

Diaphragm pressure gauge for the process industry Model 432.56, high overload safety up to 100 bar Model 432.36, safety version, high overload safety up to 400 bar

WIKA data sheet PM 04.07











for further approvals, see page 7

Applications

- For measuring locations with increased overload
- For gaseous, liquid and aggressive media, also in aggressive environments
- With open connecting flange also suitable for contaminated and viscous media
- Process industry: Chemical industry, petrochemical industry, oil and gas, power generation, water and wastewater technology, machine building and general plant construction

Special features

- High overload safety, optionally 40, 100 or 400 bar due to the metallic pressure element limit stop, without liquidfilled measuring cell
- Wide choice of special materials
- Compatible with switch contacts
- Case and wetted parts from stainless steel
- Scale ranges from 0 ... 16 mbar



Diaphragm pressure gauge model 432.56

Description

Diaphragm pressure gauges are preferably used for low pressure ranges. Through the large working surface of the circular, corrugated diaphragm element, small pressure ranges can be measured reliably.

Depending on the version, the models 432.56 and 432.36 are able, already from the smallest scale range of 0 ... 16 mbar, to withstand an overload of 40, 100 or 400 bar without any subsequent impairment of their measurement characteristics.

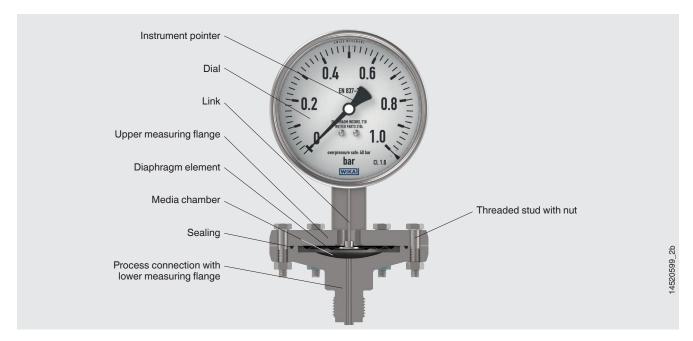
The diaphragm pressure gauge models 432.56 and 432.36 are manufactured in accordance with EN 837-3. The high-quality design is particularly suitable for applications in the chemical and petrochemical industry, oil and gas industry and power engineering.

The case and wetted parts from stainless steel fulfil high requirements for resistance against aggressive media. For especially high resistance requirements, the pressure chamber can be designed with a wide variety of special materials such as PTFE, tantalum or Hastelloy.

For the measurement of highly viscous, crystallising or contaminated media, the use of an open connecting flange is recommended. The open connecting flange has the advantage over a threaded connection that the pressure port cannot become blocked. With an additional flushing bore on the open connecting flange, the pressure chamber can be easily cleaned.

Part of your business

Functionality



Diaphragm elements are circular, corrugated diaphragms. They are clamped together at the edge between two flanges and are subjected to the pressure on one side by the pressure in the media chamber. The resulting deflection is transmitted to the movement via the link and displayed on the dial with the instrument pointer.

Overload safety

Diaphragm elements have a relatively large actuating force and, due to the annular clamping of the element, they are less sensitive to vibration in comparison with Bourdon tubes. Diaphragm elements can optionally be subject to an overload of up to 40, 100 or 400 bar, through load take-up points (by bringing the diaphragm element up against the upper measuring flange). With a scale range of 0 ... 16 mbar, a short-term overpressure of up to 100 bar is not problematic; the accuracy is not affected.

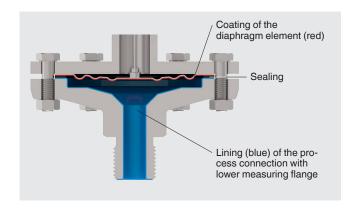
Versions for special media

Larger pressure ports, open connecting flanges and purging options can be integrated for measuring highly viscous, contaminated or crystallising media.

Coating / Lining of wetted parts

By selecting a coating / lining for the wetted parts, the instrument can also be used for extremely corrosive media. The materials suitable for this can either be selected for the diaphragm element only, or together with the process connection with lower measuring connection in a freely combinable manner. The selection of the material combination determines whether it is self-sealing or implemented with a sealing.

