

Part number:

**HYDROMA**

HYDRAULICKÉ SYSTÉMY

**HIDROMA  
SYSTEMS**

UKŁADY HYDRAULICZNE

**HYDROMA**

ГИДРАВЛИЧЕСКИЕ СИСТЕМЫ

## Bourdon tube pressure gauge Stainless steel version Models 232.50, 233.50



for further approvals  
see page 3

### Applications

- With liquid-filled case for applications with high dynamic pressure loads or vibrations <sup>1)</sup>
- For gaseous and liquid aggressive media that are not highly viscous or crystallising, also in aggressive ambience
- Process industry: Chemical/petro-chemical, power stations, mining, on- and offshore, environmental technology, machine building and general plant construction

### Special features

- Excellent load-cycle stability and shock resistance
- All stainless steel construction
- German Lloyd and Gosstandart approval
- Scale ranges up to 0 ... 1,600 bar



Bourdon tube pressure gauge model 232.50

### Description

#### Design

EN 837-1

#### Nominal size in mm

63, 100, 160

#### Accuracy class

NS 63: 1.6

NS 100, 160: 1.0

#### Scale ranges

NS 63: 0 ... 1 to 0 ... 1,000 bar

NS 100: 0 ... 0.6 to 0 ... 1,000 bar

NS 160: 0 ... 0.6 to 0 ... 1,600 bar

or all other equivalent vacuum or combined pressure and vacuum ranges

#### Pressure limitation

NS 63: Steady: 3/4 x full scale value

Fluctuating: 2/3 x full scale value

Short time: Full scale value

NS 100, 160: Steady: Full scale value

Fluctuating: 0.9 x full scale value

Short time: 1.3 x full scale value

#### Permissible temperature

Ambient: -40 ... +60 °C without liquid filling

-20 ... +60 °C gauges with glycerine filling <sup>1)</sup>

Medium: +200 °C maximum without liquid filling

+100 °C maximum with liquid filling <sup>1)</sup>

#### Temperature effect

When the temperature of the measuring system deviates from the reference temperature (+20 °C):

max. ±0.4 %/10 K of full scale value

#### Ingress protection

IP 65 per EN 60529 / IEC 60529

<sup>1)</sup> Model 233.50

## Standard version

### Process connection

Stainless steel 316L (NS 63: 1.4571),  
Lower mount (LM) or lower back mount (LBM), NS 63 centre  
back mount (CBM)

NS 63: G ¼ B (male), 14 mm flats

NS 100, 160: G ½ B, 22 mm flats

### Pressure element

Stainless steel 316L

C-type or helical type

### Movement

Stainless steel

### Dial

Aluminium, white, black lettering,

NS 63 with pointer stop pin

### Pointer

Aluminium, black

### Case

Stainless steel, with pressure relief at case circumference,  
12 o'clock (NS 63) and on the back of the case (NS 100  
and 160),

Scale ranges  $\leq 0 \dots 16$  bar with compensating valve to vent  
case

### Window

Laminated safety glass

(NS 63: Polycarbonate)

### Ring

Cam ring (bayonet type), stainless steel

### Filling liquid (for model 233.50)

Glycerine 99.7 %

(Glyzerine 86.5 % for scale range  $\leq 0 \dots 2.5$  bar)

## Options

- Other process connection
- Sealings (model 910.17, see data sheet AC 09.08)
- Assembly on diaphragm seals see product review DS
- Measuring system Monel (model 26x.50, not with NS 160  
back mount connection)
- Surface or panel mounting flange, stainless steel
- Panel mounting flange, polished stainless steel
- Triangular bezel, polished stainless steel, with clamp
- Ambient temperatures  $-40$  °C: Silicone oil filling
- Limit indicator at NS 100 and 160, see data sheet  
SP 09.03
- Pressure gauge with switch contacts, see model  
PGS23.1x0, data sheet PV 22.02
- Pressure gauge with electrical output signal, see model  
PGT23.100/160, data sheet PV 12.04









