

SOLID FRONT PRESSURE GAUGES

MODEL M1.02



PRODUCT DESCRIPTION

A solid partition wall between the front of the gauge and the Bourdon tube system will redirect the released energy to the back of the gauge in which the blow-out back of the safety case design redirects any loose parts or media to exit through the back of the gauge. The solid front gauge is reinforced at the front, providing a blow-out back safety case design. Usually Solid front s are used for services having very high process pressure.



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KEY FEATURES

- Design according to EN 837-1
- Dry & Liquid Filled Version
- Socket case, Direct welded
- Optional ATEX approved II 2 GD Ex h T6
- For corrosive gasses and liquids
- Solid front design features baffle wall interposed Between the sensing system & the window, & Pressure relieving back for increased safety.

SPECIFICATIONS

Design Standard	: According to EN 837-1
Sensing Element	: Bourdon Tube (<100 Bar: C - Type, >100 Bar: Helical)
Accuracy	: $\pm 1\%$ of Span (Standard)
Dial Size	: 100mm (4"), 160mm (6")
Range	: Vacuum/Compound: -1 to 24 kg/cm ² Pressure : 0-1600 bar (Other custom ranges on request)
Process Conn. Location	: Direct Bottom & Lower Back
Process Conn. Size & Type	: $\frac{1}{4}$ " BSP (M), $\frac{1}{4}$ " NPT (M), $\frac{1}{2}$ " BSP (M), $\frac{1}{2}$ " NPT (M), M20 x 1.5 (M), (Other sizes on request)
Weld Joints	: TIG Argon Arc Welding
Ingress Protection	: IP68
Approvals	: ATEX: Conformity acc. to RL 2014/34/EU Article 13 paragraph 1 for mechanical equipment in potential hazardous areas II 2 GD Ex h T6 (Optional)

Pressure Limits

Steady Pressure	: Up to FSV
Fluctuating Pressure	: 0.9 x FSV
Over Range Pressure (Short Term)	: ≤ 100 bar: 1.3 x FSV ≥ 100 bar: 1.15 x FSV

Temperature Limits

Version	Ambient	Process
Dry	-40 to 65 °C	-40 to 200 °C
Glycerin filled	-20 to 65 °C	-20 to 100 °C
Silicone filled	-40 to 65 °C	-40 to 100 °C

Note: The variation of indication caused by the effect of temperature shall not exceed: $\pm 0.4\%$ / 10K FSV

APPLICATION

- Oil & Gas
- Chemical & Petrochemical
- Power Industries
- Nuclear power plants
- Specialized OEM equipment & Machine Building
- Fertilizer

MATERIAL OF CONSTRUCTION

Case & Bezel Ring	: SS 304 (Optional SS 316)
Bourdon Tube	: Wetted : SS 316 (Optional Monel 400)
Movement	: SS 304 (Optional SS 316)
Pointer	: Aluminum, Black colored Micrometer zero adjustable
Dial	: Aluminum, Black graduation on white background
Window	: Shatter proof safety (Optional: Toughened glass)
Window gasket & Blowout disk	: Neoprene

Case Filling (Optional)

The gauges can be filled with different kind of fill fluids. Available fill fluids are:

- Glycerin fluid (99.7%)
- Silicon fluid
- Other fill fluids can be offered on request

SPECIFICATIONS

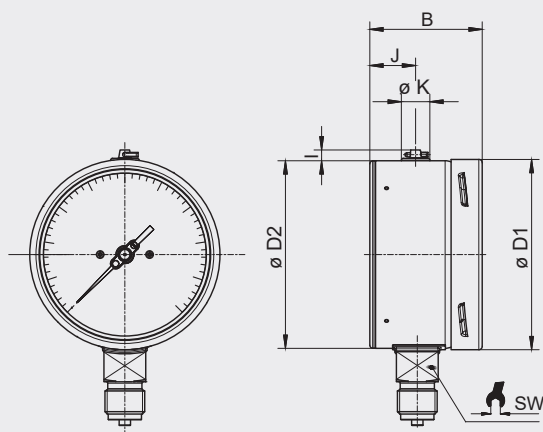
Calibration Certificate	: Gauges are factory calibrated to full range by default 5-Point Calibration Cert.
Material Certification	: Only For Wetted parts With Chemical Composition
NACE Compliance	: Available as per MR 01 75/ MR 01 03 (ISO 15156) for wetted parts (Optional)
Approvals	: ATEX: Conformity acc. to RL 2014/34/EU II 2 GD Ex h T6 (Optional)

