# Diaphragm seal for general application

## flange-type for low pressure application

## Type series DA810.



### Application area

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

## Features

- Flush-mounted separating diaphragm of stainless steel or special material
- Reduced torque error
- 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
- Negative pressure and vacuum service

### Application

Suitable for mounting to pressure transmitters, especially for low-pressure applications. Due to the loose clamping flange there are no mounting torque errors. 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<br>Material:<br>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)<br>Further details see General technical information TA_031. |
| Material wetted parts: | Diaphragm:<br>See order details<br><br>Basic body:<br>Stainless steel mat.-no. 1.4404/1.4435 (316L) |

## Process connection

| | |
|---|---|
| Design: | Flange connection per EN 1092-1 and ASME B16.5<br>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 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.

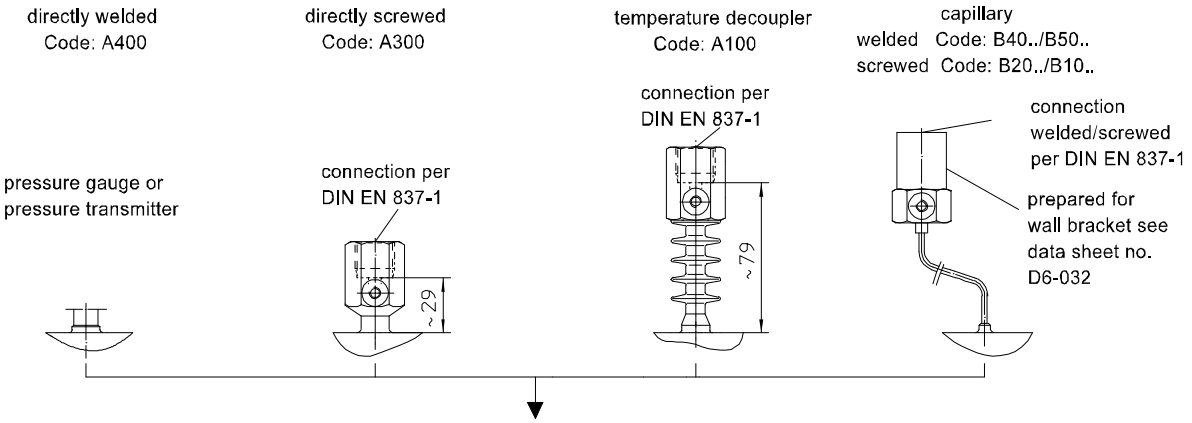
## Weight

See table.

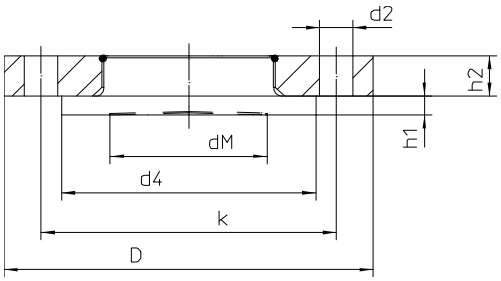
**Further information about diaphragm seals see general technical information TA_031.**

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

## Measuring device connection




## Dimensions




| Dimensions (mm) EN 1092-1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **DN** | **PN** | **D** | **k** | **d2** | **dM** | **d4** | **h1** | **h2** | **no. bore holes** | **Weight approx.** |
| 50 | 10/40 | 165 | 125 | 18 | 51 | 102 | 8 | 15 | 4 | 3.2 kg |
| 80 | 10/40 | 200 | 160 | 18 | 86 | 138 | 10 | 22 | 8 | 5 kg |
| 100 | 10/16 | 220 | 180 | 18 | 86 | 158 | 10 | 22 | 8 | 6 kg |
| 100 | 25/40 | 235 | 190 | 22 | 86 | 162 | 10 | 22 | 8 | 10 kg |
| 125 | 10/16 | 250 | 210 | 18 | 86 | 188 | 10 | 22 | 8 | 11 kg |
| 125 | 25/40 | 270 | 220 | 26 | 86 | 188 | 10 | 22 | 8 | 12 kg |

| Dimensions (mm) ASME B16.5 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **DN** | **Class** | **D** | **k** | **d2** | **dM** | **d4** | **h1** | **h2** | **no. bore holes** | **Weight approx.** |
| 3“ | 150 | 190 | 152.4 | 19 | 86 | 127 | 10 | 22 | 4 | 5.2 kg |
| 3“ | 300 | 210 | 168.3 | 22 | 86 | 127 | 10 | 22 | 8 | 6 kg |
| 4“ | 150 | 230 | 190.5 | 19 | 86 | 158 | 10 | 22 | 8 | 10 kg |
| 4“ | 300 | 255 | 200 | 22 | 86 | 158 | 10 | 20 | 8 | 11 kg |

# Order details

## Diaphragm seal, flange-type per EN 1092-1 and ASME B16.5, for low pressure applications, Type series DA810 .

| order details diaphragm seal DA810 . | | | |
|---|---|---|---|
| **DA810 .** | diaphragm seal, flange-type per EN and ASME, for low pressure applications | | |
| **D11 . .** | design per EN 1092-1 | sealing surface | model B1 |
| **D12 . .** | | | model B2 [1] |
| **D14 . .** | | | model C |
| **D13 . .** | | | model D |
| **41** | | nominal width | DN 50, PN 10-40 |
| **62** | | | DN 80, PN 10-40 |
| **71** | | | DN 100, PN 10-16 |
| **72** | | | DN 100, PN 25-40 |
| **81** | | | DN 125, PN 10-16 |
| **82** | | | DN 125, PN 25-40 |
| **D50 . .** | design per ASME B16.5 | sealing surface | RFSF [1] |
| **D51 . .** | | | RF125-250 AA |
| **D52 . .** | | | RJF |
| **51** | | nominal width | DN 3" Class 150 |
| **52** | | | DN 3" Class 300 |
| **61** | | | DN 4" Class 150 |
| **62** | | | 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 | |
| | 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 |

| Additional features ( to be indicated in case of need, only) | |
|---|---|
| **W1020** | material certificate per EN 10204-3.1, wetted parts |
| **X1** | negative pressure service [5] |
| **X2** | vacuum service [5] |

**Order code (example): DA8100 - D1162 - 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] 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.

[5] temperature limits see Technical Information TA_038 (Pressure transmission fluids)