

# Bourdon tube pressure gauge, copper alloy or stainless steel

## For refrigeration technology, NS 80 [3"]

### Models 112.28, 113.28, 132.28, 133.28

WIKA data sheet PM 01.28



For further approvals,  
see page 6

## Applications

- For gaseous and liquid media that are not highly viscous or crystallising
- Model 11x.28: Measuring system copper alloy  
Model 13x.28: Measuring system stainless steel, also for aggressive media
- Hydraulics
- Compressors
- Refrigeration technology

## Special features

- Especially robust design
- Stainless steel case
- With case filling for applications with high dynamic pressure loads and vibrations
- Scale ranges to 0 ... 40 bar [0 ... 600 psi]



**Model 132.28, back mount, scaling for refrigeration technology**

## Description

These pressure gauges are based on the proven Bourdon tube measuring system. On pressurisation, the expansion of the Bourdon tube, proportional to the incident pressure, is transmitted to the movement and indicated.

Bourdon tube pressure gauges for refrigeration technology use the direct relationship between pressure and temperature to indicate both vapour pressure and vapour temperature. The multiple scale indicates the measured pressure and the converted temperature of the refrigerants.

## Specifications

Basic information	
Standard	<ul style="list-style-type: none"> <li>■ EN 837-1</li> <li>→ For information on the "Selection, installation, handling and operation of pressure gauges", see technical information IN 00.05.</li> </ul>
Nominal size (NS)	Ø 80 mm [3"]
Connection location	<ul style="list-style-type: none"> <li>■ Lower mount (radial)</li> <li>■ Centre back mount</li> </ul>
Window	Polycarbonate
Case	Stainless steel
Ring	Crimp ring, stainless steel, polished
Mounting	<ul style="list-style-type: none"> <li>■ Without</li> <li>■ Panel mounting flange, stainless steel</li> <li>■ Surface mounting flange, stainless steel</li> <li>■ Panel frame 88 x 88 mm, stainless steel, black</li> </ul>
Case filling	<ul style="list-style-type: none"> <li>■ Without</li> <li>■ Glycerine</li> </ul>
Movement	Copper alloy, wear parts Argentan

Measuring element	
Type of measuring element	Bourdon tube, C-type or helical type
Material	
Models 112.28, 113.28	Copper alloy
Models 132.28, 133.28	Stainless steel 1.4404 (316L)

Accuracy specifications	
Accuracy class	Class 1.6
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 ... 10
0 ... 1	0 ... 14
0 ... 1.6	0 ... 16
0 ... 2	0 ... 20
0 ... 2.5	0 ... 25
0 ... 4	0 ... 30
0 ... 6	0 ... 40
0 ... 7	-

kg/cm <sup>2</sup>	
0 ... 0.6	0 ... 10
0 ... 1	0 ... 14
0 ... 1.6	0 ... 16
0 ... 2	0 ... 20
0 ... 2.5	0 ... 25
0 ... 4	0 ... 30
0 ... 6	0 ... 40
0 ... 7	-

kPa	
0 ... 60	0 ... 1,000
0 ... 100	0 ... 1,400
0 ... 160	0 ... 1,600
0 ... 200	0 ... 2,000
0 ... 250	0 ... 2,500
0 ... 400	0 ... 3,000
0 ... 600	0 ... 4,000
0 ... 700	-

MPa	
0 ... 0.06	0 ... 1
0 ... 0.1	0 ... 1.4
0 ... 0.16	0 ... 1.6
0 ... 0.2	0 ... 2
0 ... 0.25	0 ... 2.5
0 ... 0.4	0 ... 3
0 ... 0.6	0 ... 4
0 ... 0.7	-

psi	
0 ... 10	0 ... 160
0 ... 15	0 ... 200
0 ... 30	0 ... 300
0 ... 60	0 ... 400
0 ... 100	0 ... 500
0 ... 150	0 ... 600

## Vacuum and compound 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 <sup>2</sup>	
-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

<b>Special scale ranges</b>	→ Other scale ranges on request
<b>Unit</b>	<ul style="list-style-type: none"> <li>■ bar</li> <li>■ psi</li> <li>■ kg/cm<sup>2</sup></li> <li>■ kPa</li> <li>■ MPa</li> </ul>
<b>Increased overload safety</b>	<ul style="list-style-type: none"> <li>■ Without</li> <li>■ 1.3 times</li> </ul> <p>The possibility of selection depends on the scale range</p>
<b>Vacuum resistance</b>	<ul style="list-style-type: none"> <li>■ Without</li> <li>■ Vacuum-resistant to -1 bar</li> </ul> <p>The possibility of selection depends on the scale range</p>
<b>Dial</b>	
Scale colour	Black
Material	Aluminium
Temperature scale for refrigerant	With up to 3 temperature scales, e.g. for R290, R717, R32, R1234yf
<b>Pointer</b>	Aluminium, black

Process connection	
<b>Standard</b>	EN 837-1
<b>Size</b>	
EN 837-1	<ul style="list-style-type: none"> <li>■ G 3/8 B, male thread</li> </ul>
<b>Restrictor</b>	<ul style="list-style-type: none"> <li>■ Without</li> <li>■ Ø 0.6 mm [0.024"], stainless steel</li> <li>■ Ø 0.6 mm [0.024"], copper alloy</li> </ul>
<b>Material (wetted)</b>	
Models 112.28, 113.28	Copper alloy
Models 132.28, 133.28	Stainless steel 1.4404 (316L)


