

The Hydraulic Pressure Seal SATRON HPS is used in pressure measurement applications where the process medium is aggressive and it is necessary to protect the wetted parts of measuring transmitters. Processes' hygienic requirements may also necessitate the use of the pressure seal. In addition, the pressure seal has to be used when the process temperature exceeds the transmitter's specifications.

## Technical specifications

### Process connections

- Thread M45 x 2

### Process pressures

- PN200

### Measurement ranges

Above 25 mbar span, depending on the measuring diaphragm's size and the process pressure.

### Materials

HPS body: EN 1.4404 (AISI 316L), EN 1.4462 (Duplex)

### Capillary tube

- Capillary: AISI 316
- Casing: AISI 316

Length selectable between 2 and 20 m.

Recommendation: As short as possible.

The capillary's minimum permissible bending radius is 50 mm.

We recommend capillaries of equal length for differential pressure measurements in varying temperature conditions.

### Diaphragm materials

AISI 316L (EN 1.4435), CoNi-alloy, Duplex (EN 1.4462), Hastelloy® C22 / C-276 (EN 2.4819), Inconel 600 (EN 2.4816), Tantalum

### Fill fluids

Silicone oil DC200

- for process and food industry applications

Neobee M20

- for food industry applications

Inert oil (e.g. Fomblin Y04 or Halocarbon)

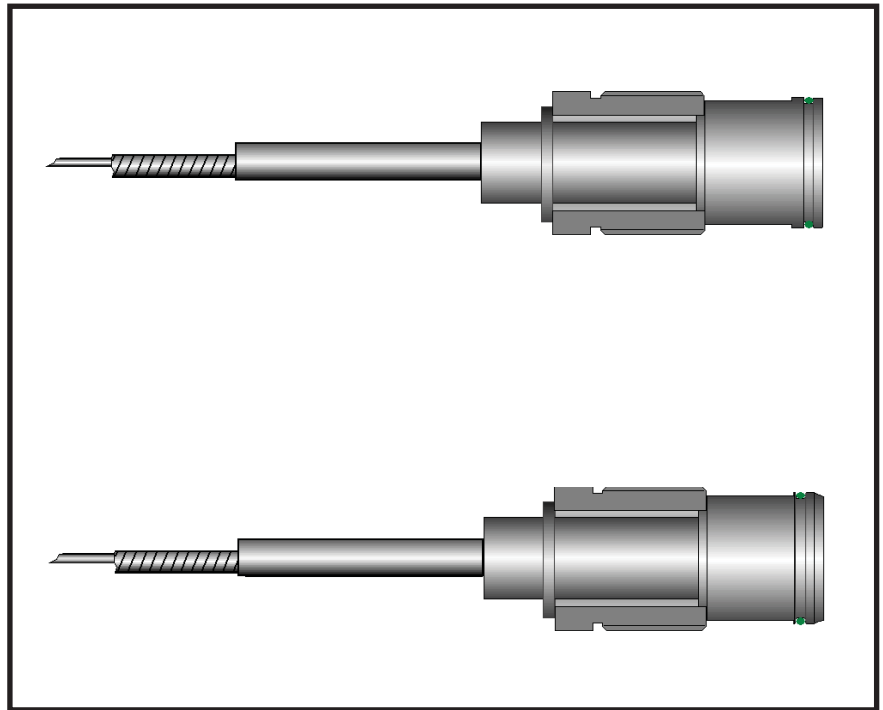
- for oxygen and chlorine applications

Silicone oil DC705

- for high-temperature and vacuum measurement applications

### Gaskets

- FPM (Viton®)



