

Pressure Measurement

Remote seals for pressure transmitters SITRANS P300, P DS III, P410, P500

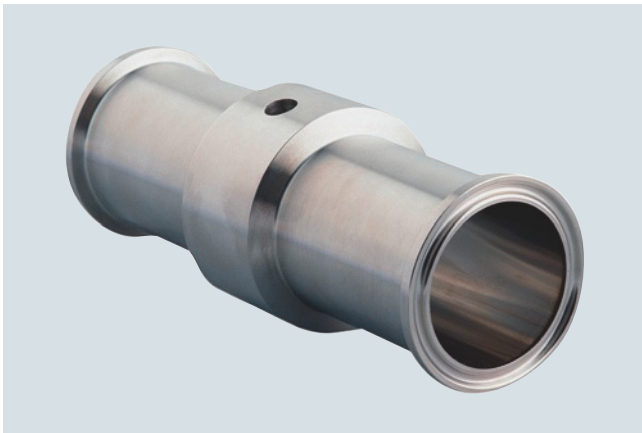
Quick-release inline seals

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Overview



Quick-release inline seals, to DIN 11851 with threaded socket



Quick-release inline seals, with clamp connection

Quick-release inline seals for pressure are available for the following SITRANS P pressure transmitter series:

- P300
- DS III with HART
- DS III with PROFIBUS PA
- DS III with FOUNDATION Fieldbus

Application

The quick-release inline seal is a special design for flowing media and high-viscosity media. Since it is completely integrated in the process pipe, no turbulences, dead volumes or other obstructions to the flow occur. The measured medium flows unhindered through the inline seal and results in self-cleaning of the measuring chamber. Furthermore, the inline seal can be cleaned by a pig.

Design

The quick-release clamp is available in two versions:

- DIN 11851 with threaded socket
- Clamp connection

The inline seal is connected to the pressure transmitter either directly or by way of a capillary.

Function

The measured pressure is transferred from the diaphragm, mounted on the inner circumference of the inline seal, to the filling liquid and then passes through the capillary to the measuring chamber of the pressure transmitter. The interior of the inline seal and of the capillary, as well as the measuring chamber of the pressure transmitter, are filled gas-free by the filling liquid.

Note:

When operating in the low-pressure range, also during commissioning, it is recommended to use a vacuum-proof pressure transmitter (see Selection and Ordering data).

Technical specifications

Inline seals of quick-release design for pressure

| Connection | Nominal diameter | Nominal pressure |
|--|--|------------------|
| • To DIN 11851 with threaded socket | DN 25 | PN 40 |
| | DN 40 | PN 40 |
| | DN 50 | PN 25 |
| | DN 65 | PN 25 |
| | DN 80 | PN 25 |
| | DN 100 | PN 25 |
| • Clamp connection | 1½ inch | PN 40 |
| | 2 inch | PN 40 |
| | 2½ inch | PN 40 |
| | 3 inch | PN 40 |
| Material | | |
| • Main body | Stainless steel 1.4404/316L | |
| • Diaphragm | Stainless steel 1.4404/316L | |
| Capillary | | |
| • Length | Max. 10 m (32.8 ft) | |
| • Internal diameter | 2 mm (0.079 inch) | |
| • Minimum bending radius | 150 mm (5.9 inch) | |
| • Sheath | Spiral protective tube made of stainless steel, mat. No. 1.4404/316L | |
| Filling liquid | • Food oil (FDA listed) | |
| Permissible ambient temperature | Dependent on the pressure transmitter and the filling liquid of the remote seal More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals | |
| Weight | Approx. 4 kg (approx. 8.82 lb) | |
| Certificate and approvals | | |
| Classification according to pressure equipment directive (DGRL 2014/68/EU) | For gases of fluid group 1 and liquids of fluid group 1; complies with the requirements of article 4, paragraph 1 (appendix 1); assigned to category III, conformity evaluation module H by the TÜV Nord | |
| EHEDG | Complies with EHEDG recommendations | |

