Absolute pressure gauge, stainless steel
High overload safety
Models 532.52, 532.53 and 532.54

For further approvals,
see page 6

Applications

- Pressure measurement independent of fluctuations in atmospheric pressure
- For gaseous, liquid and aggressive media, also in aggressive environments
- Monitoring of vacuum pumps
- Control of vacuum packaging machines
- Monitoring of condensation pressures and determination of vapour pressure in liquids

Special features

- High overload safety
- Long service life due to metal media chamber sealing and the extremely gas-tight material of the reference chamber
- Instruments compatible with switch contacts
- Scale ranges from 0 … 25 mbar absolute pressure
- QR code on dial links to instrument-specific information

Absolute pressure gauge, model 532.52

Description

These absolute pressure gauges are used when the pressure measurement needs to be carried out independently of fluctuations in atmospheric pressure.

Based on the diaphragm element measurement principle, extremely low scale ranges from 0 ... 25 mbar absolute pressure are available. These measuring instruments, made entirely of stainless steel, are suitable for gaseous, liquid and aggressive media.

The instruments owe their high long-term stability and subsequent long service life to the special, extremely gas-tight material of the reference chamber. Thus, the required vacuum can be maintained in the reference chamber for a long time. A metal media chamber sealing also contributes to this.

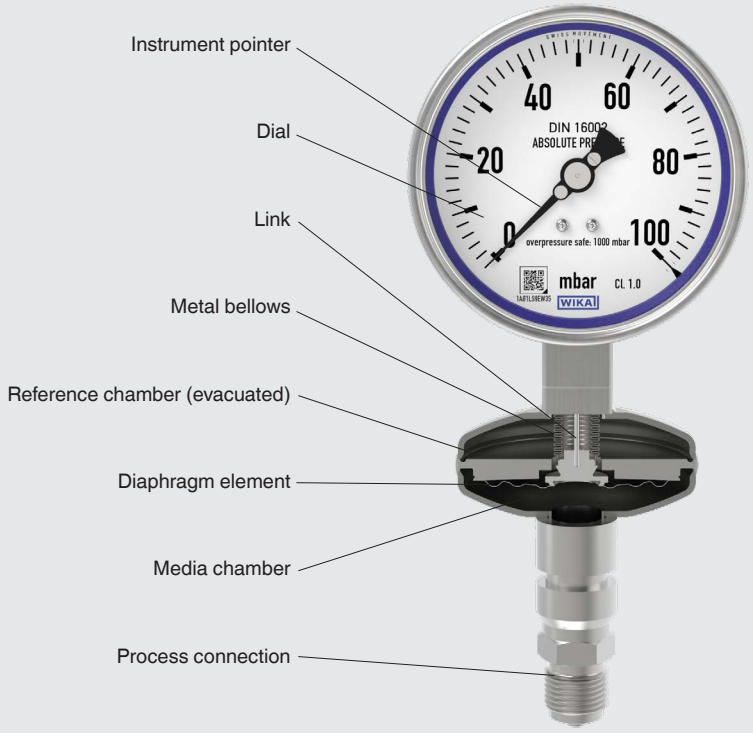
In addition, depending on the scale range, this instrument features an overload safety of at least 1 bar absolute pressure. Depending on the version, the overload safety can be up to 20 times the full scale value, but a maximum of 25 bar absolute pressure.

The qualification and production of the instruments is carried out in accordance with DIN 16002, which was developed with the cooperation of WIKA.

The QR code on the dial allows instrument-specific information such as the serial number, the order number, certificates and other product data to be retrieved from the internet easily and in the long term.

Data sheets showing similar products:
Absolute pressure gauge, compact design; model 516.11; see data sheet PM 05.01

Functionality



The pressure measurement in absolute pressure gauges always refers to the absolute vacuum in the reference chamber. This enables pressure measurement independently of fluctuations in atmospheric pressure. The pressure element separates the media chamber from the fully evacuated reference chamber. The pressure element, the diaphragm element, is a circular, corrugated diaphragm. The diaphragm element is welded at the edge and is subjected to pressure on one side by the pressure in the media chamber.

The pressure difference between media chamber and reference chamber causes the deflection, and thus the measuring travel, of the diaphragm element. The measuring travel of the diaphragm element is transmitted to the movement by a metal bellows via the link and displayed on the dial with the instrument pointer.

