

Capsule pressure gauge, copper alloy or stainless steel Standard version

Models 611.10 and 631.10, NS 50 [2"], 63 [2 1/2"]

WIKA data sheet PM 06.01



For further approvals,
see page 7

Applications

- Pressure gauge for use in a protected environment
- Medical, vacuum, environmental, laboratory technology, for contents measurement and filter monitoring
- For gaseous and dry media
- Model 611.10 with wetted parts from copper alloy, for non-aggressive media
- Model 631.10 with wetted parts from stainless steel, for aggressive media

Special features

- Zero point setting in front
- Special connection location on request
- Low scale ranges from 0 ... 25 mbar to 0 ... 600 mbar or 0 ... 10 inH₂O to 0 ... 240 inH₂O



Capsule pressure gauge, model 611.10

Description

The model 611.10 and 631.10 capsule pressure gauges are based upon the proven capsule measuring system. 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 combinations of case materials, process connections, nominal sizes and scale ranges. Due to this high variance, the instrument is suitable for use in a wide range of applications within industry.

The case is made of steel (black) with a snap-fitted window. The material of the process connection is a copper alloy.

For mounting in control panels, the capsule pressure gauges can, depending on the process connection, be fitted with a mounting flange or with a triangular profile ring and mounting bracket.

The scale ranges of 0 ... 25 mbar to 0 ... 600 mbar or 0 ... 10 inH₂O to 0 ... 240 inH₂O and the vacuum and +/- scale ranges ensure the measuring ranges required for a wide variety of applications.

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	<ul style="list-style-type: none"> ■ Oil- and grease-free ■ For oxygen, oil- and grease-free
Nominal size (NS)	<ul style="list-style-type: none"> ■ Ø 50 mm [2"] (only for model 611.10) ■ Ø 63 mm [2 ½"]
Connection location	<ul style="list-style-type: none"> ■ Lower mount (radial) (only for NS 63 [2 ½"]) ■ Centre back mount
Window	Polycarbonate
Case	<ul style="list-style-type: none"> ■ Steel, black ■ Stainless steel (only for NS 63 [2 ½"])
Mounting	<ul style="list-style-type: none"> ■ Without ■ Surface mounting flange, steel, black (only for NS 63 [2 ½"]) ■ Panel mounting flange, steel, black, screwed ■ Panel mounting flange, steel, chrome-plated, screwed ■ Slip-on bezel, steel, black, pressed on ■ Slip-on bezel, stainless steel, pressed on ■ Slip-on bezel, polished stainless steel, pressed on ■ Triangular profile ring with mounting bracket, steel, black ¹⁾ ■ Triangular profile ring with mounting bracket, polished stainless steel ¹⁾ <p>→ For information on "Mounting types, mounting flanges, panel cutouts", see technical information IN 00.04</p>
Movement	<ul style="list-style-type: none"> ■ Copper alloy ■ Stainless steel (only selectable for NS 63 [2 ½"])

1) Only for back mount

Measuring element		
Type of measuring element	Capsule element	
Material (wetted)		
Capsule element	Model 611.10	Copper alloy
	Model 631.10	Stainless steel 316L
Seal	Model 611.10	NBR
	Model 631.10	FKM
Process connection	Model 611.10	Copper alloy
	Model 631.10	Stainless steel 316L
Leak tightness	<ul style="list-style-type: none"> ■ 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 1.6
ASME B40.100	■ $\pm 2\%$ $\pm 1\%$ $\pm 2\%$ of measuring span (grade A)
Zero point setting with adjustment screw	<ul style="list-style-type: none"> ■ In front, after opening the window ¹⁾ ■ In front, through the opening in the window ²⁾
Temperature error	On deviation from the reference conditions at the measuring system: $\leq \pm 0.6\%$ per 10 °C [$\leq \pm 0.6\%$ per 18 °F] of full scale value
Reference conditions	
Ambient temperature	+20 °C [+68 °F]

1) For versions without mounting flange or with surface mounting flange

2) For all versions with mounting (except for surface mounting flange), the opening of the window for the zero point setting is sealed with a taper plug.

