Bourdon tube pressure gauge with electrical output signal
Stainless steel, safety version, NS 100 [4"] and 160 [6"]
Models PGT23.100 and PGT23.160

For further approvals, see page 8

intelliGAUGE®

Applications

- Measurement and indication of process pressure
- Output signal 4 ... 20 mA for the transmission of process values to the control room
- Easy-to-read, analogue on-site indication needing no external power supply
- Process industry: chemical industry, petrochemical industry, oil and gas, power generation, water and wastewater

Special features

- No configuration necessary due to “plug-and-play”
- Model PGT26: wetted parts from Monel 400 (2.4360)
- Measuring ranges 0 ... 0.6 bar to 0 ... 1,600 bar or 0 ... 10 to 0 ... 30,000 psi
- Safety version with solid baffle wall (Solidfront) available
- QR code on dial links to instrument-specific information

intelliGAUGE® model PGT23.100

Configurator

Standard articles

Description

Wherever the process pressure has to be indicated on-site and, at the same time, a signal transmission to the central control or remote centre is desired, the model PGT23 intelliGAUGE® (patent, property right: e.g. DE 202007019025) can be used.

Through the combination of a mechanical measuring system and electronic signal processing, the process pressure can be read securely, even if the voltage supply is lost.
The intelliGAUGE® model PGT23 fulfils all safety-related requirements of the relevant standards and regulations for the on-site indication of the operating pressure of pressure vessels. An additional measuring location for mechanical pressure indication can thus be saved.
The model PGT23 is based upon a model 23x.30 high-quality, stainless steel safety pressure gauge.

The fully welded and robust Bourdon tube measuring system produces a pointer rotation proportional to the pressure. An electronic angle encoder, proven in safety-critical automotive applications, determines the position of the pointer shaft – it is a non-contact sensor and therefore completely free from wear and friction. From this, the electrical output signal proportional to the pressure, 4 … 20 mA, is produced.

The electronic WIKA sensor, integrated into the high-quality pressure gauge, combines the advantages of electrical signal transmission with the advantages of on-site mechanical indication.

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:
Bourdon tube pressure gauge with electrical output signal, stainless steel, safety version, NS 63; model PGT23.063; see data sheet PV 12.03

Specifications

Basic information	
Standard	■ EN 837-1 ■ ASME B40.100
	→ 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 ■ Silicone-free ■ With switch contact; see technical information IN 00.48 ■ With pre-volume deflagration flame arrester [1] for mounting to zone 0 (EPL Ga); model 910.21; see data sheet AC 91.02
Nominal size (NS)	■ Ø 100 mm [4"] ■ Ø 160 mm [6"]
Window	■ Laminated safety glass ■ Polycarbonate
Connection location	■ Lower mount (radial) ■ Lower back mount [2]
Case	
Design	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)
Case filling [3]	■ Without ■ Silicone oil M50
	Instruments with case filling can be vented and resealed for internal pressure equalisation.
Movement	Stainless steel

1) Only for instruments with Ex approval
2) Only available for NS 100 [4"]
3) Ingress protection IP65 for instruments with case filling

Measuring element	
Type of measuring element	Bourdon tube, C-type or helical type
Material	
Model PGT23	Stainless steel 1.4404 (316L)
Model PGT26	Monel 400 (2.4360)
Leak tightness	■ Helium tested, leakage rate: < $5 \cdot 10^{-3}$ mbar l/s ■ Helium tested, leakage rate: < $1 \cdot 10^{-6}$ mbar l/s

Accuracy specifications	
Accuracy of the mechanical indicator	
EN 837-3	Class 1.0
ASME B40.100	±1 % of measuring span (grade 1A)
Zero point setting	
Instruments with case filling	Without
Instruments without case filling	■ Without ■ Setting by means of adjustable pointer

