

# DIAPHRAGM TYPE CHEMICAL SEAL „COMBI“



## Process connection

Female thread

Male thread

Flange acc. to DIN 2501

Flange acc. to ANSI B 16,5



## Description

Diaphragm seals are used when measuring media due to high temperature, high viscosity (pasty media) or their tendency to crystallise, the pressure measurement can falsify.

They transmit the process pressure to the pressure measuring device, with the diaphragm seal hermetically separating the medium and the measuring device. Thanks to the various process connection options, membrane diaphragm seals of the "Combi" design are particularly suitable for general process engineering.

With various process connection systems, the chemical seals of type combi are especially suitable for general process engineering applications.

The wetted parts of these diaphragm seals are made of stainless steel as standard. They can be used in conjunction with a bourdon tube pressure gauge or pressure sensor for pressure ranges from 0...0.6 bar to 0...250 bar.

For extreme requirements, the wetted parts can be made of special materials.

If the permissible nominal pressure is exceeded, an appropriately designed diaphragm prevents damage to the diaphragm seal.

## Features

- Various process connections
- For media up to 400°C
- Overload protection by diaphragm
- Dismantling of the upper part without changing the measurement properties
- Special materials for extreme requirements
- Can be attached to MSR devices

## Pressure ranges

0...0,6 bar up to 0...250 bar

## Nominal pressure





max. PN 200

## Applications

Plant and apparatus engineering

Process engineering

Chemical and petrochemical industries

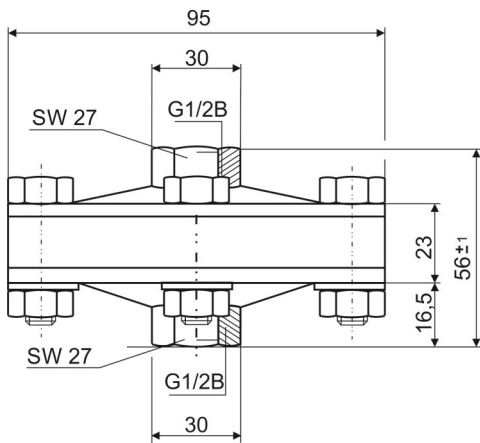
| Type                         | 1000  | 1001  | 1002  | 1003   | Options   |
|------------------------------|---|---|---|--|---|
|                              |  |  |  |  |   |
| <b>Process connection</b>    | G1/2 female or 1/2NPT   | G1/2 female or 1/2NPT   | Flange DIN 2501   | Flange ANSI B16,5  |   |
| <b>Sealing surface</b>       |   |   | DIN 2526 Form D   | ANSI B 16,5 RF   | DIN 2526 Form E or C<br>DIN 2512 tongue/groove<br>DIN 2513 forward / backward ANSI ring groove form RJF   |
| <b>Instrument connection</b> | G1/2 female thread acc. to DIN 16 288   |   |   |  | Capillary welded with upper part<br>Cooling element<br>(for directly mounted gauge when process temperature >100°C)<br>others on request  |
| <b>Upper part</b>            | 1.4571  |   |   |  | 1.4401, 1.4435, 1.4541, titanium  |
| <b>Diaphragm</b>             | 1.4571 welded with upper part   |   |   |  | 1.4401, 1.4435, 1.4541<br>Hastelloy B2, C4, C276, Monel400,<br>Nickel, Inconel 600, Incoloy 825, Titanium,<br>Tantalum<br>Zirconium (upper part titanium)<br>Silver foil (up to 100°C)<br>PTFE-foil (up to 150°C, <100 bar)<br>PFA-coating (up to 260°C)<br>ECTFE-coating (up to 150°C) |
| <b>Sealing</b>               | FPM Viton (up to 200°C)   |   |   |  | PTFE (up to 260°C, standard for special diaphragms)<br>Metal (up to 400°C, 1.4571 silver plated, Inconel silver plated)   |
| <b>Lower part</b>            | 1.4571  |   |   |  | Steel galvanised,<br>Special materials: lined and coated<br>Flushing hole connection, connection flange not heatable with lining, special connection  |
| <b>Clamping flange</b>       | Steel galvanised  |   |   |  | 1.4571<br>(for temperatures > 250°C)  |
| <b>screws and nuts</b>       | Steel galvanised (up to 200°C)  |   |   |  | 1.4571 (up to 260°C)<br>Steel, heat resistance (up to 400°C)  |
| <b>Filling liquid</b>        | Silikone oil, FFL No. 2   |   |   |  | others, depending on process conditions   |
| <b>Operating temperature</b> | Tmin. -20°C...Tmax. 200°C   |   |   |  | Tmin. -90°C, Tmax. 400°C  |

**Important notes on the selection of diaphragm seals**

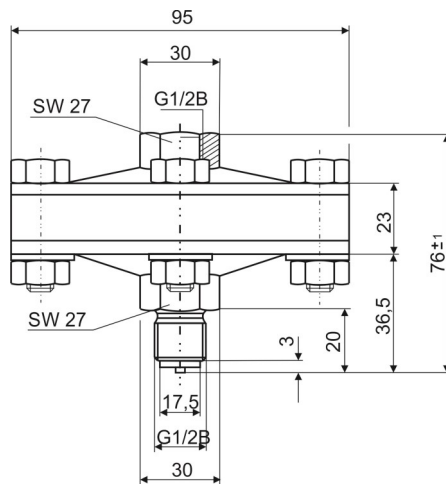
The process pressure to be measured is transmitted from the diaphragm seal to the pressure measuring device with the aid of a liquid. For reasons related to the system and in order not to expose measuring devices to impermissibly high temperatures, the diaphragm seal and measuring device can be connected to one another via capillary lines (length up to 15 m). The temperature gradient between the MSR device and the diaphragm seal can be several 100 ° C. This means that temperature-related measurement errors are possible, which can be a multiple of the accuracy of the measuring device.

