Pressure gauge, DirectDrive version
Models PG81 and PG91

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

Fig. left: Model PG81 with spiral tube
Fig. right: Model PG91 with helical tube

Special features

- Good vibration and shock resistance
- Compact and robust design
- Scale ranges to 0 ... 450 bar [0 ... 6,500 psi]
- Stainless steel case, NS 36 [1.4"] and NS 41 [1.6"]
- Ingress protection IP65 and IP67 available

Description

Measurement principle
The pressure gauges in DirectDrive version 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 measuring elements of the model PG81 are designed in a spiral form and those of the model PG91 in a helical form.
The advantage of the DirectDrive version is the optimised shock and vibration resistance.

Fields of application
This pressure gauge is particularly suited for the operating conditions of pressure regulators and pressure valves on fixed and portable gas cylinders.

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.

Data sheets showing similar products:
Pressure gauge, DirectDrive version; models PG81HD, PG91HD; see data sheet PM 01.51

Specifications

Basic information	
Standard	■ In line with EN 837-1 [1)] ■ In line with ISO 10297 [1)] ■ UL 252A (only for model PG81) ■ 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 ■ For oxygen, oil- and grease-free
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
Material	Stainless steel
Protective cap	■ Without ■ Rubber, black ■ Rubber, blue ■ Rubber, red ■ Rubber, orange

1) Load cycle stability and other standards' requirements are fulfilled.

Measuring element	
Type of measuring element	
Model PG81	Spiral tube
Model PG91	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 ... 6 [1)]	0 ... 60
0 ... 8	0 ... 100
0 ... 10	0 ... 160
0 ... 12	0 ... 200
0 ... 16	0 ... 250
0 ... 20	0 ... 315
0 ... 30	0 ... 400
0 ... 40	0 ... 450

kg/cm²	
0 ... 6 [1)]	0 ... 60
0 ... 8	0 ... 100
0 ... 10	0 ... 160
0 ... 12	0 ... 200
0 ... 16	0 ... 250
0 ... 20	0 ... 315
0 ... 30	0 ... 400
0 ... 40	0 ... 450

kPa	
0 ... 600 [1)]	0 ... 6,000
0 ... 800	0 ... 10,000
0 ... 1,000	0 ... 16,000
0 ... 1,200	0 ... 20,000
0 ... 1,600	0 ... 25,000
0 ... 2,000	0 ... 31,500
0 ... 3,000	0 ... 40,000
0 ... 4,000	0 ... 45,000

MPa	
0 ... 0.6 [1)]	0 ... 6
0 ... 0.8	0 ... 10
0 ... 1	0 ... 16
0 ... 1.2	0 ... 20
0 ... 1.6	0 ... 25
0 ... 2	0 ... 31.5
0 ... 3	0 ... 40
0 ... 4	0 ... 45

psi	
0 ... 90 [1)]	0 ... 870
0 ... 100	0 ... 1,500
0 ... 150	0 ... 2,200
0 ... 175	0 ... 3,000
0 ... 232	0 ... 3,600
0 ... 300	0 ... 4,500
0 ... 362	0 ... 5,000
0 ... 400	0 ... 6,000
0 ... 600	0 ... 6,500

Model PG81 with spiral tube

Model PG91 with helical tube

1) Restricted scale angle ≤ 120° ±15°

The scale ranges shown with model (type of the 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 PG91 with helical tube)
Material (wetted)	
Process connection	Copper alloy
Bourdon tube	Copper alloy

Other process connections on request

Operating conditions	
Medium temperature range	-20 ... +65 °C [-4 ... +149 °F]
Ambient temperature range	-20 ... +65 °C [-4 ... +149 °F]
Storage temperature range	-40 ... +70 °C [-40 ... +158 °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
cULus	**UL** UL approval per UL 252A (only for model PG81) UL approval per UL 404 (only for scale ranges from 0 ... 100 bar [0 ... 1,500 psi])	North America

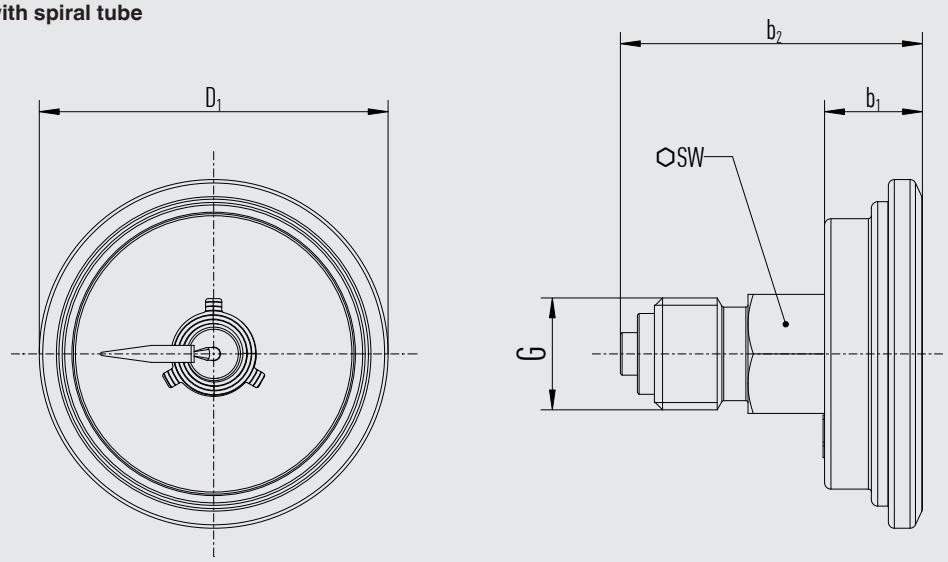
Certificates (option)

