Differential pressure gauge
For the process industry
Model 732.51, all-metal media chamber

Applications

- For gaseous and liquid aggressive media that are not highly viscous or crystallising, also in aggressive ambience
- Monitoring and control of pumps
- Filter monitoring
- Level measurement in closed tanks

Special features

- Differential pressure measuring ranges from 0 … 16 mbar
- High working pressure (static pressure) up to 40 bar
- High overload safety up to 40 bar
- All welded media chamber
- Option: Low-temperature version down to an ambient temperature of -70 °C (-94 °F)

Description

These differential pressure gauges are made of highly corrosion-resistant stainless steel and feature an all-metal, all-welded media chamber to ensure long-term leak tightness (no elastomer sealing elements).

A high overload 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 optionally available low-temperature version allows the use for temperatures of down to -70 °C (-94 °F).

The scale ranges of 0 … 16 mbar to 0 … 25 bar are available to meet the requirements of a wide variety of applications.
Specifications

Design
DIN 16003
Lower mount process connections,
highly corrosion-resistant all-metal construction,
measuring cell secured against unauthorised intervention,
process connection location adjustable to mounting conditions

Nominal size in mm
100, 160

Accuracy class
1.6

Scale ranges
0 ... 16 mbar to 0 ... 25 bar
Scale range 0 ... 16 mbar: Scale length approx. 180 °
or all other equivalent vacuum or combined pressure and vacuum ranges

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

Overload safety
see table on page 3

Max. working pressure (static pressure)
see table on page 3

Influence of static pressure

<table>
<thead>
<tr>
<th>Scale ranges</th>
<th>Influence of static pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ... 16 to 0 ... 250 mbar</td>
<td>±0,3 %/1 bar</td>
</tr>
<tr>
<td>0 ... 400 mbar to 0 ... 25 bar</td>
<td>±0,04 %/1 bar</td>
</tr>
</tbody>
</table>

Permissible temperature
Ambient: -20 ... +60 °C unfilled
-40 ... +60 °C with silicone oil filling 1)
-70 ... +60 °C Low-temperature version 1)

Medium: ≤100 °C

1) Option, only with model 733.51

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

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

Measuring chamber with process connection (wetted)
Stainless steel 1.4571,
lower mount (LM),
2 x G ¼ female

Pressure elements (wetted)
≤ 0.25 bar: Stainless steel 1.4571
> 0.25 bar: NiCr-alloy (Inconel)

Sealing bellows (wetted)
Stainless steel 1.4571

Venting of the media chambers (wetted)
Stainless steel 1.4571 for scale ranges ≤ 0.25 bar
(optional for scale ranges > 0.25 bar)

Movement
Stainless steel

Dial
Aluminium, white, black lettering

Pointer
Model 732.51: Adjustable pointer, aluminium, black
Model 733.51: Standard pointer, aluminium, black

Case
Stainless steel, with pressure relief

Window
Laminated safety glass

Bezel ring
Cam ring (bayonet type), stainless steel

Mounting
according to affixed symbols
Θ high pressure, Θ low pressure

Mounting by means of:
- Rigid tailpipes
- Mounting holes in measuring flange
- Panel mounting flange (option)
- Mounting bracket for wall or pipe mounting (option)

Options
- Liquid filling (model 733.51)
- Safety version (model 73x.31)
- Higher max. working pressure (static pressure) and higher overload safety (see table)
- Indication accuracy better than class 1.6
- Venting of the media chambers (wetted) for scale ranges > 0.25 bar
- Zero adjustment appliance
- Lateral connection location (right, left, front or back)
- Other threaded process connections, female or male
- Medium temperature > 100 °C
- Silicone oil filling:
  Admissible ambient temperature -40 ... +60 °C
- Low-temperature version:
  Admissible ambient temperature -70 ... +60 °C
- Mounting bracket for wall or pipe mounting
- Panel mounting flange
- Valve manifolds (models IV3x, IV5x, see data sheet AC 09.23)
- Sealings (model 910.17, see data sheet AC 09.08)
- Differential pressure gauge with switch contacts, see model DPGS43.100/160, data sheet PV 27.05
- Differential pressure gauge with electrical output signal, see model DPGT43.100/160, data sheet PV 17.05

