# Diaphragm seal

## cell-type

## Type series DC….



## Features

- Flush-mounted separating diaphragm of stainless steel or special material
- Alternative with reinforced diaphragm in LTC technology (reduced temperature influence)
- Volume optimised diaphragm base
- System fillings for different applications
- Measuring device connection 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 cell diaphragm seal is suited for measuring aggressive, highly viscous media and for high process temperatures.

### Application area

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

# 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

With capillary in accordance to order details.

## 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

Diaphragm seal without capillary:

| | |
|---|---|
| DN 50 and 2": | approx. 1.3 kg |
| DN 80 and 3": | approx. 2.2 kg |
| DN 100 and 4": | approx. 3.6 kg |
| DN 125: | approx. 4.8 kg |

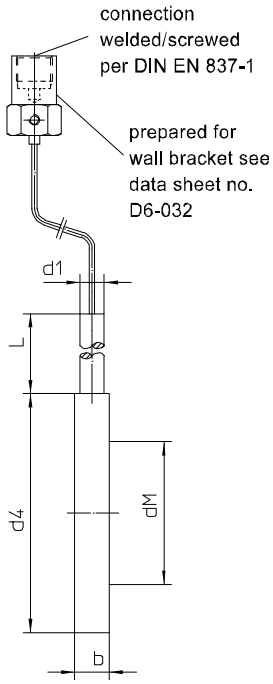
Further weights upon request.

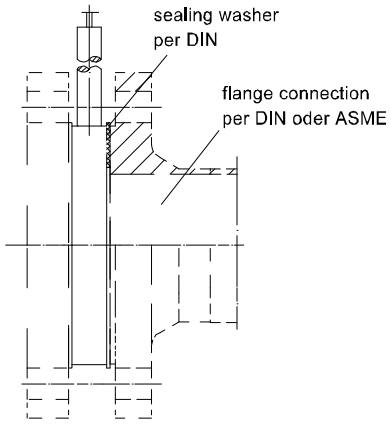
**Further information about diaphragm seals see general technical information TA_031.**

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

# Measuring device connection

capillary
welded Code: B40../B50..
screwed Code: B20../B10..




| Dimensions (mm) per EN 1092-1 | | | | | | |
|---|---|---|---|---|---|---|
| **DN** | **PN** | **d4** | **dM** | **b** | **L** | **d1** |
| 50 | 400 | 102 | 51 | 20 | 73.5 | 14 |
| 65 | 400 | 122 | 65 | 20 | 73.5 | 14 |
| 80 | 400 | 138 | 86 | 20 | 73.5 | 14 |
| 100 | 400 | 158 | 86 | 20 | 73.5 | 14 |
| 125 | 400 | 188 | 116 | 20 | 73.5 | 14 |

| Dimensions (mm) per ASME B 16.5 | | | | | | |
|---|---|---|---|---|---|---|
| **DN** | **Class** | **d4** | **dM** | **b** | **L** | **d1** |
| 2“ | 2500 | 100 | 51 | 22 | 73.5 | 14 |
| 3“ | 2500 | 134 | 86 | 22 | 73.5 | 14 |
| 4" | 2500 | 158 | 86 | 20 | 73.5 | 14 |

# Order details

## Diaphragm seal cell-type
## Type series DC . . . .

| Order details diaphragm seal DC . . . . | | | |
|---|---|---|---|
| **DC4 . . .** | design per EN 1092-1 | sealing surface | model B1 |
| **DC1 . . .** | | | model B2 [1] |
| **DC5 . . .** | | | model C max. PN 160 |
| **DC2 . . .** | | | model D max. PN 160 |
| **480** | | nominal width | DN 50 |
| **680** | | | DN 80 |
| **780** | | | DN 100 |
| **880** | | | DN 125 |
| **DC3 . . .** | design per ASME B16.5 | sealing surface | RFSF [1] |
| **DC31 . .** | | | RF125-250 AA |
| **DC6 . . .** | | | RJF |
| **310** | | nominal width | DN 2" |
| **510** | | | DN 3" |
| **610** | | | DN 4" |
| **B40 . .** | measuring device connection | 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] | |
| **3** | | Hastelloy C276 [3] | |
| **8** | | Hastelloy C4 [3] | |
| **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): DC1480 - B40111 - 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)