Bourdon tube pressure gauge, copper alloy
Stainless steel case, liquid filling, NS 50, 63 and 100
Model 213.53

Applications

- For measuring points with high dynamic pressure loads and vibrations
- For gaseous and liquid media that are not highly viscous or crystallising and will not attack copper alloy parts
- Hydraulics
- Compressors, shipbuilding

Special features

- Vibration and shock-resistant
- Especially robust design
- Type approval for the shipbuilding industry
- Scale ranges up to 0 ... 1,000 bar

Description

The liquid-filled model 213.53 Bourdon tube pressure gauge is constructed with a case from stainless steel and wetted parts from copper alloy.

The model 213.53 meets the requirements of the international industry standard EN 837-1 for Bourdon tube pressure gauges.

Due to the liquid filling in the case, the pressure element and movement are efficiently damped. Therefore, these instruments are particularly suited to measuring points with high dynamic loads, such as fast load cycles or vibrations.

The cases of the model 213.53 are available in nominal sizes of 50, 63 and 100 mm and fulfil IP65 ingress protection. With an accuracy of up to class 1.0, this pressure gauge is suitable for a wide range of applications in industry.

For mounting in control panels, the pressure gauges with a back mount process connection can be fitted with a mounting flange or with a triangular bezel and mounting bracket.
Specifications

Design
EN 837-1

Nominal size in mm
50, 63, 100

Accuracy class
NS 50, 63: 1.6
NS 100: 1.0

Scale ranges
NS 50: 0 ... 1 to 0 ... 1,000 bar
NS 63, 100: 0 ... 0.6 to 0 ... 1,000 bar

Pressure limitation
NS 50, 63: Steady: 3/4 x full scale value
            Fluctuating: 2/3 x full scale value
            Short time: Full scale value
NS 100: Steady: Full scale value
            Fluctuating: 0.9 x full scale value
            Short time: 1.3 x full scale value

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

Temperature effect
When the temperature of the measuring system deviates from the reference temperature (+20 °C): max. ±0.4 %/10 K of the span

Ingress protection per IEC/EN 60529
IP65

Process connection
Copper alloy
Lower mount or back mount
NS 50, 63: G ¼ B (male), SW 14
NS 100: G ½ B (male), SW 22

Pressure element
NS 50:
Copper alloy, C-type or helical type

NS 63:
≤ 400 bar: Copper alloy, C-type or helical type
> 400 bar: ≥ 400 bar: Stainless steel 316L, helical type

NS 100:
< 100 bar: Copper alloy, C-type
≥ 100 bar: Stainless steel 316L, helical type

Movement
Copper alloy

Dial
NS 50, 63: Plastic ABS, white, with pointer stop pin
NS 100: Aluminium, white, black lettering

Pointer
NS 50, 63: Plastic, black
NS 100: Aluminium, black

Case
Stainless steel, natural finish
Sealing towards process connection with O-ring
With all scale ranges, the filling plug can be vented for internal pressure compensation.

Position of blow-out device
NS 50: Case back, at 12 o’clock
NS 63, 100: Case circumference, at 12 o’clock

Window
Plastic, crystal-clear

Ring
Crimped triangular bezel, stainless steel, glossy finish

Filling liquid
Glycerine

Options
- Other process connection
- Sealings (model 910.17, see data sheet AC 09.08)
- Measuring system and movement from stainless steel (model 233.53)
- NS 100: Zero point adjustment (in front)
- Increased medium temperature with special soft solder
  - NS 50, 63: 100 °C
  - NS 100: 150 °C
- Extended ambient temperature range -40 ... +60 °C with silicone oil filling
- Panel mounting flange, stainless steel, for back mount connection
- Surface mounting flange, stainless steel (only NS 63, 100)
- Mounting clamp, for back mount
Approvals

<table>
<thead>
<tr>
<th>Logo</th>
<th>Description</th>
<th>Country</th>
</tr>
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<tbody>
<tr>
<td>EU declaration of conformity</td>
<td>Pressure equipment directive</td>
<td>European Union</td>
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<tr>
<td>PS &gt; 200 bar, module A, pressure accessory</td>
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<tr>
<td>GOST (option)</td>
<td>Metrology, measurement technology</td>
<td>Russia</td>
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<tr>
<td>KazInMetr (option)</td>
<td>Metrology, measurement technology</td>
<td>Kazakhstan</td>
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<tr>
<td>MTSCHS (option)</td>
<td>Permission for commissioning</td>
<td>Kazakhstan</td>
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<tr>
<td>BelGIM (option)</td>
<td>Metrology, measurement technology</td>
<td>Belarus</td>
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<td>UkrSEPRO (option)</td>
<td>Metrology, measurement technology</td>
<td>Ukraine</td>
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<td>Uzstandard (option)</td>
<td>Metrology, measurement technology</td>
<td>Uzbekistan</td>
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<td>CPA</td>
<td>Metrology, measurement technology</td>
<td>China</td>
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<tr>
<td>GL</td>
<td>Ships, shipbuilding (e.g. offshore)</td>
<td>International</td>
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<tr>
<td>CRN</td>
<td>Safety (e.g. electr. safety, overpressure, ...)</td>
<td>Canada</td>
</tr>
</tbody>
</table>

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. indication accuracy)

Approvals and certificates, see website
## Dimensions in mm

### Standard version

#### Lower mount (radial)

![Diagram of lower mount (radial)]

#### NS 50, 63, centre back mount

![Diagram of NS 50, 63, centre back mount]

#### NS 100, lower back mount

![Diagram of NS 100, lower back mount]

### NS Dimensions in mm

<table>
<thead>
<tr>
<th>NS</th>
<th>Dimensions in mm</th>
<th>Weight in kg</th>
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<tbody>
<tr>
<td>50</td>
<td>a = 12, b = 30, b₂ = 55, D₁ = 55, D₂ = 50, e = 5.5, f = -</td>
<td>G ¼ B, SW = 48, h = 14, h = 14, SW = 0.15</td>
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<tr>
<td>63</td>
<td>a = 13, b = 32, b₂ = 56, D₁ = 68, D₂ = 62, e = 6.5, f = -</td>
<td>G ¼ B, SW = 54, h = 14, SW = 0.21</td>
</tr>
<tr>
<td>100</td>
<td>a = 15.5, b = 48, b₂ = 81.5, D₁ = 107, D₂ = 100, e = 8, f = 30</td>
<td>G ½ B, SW = 87, h = 22, SW = 0.80</td>
</tr>
</tbody>
</table>

Process connection per EN 837-1 / 7.3

### Ordering information

Model / Nominal size / Scale range / Process connection / Connection location / Options

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