

# High-quality pressure sensor with mounted diaphragm seal For sanitary applications Model DSS22T, with clamp connection

WIKA data sheet DS 95.08

## Applications

- Hygienic pressure measurement in sanitary applications for the food and beverage industry
- Mounting to pipelines and vessels with 4 ... 20 mA output signal
- Pressure/vacuum monitoring during cleaning, sterilisation, pressure testing
- For gases, compressed air, vapour; liquid, pasty, powdery and crystallising media

## Special features

- Quick cleaning, without residue
- Clamp connection easy to open for cleaning and seal replacement
- Suitable for SIP and CIP



Diaphragm seal system, model DSS22T

## Description

Diaphragm seal systems are used to protect the pressure measuring instrument from aggressive, adhesive, crystallising, corrosive, highly viscous, environmentally hazardous or toxic media. The diaphragm made of stainless steel provides for the separation from the medium. The pressure is transmitted to the measuring instrument via the system fill fluid which is inside the diaphragm seal system.

The DSS22T complies with all requirements of the food industry. The particular suitability for foodstuffs rests on the fact that the measuring point can be cleaned while installed.

The requirements of CIP (cleaning in place) and SIP (sterilisation in place) are fulfilled. The clamp connection enables the quick and easy dismounting and thus a simple cleaning with seal replacement.

The proven, all-welded construction ensures a long service life and permanent sealing.

The DSS22T is particularly well suited for gases, compressed air and vapour as well as liquid, pasty, powdery and crystallising media. This instrument is mainly geared to applications in the process industry.

## Specifications

| Model DSS22T                                   |  |
|--|--|
| <b>Design</b>                                  | High-quality pressure sensor, welded to diaphragm seal   |
| <b>Current output</b>                          | 4 ... 20 mA (2-wire)   |
| <b>Power supply</b>                            | DC 8 ... 35 V  |
| <b>Accuracy at reference conditions</b>        | $\leq \pm 0.5$ % of span   |
| <b>Permissible load in <math>\Omega</math></b> | Current output $\leq$ (power supply - 7.5 V) / 0.023 A   |
| <b>Current supply</b>                          | Max. 25 mA   |
| <b>Dissipation loss</b>                        | 828 mW   |
| <b>Reference conditions (per IEC 61298-1)</b>  | Temperature: 15 ... 25 °C (59 ... 77 °F)<br>Atmospheric pressure: 860 ... 1,060 mbar (12.5 ... 15.4 psi)<br>Humidity: 45 ... 75 % r. h.<br>Power supply: DC 24 V<br>Mounting position: Calibrated in vertical mounting position with pressure connection facing downwards. |
| <b>Pressure limitation</b>                     | < 10 bar (150 psi): 3 times<br>$\geq$ 10 bar (150 psi): 2 times  |
| <b>Permissible temperature range</b>           |  |
| Medium   | -10 ... 80 °C (50 ... 176 °F), for SIP max. 130 °C (266 °F)  |
| Ambient  | 10 ... 40 °C (50 ... 104 °F)   |
| Storage  | 10 ... 60 °C (50 ... 140 °F)   |
| <b>Material</b>                                |  |
| wetted   | Diaphragm: Stainless steel 1.4435 (316L)<br>Upper body of diaphragm seal, stainless steel 1.4435 (316L)  |
| non-wetted                                     | Case: Stainless steel 1.4571 (316Ti)<br>Zero adjustment ring: PBT/PET GF30<br>Angular connector: PBT/PET GF30  |
| <b>Level of cleanliness of wetted parts</b>    | Oil and grease free per ASTM G93-03 level E (WIKA standard) and ISO 15001 (< 550 mg/m <sup>2</sup> )   |
| <b>System fill fluid</b>                       | Medicinal white mineral oil KN 92 (FDA 21 CFR 172.878, 21 CFR 178.3620(a); USP, EP, JP), recommendation for pharmaceutical and cosmetics applications  |
| <b>Permissible humidity (per IEC 68-2-78)</b>  | $\leq 67$ % r. h. at 40 °C (104 °F) (in accordance with 4K4H per EN 60721-3-4)   |

