Differential pressure gauge
For the process industry
Models 732.14, 762.14, high overload safety up to 40, 100 or 400 bar

Applications
- For measuring locations with a high differential pressure overload and/or high working pressures (static pressures), also in aggressive ambience.
- For gaseous, liquid, particulates-containing, viscous and aggressive media
- Monitoring and control of pumps
- Filter monitoring
- Level measurement in closed tanks

Special features
- Differential pressure measuring ranges from 0 … 60 mbar
- High working pressure (static pressure) and high overload safety, optionally up to 40, 100, 250 or 400 bar
- Hydraulic cushioning protection against rapid pressure changes
- Compatible with switch contacts
- Model 762.14: Monel version

Description
These differential pressure gauges are made of highly corrosion-resistant stainless steel. A high overpressure safety is achieved by the all-metal construction and the close-fitting design of the pressure measuring diaphragm.

With its high-grade stainless steel construction and robust design this pressure gauge is geared to chemical and process engineering applications. It is suitable for gaseous or liquid media, also in aggressive ambience.

The wetted parts for these instruments are available also in special materials such as Monel or Hastelloy.

The scale ranges of 0 … 60 mbar to 0 … 40 bar are available to meet the requirements of a wide variety of applications.
Illustration of the principle

Design and operating principle

- Process pressures $p_1$ and $p_2$ are applied to the media chambers $\Theta$ (2) and $\Theta$ (3).
- Measuring cell (4) is filled with transmission liquid.
- Differential pressure across $\Theta$ and $\Theta$ pressure sides deflects the diaphragm (1) and displaces the transmission fluid.
- The deflection of the connection rod (5) is converted through the use of a transmitting lever (6) into rotation, which is transferred over an axial shaft (7) to the movement (9).
- The torque pipe (8) seals, assuring a frictionless path from the measuring cell.
- Overpressure protection in both directions up to the max. total pressure applied is provided by contoured metal bolsters.

Mounting according to affixed symbols
$\Theta$ high pressure and $\Theta$ low pressure

Specifications

Design
DIN 16003
Highest overload safety either side, pressure ratings PN 40, 100, 250 or 400, hydraulic cushioning protection against rapid pressure changes

Nominal size in mm
100, 160

Accuracy class
Model 732.14: 1.6
Model 762.14: 2.5

Overload safety and max. working pressure (static pressure)
Either side max. 40, 100, 250 or 400 bar

Influence of static pressure

<table>
<thead>
<tr>
<th>Gauges with PN</th>
<th>Influence of static pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>$\pm 0.04 % / 1 \text{ bar}$</td>
</tr>
<tr>
<td>100</td>
<td>$\pm 0.02 % / 1 \text{ bar}$</td>
</tr>
<tr>
<td>250</td>
<td>$\pm 0.007 % / 1 \text{ bar}$</td>
</tr>
<tr>
<td>400</td>
<td>$\pm 0.004 % / 1 \text{ bar}$</td>
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</table>

Scale ranges
Gauges with PN 40 and 100:
- 0 … 60 mbar to 0 … 160 mbar (measuring cell $\Box$ 140)
- 0 … 0.25 bar to 0 … 40 bar (measuring cell $\Box$ 82)

Gauges with PN 250:
- 0 … 60 mbar to 0 … 250 mbar (measuring cell $\Box$ 140)
- 0 … 0.4 bar to 0 … 40 bar (measuring cell $\Box$ 82)

Gauges with PN 400:
- 0 … 0.4 bar to 0 … 40 bar (measuring cell $\Box$ 86)

Pressure limitation
Steady: Full scale value
Fluctuating: 0.9 x full scale value

Permissible temperature
Ambient: -20 ... +60 °C
Medium: +100 °C maximum

Temperature effect
When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. $\pm 0.5 \% / 10 \text{ K}$ of full scale value

Ingress protection
IP54 IEC/EN 60529 (with liquid filling IP65)
Standard version

Measuring flanges (wetted)
Model 732.14: Stainless steel 316L
Model 762.14: Monel 2.4360

Flange connecting screws
PN 40 / 100: Stainless steel
PN 250 / 400: Steel, corrosion-protected

Process connections
2 x G ½ female, lower mount (LM)

Pressure elements (wetted)
Typ 732.14:
- Stainless steel 316L for scale ranges ≤ 0,25 bar
- Stainless steel 316L / Inconel for scale ranges > 0,25 bar
Typ 762.14:
- Monel 2.4375
- Hastelloy C276 for version per NACE MR 0175/ISO 15156-T3