### Fill fluid properties

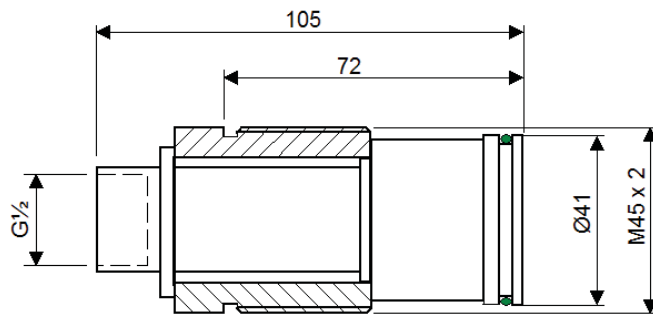
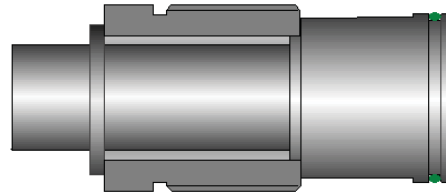
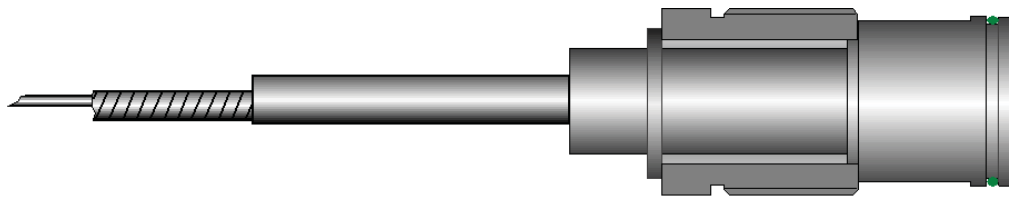
| Fill fluid            | Temperature range/°C | Density g/cm³ | Thermal expansion coefficient/ 1/°C | Viscosity (25°C) cSt(mm²/s) |
|-----------------------|----------------------|---------------|-------------------------------------|-----------------------------|
| DC200<br>Silicone oil | -40...200            | 0.934         | 0.00108                             | 9.5                         |
| DC705<br>Silicone oil | 20...380             | 1.090         | 0.00080                             | 175                         |
| Inert oil             | -45...175            | 1.850         | 0.000864                            | 6.5                         |
| Neobee M20            | -17...200            | 0.917         | 0.001008                            | 9.8                         |

### Recommended minimum process pressure for vacuum applications

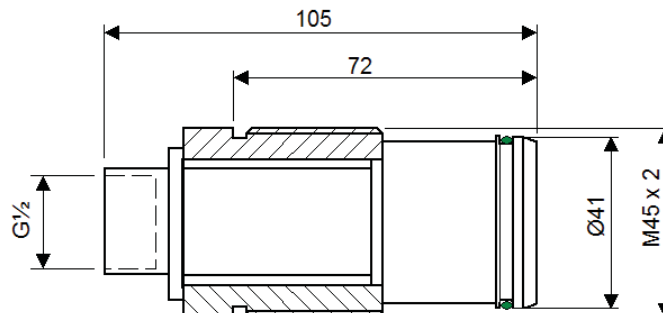
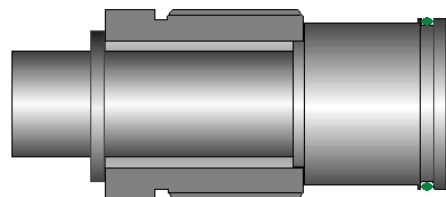
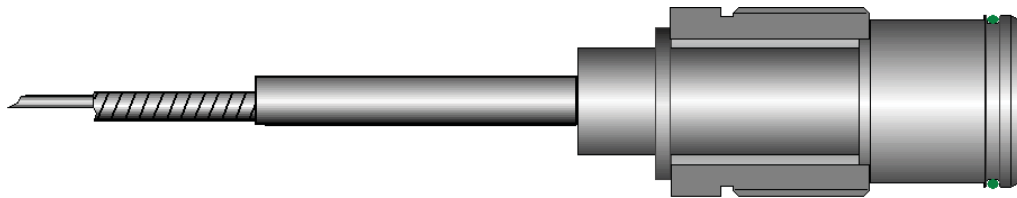
| T <sub>proc.</sub><br>°C | Minimum pressure for different fill fluids (kPa, abs.) |           |
|--------------------------|--|-----------|
|                          | DC200<br>100 cSt                                       | Inert oil |
| 20                       | 5  | 8         |
| 40                       | 8  | 10        |
| 80                       | 10   | 28        |
| 120                      | 15   | 53        |
| 160                      | 25   | 90        |
| 200                      | 40   | -         |