Accuracy specifications	
Accuracy of output signal	
Accuracy	±1 % of measuring span
Linearity error	≤ 1 % of measuring span (terminal method) [2)]
Influence of auxiliary power	< 0.1 % of FS/10 V
Influence of load	≤ 0.1 % of FS
Long-term stability	< 0.3 % of FS/a
Resolution	0.13 % of full scale (10 bit resolution at 360°)
Measuring rate	100 per minute
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 ... 60
0 ... 1	0 ... 70
0 ... 1.6	0 ... 100
0 ... 2	0 ... 140
0 ... 2.5	0 ... 160
0 ... 4	0 ... 200
0 ... 6	0 ... 250
0 ... 7	0 ... 315
0 ... 10	0 ... 400
0 ... 14	0 ... 600
0 ... 16	0 ... 700
0 ... 20	0 ... 1,000
0 ... 25	0 ... 1,400
0 ... 30	0 ... 1,600
0 ... 40	-

kg/cm²	
0 ... 0.6	0 ... 60
0 ... 1	0 ... 70
0 ... 1.6	0 ... 100
0 ... 2	0 ... 140
0 ... 2.5	0 ... 160
0 ... 4	0 ... 200
0 ... 6	0 ... 250
0 ... 7	0 ... 315
0 ... 10	0 ... 400
0 ... 14	0 ... 600
0 ... 16	0 ... 700
0 ... 20	0 ... 1,000
0 ... 25	0 ... 1,400
0 ... 30	0 ... 1,600
0 ... 40	-

kPa	
0 ... 60	0 ... 3,000
0 ... 70	0 ... 4,000
0 ... 100	0 ... 6,000
0 ... 160	0 ... 7,000
0 ... 200	0 ... 10,000
0 ... 250	0 ... 14,000
0 ... 300	0 ... 16,000
0 ... 400	0 ... 20,000
0 ... 600	0 ... 25,000
0 ... 700	0 ... 31,500
0 ... 1,000	0 ... 40,000
0 ... 1,400	0 ... 60,000
0 ... 1,600	0 ... 70,000
0 ... 2,500	0 ... 100,000

MPa	
0 ... 0.06	0 ... 4
0 ... 0.1	0 ... 6
0 ... 0.16	0 ... 7
0 ... 0.2	0 ... 10
0 ... 0.25	0 ... 14
0 ... 0.4	0 ... 16
0 ... 0.6	0 ... 20
0 ... 0.7	0 ... 25
0 ... 1	0 ... 40
0 ... 1.4	0 ... 60
0 ... 1.6	0 ... 70
0 ... 2	0 ... 100
0 ... 2.5	0 ... 140
0 ... 3	0 ... 160

psi	
0 ... 10	0 ... 1,000
0 ... 15	0 ... 1,500
0 ... 30	0 ... 2,000
0 ... 60	0 ... 3,000
0 ... 100	0 ... 4,000
0 ... 160	0 ... 5,000
0 ... 200	0 ... 6,000
0 ... 250	0 ... 7,500
0 ... 300	0 ... 10,000
0 ... 400	0 ... 15,000
0 ... 500	0 ... 20,000
0 ... 600	0 ... 30,000
0 ... 800	-

Vacuum and compound scale ranges

bar	
-0.6 ... 0	-1 ... +6
-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 ... +25
-1 ... +4	-1 ... +30
-1 ... +5	-

kPa	
-60 ... 0	-100 ... +500
-100 ... 0	-100 ... +700
-100 ... +60	-100 ... +900
-100 ... +100	-100 ... +1,000
-100 ... +150	-100 ... +1,500
-100 ... +200	-100 ... +2,400
-100 ... +300	-100 ... +3,000
-100 ... +400	-

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/cm²	
-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	-

→ Other scale ranges on request

Further details on: scale ranges

Unit	■ bar ■ kPa ■ MPa ■ kg/cm² ■ psi	
	→ Other units on request	
Dial		
Scale layout	■ Single scale ■ Dual scale	
Scale colour	Single scale	Black
	Dual scale	Black/red
Material	Aluminium	
Customer-specific version	■ Without ■ With special scale, e.g. linear pressure or square root incrementation	
	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	
Pointer		
Instrument pointer	With case filling	Standard pointer, aluminium, black
	Without case filling	Adjustable pointer, aluminium, black
Mark pointer/drag pointer	■ Without ■ Mark pointer on bayonet bezel, adjustable	
Pointer stop pin	■ Without ■ At 6 o'clock	

