

# Pressure gauge, DirectDrive version

## Miniature nominal sizes, NS 23 [0.9"] to NS 29 [1.14"]

### Model 116.18.02x

WIKA data sheet PM 01.18

#### Applications

- Measurement of static pressures in dry, gaseous media that will not attack copper alloy parts
- Indication of cylinder charging pressure for medical and industrial gases
- Welding engineering
- Respiratory protective equipment
- Military engineering

#### Special features

- Ideal for integration solutions
- Very good vibration and shock resistance
- Compact and robust design, socket wrench mounting possible
- Case from nickel-plated copper alloy, NS 23 [0.91"] to NS 29 [1.14"]
- Scale ranges to 0 ... 400 bar or 0 ... 5,000 psi



Model 116.18.023

## Description

#### Measurement principle

The pressure gauges in DirectDrive version do not require a movement. The measuring element of the model 116.18.02x is designed in a helical form. The pressure element acts as a pointer itself. The shape of the pressure element provides for a pointer rotation proportional to the pressure.

The advantage of the DirectDrive version is the optimised shock and vibration resistance.

The case and process connection are made from a single piece. In addition, the model 116.18.02x offers the safety feature of having a lateral blow-out device and IP65 ingress protection.

#### Fields of application

These pressure gauges are particularly suited for integration in pressure regulators and pressure valves. The model 116.18.02x has been conceived for use on fixed and transportable gas cylinders or gas vessels.

#### Individual customer versions

Based on many years of experience in manufacturing and development, WIKA is happy to offer support in the construction and production of customer-specific solutions.

## Specifications

Basic information					
<b>Standard</b>	<ul style="list-style-type: none"> <li>■ In line with EN 837-1</li> <li>■ In line with ASME B40.100</li> </ul> <p>For information on the "Selection, installation, handling and operation of pressure gauges", see Technical information IN 00.05.</p>				
<b>Further version</b>	<ul style="list-style-type: none"> <li>■ Oil- and grease-free</li> <li>■ For oxygen, oil- and grease-free</li> </ul>				
<b>Nominal size (NS)</b>	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> <li>■ Ø 23 mm [0.91"]</li> <li>■ Ø 24 mm [0.94"]</li> <li>■ Ø 25 mm [0.98"]</li> <li>■ Ø 26 mm [1.02"]</li> </ul> </td> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> <li>■ Ø 27 mm [1.06"]</li> <li>■ Ø 28 mm [1.10"]</li> <li>■ Ø 29 mm [1.14"]</li> </ul> </td> </tr> <tr> <td colspan="2" style="text-align: center;">Other nominal sizes on request</td> </tr> </table>	<ul style="list-style-type: none"> <li>■ Ø 23 mm [0.91"]</li> <li>■ Ø 24 mm [0.94"]</li> <li>■ Ø 25 mm [0.98"]</li> <li>■ Ø 26 mm [1.02"]</li> </ul>	<ul style="list-style-type: none"> <li>■ Ø 27 mm [1.06"]</li> <li>■ Ø 28 mm [1.10"]</li> <li>■ Ø 29 mm [1.14"]</li> </ul>	Other nominal sizes on request	
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Other nominal sizes on request					
<b>Connection location</b>	Centre back mount				
<b>Window</b>	Polycarbonate				
<b>Case material</b>	<ul style="list-style-type: none"> <li>■ Copper alloy, nickel-plated</li> <li>■ Copper alloy, natural finish</li> </ul>				

Measuring element	
<b>Type of measuring element</b>	Helical tube
<b>Material</b>	Copper alloy
<b>Leak tightness</b>	Leakage rate: $< 5 \cdot 10^{-3}$ mbar l/s

Accuracy specifications	
<b>Accuracy</b>	<ul style="list-style-type: none"> <li>■ <math>\pm 5</math> % of measuring span</li> <li>■ <math>\pm 2.5</math> % at a defined pressure value</li> </ul>
<b>Temperature error</b>	On deviation from the reference conditions at the measuring system: $\leq \pm 0.4$ % per 10 °C [ $\leq \pm 0.4$ % per 18 °F] of full scale value
<b>Reference conditions</b>	
Ambient temperature	+20 °C [68 °F]

### Scale ranges

bar	
0 ... 120	0 ... 330
0 ... 200	0 ... 350
0 ... 220	0 ... 400
0 ... 250	

psi
5,000

Other scale ranges and units on request

Further details on: Scale ranges	
<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>Dial</b>	
Scale angle	≤ 120° ±15° Other scale angles on request
Scale layout	Single scale
Scale colour	Single scale      Black
Material	<ul style="list-style-type: none"> <li>■ Aluminium, white</li> <li>■ Plastic, white</li> </ul>
Customer-specific version	Scales, e.g. with red mark, circular arcs or circular sectors, on request
<b>Pointer</b>	
Instrument pointer	Copper alloy, black

