



PRESSURE GAUGES AND DIFFERENTIAL PRESSURE GAUGES



PRESSURE GAUGES

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This catalogue is only indicative; hence all technical details may not be appearing in this.
Any other specification not appearing in this catalogue also can be provided, for which you may contact our HO.

Bourdon Sensing Pressure Gauges

General

MODEL : BSPG (Dry Case)

LFBSPG (Liquid Filled Case)

Features

- Compliance to latest EN-837 standard
 - Range : (-) 1 to 1600 kg/cm²
 - Bourdon in SS316 Ti as standard providing better mechanical properties guaranteeing repeatability and accuracy
 - Accuracy $\pm 1\%$ FSD (Standard), $\pm 0.5\%$ FSD on request
 - Unit of measurement - kg/cm², bar, PSI, kPa, MPa
-
- Pressure Gauges intended for Process Industries such as Chemicals, Petro-chemicals, Energy or Gas industry, Food processing, Nuclear etc.
 - These pressure gauges have been designed to satisfy requirements to operate in aggressive environment.



Specifications

Ref. Standard	EN-837
Dial	100 mm / 150 mm in Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel Phenol with screwed bezel
Protection	IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Bourdon	SS316, SS316 Ti, SS316L, Monel
Socket	22mm Square in SS316, SS316 Ti, SS316L, Monel
Movement	SS304, SS316
Range	As per EN 837 (refer table 1) minimum span 0.6 kg/cm ² , maximum 1600 kg/cm ²
Connection	1/2" NPT (M) as standard (other optional)
Accuracy	$\pm 1\%$ F SD (0.5% on request)
Over range	As per EN 837
Suitability	(-) 20°C to 80°C (service temperature)
Zero adjustment	Micrometer Pointer
Blow out disc	Provided (on top)
Optional	IBR certification Maxima pointer NACE compliance External Knob for zero setting Built in Snubber Built in Gauge Saver Liquid filled Case (SS case only) Vacuum Protection

Table 1

Gauge	Bar, kg/cm ²	Least count
Vacuum	(-)1 to 0	0.02
Compound	(-)1 to 0.6	0.05
	(-)1 to 1.5	0.05
	(-)1 to 3	0.10
	(-)1 to 5	0.10
	(-)1 to 9	0.20
Pressure Gauge ('C' shaped Bourdon)	(-)1 to 15	0.50
	(-)1 to 24	0.50
	(-)1 to 39	1.0
	0 to 0.6	0.01
	0 to 1	0.02
	0 to 1.6	0.05
	0 to 2.5	0.05
	0 to 4	0.10
	0 to 6	0.10
	0 to 10	0.20
	0 to 16	0.50
	0 to 25	0.50
	0 to 40	1.0
	0 to 60	1.0
	0 to 100	2.0
Pressure Gauge	0 to 160	5.0
Coil type Bourdon	0 to 250	5.0
	0 to 400	10.0
	0 to 600	10.0
	0 to 800	20.0
	0 to 1000	20.0
	0 to 1600	50.0

For range other than above please contact our design dept.

Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

MODEL : BSPG / LFBSPG

MODEL : BSPG / LFBSPG																																																													
MOUNTING		DIAL		CASE		BOURDON		SOCKET		MOVEMENT		CONNECTION		OPTION		UNIT		RANGE																																											
V Bottom Entry, Local Mounting C Back Entry, Local Mounting S Bottom Entry, Surface Mounting P Back Entry, Flush Panel Mounting (with front Flange having 3 holes) B Back Entry, Flush Panel Mounting (with Bracket from back side) Y Bottom Entry, 2" Pipe Mounting		10 - 100 mm 15 - 150 mm		PH Phenol S4 SS304 S6 SS316		S SS316 L SS316L M Monel T SS316Ti		S SS316 L SS316L M Monel T SS316Ti		4 - SS304 6 - SS316		<table border="1"> <thead> <tr> <th>SIZE</th> <th>TYPE</th> <th>MALE / FEMALE</th> <th>METRIC THREADS</th> </tr> </thead> <tbody> <tr> <td>6 1/4"</td> <td>NT NPT</td> <td>M Male</td> <td>18 M - M 18 x 1.5</td> </tr> <tr> <td>10 3/8"</td> <td>BP BSP</td> <td>F Female</td> <td>20 M - M 20 x 1.5</td> </tr> <tr> <td>15 1/2"</td> <td>BT BSPT</td> <td></td> <td>24 M - M 24 x 1.5</td> </tr> <tr> <td>20 3/4"</td> <td>PF PF</td> <td></td> <td>27 M - M 27 x 2</td> </tr> <tr> <td>25 1"</td> <td>GS Gas</td> <td></td> <td>33 M - M 33 x 2</td> </tr> <tr> <td>32 1.1/4"</td> <td>NS NPS</td> <td></td> <td>XX - Any other</td> </tr> <tr> <td>40 1.1/2"</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		SIZE	TYPE	MALE / FEMALE	METRIC THREADS	6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5	10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5	15 1/2"	BT BSPT		24 M - M 24 x 1.5	20 3/4"	PF PF		27 M - M 27 x 2	25 1"	GS Gas		33 M - M 33 x 2	32 1.1/4"	NS NPS		XX - Any other	40 1.1/2"				A +/- 0.5% Accuracy C Colour band CE CE Certificate D Dual Scale E External Zero reset (for S4 and S6 case) F Flanged process connection ** G Glycerine Filled Case I IBR L Nil M Maxima Pointer N NACE O O ₂ Cleaning R 150% over range S Silicone Oil Filled Case BB Back Blow out Disk BS Built in Snubber BG Built in Gauge Saver VP Vacuum Protection SD SS Dial PD Phenolic Dial U Chemical Seal Unit-Refer Catalogue CSU X Accessory - Refer Catalogue ACC		A kg/cm ² (g) B Bar(g) C PSI(g) D kPa(g) E mmHg(g) H MPa(g) X Please Specify		Refer Table 1											
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** For Flanged Process Connection refer the table (mentioned separately)

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Gauges with External Zero Adjustment (Pressure Gauges and Diff. Pressure Gauges)



MODEL : Applicable for all Models, where code “E” is specified in Option column

Features

Generally Pressure Gauges and Differential Pressure Gauges are provided with Micrometer type Pointer, by which zero can be adjusted after opening the Bezel & Glass. However for Gauges with Liquid (Glycerine/ Silicone Oil) filled Case, this arrangement is practically not suitable, since the filling liquid has to be drained before opening the Bezel & Glass. After doing the zero adjustment, the Bezel & Glass has to be re-assembled and again the Case has to be filled with Liquid.

In order to overcome this difficulty, General Instruments Consortium has developed a unique design of External Zero Adjustment. By this arrangement, zero can be adjusted without draining the Glycerine, without opening the Bezel, without Removing the Glass & without touching the Pointer, just by rotating a knob provided out side the Gauge. This arrangement is highly recommended from the maintenance view, especially for Liquid filled Gauges.

Please refer the photograph of Pressure Gauge and DP Gauge shown below, which shows the External Knob for zero adjustment



Ordering Information

Ordering Information (Model Code) shall be same as the respective Model Codes, except additional code “E” for External knob for zero re-setting

Safety Pattern - Solid Front Pr. Gauges

General

MODEL : SFBSPG (Dry Case)

LFSFBSPG (Liquid Filled Case)

Features

- Safety pattern
- All SS construction
These Pressure Gauges are well suited for the Process Industries such as Chemicals, Petro-chemicals, Energy or Gas industry, Food processing, Nuclear etc.
- These version have been developed with solid baffle wall and blow out back which immediately releases in the event of accidental tube rupture.



Specifications

Ref. standard	EN 837
Dial	100 mm /150 mm, Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	Weatherproof to IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Bourdon	SS316, SS316 Ti, SS316L, Monel
Socket	22 mm Square in SS 316, SS316L, SS316 Ti, Monel
Movement	SS304, SS316
Range	As per EN 837 (refer table-1) minimum span 0.6 kg/cm ² , maximum 1600 kg/cm ²
Accuracy	± 1% FSD (0.5% on request)
Over range	As per EN 837
Suitability	(-) 20°C to 80°C (service temperature)
Zero adjustment	Micrometer Pointer
Blow out disc	Provided at back of Case
Optional	NACE compliance Liquid filled case External Knob for zero setting IBR Certification Vacuum Protection

Table 1

Gauge	Bar, kg/cm ²	Least count
Vacuum	(-)1 to 0	0.02
Compound	(-)1 to 0.6	0.05
	(-)1 to 1.5	0.05
	(-)1 to 3	0.10
	(-) 1 to 5	0.10
	(-)1 to 9	0.20
	(-)1 to 15	0.50
Pressure Gauge ('C' shaped Bourdon)	(-)1 to 24	0.50
	(-)1 to 39	1.0
	0 to 0.6	0.01
	0 to 1	0.02
	0 to 1.6	0.05
	0 to 2.5	0.05
	0 to 4	0.10
	0 to 6	0.10
	0 to 10	0.20
	0 to 16	0.50
	0 to 25	0.50
	0 to 40	1.0
	0 to 60	1.0
	0 to 100	2.0
	0 to 160	5.0
	0 to 250	5.0
Coil type Bourdon	0 to 400	10.0
	0 to 600	10.0
	0 to 800	20.0
	0 to 1000	20.0
	0 to 1600	50.0

For range other than above please contact our design dept.

Ordering Information

MODEL : SFBSPG / LFSFBSPG

MOUNTING				DIAL				CASE				BOURDON				SOCKET				MOVEMENT				CONNECTION				OPTION				UNIT				RANGE																																			
V Bottom Entry, Local Mounting C Back Entry, Local Mounting S Bottom Entry, Surface Mounting P Back Entry, Flush Panel Mounting Y Bottom Entry, 2" Pipe Mounting				10 - 100 mm 15 - 150 mm				S4 SS304 S6 SS316				S SS316 L SS316L M Monel T SS316Ti				S SS316 L SS316L M Monel T SS316Ti				4 - SS304 6 - SS316				<table border="1"> <thead> <tr> <th>SIZE</th> <th>TYPE</th> <th>MALE / FEMALE</th> <th>METRIC THREADS</th> </tr> </thead> <tbody> <tr> <td>6 1/4"</td> <td>NT NPT</td> <td>M Male</td> <td>18 M - M 18 x 1.5</td> </tr> <tr> <td>10 3/8"</td> <td>BP BSP</td> <td>F Female</td> <td>20 M - M 20 x 1.5</td> </tr> <tr> <td>15 1/2"</td> <td>BT BSPT</td> <td></td> <td>24 M - M 24 x 1.5</td> </tr> <tr> <td>20 3/4"</td> <td>PF PF</td> <td></td> <td>27 M - M 27 x 2</td> </tr> <tr> <td>25 1"</td> <td>GS Gas</td> <td></td> <td>33 M - M 33 x 2</td> </tr> <tr> <td>32 1.1/4"</td> <td>NS NPS</td> <td></td> <td>XX - Any other</td> </tr> <tr> <td>40 1.1/2"</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				SIZE	TYPE	MALE / FEMALE	METRIC THREADS	6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5	10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5	15 1/2"	BT BSPT		24 M - M 24 x 1.5	20 3/4"	PF PF		27 M - M 27 x 2	25 1"	GS Gas		33 M - M 33 x 2	32 1.1/4"	NS NPS		XX - Any other	40 1.1/2"				A +/- 0.5% Accuracy C Colour band CE CE Certificate D Dual Scale E External Zero reset F Flanged process connection ** G Glycerine Filled Case I IBR L Nil M Maxima Pointer N NACE O O ₂ Cleaning R 150% over range S Silicon oil Filled Case BS Built in Snubber BG Built in Gauge Saver VP Vacuum Protection SD SS Dial PD Phenolic Dial U Chemical Seal Unit-Refer Catalogue CSU X Accessory - Refer Catalogue ACC				A kg/cm ² (g) B Bar(g) C PSI(g) D kPa(g) E mmHg(g) H MPa(g) X Please Specify				Specify from Table 1			
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** For Flanged Process Connection refer the table (mentioned separately)

* For surface mounting, min 20 mm gap is recommended between Surface and Gauge

F - FLANGED PROCESS CONNECTION **					
Size	Code	Rating	Code	Facing	Code
1/2"	15	150#	A	RF	RF
3/4"	20	300#	B	FF	FF
1"	25	600#	C	RTJ	RTJ
1 1/2"	40	900#	D	LT	LT
2"	50	1500#	E	LG	LG
3"	80	2500#	F		

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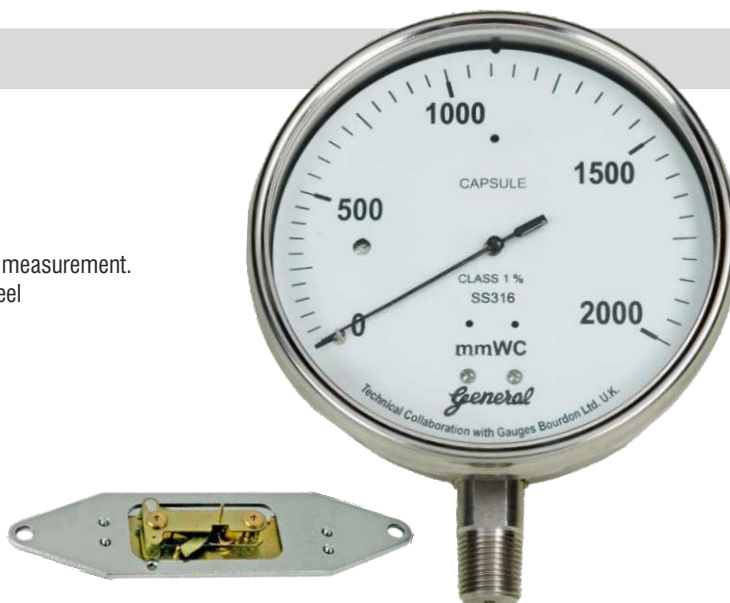
Capsule Sensing Pressure Gauges

General

MODEL : CSPG

Features

- Low range with high accuracy
- All SS internals
- Accuracy $\pm 1\%$ FSD
- Compact design avoids use of bulky manometers
- Ingress protection class IP-68
- These Pressure Gauges are well suited for low pressure measurement.
- The sensing Element Capsule, is made of 2 Stainless Steel Laser-welded Diaphragms.



Specifications

Ref. standard	EN 837
Dial	100 mm /150 mm, Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Pointer	Light weight, balanced, aluminium
Capsule	SS316 / SS316L (made of two diaphragms laser-welded)
Socket	SS316 / SS316L
Movement	Fine
Connection	1/2"NPT (M) as standard (other optional)
Range	Refer table- 2
Accuracy	$\pm 1\%$ FSD
Over range	110% FSD Standard, Other on request
Zero reset	Provided
Blow out disc	Provided (on top)
Optional	NACE Compliance

Table 2

Range in mm WC

0-60
0-100
0-160
0-250
0-400
0-500
0-600
0-750
0-1000
0-1600
0-2000
0-2500
0-4000
0-6000
(-)25 to (+)25
(-)40 to (+)60
(-)200 to (+)200
(-)100 to (+)100

Special combination for compound ranges available, within the above span

Ordering Information

MODEL : CSPG

MOUNTING				DIAL				CASE				CAPSULE				SOCKET				CONNECTION				OPTION				UNIT				RANGE																																			
V	Bottom Entry, Local Mounting	C	Back Entry, Local Mounting	S	Bottom Entry, Surface Mounting	P	Back Entry, Flush Panel Mounting	Y	Bottom Entry, 2" Pipe Mounting	10 - 100 mm	15 - 150 mm	S4	SS304	S6	SS316	S	SS316	L	SS316L	S	SS316	L	SS316L	SIZE	TYPE	MALE / FEMALE	METRIC THREADS	C	Colour band	CE	CE Certificate	D	Dual Scale	E	External zero reset	L	Nil	N	NACE	O	O ₂ Cleaning	SF	Solid Front Case	BB	Back Blow out Disc	X	Accessory - Refer Catalogue ACC	A	kg/cm ² (g)	B	Bar(g)	C	PSI(g)	D	kPa(g)	E	mmHg(g)	F	mmWC(g)	G	mBar(g)	X	Please Specify	Refer Table 2			

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Diaphragm Sensing Pressure Gauges

General

MODEL : DSPG (Dry Case)

LFDSPG (Liquid Filled Case)

Features

- Compliance to latest EN-837 standard
- Range : (-) 10000 to (+)10000 mmWC
- All SS internals
- Special design with built in Gauges saver also available