Matching of the chemical seal and pressure measuring instrument therefore requires expertise, and we shall be pleased to assist you. We recommend you to request our special questionnaire on service conditions and order data.

**Type 1000**  
Process connection female thread



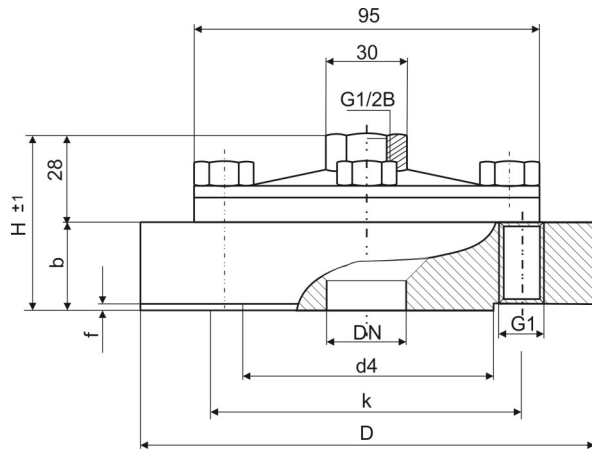
**Type 1001**  
Process connection male thread



| Type            |     |                       |                   | 1000        | 1001 |
|-----------------|-----|-----------------------|-------------------|-------------|------|
| DN              | PN  | effective diaphragm Ø | Numbers of screws | Weight (kg) |      |
| G1/2 or 1/2 NPT | 25  | 52                    | 4 x M10           | 1,4         | 1,6  |
|                 | 100 | 52                    | 4 x M10           | 1,4         | 1,6  |
|                 | 250 | 52                    | 8 x M10           | 3,0         | 3,2  |

**Type 1002/1003**

Process connection: flange



**Type 1002 connection acc. to DIN 2501**

| DN | PN     | Dimensions |     |    |    |   |    |         | Weight (kg) |
|----|--------|------------|-----|----|----|---|----|---------|-------------|
|    |        | D          | k   | d4 | b  | f | H  | G1      |             |
| 15 | 10/40  | 95         | 65  | 45 | 28 | 2 | 56 | 4 x M12 | 1,56        |
|    | 63/100 | 105        | 75  | 45 | 25 | 2 | 53 | 4 x M12 | 2,00        |
|    | 160    | 105        | 75  | 45 | 25 | 2 | 53 | 4 x M12 | 2,13        |
|    | 250    | 130        | 90  | 45 | 26 | 2 | 54 | 4 x M16 | 3,20        |
| 20 | 10/40  | 105        | 75  | 58 | 25 | 2 | 53 | 4 x M12 | 1,87        |
| 25 | 10/40  | 115        | 85  | 68 | 22 | 2 | 50 | 4 x M12 | 2,10        |
|    | 63/100 | 140        | 100 | 68 | 24 | 2 | 52 | 4 x M16 | 3,20        |
|    | 160    | 140        | 100 | 68 | 24 | 2 | 52 | 4 x M16 | 3,60        |
|    | 250    | 150        | 105 | 68 | 28 | 2 | 56 | 4 x M20 | 4,00        |

**Type 1003 connection acc. to ANSI B 16.5**

| DN   | Class | Dimensions |       |    |      |   |      |          |
|------|-------|------------|-------|----|------|---|------|----------|
|      |       | D          | k     | d4 | b    | f | H    | G1       |
| 1/2" | 150   | 95         | 60,5  | 35 | 28   | 2 | 56   | 4 x 1/2" |
|      | 300   | 95         | 66,5  | 35 | 28   | 2 | 56   | 4 x 1/2" |
|      | 600   | 95         | 66,5  | 35 | 32   | 7 | 60   | 4 x 1/2" |
|      | 1500  | 120        | 82,5  | 35 | 40   | 7 | 68   | 4 x 3/4" |
| 3/4" | 150   | 100        | 70    | 43 | 28   | 2 | 56   | 4 x 1/2" |
|      | 300   | 120        | 82,5  | 43 | 22   | 2 | 50   | 4 x 5/8" |
|      | 600   | 120        | 82,5  | 43 | 25   | 7 | 53   | 4 x 5/8" |
|      | 1500  | 130        | 89    | 43 | 32   | 7 | 60   | 4 x 3/4" |
| 1"   | 150   | 110        | 79,5  | 51 | 22   | 2 | 50   | 4 x 1/2" |
|      | 300   | 125        | 89    | 51 | 22   | 2 | 50   | 4 x 5/8" |
|      | 600   | 125        | 89    | 51 | 24,5 | 7 | 52,5 | 4 x 5/8" |
|      | 1500  | 150        | 101,5 | 51 | 36   | 7 | 64   | 4 x 7/8" |