→ Other process connections on request

Operating conditions	
<b>Medium temperature</b>	
Models 112.28, 113.28	-20 ... +60 °C [-4 ... +140 °F]
Model 132.28	-40 ... +200 °C [-40 ... +392 °F]
Model 133.28	-20 ... +100 °C [-4 ... +212 °F]
<b>Ambient temperature</b>	
Models 112.28, 113.28, 133.28	-20 ... +60 °C [-4 ... +140 °F]
Model 132.28	-40 ... +60 °C [-40 ... +140 °F]
<b>Pressure limitation</b>	
Steady	Full scale value
Fluctuating	0.9 x full scale value
Short time	1.3 x full scale value
<b>Ingress protection per IEC/EN 60529</b>	IP54

## Approvals

Logo	Description	Country
-	<b>CRN</b> Safety (e.g. electr. safety, overpressure, ...)	Canada

### Optional approvals

Logo	Description	Country
	<b>PAC Kazakhstan</b> Metrology, measurement technology	Kazakhstan
-	<b>PAC Ukraine</b> Metrology, measurement technology	Ukraine
-	<b>PAC China</b> Metrology, measurement technology	China

## Manufacturer's declaration

Logo	Description
-	Pressure Equipment Directive (PED) for maximum allowable pressure $PS \leq 200$ bar

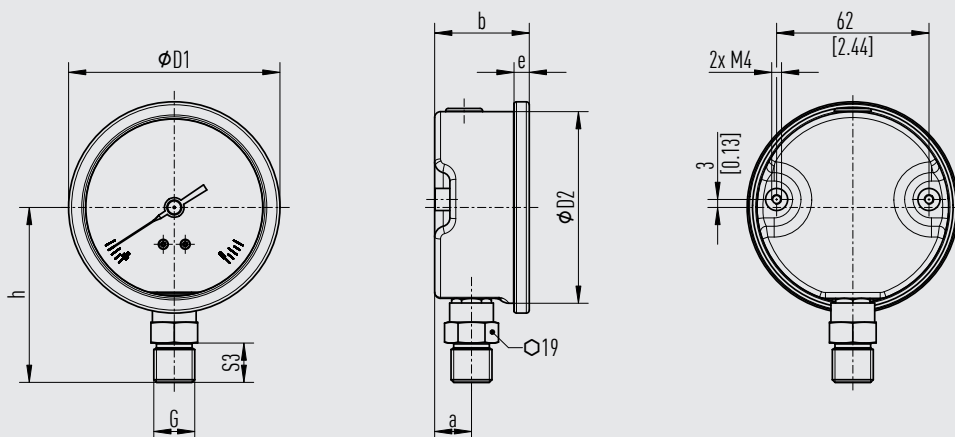
## Certificates

Certificates	
<b>Certificates</b>	<ul style="list-style-type: none"> <li>■ 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, indication accuracy)</li> <li>■ 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts, indication accuracy)</li> <li>■ PCA calibration certificate, traceable and accredited per ISO/IEC 17025</li> <li>■ Calibration certificate by a national accreditation body, traceable and accredited in accordance with ISO/IEC 17025 on request</li> </ul>
<b>Recommended calibration interval</b>	1 year (dependent on conditions of use)

→ For approvals and certificates, see website

## Dimensions in mm [in]

### Lower mount (radial)

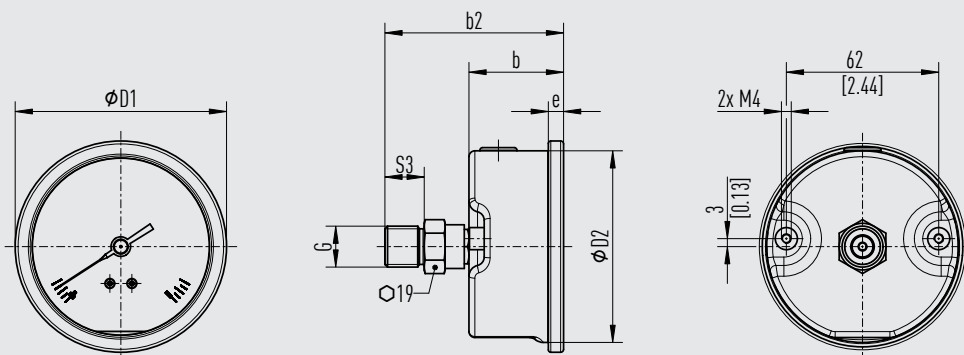


Weight: approx. 352 g [12.4 oz]

14013298.02

NS	G	Dimensions in mm [in]						
		D1	D2	$h \pm 1$ [0.04]	$b \pm 0.5$ [0.02]	a	e	S3
80 [3"]	G 3/8 B	86 [3.39]	78 [3.07]	71 [2.8]	38.5 [1.52]	15 [0.59]	6 [0.24]	16 [0.63]

### Centre back mount



Weight: approx. 340 g [12 oz]

14013563.02

NS	G	Dimensions in mm [in]					
		D1	D2	$b \pm 0.5$ [0.02]	$b2 \pm 1$ [0.04]	e	S3
80 [3"]	G 3/8 B	86 [3.39]	78 [3.07]	38.5 [1.52]	73 [2.87]	6 [0.24]	16 [0.63]

## Ordering information

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

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