### Measuring ranges in bar (psi)

| Gauge pressure      |                      |                      |                      |
|---------------------|----------------------|----------------------|----------------------|
| 0 ... 1 (0 ... 15)  | 0 ... 1.6 (0 ... 25) | 0 ... 2.5 (0 ... 40) | 0 ... 4 (0 ... 60)   |
| 0 ... 6 (0 ... 100) | 0 ... 10 (0 ... 160) | 0 ... 16 (0 ... 250) | 0 ... 25 (0 ... 300) |


| Vacuum and +/- measuring range |                               |                                |
|--------------------------------|-------------------------------|--------------------------------|
| -1 ... +5 (-30 inHg ... +70)   | -1 ... +9 (-30 inHg ... +130) | -1 ... +10 (-30 inHg ... +145) |

## Electrical connection

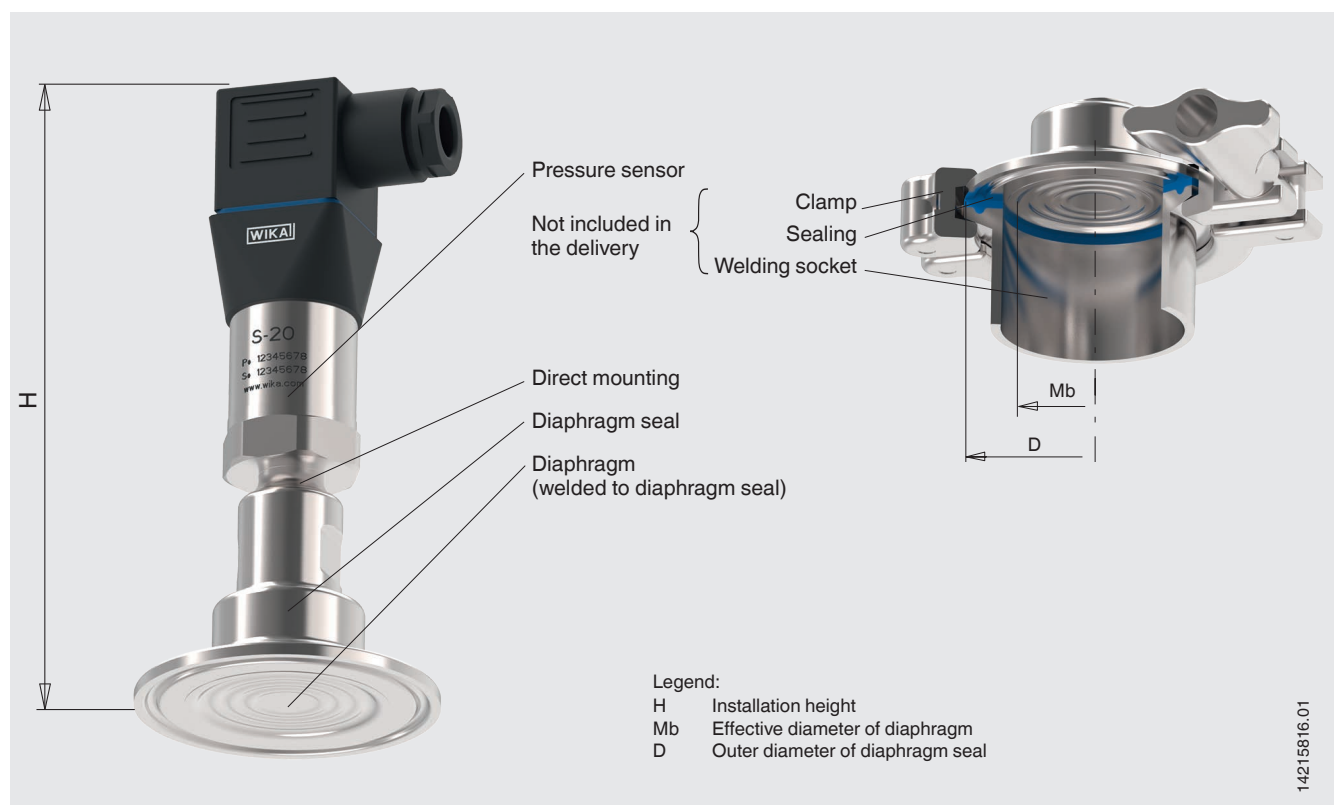
| Angular connector DIN 175301-803 A |                                  |                          |            |                                   |
|------------------------------------|----------------------------------|--------------------------|------------|-----------------------------------|
| Electrical connection              | Ingress protection <sup>1)</sup> | Wire cross-section       | Cable Ø    | Permissible temperature           |
| with mating connector              | IP65                             | max. 1.5 mm <sup>2</sup> | 6 ... 8 mm | -30 ... +100 °C (-22 ... +212 °F) |

1) Only applies when plugged in using a suitable mating connector that has the appropriate ingress protection.