## Special versions

### Gauges for ammonia plants (NS 100 and 160)

With temperature scale for refrigerant R 717 (NH<sub>3</sub>) in °C,

Scale ranges:  $-1 \dots 0 \dots 15$  bar or  $-1 \dots 0 \dots 26$  bar

## Approvals

Logo	Description	Country
	<b>EC declaration of conformity</b> <ul style="list-style-type: none"> <li>■ Pressure equipment directive 97/23/EC PS &gt; 200 bar, module A, pressure accessory</li> <li>■ ATEX directive 94/9/EC (option) Ignition protection type "c" - constructive safety</li> </ul>	European Community
	<b>EAC (option)</b> <ul style="list-style-type: none"> <li>■ Pressure equipment directive</li> <li>■ Hazardous areas</li> </ul>	Eurasian Economic Community
	<b>GOST</b> Metrology, measurement technology	Russia
	<b>KazInMetr</b> Metrology, measurement technology	Kazakhstan
-	<b>MTSCHS</b> Permission for commissioning	Kazakhstan
	<b>BelGIM</b> Metrology, measurement technology	Belarus
	<b>Uzstandard</b> Metrology, measurement technology	Uzbekistan
-	<b>CPA</b> Metrology, measurement technology	China
	<b>KOSHA (option)</b> Hazardous areas	South Korea
	<b>GL (option)</b> Ships, shipbuilding (e.g. offshore)	International
-	<b>CRN</b> Safety (e.g. electr. safety, overpressure, ...)	Canada

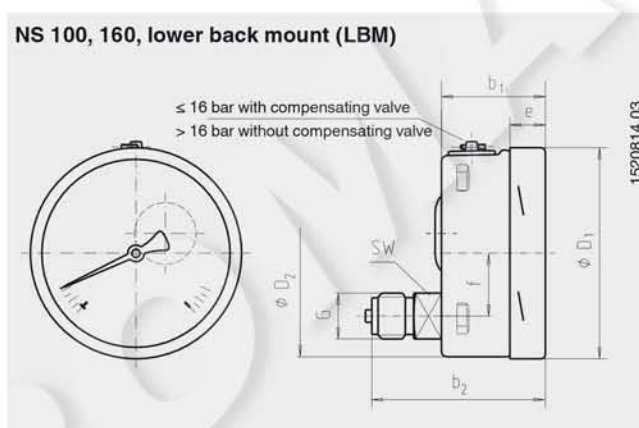
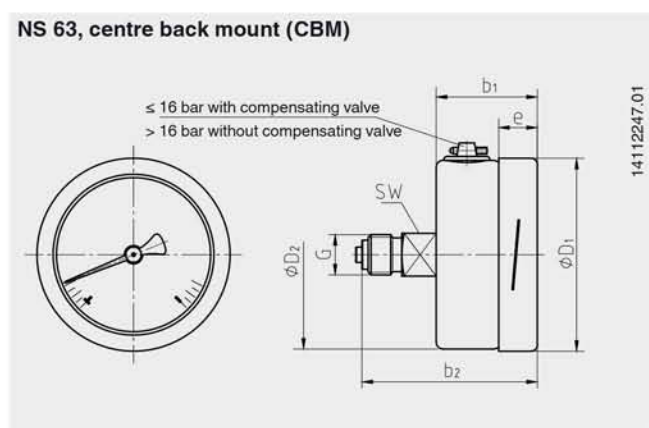
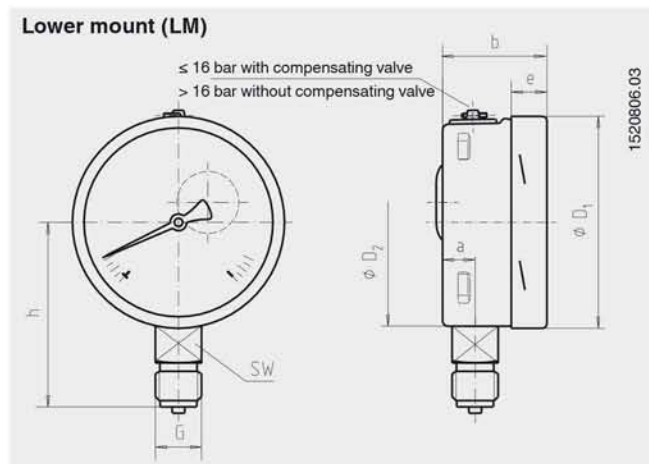
## Certificates (option)

- 2.2 test report
- 3.1 inspection certificate

Approvals and certificates, see website

## Dimensions in mm

### Standard version



NS	Dimensions in mm											Weight in kg	
	a	b	b <sub>1</sub>	b <sub>2</sub>	D <sub>1</sub>	D <sub>2</sub>	e	f	G	h ±1	SW	Model 232.50	Model 233.50
63	9.5	33	33	57	63	62	11.5	-	G ¼ B	54	14	0.16	0.20
100	15.5	49.5	49.5	83	101	99	17.5	30	G ½ B	87	22	0.60	0.90
160	15.5	49.5 <sup>2)</sup>	49.5 <sup>2)</sup>	83 <sup>1)</sup>	161	159	17.5	50	G ½ B	118	22	1.10	2.00

Process connection per EN 837-1 / 7.3

- 1) Plus 16 mm with scale ranges  $\geq 100$  bar
- 2) Plus 16 mm with scale range 1,600 bar

### Ordering information

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