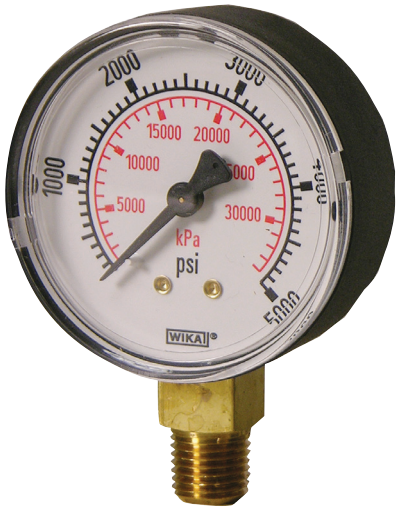
Bourdon Tube Pressure Gauge
Type 111.10, Black Plastic or Painted Steel Case
Standard Series - Lower Mount

Applications

- Hydraulic and pneumatic systems
- Pumps, compressors, water systems, regulators
- Suitable for fluid medium which does not clog connection port or corrode copper alloy

Product features

- Copper alloy wetted parts
- Black plastic or painted steel case
- Lower mount (LM) process connection



Bourdon Tube Pressure Gauge Type 111.10

Specifications

Design
EN837-1 and ASME B40.100

Sizes (All sizes not stocked)
1½", 2", 2½" and 4" (40, 50, 63, and 100 mm)

Accuracy class
± 3/2/3% of span (ASME B40.100 Grade B)

Ranges (All ranges not stocked)
Vacuum/Compound to 30 "Hg (-1 bar) / 0/ 200 psi (16 bar)
Pressure from 15 psi (1 bar) to 6,000 psi (400 bar)
or other equivalent units of pressure or vacuum
Receiver scales 3...15 psi (0.2 ... 1 bar)

Working pressure
Steady: 3/4 of full scale value
Fluctuating: 2/3 of full scale value
Short time: full scale value

Operating temperature
Ambient: -40°F to 140°F (-40°C to 60°C)
Media: 140°F (+60°C) maximum

Temperature error
Additional error when temperature changes from reference temperature of 68°F (20°C) ±0.4% of span for every 18°F (10°K) rising or falling.

Pressure connection
Material: copper alloy
Lower mount (LM)
1/8" or 1/4" NPT

Bourdon Tube
Material: copper alloy
≤ 870 psi (60 bar): C-shape
> 870 psi (60 bar): Helical

Movement
Copper alloy

Dial
White plastic with stop pin (1½", 2", 2½")
White aluminum with stop pin (4")
Black or black and red lettering

Pointer
Black ABS plastic (1½", 2", 2½" LM)
Black aluminum (4" LM)

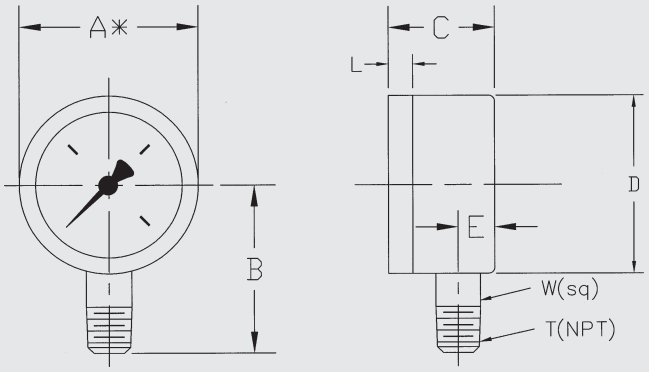
Case
Black plastic

Window
Crystal-clear plastic, snap-fit

Optional Extras

- Accuracy ± 2/1/2% of span (ASME B40.100 Grade A)
- Slip-fit or friction ring
- Case with blowout plug
- Glass window (requires slip-fit or friction ring)
- Black painted steel case
- Stainless steel case
- Special case colors
- Special connections (limited to wrench flat area)
- Cleaned for oxygen service
- Nickel plated connection
- Medical specification
- Rubber cover (2", 2½")
- Custom dial layout
- Other pressure scales available:
  bar, kPa, MPa, kg/cm² and dual scales
- EN standards
- Red set pointer on aluminum dial or on snap-on window
- External adjust red drag pointer
  (black steel - 2½" case only)