Scale ranges

mbar	
0 ... 25 ¹⁾	0 ... 160
0 ... 40 ¹⁾	0 ... 250
0 ... 60	0 ... 400
0 ... 100	0 ... 600

kg/cm ²	
0 ... 0.025 ¹⁾	0 ... 0.16
0 ... 0.04 ¹⁾	0 ... 0.25
0 ... 0.06	0 ... 0.4
0 ... 0.1	0 ... 0.6

kPa	
0 ... 2.5 ¹⁾	0 ... 16
0 ... 4 ¹⁾	0 ... 25
0 ... 6	0 ... 40
0 ... 10	0 ... 60

Pa	
0 ... 2,500 ¹⁾	0 ... 16,000
0 ... 4,000 ¹⁾	0 ... 25,000
0 ... 6,000	0 ... 40,000
0 ... 10,000	0 ... 60,000

psi	
0 ... 0.36 ¹⁾	0 ... 2.5
0 ... 0.6 ¹⁾	0 ... 3.6
0 ... 1.0	0 ... 6.0
0 ... 1.5	0 ... 10

mmH ₂ O	
0 ... 250 ¹⁾	0 ... 1,600
0 ... 400 ¹⁾	0 ... 2,500
0 ... 600	0 ... 4,000
0 ... 1,000	0 ... 6,000

inH ₂ O	
0 ... 10 ¹⁾	0 ... 60
0 ... 16 ¹⁾	0 ... 100
0 ... 24	0 ... 160
0 ... 40	0 ... 240

oz/in ²	
0 ... 6 ¹⁾	0 ... 40
0 ... 10 ¹⁾	0 ... 60
0 ... 15	0 ... 100
0 ... 25	0 ... 150

1) Only available for NS 63 [2.5"]

Vacuum and +/- scale ranges

mbar	
-25 ... 0 ¹⁾	-12.5 ... +12.5 ¹⁾
-40 ... 0 ¹⁾	-20 ... +20 ¹⁾
-60 ... 0	-30 ... +30
-100 ... 0	-50 ... +50
-160 ... 0	-80 ... +80
-250 ... 0	-125 ... +125
-400 ... 0	-200 ... +200
-600 ... 0	-300 ... +300

kg/cm ²	
-0.025 ... 0 ¹⁾	-0.0125 ... +0.0125 ¹⁾
-0.04 ... 0 ¹⁾	-0.02 ... +0.02 ¹⁾
-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

kPa	
-2.5 ... 0 ¹⁾	-1.25 ... +1.25 ¹⁾
-4 ... 0 ¹⁾	-2 ... +2 ¹⁾
-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

Pa	
-2,500 ... 0 ¹⁾	-1,250 ... +1,250 ¹⁾
-4,000 ... 0 ¹⁾	-2,000 ... +2,000 ¹⁾
-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

psi	
-0.36 ... 0 ¹⁾	-0.18 ... +0.18 ¹⁾
-0.6 ... 0 ¹⁾	-0.3 ... +0.3 ¹⁾
-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

mmH ₂ O	
-250 ... 0 ¹⁾	-125 ... +125 ¹⁾
-400 ... 0 ¹⁾	-200 ... +200 ¹⁾
-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 ... +3000

inH ₂ O	
-10 ... 0 ¹⁾	-5 ... +5 ¹⁾
-16 ... 0 ¹⁾	-8 ... +8 ¹⁾
-24 ... 0	-12 ... +12
-40 ... 0	-20 ... +20
-60 ... 0	-30 ... +30
-100 ... 0	-50 ... +50
-160 ... 0	-80 ... +80
-240 ... 0	-120 ... +120

oz/in ²	
-6 ... 0	-3 ... +3
-10 ... 0	-5 ... +5
-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

1) Only available for NS 63 [2.5"]