Sealings (wetted)
FPM/FKM

Venting of the media chambers (wetted)
Model 732.14, PN 40 and 100: Stainless steel 316L
Standard for scale ranges ≤ 0,16 bar
(option for scale ranges ≥ 0,25 bar)

Model 732.14, PN 250 and 400: Stainless steel 316L
Standard for scale ranges ≤ 0,25 bar
(option for scale ranges ≥ 0,4 bar)

Model 762.14: Monel 2.4360
Standard for scale ranges ≤ 0,25 bar
(option for scale ranges ≥ 0,4 bar)

Measuring cell
Chrome steel

Movement
Stainless steel

Dial
Aluminium, white, black lettering

Pointer
Adjustable pointer, aluminium, black

Zero adjustment
By means of adjustable pointer
(adjustment appliance with gauges with liquid filling and/or switch contact)

Case / Bayonet ring
Stainless steel

Window
Laminated safety glass

Measuring cell filling
Silicone oil
Exception: Glycerine

Mounting by means of:
- Rigid measuring lines
- Drilled mounting holes at the back of the measuring cell
- Panel mounting flange (option)
- Mounting bracket for wall or pipe mounting (option)

Options
- Liquid filling (model 733.14 / 763.14)
- Venting of the pressure chambers for scale ranges ≥ 0,25 bar or ≥ 0,4 bar
- Measuring cell filling with special medium, e.g. for use in oxygen applications
- Wetted parts made of special material
- Differential process connection per DIN EN 61518
- Other process connections, e.g. male thread 2 x G ½ B or 2 x ½ NPT
- Back mount connection or connection at 12 o’clock
- Medium temperature > 100 °C
- Admissible ambient temperature -40 ... +60 °C (silicone oil filling)
- Panel mounting flange
- Mounting bracket for wall or pipe mounting, lacquered steel or stainless steel
- Valve manifolds (models IV3x, IV5x, see data sheet AC 09.23)
- Differential pressure gauge with switch contacts, see model DPGS43HP.100/160, data sheet PV 27.13
- Differential pressure gauge with electrical output signal, see model DPGT43HP.100/160, data sheet PV 17.13
Approvals

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Certificates (option)

- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy)
- 3.1 inspection certificate per EN 10204 (e.g. material proof wetted parts metal component, indication accuracy)

Approvals and certificates, see website
Dimensions in mm

Standard version
Connection 2 x G ½ female, lower mount (LM)

Option
Mounting bracket for wall or pipe mounting

Zero adjustment (with filling and/or electrical accessory)

Fixing bracket only for pipe mounting

Gauges with PN 40 and 100

<table>
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<tr>
<th>NS</th>
<th>Scale range</th>
<th>Dimensions in mm</th>
<th>Weight in kg</th>
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<tr>
<td></td>
<td></td>
<td>b</td>
<td>D1</td>
</tr>
<tr>
<td>100</td>
<td>≤ 0.16 bar</td>
<td>58.5</td>
<td>101</td>
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<tr>
<td>100</td>
<td>≥ 0.25 bar</td>
<td>58.5</td>
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<tr>
<td>160</td>
<td>≤ 0.16 bar</td>
<td>65.5</td>
<td>161</td>
</tr>
<tr>
<td>160</td>
<td>≥ 0.25 bar</td>
<td>65.5</td>
<td>161</td>
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Gauges with PN 250 and 400

<table>
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<th>Dimensions in mm</th>
<th>Weight in kg</th>
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<tr>
<td></td>
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</tr>
<tr>
<td>100</td>
<td>≤ 0.25 bar</td>
<td>58.5</td>
<td>101</td>
</tr>
<tr>
<td>100</td>
<td>≥ 0.4 bar</td>
<td>58.5</td>
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<tr>
<td>160</td>
<td>≤ 0.25 bar</td>
<td>65.5</td>
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</tr>
<tr>
<td>160</td>
<td>≥ 0.4 bar</td>
<td>65.5</td>
<td>161</td>
</tr>
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Process connection per DIN 16003

Ordering information

Model / Nominal size / Scale range / Scale layout (linear pressure or square root incrementation) / Max. working pressure (static pressure) / Overpressure safety (one-sided or both-sided) up to ... bar / Medium (liquid or gas, density ρ ...) / Medium temperature (constant ... °C, fluctuating from ... °C to ... °C) / Connection location / Process connection / Options

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