Specifications

Ref. Standard	EN-837
Dial	100 mm / 150 mm in Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Top Chamber	SS304/SS316
Diaphragm	SS316, PTFE lined SS316 (other material optional)
Bottom flange	SS304/SS316, SS316 + PTFE Block, PTFE lined SS316 (other material optional)
Connection	1/2" NPT (M) or flanged (specify size & rating)
Range	Refer table - 3
Accuracy	±2% FSD (1.6% FSD on request)
Over range	As per EN 837
Zero adjustment	Micrometer pointer
Blow out disc	Provided
Optional	1) Flushing connection on the bottom chamber to facilitate cleaning 2) Liquid Filled Case 3) Solid Front Case 4) Special Construction to withstand high design pressure (Built in Gauge Saver) 5) Built in Snubber 6) External Knob for zero setting
Note	1) PTFE block construction possible in flange connection alone. 2) PTFE moulded I sections for flanged connections

Table 3

0-250 mm WC	(-) 250 to 0 mm WC
0-400 mm WC	(-) 400 to 0 mm WC
0-600 mm WC	(-) 600 to 0 mm WC
0-1000 mm WC	(-) 1000 to 0 mm WC
0-1600 mm WC	(-) 1600 to 0 mm WC
0-2500 mm WC	(-) 2500 to 0 mm WC
0-4000 mm WC	(-) 4000 to 0 mm WC
0-6000 mm WC	(-) 6000 to 0 mm WC
0-1.0 Bar or 0-10000 mm WC	(-) 10000 to 0 mmWC
Special combination for compound ranges available, within the above span	

Ordering Information

MODEL : DSPG / LFDSPG

MOUNTING					DIAL					CASE					TOP CHAMBER					DIAPHRAGM					BOTTOM CHAMBER / FLANGE					OPTION					UNIT					RANGE				
V Bottom Entry, Local Mounting S Bottom Entry, Surface Mounting Y 2" Pipe Mounting V/SF Bottom Entry, Local Mounting with solid front case S/SF Bottom Entry, Surface Mounting with solid front case Y/SF Bottom Entry, 2" Pipe Mounting with solid front case					10 - 100 mm 15 - 150 mm					S4 SS304 S6 SS316					S4 SS304 S6 SS316					S6 SS316 HB Hastelloy B SL SS316L HC Hastelloy C ST SS316Ti TI Titanium SP SS316+PTFE NI Nickel M4 Monel 400 TA Tantalum I6 Inconel 600 I5 Inconel 625 XX Others (Please Specify)					S6 SS316 M4 Monel 400 SL SS316L HB Hastelloy B ST SS316Ti HC Hastelloy C SP SS316+PTFE TI Titanium I6 Inconel 600 NI Nickel I5 Inconel 625 XX Others (Please Specify)					A +/- 1.6% Accuracy C Colour band CE CE Certificate D Dual Scale E External Zero reset FC flushing connection # G Glycerine Filled Case L Nil N NACE O O ₂ Cleaning S Silicon Oil Filled Case BB Back Blow out Disc BS Built in Snubber BG Built in Gauge Saver VP Vacuum Protection SD SS Dial PD Phenolic Dial X Accessory - Refer Catalogue ACC					A kg/cm ² (g) B Bar(g) C PSI(g) D kPa(g) E mmHg(g) F mmWC(g) G mBar(g) X Please Specify					Refer Table 3				

THREADED CONNECTION					FLANGED PROCESS CONNECTION					
SIZE	TYPE	MALE / FEMALE	METRIC THREADS		Size	Code	Rating	Code	Facing	Code
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5		1/2"	15	150#	A	RF	RF
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5		3/4"	20	300#	B	FF	FF
15 1/2"	BT BSPT		24 M - M 24 x 1.5		1"	25	600#	C	RTJ	RTJ
20 3/4"	PF PF		27 M - M 27 x 2		1 1/2"	40	900#	D	LT	LT
25 1"	GS Gas		33 M - M 33 x 2		2"	50	1500#	E	LG	LG
32 1.1/4"	NS NPS		X X - Any other		3"	80	2500#	F		
40 1.1/2"										

Please confirm the size for the flushing connection

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Bourdon Sensing Pr. Gauges - 250mm

General

MODEL : BSPG25 (Dry Case)

LFBSPG25 (Liquid Filled Case)

Features

- Compliance to latest EN-837 standard
- Range : (-) 1 to 1600 kg/cm²
- Bourdon in SS316 Ti as standard providing better mechanical properties guaranteeing repeatability and accuracy
- Accuracy $\pm 1\%$ FSD (Standard), $\pm 0.5\%$ FSD on request
- Unit of measurement - kg/cm², bar, PSI, kPa, MPa



Specifications

Ref. Standard	EN-837
Dial	250 mm in Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	IP-67 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Bourdon	SS316, SS316 Ti, SS316L, Monel
Socket	22mm Square in SS316, SS316 Ti, SS316L, Monel
Movement	SS304, SS316
Range	As per EN 837 (refer table 1) minimum span 0.6 kg/cm ² , maximum 1600 kg/cm ²
Connection	1/2" NPT (M) as standard (other optional)
Accuracy	$\pm 1.0\%$ FSD standard ($\pm 0.5\%$ FSD on request)
Over range	As per EN 837
Suitability	(-) 20°C to 80°C (service temperature)
Zero adjustment	Micrometer Pointer
Blow out disc	Provided (on top)
Optional	IBR certification NACE compliance Liquid Filled Case External Knob for zero setting Vacuum Protection

Table 1

Gauge	Bar, kg/cm ²	Least count
Vacuum	(-)1 to 0	0.02
Compound	(-)1 to 0.6	0.05
	(-)1 to 1.5	0.05
	(-)1 to 3	0.10
	(-) 1 to 5	0.10
	(-)1 to 9	0.20
	(-)1 to 15	0.50
	(-)1 to 24	0.50
Pressure Gauge (‘C’ shaped Bourdon)	(-)1 to 39	1.0
	0 to 0.6	0.01
	0 to 1	0.02
	0 to 1.6	0.05
	0 to 2.5	0.05
	0 to 4	0.10
	0 to 6	0.10
	0 to 10	0.20
	0 to 16	0.50
	0 to 25	0.50
	0 to 40	1.0
	0 to 60	1.0
	0 to 100	2.0
	0 to 160	5.0
	0 to 250	5.0
Coil type Bourdon	0 to 400	10.0
	0 to 600	10.0
	0 to 800	20.0
	0 to 1000	20.0
	0 to 1600	50.0

For range other than above please contact our design dept.

Ordering Information

MODEL : BSPG25 / LFBSPG25

The diagram shows a central vertical line with eight horizontal branches leading to various specification boxes. The boxes are arranged as follows:

- MOUNTING**
 - V Bottom Entry, Local Mounting
 - C Back Entry, Local Mounting
 - S Bottom Entry, Surface Mounting
 - P Back Entry, Flush Panel Mounting
 - Y Bottom Entry, 2" Pipe Mounting
- CASE**
 - S4 SS304
 - S6 SS316
- BOURDON**
 - S SS316
 - L SS316L
 - M Monel
 - T SS316Ti
- SOCKET**
 - S SS316
 - L SS316L
 - M Monel
 - T SS316Ti
- MOVEMENT**
 - 4 - SS304
 - 6 - SS316
- CONNECTION**

SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
32 1.1/4"	NS NPS		XX - Any other
40 1.1/2"			
- OPTION**
 - A +/- 0.5% Accuracy
 - C Colour band
 - CE CE Certificate
 - D Dual Scale
 - E External Zero reset
 - F Flanged process connection **
 - G Glycerine Filled Case
 - I IBR
 - L Nil
 - N NACE
 - O O₂ Cleaning
 - R 150% over range
 - S Silicon Oil Filled Case
 - BB Back Blow out Disc
 - SF Solid Front Case
 - VP Vacuum Protection
 - U Chemical Seal Unit-Refer Catalogue CSU
 - X Accessory - Refer Catalogue ACC
- UNIT**
 - A kg/cm²(g)
 - B Bar(g)
 - C PSI(g)
 - D kPa(g)
 - E mmHg(g)
 - H MPa(g)
 - X Please Specify
- RANGE**

Refer Table 1
- F - FLANGED PROCESS CONNECTION ****

Size	Code	Rating	Code	Facing	Code
1/2"	15	150#	A	RF	RF
3/4"	20	300#	B	FF	FF
1"	25	600#	C	RTJ	RTJ
1 1/2"	40	900#	D	LT	LT
2"	50	1500#	E	LG	LG
3"	80	2500#	F		

** For Flanged Process Connection refer the table (mentioned separately)

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Receiver Gauges

General

MODEL : RG

Features

- Suitable for receiving pneumatic signals of level and flow transmitters
- Compliance to latest EN-837 standard
- Input Range : 0.2 to 1 kg/cm² or 3 to 15 psi
- Accuracy $\pm 1\%$ FSD (Standard), $\pm 0.5\%$ FSD on request

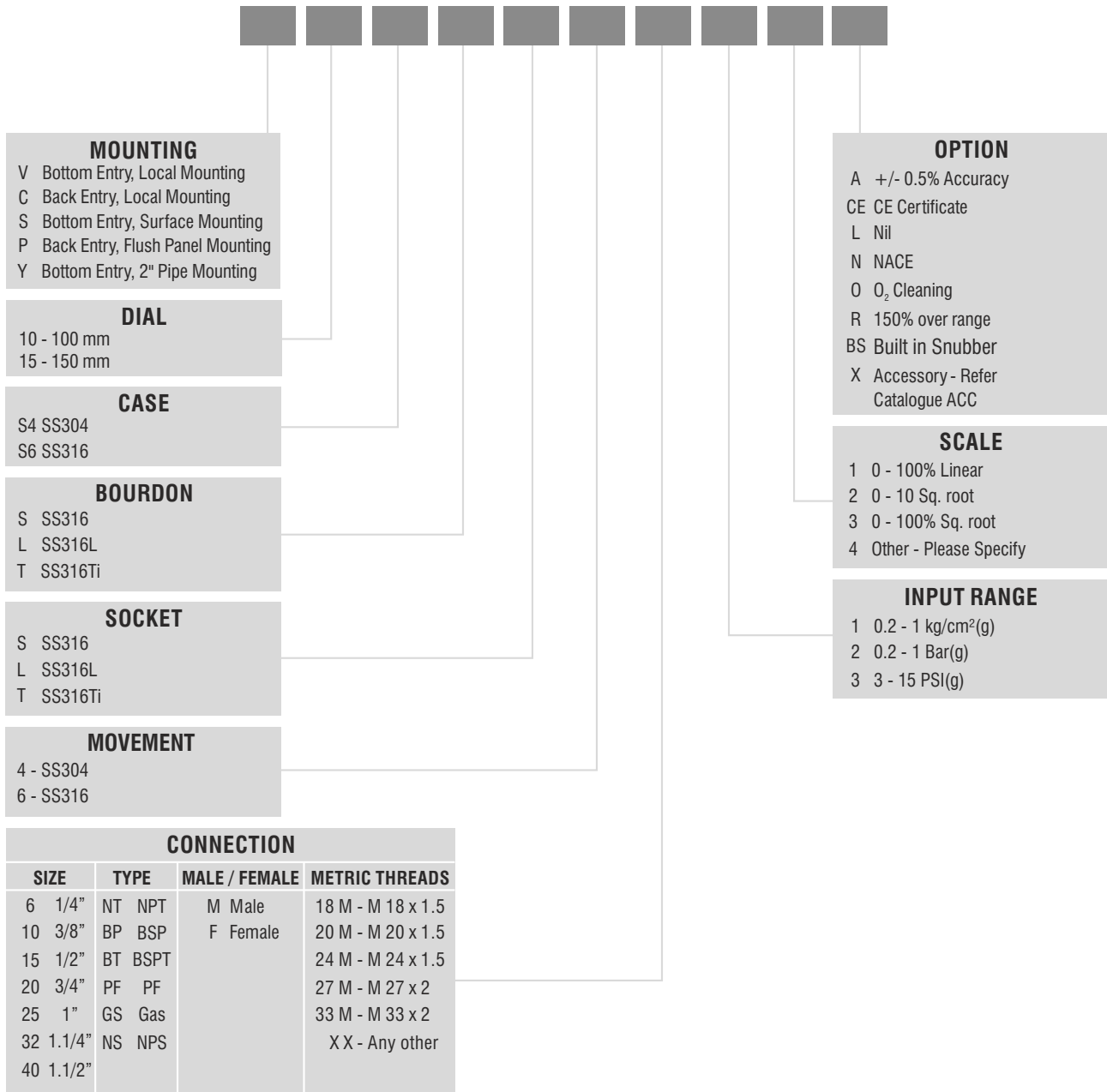


Specifications

Ref. Standard	EN-837
Dial	100 mm / 150 mm in Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Bourdon	SS316, SS316 Ti, SS316L
Socket	22mm Square in SS316, SS316 Ti, SS316L
Movement	SS304, SS316
Input Range	0.2 to 1 kg/cm ² or 3 to 15 PSI
Scale	0 - 100% Linear or 0 - 10 Sq. root or 0 - 100% Sq. root
Connection	1/2" NPT (M) as standard (other optional)
Accuracy	$\pm 1.0\%$ FSD standard ($\pm 0.5\%$ FSD on request)
Over range	As per EN 837
Suitability	(-) 20°C to 80°C (service temperature)
Zero adjustment	Micrometer Pointer
Blow out disc	Provided (on top)
Optional	NACE Compliance

Ordering Information

MODEL : RG



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Absolute Pressure Gauges

General

MODEL : APG

Why Absolute Pressure Gauge?

The atmospheric pressure varies from place to place depending up on the altitude of the location and prevailing weather conditions. In such variable conditions, precise pressure measurement can be arrived only if a fixed (un-changing) reference point is established.

For this purpose we have developed element of Twin Bellows, one of the same is totally evacuated and sealed, which shall be the reference point for calibration i.e. Absolute Zero. These twin bellows are connected through a special type of movement, by which any change in the atmospheric pressure is compensated, and thereby the gauge gives the absolute pressure irrespective of the location.



Features

- Compliance to latest EN-837 standard
- Range : 0-1kg/cm²(a) / 0-1Bar(a) / 0-760 mmHg(a)
- Bellow in SS316 as standard providing better mechanical properties guaranteeing repeatability and accuracy
- Accuracy $\pm 1\%$ FSD

Specifications

Ref. Standard	EN-837
Dial	150 mm in Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Sensor	Bellow in SS316 / SS316L
Socket	22mm Square in SS316 / SS316L
Movement	SS304, SS316
Connection	1/2" NPT (M) as standard (other optional)
Accuracy	$\pm 1\%$ FSD
Over range	As per EN 837
Suitability	(-) 20°C to 80°C (service temperature)
Zero adjustment	Micrometer Pointer
Optional	NACE compliance

Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

MODEL : APG

MOUNTING				DIAL				CASE				BELLOW				SOCKET				MOVEMENT				CONNECTION				OPTION				RANGE / UNIT										
V	Bottom Entry, Local Mounting	C	Back Entry, Local Mounting	S	Bottom Entry, Surface Mounting	P	Back Entry, Flush Panel Mounting	Y	Bottom Entry, 2" Pipe Mounting	15	150	mm	S4	SS304	S6	SS316	S	SS316	L	SS316L	S	SS316	L	SS316L	4	SS304	6	SS316	D	Dual Scale	N	NACE	X	Accessory - Refer Catalogue ACC	1	0 to 1 kg/cm ² (g)	2	0 to 1 Bar(g)	3	0 to 760 mmHg(g)	4	Please Specify

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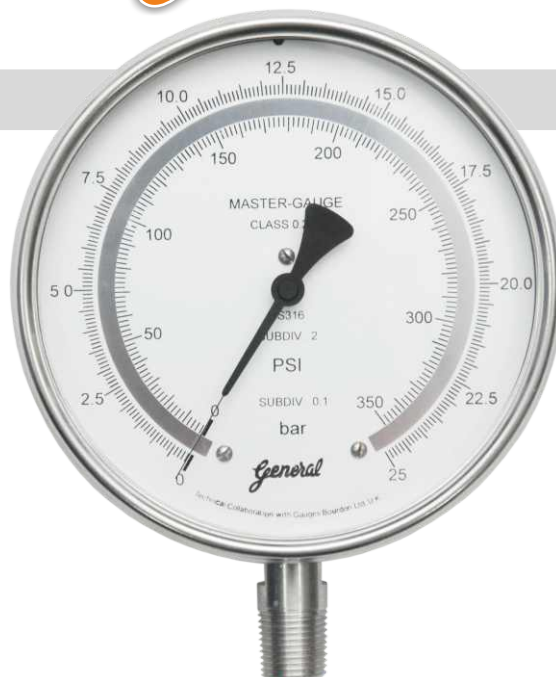
Master Pressure Gauges

General

MODEL : MPG

Features

- Accuracy class $\pm 0.25\%$ FSD
- Rugged construction
- 1.2 fold over range capability for short duration
- Traceability to National/International Standard / Laboratory
- Special carrying case (Wooden Box) with each Gauge