→ Available materials (wetted) see page 3



Specifications

Basic information	
Standard	
Diaphragm and capsule pressure gauges	EN 837-3
ightarrow For information on the "Selection, installation, ha	andling 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
Case	
Design, model 432.56 and 433.56	Safety level "S1" per EN 837-1: With blow-out device
Design, model 432.36 and 433.36 1)	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 (316 Ti)
Case filling	 Without Glycerine-water mixture ²⁾ Silicone oil M50 ²⁾
	Instruments with case filling with compensating valve to vent case.
Movement	Stainless steel

¹⁾ Overload safety 400 bar only selectable for models 432.36 and 433.36 2) Ingress protection IP65 for instruments with case filling

Measuring element	
Type of measuring element	Diaphragm element
Materials (wetted)	
Diaphragm element	Stainless steel 316L, for span ≤ 0.25 barNiCr alloy (Inconel), for span > 0.25 bar
Process connection with lower measuring flange	Stainless steel 316L
Coating / Lining ^{1) 2)}	 Without PTFE Hastelloy Monel Tantalum Gold (only for diaphragm element)
	Other materials on request
Sealing ³⁾	FPM/FKM

¹⁾ Diaphragm elements and process connections with lower measuring flanges can be coated / lined with various materials.

 [→] See page 2
 2) Accuracy class 2.5 with selection of a coating / lining.
 3) The selection of the material combination determines whether it is self-sealing or implemented with a sealing.

Accuracy specifications	
Accuracy class	■ 1.6 ¹⁾ ■ 2.5 ²⁾
Temperature error	On deviation from the reference conditions at the measuring system: \leq ±0.8 % per 10 °C [\leq ±0.8 % per 18 °F] of full scale value
Reference conditions	
Ambient temperature	+20 °C [68 °F]

¹⁾ After feasibility test, if necessary, accuracy class 1.0 is possible. 2) Accuracy class 2.5 with selection of a coating / lining.

Scale ranges

Scale range	
mbar	
0 16	
0 25	
0 40	
0 60	
0 100	
0 160	
0 250	
0 400	
0 600	
0 1,000	
bar	
0 0.6	
0 1	
0 1.6	
0 2.5	
0 4	
0 6	
0 10	
0 16	
0 25	

Scale range	
psi	
0 10	
0 15	
0 30	
0 60	
0 100	
0 150	
0 160	
0 200	
0 250	
0 300	
0 400	

+/- scale ranges

Scale range	
mbar	bar
-5 + 20	-1 +0.6
-6 +10	-1 +1
-10 +15	-1 +1.5
-15 +25	-1 +2
-20 +40	-1 +3
-30 +30	-1 +5
-40 +60	-1 +9
-50 +200	-1 +10
-60 +100	-1 +15
-100 +150	-1 +24
-125 +125	psi
-150 +250	-30 inHg +15
-250 +750	-30 inHg +60
-400 +600	-30 inHg +100
-500 +500	-30 inHg +160
-600 +400	-30 inHg +200
-750 + 250	-30 inHg +300
-800 +200	

Vacuum scale ranges

Scale range	
mbar	
-16 0	-250 0
-40 0	-400 0
-60 0	-600 0
-100 0	-1,000 0
-160 0	
bar	psi
-0.6 0	-15 inHg 0
-1 0	-30 inHg 0

¹⁾ The specified values for overload safety and vacuum resistance are only valid for versions without coating / lining.

Other scale ranges on request

Further details on: Scale ranges			
Unit	 bar psi mbar kg/cm² MPa kPa 		
	Other units on	request	
Overload safety 1)	 ■ 40 bar ■ 100 bar ■ 400 bar, only for models 432.36 and 433.36 with scale range ≥ 0 400 mbar ²⁾ 		
Vacuum resistance	WithoutVacuum-resistant to -1 bar		
Dial			
Scale layout	Single scaleDual 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	Aluminium, black		

Depending on scale range and overload safety, different flange Ø apply. → See dimensions from page 8.
 Overload safety 400 bar for scale ranges < 400 mbar on request

Process connection	
Standard	 EN 837 ANSI / ASME B1.20.1 ASME B16.5 EN 1092-1, form B
Size 1)	
EN 837	■ G½B ■ M20 x 1.5
ANSI / ASME B1.20.1	■ ½ NPT
ASME B16.5	 Open connecting flange 1" class 150, RF Open connecting flange 2" class 150, RF Open connecting flange 1" class 300, RF
EN 1092-1, form B	Open connecting flange DN 25 PN 40Open connecting flange DN 50 PN 40
Materials (wetted)	
Diaphragm element	Stainless steel 316L, for span ≤ 0.25 barNiCr alloy (Inconel), for span > 0.25 bar
Process connection with lower measuring flange	Stainless steel 316L
Coating / Lining ^{2) 3)}	 Without PTFE Hastelloy Monel Tantalum Gold (only for diaphragm element)
	Other materials on request
Sealing ⁴⁾	FPM/FKM