Process connection

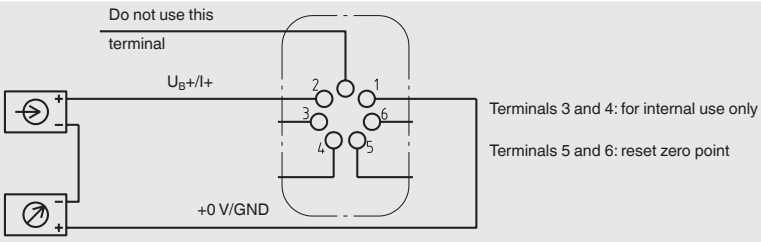
Standard	■ EN 837-1 ■ ISO 7 ■ ANSI/B1.20.1	
Size		
EN 837-1	■ G ¼ B, male thread ■ G ⅜ B, male thread ■ G ½ B, male thread ■ M12 x 1.5, male thread ■ M20 x 1.5, male thread	
ISO 7	■ R ¼, male thread ■ R ⅜, male thread ■ R ½, male thread	
ANSI/B1.20.1	■ ¼ NPT, male thread ■ ⅜ NPT, male thread ■ ½ NPT, male thread	
Restrictor	■ Without ■ Ø 0.6 mm [0.024"], stainless steel ■ Ø 0.3 mm [0.012"], stainless steel ■ Ø 0.6 mm [0.024"], Monel	
Material (wetted)		
Process connection	Model PGT23	Stainless steel 1.4404 (316L)
	Model PGT26	Monel 400 (2.4360)
Bourdon tube	Model PGT23	Stainless steel 1.4404 (316L)
	Model PGT26	Monel 400 (2.4360)

→ Other process connections on request

Output signal

Signal type	■ Variant 1: 4 … 20 mA, 2-wire, passive, per NAMUR NE 43 ■ Variant 2: 4 ... 20 mA, 2-wire, for hazardous areas ■ Variant 3: 0 ... 20 mA, 3-wire ■ Variant 4: 0 ... 10 V, 3-wire	
Auxiliary power		
Supply voltage	Variant 1, 3	U_B = DC >12 ... ≤ 30 V
	Variant 2	U_B = DC >14 ... ≤ 30 V
	Variant 4	U_B = DC >15 ... ≤ 30 V
Permissible residual ripple of supply voltage	< 10 % ss	
Load	Variant 1, 2, 3	R_A ≤ (Supply voltage – 12 V)/0.02 A, max. 600 Ω
	Variant 4	R_A = 100 kΩ

Electrical connection

Connection type	Cable socket PA 6, black Per VDE 0110 insulation group C/250 V Cable gland M20 x 1.5 with strain relief 6 screw terminals + PE for 2.5 mm² wire cross-section
Pin assignment	

Operating conditions

Medium temperature range	■ -20 ... +100 °C [-4 ... +212 °F] ■ -20 ... +120 °C [-4 ... +248 °F] ■ -20 ... +150 °C [-4 ... +284 °F]
Ambient temperature range	■ -20 ... +60 °C [-4 ... +140 °F] ■ -40 ... +60 °C [-40 ... +140 °F] 1)
Storage temperature range	-20 ... +60 °C [-4 ... 140 °F]
Pressure limitation	
Steady	Full scale value
Fluctuating	0.9 x full scale value
Short time	1.3 x full scale value
Ingress protection per IEC/EN 60529	■ IP54 2) ■ IP65 ■ IP66

1) Only selectable in combination with silicone oil case filling
2) Ingress protection IP54 only available for unfilled instruments

Approvals

Logo	Description	Region
CE	**EU declaration of conformity**	European Union
	EMC Directive	
	Low Voltage Directive	
	RoHS directive	
-	**CRN** Safety (e.g. electr. safety, overpressure, ...) For scale ranges ≤ 1,000 bar	Canada

Optional approvals

Logo	Description	Region
CE Ex	**EU declaration of conformity**	European Union
	ATEX directive Hazardous areas Gas II 2G Ex ia IIC T6/T5/T4 Gb Dust II 2D Ex ia IIIB T135°C Db	
IEC IECEx	**IECEx** Hazardous areas Gas Ex ia IIC T6/T5/T4 Gb Dust Ex ia IIIB T135°C Db	International
EAC Ex	**EAC**	Eurasian Economic Community
	EMC Directive	
	Low Voltage Directive	
	Hazardous areas	
	Ex Ukraine Hazardous areas	Ukraine
Ex NEPSI	**NEPSI** Hazardous areas	China
-	**MChS** Permission for commissioning	Kazakhstan
	PAC Uzbekistan Metrology, measurement technology	Uzbekistan

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)
Recommended calibration interval	1 year (dependent on conditions of use)

Patents, property rights

Patent number	Description
DE 202007019025, US 2010045366, CN 101438333	Pointer measuring instrument with output signal
US Design D1051747S, CPC CN 01677074, DE Design 402022100171, EU Design 402022100171, IR Design DM/222416, EU 3D trademark 018659564	Design patent WIKA blue identity

