Capsule pressure gauge, copper alloy
Plastic case
Model 611.13, NS 50 [2"], 63 [2 ½"]

For further approvals, see page 6

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Applications

- Pressure gauge for use in a protected environment
- Medical, vacuum, environmental, laboratory technology, for contents measurement and filter monitoring
- For gaseous, dry and non-aggressive media

Special features

- Compact design and ingress protection IP53
- Case from plastic
- Special connection location on request
- Low scale ranges from 0 ... 60 mbar to 0 ... 1,000 mbar or 0 ... 24 inH_2O to 0 ... 400 inH_2O

Capsule pressure gauge model 611.13

Description

The model 611.13 capsule pressure gauge is based upon the proven capsule measuring system. One half of the capsule element forms the plastic case and the other half is made of a copper-beryllium alloy (CuBe).

The capsule element measurement principle is suitable for very low pressures. On pressurisation, the expansion of the capsule element, proportional to the incident pressure, is transmitted to the movement and indicated.

The modular design enables a multitude of customer-specific applications. The model 611.13 instrument is used with great success, particularly in medical engineering applications.

The scale ranges of 0 ... 60 mbar to 0 ... 1,000 mbar or 0 ... 24 inH_2O to 0 ... 400 inH_2O and the vacuum and +/- scale ranges ensure the measuring ranges required for a wide variety of applications.

Data sheets showing similar products:
Capsule pressure gauge, standard version; models 611.10 and 631.10; see data sheet PM 06.01

Specifications

Basic information	
Standard	EN 837-3
	→ For information on the “Selection, installation, handling and operation of pressure gauges”, see technical information IN 00.05
Further version	■ Oil- and grease-free
Nominal size (NS)	■ Ø 50 mm [2"] ■ Ø 63 mm [2 ½"]
Connection location	■ Lower mount (radial) ■ Centre back mount
Window	Plastic, crystal-clear, snap-fitted in case
Case	Plastic, black
Movement	Copper alloy

1) Only for back mount

Measuring element	
Type of measuring element	Capsule element
Material (wetted)	
Capsule element	CuBe alloy (copper-beryllium)
Case	Plastic, black
Sealing	NBR and silicone
Process connection	Copper alloy
Leak tightness	■ Leakage rate: < $1 \cdot 10^{-3}$ mbar l/s ■ Helium tested, leakage rate: < $1 \cdot 10^{-5}$ mbar l/s

Accuracy specifications	
Accuracy class	
EN 837-3	■ Class 2.5
ASME B40.100	■ ±3 % | ±2 % | ±3 % of measuring span (grade B)
Zero point setting with adjustment screw [1]	■ Without ■ In front, after opening the window
Temperature error	On deviation from the reference conditions at the measuring system: ≤ ±0.6 % per 10 °C [≤ ±0.6 % per 18 °F] of full scale value
Reference conditions	
Ambient temperature	+20 °C [+68 °F]

1) Instruments with +/- scale range always feature zero point setting.

Other accuracy classes on request

Scale ranges

mbar	
0 ... 60	0 ... 250
0 ... 100	0 ... 400
0 ... 160	0 ... 600
0 ... 200	0 ... 1,000

kg/cm²	
0 … 0.06	0 … 0.25
0 … 0.1	0 … 0.4
0 … 0.16	0 … 0.6
0 … 0.2	0 … 1

kPa	
0 ... 6	0 ... 25
0 ... 10	0 ... 40
0 ... 16	0 ... 60
0 ... 20	0 ... 100

Pa	
0 ... 6,000	0 ... 25,000
0 ... 10,000	0 ... 40,000
0 ... 16,000	0 ... 60,000
0 ... 20,000	0 ... 100,000

psi	
0 ... 1	0 ... 3.6
0 ... 1.5	0 ... 6
0 ... 2.5	0 ... 10
0 ... 3	0 ... 15

mmH_2O	
0 ... 600	0 ... 2,500
0 ... 1,000	0 ... 4,000
0 ... 1,600	0 ... 6,000
0 ... 2,000	0 ... 10,000

inH_2O	
0 … 24	0 … 100
0 … 40	0 … 160
0 … 60	0 … 240
0 … 80	0 … 400

oz/in²	
0 … 15	0 … 60
0 … 25	0 … 100
0 … 40	0 … 150
0 … 50	0 … 240

Vacuum and +/- scale ranges

mbar	
-60 … 0	-30 ... +30
-100 … 0	-50 ... +50
-160 … 0	-80 ... +80
-250 … 0	-125 ... +125
-400 … 0	-200 ... +200
-600 ... 0	-300 ... +300
-1,000 ... 0	-500 ... +500

kg/cm²	
-0.06 … 0	-0.03 ... +0.03
-0.1 … 0	-0.05 ... +0.05
-0.16 … 0	-0.08 ... +0.08
-0.25 … 0	-0.125 ... +0.125
-0.4 … 0	-0.2 ... +0.2
-0.6 ... 0	-0.3 ... +0.3
-1 ... 0	-0.5 ... +0.5

kPa	
-6 … 0	-3 ... +3
-10 … 0	-5 ... +5
-16 … 0	-8 ... +8
-25 … 0	-12.5 ... +12.5
-40 … 0	-20 ... +20
-60 ... 0	-30 ... +30
-100 ... 0	-50 ... +50

