Pressure gauge, DirectDrive version
Heavy-duty version from solid brass
Models PG81HD and PG91HD

Applications

- Measurement of static pressures in dry, gaseous media that will not attack copper alloy parts
- Indication of cylinder filling pressure for medical and industrial gases

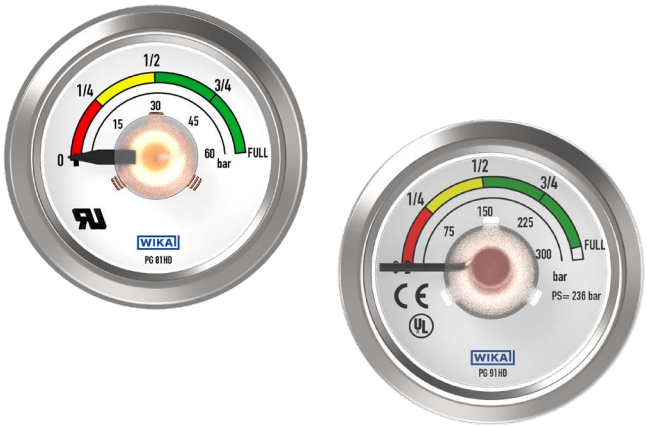


Fig. left: Model PG81HD with spiral tube
Fig. right: Model PG91HD with helical tube

Special features

- Good vibration and shock resistance
- Compact and extremely robust design from solid brass
- Extended temperature range: -40 ... +85 °C [-40 ... +185 °F]
- NS 36 [1.4"] and NS 41 [1.6"] available
- Ingress protection IP65 and IP67 available

Description

Measurement principle

The DirectDrive pressure gauges do not require a movement. The pressure element is directly connected to the pointer or acts as a pointer itself. The shape of the pressure element provides for a pointer rotation proportional to the pressure. The model PG81HD measuring element is designed in a spiral form and the model PG91HD in a helical form. The advantage of the DirectDrive version is the optimised shock and vibration resistance.

The case and the process connection of the heavy-duty version are made from a single piece of solid brass. This makes the models PG81HD and PG91HD much more robust than the models PG81 and PG91.

Ranges of use

These pressure gauge are particularly suited for the operating conditions of pressure regulators and pressure valves on fixed and portable gas cylinders.

Individual customer variants

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

Data sheets showing similar products:
Pressure gauge, DirectDrive version; models PG81, PG91; see data sheet PM 01.50

Specifications

Basic information	
Standard	■ In line with EN 837-1 [1)] ■ In line with ISO 10297 [1)] ■ UL 252A (only for model PG81HD) ■ UL 404 (only for scale ranges from 0 ... 100 bar [0 ... 1,500 psi])
	For information on the “Selection, installation, handling and operation of pressure gauges”, see technical information IN 00.05.
Further version	■ Oil- and grease-free ■ Oil- and grease-free for oxygen
Nominal size (NS)	■ Ø 36 mm [1.4"] ■ Ø 41 mm [1.6"]
Connection location	Centre back mount
Window	Polycarbonate
Case	
Design	■ With blow-out device in case back ■ With ventable diaphragm and blow-out device in case back
	The case and process connection are made from a single piece.
Material	Copper alloy
Case protection	■ Without ■ Rubber, black ■ Rubber, blue ■ Rubber, red ■ Rubber, orange

1) Load cycle stability and other requirements of the standard are fulfilled.

Measuring element	
Type of measuring element	
Model PG81HD	Spiral tube
Model PG91HD	Helical tube
Material	Copper alloy
Leak tightness	Leakage rate: $< 5 \cdot 10^{-3}$ mbar l/s

Accuracy specifications	
Accuracy [1)]	■ ±4 % of span [2)] ■ ±2.5 % at a defined pressure value
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]

1) Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2). Adjusted at nominal position per EN 837-1
2) ±5 % of span for span ≤ 12 bar [175 psi]