Specifications

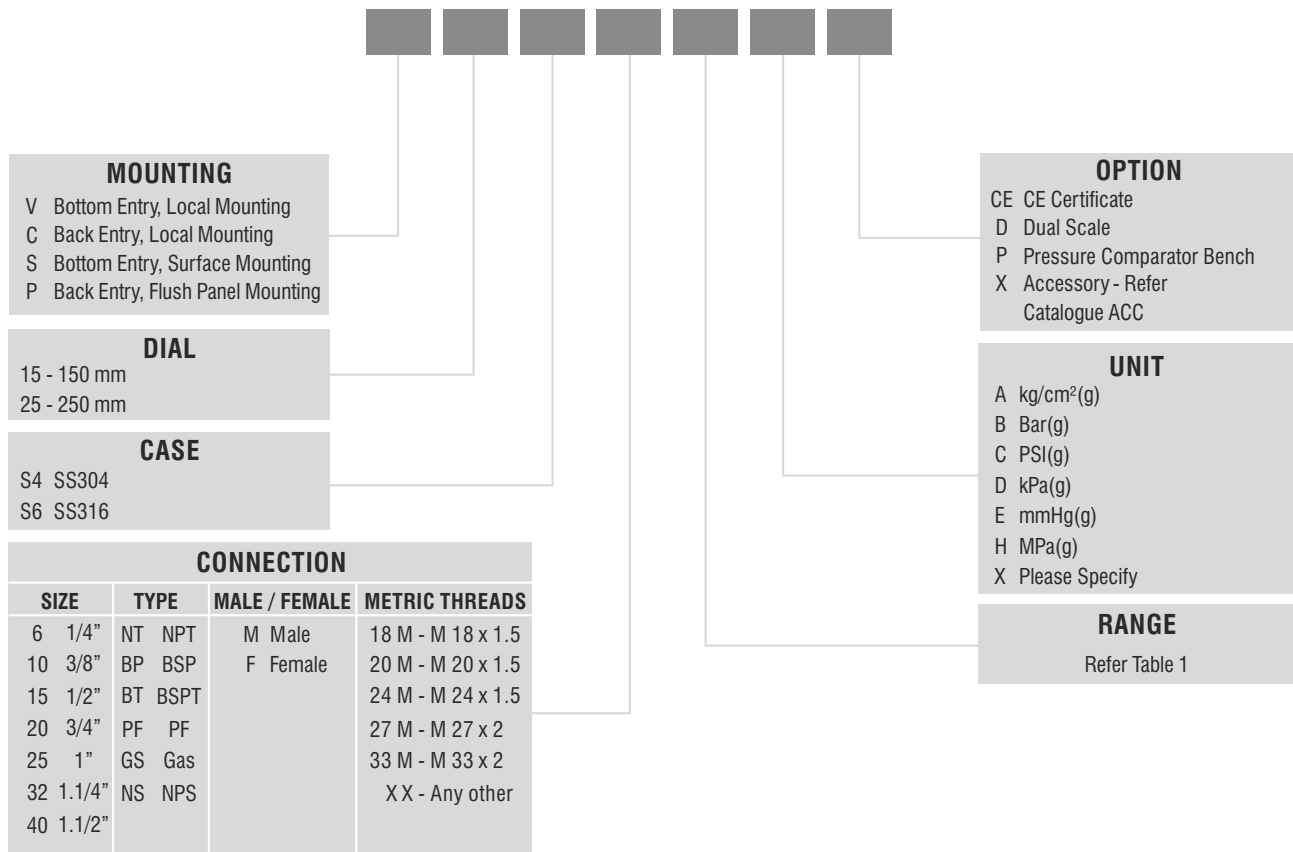
Table 1

Ref. Standard	EN 837
Normal size	150 mm / 250 mm
Case & Bezel	SS304 / SS316
Dial	Anti parallax mirror type, white, with black markings.
Window	Instrument glass
Pointer	Balanced knife edge
Measuring element	Bourdon in SS316 Ti
Movement	Precision brass, jewel bearings
Connection	1/2" NPT (M), bottom or back eccentric in SS316
Range	760 mm Hg Vac upto 600 bar g (Refer table -1)
Scale	Bar(g), kg/cm2(g), PSI(g)
Accuracy	$\pm 0.25\%$ FSD
Over range	1.2 times maximum rating for short duration
Suitability	Media up to 50°C ambient (-) 25°C to 60°C
Option	Pressure Comparator Pressure Comparator consists of a hand operated Screw Pump, Reservoir for filling the System, Shut-off / Relieve Valves. Fluid Pressure is generated by operating the Screw Pump; and the pressure is made available at two test ports - one for Master Gauge and the other for the Gauge under Test. After testing the pressure is released using Relief Valve. It is easy to operate and provides maintenance free operation.

Range	least Count	
Bar, kg/cm2	150 mm	250 mm
(-)1 to 0	0.005	0.005
(-)1 to 0.6	0.01	0.005
(-)1 to 1.5	0.02	0.01
(-)1 to 3	0.02	0.02
(-) 1 to 5	0.05	0.02
(-)1 to 9	0.05	0.05
(-)1 to 15	0.1	0.05
(-)1 to 24	0.2	0.1
(-)1 to 39	0.2	0.2
0 to 1	0.005	0.005
0 to 1.6	0.01	0.005
0 to 2.5	0.02	0.01
0 to 4	0.02	0.02
0 to 6	0.05	0.02
0 to 10	0.05	0.05
0 to 16	0.1	0.05
0 to 25	0.2	0.1
0 to 40	0.2	0.2
0 to 60	0.5	0.2
0 to 100	0.5	0.5
0 to 160	1.0	0.5
0 to 250	2.0	1.0
0 to 400	2.0	2.0
0 to 600	5.0	2.0

Ordering Information

MODEL : MPG



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Indicating Pressure Switches

General

MODEL : IPSH

Features

- Combination of indication and switching
- Choice of electrical contacts and microswitch
- One or two contacts possible
- Switch setting throughout the range externally
- High repeatability and low hysteresis
- Weatherproof or Flameproof housing
- Mil connector provided optionally.



Specifications

Dial	100 mm / 150 mm, aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel (Weatherproof) Die Cast Aluminium (Flameproof)
Protection	Weatherproof to IP - 68 (IS:13947 part I / IEC:60529) Flameproof to IIA, IIB (equivalent to NEC Cl. 1, Div. 2, Gr. C & D)
Window	Safety glass
Bourdon	SS316, SS316 Ti, SS316L, Monel
Socket	22 mm Square in SS 316, SS316L, SS316 Ti, Monel
Movement	Brass / SS304 / SS316
Connection	1/2" NPT (M) as standard (other optional)
Range	(-)1 to 1600 kg /cm2 minimum span of 4 kg/cm2 (only standard ranges as mentioned under table 6)
Accuracy	± 1% FSD for indication ± 2% FSD for switching
Over range	As per EN 837
Blow out disc	Provided
Zero reset	Provided (Micrometer Pointer)
Contacts	1SPST, single, normally open, closing on rise in pressure or vice versa, rated 30VA @ 230V AC 2 SPST, two contacts, independently adjustable, one normally open, other normally closed or both normally open or both normally closed, rated 30VA @ 230V AC 1SPDT, single microswitch, adjustable over entire range, rated 5 amp @ 230V AC (3A @ 28 VDC) 2SPDT, double microswitch, independently adjustable over entire range, rated 5 amp @ 230V AC (3A @ 28 VDC)
Optional	Relay for the contact assembly to suit 5 amp @ 230V AC, separately mounted.

Table 6

Gauge	Bar, kg/cm2	Least count
Compound	(-)1 to 3	0.10
	(-) 1 to 5	0.10
	(-)1 to 9	0.20
	(-)1 to 15	0.50
	(-)1 to 24	0.50
	(-)1 to 39	1.0
Pressure	0 to 4	0.10
Gauge	0 to 6	0.10
('C' shaped Bourdon)	0 to 10	0.20
	0 to 16	0.50
	0 to 25	0.50
	0 to 40	1.0
	0 to 60	1.0
	0 to 100	2.0
Pressure	0 to 160	5.0
Gauge	0 to 250	5.0
Coil type	0 to 400	10.0
Bourdon	0 to 600	10.0
	0 to 800	20.0
	0 to 1000	20.0
	0 to 1600	50.0

For range other than above please contact our design dept.

Benefits of Microswitch type over contact assembly

- Microswitch is rated 5 amp @ 230 VAC (3A @ 28 VDC). Hence use of relay is not required
- Microswitch offered as a combination of movement and switch is procured from Internationally reputed vendor.
- Microswitch assembly provides better switching accuracy and repeatability
- Compact design.

Notes

- 1) Electrical contact assembly is not offered in flameproof version.
- 2) Flameproof version available only in diecast aluminium case.
- 3) Flameproof version available with bottom entry surface mounting only
- 4) Pressure switch can also be offered with chemical seal in weatherproof and flameproof cases.
- 5) Surface mounted flameproof housing with chemical seal pressure gauge is available with capillary.
- 6) Blow out disc not applicable for flameproof case

Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

MODEL : IPSH

ENCLOSURE				MOUNTING				DIAL		CASE		BOURDON		SOCKET		MOVEMENT		CONNECTION				OPTION						UNIT		RANGE																																	
W Weatherproof F Flameproof				V Bottom Entry, Local Mounting C Back Entry, Local Mounting S Bottom Entry, Surface Mounting P Back Entry, Flush Panel Mounting Y Bottom Entry, 2" Pipe Mounting				10 - 100 mm 15 - 150 mm		AL Die-cast Aluminium S4 SS304 S6 SS316		S SS316 L SS316L M Monel T SS316Ti		S SS316 L SS316L M Monel T SS316Ti		2 - Brass 4 - SS304 6 - SS316		<table border="1"> <thead> <tr> <th>SIZE</th> <th>TYPE</th> <th>MALE / FEMALE</th> <th>METRIC THREADS</th> </tr> </thead> <tbody> <tr> <td>6 1/4"</td> <td>NT NPT</td> <td>M Male</td> <td>18 M - M 18 x 1.5</td> </tr> <tr> <td>10 3/8"</td> <td>BP BSP</td> <td>F Female</td> <td>20 M - M 20 x 1.5</td> </tr> <tr> <td>15 1/2"</td> <td>BT BSPT</td> <td></td> <td>24 M - M 24 x 1.5</td> </tr> <tr> <td>20 3/4"</td> <td>PF PF</td> <td></td> <td>27 M - M 27 x 2</td> </tr> <tr> <td>25 1"</td> <td>GS Gas</td> <td></td> <td>33 M - M 33 x 2</td> </tr> <tr> <td>32 1.1/4"</td> <td>NS NPS</td> <td></td> <td>XX - Any other</td> </tr> <tr> <td>40 1.1/2"</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				SIZE	TYPE	MALE / FEMALE	METRIC THREADS	6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5	10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5	15 1/2"	BT BSPT		24 M - M 24 x 1.5	20 3/4"	PF PF		27 M - M 27 x 2	25 1"	GS Gas		33 M - M 33 x 2	32 1.1/4"	NS NPS		XX - Any other	40 1.1/2"				A 1 SPDT B 2 SPDT C Colour band CE CE Certificate D Dual Scale F Flanged Process connection ** I 1 SPST J 2 SPST L Nil N NACE R Relay U Chemical Seal Unit-Refer Catalogue CSU X Accessory - Refer Catalogue ACC						A kg/cm ² (g) B Bar(g) C PSI (g) D kPa(g) E mmHg(g) H MPa(g) X Please Specify		Refer Table 6	
SIZE	TYPE	MALE / FEMALE	METRIC THREADS																																																												
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5																																																												
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32 1.1/4"	NS NPS		XX - Any other																																																												
40 1.1/2"																																																															

F - FLANGED PROCESS CONNECTION **

Size	Code	Rating	Code	Facing	Code
1/2"	15	150#	A	RF	RF
3/4"	20	300#	B	FF	FF
1"	25	600#	C	RTJ	RTJ
1 1/2"	40	900#	D	LT	LT
2"	50	1500#	E	LG	LG
3"	80	2500#	F		

** For Flanged Process Connection refer the table (mentioned separately)

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Indicating Low Range Pressure Switches

General

MODEL : ILPSH

Features

- Suitable for low pressure application
- Combination of indication and switch
- Single or double Contacts available
- Switch setting throughout the range externally



Specifications

Table 7

Dial	150mm, Aluminium, black marking on white background
Case	SS304 / SS316 with bayonet bezel
Protection	IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass
Top Chamber	SS304/SS316
Diaphragm	SS316/ SS316L/ SS316+PTFE (other material on request)
Bottom flange	SS316/ SS316L/ SS316+PTFE (other material on request)
Connection	1/2" NPT(M) as standard or flanged (specify size & rating)
Range	Refer table 7
Accuracy	±2% FSD for indication ± 3% FSD for switching
Over range	As per EN-837
Zero adjustment	Micrometer Pointer
Blow out disc	Provided
Contacts	1 SPST (single Electrical Contact) normally open, closing on rise in pressure or vice versa, rated 30VA @ 230V AC 2 SPST (two Electrical Contacts), independently adjustable, one normally open, other normally closed or both normally open or both normally closed, rated 30VA @ 230V AC

Range
0-250 mm WC
0-400 mm WC
0-600 mm WC
0-1000 mm WC
0-1600 mm WC
0-2500 mm WC
0-4000 mm WC
0-6000 mm WC
0-10000 mm WC / 0-1kg/cm ² (g)
0-16000 mm WC / 0-1.6kg/cm ² (g)

For range other then above please contact our design dept.

Option

Special Construction to withstand high design pressure (Built-In Gauge Saver)
Relay to suit current rating of 5A @ 230V AC

Note

Indicating Low Range Pressure switches are available with Electrical Contacts & Weatherproof enclosure only

Ordering Information

MODEL : ILPSH

MOUNTING				DIAL				CASE				MOVEMENT				TOP CHAMBER				DIAPHRAGM				BOTTOM CHAMBER / FLANGE				THREADED CONNECTION				FLANGED PROCESS CONNECTION					
V Bottom Entry, Local Mounting				15 - 150 mm				S4 SS304				4 - SS304				S4 SS304				S6 SS316 M4 Monel 400				S6 SS316 M4 Monel 400				6 1/4" NT NPT M Male 18 M - M 18 x 1.5				1/2" 15 150# A RF RF					
S Bottom Entry, Surface Mounting								S6 SS316				6 - SS316				S6 SS316				SL SS316L HB Hastelloy B				SL SS316L HB Hastelloy B				10 3/8" BP BSP F Female 20 M - M 20 x 1.5				3/4" 20 300# B FF FF					
Y Bottom Entry, 2" Pipe Mounting																ST SS316Ti HC Hastelloy C				ST SS316Ti HC Hastelloy C				15 1/2" BT BSPT 24 M - M 24 x 1.5				1" 25 600# C RTJ RTJ									
																SP SS316+PTFE TI Titanium				SP SS316+PTFE TI Titanium				20 3/4" PF PF 27 M - M 27 x 2				1 1/2" 40 900# D LT LT									
																I6 Inconel 600 NI Nickel				I6 Inconel 600 NI Nickel				25 1" GS Gas 33 M - M 33 x 2				2" 50 1500# E LG LG									
																I5 Inconel 625 TA Tantalum				I5 Inconel 625				32 1.1/4" NS NPS XX - Any other				3" 80 2500# F									
																XX Others (Please Specify)				XX Others (Please Specify)																	

** For Flanged Process Connection refer the table (mentioned separately)

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Hygiene Gauges

General

MODEL : HYG (Dry Case)
LFHYG (Liquid Filled Case)

Features

- Designed for pressure measurement in Sanitary application
- Designed compliance to International Dairy Federation
- Compliance to latest EN-837 standard
- Range : (-) 1 to 40 kg/cm²
- Accuracy $\pm 1\%$ FSD (Standard), $\pm 0.5\%$ FSD on request
- Unit of measurement - kg/cm², bar, PSI, kPa
- Micrometer pointer

Hygiene Gauges designed for pressure measurement in Sanitary application in accordance with International Dairy Federation (IDF) requirements in pharmaceutical, dairy, biotechnology, food & beverages industries.