Pa	
-6,000 … 0	-3,000 ... +3,000
-10,000 … 0	-5,000 ... +5,000
-16,000 … 0	-8,000 ... +8,000
-25,000 … 0	-12,500 ... +12,500
-40,000 … 0	-20,000 ... +20,000
-60,000 ... 0	-30,000 ... +30,000
-100,000 ... 0	-50,000 ... +50,000

psi	
-1 ... 0	-0.5 ... +0.5
-1.5 ... 0	-0.75 ... +0.75
-2.5 ... 0	-1.25 ... +1.25
-3.6 ... 0	-1.8 ... +1.8
-6 ... 0	-3 ... +3
-10 ... 0	-5 ... +5
-15 ... 0	-7.5 ... +7.5

mmH_2O	
-600 ... 0	-300 ... +300
-1,000 ... 0	-500 ... +500
-1,600 ... 0	-800 ... +800
-2,500 ... 0	-1,250 ... +1,250
-4,000 ... 0	-2,000 ... +2,000
-6,000 ... 0	-3,000 ... +3,000
-10,000 ... 0	-5,000 ... +5,000

inH_2O	
-24 ... 0	-12 … +12
-40 ... 0	-20 ... +20
-60 ... 0	-30 ... +30
-100 ... 0	-50 ... +50
-160 ... 0	-80 ... +80
-240 ... 0	-120 ... +120
-240 ... 0	-120 ... +120

oz/in²	
-15 … 0	-7.5 ... +7.5
-25 … 0	-12.5 ... +12.5
-40 … 0	-20 ... +20
-60 … 0	-30 ... +30
-100 … 0	-50 ... +50
-150 … 0	-75 ... +75
-240 … 0	-120 ... +120

Further details on: Scale ranges		
Unit	■ mbar ■ kg/cm² ■ kPa ■ Pa	■ psi ■ mmH_2O ■ inH_2O ■ oz/in²
	Other units on request	
Overpressure safety	On request	
Vacuum safety	On request	
Dial		
Scale layout	■ Single scale ■ Dual scale	
Scale colour	Single scale	Black
	Dual scale	Black/red
Serial number	■ Without ■ Consecutive number * ... *	
Material	Aluminium	
Special scale	Other scales or customer-specific dials, e.g. with red mark, circular arcs or circular sectors, on request	
Instrument pointer	Aluminium, black	
Pointer stop pin	■ Without ■ At zero point ■ At 6 o'clock	

Process connection	
Standard	■ EN 837-3 ■ ANSI/B1.20.1
Size	
EN 837-3	■ G ⅛ B, male thread ■ G ¼ B, male thread
ANSI/B1.20.1	■ ⅛ NPT, male thread ■ ¼ NPT, male thread
Restrictor	■ Without ■ Ø 0.5 mm [0.02"], copper alloy ■ Ø 0.3 mm [0.012"], copper alloy
Material (wetted)	
Capsule element	CuBe alloy (copper-beryllium)
Case	Plastic, black
Sealing	NBR and silicone
Process connection	Copper alloy

Other process connections on request

Operating conditions	
Medium temperature	-20 ... +60 °C [-4 ... +140 °F]
Ambient temperature	-20 ... +60 °C [-4 ... +140 °F]
Pressure limitation	
Steady	Full scale value
Fluctuating	0.9 x full scale value
Short time	1.3 x full scale value
Ingress protection per IEC/EN 60529	IP53

Approvals

Logo	Description	Region
CE	**EU declaration of conformity**	European Union
	Pressure Equipment Directive PS > 200 bar, module A, pressure accessory	
	RoHS directive	
UKCA	**UKCA**	United Kingdom
	Pressure equipment (safety) regulations	
	Restriction of hazardous substances (RoHS) regulations	

Optional approvals

Logo	Description	Region
	PAC Kazakhstan Metrology, measurement technology	Kazakhstan
-	**MChS** Permission for commissioning	Kazakhstan
-	**PAC Ukraine** Metrology, measurement technology	Ukraine
	PAC Uzbekistan Metrology, measurement technology	Uzbekistan
-	**CPA** Metrology, measurement technology	China

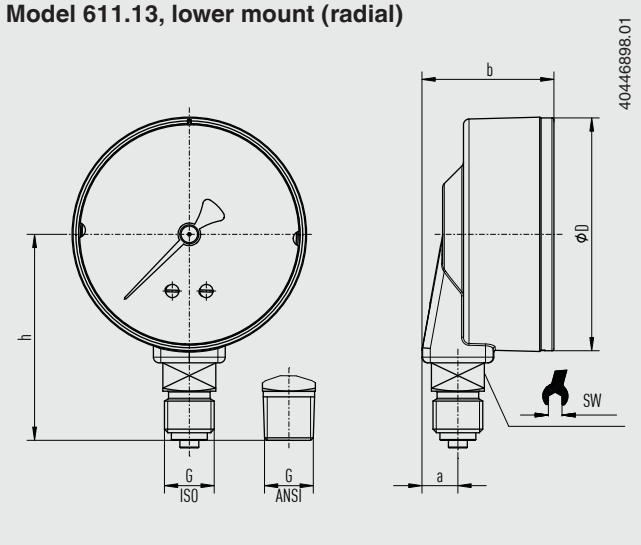
Certificates (option)

