Diaphragm seal

screw-in thread

Type series DE1…

Application area

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

Features

- Flush-mounted separating diaphragm of stainless steel or special material
- Nominal pressure up to PN 400
- Volume optimised diaphragm base
- 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 screw-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
Diaphragm:	Flat diaphragm
Material:	See order code

Process connection

Design:	■ Screw-in thread per DIN 3852, model A: G1/2 A, G3/4 A, G1 A, G1 1/2 A, G 2 A ■ NPT connections per ASME B1.20.1 3/4", 1", 1 1/2", 2" Further connections upon request.
Nominal pressure:	See dimension tables
Nominal width:	See dimension tables

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.

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 connection G1/2:

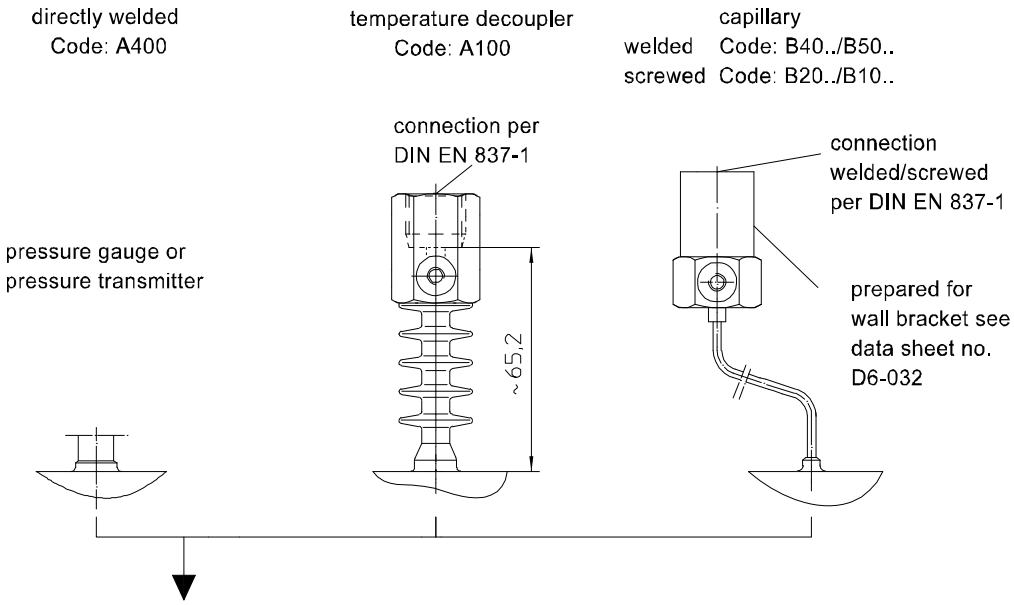
G1/2 A:	approx. 0.2 kg
G3/4 A:	approx. 0.3 kg
G1 A:	approx. 0.5 kg
G1 1/2 A:	approx. 1.0 kg
G2 A:	approx. 1.6 kg

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.

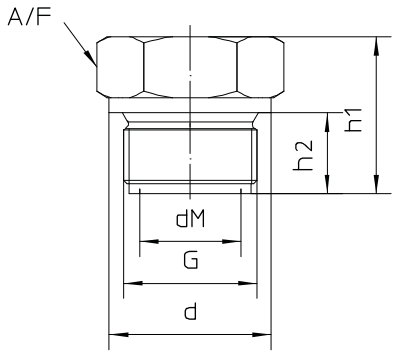
Measuring device connection

For screw-in thread per DIN 3852, model A



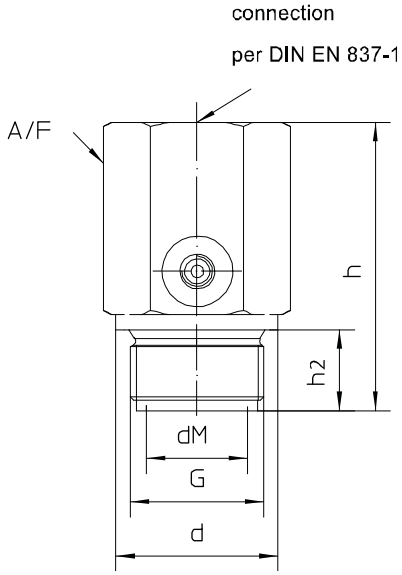
Dimensions

For screw-in thread per DIN 3852, model A



Dimensions screw-in thread per DIN 3852, model A (mm)						
G	**d**	**dM**	**h1**	**h2**	**A/F**	**PN**
G1/2 A	26	17.5	27	14	27	400
G3/4 A	32	22.6	31	16	32	400
G1 A	39	27	33	18	41	400
G1 1/2 A	55	40	40	22	55	250
G2 A	68	51	42	24	70	250

