

Test gauge, copper alloy or stainless steel

Class 0.6, NS 250

Models 311.11, 331.11

WIKA data sheet PM 03.02

Applications

- For gaseous and liquid aggressive media that are not highly viscous or crystallising
- Model 311.11: Measuring system copper alloy
Model 331.11: Measuring system stainless steel, also for aggressive media
- High-accuracy pressure measurement
- Testing of industrial type pressure gauges
- Precision measurement in laboratories

Special features

- Knife edge pointer for optimal accuracy of reading
- Precise movement with wear parts of argentan
- Particularly easy-to-read scale due to nominal size 250
- Scale ranges to 0 ... 1,600 bar [0 ... 20,000 psi]



Test gauge, model 311.11

Description

The models 311.11 and 331.11 mechanical test gauges have been specifically designed for the measurement of pressures with high accuracy. With its accuracy class of 0.6, the Bourdon tube pressure gauge is suitable for testing industrial type pressure gauges or for precision measurement in laboratories.

For the respective measuring requirement, a scale range between 0 ... 0.6 bar to 0 ... 600 bar [0 ... 10 psi to 0 ... 10,000 psi] for model 311.11 or 0 ... 0.6 bar to 0 ... 1,600 bar [0 ... 10 psi to 0 ... 20,000 psi] for model 331.11 can be selected.

The instrument meets the requirements of the international industry standard EN 837-1 for Bourdon tube pressure gauges. On request, a calibration certificate will be provided for this instrument.

Specifications

Basic information	
Standard	<ul style="list-style-type: none"> ■ EN 837-1 <p>For information on the "Selection, installation, handling and operation of pressure gauges", see technical information IN 00.05.</p>
Nominal size (NS)	Ø 250 mm [9.8"]
Connection location	<ul style="list-style-type: none"> ■ Lower mount (radial) ■ Lower back mount
Window	Instrument glass
Case	Steel, black
Ring	Slip-on bezel, steel, black
Movement	Copper alloy, wear parts argentan

Measuring element		
Type of measuring element	Bourdon tube, C-type or helical type	
Material		
Model 311.11	< 100 bar	Copper alloy
	≥ 100 bar	Stainless steel 1.4404 (316L)
Model 331.11	Stainless steel 1.4404 (316L)	
Leak tightness		
Model 311.11	Leakage rate: < $5 \cdot 10^{-3}$ mbar l/s	
Model 331.11	Helium tested, leakage rate: < $1 \cdot 10^{-6}$ mbar l/s	

Accuracy specifications	
Accuracy class	Class 0.6
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]

Scale ranges

bar	
0 ... 0.6	0 ... 60
0 ... 1	0 ... 70
0 ... 1.6	0 ... 100
0 ... 2	0 ... 140
0 ... 2.5	0 ... 160
0 ... 4	0 ... 200
0 ... 6	0 ... 250
0 ... 7	0 ... 315
0 ... 10	0 ... 400
0 ... 14	0 ... 600
0 ... 16	0 ... 700 ¹⁾
0 ... 20	0 ... 1,000 ¹⁾
0 ... 25	0 ... 1,400 ¹⁾
0 ... 30	0 ... 1,600 ¹⁾
0 ... 40	

kg/cm ²	
0 ... 0.6	0 ... 60
0 ... 1	0 ... 70
0 ... 1.6	0 ... 100
0 ... 2	0 ... 140
0 ... 2.5	0 ... 160
0 ... 4	0 ... 200
0 ... 6	0 ... 250
0 ... 7	0 ... 315
0 ... 10	0 ... 400
0 ... 14	0 ... 600
0 ... 16	0 ... 700 ¹⁾
0 ... 20	0 ... 1,000 ¹⁾
0 ... 25	0 ... 1,400 ¹⁾
0 ... 30	0 ... 1,600 ¹⁾
0 ... 40	

kPa	
0 ... 60	0 ... 4,000
0 ... 70	0 ... 6,000
0 ... 100	0 ... 7,000
0 ... 160	0 ... 10,000
0 ... 200	0 ... 14,000
0 ... 250	0 ... 16,000
0 ... 300	0 ... 20,000
0 ... 400	0 ... 25,000
0 ... 600	0 ... 31,500
0 ... 700	0 ... 40,000
0 ... 1,000	0 ... 60,000
0 ... 1,400	0 ... 70,000 ¹⁾
0 ... 1,600	0 ... 80,000 ¹⁾
0 ... 2,500	0 ... 100,000 ¹⁾
0 ... 3,000	