Overload safety
Independent of the scale range, the overload safety is at least 1 bar absolute pressure. This ensures that the ambient pressure (approx. 1 bar absolute pressure) cannot represent an overload.
The diaphragm element can be subject to an overload of up to 20 times the full scale value, but max. to 25 bar absolute pressure, through load take-up points (by bringing the diaphragm element up against the upper measuring flange). With this version, for example, in the scale range 0 ... 400 mbar abs., a short-term overpressure of up to 8 bar abs. would not be problematic and the accuracy would remain unaffected.

Monel version
For extremely corrosive media, the wetted parts can be supplied from Monel.

Specifications

Basic information	
Standard	
EN 837-3	Diaphragm and capsule pressure gauges
DIN 16002	Absolute pressure gauges
→ For information on the “Selection, installation, handling and operation of pressure gauges”, see technical information IN 00.05.	
Nominal size (NS)	■ Ø 100 mm [4"] ■ Ø 160 mm [6"]
Window	■ Laminated safety glass ■ Polycarbonate
Case	
Design, model 532.52, 532.53, 532.54, 533.52, 533.53, 533.54, 562.54, 563.54	Safety level “S1” per EN 837-1: with blow-out device
Design, model 532.32, 532.33, 532.34, 533.32, 533.33, 533.34, 562.34, 563.34	Safety level “S3” per EN 837-1: with solid baffle wall and blow-out back
Material	■ Stainless steel 1.4301 (304) ■ Stainless steel 1.4571 (316Ti)
Ring	Bayonet bezel, stainless steel
Mounting	■ Without ■ Panel mounting flange, stainless steel
Case filling	■ Without ■ Glycerine-water mixture [1] ■ Silicone oil M50 [1]
	Instruments with case filling can be vented and resealed for internal pressure equalisation.
Movement	Stainless steel

1) Ingress protection IP65 for instruments with case filling

Measuring element	
Type of measuring element	Diaphragm element
Material [1]	
Span ≤ 0.25 bar [100 inH_2O]	■ Stainless steel 1.4571 (316Ti) ■ Monel [2]
Span ≥ 0.4 bar [160 inH_2O]	■ NiCr alloy (Inconel) ■ Monel [2]

1) The version for customised spans between 0.25 bar [100 inH_2O] and 0.4 bar [160 inH_2O] is determined after application-specific testing.
2) The Monel version (models 562.54, 563.54, 562.34, 563.34) is only available in accuracy class 2.5.

Accuracy specifications	
Accuracy class	
Model 532.52, 533.52, 532.32, 533.32	1.0
Model 532.53, 533.53, 532.33, 533.33	1.6
Model 532.54, 533.54, 532.34, 533.34, 562.54, 563.54, 562.34, 563.34	2.5
	The accuracy is ensured for ambient pressure fluctuations between 955 and 1,065 mbar (min. and max. of atmospheric pressure).
Temperature error	On deviation from the reference conditions at the measuring system: ≤ ±0.8 % per 10 °C [≤ ±0.8 % per 18 °F] of full scale value
Reference conditions	
Ambient temperature	+20 °C [68 °F]

Scale ranges

Scale range
mbar abs.
0 ... 25
0 ... 40
0 ... 60
0 ... 100
0 ... 160
0 ... 250
0 ... 400
0 ... 600
0 ... 1,000
0 ... 30 ... 1,200 [1]
bar abs.
0 ... 0.25
0 ... 1
0 ... 1.6
0 ... 2.5
0 ... 4
0 ... 6
0 ... 10
0 ... 16
0 ... 25

1) Expanded lower scale range

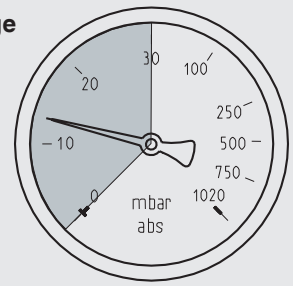
→ Other scale ranges on request

Scale range
psi abs.
0 ... 4
0 ... 6
0 ... 10
0 ... 15
0 ... 30
0 ... 60
0 ... 100
0 ... 150
0 ... 160
0 ... 200
0 ... 250
0 ... 300

Expanded lower scale range

Scale range 0 ... 1,020 mbar absolute pressure, lower scale range 0 ... 30 mbar, class 1.6 expanded to approx. 130 ∢°.