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Quick-release inline seals

| Selection and Ordering data | | Article No. | Ord. code | Selection and Ordering data | | Order code |
|--|--|--|---|---|--|--|
| Quick-release inline seal | | 7MF4950- | | Further designs | | |
| for SITRANS P pressure transmitters for pressure 7MF2033-...; 7MF403-... and 7MF423-... together with Order code "V01" (Negative pressure service) and 7MF802-... ¹⁾ ; must be ordered separately Filling liquid: Food oil (FDA listed) Material: Stainless steel 316L ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal. | | A 0 - B | | Please add "-Z" to Article No. and specify Order code. | | |
| Nominal diameter Nominal pressure • Connection to DIN 11851 with screw necks - DN 25 PN 40 - DN 40 PN 40 - DN 50 PN 25 - DN 65 PN 25 - DN 80 PN 25 - DN 100 PN 25 • Clamp connection - 1½ inch PN 16 - 2 inch PN 16 - 2½ inch PN 16 - 3 inch PN 10 Other version Add Order codes and plain text: Process connection: ..., Nominal diameter: ...; Nominal pressure: ... | | 2 B 2 D 2 E 2 F 2 G 2 H 4 L 4 M 4 N 4 P | | Remote seal nameplate Attached out of stainless steel, contains MLFB and order number of the remote seal | | B20 |
| Filling liquid • Food oil (FDA listed) Other version Add Order code and plain text: Filling liquid: ... | | 7 9 | | Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2 | | C11 |
| Connection to transmitter • Direct Through capillary, length: ²⁾ • 1.0 m (3.28 ft) • 1.6 m (5.25 ft) • 2.5 m (8.20 ft) • 4.0 m (13.1 ft) • 6.0 m (19.7 ft) • 8.0 m (26.25 ft) • 10.0 m (32.8 ft) Special lengths for capillaries • 2.0 m (6.56 ft) • 3.0 m (9.84 ft) • 5.0 m (16.40 ft) • 7.0 m (23.97 ft) • 9.0 m (29.53 ft) | | 0 2 3 4 5 6 7 8 9 9 9 9 9 | H 1 Y M 1 Y N 1 C N 1 E N 1 G N 1 J N 1 L | Inspection certificate to EN 10204, section 3.1 2.2 Certificate of FDA approval of fill oil Only in conjunction with "Food-grade oil" fill liquid (FDA listed) Functional safety certificate ("SIL 2") to IEC 61508 (Only in conjunction with the Order code "C20" in the case of SITRANS P DSIII transmitter) Functional safety certificate ("SIL 2/3") to IEC 61508 (Only in conjunction with the Order code "C23" in the case of SITRANS P DSIII transmitter) | | C12 C17 C20 C23 |
| | | | | One-sided mounting on differential pressure transmitters on high-pressure side on low-pressure side | | H10 H11 |
| | | | | PE protective tube over the spiral protective tube of the capillaries (color: white) 1.0 m (3.28 ft) 1.6 m (5.25 ft) 2.0 m (6.56 ft) 2.5 m (8.20 ft) 3.0 m (9.84 ft) 4.0 m (13.12 ft) 5.0 m (16.40 ft) 6.0 m (19.69 ft) 7.0 m (22.97 ft) 8.0 m (26.25 ft) 9.0 m (29.53 ft) 10.0 m (32.81 ft) | | N20 N21 N22 N23 N24 N25 N26 N27 N28 N29 N30 N31 |
| | | | | PTFE protective tube over the spiral protective tube of the capillaries (color: transparent) 1.0 m (3.28 ft) 1.6 m (5.25 ft) 2.0 m (6.56 ft) 2.5 m (8.20 ft) 3.0 m (9.84 ft) 4.0 m (13.12 ft) 5.0 m (16.40 ft) 6.0 m (19.69 ft) 7.0 m (22.97 ft) 8.0 m (26.25 ft) 9.0 m (29.53 ft) 10.0 m (32.81 ft) | | N40 N41 N42 N43 N44 N45 N46 N47 N48 N49 N50 N51 |

1) With 7MF802-... and the measuring cells Q, S, T and U also order the vacuum-tight version.