MPa	
0 ... 0.06	0 ... 6
0 ... 0.1	0 ... 7
0 ... 0.16	0 ... 10
0 ... 0.2	0 ... 14
0 ... 0.25	0 ... 16
0 ... 0.4	0 ... 20
0 ... 0.6	0 ... 25
0 ... 0.7	0 ... 31.5
0 ... 1	0 ... 40
0 ... 1.4	0 ... 60
0 ... 1.6	0 ... 70 ¹⁾
0 ... 2	0 ... 100 ¹⁾
0 ... 2.5	0 ... 140 ¹⁾
0 ... 3	0 ... 160 ¹⁾
0 ... 4	

psi	
0 ... 10	0 ... 800
0 ... 15	0 ... 1,000
0 ... 30	0 ... 1,500
0 ... 60	0 ... 2,000
0 ... 100	0 ... 3,000
0 ... 150	0 ... 4,000
0 ... 160	0 ... 5,000
0 ... 200	0 ... 6,000
0 ... 300	0 ... 7,500
0 ... 400	0 ... 10,000 ¹⁾
0 ... 500	0 ... 15,000 ¹⁾
0 ... 600	0 ... 20,000 ¹⁾

1) Only available for model 331.11

Vacuum and +/- scale ranges

bar	
-0.6 ... 0	-1 ... +5
-1 ... 0	-1 ... +7
-1 ... +1	-1 ... +10
-1 ... +1.5	-1 ... +15
-1 ... +2	-1 ... +24
-1 ... +3	-1 ... +30
-1 ... +4	

kPa	
-60 ... 0	-100 ... +500
-100 ... 0	-100 ... +700
-100 ... +60	-100 ... +900
-100 ... +150	-100 ... +1,000
-100 ... +200	-100 ... +1,500
-100 ... +300	-100 ... +2,400
-100 ... +400	-100 ... +3,000

psi	
-15 inHg ... 0	-30 inHg ... +100
-30 inHg ... +0	-30 inHg ... +160
-30 inHg ... +15	-30 inHg ... +200
-30 inHg ... +30	-30 inHg ... +300
-30 inHg ... +60	

kg/cm ²	
-0.6 ... 0	-1 ... +5
-1 ... 0	-1 ... +7
-1 ... 0.6	-1 ... +9
-1 ... +1	-1 ... +10
-1 ... +1.5	-1 ... +15
-1 ... +2	-1 ... +24
-1 ... +3	-1 ... +30
-1 ... +4	

MPa	
-0.06 ... 0	-0.1 ... +0.5
-0.1 ... 0	-0.1 ... +0.7
-0.1 ... +0.06	-0.1 ... +0.9
-0.1 ... +0.1	-0.1 ... +1
-0.1 ... +0.15	-0.1 ... +1.5
-0.1 ... +0.2	-0.1 ... +2.4
-0.1 ... +0.3	-0.1 ... +3
-0.1 ... +0.4	

Further details on: Scale ranges

Special scale ranges	Other scale ranges on request
Unit	<ul style="list-style-type: none"> ■ bar ■ psi ■ kg/cm² ■ kPa ■ MPa
Increased overload safety	<ul style="list-style-type: none"> ■ Without ■ 1.3 times <p>The possibility of selection depends on the scale range</p>
Vacuum resistance	<ul style="list-style-type: none"> ■ Without ■ Vacuum-resistant to -1 bar <p>The possibility of selection depends on the scale range</p>
Dial	
Scale colour	Black
Material	Aluminium
Special scale	Other scales or customer-specific dials, e.g. with red mark, circular arcs or circular sectors, on request
Pointer	Knife edge pointer, aluminium, black



Process connection	
Standard	<ul style="list-style-type: none"> ■ EN 837-1 ■ ISO 7 ■ ANSI/B1.20.1
Size	
EN 837-1	<ul style="list-style-type: none"> ■ G ½ B, male thread ■ M20 x 1.5, male thread
ISO 7	R ½, male thread
ANSI/B1.20.1	½ NPT, male thread
Restrictor	<ul style="list-style-type: none"> ■ Without ■ Ø 0.6 mm [0.024"], stainless steel ■ Ø 0.6 mm [0.024"], copper alloy
Material (wetted)	
Model 311.11	Copper alloy
Model 331.11	Stainless steel 1.4404 (316L)

Other process connections on request


Operating conditions	
Medium temperature	
Model 311.11	-20 ... +80 °C [-4 ... +176 °F]
Model 331.11	-40 ... +200 °C [-40 ... +392 °F]
Ambient temperature	-40 ... +60 °C [-40 ... +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	IP54

Packaging	
Packaging	<ul style="list-style-type: none"> ■ Packaging with increased shock resistance ■ Plastic bag ■ Transport case

Approvals

Logo	Description	Country
	EU declaration of conformity Pressure equipment directive PS > 200 bar, module A, pressure accessory	European Union
	UKCA Pressure equipment (safety) regulations	United Kingdom
-	CRN Safety (e.g. electr. safety, overpressure, ...) For scale ranges ≤ 1,000 bar	Canada

Optional approvals

Logo	Description	Country
	PAC Kazakhstan Metrology, measurement technology	Kazakhstan
-	PAC Ukraine Metrology, measurement technology	Ukraine
-	PAC China Metrology, measurement technology	China

Manufacturer's information and certificates

Logo	Description
-	Pressure equipment directive (PED) for maximum allowable pressure PS ≤ 200 bar
-	Suitability of wetted materials for drinking water in accordance with the European 4MS initiative

