Bourdon tube pressure gauge
Stainless steel case, NS 100 [4"] and 160 [6"]
Model 212.20

For further approvals, see page 6

Applications

- For industrial applications requiring high accuracy and good readability of dial and pointer, also at a distance
- For gaseous or liquid media that are suitable to the wetted parts material of the measuring element
- For media that is not highly viscous and not crystallising

Special features

- Durable and robust design
- Cost-effective and reliable
- DNV approval for shipbuilding
- Scale ranges from 0 … 0.6 to 0 … 1,000 bar [0 ... 10 to 0 ... 15,000 psi] and vacuum and compound scale ranges

Bourdon tube pressure gauge, model 212.20

Configurator

Standard articles

Description

The mechanical model 212.20 Bourdon tube pressure gauge is constructed with a case from stainless steel. The wetted parts material is copper alloy or stainless steel, depending on the scale range.

WIKA manufactures and qualifies the pressure gauge in accordance with the standards EN 837-1 and ASME B40.100. As a safety function, this instrument has a blow-out device. In the event of a failure, overpressure can escape there.

Applications for this instrument can be found in the machine building, plant construction and building services industries. The model 212.20 can also be used in refrigeration applications.

The cases are available in nominal sizes of 100 [4"] and 160 [6"] and fulfil IP54 ingress protection.

The modular design enables a multitude of combinations of process connections, nominal sizes and scale ranges. This high variance enables universal use of the instrument in the industrial sector.

For mounting in control panels, the pressure gauges can be fitted with a mounting flange or with a triangular profile ring and mounting bracket.

Data sheets showing similar products:
Bourdon tube pressure gauge; heavy-duty version; model 213.40; see data sheet PM 02.06

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 ■ For oxygen, oil- and grease-free ■ Silicone-free
Nominal size (NS)	■ Ø 100 mm [4"] ■ Ø 160 mm [6"]
Connection location	■ Lower mount (radial) ■ Lower back mount
Window	■ Instrument glass ■ Laminated safety glass ■ Polycarbonate
Case	
Design	With blow-out device
Material	Stainless steel, natural finish
Ring	■ Bayonet bezel, stainless steel ■ Bayonet bezel, polished stainless steel
Mounting	■ Without ■ Surface mounting flange, stainless steel ■ Panel mounting flange, stainless steel ■ Panel mounting flange, polished stainless steel ■ Triangular profile ring with mounting bracket, polished stainless steel
Movement	■ Copper alloy ■ Copper alloy, silicone-damped

Measuring element	
Type of measuring element	Bourdon tube, C-type or helical type
Material	
< 100 bar [1,500 psi]	Copper alloy
≥ 100 bar [1,500 psi]	Stainless steel 1.4404 (316L)
Leak tightness	Tested leakage rate: $< 5 \cdot 10^{-3}$ mbar l/s

Accuracy specifications		
Accuracy class	■ EN 837-1	Class 1.0
	■ ASME B40.100	±1 % of measuring span (grade 1A)
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 ... 40
0 ... 1	0 ... 60
0 ... 1.6	0 ... 70
0 ... 2	0 ... 100
0 ... 2.5	0 ... 140
0 ... 4	0 ... 160
0 ... 6	0 ... 200
0 ... 7	0 ... 250
0 ... 10	0 ... 315
0 ... 14	0 ... 400
0 ... 16	0 ... 600
0 ... 20	0 ... 700
0 ... 25	0 ... 1,000
0 ... 30	-

kg/cm²	
0 ... 0,6	0 ... 40
0 ... 1	0 ... 60
0 ... 1,6	0 ... 70
0 ... 2	0 ... 100
0 ... 2,5	0 ... 140
0 ... 4	0 ... 160
0 ... 6	0 ... 200
0 ... 7	0 ... 250
0 ... 10	0 ... 315
0 ... 14	0 ... 400
0 ... 16	0 ... 600
0 ... 20	0 ... 700
0 ... 25	0 ... 1.000
0 ... 30	-