Dimensions



Type 111.10

Size		A	B	C	D	E	L	T	W
1.5”	mm	40	36	26	39	9.6	3.2		14
	in	1.50	1.42	1.02	1.54	0.38	0.13	1/8”	0.55
2”	mm	50	45	27	49	10	3.3		14
	in	1.97	1.77	1.06	1.93	0.39	0.13	1/4”	0.55
2.5”	mm	63	53.5	28	61.5	10	3.4		14
	in	2.48	2.11	1.10	2.42	0.39	0.14	1/4”	0.55
4”	mm	100	83.5	30	99	11.5	3.8		14
	in	3.94	3.29	1.18	3.9	0.45	0.15	1/4”	0.55

Ordering information
Pressure gauge model / Nominal size / Scale range / Size of connection / Optional extras required
Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing.
Modifications may take place and materials specified may be replaced by others without prior notice.

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Bourdon tube pressure gauge, copper alloy
Liquid filling, plastic case
Model 113.13

for further approvals,
see page 6

Applications

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

Special features

- Vibration and shock resistance
- Design per EN 837-1 or ASME B40.100
- Nominal size 40 [1 ½"], 50 [2"], 63 [2 ½"]
- Scale ranges to 0 ... 400 bar [0 ... 6,000 psi]

Model 113.13, lower mount (radial)

Description

The model 113.13 is a liquid-filled pressure gauge with plastic case. The liquid filling causes damping of the internal components and contributes to an increased vibration and shock resistance. Thus the pressure gauges are suitable for installation in machines and plants where strong vibrations and shocks are expected.

These pressure gauges are based on the proven Bourdon tube measuring system. The deflection of the Bourdon tube is transmitted to a movement and indicated.

The plastic case and the window are welded together and an O-ring seals the process connection at the case. In this way the instrument fulfils the high requirements for IP65 ingress protection.

With accuracy class 2.5 and the available nominal sizes 40 [1 ½"], 50 [2"] and 63 [2 ½"], this model is suited for a wide range of applications in industry.

The mounting bracket, which is available as an option, enables the panel mounting of pressure gauges with back mount process connection. The nominal size 63 [2 ½"] version with back mount process connection is alternatively offered with a mounting flange on the front of the instrument. This mounting flange is used when, for example, panel mounting is only possible from the front.

Data sheets showing similar products:
Panel mounting series; models 111.16, 111.26; see data sheet PM 01.10
With VdS approval; model 111.12.040; see data sheet SP 01.23

Specifications

Basic information	
Standard	■ EN 837-1 ■ ASME B40.100
	For information on the “Selection, installation, handling and operation of pressure gauges”, see Technical information IN 00.05.
Nominal size (NS)	■ Ø 40 mm [1 ½"] ■ Ø 50 mm [2"] ■ Ø 63 mm [2 ½"]
Connection location	■ Lower mount (radial) 2) ■ Centre back mount
Window	Plastic, crystal-clear, snap-fitted in case
Case	
Design	■ Without safety level ■ Safety level “S1” per EN 837-1: With blow-out device
Material	Plastic, black
Mounting	■ Without ■ Panel mounting flange, plastic 1) ■ Mounting bracket, steel 2)
Case filling	■ Glycerine ■ Glycerine-water mixture for NS 63 [2 ½"] with scale range ≤ 0 ... 4 bar [≤ 0 ... 60 psi]
Movement	Copper alloy

