

## Pressure gauges with diaphragm for the chemical industry with or without filling

Accuracy class 1.6

Nominal sizes ND 100, 160

Connection position bottom, radial



### Description

The design principle and material selection of pressure gauges allow them to meet the stringent demands occurring above all in service in the chemicals and petrochemicals industries.

Diaphragm pressure gauges have a relatively high actuating force. The annular clamped diaphragm is extensively insensitive to jarring or vibration. An extremely high resistance to overpressure is achieved by underpropping the diaphragm.

The special material coating on the components in contact with the process medium protects them from attack by chemically aggressive medium, CrNi steels for the case and instrument flange also make these diaphragm gauges resistant to chemically aggressive environments.

Open process connections ensure that the gauges are easy to clean even with highly viscous or crystallizing process media, thus guaranteeing process reliability.

### Features

- o High corrosion resistance with chemically aggressive media and environments
- o High resistance to overpressure
- o Damping of the indicator by glycerine filling
- o Process reliability with highly viscous or crystallizing media
- o Protection IP 54 resp. IP 65

### Ranges

0 ... 16 mbar to 0 ... 400 mbar

0 ... 0.6 bar to 0 ... 40 bar


and all corresponding ranges for negative or negative and positive gauge pressure

### Applications

Chemical and petrochemical industry,  
Food and beverages industry,  
Mechanical engineering,  
plant and apparatus construction.

**Models: P2330, P2331, P2332, P2333**

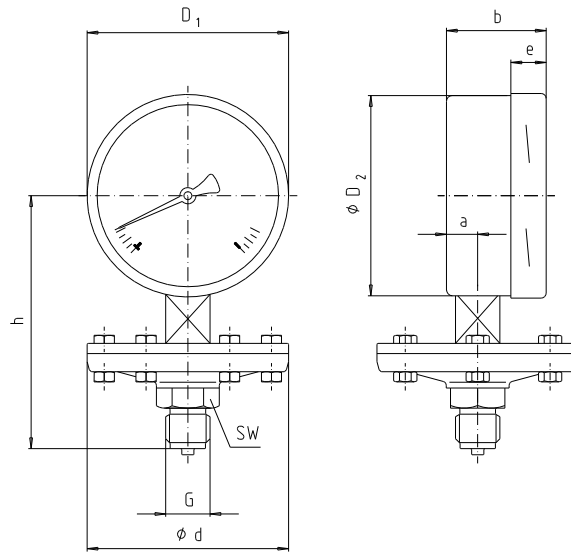
## Technical data

| Models                                | P2330   | P2332 | P2331                    | P2333 | Options   |
|---------------------------------------|---|-------|--------------------------|-------|---|
| Fill                                  | without filling   |       | with filling             |       |   |
| Nominal size                          | 100   | 160   | 100                      | 160   |   |
| Symbol                                |    |       |                          |       |   |
| Accuracy class <sup>1)</sup>          | 1.6 to 837-3  |       |                          |       |   |
| In accordance with                    | EN 837-3  |       |                          |       | Safety pressure gauges  |
| Ranges                                | 0 ... 16 to 0 ... 250 mbar: flange diameter Ø 160 mm<br>0 ... 0.4 to 0 ... 40 bar: flange diameter Ø 100 mm<br>plus all corresponding ranges for negative or negative and positive gauge pressure |       |                          |       | Lower measurement ranges on request   |
| Applications                          | Constant load: full scale value<br>Alternating load: 0.9 x full scale value   |       |                          |       |   |
| Overload protection                   | 5 x full scale value, max. 40 bar   |       |                          |       | overloadable: 10 x full scale value; max. 40 bar<br>vacuum proof to -1 bar  |
| Liquid filling                        | none  |       | Glycerine 86%, water 14% |       |   |
| Temperatures<br>- Medium<br>- Ambient | Tmin. -20°C, Tmax. 100°C<br>Tmin. -20°C, Tmax. 60°C,  |       |                          |       |   |
| Temperature drift                     | ≤0.8% / 10 K if deviation from normal temperature 20°C  |       |                          |       |   |
| Protection to<br>EN 60 529/IEC 529    | IP 54   |       | IP 65                    |       |   |
| Case and upper flange                 | Stainless steel, with pressure relief opening   |       |                          |       |   |
| Process connection and lower flange   | Stainless steel 1.4571, G 1/2 B, SW 22  |       |                          |       |   |
| Elastic measuring element             | ≤ 0,40 bar Edelstahl 1.4571<br>> 0,40 bar INCONEL 718 (Diaphragme Inconel 718)  |       |                          |       |   |
| Movement                              | Stainless steel   |       |                          |       |   |
| Dial                                  | Aluminium, white, scale and imprint black   |       |                          |       | Dual scale  |
| Pointer                               | Aluminium, black  |       |                          |       |   |
| Window                                | Laminated safety glass  |       |                          |       |   |
| Bezel                                 | Bayonet ring, stainless steel 1.4301  |       |                          |       |   |
| Seal to:<br>-pressure chamber         | FPM   |       |                          |       |   |
| -filled internal chamber              | ---   |       | NBR-bellow (Perbunan)    |       | Metal bellow(stainless steel)<br>coated with special materials:<br>PTFE, PFA, Hastelloy,<br>Monel, Nickel, Tantal, Titan,<br>Silver |
| Components in contact with medium     | see process connection and lower flange and elastic measuring element   |       |                          |       |   |
| open process connection               |   |       |                          |       | to DIN / ANSI from DN 15 to<br>DN 80 (preferred nominal<br>diameter DN 25 and DN 50)  |