kPa	
0 ... 60	0 ... 3.000
0 ... 70	0 ... 4.000
0 ... 100	0 ... 6.000
0 ... 160	0 ... 7.000
0 ... 200	0 ... 8.000
0 ... 250	0 ... 10.000
0 ... 300	0 ... 14.000
0 ... 400	0 ... 16.000
0 ... 600	0 ... 20.000
0 ... 700	0 ... 25.000
0 ... 800	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 ... 31,5
0 ... 1,4	0 ... 40
0 ... 1,6	0 ... 60
0 ... 2	0 ... 70
0 ... 2,5	0 ... 100
0 ... 3	-

psi	
0 ... 10	0 ... 600
0 ... 15	0 ... 800
0 ... 30	0 ... 1,000
0 ... 60	0 ... 1,500
0 ... 100	0 ... 2,000
0 ... 150	0 ... 3,000
0 ... 160	0 ... 4,000
0 ... 200	0 ... 5,000
0 ... 250	0 ... 6,000
0 ... 300	0 ... 7,500
0 ... 400	0 ... 10,000
0 ... 500	0 ... 15,000

Vacuum and compound scale ranges

bar	
-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	-

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	-

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	-

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	-

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	-

Other scale ranges on request

Further details on: scale ranges	
Unit	■ bar ■ psi ■ kg/cm² ■ kPa ■ MPa
Dial	
Scale colour	Black
Material	Aluminium
Special scale	■ Without ■ With temperature scale for refrigerant, e.g. for NH_3: R 717
	Other scales or customer-specific dials, e.g. with red mark, circular arcs or circular sectors, on request

Further details on: scale ranges		
Pointer		
Instrument pointer	■ Pointer, aluminium, black ■ Knife edge pointer, aluminium, black ■ Adjustable pointer, aluminium, black	
Mark pointer/drag pointer	■ Without ■ Red mark pointer on dial, fixed ■ Red mark pointer on window, adjustable ■ Red drag pointer on window, adjustable	
Pointer stop pin	■ Without ■ At 6 o'clock ■ At zero point	

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 ■ 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"], brass ■ Ø 0.3 mm [0.012"], brass	
Material (wetted)		
Process connection	Copper alloy	
Bourdon tube	< 100 bar [1,500 psi]	Copper alloy
	≥ 100 bar [1,500 psi]	Stainless steel 1.4404 (316L)

Other process connections on request

Operating conditions	
Medium temperature	■ -20 ... +80 °C [-4 ... +176 °F] ■ -20 ... +150 °C [-4 ... +302 °F]
Ambient temperature	-40 ... +60 °C [-40 ... +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

Approvals

Logo	Description	Country
CE	**EU declaration of conformity** Pressure Equipment Directive PS > 200 bar, module A, pressure accessory	European Union
-	**CRN** Safety (e.g. electr. safety, overpressure, ...)	Canada

Optional approvals

Logo	Description	Country
	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
	DNV Ships, shipbuilding (e.g. offshore)	International

Manufacturer's declaration

Logo	Description
-	Pressure Equipment Directive (PED) for maximum allowable pressure PS ≤ 200 bar
-	Suitability of wetted materials for drinking water in accordance with the European 4MS initiative

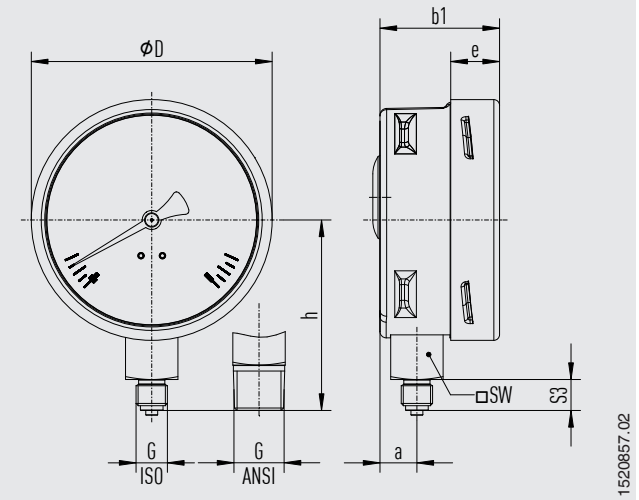
Certificates (option)