¹⁾ Further threaded connections and open connecting flanges per ASME B16.5 / EN 1092-1 form B from DN 15 to DN 80 (\rightarrow See data sheet IN 00.10)

Other process connections on request

 ²⁾ Diaphragm elements and process connections with lower measuring flanges can be coated / lined with various materials.
 → See page 2
 3) Accuracy class 2.5 with selection of a coating / lining.
 4) The selection of the material combination determines whether it is self-sealing or implemented with a sealing.

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⁾ ■ IP66 ³⁾ (ingress protection of the case)

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

Other versions

- Version for hazardous areas (Ex h)
- Diaphragm pressure gauge with switch contacts, models PGS43.100, PGS43.160; see data sheet PV 24.03
- Diaphragm pressure gauge with output signal, models PGT43.100, PGT43.160; see data sheet PV 14.03
- Oil- and grease-free
- For oxygen, oil- and grease-free
- Silicone-free
- Per NACE ¹⁾ MR0175 / ISO 15156, use in H₂S-containing environments in oil and gas production
- Per NACE ¹⁾ MR0103 / ISO 17945, metals resistant to sulphide stress cracking
- With pre-volume deflagration flame arrester ²⁾ for connection to zone 0 (EPL Ga); model 910.21; see data sheet AC 91.02
- With flushing bore on the open connecting flange
- 1) General information about NACE standards, see data sheet IN 00.21
- 2) Only for instruments with Ex approval

³⁾ Hermetically sealed case; see data sheet IN 00.18

Approvals

Logo	Description	Region
-	CRN	Canada
	Safety (e.g. electr. safety, overpressure,)	

Optional approvals

Logo	Description	Region
€	EU declaration of conformity ATEX directive 1) Hazardous areas Gas II 2G h IIC T6 T1 Gb X Dust II 2D h IIIC T85°C T450°C Db X	European Union
EH[Ex	EAC Hazardous areas 1)	Eurasian Economic Community
&	Ex Ukraine Hazardous areas 1)	Ukraine
©	PAC Russia Metrology, measurement technology	Russia
6	PAC Kazakhstan Metrology, measurement technology	Kazakhstan
-	MChS Permission for commissioning	Kazakhstan
(PAC Belarus Metrology, measurement technology	Belarus
©	PAC Ukraine Metrology, measurement technology	Ukraine
	PAC Uzbekistan Metrology, measurement technology	Uzbekistan
-	CPA Metrology, measurement technology	China

¹⁾ In the area of the coating / lining from PTFE, measures must be taken, if necessary, in order to exclude electrostatic charging.

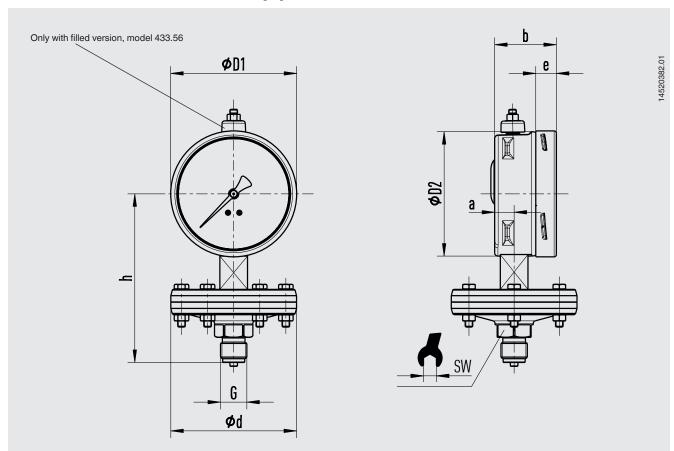
Certificates (option)

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 recalibration interval	1 year (dependent on conditions of use)

For approvals and certificates, see website

Dimensions in mm [in]

Models 432.56 and 433.56, nominal size 100 [4"]