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MODEL M1.02

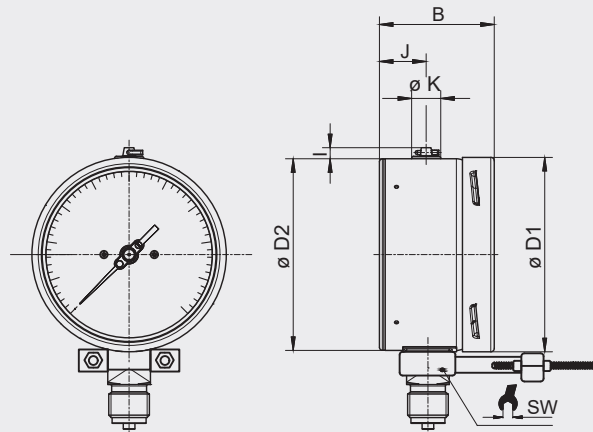
DIMENSIONAL DRAWINGS

Direct Bottom Connection - B



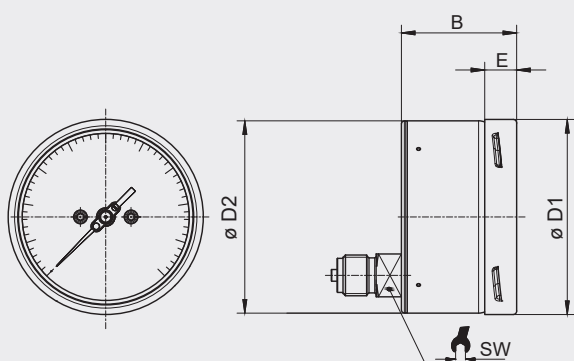
NS	Dimension in mm						
	B	ø D1	ø D2	I	J	K	SW
100	59.5	100	100	6	24	15	22
160	65	159	159	6	18.5	15	22

2" Pipe Mounting, Bottom Connection - BP



NS	Dimension in mm						
	B	ø D1	ø D2	I	J	K	SW
100	59.5	100	100	6	24	15	22
160	65	159	159	6	18.5	15	22

Direct Lower Back - L



NS	Dimension in mm							
	B	E	ø D1	ø D2	I	J	K	SW
100	59.5	17	101	100	6	24	15	22

Important Notes: Above drawings are not to scale. All Dimension are in mm.
 NS = Nominal size. Weights mentioned are approximate and for standard product.
 Weight can be different after selection of options.

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MODEL M1.02

TABLE-1 PRESSURE RANGE

bar		kg/cm2		psi		kPa		MPa	
Code	Range	Code	Range	Code	Range	Code	Range	Code	Range
CB015	-1...0.6	CG015	-1...0.6	HP37	-30Hg/15psi	CK015	-100...60	CM015	-0.1...0.06
CB024	-1...1.5	CG024	-1...1.5	HP39	-30HG/30psi	CK024	-100...150	CM024	-0.1...0.15
CB004	-1...3	CG004	-1...3	HP41	-30HG/60psi	CK004	-100...300	CM004	-0.1...0.3
CB006	-1...5	CG006	-1...5	HP44	-30HG/100psi	CK006	-100...500	CM006	-0.1...0.5
CB010	-1...9	CG010	-1...9	HP46	-30HG/150psi	CK010	-100...900	CM010	-0.1...0.9
CB016	-1...15	CG016	-1...15	HP50	-30HG/220psi	CK016	-100...1500	CM016	-0.1...1.5
CB025	-1...24	CG025	-1...24	HP53	-30HG/300psi	CK025	-100...2400	CM025	-0.1...2.4
CB001	-1...0	CG001	-1...0	PS010	0...10	CK001	-100...0	CM001	-0.1...0
CB000	-0.6...0	CG000	-0.6...0	PS015	0...15	CK000	-60...0	CM000	-0.06...0
BR000	0...0.6	KG000	0...0.6	PS030	0...30	KP000	0...60	MP000	0...0.06
BR01	0...1	KG01	0...1	PS060	0...60	KP01	0...100	MP01	0...0.1
BR015	0...1.6	KG015	0...1.6	PS100	0...100	KP015	0...160	MP015	0...0.16
BR024	0...2.5	KG024	0...2.5	PS160	0...160	KP024	0...250	MP024	0...0.25
BR004	0...4	KG004	0...4	PS200	0...200	KP004	0...400	MP004	0...0.4
BR006	0...6	KG006	0...6	PS300	0...300	KP006	0...600	MP006	0...0.6
BR010	0...10	KG010	0...10	PS400	0...400	KP010	0...1000	MP010	0...1
BR016	0...16	KG016	0...16	PS500	0...500	KP016	0...1600	MP016	0...1,6
BR025	0...25	KG025	0...25	PS600	0...600	KP025	0...2500	MP025	0...2,5
BR040	0...40	KG040	0...40	PS800	0...800	KP040	0...4000	MP040	0...4
BR060	0...60	KG060	0...60	PS110	0...1000	KP060	0...6000	MP060	0...6
BR100	0...100	KG100	0...100	PS150	0...1500	KP100	0...10000	MP100	0...10
BR160	0...160	KG160	0...160	PS120	0...2000	KP160	0...16000	MP160	0...16
BR250	0...250	KG250	0...250	PS130	0...3000	KP250	0...25000	MP250	0...25
BR400	0...400	KG400	0...400	PS140	0...4000	KP400	0...40000	MP400	0...40
BR600	0...600	KG600	0...600	PS150	0...5000	KP600	0...60000	MP600	0...60
BR610	0...1000	KG610	0...1000	PS170	0...6000	KP610	0...100000	MP610	0...100
BR620	0...1600	KG620	0...1600	PS210	0...10000	KP620	0...160000	MP620	0...160
				PS215	0...15000				
				PS220	0...20000				