Scale ranges

bar
0 ... 40
0 ... 60
0 ... 100
0 ... 160
0 ... 200
0 ... 250
0 ... 315
0 ... 400
0 ... 450

kg/cm²
0 ... 40
0 ... 60
0 ... 100
0 ... 160
0 ... 200
0 ... 250
0 ... 315
0 ... 400
0 ... 450

kPa
0 ... 4,000
0 ... 6,000
0 ... 10,000
0 ... 16,000
0 ... 20,000
0 ... 25,000
0 ... 31,500
0 ... 40,000
0 ... 45,000

MPa
0 ... 4
0 ... 6
0 ... 10
0 ... 16
0 ... 20
0 ... 25
0 ... 31.5
0 ... 40
0 ... 45

psi
0 ... 600
0 ... 870
0 ... 1,500
0 ... 2,200
0 ... 3,000
0 ... 3,600
0 ... 4,500
0 ... 5,000
0 ... 6,000
0 ... 6,500

Model PG81HD with spiral tube

Model PG91HD with helical tube

The scale ranges shown with model (type of measuring element) are recommendations from WIKA.
→ Different, customer-specific versions on request.

Further details on: scale ranges		
Unit	■ bar ■ psi ■ kg/cm² ■ kPa ■ MPa	
Dial		
Scale angle	≤ 160° ±15°	
Scale layout	■ Single scale ■ Dual scale	
Scale colour	Single scale	Black
	Dual scale	Black/red
Material	Aluminium	
Customer-specific version	Other scales, e.g. with red mark, circular arcs or circular sectors, on request	
Pointer	Copper alloy, black	

Process connection	
Standard	■ EN 837-1 ■ ISO 7 ■ ANSI/B1.20.1
Size	
EN 837-1	■ G ⅛ B, male thread ■ G ¼ B, male thread
ANSI/B1.20.1	■ ⅛ NPT, male thread ■ ¼ NPT, male thread
ISO 7	■ R ⅛, male thread ■ R ¼, male thread
Restrictor	■ Without ■ Ø 0.3 mm [0.012"], copper alloy ■ Ø 0.1 mm [0.004"], copper alloy ■ Reduced measuring element diameter (only model PG91HD with helical tube)
Material (wetted)	
Process connection	Copper alloy
Bourdon tube	Copper alloy

→ Other process connections on request

Operating conditions	
Medium temperature range	-40 ... +85 °C [-40 ... +185 °F]
Ambient temperature range	-40 ... +85 °C [-40 ... +185 °F]
Storage temperature range	-40 ... +85 °C [-40 ... +185 °F]
Pressure limitation	
Steady [1)]	3/4 x full scale value
Fluctuating	2/3 x full scale value
Short time	Full scale value
Ingress protection per IEC/EN 60529	■ IP65 ■ IP67

1) Maximum allowable pressure PS per European Pressure Equipment Directive

Approvals

Logo	Description	Region
CE	**EU declaration of conformity** Pressure Equipment Directive PS > 200 bar, module A, pressure accessory	European Union
UL	**UL** UL approval per UL 252A (only for model PG81HD) UL approval per UL 404 (only for scale ranges from 0 ... 100 bar [0 ... 1,500 psi])	North America

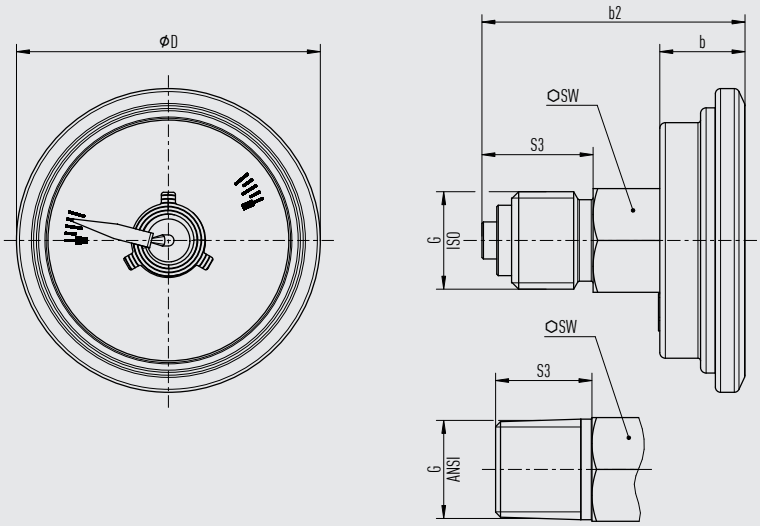
Certificates

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. indication accuracy)