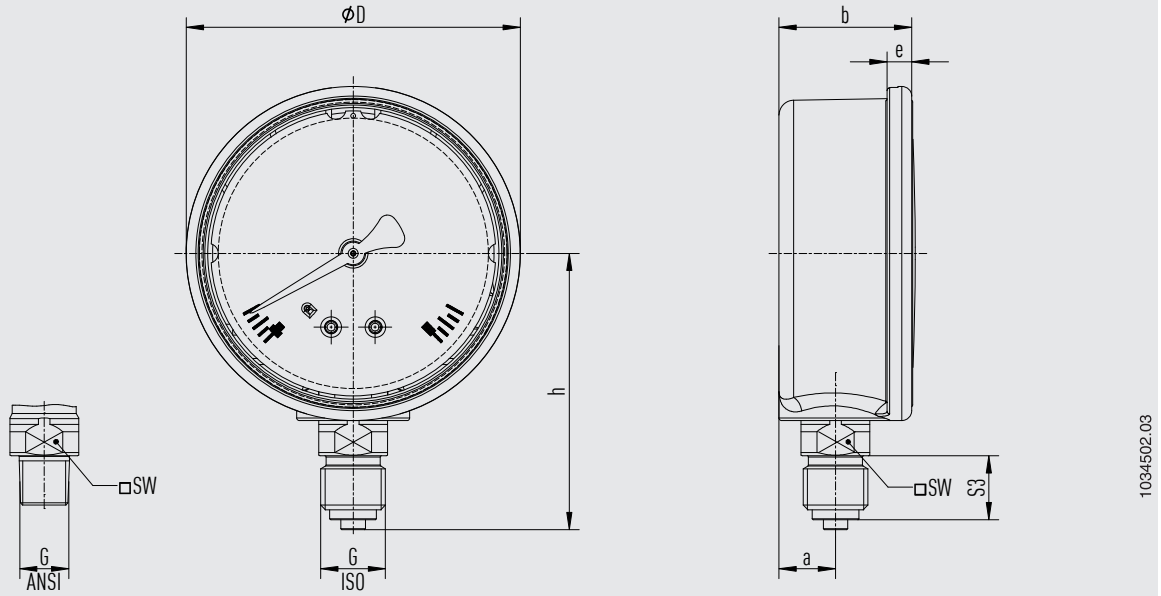
1) Only available for NS 63 [2 ½"]
2) Only available for NS 50 [2"] and NS 63 [2 ½"]

Measuring element	
Type of measuring element	Bourdon tube, C-type or helical type
Material	Copper alloy
Leak tightness	Leakage rate: $< 5 \cdot 10^{-3}$ mbar l/s

Accuracy specifications	
Accuracy class	
EN 837-1	Class 2.5
ASME B40.100	±3 % | ±2 % | ±3 % of measuring span (grade B)
Temperature error	On deviation from the reference conditions at the measuring system: ≤ ±0.4 % per 10 °C [≤ ±0.4 % per 18 °F] of full scale value
Reference conditions	
Ambient temperature	+20 °C [68 °F]

Dimensions in mm [in]

Model 113.13, lower mount (radial)