Selection table: M45 x 2 Seal

|                                    |  | HPS |                            |               |   |                    |  |  |  |  |  |  |
|------------------------------------|--|-----|----------------------------|---------------|---|--------------------|--|--|--|--|--|--|
| <b>Process connection type</b>     |  |     |                            |               |   |                    |  |  |  |  |  |  |
| BA                                 | M45 x 2 with o-ring                                      |     |                            |               |   |                    |  |  |  |  |  |  |
| BB                                 | M45 x 2 with o-ring + metal/metal taper                  |     |                            |               |   |                    |  |  |  |  |  |  |
| <b>Body material, wetted parts</b> |  |     |                            |               |   |                    |  |  |  |  |  |  |
| 2                                  | AISI316L (EN 1.4404)                                     | 8   | Duplex (EN 1.4462), std.   |               |   |                    |  |  |  |  |  |  |
| 3                                  | Hastelloy C-276 (EN 2.4819)                              |     |                            |               |   |                    |  |  |  |  |  |  |
| <b>Diaphragm material</b>          |  |     |                            |               |   |                    |  |  |  |  |  |  |
| 2                                  | AISI316L (EN 1.4435)                                     | 3   | Hastelloy C276 (EN 2.4819) |               |   |                    |  |  |  |  |  |  |
| 4                                  | Inconel 600 (EN 2.4816)                                  |     | 5                          | Tantaali      |   |                    |  |  |  |  |  |  |
| 8                                  | Duplex (EN 1.4462)                                       |     |                            |               |   |                    |  |  |  |  |  |  |
| <b>Diaphragm thickness</b>         |  |     |                            |               |   |                    |  |  |  |  |  |  |
| E                                  | 0.05 mm  |     | F                          | 0.10 mm       |   |                    |  |  |  |  |  |  |
| <b>Diaphragm coating</b>           |  |     |                            |               |   |                    |  |  |  |  |  |  |
| 0                                  | No coating   |     | P                          | PTFE sintered |   |                    |  |  |  |  |  |  |
| 9                                  | Gold / Rhodium   |     | Y                          | Diamond       |   |                    |  |  |  |  |  |  |
| <b>Fill fluid</b>                  |  |     |                            |               |   |                    |  |  |  |  |  |  |
| S                                  | Silicone oil DC200                                       |     |                            |               | G | Inert oil          |  |  |  |  |  |  |
| A                                  | Neobee M20, oil for food industry                        |     |                            |               | D | Silicone oil DC705 |  |  |  |  |  |  |
| <b>Mounting parts</b>              |  |     |                            |               |   |                    |  |  |  |  |  |  |
| 0                                  | No mounting parts  |     |                            |               |   |                    |  |  |  |  |  |  |
| 1                                  | Coupling   |     |                            |               |   |                    |  |  |  |  |  |  |
| 2                                  | Pasve BA mounting valve, specify separately in the order |     |                            |               |   |                    |  |  |  |  |  |  |



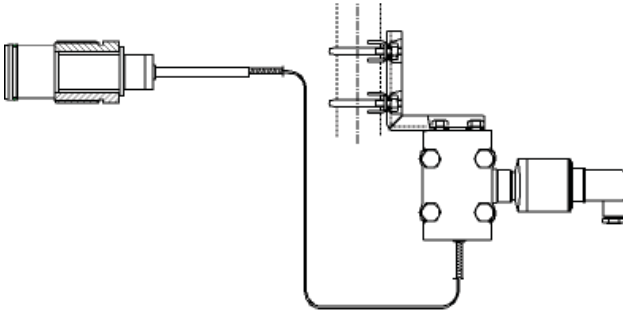
Mounting dimensions, type BA



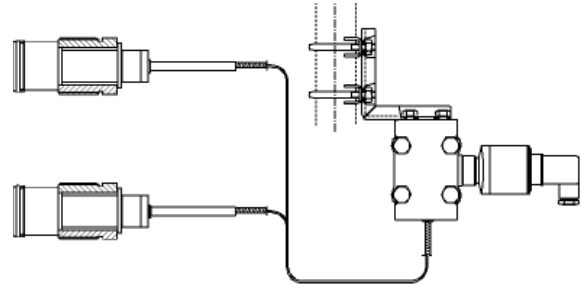
Mounting dimensions, type BB

## Hydraulic Pressure Seal Connections

### Capillary connection



Seal on Low or High pressure side of Differential Pressure Transmitter, code **H** or **K**