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) ■ PCA calibration certificate (traceable and accredited in accordance with ISO/IEC 17025) ■ Calibration certificate by a national accreditation body (traceable and accredited in accordance with ISO/IEC 17025) on request
Recommended calibration interval	1 year (dependent on conditions of use)

→ For approvals and certificates, see website

Dimensions in mm [in]

Lower mount (radial)



NS	Weight
100 [4"]	Approx. 0.6 kg [1.32 lb]
160 [6"]	Approx. 1.1 kg [2.43 lb]

Process connection with thread per EN 837-1

NS	G	Dimensions in mm [in]						
		h ±1 [0.04]	S3	e	a	b1 ±0.5 [0.02]	D	SW
100 [4"]	G ¼ B	80 [3.15]	13 [0.51]	17 [0.67]	15.5 [0.61]	49.5 [1.95]	101.1 [3.98]	22 [0.87]
	G ⅜ B	83 [3.26]	16 [0.63]	17 [0.67]	15.5 [0.61]	49.5 [1.95]	101.1 [3.98]	22 [0.87]
	G ½ B	87 [3.43]	20 [0.79]	17 [0.67]	15.5 [0.61]	49.5 [1.95]	101.1 [3.98]	22 [0.87]
	M20 x 1.5	87 [3.43]	20 [0.79]	17 [0.67]	15.5 [0.61]	49.5 [1.95]	101.1 [3.98]	22 [0.87]
160 [6"]	G ¼ B	111 [4.37]	13 [0.51]	17.5 [0.69]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	22 [0.87]
	G ⅜ B	114 [4.49]	16 [0.63]	17.5 [0.69]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	22 [0.87]
	G ½ B	118 [4.65]	20 [0.79]	17.5 [0.69]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	22 [0.87]
	M20 x 1.5	118 [4.65]	20 [0.79]	17.5 [0.69]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	22 [0.87]

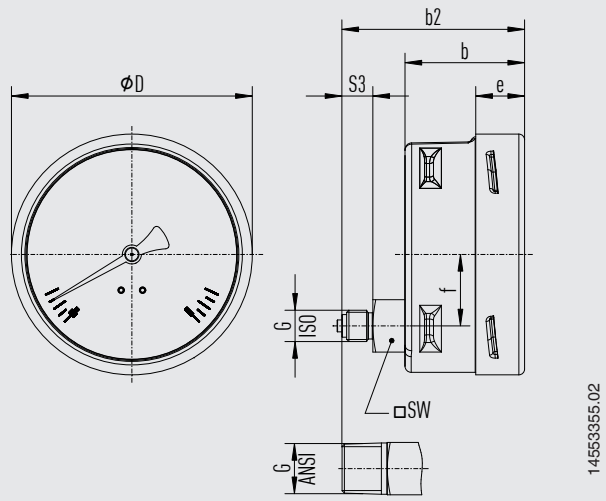
Process connection with thread per ISO 7

NS	G	Dimensions in mm [in]						
		h ±1 [0.04]	S3	e	a	b1 ±0.5 [0.02]	D	SW
100 [4"]	R ¼	80 [3.15]	13 [0.51]	17 [0.67]	15.5 [0.61]	49.5 [1.95]	101.1 [3.98]	22 [0.87]
	R ⅜	82 [3.23]	15 [0.59]	17 [0.67]	15.5 [0.61]	49.5 [1.95]	101.1 [3.98]	22 [0.87]
	R ½	86 [3.39]	19 [0.75]	17 [0.67]	15.5 [0.61]	49.5 [1.95]	101.1 [3.98]	22 [0.87]
160 [6"]	R ¼	111 [4.37]	13 [0.51]	17.5 [0.69]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	22 [0.87]
	R ⅜	113 [4.45]	15.5 [0.61]	17.5 [0.69]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	22 [0.87]
	R ½	117 [4.61]	19 [0.75]	17.5 [0.69]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	22 [0.87]

