

# DIAPHRAGM TYPE CHEMICAL SEAL "COMBI"



## Process

**connection:** female thread  
or male thread  
or flange acc. to DIN 2 501  
or flange acc. to ANSI B 16,5



## Description

Chemical seals are used when media can falsify the pressure measurements due to high temperature, high viscosity (media in paste form) or their propensity to crystallise.

Chemical seals transmit the process pressure to the measuring instrument, with the diaphragm forming a hermetic seal between the medium and measuring instrument.

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

The medium wetted parts of these chemical seals are manufactured in stainless steel as standard. In connection with a Bourdon tube pressure gauge or a transducer, they are suitable for pressure ranges from 0...0.6 bar to 0...250 bar.

The parts in contact with the medium can be manufactured in special materials for particular service conditions.

When the permissible rated pressure is exceeded, a specially designed diaphragm prevents damage to the chemical seal.

## Features

- o Various process connections
- o For media up to 400°C
- o Overload protection by diaphragm bed
- o Dismantling of the upper section does not alter the measurement characteristics
- o Special materials for extreme service requirements
- o Mountable on instrumentation and control equipment

## Pressure ranges




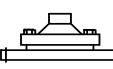
0 ... 0.6 bar up to 0... 250 bar

## Rated pressure

Max. PN 250

## Applications

Plant and apparatus construction, process engineering, chemical and petro-chemical industries

| Type                         | 1000  | 1001  | 1002  | 1003  | Options  |
|------------------------------|---|---|---|---|--|
| <b>Bauform</b>               |  |  |  |  |  |
| <b>Process connection</b>    | G1/2 female or 1/2 NPT  | G1/2 male or 1/2 NPT  | Flange DIN 2501   | Flange ANSI B16,5   | others on request  |
| <b>Sealing surface</b>       |   |   | DIN 2526 Form D   | ANSI B 16,5 RF  | DIN 2526 Form E or C<br>DIN 2512 groove / ring<br>DIN 2513 spigot-/socket<br>ANSI groove-ring Form RJF   |
| <b>Instrument connection</b> | G1/2 female thread acc.to DIN 16 288  |   |   |   | Capillary welded with upper body cooling element (for directly mounted gauge when process temperature >100°C), others on request   |
| <b>Upper body</b>            | Stainless steel 1.4571  |   |   |   | Stainl. steel 1.4401, 1.4435, 1.4541 or Titan  |
| <b>Diaphragm</b>             | Stainless 1.4571 welded with upper body   |   |   |   | Stainless steel 1.4401; 1.4435; 1.4541; Hastelloy B2, C4, C276; Monel 400; Nickel; Inconel 600, Incoloy 825; Titan; Tantal; Zirkonium (upper body Titan); Silver foil (up to 150°C); PTFE-foil (up to 150°C, <100 bar); PFA-coating (up to 260°C); ECTFE-coating (up to 150°C) |
| <b>Sealing ring</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 body</b>            | Stainless steel 1.4571  |   |   |   | Seal, zinc plated<br>Special materials: lined, coated<br>Flushing connection, not with lining<br>open flange, heater jacket, special connect.  |
| <b>Retainer flange</b>       | Steel cinc plated   |   |   |   | Stainless steel 1.4571 (for temperatures > 250°C)  |
| <b>Bolts and nuts</b>        | Steel cinc plated (up to 200°C)   |   |   |   | Stainless steel 1.4571 (up to 260°C)<br>steel, heat resistant (up to 400°C)  |
| <b>Liquid filling</b>        | Silicone oil, FFL Nr. 2   |   |   |   | Other available in consideration of process conditions   |
| <b>Operating temperature</b> | Tmin. -20°C, Tmax. 200°C  |   |   |   | Tmin. -90°C, Tmax. 400°C   |

#### Important notes on the selection of chemical seals

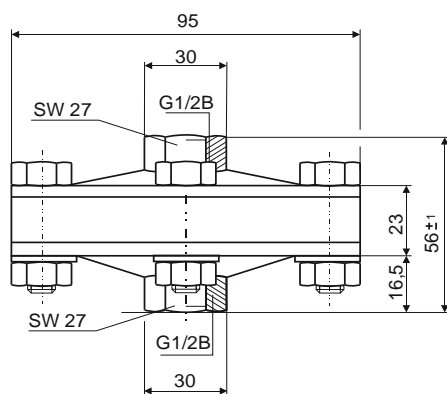
The process pressure to be measured is applied to the measuring instrument by the chemical seal with the aid of a liquid. The chemical seal and measuring instrument can be connected together by capillary lines (length up to max. 15 m) for system related reasons and in order to prevent the exposure of measuring instruments to impermissibly high temperatures. The temperature drop between the instrumentation and control unit and the chemical seal can be several 100°C. Measuring errors resulting from temperature are therefore possible and may be of a magnitude several times the accuracy of the measuring instrument. The particular operating conditions can be taken into account in the manufacture of I & C device-chemical seal combinations.

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.