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MODEL CODING & ORDERING INFORMATION

DESCRIPTION	CODE	M1.02	04	2	B	12NM	BR040	X20	S6	SL	SL	S6
Model												
SOLID FRONT PRESSURE GAUGE	M1.02	M1.02										
Dial Size												
100 mm (4")	04		04									
160 mm (6")	06											
Version												
Dry (But Fillable)	1											
Glycerin Filled	2			2								
Silicon Oil Filled	3											
Type of Mounting / Connection Orientation												
Direct Bottom Connection	B				B							
Direct Lower Back Connection	L											
2" Pipe Mounting - Direct Bottom Connection	BP											
Process Connection (Size and Type)												
1/2" NPT (M)	12NM					12NM						
1/2" BSP (M)	12BM											
1/4" BSP (M)	14BM											
1/4" NPT (M)	14NM											
3/8" BSP (M)	38BM											
3/8" NPT (M)	38NM											
M20X1.5(M)	M20M											
1" TC-(Autoclave Connection-For B Mounting only)	25TC											
1 1/2" TC-(Autoclave Connection-For B Mounting only)	38TC											
2" TC-(Autoclave Connection-For B Mounting only)	50TC											
Range												
To be selected from Table 1	XXXXX						BR040					
(Other Custom Ranges available on request)												
Other Options												
Bourdon and Socket in other Exotic Material	EXM											
Window in Toughened Glass	EXO											
Tag no Marking on Dial	XTM											
Over Range Protection 150% FSD	X10											
Wetted Parts Complied To NACE	X20							X20				
Custom Dial Design / Private Labeling	X29											
Accuracy Requirement -06%	XX5											
Quality Specific Requirement												
ATEX Conformity acc.to RL 2014/34/EU II 2 GD Ex h T6	XAT											
IBR Certification	X18											
Certificate for Oxygen Service	X21											
IGC Certificate	X79											
Leak Test Certificates	XLC											
DP Test for Socket and Case Welding	XDP											
Default Certification												
Callibration Certificates												
MTC for Wetted Parts												
DEFAULT SELECTION												
MOC SELECTION	DEFAULT											CODE
CASE AND RING	SS316L	S6	S6			SS304	S4					SL
BOURDON	SS316L	S6	SL			MONEL-400	M4	INCONEL-625	IC	HC-276	HC	SL
SOCKET	SS316L	S6	SL			MONEL-400	M4	INCONEL-625	IC	HC-276	HC	SL
MOVEMENT	SS316L	S6	S6			SS304	S4					SL

SAMPLE ORDERING CODE:

M1.02-04-2-B-12NM-BR040-X20-S6-SL-SL-S6

Note: Specifications and dimensions given in this product catalogue represents the state of engineering at the time of printing. Modifications may take place and material specified may be replaced by others without prior notice.

For Lower Back Connection maximum pressure range is only 1000 bar.