Process connection with thread per ANSI/B1.20.1

NS	G	Dimensions in mm [in]						
		h ±1 [0.04]	S3	e	a	b1 ±0.5 [0.02]	D	SW
100 [4"]	¼ NPT	80 [3.15]	13 [0.51]	17 [0.67]	15.5 [0.61]	49.5 [1.95]	101.1 [3.98]	22 [0.87]
	⅜ NPT	82 [3.23]	15 [0.59]	17 [0.67]	15.5 [0.61]	49.5 [1.95]	101.1 [3.98]	22 [0.87]
	½ NPT	86 [3.39]	19 [0.75]	17 [0.67]	15.5 [0.61]	49.5 [1.95]	101.1 [3.98]	22 [0.87]
160 [6"]	¼ NPT	111 [4.37]	13 [0.51]	17.5 [0.69]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	22 [0.87]
	⅜ NPT	113 [4.45]	15 [0.59]	17.5 [0.69]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	22 [0.87]
	½ NPT	117 [4.61]	19 [0.75]	17.5 [0.69]	15.5 [0.61]	49.5 [1.95]	161 [6.34]	22 [0.87]

Lower back mount, NS 100 [4"]



NS	Weight
100 [4"]	Approx. 0.6 kg [1.32 lb]

Process connection with thread per EN 837-1

NS	G	Dimensions in mm [in]					
		b2 ±0.5 [0.02]	b ±0.5 [0.02]	S3	e	D	SW
100 [4"]	G ¼ B	76 [2.99]	49.5 [1.95]	13 [0.51]	17 [0.67]	101.1 [3.98]	22 [0.87]
	G ⅜ B	79 [3.11]	49.5 [1.95]	16 [0.63]	17 [0.67]	101.1 [3.98]	22 [0.87]
	G ½ B	83 [3.26]	49.5 [1.95]	20 [0.79]	17 [0.67]	101.1 [3.98]	22 [0.87]
	M20 x 1.5	83 [3.26]	49.5 [1.95]	20 [0.79]	17 [0.67]	101.1 [3.98]	22 [0.87]

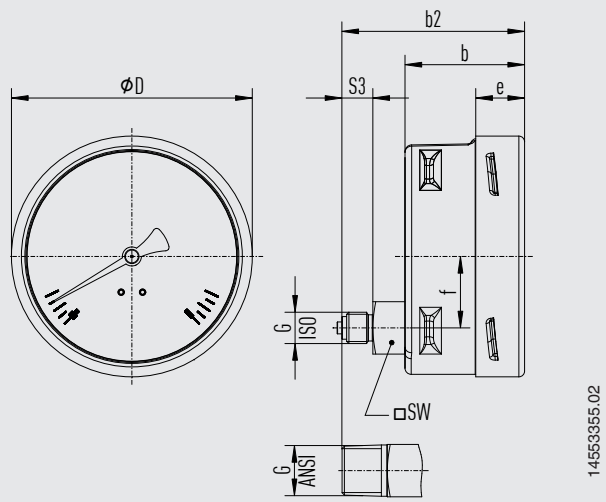
Process connection with thread per ISO 7

NS	G	Dimensions in mm [in]					
		b2 ±0.5 [0.02]	b ±0.5 [0.02]	S3	e	D	SW
100 [4"]	R ¼	76 [2.99]	49.5 [1.95]	13 [0.51]	17 [0.67]	101.1 [3.98]	22 [0.87]
	R ⅜	78 [3.07]	49.5 [1.95]	15 [0.6]	17 [0.67]	101.1 [3.98]	22 [0.87]
	R ½	82 [3.23]	49.5 [1.95]	19 [0.75]	17 [0.67]	101.1 [3.98]	22 [0.87]