## Dimensioned drawing

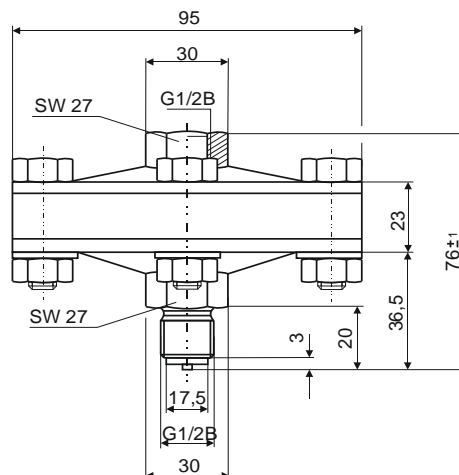
### Type 1000

Process connection: female thread



### Type 1001

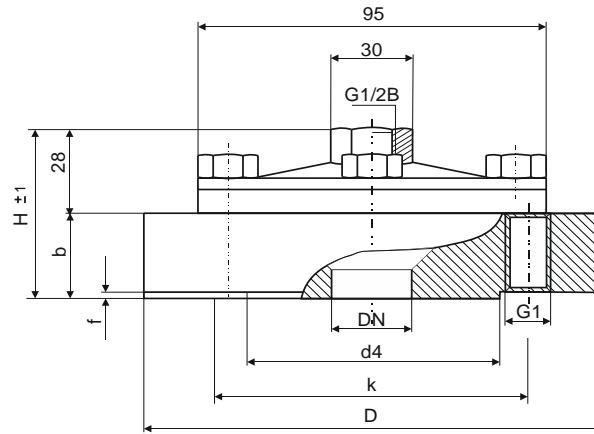
Process connection: male thread



| Type                  |     |                             |                          | 1000        | 1001 |
|-----------------------|-----|-----------------------------|--------------------------|-------------|------|
| DN                    | PN  | effective diaphragm Ø<br>mm | Numbers of<br>bolt holes | Weight (kg) |      |
| G1/2<br>or<br>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 (mm) |     |    |    |   |    |       | Weight kg |
|----|--------|-----------------|-----|----|----|---|----|-------|-----------|
|    |        | D               | k   | d4 | b  | f | H  | G1    |           |
| 15 | 10/40  | 95              | 65  | 45 | 28 | 2 | 56 | 4xM12 | 1,56      |
|    | 63/100 | 105             | 75  | 45 | 25 | 2 | 53 | 4xM12 | 2,00      |
|    | 160    | 105             | 75  | 45 | 25 | 2 | 53 | 4xM12 | 2,13      |
|    | 250    | 130             | 90  | 45 | 26 | 2 | 54 | 4xM16 | 3,20      |
| 20 | 10/40  | 105             | 75  | 58 | 25 | 2 | 53 | 4xM12 | 1,87      |
| 25 | 10/40  | 115             | 85  | 68 | 22 | 2 | 50 | 4xM12 | 2,10      |
|    | 63/100 | 140             | 100 | 68 | 24 | 2 | 52 | 4xM16 | 3,20      |
|    | 160    | 140             | 100 | 68 | 24 | 2 | 52 | 4xM16 | 3,60      |
|    | 250    | 150             | 105 | 68 | 28 | 2 | 56 | 4xM20 | 4,00      |

effective diaphragm 52 mm

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

| DN   | Klasse | Dimensions (mm) |       |    |      |   |      |          |
|------|--------|-----------------|-------|----|------|---|------|----------|
|      |        | D               | k     | d4 | b    | f | H    | G1 (UNC) |
| 1/2" | 150    | 95              | 60,5  | 35 | 28   | 2 | 56   | 4x1/2"   |
|      | 300    | 95              | 66,5  | 35 | 28   | 2 | 56   | 4x1/2"   |
|      | 600    | 95              | 66,5  | 35 | 32   | 7 | 60   | 4x1/2"   |
|      | 1500   | 120             | 82,5  | 35 | 40   | 7 | 68   | 4x3/4"   |
| 3/4" | 150    | 100             | 70    | 43 | 28   | 2 | 56   | 4x1/2"   |
|      | 300    | 120             | 82,5  | 43 | 22   | 2 | 50   | 4x5/8"   |
|      | 600    | 120             | 82,5  | 43 | 25   | 7 | 53   | 4x5/8"   |
|      | 1500   | 130             | 89    | 43 | 32   | 7 | 60   | 4x3/4"   |
| 1"   | 150    | 110             | 79,5  | 51 | 22   | 2 | 50   | 4x1/2"   |
|      | 300    | 125             | 89    | 51 | 22   | 2 | 50   | 4x5/8"   |
|      | 600    | 125             | 89    | 51 | 24,5 | 7 | 52,5 | 4x5/8"   |
|      | 1500   | 150             | 101,5 | 51 | 36   | 7 | 64   | 4x7/8"   |

effective diaphragm 52 mm

Drawing details must include connection (geometry/material, gasket part), measuring liquid medium, pressure gauge/operating conditions according to special questionnaire.