Same seal on both High and Low pressure sides of Differential Pressure Transmitter, code **L**

### Selection table

#### Capillary connection type

- H Seal on High pressure side of Differential Transmitter
- K Seal on Low pressure side of Differential Transmitter
- L Same seal on both High and Low pressure side of Differential Transmitter
- M Seal on High pressure side of Pressure Transmitter, process connection G $\frac{1}{2}$ A

#### Capillary length (m)

2...20

#### Mounting bracket for transmitter

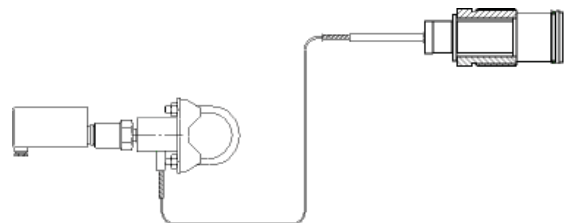
- 0 No mounting bracket
- 1 Angle mounting bracket
- 2 Mounting plate

#### Documentation

- IE English
- IF Finnish

#### Material certificate

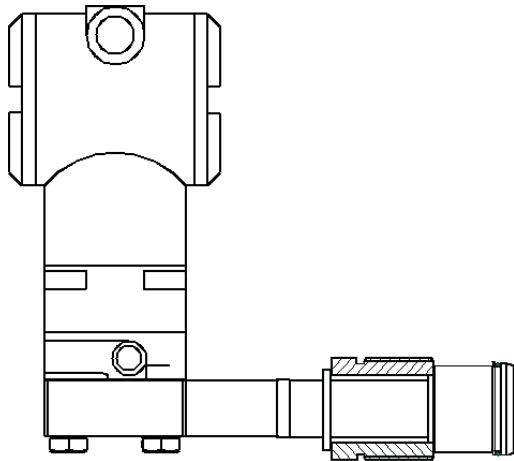
- 0 No material certificate
- MC1 SFS-EN 10204-2.1 (DIN50049-2.1)
- MC2 SFS-EN 10204-2.2 (DIN50049-2.2)
- MC3 SFS-EN 10204-3.1B (DIN50049-3.1B)



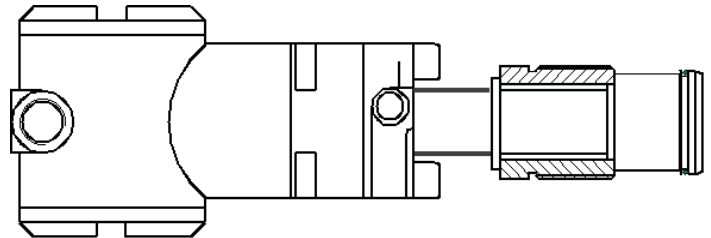
Seal on High pressure side of pressure transmitter, process connection G $\frac{1}{2}$ A, code **M**

Hydraulic Pressure Seal Connections

Direct mounted connection



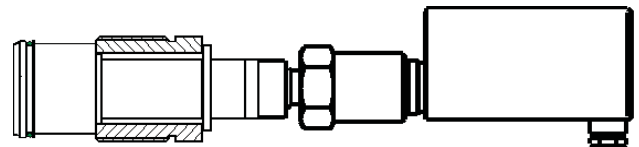
Seal on High pressure side of Differential Pressure Transmitter, angle model, code **P**



Seal on High pressure side of Differential Pressure Transmitter, straight model, code **R**