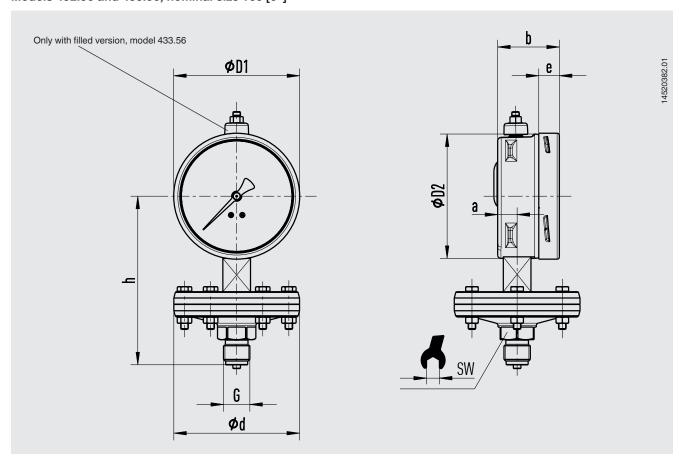
Overload safety 40 bar

Process	Scale	Dimensio	Dimensions in mm [in]										
tion G	range	d	а	b	е	D1	D2	h ± 2 [0.08]	SW	in kg [lb]			
G ½ B	≤ 0.25 bar [3.63 psi]	160 [6.3]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	101 [3.98]	99 [3.90]	135 [5.31]	27 [1.06]	3.4 [7.5]			
	> 0.25 bar [3.63 psi]	100 [3.94]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	101 [3.98]	99 [3.90]	135 [5.31]	27 [1.06]	1.7 [3.7]			
½ NPT	≤ 0.25 bar [3.63 psi]	160 [6.3]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	101 [3.98]	99 [3.90]	133 [5.24]	27 [1.06]	3.4 [7.5]			
	> 0.25 bar [3.63 psi]	100 [3.94]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	101 [3.98]	99 [3.90]	133 [5.24]	27 [1.06]	1.7 [3.7]			

Overload safety 100 bar

Process	Scale	Dimensio	ons in mm	[in]						Weight
connec- tion G	range	d	а	b	е	D1	D2	h ± 2 [0.08]	SW	in kg [lb]
G ½ B	≤ 0.25 bar [3.63 psi]	160 [6.3]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	101 [3.98]	99 [3.90]	143 [5.63]	22 [0.87]	6.3 [13.9]
	> 0.25 bar [3.63 psi]	100 [3.94]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	101 [3.98]	99 [3.90]	135 [5.31]	22 [0.87]	1.8 [4]
½ NPT	≤ 0.25 bar [3.63 psi]	160 [6.3]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	101 [3.98]	99 [3.90]	143 [5.63]	22 [0.87]	6.3 [13.9]
	> 0.25 bar [3.63 psi]	100 [3.94]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	101 [3.98]	99 [3.90]	133 [5.24]	22 [0.87]	1.8 [4]

Models 432.56 and 433.56, nominal size 160 [6"]



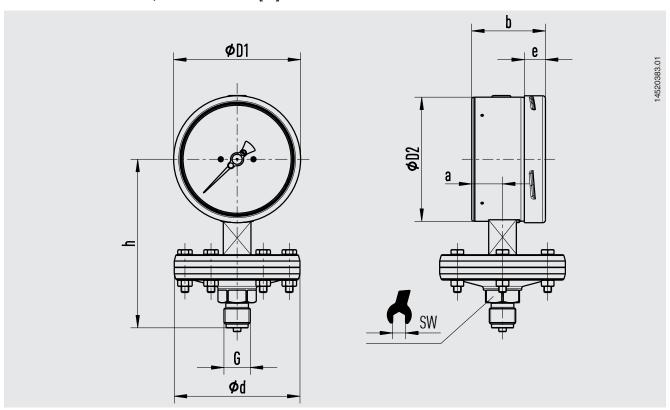
Overload safety 40 bar

Process	Scale	Dimensions in mm [in]										
connec- tion G	range	d	а	b	е	D1	D2	h ± 2 [0.08]	SW	in kg [lb]		
G ½ B	≤ 0.25 bar [3.63 psi]	160 [6.3]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	161 6.34]	159 [6.26]	165 [6.5]	27 [1.06]	4		
	> 0.25 bar [3.63 psi]	100 [3.94]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	161 6.34]	159 [6.26]	165 [6.5]	27 [1.06]	2.2		
½ NPT	≤ 0.25 bar [3.63 psi]	160 [6.3]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	161 6.34]	159 [6.26]	163 [6.42]	27 [1.06]	4		
	> 0.25 bar [3.63 psi]	100 [3.94]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	161 6.34]	159 [6.26]	163 [6.42]	27 [1.06]	2.2		