Specifications

Ref. Standard	EN-837
Dial	100 mm / 150 mm in Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Diaphragm	SS316L welded
Movement	SS304 / SS316
Range	Minimum (-)1 to 3 kg/cm ² , Maximum 0 - 40 kg/cm ²
Connection	Triclover / SMS union / IDF fitting
Filling Fluid	Silicon oil / Glycerine / Food grade oil
Accuracy	$\pm 1\%$ FSD (0.5% FSD on request)
Over range	As per EN 837
Suitability	(-) 20°C to 80°C (service temperature)
Zero adjustment	Micrometer Pointer
Blow out disc	Provided (on top)
Optional	NACE compliance External Knob for zero setting Glycerine filled case Triclover clamp Male Coupling SMS Male Coupling IDF Gasket

Table 4

Gauge	Bar, kg/cm ²	Least count
Compound	(-)1 to 3*	0.10
	(-) 1 to 5	0.10
	(-)1 to 9	0.20
	(-)1 to 15	0.50
	(-)1 to 24	0.50
	(-)1 to 39	1.0
Pressure	0 to 4*	0.10
	0 to 6	0.10
	0 to 10	0.20
	0 to 16	0.50
	0 to 25	0.50
	0 to 40	1.0

* Range 0 to 4 and (-1) to 3 are available in 2" connection only

Ordering Information

MODEL : HYG / LFHYG

PROCESS CONNECTION			
SIZE	CODE	TYPE	CODE
1"	25	Triclover	TC
1-1/2"	40	SMS Union	SM
2"	50	IDF Union	ID

MOUNTING	
V	Bottom Entry, Local Mounting
C	Back Entry, Local Mounting

DIAL	
10 - 100 mm	
15 - 150 mm	

CASE	
S4	SS304
S6	SS316

MOVEMENT	
4	SS304
6	SS316

FILLING FLUID	
G	Glycerine
S	Silicon oil
V	Food grade oil
X	Any other

OPTION	
A	+/- 0.5% Accuracy
C	Colour band
CE	CE Certificate
D	Dual Scale
E	External Zero reset
G	Glycerine Filled Case
I	Male Coupling IDF
S	Male Coupling SMS
T	Triclover Clamp
L	Nil
N	NACE
O	O ₂ Cleaning
R	150% over range

UNIT	
A	kg/cm ² (g)
B	Bar(g)
C	PSI(g)
D	kPa(g)
H	MPa(g)
X	Please Specify

RANGE	
Refer Table 4	

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Bourdon Sensing Pr. Gauges-40-50-63

General

MODEL : SMBSPG (Dry Case)
LFSMBSPG (Liquid Filled Case)

Features

- Designed to fulfill most industrial requirements as well as commercial
- Range : (-) 1 to 400 kg/cm²
- Bourdon in SS316 as standard
- Accuracy $\pm 2\%$ FSD
- Unit of measurement - kg/cm², bar, PSI

- Pressure Gauges are developed for OEM applications in compressed gases. Lubricating circuits etc.



Specifications

Dial	40 mm / 50 mm / 63 mm in Aluminium, white background, black markings
Case	Pressed Steel, epoxy painted black / SS304
Bourdon	Ph. Bronze / SS316
Movement	Brass / SS304
Range	(refer table 5) minimum span 1 kg/cm ² , maximum 400 kg/cm ²
Accuracy	$\pm 2\%$ FSD
Over range	125% FSD for ranges upto 100 kg/cm ² & 115% FSD for higher ranges
Suitability	(-) 20°C to 80°C for ferrous system (service temperature) (-) 20°C to 60°C for non-ferrous system (service temperature)
Blow out disc	Provided (on top)
Optional	Glycerine filled case (in 63mm dial & SS case only) Built in Snubber
Note	For availability ranges in different dial sizes, please refer table 5

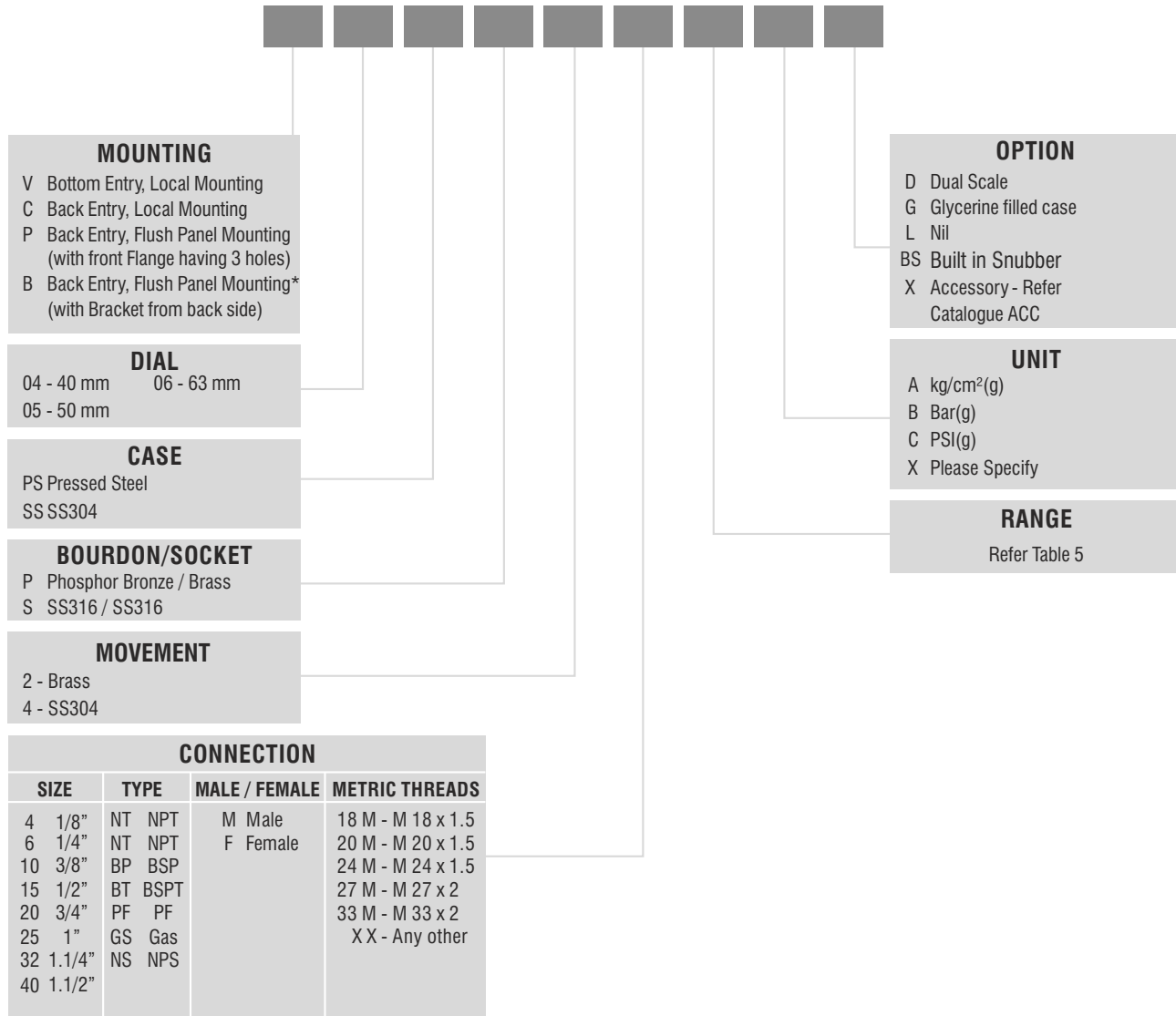
System	Bourdon	Socket	Movement
PB	Ph. Bronze	Brass	Brass
SS	SS316	SS316	SS304

Table 5

Range Bar(g), kg/cm ² (g)	System - SS			System - PB		
	1-1/2"	2"	2-1/2"	1-1/2"	2"	2-1/2"
	Dial	Dial	Dial	Dial	Dial	Dial
(-) 1 to 0 Vacuum	x	x	Yes	x	Yes	Yes
(-) 1 to (+) 1.5	x	Yes	Yes	x	Yes	Yes
(-) 1 to (+) 3	x	Yes	Yes	x	Yes	Yes
(-) 1 to (+) 5	x	Yes	Yes	x	Yes	Yes
(-) 1 to (+) 9	x	Yes	Yes	x	Yes	Yes
(-) 1 to (+) 15	x	Yes	Yes	x	Yes	Yes
(-) 1 to (+) 24	x	Yes	Yes	x	Yes	Yes
(-) 1 to (+) 39	x	Yes	Yes	x	Yes	Yes
0 to 1	x	x	Yes	Yes	Yes	Yes
0 to 1.6	Yes	Yes	Yes	Yes	Yes	Yes
0 to 2.5	Yes	Yes	Yes	Yes	Yes	Yes
0 to 4	Yes	Yes	Yes	Yes	Yes	Yes
0 to 6	Yes	Yes	Yes	Yes	Yes	Yes
0 to 10	Yes	Yes	Yes	Yes	Yes	Yes
0 to 16	x	Yes	Yes	x	x	x
0 to 25	x	Yes	Yes	x	x	x
0 to 40	x	Yes	Yes	x	x	x
0 to 60	x	Yes	Yes	x	x	x
0 to 100	x	Yes	Yes	x	x	x
0 to 160	x	Yes	Yes	x	x	x
0 to 250	x	Yes	Yes	x	x	x
0 to 400	x	Yes	Yes	x	x	x
Yes = Range Available X = Range not available						

Ordering Information

MODEL : SMBSPG / LFSMBSPG



* Mounting "B" is available in 63mm dial size only

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MUD Gauges

MODEL : MUDG

General

Features

- Designed for Oil industries / Coal industries.
- This Gauge is specially designed to measure the pressure of pulsating fluids including solid particles in suspension of stand pipe of mud pumps.
- It can also be used for any other fluid.
- Its sturdy construction can undergo severe working conditions.
- The pressure ranges meet every requirement of the oil industry.
- Pressure too high indicates a plugged drill bit or an increase in mud density or viscosity. Early indication of mud pump pressure provides an early warning of circulation problems enabling driller to make suitable corrections and helps to avoid major problems.

Operating Principle

- The pressure is transmitted by a stainless steel diaphragm (1.4404/AISI 316L) to a liquid (silicon oil) which totally fills the Bourdon tube, the capillary tube and the pressure chamber.
- A rubber plug isolator protects the stainless steel diaphragm from the circuit.
- The sudden pressure variations are dampened in the capillary tube (connection pipe)
- The whole pressure element is mounted in an oil-filled case which absorbs all the displacements of the movable parts as well as the external vibrations.
- The oil also ensures the lubrication of the linkages, eliminates corrosion and avoids condensation on the window of the pressure gauge.



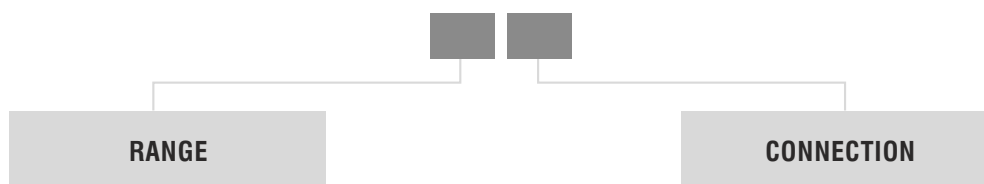
Specifications

Dial	Nominal gauge size - 4" (100 mm)	Accuracy	± 1% FSD
Dial type	Moving (Rotating), Aluminium, white background, black markings	Over range	130% FSD
Window	Perspex Safety Glass	Sensing Element	AISI SS316L, Diaphragm
Bourdon Tube	AISI 316 SS	Seal Chamber	SS316
Movement	SS304	Sealing Fluid	Silicone Oil
Range	0 to 100 Bar Min. to 0 to 420 Bar Max	Mud Protection	Nitrite Rubber Pad
Body	Die Cast Al. weatherproof to IP-68	Process Connection	2" LP(male) / 2" NPT(M) / Flanged
		Fluid Filled	Glycerine

Ordering Information

Eg. MUDG-0/160 Bar - 2"NPT (M)

MODEL : MUDG



Chemical / Diaphragm Seal Unit

General

MODEL : CSU

Features

What is a Diaphragm Seal?

A diaphragm seal is a device in which a flexible membrane (diaphragm) seals and isolates the measuring instrument from the process medium. The instrument side of the diaphragm is filled with appropriate fluid. The pressure exerted by the process fluid on the Diaphragm is hydraulically transmitted through the seal fluid to the pressure sensing element. Diaphragm seal protects the pressure sensor from the harmful and hazardous effect the process fluid.

Where Diaphragm Seal is essential?

- Corrosive process fluid
- Highly viscous process fluid
- Process fluid having sediments or solid particles
- Process fluid having tendency to solidify, freeze or crystallize at lower temperatures which may block the sensing element.
- Hazardous process fluid



Specifications

The generally offered MOC is as follows :

Non wetted parts: CS, SS304, SS316

Diaphragm : SS316, SS316L, PTFE, SS PTFE coated, Titanium, Hastelloy B, Hastelloy C, Nickel, Monel, Tantalum

Wetted Parts : SS316, SS304L, SS316L, SS PTFE coated / lined/ block, Hastelloy B, C.

Filling Fluids :
Silicone Oil, DC-200 (-45°C to 205°C)
DC-704 (0 to 315°C)
DC-705 (20 to 350°C, Short term exposure up to 400°C)
DC-710 (5 to 345°C)
Fluorolube Oil (-40°C to 150°C)
Glycerine (5 to 80°C)
Halocarbon Oil (-40°C to 235°C)
Food Grade Vegetable Oil (5 to 182°C)

Optional Feature:

- Capillary for Remote mounting of the Pressure Instrument
- Flushing Ring (Spacer Ring) for purging / cleaning the area below the diaphragm without removing the Seal from the process line.
- Stud / Nut & Gasket, for assembling the Diaphragm Seal with Process Flange.

Different types of Diaphragm Seal offered:

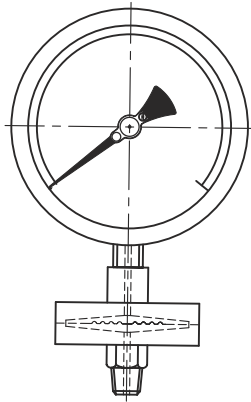
- 1) Sandwich Type (Threaded or Flanged Connection)
- 2) Flush Diaphragm Seal (Flanged Connection only)
- 3) Pan Cake type Diaphragm Seal (Flanged Connection only)
- 4) Extended diaphragm seal (Flanged Connection only)
- 5) In line flow through type (Flanged or Weld in connection)
- 6) In line flow through Jacketed type (Flanged or Weld in connection)

Note :

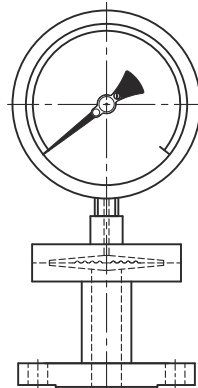
Proper selection of diaphragm seal (Type & Material) is important after reviewing the application. Purchaser must confirm the suitability of the MOC suggested.



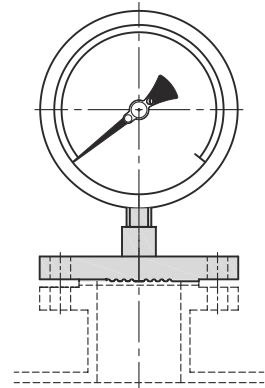
Sketches of Different types of Diaphragm Seals



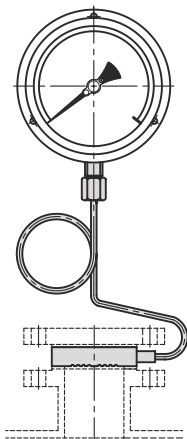
1) Sandwich type, Threaded Conn.



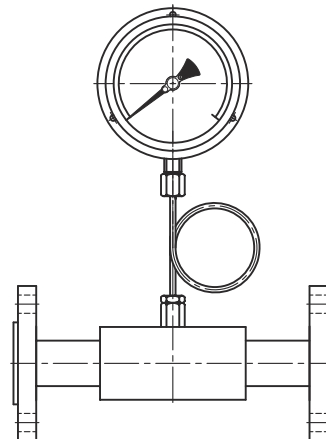
**2) Sandwich type, Flange Conn.
(with " I " Section)**



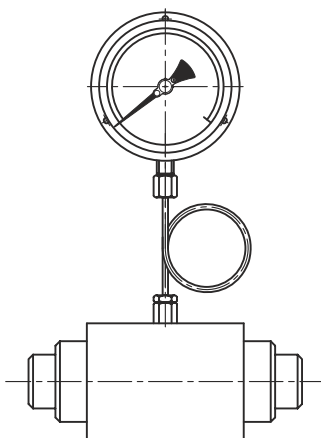
**3) Flush Diaphragm Seal
(Flange Conn. only)**



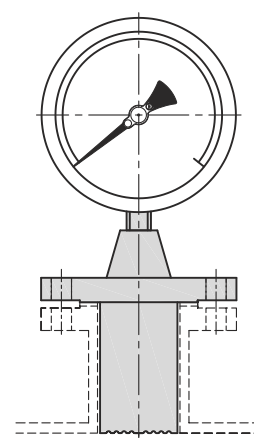
**4) Pan Cake type Diaphragm Seal
(Flange Conn. only)**



**5) In-Line Diaphragm Seal
(Flanged Conn. shown, Weld in conn. also available)**



**6) Jacketed In-Line Diaphragm Seal
(Weld in Conn. shown, Flange conn. also available)**



**7) Extended type diaphragm seal
(Flange Conn. only)**

Sandwich type Diaphragm Seal

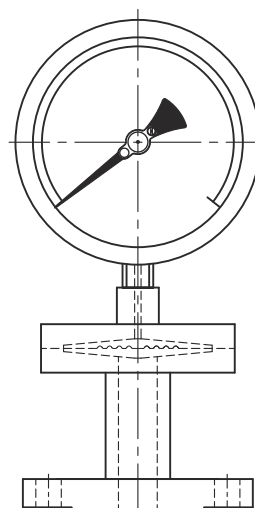
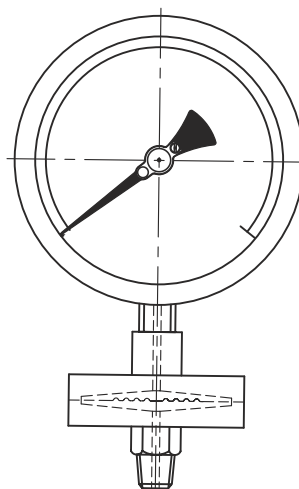
General

MODEL : CSU

Features

Sandwich type Diaphragm Seals are the most commonly used Diaphragm Seals. The Diaphragm is sandwiched between Top Chamber & Bottom Chamber / Flange. These are available Threaded as well as Flanged process Connection. For low Pressure Range & Smaller Flange Sizes, "I" section type Diaphragm Seals are used.