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

→ For approvals and certificates, see website

Only variant 2: safety-related characteristic values (Ex)

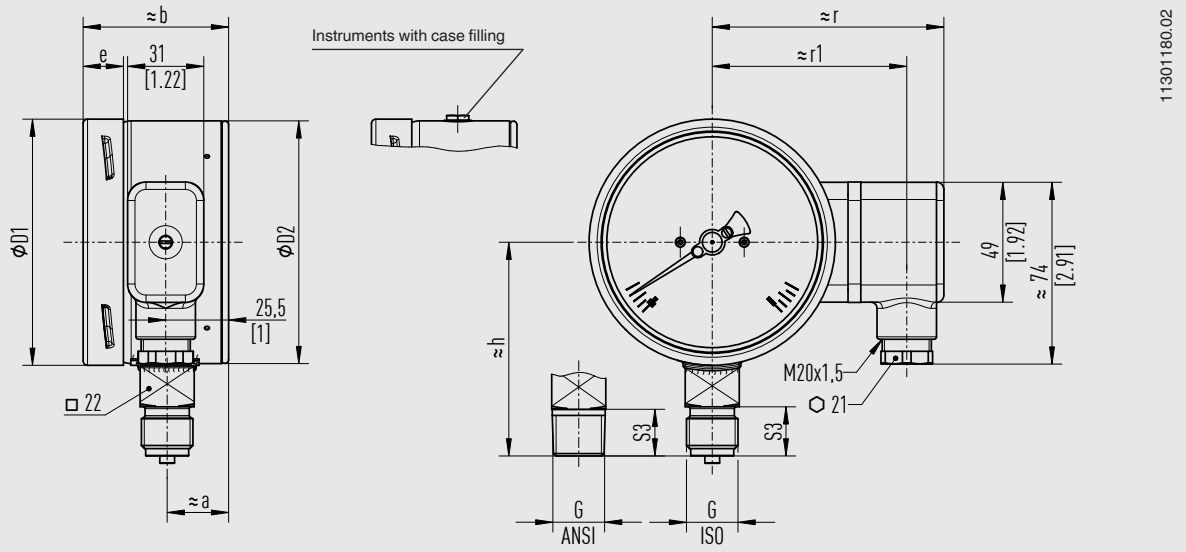
Safety-related characteristic values (Ex)	
Connection values	
Max. voltage U_i	DC 30 V
Max. current I_i	100 mA
Max. power P_i	720 mW
Effective internal capacitance C_i	11 nF
Effective internal inductance L_i	Negligible

→ For further information on hazardous areas, see operating instructions.

Dimensions in mm [in]

intelliGAUGE® models PGT23.100 and PGT23.160

Lower mount (radial)



Process connection with thread per EN 837-1

NS	G	Dimensions in mm [in]								
		h ±1	a	b	r	r1	D1	D2	e	S3
100 [4"]	G ¼ B	80 [3.15]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	13 [0.51]
	G ⅜ B	83 [3.27]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	16 [0.63]
	G ½ B	87 [3.43]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	20 [0.79]
	M12 x 1.5	80 [3.15]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	13 [0.51]
	M20 x 1.5	87 [3.43]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	20 [0.79]
160 [6"]	G ¼ B	111 [4.37]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	13 [0.51]
	G ⅜ B	114 [4.49]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	16 [0.63]
	G ½ B	118 [4.65]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	20 [0.79]
	M12 x 1.5	111 [4.37]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	13 [0.51]
	M20 x 1.5	118 [4.65]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	20 [0.79]

