

Mechanical
pressure measurement

Bourdon tube pressure gauge Stainless steel version Models 232.50, 233.50

WIKA data sheet PM 02.02



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

¹⁾ Model 233.50

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

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Data sheets showing similar products:
Stainless steel, safety version; model 232.30; see data sheet PM 02.04



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 %
(Glycerine 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 (NH₃) in °C,
Scale ranges: $-1 \dots 0 \dots 15$ bar or $-1 \dots 0 \dots 26$ bar

Approvals

Logo	Description	Country
	EU declaration of conformity <ul style="list-style-type: none"> ■ Pressure equipment directive PS > 200 bar, module A, pressure accessory ■ ATEX directive (option) Ignition protection type "c" - constructive safety 	European Union
	EAC (option) <ul style="list-style-type: none"> ■ Pressure equipment directive ■ 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
	KCs KOSHA (option) Hazardous areas	South Korea
	GL (option) Ships, shipbuilding (e.g. offshore)	International
-	CRN Safety (e.g. electr. safety, overpressure, ...)	Canada

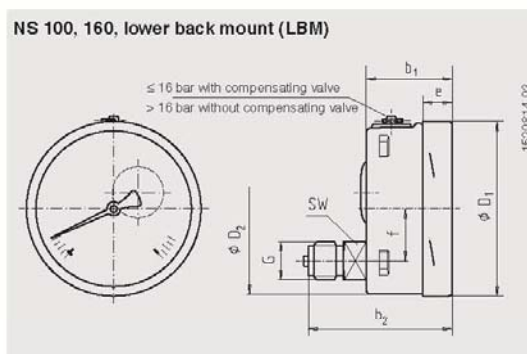
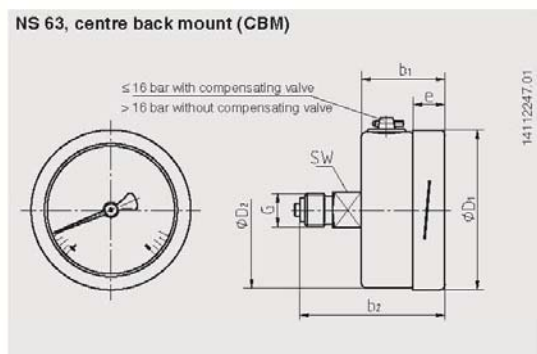
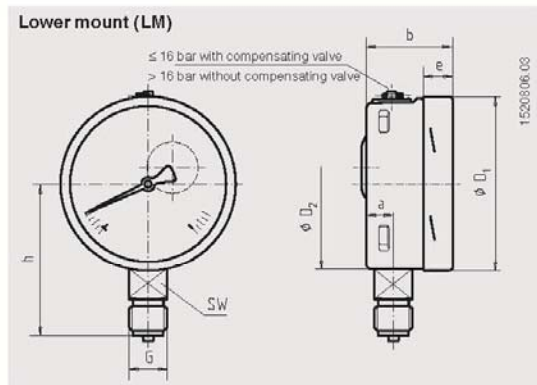
Certificates (option)

- 2.2 test report
- 3.1 inspection certificate

Approvals and certificates, see website

Dimensions in mm

Standard version



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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Art. No.	Type No.
102475	4001
102476	4002
102477	4003
102478	4004
102479	4005
102480	4006
102481	4007
102482	4008
102483	4009
102484	4022
102485	4023
102486	4024
102487	4025
102488	4026
102489	4027
102490	4028
102491	4030
102492	4030/1
102493	4030/2
102494	4031
102495	4032
102496	4033
102497	4034
102498	4035
102499	4036
102500	4037
102501	4012
102502	4013
102503	4050
102504	4053
102505	4054
102506	4055

Art. No.	Type No.
102507	4080
102508	4081
102509	4082
102510	4083
101201	4084
101202	4085
102511	4086
102512	4087
102513	4089
102514	4090
131496	4091
134040	4091/1
118691	4092
102515	4093
102516	4094
134042	4095
134043	4096
134044	4097

Art. No.	Type No.
102308	740-63
102309	740/1-63
102310	740/2-63
102311	740/3-63
102312	740/4-63
102313	740/5-63
102314	740/6-63
102315	742-63
102316	743-63
102317	744-63
102318	745-63
102319	746-63
102320	747-63
102321	748-63
102322	749-63
102323	750-63
102324	751-63
102325	752-63
102326	753-63
102327	754-63
102328	755-63
102329	756-63

Art. No.	Type No.
102330	740-100
102331	740/1-100
102332	740/2-100
102333	740/3-100
102334	740/4-100
102335	740/5-100
102336	740/6-100
102337	741-100
102338	742-100
102339	743-100
102340	744-100
102341	745-100
102342	746-100
102343	747-100
102344	748-100
102345	749-100
102346	750-100
102347	751-100
102348	752-100
102349	753-100
102350	754-100
102351	755-100
102352	756-100

Art. No.	Type No.
740	102353
740/1	102354
740/2	102355
740/3	102356
740/4	102357
740/5	102358
740/6	102359
741	102360
742	102361
743	102362
744	102363
745	102364
746	102365
747	102366
748	102367
749	102368
750	102369
751	102370
752	102371
753	102372
754	102373
755	102374
756	102375

Art. No.	Type No.
4180	134023
4181	134024
4182	134025
4183	134026
4184	134027
4185	134028
4186	134029
4187	134030
4191	134031
4191/1	134032
4192	134033
4193	134034
4194	134035
4195	134036
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