Optionally, Flushing connection of 1/4" NPT(F) or 1/2" NPT(F) can be provided which enables the user to flush out / clean the area below the diaphragm without removing the Seal from the process line. For Threaded Process Connection and Flange Connection with "I" section, Flushing connection shall be directly provided on the Bottom Chamber. For bigger Flange sizes, separate Flushing Rings (Spacer Rings) are usually provided.



Optional Feature

- **Cooling Tower**
- **Capillary** for Remote mounting of the Pressure Instrument
- **Integral Flushing Connection or Flushing Ring (Spacer Ring)** for purging / cleaning the area below the diaphragm without removing the Seal from the process line.
- **Stud / Nut & Gasket** (for Flanged Connection only), for assembling the Diaphragm Seal with Process Flange.

Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

SANDWICH DIAPHRAGM SEAL (Threaded or Flange)

MODEL: CSU-

CONNECTION TYPE

SDT Sandwich type, Threaded Conn.
SDF Sandwich type, Flanged Conn.

TOP CHAMBER

C CS
S4 SS304
S6 SS316
XX Other (Please Specify)

DIAPHRAGM

S6 SS316 M4 Monel 400
SL SS316L TI Titanium
ST SS316Ti NI Nickel
SP SS316+PTFE TA Tantalum
S1 SS321 SI Silver
HB Hastelloy B GP Gold Plated
HC Hastelloy C GL Gold
PT PTFE
XX Others (Please Specify)

BOTTOM CHAMBER / FLANGE

S6 SS316 I8 Incoloy 800
SL SS316L HB Hastelloy B
ST SS316Ti HC Hastelloy C
SP SS316+PTFE TI Titanium
S1 SS321 NI Nickel
M4 Monel 400 TA Tantalum
XX Others (Please Specify)

PROCESS CONNECTION

THREADED

CODE	SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6	1/4"	NT NPT	M Male	18 M M 18 x 1.5
10	3/8"	BP BSP	F Female	20 M M 20 x 1.5
15	1/2"	BT BSPT		24 M M 24 x 1.5
20	3/4"	PF PF		27 M M 27 x 2
25	1"	GS Gas		33 M M 33 x 2
32	1.1/4"	NS NPS		XX Any other
40	1.1/2"			

FLANGED

CODE	SIZE	CODE	RATING	CODE	FACING
15	1/2"	A	150#	RF	RF
20	3/4"	B	300#	FF	FF
25	1"	C	600#	RTJ	RTJ
40	1 1/2"	D	900#	LT	LT
50	2"	E	1500#	LG	LG
80	3"	F	2500#		

OPTION

CT Cooling Tower
AR(*) Capillary : SS+SS armoured
PV(*) Capillary : SS+SS armoured + PVC covered
FC06 Integral Flushing Connection, 1/4" NPT(F)
FC15 Integral Flushing Connection, 1/2" NPT(F)
FR06(**) Flushing Ring, 1/4" NPT(F)
FR15(**) Flushing Ring, 1/2" NPT(F)
ST Stud & Nuts
GK Gasket
L Nil

FILLING FLUID

F Fluorolube
G Glycerine
H Halocarbon
S Silicone Oil DC-200
V Food grade oil
D1 DC-710
D4 DC-704
D5 DC-705

* Specify the length of Capillary in Meters.

** Specify Ring material (Refer Bottom Chamber / Flange table)

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Flush Diaphragm Seal

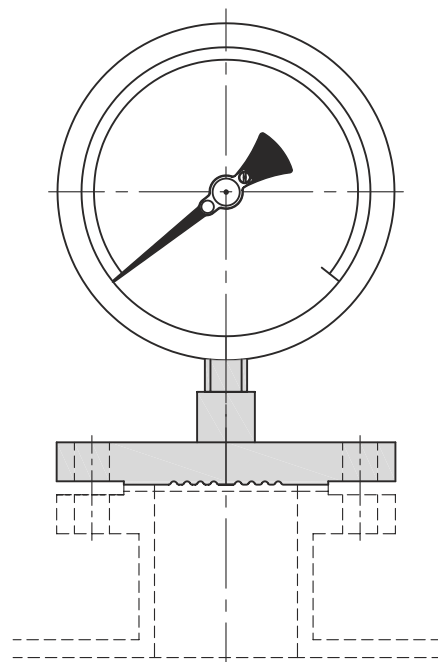
General

MODEL : CSU

Features

Process fluids which are highly viscous or containing solid particles could plug or clog the Diaphragm Seal cavity on the process side of the diaphragm. In order to overcome this difficulty, Flush Diaphragm Seal are used. In this design, since the Diaphragm is directly welded on the Flange Face, there are no cavities or hidden ports where the process fluid can enter and clog the system.

Optionally, Flushing Ring (Spacer Ring) with 1/4" NPT(F) or 1/2" NPT(F) connection can be provided as per the requirement. Flushing Connection enables the user to purge / flush out / clean the area below the diaphragm without removing the Seal from the process line.



Optional Feature

- **Cooling Tower**
- **Capillary** for Remote mounting of the Pressure Instrument
- **Flushing Ring (Spacer Ring)** for purging / cleaning the area below the diaphragm without removing the Seal from the process line.
- **Stud / Nut & Gasket** (for Flanged Connection only), for assembling the Diaphragm Seal with Process Flange.

Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

FLUSH DIAPHRAGM SEAL (Flange)

MODEL: CSU-

TYPE

FD Flush Diaphragm Seal

FLANGE (Non-wetted part)

C CS
S4 SS304
S6 SS316
SL SS316L
XX Other (Please Specify)

DIAPHRAGM (wetted part)

S6 SS316 TI Titanium
SL SS316L NI Nickel
ST SS316Ti TA Tantalum
S1 SS321 SI Silver
HB Hastelloy B GP Gold Plated
HC Hastelloy C GL Gold
M4 Monel 400
XX Others (Please Specify)

OPTION

CT Cooling Tower
AR(*) Capillary : SS+SS armoured
PV(*) Capillary : SS+SS armoured
+ PVC covered
FR06(**) Flushing Ring, 1/4" NPT(F)
FR15(**) Flushing Ring, 1/2" NPT(F)
ST Stud & Nuts
GK Gasket
L Nil

FILLING FLUID

F Fluorolube
G Glycerine
H Halocarbon
S Silicone Oil DC-200
V Food grade oil
D1 DC-710
D4 DC-704
D5 DC-705

PROCESS CONNECTION

FLANGED

CODE	SIZE	CODE	RATING	CODE	FACING
25	1"	A	150#	RF	RF
40	1½"	B	300#	FF	FF
50	2"	C	600#	RTJ	RTJ
80	3"	D	900#	LT	LT
		E	1500#	LG	LG
		F	2500#		

* Specify the length of Capillary in Meters.

** Specify Ring material (Refer Bottom Chamber / Flange table)

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Pan Cake type Diaphragm Seal

General

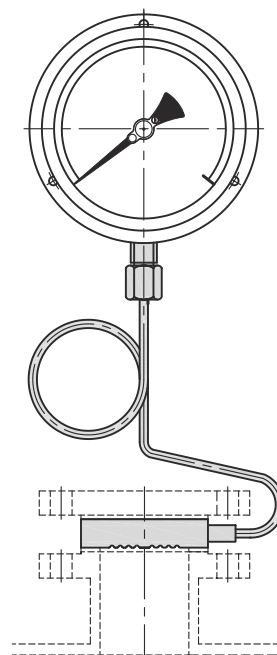
MODEL : CSU

Features

Pan Cake type Diaphragm Seal is sandwiched between the Instrument Flange (loose back-up flange) and Process (Nozzle) Flange. It is always provided with Capillary for the remote mounting of the Pressure Instrument.

Pan Cake type Diaphragm Seals is ideal for fluids which are viscous or containing solid particles. The Diaphragm is directly welded to the Pan Cake unit and there are no cavities or hidden ports where the process fluid can enter and clog the system.

Optionally, Flushing Ring (Spacer Ring) with 1/4" NPT(F) or 1/2" NPT(F) connection can be provided as per the requirement. Flushing Connection enables the user to purge / flush out / clean the area below the diaphragm without removing the Seal from the process line.



Optional Feature

- **Flushing Ring (Spacer Ring)** for purging / cleaning the area below the diaphragm without removing the Seal from the process line.
- **Stud / Nut & Gasket** for assembling the Diaphragm Seal with Process Flange.

Ordering Information

PAN CAKE DIAPHRAGM SEAL (Flange)

MODEL: CSU-

TYPE

PC Pan Cake Diaphragm Seal

MOUNTING FLANGE (Non-wetted part)

C CS
S4 SS304
S6 SS316
SL SS316L
XX Other (Please Specify)

PAN CAKE UNIT (wetted part)

S6 SS316 M4 Monel 400
SL SS316L TI Titanium
ST SS316Ti NI Nickel
S1 SS321 HC Hastelloy C
HB Hastelloy B
XX Others (Please Specify)

DIAPHRAGM (wetted part)

S6 SS316 TI Titanium
SL SS316L NI Nickel
ST SS316Ti TA Tantalum
S1 SS321 SI Silver
HB Hastelloy B GP Gold Plated
HC Hastelloy C GL Gold
M4 Monel 400
XX Others (Please Specify)

PROCESS CONNECTION

FLANGED

CODE	SIZE	CODE	RATING	CODE	FACING
40	1½"	A	150#	RF	RF
50	2"	B	300#	FF	FF
80	3"	C	600#	RTJ	RTJ
		D	900#	LT	LT
		E	1500#	LG	LG
		F	2500#		

OPTION

AR(*) Capillary : SS+SS armoured
PV(*) Capillary : SS+SS armoured
+ PVC covered
FR06(**) Flushing Ring, 1/4" NPT(F)
FR15(**) Flushing Ring, 1/2" NPT(F)
ST Stud & Nuts
GK Gasket
L Nil

FILLING FLUID

F Fluorolube
G Glycerine
H Halocarbon
S Silicone Oil DC-200
V Food grade oil
D1 DC-710
D4 DC-704
D5 DC-705

* Specify the length of Capillary in Meters.

** Specify Ring material (Refer Bottom Chamber / Flange table)

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In-Line Flow through type Diaph. Seal

General

MODEL : CSU

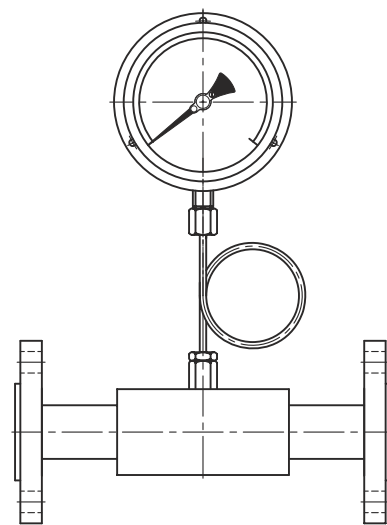
Features

In-Line Diaphragm Seal:

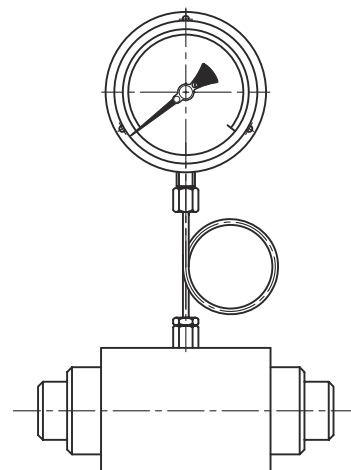
In line Diaphragm Seals are installed directly in the process flow line. These are referred to as “In-line” or “Flow-through” types. This diaphragm seal is so designed that the diaphragm is essentially flush with the flow stream and thus continually washed by the process media. Inline Diaphragm Seals are recommended when the process media is Slurry or a liquid that contains a solid component or viscous.

Jacketed In-Line Diaphragm Seal:

Jacketed In line Diaphragm Seals are used when the process fluid has a freezing point at normal ambient temperatures. Jacket helps the Diaphragm Seal to externally heat the process fluid by means of Steam or Thermic Fluid. Thus it prevents the process fluid from solidifying and keeps the same at elevated temperature as per the requirement.



In-Line Diaphragm Seal (Flanged)



Jacketed In-Line Diaphragm Seal (Weld in)

Optional Feature

- **Capillary** for Remote mounting of the Pressure Instrument
- **Stud / Nut & Gasket** for assembling the Diaphragm Seal with Process Flange.

Ordering Information

IN LINE DIAPHRAGM SEAL (Flange)

MODEL: CSU-

TYPE

IFW In line flow through type,
Weld in connection
IFF In line flow through type,
Flanged connection
IJW In line flow through type,
Jacketed, Weld in connection
IJF In line flow through type,
Jacketed Flanged connection

NON-WETTED PART

C CS
S4 SS304
S6 SS316
SL SS316L
XX Other (Please Specify)

DIAPHRAGM (wetted part)

S6 SS316
SL SS316L
XX Others (Please Specify)

FLANGE & WETTED PARTS

S6 SS316
SL SS316L
XX Others (Please Specify)

OPTION

CT Cooling Tower
AR(*) Capillary : SS+SS armoured
PV(*) Capillary : SS+SS armoured
+ PVC covered
ST Stud & Nuts
GK Gasket
L Nil

FILLING FLUID

F Fluorolube
G Glycerine
H Halocarbon
S Silicone Oil DC-200
V Food grade oil
D1 DC-710
D4 DC-704
D5 DC-705

* Specify the length of Capillary in Meters.

PROCESS CONNECTION

WELD IN PIPE SIZE

CODE	SIZE	PIPE SCHEDULE	CODE
15	1/2"	40	A
20	3/4"	80	B
25	1"	160	C
32	1-1/4"	XXS	D
40	1-1/2"	Any Other	Z
50	2"		

FLANGED

CODE	SIZE	CODE	RATING	CODE	FACING
15	1/2"	A	150#	RF	RF
20	3/4"	B	300#	FF	FF
25	1"	C	600#	RTJ	RTJ
40	1 1/2"	D	900#	LT	LT
50	2"	E	1500#	LG	LG
80	3"	F	2500#		

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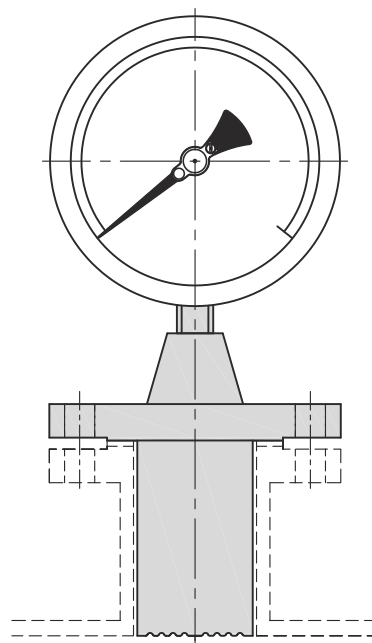
Extended Diaphragm Seal

General

MODEL : CSU

Features

Extended Diaphragm Seal is mounted on the Nozzle Flange of the Process Pipe line. The diaphragm is extended to the process media through the Nozzle. The length and Diameter of the extension is decided as per the process requirement and nozzle diameter. The diaphragm is directly extended through the Nozzle and preventing clogging or other obstructions in the connection nozzle. Extended Diaphragm Seals are Suitable for corrosive, highly viscous, crystallizing or hot pressure media.



Optional Feature

- **Cooling Tower**
- **Capillary** for Remote mounting of the Pressure Instrument
- **Stud / Nut & Gasket** for assembling the Diaphragm Seal with Process Flange.