Operating range Class 1.6



Further details on: scale ranges		
Unit	■ mbar abs. ■ bar abs. ■ psi abs. ■ kPa abs.	
	Other units on request	
Overload safety	■ 10 x full scale value [1], however max. 25 bar abs. ■ 20 x full scale value [1], however max. 25 bar abs.	
Dial		
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 → Alternatively, adhesive label set for red and green circular arcs; see data sheet AC 08.03	
Instrument pointer		
With case filling	Standard pointer, aluminium, black	
Without case filling	Adjustable pointer, aluminium, black	

1) Regardless of the full scale value, this version can work with pressures of min. 1 bar abs.

Process connection	
Standard	■ EN 837 ■ ANSI / ASME B1.20.1 ■ ASME B16.5 ■ EN 1092-1, form B
Size [1]	
EN 837	■ G ½ B, male thread ■ M20 x 1.5, male thread
ANSI / ASME B1.20.1	■ ½ NPT, male thread
ASME B16.5	■ Open connecting flange 1" class 150, RF ■ Open connecting flange 2" class 150, RF
EN 1092-1, form B1	■ Open connecting flange DN 25 PN 25 ■ Open connecting flange DN 50 PN 25
DIN 28403	■ Small flange for vacuum applications DN 10 ■ Small flange for vacuum applications DN 16
Materials (wetted)	
Process connection with lower measuring flange	■ Stainless steel 1.4571 (316Ti) ■ Monel

1) Further threaded connections (→ See technical information IN 00.03) and open connecting flanges per ASME B16.5 / EN 1092-1, form B from DN 15 to DN 80 (→ See technical information IN 00.10)

→ Other process connections on request

Operating conditions	
Medium temperature range	■ +100 °C [+212 °F] maximum ■ +200 °C [+392 °F] maximum
Ambient temperature range	■ -20 ... +60 °C [-4 ... +140 °F] ■ -40 ... +60 °C [-40 ... +140 °F] [1]
Storage temperature range	-40 ... +70 °C [-4 ... 140 °F]
Pressure limitation	
Steady	Full scale value
Fluctuating	0.9 x full scale value
Ingress protection per IEC/EN 60529	■ IP54 ■ IP65 [2]

1) Only selectable in combination with silicone oil case filling
2) Ingress protection IP65 for instruments with case filling

Other versions

- Version for hazardous areas (Ex h)
- Absolute pressure gauge with switch contacts; see data sheet PV 25.02
- Absolute pressure gauge with output signal; model APGT43; see data sheet PV 15.02
- Oil- and grease-free
- Oil- and grease-free for oxygen
- Silicone-free
- With pre-volume deflagration flame arrester [1] for mounting to zone 0 (EPL Ga); model 910.21; see data sheet AC 91.02

1) Only for instruments with Ex approval

Optional approvals

Logo	Description	Region
CE Ex	**EU declaration of conformity** ATEX directive Hazardous areas Gas II 2G h IIC T6 … T1 Gb X Dust II 2D h IIIC T85°C … T450°C Db X	European Union
EAC Ex	**EAC** Hazardous areas	Eurasian Economic Community
	Ex Ukraine Hazardous areas	Ukraine
	PAC Kazakhstan Metrology, measurement technology	Kazakhstan
-	**MChS** Permission for commissioning	Kazakhstan
-	**PAC Ukraine** Metrology, measurement technology	Ukraine
	PAC Uzbekistan Metrology, measurement technology	Uzbekistan
-	**CPA** Metrology, measurement technology	China
-	**CRN** Safety (e.g. electr. safety, overpressure, ...)	Canada

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. material proof for wetted metal parts, indication accuracy)
Recommended calibration interval	1 year (dependent on conditions of use)