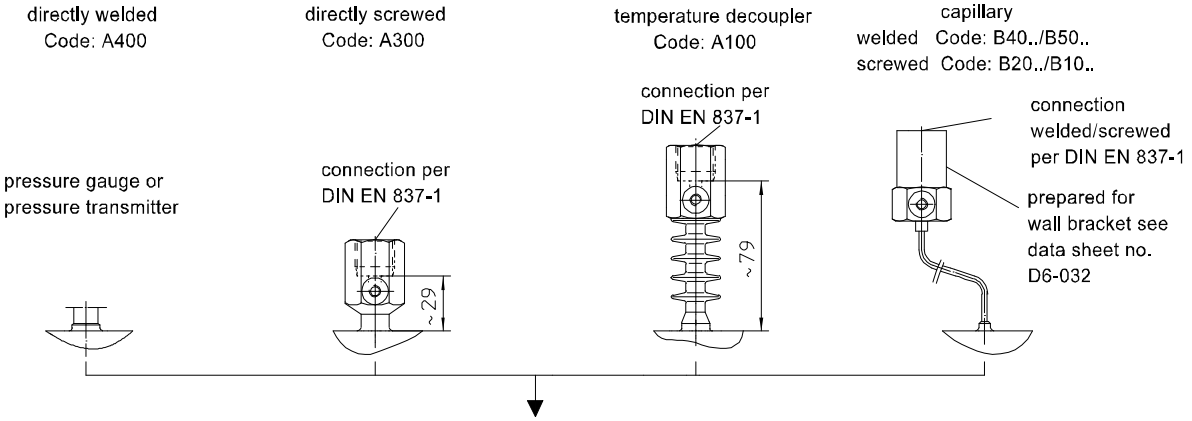
For screw-in thread per DIN 3852, model A, with measuring device connections directly screwed



Dimensions screw-in thread per DIN 3852, model A (mm)						
G	**d**	**dM**	**h**	**h2**	**A/F**	**PN**
G1/2 A	26	17.5	55	14	27	400
G3/4 A	32	22.6	57	16	32	400
G1 A	39	27	59	18	41	400
G1 1/2 A	55	40	61	22	55	250
G2 A	68	51	64	24	70	250

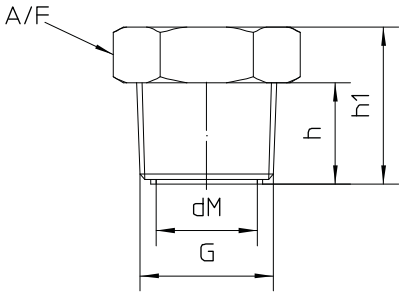
Measuring device connection

For NPT connections per ASME B1.20.1



Dimensions

For NPT connections per ASME B1.20.1



Dimensions NPT connections per ASME B1.20.1 (mm)					
G	**dM**	**h**	**h1**	**A/F**	**PN**
3/4"	21	20	31	32	400
1"	27	25	40	41	250
1 1/2"	34	26	45	55	100
2"	46	26	45	65	100

Order details

Diaphragm seal screw-in thread			
DE1180	process connection[1]	per DIN 3852 Form A	G1/2 A
DE1280			G3/4 A
DE1380			G1 A
DE1580			G1 1/2 A
DE1680			G2 A
DE1810		per ASME B1.20.1	3/4" NPT
DE1820			1" NPT
DE1830			1 1/2" NPT
DE1840			2" NPT

D4	nominal pressure [2]	PN 400
D12		PN 250
D11		PN 100

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)	
7		diaphragm material stainless steel mat.-no. 1.4435 (316L), basic body stainless steel mat.-no. 1.4404 (316L)	
2		diaphragm material Tantal, basic body stainless steel mat.-no. 1.4404 (316L)	
3		diaphragm material and basic body Hastelloy C 276	
31		diaphragm material Hastelloy C 276, basic body stainless steel mat.-no. 1.4404 (316L)	
	system filling [3]	pressure transmission fluid	temperature range[4]
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): DE1380 - D4 - A4007 - L22 - ...

[1] further designs upon request
[2] depending on process connection - see dimension tables
[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 pressure > 0 bar rel.
[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)