Ordering Information

EXTENDED DIAPHRAGM SEAL (Flange)

MODEL: CSU-

TYPE

ED Extended Diaphragm Seal

FLANGE

S6 SS316 M4 Monel 400
SL SS316L TI Titanium
ST SS316Ti NI Nickel
S1 SS321 HC Hastelloy C
HB Hastelloy B I8 Incoloy 800
XX Others (Please Specify)

DIAPHRAGM (wetted part)

S6 SS316 M4 Monel 400
SL SS316L TI Titanium
ST SS316Ti NI Nickel
S1 SS321 SI Silver
HB Hastelloy B GP Gold Plated
HC Hastelloy C GL Gold
XX Others (Please Specify)

EXTENSION UNIT

S6 SS316 M4 Monel 400
SL SS316L TI Titanium
ST SS316Ti NI Nickel
S1 SS321 HC Hastelloy C
HB Hastelloy B I8 Incoloy 800
XX Others (Please Specify)

PROCESS CONNECTION

FLANGED

CODE	SIZE	CODE	RATING	CODE	FACING
40	1½"	A	150#	RF	RF
50	2"	B	300#	FF	FF
80	3"	C	600#	RTJ	RTJ
100	4"	D	900#	LT	LT
		E	1500#	LG	LG
		F	2500#		

OPTION

CT Cooling Tower
AR(*) Capillary : SS+SS armoured
PV(*) Capillary : SS+SS armoured
+ PVC covered
ST Stud & Nuts
GK Gasket
L Nil

FILLING FLUID

F Fluorolube
G Glycerine
H Halocarbon
S Silicone Oil DC-200
V Food grade oil
D1 DC-710
D4 DC-704
D5 DC-705

* Specify the length of Capillary in Meters.

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INDEX



Snubbers



Pig tail Syphon



U Syphon



Gauge Saver



Gauge Adaptor



Swivelling adaptor



Gauge Cocks



Needle Valves



Two Valve Manifold



Three Valve Manifold



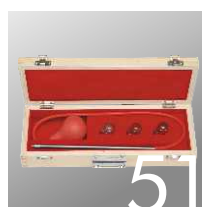
Five Valve Manifold



Cooling Tower



Flushing Rings



Pointer Puller & Fixer

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Accessories

General

MODEL : ACC

Snubber



Snubber (Pulsation Dampener) protects the pressure instruments from pressure pulsations / rapid pressure fluctuation. Ideal for instruments which undergo severe pressure pulsations like those located at pump discharge. Available in materials like CS, SS304, SS316, Monel etc.

Standard connection is 1/2" NPT(F) x 1/2" NPT(M) (other connection can be offered as per customer requirement)

Pig tail Syphon



Syphons are used to protect pressure instruments from high temperature of the process fluid. It helps to reduce the service temperature so that the pressure instrument is exposed to lower temperature. Generally offered in 1/2" sch, 40 or 80 size (other sizes also can be offered on request). Standard connection is 1/2" NPT(F) x 1/2" NPT(M). Plain end suitable for Butt welding can also be offered. Available in material like CS (A106), SS304, SS316, P11 etc. IBR Certification can be offered as per customer requirement.

U Syphon



Gauge saver



Gauge Saver (Pressure Limit Valve) is used where the process pressure exceeds the over range limit of the pressure instrument. When the process pressure exceeds the pre-set pressure, Gauge Saver shuts off the pressure to the instrument and thereby prevents damage of the sensing element and protects the calibration. Generally minimum setting offered is 1 kg/cm²g (lower setting on request). Normally offered in SS316 & Monel with standard connection of 1/2" NPT(F) x 1/2" NPT(M) (other material / connection on request)

Gauge Adaptor



Gauge Adaptors are used for connecting instruments and accessories having different type of threads. Conversion from male to female threads and vice versa is possible by selecting suitable adaptors. Generally offered in material like SS304, SS316, Monel etc. (Other material on request).

Swivelling adaptor or Gauge union



Swivel Adaptor facilitates the positioning of the Instrument during installation. Generally offered in material like SS304, SS316, Monel etc. (Other material on request). Standard connection is 1/2" NPT(F) x 1/2" NPT(M) (other connection on request)

Ordering Information

MODEL : ACC

ACCESSORY

SN Snubber
 SYP Pig Tail Type Syphon
 SYU "U" Type Syphon
 GS Gauge Saver
 GA Gauge Adaptor
 SW Swivelling adaptor

MATERIAL

CS Carbon Steel
 S4 SS304
 S6 SS316
 SL SS316L
 M4 Monel
 X Pl. Specify

INSTRUMENT CONNECTION

SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
	NS NPS		XX - Any other

OPTION

I IBR*
 L Nil
 N NACE
 O O₂ Cleaning

PROCESS CONNECTION

SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
	NS NPS		XX - Any other

* IBR certification shall be applicable for Syphon only

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Accessories

General

MODEL : ACC

Gauge Cocks

Using Gauge cock is an economical method for isolating the pressure instrument from the process fluid. Generally used for low pressure Application below 25 kg/cm²(g).

Available in Two Way as well as Three Way. 2 Way Gauge Cock provides isolation of the instrument. In 3 Way Gauge Cock there is provision for isolation as well as vent (drain).

Normally available in CS, SS304 & SS316. Standard connection is 1/2" NPT(M) threads at process side and 1/2" NPT(F) at instrument & drain sides (other connections available on request)



Two Way Gauge Cock



Three Way Gauge Cock

Ordering Information

MODEL : ACC

ACCESSORY

2W 2 Way Gauge Cock
3W 3 Way Gauge Cock

MATERIAL

CS Carbon Steel
S4 SS304
S6 SS316
X Please Specify

INSTRUMENT CONNECTION

SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
	NS NPS		XX - Any other

OPTION

L Nil
N NACE
O O₂ Cleaning

PROCESS CONNECTION

SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
	NS NPS		XX - Any other

Accessories

General

MODEL : ACC

Needle Valves

Screwed Bonnet Design

Needle Valves are designed for use in applications for throttling purpose and straight shut off of liquids, gas or vapour service. These needle valves are available with a variety of end connections and stem packing.



Male x Female End



Female x Female End

Specifications

Test Pressure	@25°C Room Temperature	Material	CS, SS304, SS316, SS316L
	Hydrostatic: Body - 620 bar		
Gland Packing	Seat - 415 bar	Finish	Monel, Hastelloy CS zinc plated, SS Natural
	Pneumatic : Seat - 40 bar		
	PTFE : Standard		
	Craphoil : Temperatures above 180°C		

Ordering Information

MODEL : ACC

ACCESSORY

NV Needle Valve

MATERIAL

CS Carbon Steel
S4 SS304
S6 SS316
SL SS316L
M4 Monel
HC Hastelloy-C
X Please Specify

OPTION

L Nil
N NACE
O O₂ Cleaning

INSTRUMENT CONNECTION

SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
	NS NPS		XX - Any other

PROCESS CONNECTION

SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
	NS NPS		XX - Any other

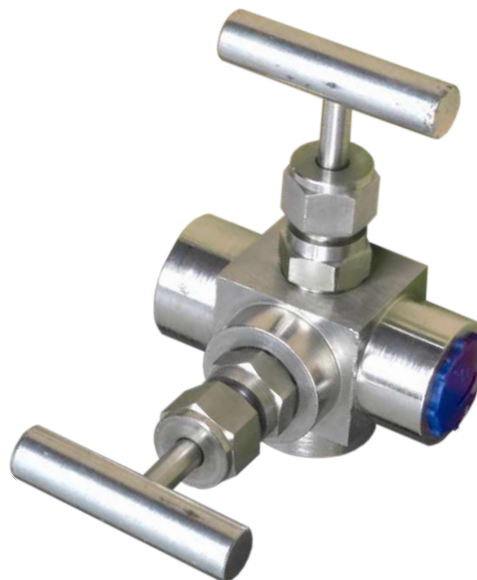
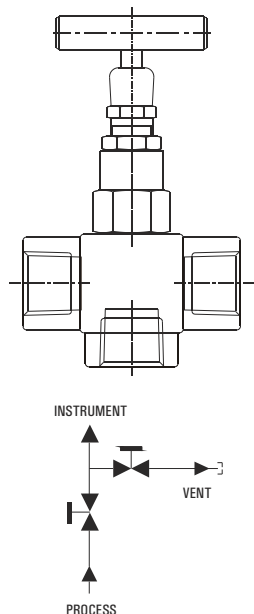
Accessories

General

MODEL : ACC

Two Valve Manifold

Two valve manifold is designed in a single block with male or female screwed inlet and outlet ports combining isolation valve and calibration / vent valve. Generally used on static pressure Transmitters, Switches and Gauges.



Ordering Information

MODEL : ACC

ACCESSORY

2V 2 Valve Manifold

MATERIAL

CS Carbon Steel
S4 SS304
S6 SS316
SL SS316L
M4 Monel
HC Hastelloy-C
X Please Specify

OPTION

L Nil
N NACE
O O₂ Cleaning

PROCESS CONNECTION

SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
	NS NPS		XX - Any other

DRAIN CONNECTION

SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
	NS NPS		XX - Any other

INSTRUMENT CONNECTION

SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
	NS NPS		XX - Any other

Accessories

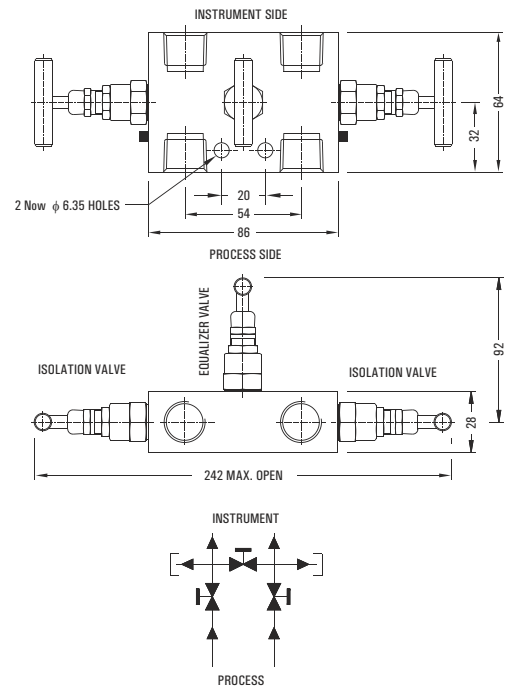
General

MODEL : ACC-G3VMPP1

Three Valve Manifold

(Seperately Mounted)

Three Valve Manifold (Model G3 VMPP1) incorporates two process isolation valves and one equalizer valve with separate connections in a compact manifold block. Model G3 VMPP1 is designed for remote mounting away from the differential pressure instrument and joined by tube or pipe impulse lines. They have threaded connections. Dimensions shown below are for the standard 54 mm or 2-1/8 inch centre distance, found in majority of instruments.



Specifications

Connections Process : 1/2" NPT (F)
Instrument : 1/2" NPT (F)

Test Pressure @25°C Room Temperature
Hydrostatic: Body - 620 bar
Seat - 415 bar
Pneumatic : Seat - 40 bar

Gland Packing PTFE : Standard
GRAPHOIL: Temperatures above 180°C

Material A105, A182GRF304, A182GRF316,
Monel, Hastelloy

Finish CS zinc plated, SS Natural

Ordering Information

MODEL : ACC-G3VMPP1-

*MOC

CS Carbon Steel
S4 SS304
S6 SS316
SL SS316L
M4 Monel
HC Hastelloy-C
X Others(Please Specify)

OPTION

L Nil
N NACE
O O₂ Cleaning

Accessories

General

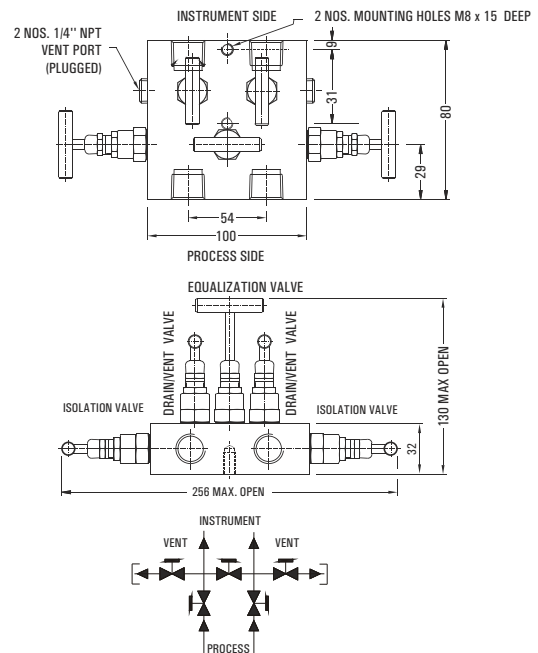
MODEL : ACC-G5VMPP1

Five Valve Manifold (Remote Mounted Type)

Five Valve Manifold (Model G5 VMPP1) incorporates two process isolation valves, one equalizer valve and two drain/vent valves with separate connections in a compact manifold block. Model G5 VMPP1 is designed for remote mounting away from the differential pressure instrument and joined by tube or pipe impulse lines. They have threaded connections. Dimensions shown below are for the standard 54 mm or 2-1/8 inch centre distance, found in majority of instruments.



Screwed connections



Specifications

Connections	Process : 1/2" NPT (F)	Gland Packing	PTFE : Standard
	Instrument : 1/2" NPT (F)		GRAPHOIL: Temperatures above 180°C
Test Pressure	Drain/Vent : 1/4" NPT (F)	Material	A105, A182GRF304, A182GRF316,
	@25°C Room Temperature		Monel, Hastelloy
	Hydrostatic: Body - 620 bar		CS zinc plated, SS Natural
	Seat - 415 bar		
	Pneumatic : Seat - 40 bar	Finish	

Ordering Information

MODEL : ACC-G5VMPP1-

*MOC

CS Carbon Steel
S4 SS304
S6 SS316
SL SS316L
M4 Monel
HC Hastelloy-C
X Others(Please Specify)

OPTION

L Nil
N NACE
O O₂ Cleaning

Accessories

General

MODEL : ACC-CT

Cooling Tower

For Diaphragm Seal without Capillary, when the process temperature is high, a Cooling Tower can be installed between the Diaphragm Seal and Pressure Instrument, to reduce the temperature effect. Cooling Tower is provided with cooling fins which increases the area of surface contact with the atmosphere. The increased area of contact increases the heat transfer to the atmosphere by convection.



How to Order

Cooling Tower is always supplied as an integral part of Diaphragm Seal type Pressure Gauges. For ordering, please add Code "CT" as an option in Model Code of Diaphragm Seal.

Accessories

General

MODEL : ACC-FR

Flushing Rings

During installation, the Flushing Ring (Spacer Ring) is sandwiched between the process flange and the diaphragm seal. The purpose of Flushing Ring is to avoid the formation of solid deposits below the Diaphragm and thus avoid the clogging. 2 holes with internal threads provided on the ring facilitate the purging / cleaning of the area below the diaphragm, without removing the Seal from the process line. At normal conditions the female ports of the ring shall be plugged.

Generally available materials are SS304, SS316, SS316L, Nickel, Monel, Hastelloy-C, Titanium etc (other material on request)



Ordering Information

When ordered with Diaphragm Seal Gauges, the ordering information is already covered in Option Column of Model Codes for Diaphragm Seal.

When ordered at a separate Item, the ordering Information shall be as follows:

MODEL : ACC

ITEM		OPTION	
FR	Flushing Ring	L	Nil
		N	NACE
MATERIAL		FLUSHING CONNECTION	
S4	SS304	FC06	1/4"NPT(F)
S6	SS316	FC15	1/2"NPT(F)
SL	SS316L	X	Please Specify
M4	Monel		
HC	Hastelloy-C		
TI	Titanium		
NI	Nickel		
X	Please Specify		

SUITABLE FOR FLANGE					
CODE	SIZE	CODE	RATING	CODE	FACING
15	1/2"	A	150#	RF	RF
20	3/4"	B	300#	FF	FF
25	1"	C	600#	RTJ	RTJ
40	1 1/2"	D	900#	LT	LT
50	2"	E	1500#	LG	LG
80	3"	F	2500#		

POINTER PULLER & FIXER KIT

Requirement of International Quantity Standard ISO-9001:2008, calls for proper maintenance and periodic calibration of the measuring instruments. For Dial type Gauges, this may require removal of the Glass, unscrewing of the dial and removal & re-fixing of the Pointer. Use of hand is not advisable for removing and fixing the pointer. Pointer Puller (Extractor) and Pointer Fixer (Pneumatic Hammer) are to be used for this purpose.

The Pointer Puller & Fixer Kit contains one Pneumatic Hammer (Pointer Fixer) and 3 Pointer Pullers having central pin of different diameters (i.e., 0.7 mm, 1 mm & 1.2 mm)

The recommended procedure for pointer removal and fixing, which is followed internationally is given overleaf.