Process connection with thread per ANSI/B1.20.1

NS	G	Dimensions in mm [in]					
		b2 ±0.5 [0.02]	b ±0.5 [0.02]	S3	e	D	SW
100 [4"]	¼ NPT	76 [2.99]	49.5 [1.95]	13 [0.51]	17 [0.67]	101.1 [3.98]	22 [0.87]
	⅜ NPT	78 [3.07]	49.5 [1.95]	15 [0.6]	17 [0.67]	101.1 [3.98]	22 [0.87]
	½ NPT	82 [3.23]	49.5 [1.95]	19 [0.75]	17 [0.67]	101.1 [3.98]	22 [0.87]

Lower back mount, NS 160 [6"]



NS	Weight
160 [6"], < 100 bar [< 1,500 psi]	Approx. 1.2 kg [2.65 lb]
160 [6"], ≥ 100 bar [≥ 1,500 psi]	Approx. 1.4 kg [3.09 lb]

Process connection with thread per EN 837-1

NS	G	Dimensions in mm [in]					
		b2 ±0.5 [0.02]	b ±0.5 [0.02]	S3	e	D	SW
160 [6"], < 100 bar [< 1,500 psi]	G ¼ B	76 [2.99]	49.5 [1.95]	13 [0.51]	17.5 [0.69]	161 [6.34]	22 [0.87]
	G ⅜ B	79 [3.11]	49.5 [1.95]	16 [0.63]	17.5 [0.69]	161 [6.34]	22 [0.87]
	G ½ B	83 [3.26]	49.5 [1.95]	20 [0.79]	17.5 [0.69]	161 [6.34]	22 [0.87]
	M20 x 1.5	83 [3.26]	49.5 [1.95]	20 [0.79]	17.5 [0.69]	161 [6.34]	22 [0.87]
160 [6"], ≥ 100 bar [≥ 1,500 psi]	G ¼ B	92 [3.62]	65.5 [2.58]	13 [0.51]	17.5 [0.69]	161 [6.34]	22 [0.87]
	G ⅜ B	95 [3.74]	65.5 [2.58]	16 [0.63]	17.5 [0.69]	161 [6.34]	22 [0.87]
	G ½ B	99 [3.9]	65.5 [2.58]	20 [0.79]	17.5 [0.69]	161 [6.34]	22 [0.87]
	M20 x 1.5	99 [3.9]	65.5 [2.58]	20 [0.79]	17.5 [0.69]	161 [6.34]	22 [0.87]

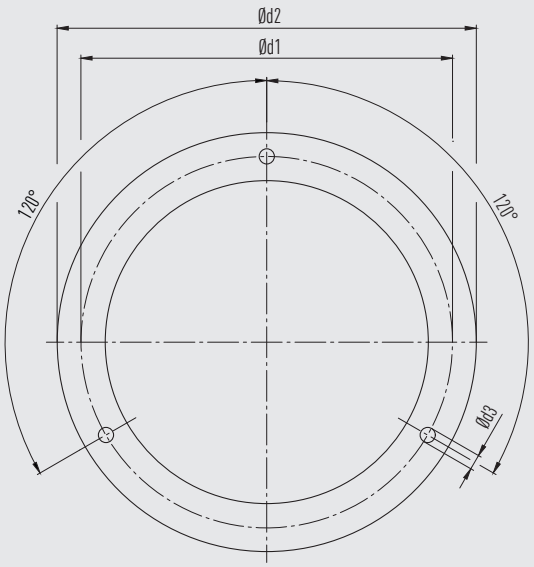
Process connection with thread per ISO 7

NS	G	Dimensions in mm [in]					
		b2 ±0.5 [0.02]	b ±0.5 [0.02]	S3	e	D	SW
160 [6"], < 100 bar [< 1,500 psi]	R ¼	76 [2.99]	49.5 [1.95]	13 [0.51]	17.5 [0.69]	161 [6.34]	22 [0.87]
	R ⅜	78 [3.07]	49.5 [1.95]	15 [0.6]	17.5 [0.69]	161 [6.34]	22 [0.87]
	R ½	82 [3.23]	49.5 [1.95]	19 [0.75]	17.5 [0.69]	161 [6.34]	22 [0.87]
160 [6"], ≥ 100 bar [≥ 1,500 psi]	R ¼	92 [3.62]	65.5 [2.58]	13 [0.51]	17.5 [0.69]	161 [6.34]	22 [0.87]
	R ⅜	94 [3.7]	65.5 [2.58]	15 [0.6]	17.5 [0.69]	161 [6.34]	22 [0.87]
	R ½	98 [3.86]	65.5 [2.58]	19 [0.75]	17.5 [0.69]	161 [6.34]	22 [0.87]

