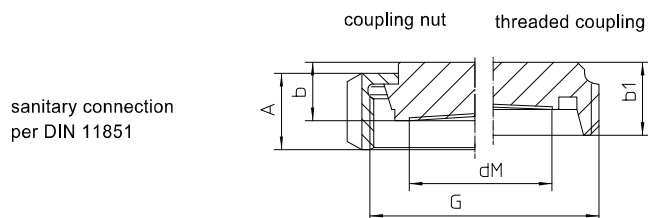
Further information about diaphragm seals see general technical information TA_031.

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

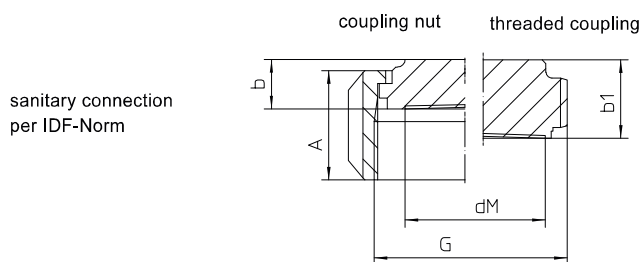
Measuring device connection



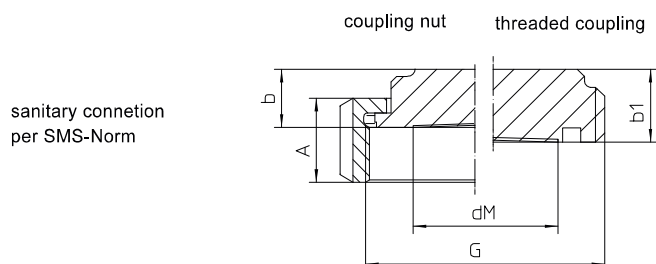
Dimensions



Sanitary pipe connection per DIN 11851 for pipes per EN 10357							
DN	PN	dM	G	A	b	b1	weight approx.
25	40	27	Rd. 52x1/6"	21	16	20	0.3 kg
32	40	34	Rd. 58x1/6"	21	16	20	0.4 kg
40	40	40	Rd. 65x1/6"	21	16	20	0.5 kg
50	25	51	Rd. 78x1/6"	22	17	20	0.6 kg
65	25	65	Rd. 95x1/6"	25	18	20	0.9 kg
80	25	70	Rd. 110x1/6"	29	18	26	1.2 kg
100	25	85	Rd. 130x1/6"	31	21	26	1.6 kg



Sanitary pipe connection per IDF (BS 4825-4) for pipes per BS 4825-1							
mm	PN	dM	G (IDF-thread)	A	b	b1	weight approx.
25.4	40	21	Tr 37.1x1/8 (37.13mm)	30	19	20	0.3 kg
38.1	40	34	Tr 50.6x1/8 (50.65mm)	30	13.5	20	0.3 kg
50.8	40	46	Tr 64.1x1/8 (64.16mm)	30	15	20	0.4 kg
63.5	25	51	Tr 77.6x1/8 (77.67mm)	30	20	20	0.6 kg
76.2	25	62	Tr 91.1x1/8 (91.19mm)	30	16	20	0.6 kg



Sanitary pipe connection per SMS 1145 for pipes per ISO 2037							
DN	PN	dM	G	A	b	b1	weight approx.
1"	25	21/22,6	RD. 40X1/6	19	16/14	18	0.3 kg
1 1/2"	25	34	RD. 60X1/6		20	20	0.4 kg
2"	25	46	RD. 70X1/6	24	22	20	0.5 kg
2 1/2"	25	51	RD. 85X1/6		20	24	0.6 kg
3"	25	62	RD. 98X1/6		20	24	0.9 kg

Order details

Diaphragm seal per DIN 11851, IDF and SMS					
DL2100	design 1	DIN 11851 ^{2,3}	with groove union nut	nominal width	DN 25
DL2200					DN 32
DL2300					DN 40
DL2400					DN 50
DL2500					DN 65
DL2600			DN 80		
DL2700			DN 100		
DL1100			with threaded coupling	nominal width	DN 25
DL1200					DN 32
DL1300					DN 40
DL1400		DN 50			
DL1500		DN 65			
DL1600		DN 80			
DL1700		DN 100			
DL7100		IDF ^{2,3}	with groove union nut	nominal width	25.4 mm
DL7200					38.1 mm
DL7300					50.8 mm
DL7400					63.5 mm
DL7500					76.2 mm
DL6100			with threaded coupling	nominal width	25.4 mm
DL6200					38.1 mm
DL6300					50.8 mm
DL6400					63.5 mm
DL6500					76.2 mm
DL7110		SMS	with groove union nut	nominal width	1"
DL7210					1 1/2"
DL7310					2"
DL7410					2 1/2"
DL7510					3"
DL6110			with threaded coupling	nominal width	1"
DL6210					1 1/2"
DL6310					2"
DL6410	2 1/2"				
DL6510	3"				

	surface roughness	standard		
HY		Hygienic version as per EHEDG Doc.8 and ASME BPE SF3		
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	
7	material	wetted parts stainless steel mat.-no. 1.4435 (316L)		
7L		wetted parts stainless steel mat.-no. 1.4435 (316L), diaphragm in LTC technology ⁴		
	system filling ⁵	<u>pressure transmission fluid</u>	<u>temperature range</u> ⁶	
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	
L15		glycerine/water FGW	-30...110 °C	

Additional features (to be indicated in case of need, only)

W1020	material certificate per EN 10204-3.1, wetted parts
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order code (example): DL2300 - A4007 - L22 - ...

¹ Other designs upon request.

² EHEDG certified only in connection with hygienic design (order code option HY).

³ EHEDG certificate valid only if gaskets are used that are listed in the "EHEDG position paper".

⁴ For DN 50, DN 65, DN 80, 2 1/2" and 3", 50.8 mm, 63.5 mm and 76.2 mm.

⁵ For more detailed information about pressure transmission fluids see TA_038.
Please state temperature range to allow an accurate calculation of the system.

⁶ Max. media temperature for pressures > 0 bar rel.