Ordering Information

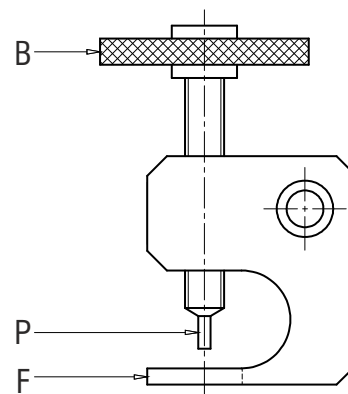
To be ordered as "POINTER PULLER & FIXER KIT"

POINTER PULLER & FIXER KIT

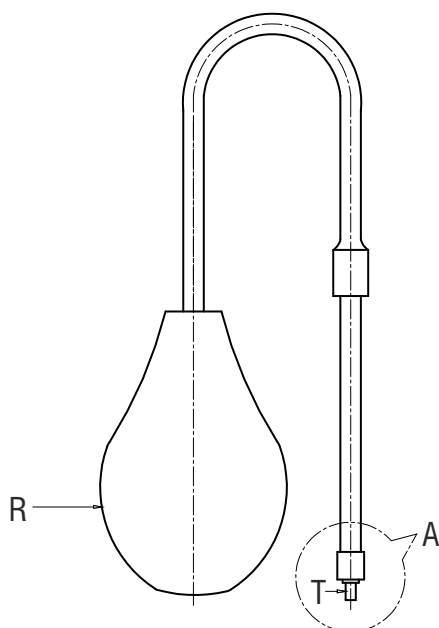
Operating Instructions

HOW TO EXTRACT THE POINTER

- Turn the Barrel (B) anti-clockwise to ensure that there is sufficient clearance between the foot (F) and the central pin (P) to accommodate the thickness of the pointer.
- Place the foot of the Point Puller under the fixed pointer of the Gauge.
- Gently screw the barrel clockwise until the central pin locates the pointer shaft, through the centre of the pointer.
- Continue to turn the barrel slowly until the pointer is removed.
- There are 3 models of the pointer Puller having three different diameters of the central pin (0.7 mm, 1 mm, 1.2 mm) to match the diameter of the pointer shaft. Use of an oversized model may damage the pointer, hence this provision.



POINTER PULLER

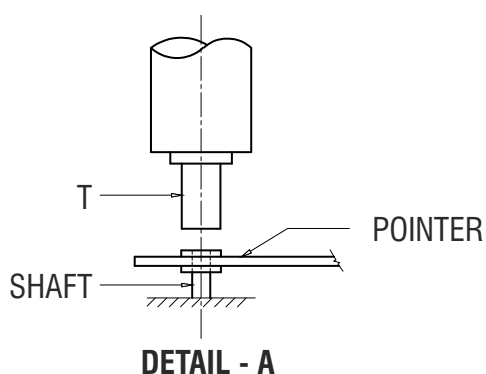


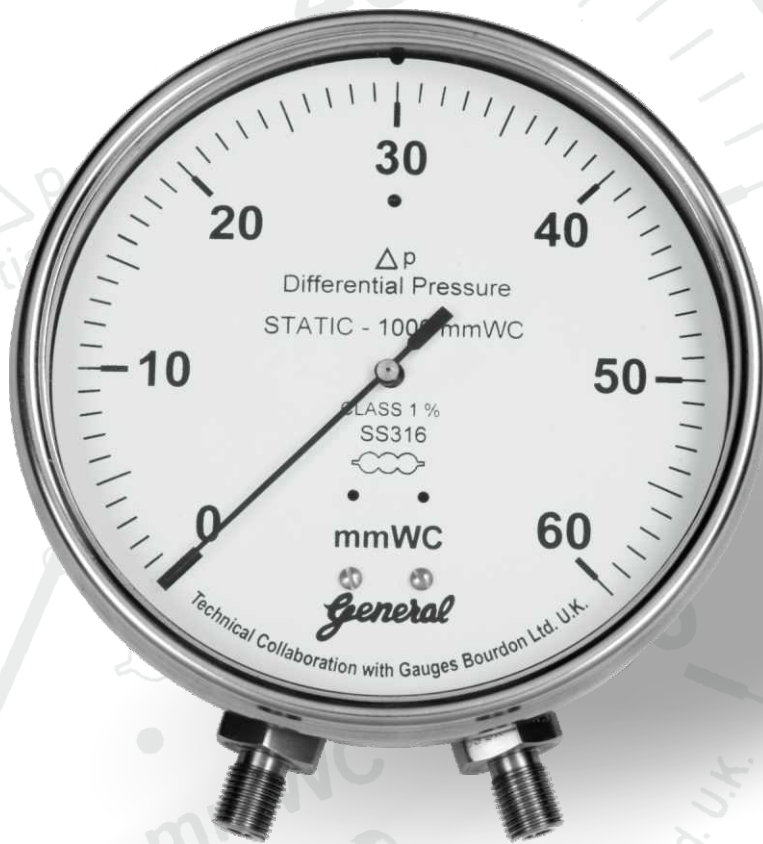
PNEUMATIC HAMMER

HOW TO FIX THE POINTER

Place the pointer in the desired position on the pointer shaft. Align the tip of the metal tube (T) of the pointer fixer with the centre of the pointer, hold it lightly and lift the rubber ball (R) and press it gently.

The resultant shock will tap the pointer back onto the Pointer shaft. The “tap” is easily controlled by operator by varying the pressure on the rubber ball.

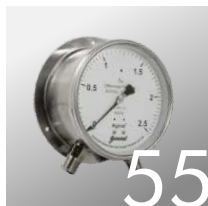




DIFFERENTIAL PRESSURE GAUGES



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Differential Pressure Gauges-
Bellow/Diaphragm Type



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Differential Pressure Gauges-
Bellow-Diaphragm Type



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Differential Pressure Gauges-
Capsule Type



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Differential Pressure Gauges-
Magnehelic Type



63

Indicating Differential
Pressure Switch



67

In House Test Facilities

bars	"WC	mm WC	cm
0.0681	27.71	703.8	70.38
1	407.2	10343	1,034.30
0.00246	1	25.4	2.54
0.000977	0.0394	1	0.1
0.00047	0.01927	1	0.05

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Pressure Conversion
Chart



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Flow Indicator

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Diff. Pr. Gauges - Bellow/Diaphragm Type

General

MODEL : DPG-B (Bellow with Dry Case)

DPG-D (Diaphragm with Dry Case)

LFDPG-B (Bellow with Liquid Filled Case)

LFDPG-D (Diaphragm with Liquid Filled Case)

Features

- Bellow / Diaphragm type construction
- Reference Standard: EN - 837
- All SS internals
- Chemical seal unit (optional) for process suitability
- Accuracy $\pm 1\%$ FSD
- A set of two stainless steel bellows mounted on a force balance enables direct reading of the actual differential pressure.
- Each Bellow / Diaphragm of the pressure Gauge can withstand the full static pressure without any damage or shifting being caused to the instrument.



Specifications

Dial	150 mm, Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	Weatherproof to IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Pointer	Light weight, micrometer adjustable
Sensing element	Bellow / Diaphragm
Sensor Material & Wetted Parts	SS316 / SS316L / Monel / Hastelloy-C
Movement	SS304 / SS316
Connection	½" NPT (M) as standard (other on request)
Range	Minimum 0 to 1000 mm WC
Static Pressure	Upto 60 kg/cm²g, Higher Static Pressure on request
Accuracy	$\pm 1\%$ FSD
Blow out disc	Provided (top of the case)
Temperature suitability	(-) 20°C to 80°C
Optional	Chemical seal units with Capillary Liquid filled case External Knob for zero setting

Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

MODEL : DPG-B / DPG-D / LFDPG-B / LFDPG-D

CONNECTION				
SIZE	TYPE	MALE / FEMALE	METRIC THREADS	
6	1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10	3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15	1/2"	BT BSPT		24 M - M 24 x 1.5
20	3/4"	PF PF		27 M - M 27 x 2
25	1"	GS Gas		33 M - M 33 x 2
32	1.1/4"	NS NPS		XX - Any other
40	1.1/2"			

MOUNTING	
S	Bottom Entry, Surface Mounting
P	Back Entry, Panel Mounting
Y	Bottom Entry, 2" Pipe Mounting

DIAL	
15 - 150 mm	

CASE	
S4	SS304
S6	SS316

SENSOR	
S	SS316
L	SS316L
M	Monel
HC	Hastelloy
X	Any other (Please Specify)

WETTED PARTS	
S	SS316
L	SS316L
M	Monel
HC	Hastelloy
X	Any other (Please Specify)

MOVEMENT	
A	SS304
B	SS316

OPTION	
CE	CE Certificate
E	External zero Adjustment
G	Glycerin Filled Case
S	Silicon Oil Filled Case
N	NACE
O	O ₂ Cleaning
D	Dual Scale
L	Nil
SF	Solid Front
BB	Back Blow out Disc
VP	Vacuum Protection
U	Chemical Seal Unit-Refer Catalogue CSU
X	Accessory - Refer Catalogue ACC

STATIC PRESSURE	
Please Specify	

UNIT	
A	kg/cm ² (DP)
B	Bar(DP)
C	PSI(DP)
D	kPa(DP)
E	mmHg(DP)
F	mmWC(DP)
G	mBar(DP)
X	Please Specify

RANGE	
Please Specify	

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Diff. Pr. Gauges-Bellow Diaphragm Type

General

MODEL : DPG-BD

Features

- Bellow- Diaphragm type construction
- Static pressure upto 40 kg/cm² (Max.)
- All SS internals
- Accuracy $\pm 1\%$ FSD
- Unit of measurement - mbar, mmWC, kPa
- IP-68 Protection
- For measurement of small differential Pressures at high static Pressure.



Specifications

Dial	100 mm / 150 mm, Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	Weatherproof to IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Pointer	Micrometer Pointer
Sensing Element	Bellow- Diaphragm in SS316, SS316L
Other wetted parts	SS316 / SS316L
Movement	SS304 / SS316
Connection	1/2" NPT (M) as standard (other on request)
Range	Minimum 0 to 250 mm WC
Static Pressure	Upto 40 kg/cm ² g max.
Accuracy	$\pm 1\%$ FSD
Blow out disc	Provided (top of the case)
Temperature suitability	(-) 20°C to 80°C

Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

MODEL : DPG-BD

CONNECTION			
SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
32 1.1/4"	NS NPS		XX - Any other
40 1.1/2"			

MOUNTING	
S	Bottom Entry, Surface Mounting
Y	Bottom Entry, 2" Pipe Mounting

DIAL	
10 - 100 mm	
15 - 150 mm	

CASE	
S4	SS304
S6	SS316

BELLOW-DIAPHRAGM	
S6	SS316
SL	SS316L

WETTED PARTS	
S6	SS316
SL	SS316L

MOVEMENT	
A	SS304
B	SS316

OPTION	
CE	CE Certificate
D	Dual Scale
L	Nil
N	NACE
O	O ₂ Cleaning
BB	Back Blow out Disc
X	Accessory - Refer Catalogue ACC

STATIC PRESSURE	
Please Specify	

UNIT	
A	kg/cm ² (DP)
B	Bar(DP)
C	PSI(DP)
D	kPa(DP)
E	mmHg(DP)
F	mmWC(DP)
G	mBar(DP)
X	Please Specify

RANGE	
Please Specify	

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Differential Pr. Gauges-Capsule Type

General

MODEL : DPG-C

Features

- Low differential pressure measurement with high accuracy
- Sensing element- Capsule in SS316L
- Screwed connection
- Accuracy $\pm 1\%$ FSD
- General stainless steel capsule differential pressure gauges are designed for measuring small differential pressures on clean & dry air or gas system



Specifications

Dial	100 mm / 150 mm, Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	Weatherproof to IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Sensing	Capsule in SS316, SS316L
Connection	½ " NPT (M) as standard (other on request)
Range	Any range between 0 to 60 mm WC to 0 to 1000 mmWC
Static Pressure	10 times the range (Maximum)
Accuracy	$\pm 1\%$ FSD
Temperature suitability	(-) 20°C to 80°C
Note	Capsule type DP Gauges are recommended for non-corrosive, clean, clear (colourless) & dry Gases / Air only

Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

MODEL : DPG-C

CONNECTION			
SIZE	TYPE	MALE / FEMALE	METRIC THREADS
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5
15 1/2"	BT BSPT		24 M - M 24 x 1.5
20 3/4"	PF PF		27 M - M 27 x 2
25 1"	GS Gas		33 M - M 33 x 2
32 1.1/4"	NS NPS		XX - Any other
40 1.1/2"			

MOUNTING	
P	Back Entry, Panel Mounting
S	Bottom Entry, Surface Mounting
V	Bottom Entry, Local Mounting
Y	Bottom Entry, 2" Pipe Mounting

DIAL	
10 - 100 mm	
15 - 150 mm	

CASE	
S4	SS304
S6	SS316

CAPSULE	
S6	SS316
SL	SS316L

WETTED PARTS	
S6	SS316
SL	SS316L

MOVEMENT	
A	SS304
B	SS316

OPTION	
CE	CE Certificate
N	NACE
O	O ₂ Cleaning
X	Accessory - Refer Catalogue ACC

STATIC PRESSURE	
Please Specify (Maximum 10 Times range)	

UNIT	
D	kPa(DP)
E	mmHg(DP)
F	mmWC(DP)
G	mBar(DP)
X	Please Specify

RANGE	
Please Specify	

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Differential Pr. Gauges-Magnehelic Type

General

MODEL : DPG-M

Features

- Magnetic Diaphragm / Piston type construction
- Static pressure 35 bar & 100 bar
- Body block - Aluminium / SS316 / SS316L
- Screwed connection
- Accuracy $\pm 2\%$ FSD (Ascending)
- Unit of measurement - kg/cm², bar, mmWC
- IP-67 Protection



Specifications

Dial	100 mm / 150 mm, Aluminium, white background, black markings
Case & Bezel	SS304 weatherproof to IP-67 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Sensing	Diaphragm in Viton / Piston in SS
Body Material	Aluminium / SS304 / SS316
Magnet	Ceramic
Spring	SS316
Connection	1/4" NPT (F) as standard (other on request)
Range	Minimum 0 to 100 mm WC
Static Pressure	35 bar & 100 bar
Accuracy	$\pm 2\%$ FSD (on Ascending Side)
Blow out disc	Provided (top of the case)
Temperature suitability	(-) 20°C to 80°C

Optional	Switching : SPST (Reed Switch)
	Voltage : 230V AC/DC (max)
	Rating Switch : 1SPST & 2 SPST
	Capacity : 30 VA AC/DC (max)
	Current : 1 A (max)
	Switching : SPDT (Micro Switch)
	Voltage : 230V AC
	Rating Switch : 1 SPDT & 2 SPDT
	Current : 5 A (max)

Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

MODEL : DPG-M

CONNECTION				
SIZE	TYPE	MALE / FEMALE	METRIC THREADS	
6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5	
10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5	
15 1/2"	BT BSPT		24 M - M 24 x 1.5	
20 3/4"	PF PF		27 M - M 27 x 2	
25 1"	GS Gas		33 M - M 33 x 2	
32 1.1/4"	NS NPS		XX - Any other	
40 1.1/2"				

MOUNTING	
L	Local (Direct) Mounting
P	Panel Mounting
Y	2" Pipe Mounting

DIAL	
10 - 100 mm	
15 - 150 mm	

CASE	
S4	SS304

ELEMENT	
DV	Diaphragm in Viton
P6	Piston in SS316
PL	Piston in SS316L

WETTED PARTS	
AL	Aluminium
S6	SS316
SL	SS316L

OPTION	
A	1 SPDT
B	2 SPDT
CE	CE Certificate
D	Dual Scale
I	1 SPST
J	2 SPST
X	Accessory - Refer Catalogue ACC

STATIC PRESSURE	
Please Specify	

UNIT	
A	kg/cm ² (DP)
B	Bar(DP)
C	PSI(DP)
D	kPa(DP)
E	mmHg(DP)
F	mmWC(DP)
G	mBar(DP)
X	Please Specify

RANGE	
Please Specify	

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Indicating Differential Pressure Switch

General

MODEL : IDPS-B (Bellow Sensing)
IDPS-D (Diaphragm Sensing)

GENERAL has been designing and manufacturing high quality Bellow / Diaphragm Type Differential pressure indicating switches to suit to most of the industrial application for accurate control of the process equipments. Rigorous and continuous tests are conducted for design and quality conformance.

- Indicating Differential Pressure Switches are design to use in Pumps, Compressors, Lubrication Systems, Turbines, Generators, Boilers, Furnances etc. in industries such as Chemical, Fertiliser, Ferrous & Non- ferrous metal, Pulp & Paper, Power, Waste Water Treatment, Refinery & Petrochemical, Synthetic Fibre, etc.