Max. working pressure, overload safety

<table>
<thead>
<tr>
<th>Scale ranges</th>
<th>Max. working pressure in bar (static pressure)</th>
<th>Overload safety in bar either side max.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard</td>
<td>Option</td>
</tr>
<tr>
<td>0 ... 16 to 0 ... 40 mbar</td>
<td>2.5</td>
<td>6 ¹)</td>
</tr>
<tr>
<td>0 ... 60 to 0 ... 250 mbar</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>0 ... 400 mbar</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td>0 ... 0.6 bar</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td>0 ... 1 bar</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td>0 ... 1.6 bar</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td>0 ... 2.5 to 0 ... 25 bar</td>
<td>25</td>
<td>40</td>
</tr>
</tbody>
</table>

¹) Accuracy class 2.5
## Approvals

<table>
<thead>
<tr>
<th>Logo</th>
<th>Description</th>
<th>Country</th>
</tr>
</thead>
</table>
| ![EU declaration of conformity](logo_eu.png) | EU declaration of conformity  
ATEX directive (option)  
Ignition protection type "c" - constructive safety | European Union |
| ![EAC (option)](logo_eac.png) | EAC (option)  
■ Pressure equipment directive  
■ Hazardous areas | Eurasian Economic Community |
| ![GOST (option)](logo_gost.png) | GOST (option)  
Metrology, measurement technology | Russia |
| ![KazInMetr (option)](logo_kazinmetr.png) | KazInMetr (option)  
Metrology, measurement technology | Kazakhstan |
| - | MTSCHS (option)  
Permission for commissioning | Kazakhstan |
| ![BelGIM (option)](logo_belgim.png) | BelGIM (option)  
Metrology, measurement technology | Belarus |
| ![UkrSEPRO (option)](logo_ukrsepro.png) | UkrSEPRO (option)  
Metrology, measurement technology | Ukraine |
| - | CPA (option)  
Metrology, measurement technology | China |
| ![KCs KOSHA (option)](logo_kcs_kosha.png) | KCs KOSHA (option)  
Hazardous areas | South Korea |
| - | CRN  
Safety (e.g. electr. safety, overpressure, ...) | Canada |

### 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 ¼ female, lower mount (LM)

### Option
Mounting bracket for wall or pipe mounting

<table>
<thead>
<tr>
<th>NS</th>
<th>Scale range</th>
<th>Dimensions in mm</th>
<th>Weight in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>≤ 0.25 bar</td>
<td>a 15.5 b 49.5 c D₁ 101 d 140 e 17.5 G ¼ f 160 g h ±1 90 h 114 i 96 j 118</td>
<td>2.70</td>
</tr>
<tr>
<td>100</td>
<td>&gt; 0.25 bar</td>
<td>a 15.5 b 49.5 c D₁ 101 d 78 e 17.5 G ¼ f 170 g 87 h 114 i 66 j 88</td>
<td>1.90</td>
</tr>
<tr>
<td>160</td>
<td>≤ 0.25 bar</td>
<td>a 15.5 b 49.5 c D₁ 161 d 159 e 140 f 17.5 G ¼ g 190 h 120 i 144 j 96 k 118</td>
<td>3.40</td>
</tr>
<tr>
<td>160</td>
<td>&gt; 0.25 bar</td>
<td>a 15.5 b 49.5 c D₁ 161 d 78 e 17.5 G ¼ f 200 g 117 h 144 i 66 j 88</td>
<td>2.40</td>
</tr>
</tbody>
</table>

Process connection per DIN 16003

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### Ordering information
Model / Nominal size / Scale range / Scale layout (linear pressure or square root incrementation) / Max. working pressure (static pressure) ... bar / Process connection / Connection location / Options

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