Patents, property rights

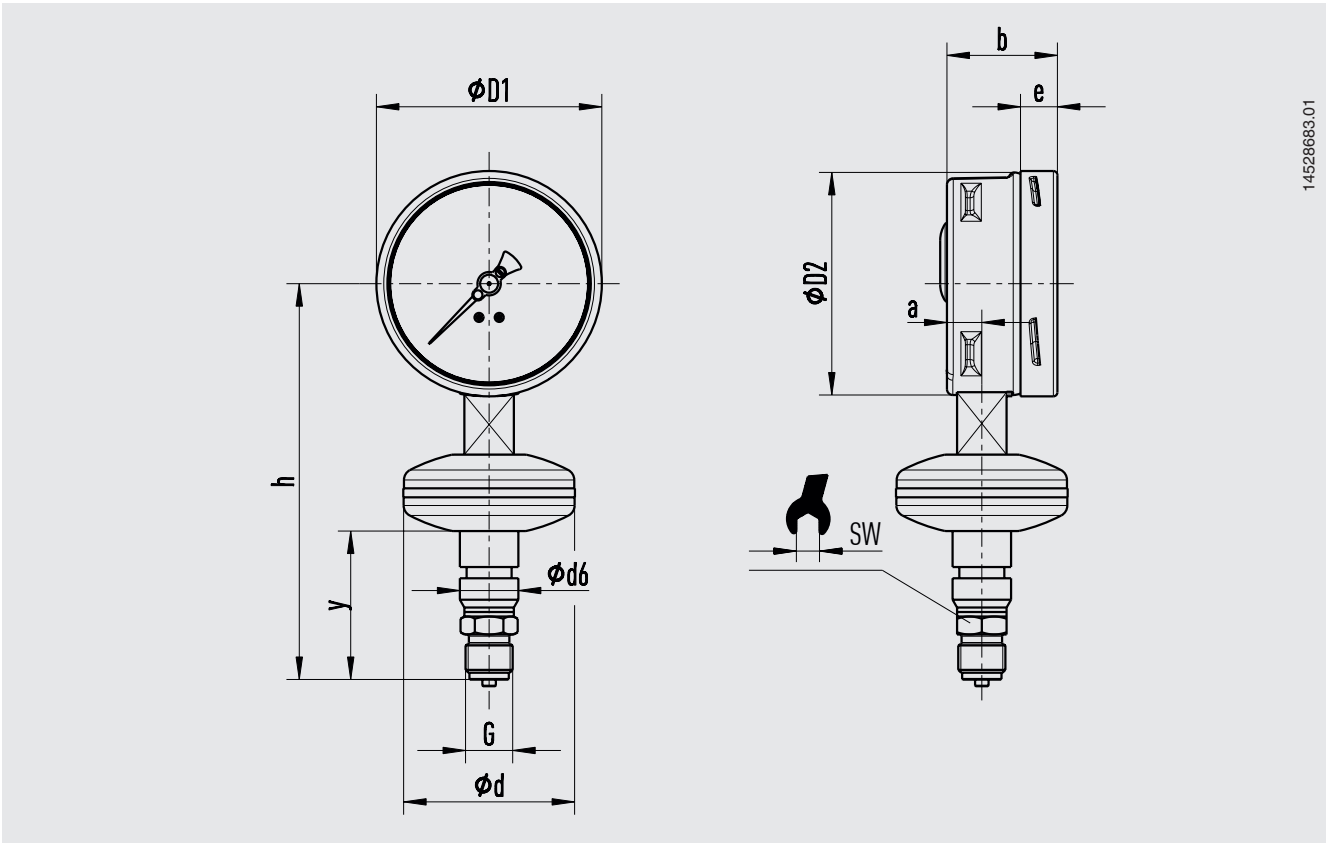
Patent number	Description
US Design D1051747S, CPC CN 01677074, DE Design 402022100171, EU Design 402022100171, IR Design DM/222416, EU 3D trademark 018659564	WIKA blue identity design patent

The WIKA blue identity design is protected in various countries under various rights.

→ For approvals and certificates, see website

Dimensions in mm [in]

Model 532.52, 532.53, 532.54, 533.52, 533.53 and 533.54



Nominal size 100 [4"]