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. material proof for wetted metal parts, indication accuracy)

→ For approvals and certificates, see website

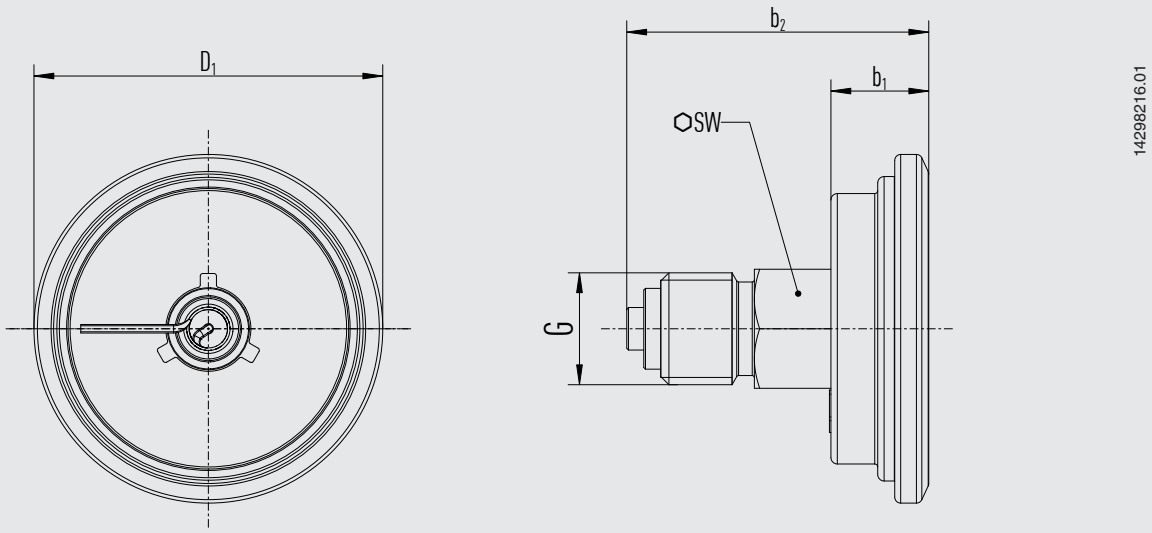
Dimensions in mm [in]

Model PG81 with spiral tube



NS	G	Dimensions in mm [in]				Weight in kg [lb]
		D	b1 ±0.5 [±0.02]	b2 ±1.5 [±0.06]	SW	
36 [1.4"]	G ⅛ B	36 [1.42]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.021 [0.046]
	G ¼ B	36 [1.42]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.021 [0.046]
	⅛ NPT	36 [1.42]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.021 [0.046]
	¼ NPT	36 [1.42]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.021 [0.046]
	R ⅛	36 [1.42]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.021 [0.046]
	R ¼	36 [1.42]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.021 [0.046]
41 [1.6"]	G ⅛ B	41 [1.61]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.024 [0.053]
	G ¼ B	41 [1.61]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.024 [0.053]
	⅛ NPT	41 [1.61]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.024 [0.053]
	¼ NPT	41 [1.61]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.024 [0.053]
	R ⅛	41 [1.61]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.024 [0.053]
	R ¼	41 [1.61]	11.5 [0.45]	32 [1.26]	14 [0.55]	0.024 [0.053]

Model PG91 with helical tube



NS	G	Dimensions in mm [in]				Weight in kg [lb]
		D	b1 ±0.5 [±0.02]	b2 ±1.5 [±0.06]	SW	
36 [1.4"]	G ⅛ B	36 [1.42]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.021 [0.046]
	G ¼ B	36 [1.42]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.021 [0.046]
	⅛ NPT	36 [1.42]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.021 [0.046]
	¼ NPT	36 [1.42]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.021 [0.046]
	R ⅛	36 [1.42]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.021 [0.046]
	R ¼	36 [1.42]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.021 [0.046]
41 [1.6"]	G ⅛ B	41 [1.61]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.024 [0.053]
	G ¼ B	41 [1.61]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.024 [0.053]
	⅛ NPT	41 [1.61]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.024 [0.053]
	¼ NPT	41 [1.61]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.024 [0.053]
	R ⅛	41 [1.61]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.024 [0.053]
	R ¼	41 [1.61]	11.5 [0.45]	36.5 [1.44]	14 [0.55]	0.024 [0.053]

Ordering information

Model / Nominal size / Scale range / Options

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