1) with liquid filling: ≤ 25 mbar accuracy class 2.5

## Dimensions

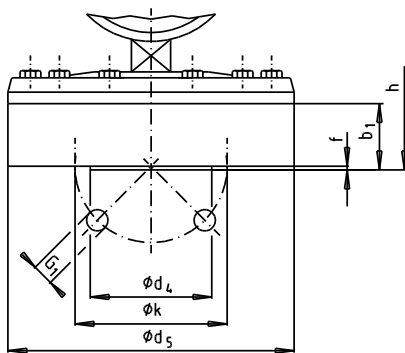
### Standard version



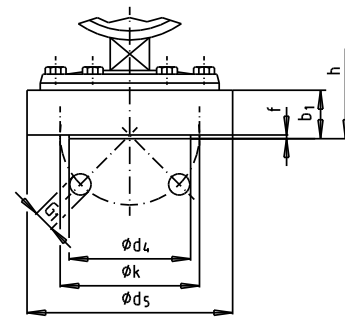
| ND  | Ranges (bar) | Dimensions (mm) |      |      |                |                |      |         |       |    | Weight (kg)     |        |
|-----|--------------|-----------------|------|------|----------------|----------------|------|---------|-------|----|-----------------|--------|
|     |              | d               | a    | b    | D <sub>1</sub> | D <sub>2</sub> | e    | G       | h ± 2 | SW | without filling | filled |
| 100 | ≤ 0,25       | 160             | 15,5 | 49,5 | 101            | 99             | 17,5 | G 1/2 B | 117   | 22 | 2,6             | 3,1    |
| 160 |              |                 | 15,5 | 49,5 | 161            | 159            | 17,5 | G 1/2 B | 149   | 22 | 3,0             | 3,9    |
| 100 | ≥ 0,4        | 100             | 15,5 | 49,5 | 101            | 99             | 17,5 | G 1/2 B | 117   | 22 | 1,4             | 1,9    |
| 160 |              |                 | 15,5 | 49,5 | 161            | 159            | 17,5 | G 1/2 B | 149   | 22 | 1,8             | 2,7    |

Connection to EN 837-3

### Optionens with process connection DIN DN 25 <sup>1)</sup>, PN 10 to 40



Ranges 0 ... 16 to 0 ... 250 mbar



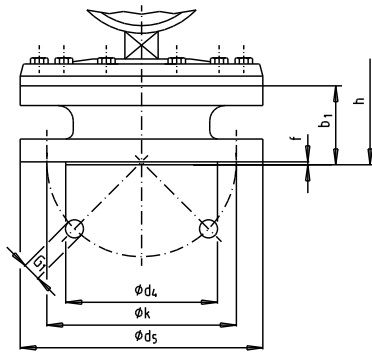
Ranges 0 ... 0.4 to 0 ... 40 bar

| ND  | process connection<br>DIN DN 25<br>PN 10 bis 40 | Dimensions (mm) |    |                              |                |   |                |       | Weight (kg) |
|-----|---|-----------------|----|------------------------------|----------------|---|----------------|-------|-------------|
|     |   | d <sub>5</sub>  | k  | d <sub>4</sub> <sup>2)</sup> | b <sub>1</sub> | f | G <sub>1</sub> | h ± 2 |             |
| 100 | ≤ 0,25 bar                                      | 160             | 85 | 68                           | 36             | 2 | 4 x M 12       | 122   | 5,00        |
| 160 |   |                 | 85 | 68                           | 36             | 2 | 4 x M 12       | 152   | 5,70        |
| 100 | ≥ 0,4 bar                                       | 115             | 85 | 68                           | 25             | 2 | 4 x M 12       | 111   | 3,70        |
| 160 |   |                 | 85 | 68                           | 25             | 2 | 4 x M 12       | 141   | 4,00        |

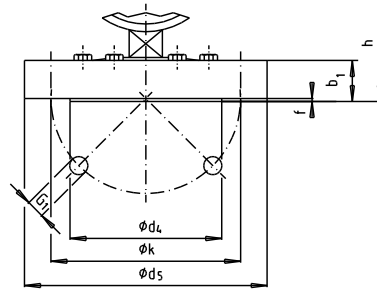
Other dimensions as in standard version

- 1) Suitable for connection to mating flange to DIN 2566, 2567, 2581, 2583, 2633, 2635, 2642, 2653, 2656 and 2673  
 2) Sealing strip form D.

Optionens with process connection DIN DN 25 <sup>1)</sup>, PN 10 to 40



Ranges 0 ... 16 to 0 ... 250 mbar



Ranges 0 ... 0.4 to 0 ... 40 bar

| ND  | process connection<br>DIN DN 25<br>PN 10 bis 40 | Dimensions (mm) |    |                              |                |   |                |       | Weight (kg) |
|-----|---|-----------------|----|------------------------------|----------------|---|----------------|-------|-------------|
|     |   | d <sub>5</sub>  | k  | d <sub>4</sub> <sup>2)</sup> | b <sub>1</sub> | f | G <sub>1</sub> | h ± 2 |             |
| 100 | ≤ 0,25 bar                                      | 160             | 85 | 68                           | 36             | 2 | 4 x M 12       | 122   | 5,00        |
| 160 |   |                 | 85 | 68                           | 36             | 2 | 4 x M 12       | 152   | 5,70        |
| 100 | ≥ 0,4 bar                                       | 115             | 85 | 68                           | 25             | 2 | 4 x M 12       | 111   | 3,70        |
| 160 |   |                 | 85 | 68                           | 25             | 2 | 4 x M 12       | 141   | 4,00        |

Other dimensions as in standard version

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