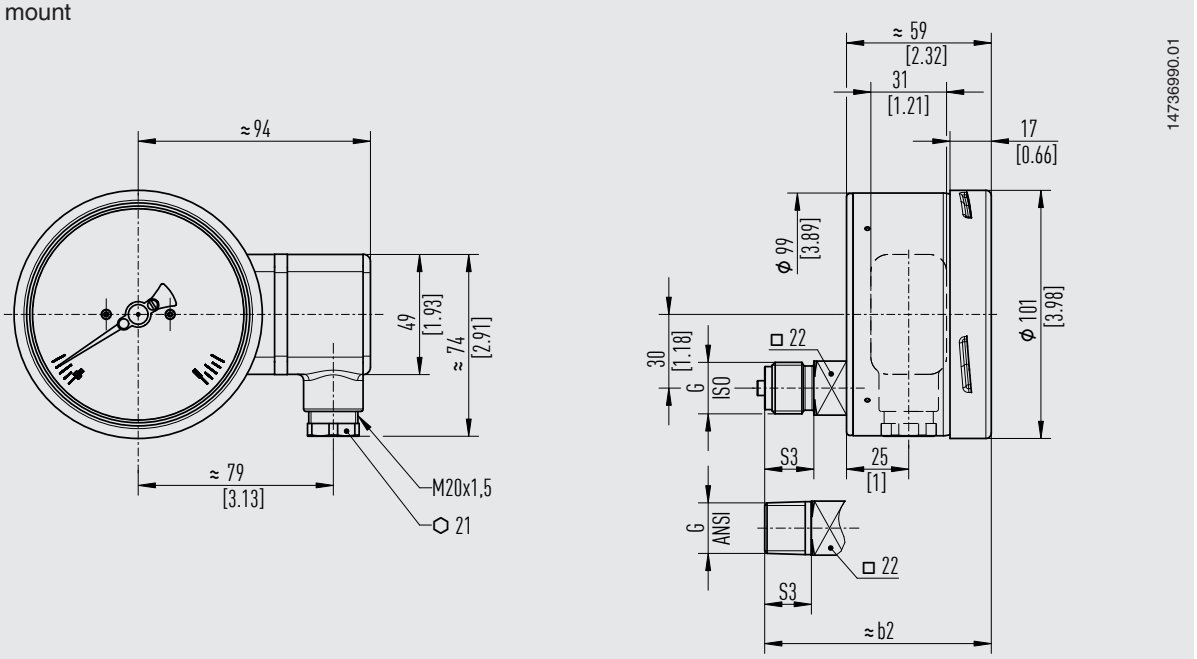
Process connection with thread per ISO 7

NS	G	Dimensions in mm [in]								
		h ±1	a	b	r	r1	D1	D2	e	S3
100 [4"]	R ¼	80 [3.15]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	13 [0.51]
	R ⅜	82 [3.29]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	15 [0.59]
	R ½	86 [3.39]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	19 [0.75]
160 [6"]	R ¼	111 [4.37]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	13 [0.51]
	R ⅜	113 [4.45]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	15 [0.59]
	R ½	117 [4.61]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	19 [0.75]

Process connection with thread per ANSI/B1.20.1

NS	G	Dimensions in mm [in]								
		h ±1	a	b	r	r1	D1	D2	e	S3
100 [4"]	¼ NPT	80 [3.15]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	13 [0.51]
	⅜ NPT	82 [3.29]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	15 [0.59]
	½ NPT	86 [3.39]	25 [0.98]	59.5 [2.34]	94 [3.7]	79 [3.11]	100 [3.94]	99 [3.9]	17 [0.67]	19 [0.75]
160 [6"]	¼ NPT	111 [4.37]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	13 [0.51]
	⅜ NPT	113 [4.45]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	15 [0.59]
	½ NPT	117 [4.61]	27 [1.06]	62 [2.44]	125 [4.92]	110 [4.33]	161 [6.34]	159 [6.26]	17 [0.67]	19 [0.75]

Lower back mount



Process connection with thread per EN 837-1

NS	G	Dimensions in mm [in]	
		b2	S3
100 [4"]	G ¼ B	85 [3.36]	13 [0.51]
	G ⅜ B	89 [3.50]	16 [0.63]
	G ½ B	93 [3.66]	20 [0.79]
	M12 x 1.5	85 [3.36]	13 [0.51]
	M20 x 1.5	93 [3.66]	20 [0.79]

Process connection with thread per ISO 7

NS	G	Dimensions in mm [in]	
		b2	S3
100 [4"]	R ¼	86 [3.39]	13 [0.51]
	R ⅜	88 [3.46]	15 [0.59]
	R ½	92 [3.62]	19 [0.75]

Process connection with thread per ANSI/B1.20.1

NS	G	Dimensions in mm [in]	
		b2	S3
100 [4"]	¼ NPT	86 [3.39]	13 [0.51]
	⅜ NPT	88 [3.46]	15 [0.59]
	½ NPT	92 [3.62]	19 [0.75]

Accessories and spare parts

Model		Description
	**910.33**	Adhesive label set for red and green circular arcs → See data sheet AC 08.03
	**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

Ordering information
Model / Nominal size / Scale range / Output signal /
Connection location / Process connection / Options

Standard articles

Configurator

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