Overload safety 100 bar

Process	Scale	Dimensio	ons in mm	[in]						Weight in kg [lb]
connec- tion G	range	d	а	b	е	D1	D2	h ± 2 [0.08]	SW	
G ½ B	≤ 0.25 bar [3.63 psi]	160 [6.3]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	161 6.34]	159 [6.26]	165 [6.5]	27 [1.06]	6.9
	> 0.25 bar [3.63 psi]	100 [3.94]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	161 6.34]	159 [6.26]	173 [6.81]	27 [1.06]	2.3
½ NPT	≤ 0.25 bar [3.63 psi]	160 [6.3]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	161 6.34]	159 [6.26]	163 [6.42]	27 [1.06]	6.9
	> 0.25 bar [3.63 psi]	100 [3.94]	15.5 [0.61]	49.5 [1.95]	17.5 [0.69]	161 6.34]	159 [6.26]	171 [6.73]	27 [1.06]	2.3

Models 432.36 and 433.36, nominal size 100 [4"]



Overload safety 40 bar

Process	Scale range	range Dimensions in mm [in]									
connec- tion G		d	а	b	е	D1	D2	h ± 2 [0.08]	SW	in kg [lb]	
G 1/2 B	≤ 0.25 bar [3.63 psi]	160 [6.3]	24.5 [0.96]	59 [2.32]	17.5 [0.69]	101 [3.98]	99 [3.90]	135 [5.31]	27 [1.06]	3.4 [7.5]	
	> 0.25 bar [3.63 psi]	100 [3.94]	24.5 [0.96]	59 [2.32]	17.5 [0.69]	101 [3.98]	99 [3.90]	135 [5.31]	27 [1.06]	1.7 [3.7]	
½ NPT	≤ 0.25 bar [3.63 psi]	160 [6.3]	24.5 [0.96]	59 [2.32]	17.5 [0.69]	101 [3.98]	99 [3.90]	133 [5.24]	27 [1.06]	3.4 [7.5]	
	> 0.25 bar [3.63 psi]	100 [3.94]	24.5 [0.96]	59 [2.32]	17.5 [0.69]	101 [3.98]	99 [3.90]	133 [5.24]	27 [1.06]	1.7 [3.7]	

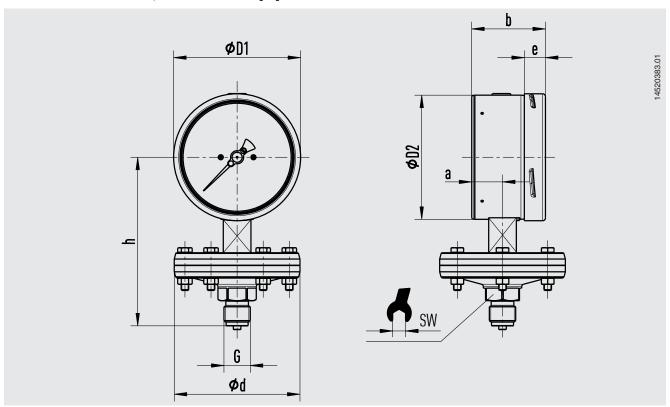
Overload safety 100 bar

Process	Scale range	Dimensio	ons in mm	[in]						Weight
connec- tion G		d	а	b	е	D1	D2	h ± 2 [0.08]	SW	in kg [lb]
G 1/2 B	≤ 0.25 bar [3.63 psi]	160 [6.3]	24.5 [0.96]	59 [2.32]	17.5 [0.69]	101 [3.98]	99 [3.90]	143 [5.63]	22 [0.87]	6.3 [13.9]
	> 0.25 bar [3.63 psi]	100 [3.94]	24.5 [0.96]	59 [2.32]	17.5 [0.69]	101 [3.98]	99 [3.90]	135 [5.31]	27 [1.06]	1.8 [4]
½ NPT	≤ 0.25 bar [3.63 psi]	160 [6.3]	24.5 [0.96]	59 [2.32]	17.5 [0.69]	101 [3.98]	99 [3.90]	141 [5.55]	22 [0.87]	6.3 [13.9]
	> 0.25 bar [3.63 psi]	100 [3.94]	24.5 [0.96]	59 [2.32]	17.5 [0.69]	101 [3.98]	99 [3.90]	133 [5.24]	27 [1.06]	1.8 [4]