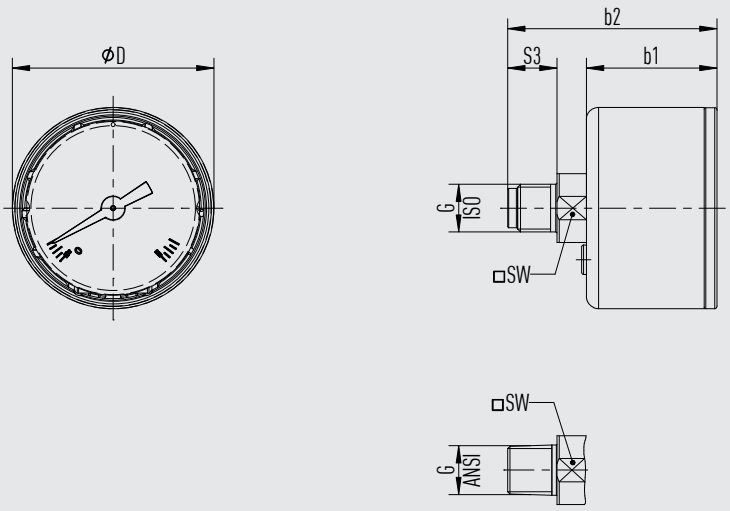


NS	G [1]	Dimensions in mm [in]						
		D	h ±1 [0.04]	a	b1 ±0.5 [0.02]	S3	e	SW
50 [2"]	G ⅛ B, ⅛ NPT, R ⅛	55 [2.17]	51.2 [2.02]	11.5 [0.45]	27 [1.06]	10 [0.39]	5 [0.2]	14 [0.55]
	G ¼ B, ¼ NPT, R ¼	55 [2.17]	54.2 [2.13]	11.5 [0.45]	27 [1.06]	13 [0.51]	5 [0.2]	14 [0.55]
63 [2 ½"]	G ⅛ B, ⅛ NPT, R ⅛	68 [2.68]	51.2 [2.02]	11.5 [0.45]	27 [1.06]	10 [0.39]	5 [0.2]	14 [0.55]
	G ¼ B, ¼ NPT, R ¼	68 [2.68]	54.2 [2.13]	11.5 [0.45]	27 [1.06]	13 [0.51]	5 [0.2]	14 [0.55]

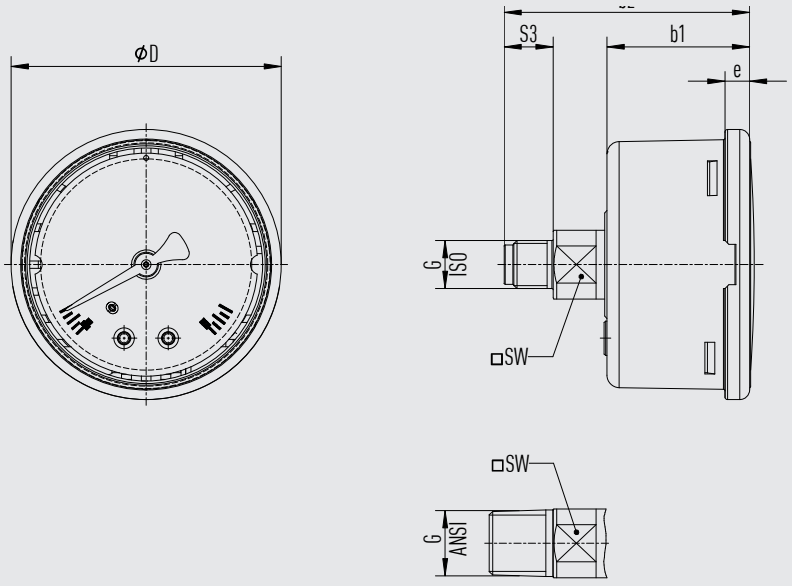
1) The G ⅛ B process connection of this instrument is manufactured without a centring spigot and with a thread runout instead of a thread undercut.

NS	Weight in kg [lb]
50 [2"]	0.11 [0.24]
63 [2 ½"]	0.15 [0.33]

Model 113.13, NS 40 [1 ½"], centre back mount



Model 113.13, NS 50 [2"] and NS 63 [2 ½"], centre back mount



NS	G [1]	Dimensions in mm [in]					
		D	b2 ±1 [0.04]	b	e	S3	SW
40 [1 ½"]	G ⅛ B, ⅛ NPT, R ⅛	41 [1.61]	42.6 [1.68]	26.6 [1.05]	-	10 [0.39]	14 [0.55]
	G ¼ B, ¼ NPT, R ¼	41 [1.61]	45.6 1.80]	26.6 [1.05]	-	13 [0.51]	14 [0.55]
50 [2"]	G ⅛ B, ⅛ NPT, R ⅛	55 [2.17]	50 [1.97]	29 [1.14]	5 [0.2]	10 [0.39]	14 [0.55]
	G ¼ B, ¼ NPT, R ¼	55 [2.17]	53 [2.09]	29 [1.14]	5 [0.2]	13 [0.51]	14 [0.55]
63 [2 ½"]	G ⅛ B, ⅛ NPT, R ⅛	68 [2.68]	50 [1.97]	29 [1.14]	5 [0.2]	10 [0.39]	14 [0.55]
	G ¼ B, ¼ NPT, R ¼	68 [2.68]	53 [2.09]	29 [1.14]	5 [0.2]	13 [0.51]	14 [0.55]

1) The G ⅛ B process connection of this instrument is manufactured without a centring spigot and with a thread runout instead of a thread undercut.

NS	Weight in kg [lb]
40 [1 ½"]	0.06 [0.13]
50 [2"]	0.07 [0.15]
63 [2 ½"]	0.08 [0.18]