Selection table

|                                       |  |   |   |
|---------------------------------------|--|---|---|
| —                                     | □  | □ | □ |
| <b>Direct mounted connection type</b> |  |   |   |
| P                                     | Seal on High pressure side of Differential Transmitter, angle model                        |   |   |
| R                                     | Seal on High pressure side of Differential Transmitter, straight model                     |   |   |
| S                                     | Seal on High pressure side of Pressure Transmitter, process connection G½A, straight model |   |   |
| <b>Documentation</b>                  |  |   |   |
| IE                                    | English  |   |   |
| IF                                    | Finnish  |   |   |
| <b>Material certificate</b>           |  |   |   |
| 0                                     | No material certificate  |   |   |
| MC1                                   | SFS-EN 10204-2.1 (DIN50049-2.1)  |   |   |
| MC2                                   | SFS-EN 10204-2.2 (DIN50049-2.2)  |   |   |
| MC3                                   | SFS-EN 10204-3.1B (DIN50049-3.1B)  |   |   |

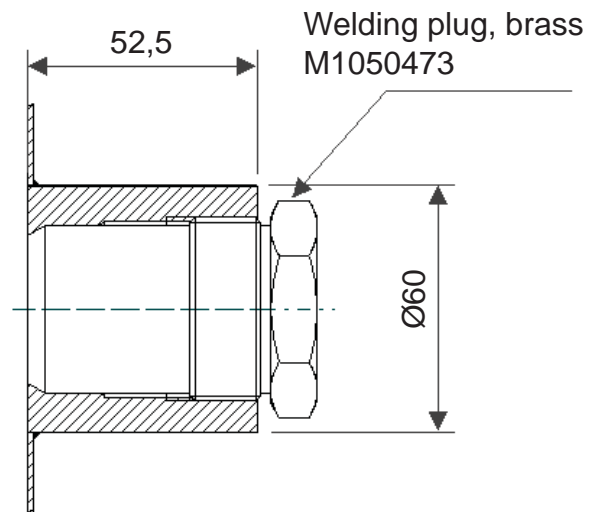
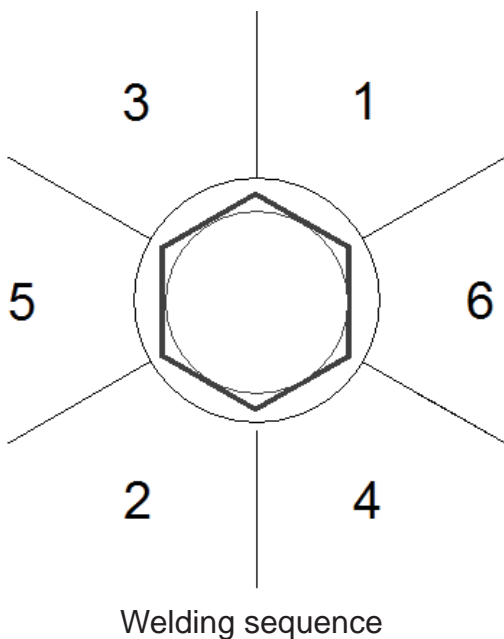


Seal on High pressure side of Pressure Transmitter, process connection G½A, straight model, code **S**

Specification example: **SATRON HPS BB88E0S0-M52IE0**

- Process connection type: Thread M45 x 2 with o-ring + metal/metal taper
- Body material: EN 1.4462, Duplex
- Diaphragm material: EN 1.4462, Duplex
- Diaphragm thickness: 0.05mm
- No diaphragm coating
- Fill fluid: silicone oil
- No mounting parts
- Hydraulic Pressure Seal Connections: Capillary type connection
  - Seal on High pressure side of pressure transmitter, process connection G $\frac{1}{2}$ A,
  - Capillary length 5m
  - Mounting bracket for transmitter, type mounting plate
  - Documentation: English
  - No material certification

Welding the coupling



Hastelloy is the registered trademark of Haynes International.  
Teflon is the registered trademark of E.I. du Pont de Nemours & Co.  
Viton is the registered trademark of DuPont Dow Elastomers.

We reserve the right for technical modifications without prior notice.