Process connection	
<b>Standard</b>	<ul style="list-style-type: none"> <li>■ EN 837-1</li> <li>■ ANSI/B1.20.1</li> </ul>
<b>Size</b>	
EN 837-1	<ul style="list-style-type: none"> <li>■ M10 x 1, male thread</li> <li>■ G 1/8 B, male thread</li> </ul>
ANSI/B1.20.1	<ul style="list-style-type: none"> <li>■ 1/8 NPT, male thread</li> </ul>
<b>Restrictor</b>	<ul style="list-style-type: none"> <li>■ Without</li> <li>■ Ø 0.3 mm [0.012"], copper alloy</li> <li>■ Ø 0.1 mm [0.004"], copper alloy</li> <li>■ Reduced measuring element diameter</li> </ul>
<b>Material (wetted)</b>	
Process connection	<ul style="list-style-type: none"> <li>■ Copper alloy, nickel-plated</li> <li>■ Copper alloy, natural finish</li> </ul>
Bourdon tube	Copper alloy

Other process connections on request

Operating conditions	
<b>Medium temperature range</b>	-20 ... +60 °C [-4 ... +140 °F]
<b>Ambient temperature range</b>	-20 ... +60 °C [-4 ... +140 °F]
<b>Storage temperature range</b>	-40 ... +70 °C [-40 ... +158 °F]
<b>Pressure limitation</b>	
Steady	3/4 x full scale value
Fluctuating	2/3 x full scale value
Short time	Full scale value
<b>Ingress protection per IEC/EN 60529</b>	IP65

## Approvals

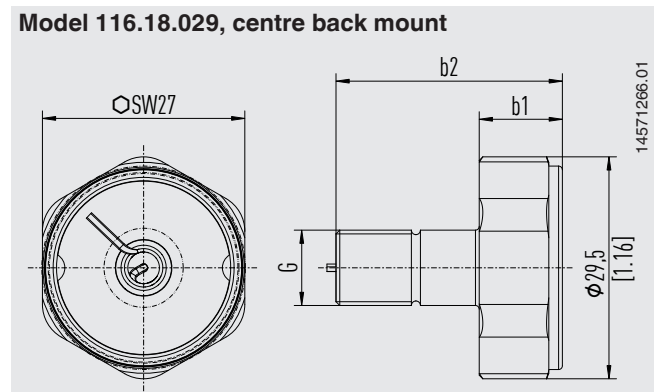
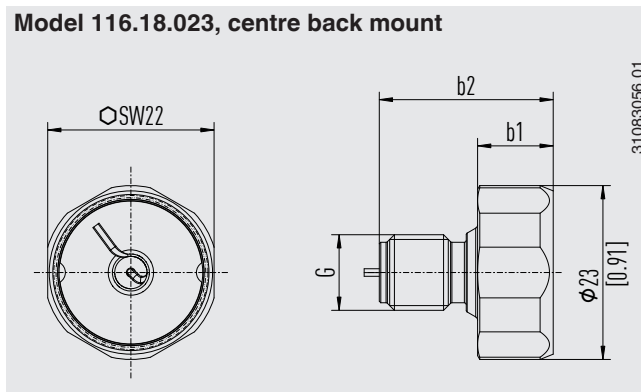
Logo	Description	Region
CE	EU declaration of conformity Pressure equipment directive PS > 200 bar, module A, pressure accessory	European Union

## Certificates (option)

Certificates	
Certificates	<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> </ul>

→ For approvals and certificates, see website

## Dimensions in mm [in]



NS	G	Dimensions in mm [in]			Weight in kg [lb]
		b1 ±1 [0.04]	b2 ±1 [0.04]	SW	
23 mm [0.91"]	M10 x 1	11 [0.43]	30 [1.18]	22 [0.87]	25 [0.88]
	G 1/8 B	11 [0.43]	30 [1.18]	22 [0.87]	25 [0.88]
	1/8 NPT	11 [0.43]	30 [1.18]	22 [0.87]	25 [0.88]
29 mm [1.14"]	M10 x 1	10 [0.39]	23 [0.91]	27 [1.06]	45 [1.59]
	G 1/8 B	10 [0.39]	19.5 [0.77]	27 [1.06]	45 [1.59]
	1/8 NPT	10 [0.39]	21.5 [0.85]	27 [1.06]	45 [1.59]

## Ordering information

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

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