2) Max. capillary length, see section "Technical description"

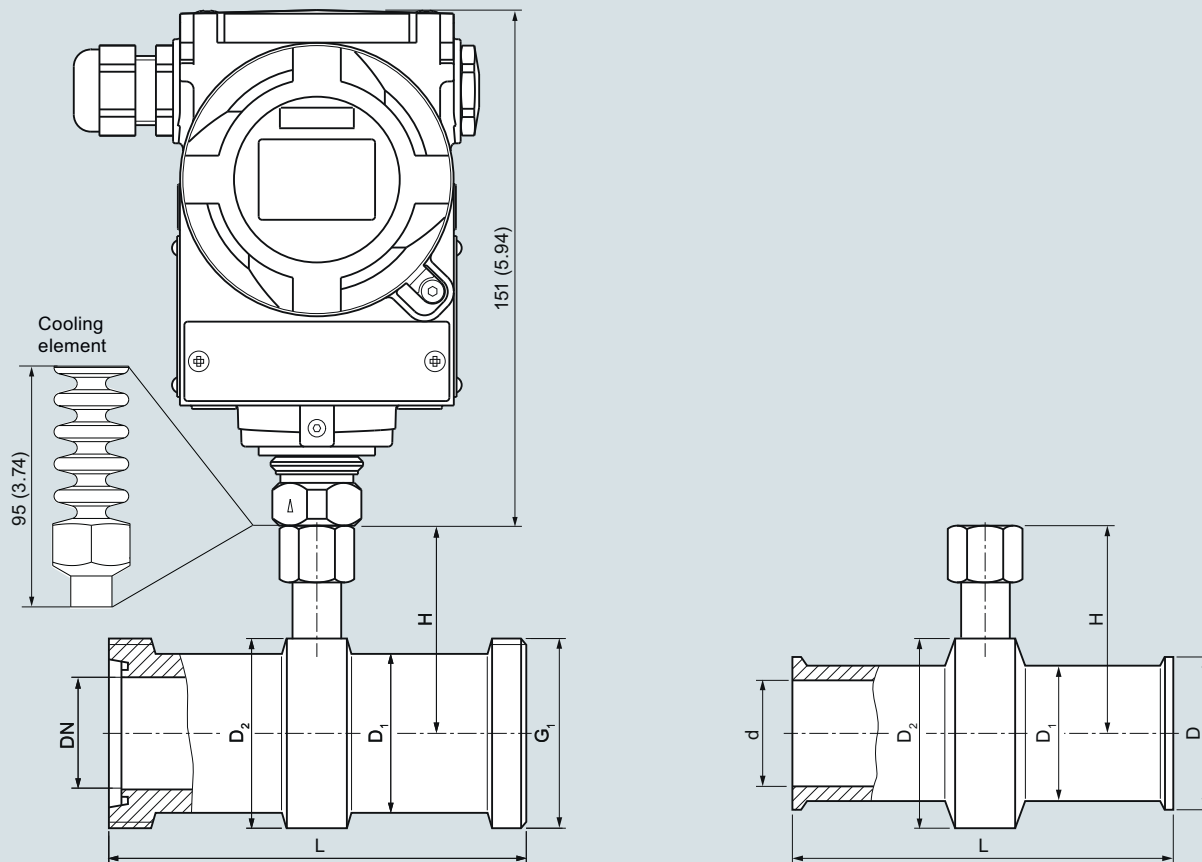
| Selection and Ordering data | Order code |
|--|------------|
| Further designs | |
| Please add "-Z" to Article No. and specify Order code. | |
| PVC protective tube over the spiral protective tube of the capillaries (color: black) | |
| 1.0 m (3.28 ft) | N60 |
| 1.6 m (5.25 ft) | N61 |
| 2.0 m (6.56 ft) | N62 |
| 2.5 m (8.20 ft) | N63 |
| 3.0 m (9.84 ft) | N64 |
| 4.0 m (13.12 ft) | N65 |
| 5.0 m (16.40 ft) | N66 |
| 6.0 m (19.69 ft) | N67 |
| 7.0 m (22.97 ft) | N68 |
| 8.0 m (26.25 ft) | N69 |
| 9.0 m (29.53 ft) | N70 |
| 10.0 m (32.81 ft) | N71 |
| Cooling element max. medium temperature 300 °C, observe the maximum permissible media temperature of the filling liquid. | R22 |
| Negative pressure services for use in low-pressure range for transmitters for <ul style="list-style-type: none"> gauge and absolute pressure from the pressure series | V01 |
| Extended negative pressure service for use in low-pressure range for transmitters for <ul style="list-style-type: none"> gauge and absolute pressure from the pressure series | V51 |