Overload safety 400 bar

Process	Scale range	Dimensio	ns in mm	[in]						Weight
connection G		d	а	b	е	D1	D2	h ± 2 [0.08]	SW	in kg [lb]
G 1/2 B	> 0.25 bar [3.63 psi]	128 [5.04]	24.5 [0.96]	59 [2.32]	17.5 [0.69]	101 [3.98]	99 [3.90]	169 [6.65]	22 [0.87]	6.3 [13.9]
½ NPT	> 0.25 bar [3.63 psi]	128 [5.04]	24.5 [0.96]	59 [2.32]	17.5 [0.69]	101 [3.98]	99 [3.90]	167 [6.57]	22 [0.87]	6.3 [13.9]

Models 432.36 and 433.36, nominal size 160 [6"]



Overload safety 40 bar

Process	Scale range	Dimensions in mm [in]										
connec- tion G		d	а	b	е	D1		h ± 2 [0.08]	sw	in kg [lb]		
G 1/2 B	≤ 0.25 bar [3.63 psi]	160 [6.3]	27 [1.06]	65 [2.56]	17.5 [0.69]	161 6.34]	159 [6.26]	165 [6.5]	27 [1.06]	4 [8.8]		
	> 0.25 bar [3.63 psi]	100 [3.94]	27 [1.06]	65 [2.56]	17.5 [0.69]	161 6.34]	159 [6.26]	165 [6.5]	27 [1.06]	2.2 [4.9]		
½ NPT	≤ 0.25 bar [3.63 psi]	160 [6.3]	27 [1.06]	65 [2.56]	17.5 [0.69]	161 6.34]	159 [6.26]	163 [5.24]	27 [1.06]	4 [8.8]		
	> 0.25 bar [3.63 psi]	100 [3.94]	27 [1.06]	65 [2.56]	17.5 [0.69]	161 6.34]	159 [6.26]	163 [5.24]	27 [1.06]	2.2 [4.9]		

Overload safety 100 bar

Process	Scale range	Dimensio	ons in mm	ı [in]						Weight
connec- tion G		d	а	b	е	D1		h ± 2 [0.08]	SW	in kg [lb]
G 1/2 B	≤ 0.25 bar [3.63 psi]	160 [6.3]	27 [1.06]	65 [2.56]	17.5 [0.69]	161 6.34]	159 [6.26]	173 [6.81]	22 [0.87]	6.9 [15.2]
	> 0.25 bar [3.63 psi]	100 [3.94]	27 [1.06]	65 [2.56]	17.5 [0.69]	161 6.34]	159 [6.26]	165 [6.5]	27 [1.06]	2.3 [5.1]
½ NPT	≤ 0.25 bar [3.63 psi]	160 [6.3]	27 [1.06]	65 [2.56]	17.5 [0.69]	161 6.34]	159 [6.26]	171 [6.73]	22 [0.87]	6.9 [15.2]
	> 0.25 bar [3.63 psi]	100 [3.94]	27 [1.06]	65 [2.56]	17.5 [0.69]	161 6.34]	159 [6.26]	163 [6.42]	27 [1.06]	2.3 [5.1]

Overload safety 400 bar

Process	Scale range	Dimensio	Dimensions in mm [in]								
connec- tion G		d	а	b	е	D1		h ± 2 [0.08]	SW	in kg [lb]	
G 1/2 B	> 0.25 bar [3.63 psi]	128 [5.04]	27 [1.06]	65 [2.56]	17.5 [0.69]	161 6.34]	159 [6.26]	199 [7.83]	22 [0.87]	6.9 [15.2]	
½ NPT	> 0.25 bar [3.63 psi]	128 [5.04]	27 [1.06]	65 [2.56]	17.5 [0.69]	161 6.34]	159 [6.26]	197 [7.76]	22 [0.87]	6.9 [15.2]	

Accessories and spare parts

Model		Description	Order number
the desired of the second of t	910.33	Adhesive label set for red and green circular arcs → See data sheet AC 08.03	-
2 8		NS 100 [4"]	14238945
bar n. La		NS 160 [6"]	14228352
	910.17	Sealings → See data sheet AC 09.08	On request
No	910.15	Syphons → See data sheet AC 09.06	On request
	910.13	Overpressure protector → See data sheet AC 09.04	On request
as a second	IV20, IV21	Block-and-bleed valve → See data sheet AC 09.19	On request
BOOD)	IBF2, IBF3	Monoblock with flange connection → See data sheet AC 09.25	On request
	910.16	Mounting parts for wall and pipe mounting Instrument mounting bracket and adapter piece → See data sheet AC 09.07	On request

Ordering information

Model / Nominal size / Scale range / Process connection / Options

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