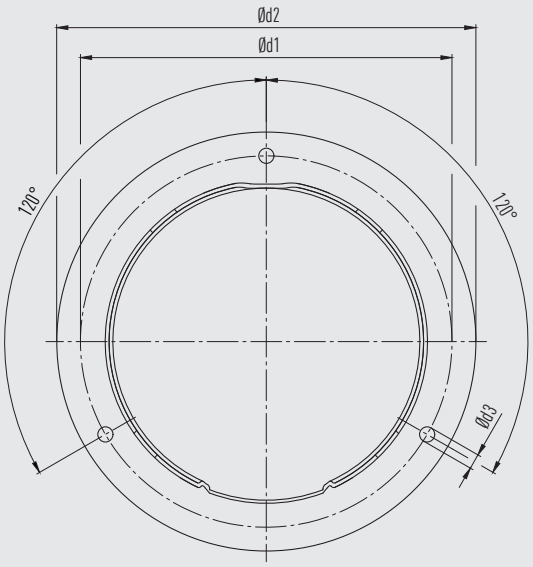
Process connection with thread per ANSI/B1.20.1

NS	G	Dimensions in mm [in]					
		b2 ±0.5 [0.02]	b ±0.5 [0.02]	S3	e	D	SW
160 [6"], < 100 bar [< 1,500 psi]	¼ NPT	76 [2.99]	49.5 [1.95]	13 [0.51]	17.5 [0.69]	161 [6.34]	22 [0.87]
	⅜ NPT	78 [3.07]	49.5 [1.95]	15 [0.6]	17.5 [0.69]	161 [6.34]	22 [0.87]
	½ NPT	82 [3.23]	49.5 [1.95]	19 [0.75]	17.5 [0.69]	161 [6.34]	22 [0.87]
160 [6"], ≥ 100 bar [≥ 1,500 psi]	¼ NPT	92 [3.62]	65.5 [2.58]	13 [0.51]	17.5 [0.69]	161 [6.34]	22 [0.87]
	⅜ NPT	94 [3.7]	65.5 [2.58]	15 [0.6]	17.5 [0.69]	161 [6.34]	22 [0.87]
	½ NPT	98 [3.86]	65.5 [2.58]	19 [0.75]	17.5 [0.69]	161 [6.34]	22 [0.87]

Panel mounting flange

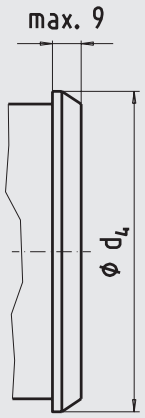


Surface mounting flange



NS	Dimensions in mm [in]			
	Recommended panel cutout	d1	d2	d3
100 [4"]	Ø 104 ±0.5 / Ø 4.1 [Ø 4.04 ±0.02 / Ø 0.16]	118 [4.65]	132 [5.20]	4.8 [0.19]
160 [6"]	Ø 164 ±0.5 / Ø 6.5 [Ø 6.46 ±0.02 / Ø 0.26]	178 [7.01]	196 [7.72]	5.8 [0.23]

Triangular profile ring



NS	Dimensions in mm [in]	
	Recommended panel cutout	d4
NS 100 [4"]	102 ±1 [4.02 ±0.04]	108 [4.25]
NS 160 [6"]	162.6 ±1 [6.40 ±0.04]	168 [6.61]

Accessories and spare parts

Typ		Beschreibung
	**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 / Connection location / Options

Standard articles

Configurator

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