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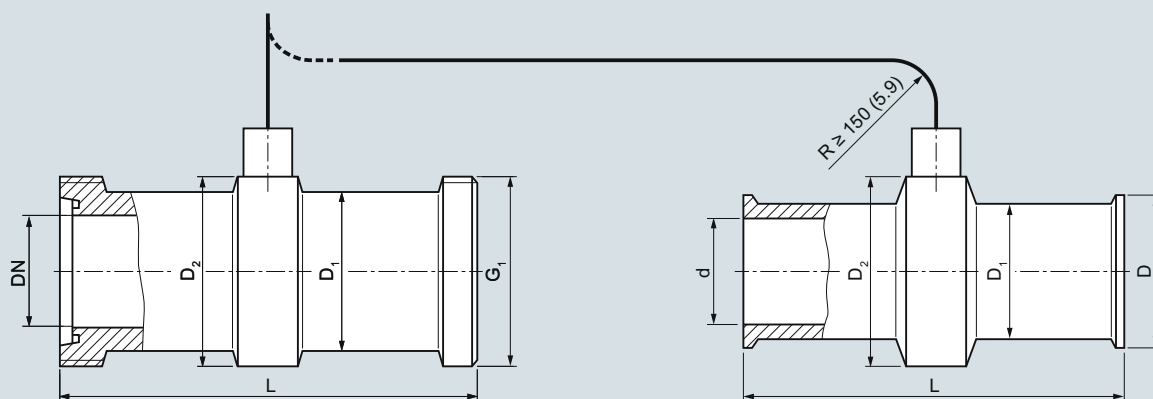
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Dimensional drawings



Mounted directly on SITRANS P transmitter for pressure



Mounted on SITRANS P transmitter for pressure or differential pressure and flow

Connection to DIN 11851 with screw necks

| DN | Ø D ₁ | Ø D ₂ | H | L | G ₁ |
|-----|------------------|------------------|------|-----|----------------|
| 25 | 38 | 52 | 68 | 128 | Rd 52x1/6 |
| 40 | 55 | 65 | 74.5 | 160 | Rd 65x1/6 |
| 50 | 68 | 78 | 81 | 170 | Rd 78x1/6 |
| 65 | 85 | 95 | 89.5 | 182 | Rd 95x1/6 |
| 80 | 110 | 110 | 97 | 182 | Rd 110x1/4 |
| 100 | 130 | 130 | 107 | 182 | Rd 110x1/4 |

Clamp connection for pipes to BS 4825/3 and o.d. tubes

| d | Ø D ₁ | Ø D ₂ | H | L | D |
|-----------|------------------|------------------|-------------|------------|-------------|
| mm (inch) | mm (inch) | mm (inch) | mm (inch) | mm (inch) | mm (inch) |
| 22.2 (1) | 38 (1.5) | 50 (1.97) | 67 (2.64) | 114 (4.49) | 50.5 (1.98) |
| 34.9 (1½) | 43 (1.69) | 65 (2.56) | 74.5 (2.93) | 146 (5.75) | 50.5 (1.98) |
| 47.6 (2) | 56 (2.2) | 75 (2.95) | 79.5 (3.13) | 156 (6.14) | 64 (2.52) |
| 60.3 (2½) | 68 (2.68) | 77 (3.03) | 80.5 (3.17) | 156 (6.14) | 77.5 (3.05) |
| 73.0 (3) | 82 (3.23) | 91 (3.58) | 87.5 (3.44) | 156 (6.14) | 91 (3.58) |

Quick-release inline seal, dimensions in mm (inch)