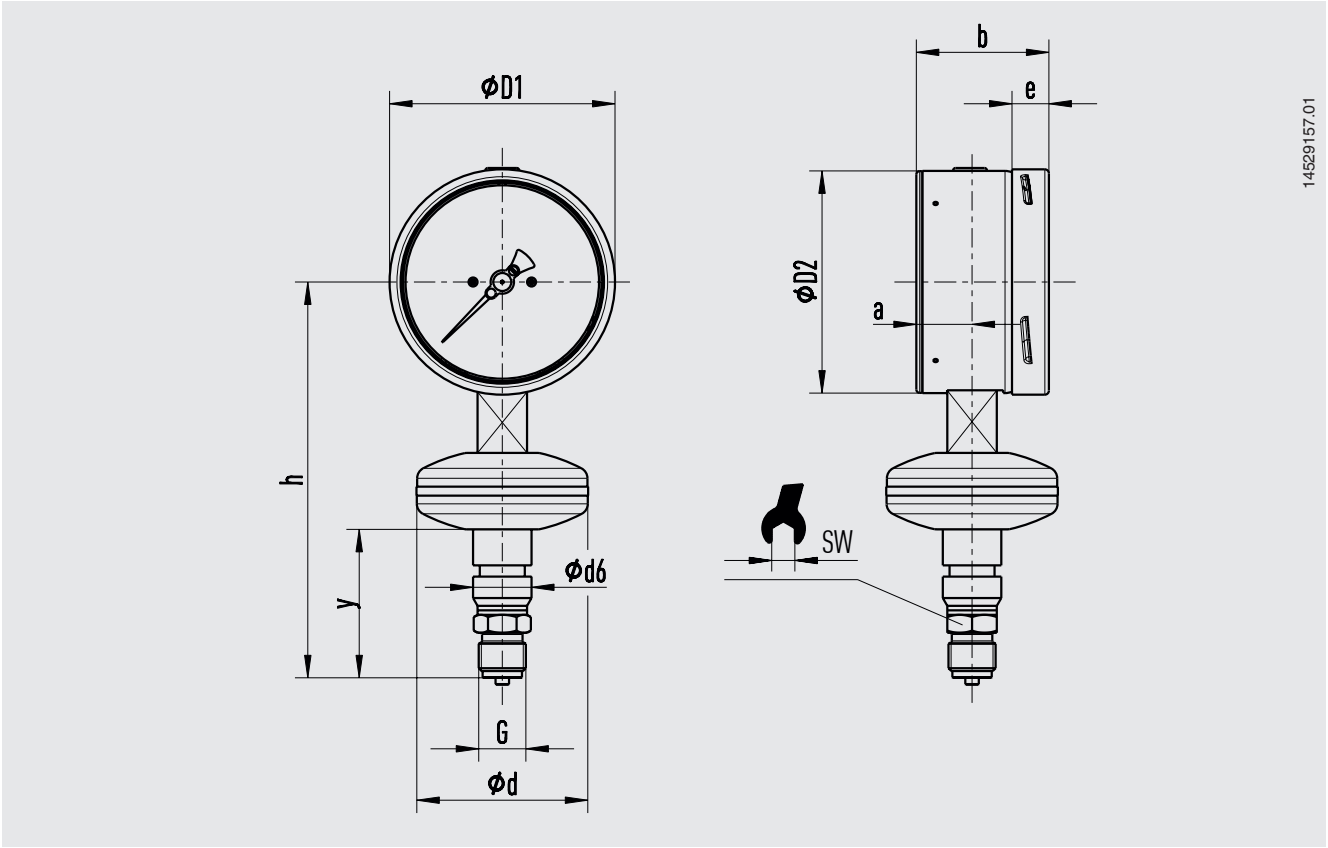
Process connection G	Scale range [1]	Dimensions in mm [in]										Weight in kg [lb]
		d	d6	a	b	D1	D2	e	h ± 1 [0.04]	y	SW	
G ½ B	≤ 0.25 bar [3.6 psi]	133 [5.24]	26 [1.02]	15.5 [0.61]	49.5 [1.95]	101 [3.98]	99 [3.90]	17.5 [0.69]	185 [7.28]	58 [2.28]	22 [0.87]	1.8 [3.97]
	≥ 0.4 bar [5.8 psi]	76 [2.99]	26 [1.02]	15.5 [0.61]	49.5 [1.95]	101 [3.98]	99 [3.90]	17.5 [0.69]	177 [6.97]	66 [2.60]	22 [0.87]	1.2 [2.65]
½ NPT	≤ 0.25 bar [3.6 psi]	133 [5.24]	26 [1.02]	15.5 [0.61]	49.5 [1.95]	101 [3.98]	99 [3.90]	17.5 [0.69]	184 [7.24]	57 [2.24]	22 [0.87]	1.8 [3.97]
	≥ 0.4 bar [5.8 psi]	76 [2.99]	26 [1.02]	15.5 [0.61]	49.5 [1.95]	101 [3.98]	99 [3.90]	17.5 [0.69]	176 [6.93]	65 [2.56]	22 [0.87]	1.2 [2.65]

Nominal size 160 [6"]