Further details on: Scale ranges		
Unit	<ul style="list-style-type: none"> ■ mbar ■ kg/cm² ■ kPa ■ Pa 	<ul style="list-style-type: none"> ■ psi ■ mmH₂O ■ inH₂O ■ oz/in²
	Other units on request	
Overpressure safety ¹⁾		
Scale range < 0 ... 40 mbar [0 ... 16 inH ₂ O]	<ul style="list-style-type: none"> ■ Without ■ 3 x full scale value 	
Scale range ≥ 0 ... 40 mbar [0 ... 16 inH ₂ O]	<ul style="list-style-type: none"> ■ Without ■ 10 x full scale value 	
Vacuum safety ¹⁾		
Scale range < 0 ... 40 mbar [0 ... 16 inH ₂ O]	<ul style="list-style-type: none"> ■ Without ■ 3 x full scale value 	
Scale range ≥ 0 ... 40 mbar [0 ... 16 inH ₂ O]	<ul style="list-style-type: none"> ■ Without ■ 10 x full scale value 	
Dial		
Scale layout	<ul style="list-style-type: none"> ■ Single scale ■ Dual scale 	
Scale colour	Single scale	Black
	Dual scale	Black/red
Serial number	<ul style="list-style-type: none"> ■ Without ■ Consecutive number * ... * 	
Material	Aluminium, black painted	
Special scale	Other scales or customer-specific dials, e.g. with red mark, circular arcs or circular sectors, on request	
Pointer		
Instrument pointer	Aluminium	
Mark pointer/drag pointer ¹⁾	<ul style="list-style-type: none"> ■ Without ■ Red mark pointer on dial, fixed ■ Red mark pointer on window, adjustable ■ Red drag pointer on window, adjustable ²⁾ 	
Pointer stop pin	<ul style="list-style-type: none"> ■ Without ■ At zero point ■ At 6 o'clock 	

1) Only available for NS 63 [2.5"]

2) Only available for scale ranges ≥ 0 ... 60 mbar [0 ... 24 H₂O] or vacuum scale ranges ≥ -60 ... 0 mbar [-24 ... 0 H₂O]



Process connection	
Standard	<ul style="list-style-type: none"> ■ EN 837-3 ■ ISO 7 ■ ANSI/B1.20.1
Size	
EN 837-3	<ul style="list-style-type: none"> ■ G ½ B, male thread ■ G ¼ B, male thread
ISO 7	<ul style="list-style-type: none"> ■ R ½, male thread ■ R ¼, male thread
ANSI/B1.20.1	<ul style="list-style-type: none"> ■ ½ NPT, male thread ■ ¼ NPT, male thread
Restrictor	<ul style="list-style-type: none"> ■ Without ■ Ø 0.3 mm [0.012"], copper alloy ■ Ø 0.5 mm [0.02"], copper alloy ■ Ø 0.3 mm [0.012"], stainless steel ■ Ø 0.6 mm [0.024"], stainless steel

Process connection		
Material (wetted)		
Capsule element	Model 611.10	Copper alloy
	Model 631.10	Stainless steel 316L
Seal	Model 611.10	NBR
	Model 631.10	FKM
Process connection	Model 611.10	Copper alloy
	Model 631.10	Stainless steel 316L



Other process connections on request

Operating conditions	
Medium temperature	-20 ... +100 °C [-4 ... +212 °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	<ul style="list-style-type: none"> ■ IP32 ■ IP54

Approvals

Logo	Description	Region
	EU declaration of conformity	European Union
	Pressure Equipment Directive PS > 200 bar, module A, pressure accessory	
	RoHS directive	
	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

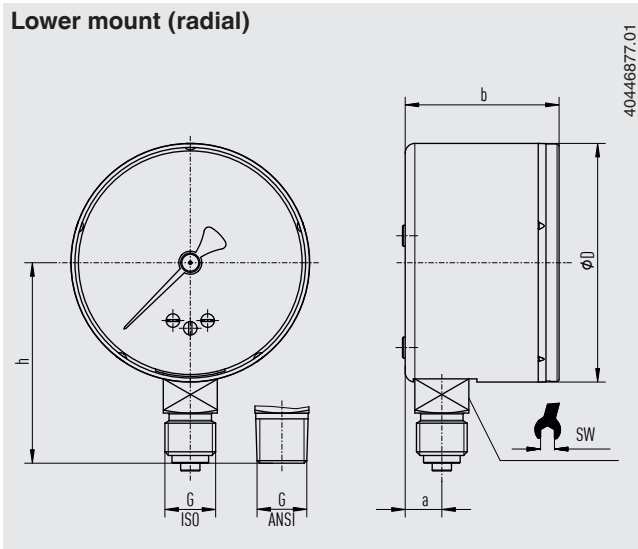
Certificates (option)

