manometer
series MA067

for further approvals
see page 3

Applications

- With liquid-filled case for applications with high dynamic pressure loads or vibrations [1)]
- 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 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 [1)]
Medium: +200 °C maximum without liquid filling
+100 °C maximum with liquid filling [1)]

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
IP65 per EN 60529 / IEC 60529

1) Model 233.50

Abbildungen unverbindlich, Konstruktions-, Maß- und Werkstoffänderungen vorbehalten
illustrations are non-binding, all designs, configurations, measurements and materials are subject to change without prior notice

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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 ≤ 0 ... 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 ≤ 0 ... 2.5 bar)

Special versions

Gauges for ammonia plants (NS 100 and 160)
With temperature scale for refrigerant R 717 (NH_3) in °C,
Scale ranges: -1 ... 0 ... 15 bar or -1 ... 0 ... 26 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

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Approvals

Logo	Description	Country
CE Ex	**EU declaration of conformity** ■ Pressure equipment directive PS > 200 bar, module A, pressure accessory ■ ATEX directive (option) Ignition protection type “c” - constructive safety	European Union
EAC Ex	**EAC (option)** Hazardous areas	Eurasian Economic Community
	GOST (option) Metrology, measurement technology	Russia
	KazInMetr (option) Metrology, measurement technology	Kazakhstan
-	**MTSCHS (option)** Permission for commissioning	Kazakhstan
	BelGIM (option) Metrology, measurement technology	Belarus
	UkrSEPRO (option) Metrology, measurement technology	Ukraine
	Uzstandard (option) Metrology, measurement technology	Uzbekistan
-	**CPA (option)** Metrology, measurement technology	China
GL	**GL (option)** Ships, shipbuilding (e.g. offshore)	International
-	**CRN** Safety (e.g. electr. safety, overpressure, ...)	Canada

Certificates (option)

- 2.2 test report
- 3.1 inspection certificate

Approvals and certificates, see website

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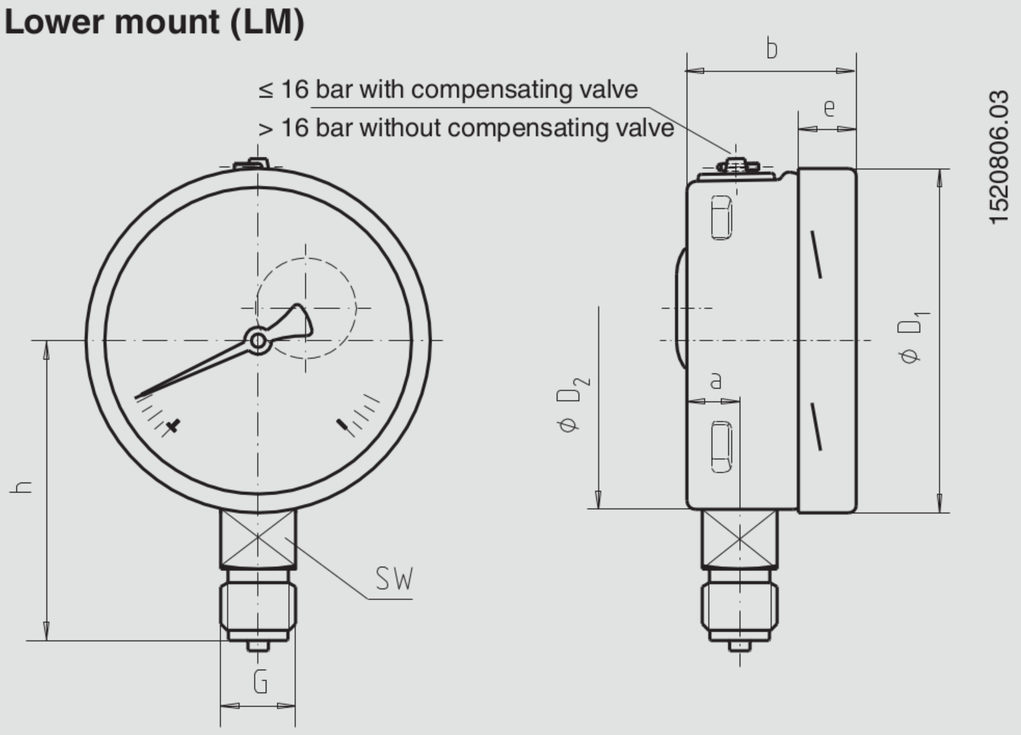
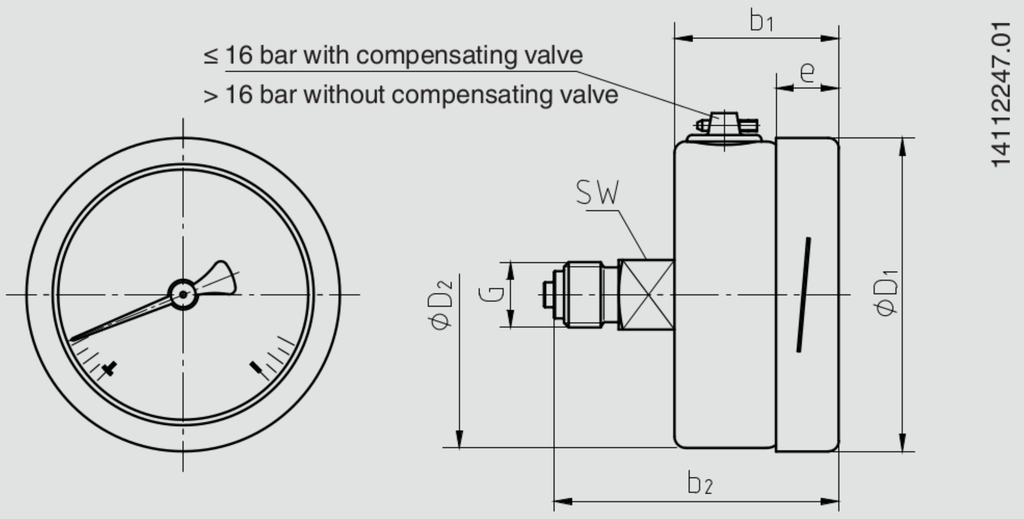
Dimensions in mm