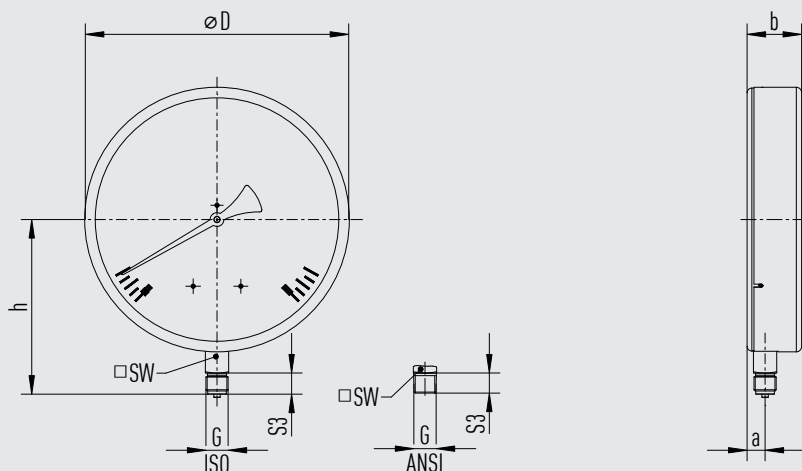
Certificates (option)

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) ■ PCA calibration certificate, traceable and accredited in accordance with ISO/IEC 17025 ■ Calibration certificate by a national accreditation body, traceable and accredited in accordance with 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)

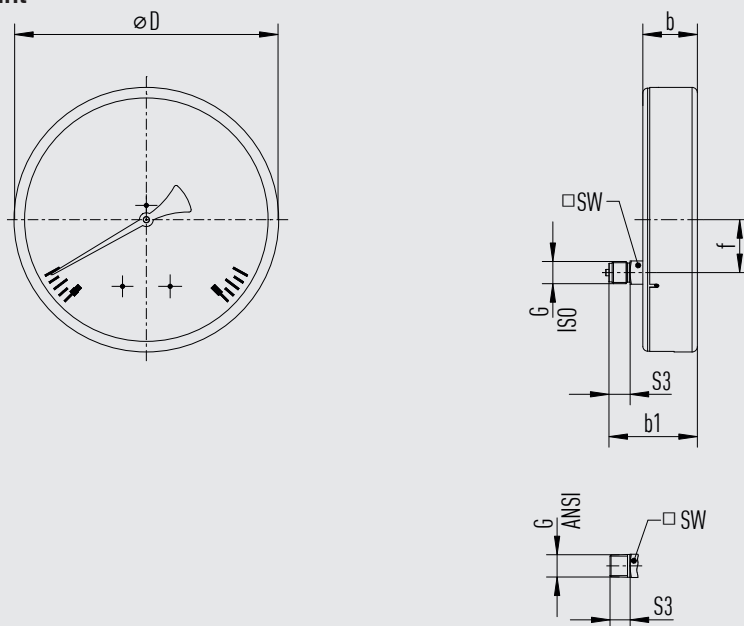


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Weight: approx. 3 kg [6.6 lb]

NS	G	Dimensions in mm [in]					
		$h \pm 1$ [0.04]	S3	a	$b \pm 0.5$ [0.02]	D	SW
250 [9.8"]	G ½ B, M20 x 1.5	165 [6.5]	20 [0.79]	17 [0.67]	51.5 [2.03]	249 [9.8]	22 [0.87]
	½ NPT, R ½	164 [6.46]	19 [0.75]	17 [0.67]	51.5 [2.03]	249 [9.8]	22 [0.87]

Lower back mount





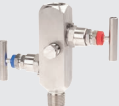
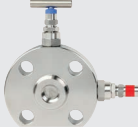




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Weight: approx. 3 kg [6.6 lb]

NS	G	Dimensions in mm [in]					
		$b \pm 0.5$ [0.02]	$b1 \pm 1$ [0.04]	S3	f	D	SW
250 [9.8"]	G ½ B, M20 x 1.5	51.5 [2.03]	83.5 [3.29]	20 [0.79]	50 [1.97]	249 [9.8]	22 [0.87]
	½ NPT, R ½	51.5 [2.03]	82.5 [3.25]	19 [0.75]	50 [1.97]	249 [9.8]	22 [0.87]

Accessories and spare parts

Model	Description
	910.17 Sealings → See data sheet AC 09.08
	910.15 Syphons → See data sheet AC 09.06
	910.13 Overpressure protector → See data sheet AC 09.04
	IV10, IV11 Needle valve and multiport valve → See data sheet AC 09.22
	IV20, IV21 Block-and-bleed valve → See data sheet AC 09.19
	IVM Monoflange, process and instrument version → See data sheet AC 09.17
	BV Ball valve, process and instrument version → See data sheet AC 09.28
	IBF2, IBF3 Monoblock with flange connection → See data sheet AC 09.25

Ordering information

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

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