Certificates	
Certificates	<ul style="list-style-type: none"> ■ 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)
Calibration	<ul style="list-style-type: none"> ■ Factory calibration certificate ■ SCS calibration certificate (traceable and accredited per ISO/IEC 17025) ■ Calibration certificate by a national accreditation body, traceable and accredited per ISO/IEC 17025 on request
Recommended calibration interval	1 year (dependent on conditions of use)

→ For approvals and certificates, see website

Dimensions in mm [in]

Lower mount (radial)



NS	Weight
63 [2½"]	Approx. 0.18 kg [0.39 lb]

Process connection with thread per EN 837-3

NS	G	Dimensions in mm [in]				
		h ±1 [0.04]	a	b	D	SW
63 [2½"]	G ½ B	49 [1.93]	9.5 [0.37]	40 [1.57]	62 [2.44]	14 [0.55]
	G ¼ B	52 [2.05]	9.5 [0.37]	40 [1.57]	62 [2.44]	14 [0.55]
	M12 x 1.5	52 [2.05]	9.5 [0.37]	40 [1.57]	62 [2.44]	14 [0.55]

Process connection with thread per ISO 7

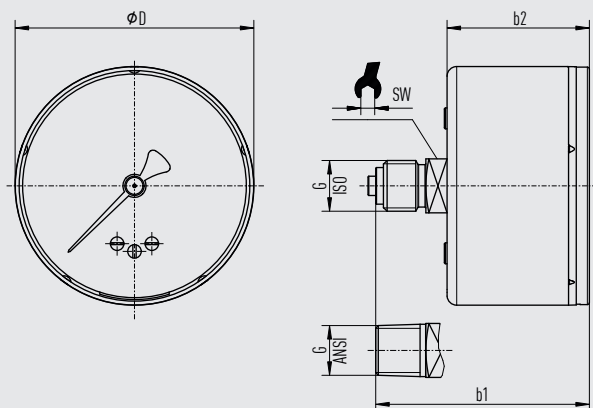
NS	G	Dimensions in mm [in]				
		h ±1 [0.04]	a	b	D	SW
63 [2½"]	R ¼	52 [2.05]	9.5 [0.37]	40 [1.57]	62 [2.44]	14 [0.55]

Process connection with thread per ANSI/B1.20.1

NS	G	Dimensions in mm [in]				
		h ±1 [0.04]	a	b	D	SW
63 [2½"]	½ NPT	49 [1.93]	9.5 [0.37]	40 [1.57]	62 [2.44]	14 [0.55]
	¼ NPT	52 [2.05]	9.5 [0.37]	40 [1.57]	62 [2.44]	14 [0.55]

Centre back mount

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NS	Weight
50 [2"]	Approx. 0.09 kg [0.20 lb]
63 [2½"]	Approx. 0.19 kg [0.35 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	44 [1.73]	28 [1.1]	49 [1.93]	14 [0.55]
	G ¼ B	47 [1.73]	28 [1.1]	49 [1.93]	14 [0.55]
	M12 x 1.5	47 [1.85]	28 [1.1]	49 [1.93]	14 [0.55]
63 [2½"]	G ⅛ B	53 [2.09]	37 [1.46]	62 [2.44]	14 [0.55]
	G ¼ B	56 [2.20]	37 [1.46]	62 [2.44]	14 [0.55]
	M12 x 1.5	56 [2.20]	37 [1.46]	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"]	R ¼	47 [1.73]	28 [1.1]	49 [1.93]	14 [0.55]
63 [2½"]	R ¼	56 [2.20]	37 [1.46]	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	44 [1.73]	28 [1.1]	49 [1.93]	14 [0.55]
	¼ NPT	47 [1.73]	28 [1.1]	49 [1.93]	14 [0.55]
63 [2½"]	⅛ NPT	53 [2.09]	37 [1.46]	62 [2.44]	14 [0.55]
	¼ NPT	56 [2.20]	37 [1.46]	62 [2.44]	14 [0.55]

Ordering information

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

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