Standard version

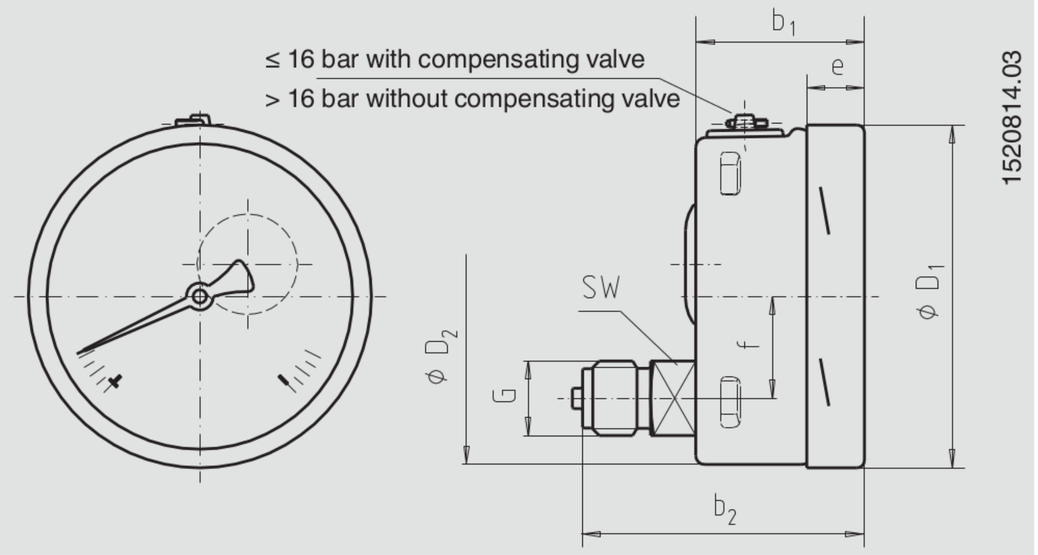
Lower mount (LM)



NS 63, centre back mount (CBM)



NS 100, 160, lower back mount (LBM)



NS	Dimensions in mm											Weight in kg	
	a	b	b_1	b_2	D_1	D_2	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 [2]	49.5 [2]	83 [1]	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 ≥ 100 bar
2) Plus 16 mm with scale range 1,600 bar

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

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