Certificates	
Certificates	■ 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, indication accuracy) ■ 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts, indication accuracy)
Recommended calibration interval	1 year (dependent on conditions of use)

→ For approvals and certificates, see website

Dimensions in mm [in]

Model 611.13, lower mount (radial)



NS	Weight
50 [2"]	Approx. 0.07 kg [0.15 lb]
63 [2½"]	Approx. 0.08 kg [0.18 lb]

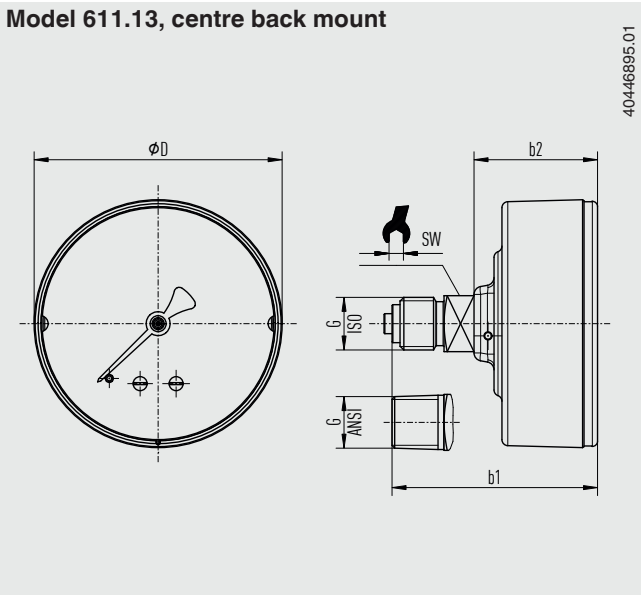
Process connection with thread per EN 837-3

NS	G	Dimensions in mm [in]				
		h ±1 [0.04]	a	b	D	SW
50 [2"]	G ⅛ B	45 [1.77]	9 [0.37]	35 [1.38]	49 [1.93]	14 [0.55]
	G ¼ B	48 [1.89]	9 [0.37]	35 [1.38]	49 [1.93]	14 [0.55]
63 [2 ½"]	G ⅛ B	51.5 [2.03]	9.5 [0.37]	35 [1.38]	62 [2.44]	14 [0.55]
	G ¼ B	54.5 [2.15]	9.5 [0.37]	35 [1.38]	62 [2.44]	14 [0.55]

Process connection with thread per ANSI/B1.20.1

NS	G	Dimensions in mm [in]				
		h ±1 [0.04]	a	b	D	SW
50 [2"]	⅛ NPT	45 [1.77]	9 [0.37]	35 [1.38]	49 [1.93]	14 [0.55]
	¼ NPT	48 [1.89]	9 [0.37]	35 [1.38]	49 [1.93]	14 [0.55]
63 [2 ½"]	⅛ NPT	51.5 [2.03]	9.5 [0.37]	35 [1.38]	62 [2.44]	14 [0.55]
	¼ NPT	54.5 [2.15]	9.5 [0.37]	35 [1.38]	62 [2.44]	14 [0.55]

Model 611.13, centre back mount



NS	Weight
50 [2"]	Approx. 0.07 kg [0.15 lb]
63 [2½"]	Approx. 0.08 kg [0.18 lb]

Process connection with thread per EN 837-3

NS	G	Dimensions in mm [in]			
		b1 ±1 [0.04]	b2	D	SW
50 [2"]	G ⅛ B	48.5 [1.91]	31 [1.22]	49 [1.93]	14 [0.55]
	G ¼ B	51.5 [2.03]	31 [1.22]	49 [1.93]	14 [0.55]
63 [2 ½"]	G ⅛ B	48.5 [1.91]	31 [1.22]	62 [2.44]	14 [0.55]
	G ¼ B	51.5 [2.03]	31 [1.22]	62 [2.44]	14 [0.55]

Process connection with thread per ISO 7 or ANSI/B1.20.1

NS	G	Dimensions in mm [in]			
		b1 ±1 [0.04]	b2	D	SW
50 [2"]	⅛ NPT	48.5 [1.91]	31 [1.22]	49 [1.93]	14 [0.55]
	¼ NPT	51.5 [2.03]	31 [1.22]	49 [1.93]	14 [0.55]
63 [2 ½"]	⅛ NPT	48.5 [1.91]	31 [1.22]	62 [2.44]	14 [0.55]
	¼ NPT	51.5 [2.03]	31 [1.22]	62 [2.44]	14 [0.55]

Ordering information

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

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