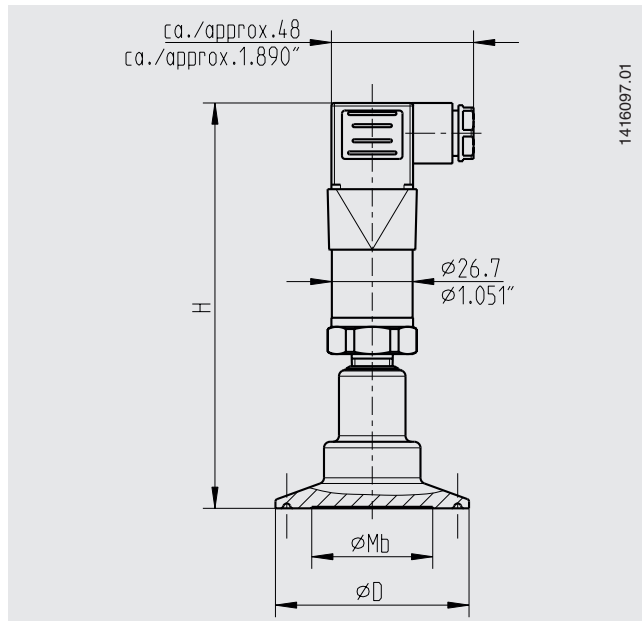
## Connection diagram

| Angular connector DIN 175301-803 A, 2-wire  |                 |   |
|---|-----------------|---|
|  | U+              | 1 |
|   | U-              | 2 |
|   | Shield (option) | 4 |

## Model DSS22T illustrated on a pipe socket



## Dimensions in mm (in)



### Type of process connection: Clamp connection per DIN 32676

Pipe standard: Pipes per DIN 11866 row C or ASME BPE

| DN   | For pipe<br>Outer Ø x wall thickness | PN <sup>1)</sup> | Dimensions in mm (in) |              |            |
|------|--------------------------------------|------------------|-----------------------|--------------|------------|
|      |                                      |                  | H                     | D            | Mb         |
| 1 ½" | 38.1 x 1.65 (1.5 x 0.065)            | 40               | 115 (4.528)           | 50.5 (1.988) | 32 (1.26)  |
| 2"   | 50.8 x 1.65 (2 x 0.065)              | 40               | 118 (4.646)           | 64 (2.52)    | 40 (1.575) |

### Type of process connection: Clamp connection per DIN 32676

Pipe standard: Pipes per DIN 11866 row B or ISO 1127 row 1

| DN           | For pipe<br>Outer Ø x wall thickness | PN <sup>1)</sup> | Dimensions in mm (in) |           |            |
|--------------|--------------------------------------|------------------|-----------------------|-----------|------------|
|              |                                      |                  | H                     | D         | Mb         |
| 42.4 (DN 32) | 42.4 x 2 (1.669 x 0.079)             | 40               | 118 (4.646)           | 64 (2.52) | 32 (1.26)  |
| 48.3 (DN 40) | 48.3 x 2 (1.906 x 0.079)             | 40               | 118 (4.646)           | 64 (2.52) | 40 (1.575) |

### Type of process connection: Clamp connection per BS4825 part 3

Pipe standard: Pipes per BS4825 part 1 and O.D. tube

| DN   | For pipe<br>Outer Ø x wall thickness | PN <sup>1)</sup> | Dimensions in mm (in) |              |            |
|------|--------------------------------------|------------------|-----------------------|--------------|------------|
|      |                                      |                  | H                     | D            | Mb         |
| 1 ½" | 38.1 x 1.6 (1.5 x 0.063)             | 40               | 115 (4.528)           | 50.5 (1.988) | 32 (1.26)  |
| 2"   | 50.8 x 1.6 (2 x 0.063)               | 40               | 118 (4.646)           | 64 (2.52)    | 40 (1.575) |

1) For maximum pressure range consider pressure rating of clamp.

## Certificates (option)

3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metallic parts, calibration certificate)

Approvals and certificates, see website

## Ordering information

Scale range / Process connection (type of process connection, pipe standard, pipe dimension) / Material of wetted parts / Certificates

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