→ For approvals and certificates, see website

Dimensions in mm [in]

Model PG81HD with spiral tube



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NS	G	Dimensions in mm [in]					Weight in kg [lb]
		D	b1 ±0.5 [±0.02]	b2 ±1.5 [±0.06]	S3	SW	
36 [1.4"]	G ⅛ B	36 [1.42]	11.5 [0.45]	21.5 [0.85]	10 [0.39]	12 [0.47]	Approx. 0.021 [0.046]
	G ¼ B	36 [1.42]	11.5 [0.45]	26.5 [1.04]	15 [0.59]	14 [0.55]	Approx. 0.021 [0.046]
	⅛ NPT	36 [1.42]	11.5 [0.45]	21.5 [0.85]	10 [0.39]	12 [0.47]	Approx. 0.021 [0.046]
	¼ NPT	36 [1.42]	11.5 [0.45]	24.5 [0.96]	13 [0.51]	14 [0.55]	Approx. 0.021 [0.046]
	R ⅛	36 [1.42]	11.5 [0.45]	21.5 [0.85]	10 [0.39]	12 [0.47]	Approx. 0.021 [0.046]
	R ¼	36 [1.42]	11.5 [0.45]	24.5 [0.96]	13 [0.51]	14 [0.55]	Approx. 0.021 [0.046]
41 [1.6"]	G ⅛ B	41 [1.61]	11.5 [0.45]	21.5 [0.85]	10 [0.39]	12 [0.47]	Approx. 0.024 [0.053]
	G ¼ B	41 [1.61]	11.5 [0.45]	26.5 [1.04]	15 [0.59]	14 [0.55]	Approx. 0.024 [0.053]
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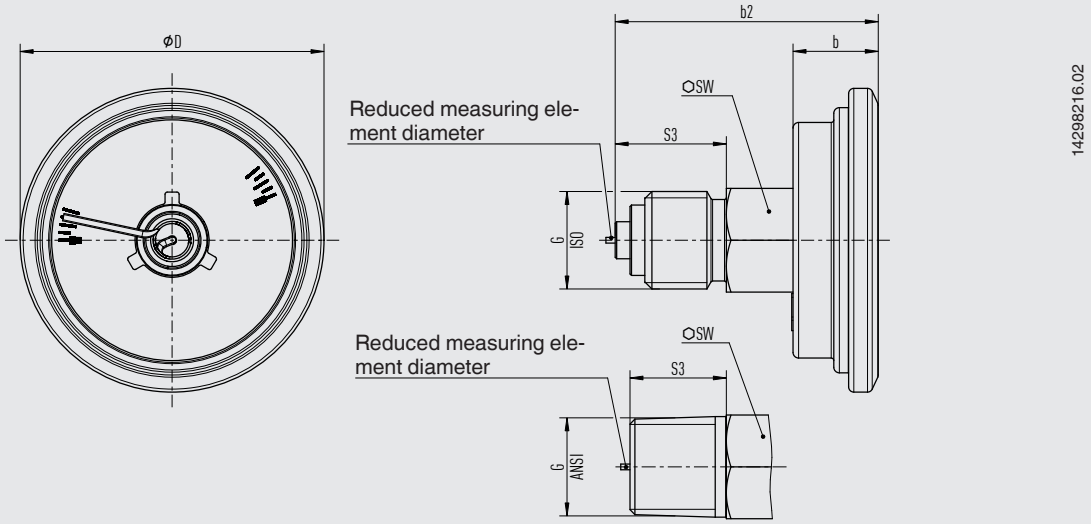
Model PG91HD with helical tube



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Ordering information

Model / Nominal size / Scale range / Options

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