Process connection G	Scale range [1]	Dimensions in mm [in]										Weight in kg [lb]
		d	d6	a	b	D1	D2	e	h ± 1 [0.04]	y	SW	
G ½ B	≤ 0.25 bar [3.6 psi]	133 [5.24]	26 [1.02]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	159 [6.26]	17.5 [0.69]	215 [8.46]	58 [2.28]	22 [0.87]	2.3 [5.07]
	≥ 0.4 bar [5.8 psi]	76 [2.99]	26 [1.02]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	159 [6.26]	17.5 [0.69]	207 [8.15]	66 [2.60]	22 [0.87]	1.6 [3.53]
½ NPT	≤ 0.25 bar [3.6 psi]	133 [5.24]	26 [1.02]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	159 [6.26]	17.5 [0.69]	214 [8.43]	57 [2.24]	22 [0.87]	2.3 [5.07]
	≥ 0.4 bar [5.8 psi]	76 [2.99]	26 [1.02]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	159 [6.26]	17.5 [0.69]	206 [8.11]	65 [2.56]	22 [0.87]	1.6 [3.53]

1) The dimensions for customised spans between 0.25 bar [3.6 psi] and 0.4 bar [5.8 psi] are determined after application-specific testing.

Model 532.32, 532.33, 532.34, 533.32, 533.33 and 533.34



Nominal size 100 [4"]

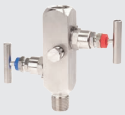
Process connection G	Scale range [1]	Dimensions in mm [in]										Weight in kg [lb]
		d	d6	a	b	D1	D2	e	h ± 1 [0.04]	y	SW	
G ½ B	≤ 0.25 bar [3.6 psi]	133 [5.24]	26 [1.02]	24.5 [0.96]	59 [2.32]	101 [3.98]	99 [3.90]	17.5 [0.69]	185 [7.28]	58 [2.28]	22 [0.87]	1.8 [3.97]
	≥ 0.4 bar [5.8 psi]	76 [2.99]	26 [1.02]	24.5 [0.96]	59 [2.32]	101 [3.98]	99 [3.90]	17.5 [0.69]	177 [6.97]	66 [2.60]	22 [0.87]	1.2 [2.65]
½ NPT	≤ 0.25 bar [3.6 psi]	133 [5.24]	26 [1.02]	24.5 [0.96]	59 [2.32]	101 [3.98]	99 [3.90]	17.5 [0.69]	184 [7.24]	57 [2.24]	22 [0.87]	1.8 [3.97]
	≥ 0.4 bar [5.8 psi]	76 [2.99]	26 [1.02]	24.5 [0.96]	59 [2.32]	101 [3.98]	99 [3.90]	17.5 [0.69]	176 [6.93]	65 [2.56]	22 [0.87]	1.2 [2.65]

Nominal size 160 [6"]

Process connection G	Scale range [1]	Dimensions in mm [in]										Weight in kg [lb]
		d	d6	a	b	D1	D2	e	h ± 1 [0.04]	y	SW	
G ½ B	≤ 0.25 bar [3.6 psi]	133 [5.24]	26 [1.02]	27 [1.06]	65 [2.56]	161 [6.34]	159 [6.26]	17.5 [0.69]	215 [8.46]	58 [2.28]	22 [0.87]	2.3 [5.07]
	≥ 0.4 bar [5.8 psi]	76 [2.99]	26 [1.02]	27 [1.06]	65 [2.56]	161 [6.34]	159 [6.26]	17.5 [0.69]	207 [8.15]	66 [2.60]	22 [0.87]	1.6 [3.53]
½ NPT	≤ 0.25 bar [3.6 psi]	133 [5.24]	26 [1.02]	27 [1.06]	65 [2.56]	161 [6.34]	159 [6.26]	17.5 [0.69]	214 [8.43]	57 [2.24]	22 [0.87]	2.3 [5.07]
	≥ 0.4 bar [5.8 psi]	76 [2.99]	26 [1.02]	27 [1.06]	65 [2.56]	161 [6.34]	159 [6.26]	17.5 [0.69]	206 [8.11]	65 [2.56]	22 [0.87]	1.6 [3.53]

1) The dimensions for customised spans between 0.25 bar [3.6 psi] and 0.4 bar [5.8 psi] are determined after application-specific testing.

Accessories and spare parts

Model		Description
	**910.17**	Seals → 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
	**IV1**	Needle valve and multiport needle valve → See data sheet AC 09.22
	**IV2**	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 / Options

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