Specifications

Dial	150 mm, aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel (Weather proof) Die Cast Aluminium (Flame proof)
Protection	Weatherproof to IP - 68 (IS:13947 part I / IEC:60529) Flameproof to IIA, IIB (equivalent to NEC Cl. 1, Div. 2, Gr. C & D)
Window	Safety glass
Cable Entry	1/2" NPT (F)
Switch	1 SPDT / 2 SPDT. Snap acting micro-switch (DPDT on request) Rated 5A @ 230 VAC (3A @ 28 VDC)
Sensing element	Bellow / Diaphragm
Sensor Material & Wetted Parts	SS316 / SS316L / Monel / Hastelloy-C Brass / SS304 / SS316
Movement	Adjustable throughout the range
Set Point	Surface Mounting / 2" Pipe Mounting
Mounting	1/2" NPT (M) as standard. Other connections optionally
Process Connection	As per customer requirement (minimum 0 to 1000 mm WC)
Range	As per customer requirement (minimum 0 to 1000 mm WC)
Indication Accuracy	±1% FSD
Switching Accuracy	±1.5 - 2% FSD
Process Temperature	(-)20°C to 60°C
Calibration	All switches are individually calibrated
Optional	Diaphragm seal with Capillary



Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

TYPE : IDPS-B / IDPS-D

ENCLOSURE				MOUNTING				DIAL				CASE				SENSOR				WETTED PARTS				MOVEMENT				CONNECTION				OPTION				STATIC PRESSURE				UNIT				RANGE																																			
W Weatherproof F Flameproof				S Bottom Entry, Surface Mounting P Back Entry, Panel Mounting Y Bottom Entry, 2" Pipe Mounting				15 - 150 mm				AL Die-cast Aluminium S4 SS304 S6 SS316				S SS316 L SS316L M Monel HC Hastelloy X Any other (Please Specify)				S SS316 L SS316L M Monel HC Hastelloy X Any other (Please Specify)				2 Brass 4 SS304 6 SS316				<table border="1"> <thead> <tr> <th>SIZE</th> <th>TYPE</th> <th>MALE / FEMALE</th> <th>METRIC THREADS</th> </tr> </thead> <tbody> <tr> <td>6 1/4"</td> <td>NT NPT</td> <td>M Male</td> <td>18 M - M 18 x 1.5</td> </tr> <tr> <td>10 3/8"</td> <td>BP BSP</td> <td>F Female</td> <td>20 M - M 20 x 1.5</td> </tr> <tr> <td>15 1/2"</td> <td>BT BSPT</td> <td></td> <td>24 M - M 24 x 1.5</td> </tr> <tr> <td>20 3/4"</td> <td>PF PF</td> <td></td> <td>27 M - M 27 x 2</td> </tr> <tr> <td>25 1"</td> <td>GS Gas</td> <td></td> <td>33 M - M 33 x 2</td> </tr> <tr> <td>32 1.1/4"</td> <td>NS NPS</td> <td></td> <td>XX - Any other</td> </tr> <tr> <td>40 1.1/2"</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				SIZE	TYPE	MALE / FEMALE	METRIC THREADS	6 1/4"	NT NPT	M Male	18 M - M 18 x 1.5	10 3/8"	BP BSP	F Female	20 M - M 20 x 1.5	15 1/2"	BT BSPT		24 M - M 24 x 1.5	20 3/4"	PF PF		27 M - M 27 x 2	25 1"	GS Gas		33 M - M 33 x 2	32 1.1/4"	NS NPS		XX - Any other	40 1.1/2"				A 1SPDT B 2SPDT CE CE Certificate N NACE O O ₂ Cleaning D Dual Scale L Nil U Chemical Seal Unit-Refer Catalogue CSU X Accessory - Refer Catalogue ACC				Please Specify				A kg/cm ² (DP) B Bar (DP) C PSI (DP) D kPa (DP) E mmHg (DP) F mmWC (DP) G mBar(DP) X Please Specify				Please Specify			
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Flow Indicator

General

MODEL : FI

Features

- Differential Pressure across Orifice Plate Assembly
- Weld Neck Flange connection
- Unit of measurement direct in terms of flow unit
- Weatherproof to IP – 68 (IS 13947 Part 1)

Specifications

Orifice Plate Assembly

Design	Conforms to ISA RP 3.2, DIN 1952, BS 1042, ISO-5167
Types	Square edge concentric, Quadrant edged, Conical entrance, Eccentric, Segmental
Plate material	SS304, SS316, SS316L as standard. Hastelloy-C, Monel, PP, PVC, PTFE coated, etc. can be given on request.
Orifice Bore	In accordance with ISO-5167, BS-1042, ASME MFC 3M, R.W.Miller, L.K.Spink, AGA-3
Tag Plate	In the same material as plate & is welded to orifice plate. Tag plate integral to the Orifice plate (i.e. without welding) can also be offered as a special case.
Vent / Drain	Vent or Drain holes are provided as per customer's requirement. Not drilled for orifice bores smaller than 25.4 mm
Flange Union	Weld neck, Slip on, Threaded, Socket welded with RF or RTJ facing Orifice flanges are in accordance with ANSI B16.36 with minimum flange rating of 300# for sizes up to 8" or male - female flanges in accordance with ANSI B16.5.
Pressure Tappings	Corner tappings are recommended for sizes upto 1 1/2"; Flange taps from 2" to 16"; D – D/2 taps for higher sizes.
Gasket	CAF as per IS: 2712 Gr 0/1, SS spiral wound + CAF, SS spiral wound + Grafoil, SS spiral wound + PTFE are normally supplied as per process requirement. Other materials available on request. For RTJ flanges, the plate is fixed on the plate holder. The plate holder is in Soft Iron material & acts as a gasket.
Studs / Nuts	ASTM A193 Gr.B7/A-194 Gr.2H as standard, Other material on request.
Jack Screw	Carbon Steel (C1038 heat treated)

Flow Indicator

Dial	150 mm, Aluminium, white background, black markings
Case	SS304 / SS316 with bayonet bezel
Protection	Weatherproof to IP-68 (IS:13947 part I / IEC:60529)
Window	Safety glass (Shatter proof / Toughened glass)
Pointer	Light weight, micrometer adjustable
Sensing	Bellow in SS316L
Other wetted parts	SS316L
Movement	SS304 / SS316
Connection	1/2" NPT (M) as standard (other on request)
Range	Minimum 0 to 1000 mm WC
Static Pressure	Upto 60 kg/cm2g, Higher Static Pressure on request
Accuracy	± 1% FSD
Blow out disc	Provided (top of the case)
Temperature suitability	(-) 20°C to 80°C
Optional	Three Valve Manifold in SS316, suitable SS tubing and associated instrument fittings



Under Technical Collaboration with M/s. Gauges Bourdon, U.K.

Ordering Information

MODEL : FI

MODEL : FI																															
TYPE OF ORIFICE PLATE SC Square Edge Concentric QC Quadrant Edge Concentric CC Conical Entrance EC Eccentric SE Segmental		FLOW RANGE & UNIT Please Specify																													
PLATE MATERIAL S4 SS304 PP Poly Propylene S6 SS316 HB Hastelloy B SL SS316L HC Hastelloy C ST SS316Ti TI Titanium S1 SS321 PF PTFE SP SS316+PTFE TA Tantalum M4 Monel 400		STATIC PRESSURE Please Specify																													
PLATE THICKNESS 1 3.18mm 2 6.35mm 3 9.52mm 4 12.70mm 5 Other (Please specify)		UNIT A kg/cm ² (DP) B Bar(DP) C PSI(DP) D kPa(DP) E mmHg(DP) F mmWC(DP) G mBar(DP) X Please Specify																													
TYPE OF FLANGE WN Welding Neck SO Slip On TH Threaded SW Socket Welded		DP RANGE Please Specify																													
LINE SIZE Please Specify		FLANGE MATERIAL S4 SS304 S1 SS321 S6 SS316 M4 Monel 400 SL SS316L HB Hastelloy B ST SS316Ti HC Hastelloy C SP SS316+PTFE TI Titanium																													
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In-House testing facilities for Pressure Gauges

Pressure Gauges and Differential Pressure Gauges are manufactured in technical collaboration with M/s Gauges Bourdon, U.K. The same are manufactured and tested in accordance with EN : 837 standard. According to the said international standard, following tests are carried out to ensure the quality of Pressure Gauges. We can carry out following tests In-House at our manufacturing plant.

1. Visual Inspection
2. Dimensional Verification
3. Accuracy Test
4. Hysteresis Test
5. Leak Test
6. Influence of Mounting Position
7. Degree of Protection
8. Effects of Mechanical Vibration
9. Effects of Mechanical Shock
10. Endurance test with Steady Pressure
11. Endurance test with Over Pressure
12. Endurance test with Cyclic Pressure
13. Safety Blow-out Test
14. Thermal stability test at rated temperature
15. Temperature effect test
16. Energy release test



Pressure Conversion Chart

General

To convert pressure from one unit to another:

1. Start at column heading with units to convert from.
2. Move down the same column to number "1".
3. Move across this row to the column with units heading you are converting to.
4. Multiply the number in this cell with the value you are converting from to get the new value in converted units.

psi	atms.	inch WC	mm WC	cm WC	oz/in ²	Kg/cm ²	inch Hg	mm Hg	cm Hg	mbar	bar	Pa (N/m ²)	KPa	MPa
1	0.0681	27.71	703.8	70.38	16	0.0704	2.036	51.715	5.17	68.95	0.0689	6,895	6.895	0.0069
14.7	1	407.2	10,343	1,034.30	235.1	1.033	29.92	760	76	1013	1.013	101,325	101.3	0.1013
0.0361	0.00246	1	25.4	2.54	0.5775	0.00254	0.0735	1.866	0.187	2.488	0.00249	248.8	0.249	0.00025
0.001421	0.000097	0.0394	1	0.1	0.0227	0.0001	0.00289	0.0735	0.00735	0.098	0.000098	9.8	0.0098	0.00001
0.01421	0.000967	0.3937	10	1	0.227	0.001	0.0289	0.735	0.0735	0.98	0.00098	98	0.098	0.0001
0.0625	0.00425	1.732	43.986	4.4	1	0.0044	0.1273	3.232	0.3232	4.31	0.00431	431	0.431	0.00043
14.22	0.968	394.1	10001	1000.1	227.6	1	28.96	735.6	73.56	980.7	0.981	98,067	98.07	0.0981
0.4912	0.03342	13.61	345.7	34.57	7.858	0.0345	1	25.4	2.54	33.86	0.0339	3,386	3.386	0.00339
0.01934	0.001316	0.536	13.61	1.361	0.31	0.00136	0.0394	1	0.1	1.333	0.001333	133.3	0.1333	0.000133
0.1934	0.01316	5.358	136.1	13.61	3.1	0.0136	0.394	10	1	13.33	0.01333	1,333	1.333	0.00133
0.0145	0.000987	0.4012	10.21	1.021	0.2321	0.00102	0.0295	0.75	0.075	1	0.001	100	0.1	0.0001
14.504	0.987	401.9	10,210	1021	232.1	1.02	29.53	750	75	1,000	1	100,000	100	0.1
0.000145	0.00001	0.00402	0.102	0.0102	0.00232	0.00001	0.000295	0.0075	0.00075	0.01	0.00001	1	0.001	0.000001
0.14504	0.00987	4.019	102.07	10.207	2.321	0.0102	0.295	7.5	0.75	10	0.01	1,000	1	0.001
145.04	9.869	4019	102,074	10,207	2321	10.2	295.3	7500	750	10,000	10	1,000,000	1,000	1

Accreditation Service for Certifying Bodies (Europe) Ltd.



Accredited Certificate

Issued in cognisance of the requirements of 97/23/EC as amended as amended, we certify that the technical file of the product :

Product: Pressure gauge and level gauge

Responsible Organisation :

Gauges Bourdon India Private Limited,

at

Plot No.4, 5, 6, Jawahar Co-op. Industrial Estate, Kamothe, Navi Mumbai, Panvel - 410 209, Maharashtra, India.

is documented in line with the requirements of Annexure III of PED 97/23/EC and as per the declaration of the organisation the product falls within the category defined in B1 (EC design-examination) + D (production quality assurance) For Category III, D1 (production quality assurance) for category II, A (internal production control) for category I

ASCB(E) Nominated Body, ZQAPL, has performed the review of the technical file covering the requirements of the certified products as per Article 3 part 3 of PED 97/23/EC.

The detailed description of the review is presented in the nominated body final report Report 1413/01.

Gauges Bourdon India Private Limited, is required to inform the Nominated Body of any changes to the product design, its manufacturing environment and its technical documentation. Changes may require re-audit and re-assessment in order to verify the validity of this certificate.

Failure to notify the Nominated Body of changes to the design, its manufacturing environment or related technical documentation, may invalidate this certificate. Audits and assessments will be conducted on a yearly basis and additionally at the discretion of the Nominated Body or ASCB(E).

Initial Certification 06-Jan-09
Valid until 05-Jan-14

Certificate authorised for
issue by
Chairman and CEO
ASCB(E)



Accreditation Certificate Reference: 500804CE
Nominated Body Certificate Reference: CE/91/R/1413
Nominated Body : Zenith

Certified that the above product / organisation has been registered in the International Register of Quality Assessed Organisations (www.irqao.com) in accordance with the ASCB(E) terms and conditions.

Accreditation Service for Certifying Bodies (Europe) Limited
6, Ferris Place, Bournemouth, Dorset, United Kingdom BH8 0AU
Tel 0044 1202 25 22 22, Fax 0044 870 838 1070
bh8@ascb.co.uk www.ascb.co.uk
Registered in England & Wales ref 3132143



NABL

**National Accreditation Board for
Testing and Calibration Laboratories**

Department of Science & Technology, India

CERTIFICATE OF ACCREDITATION

GAUGES BOURDON (I) PVT. LTD.

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2005

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

NAVI MUMBAI

in the field of

MECHANICAL CALIBRATION

Certificate Number

C-0512

Issue Date

11/12/2010

Valid Until

10/12/2012

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the additional requirements of NABL.

Signed for and on behalf of NABL


Alok Jain
Convener


Anil Relia
Director


Dr T. Ramasami
Chairman

Zenith Quality Assessors Pvt. Ltd.
Management System Certificate

Certificate No. **QMS/91/R/1413/a**

This is to certify that

GAUGES BOURDON (INDIA) PVT. LTD.
(Manufacturing Unit of General Instruments Consortium)

at

Unit-1 : Plot No.4, 5, 6, Jawahar Co-op. Industrial Estate, Kamothe,
Panvel - 410 209, Navi Mumbai, Maharashtra, India.
Unit-2 : Plot No. 144, Jawahar Co-op. Industrial Estate, Kamothe, Panvel - 410 209,
Dist. Raigad, Maharashtra, India.

has been found to conform to Management System Standard :

ISO 9001:2008

This certificate is valid for the following products / service ranges :

Manufacture and Supply of Pressure Gauges, Diaphragm Seals, Differential Pressure Gauges, Capsule Gauges, Absolute Pressure Gauges, Pressure and Differential Pressure Switches, Manifold Valves, Snubbers, Gauge Savers, Other Accessories, Level Instruments, Level Gauges, Level Switches, Sight Flow Indicators, HART Level Transmitter and FIELDBUS Level Transmitter.

Initial Certification : 29th August, 2011
Valid until : 28th August, 2014
Modified on : 6th January, 2012
(Replaces the withdrawn Certificate No.QMS/91/R/1413 issued on 29th August, 2011)




Management Representative
Zenith Quality Assessors Pvt. Ltd.

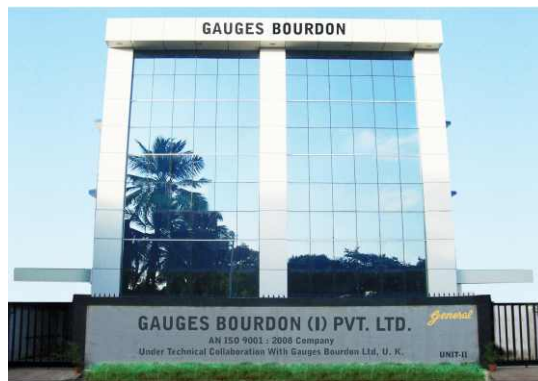
Further clarification regarding the scope of this certificate and the applicability of ISO 9001:2008 requirements may be obtained by consulting the organization.
Lack of fulfillment of conditions as set out in the Certification Agreement may render this certificate invalid.

Zenith Quality Assessors Pvt. Ltd.
306, 4th Floor, Sai Apex, Near Datta Mandir, Viman Nagar, Pune - 411 014, Maharashtra, India.
Tel : +91-20-41322014/41322042/41322043/41322064/41322082 Fax : +91-20-41314107 Email: certification@zenith-worldwide.com



State-of-the-art Manufacturing Plant (Unit I)

for Pressure / Differential Pressure Gauges, Level Instruments, Valves, Fittings & Accessories



State-of-the-art Manufacturing Plant (Unit II)

for Pressure / Differential Pressure Gauges, Switches & Accessories

HEAD OFFICE:

General® INSTRUMENTS CONSORTIUM

194/195, Gopi Tank Road, Mahim, Mumbai - 400 016.

Tel.: 022 24454387, 24449177 Fax: 022 24463507

E-mail: info@general-gauges.com Website: www.general-gauges.com

visit our AV presentation on www.general-gauges-corporatefilm.com

MFG. PLANT:

Gauges Bourdon (India) Pvt. Ltd.

(Under technical collaboration with M/s. Gauges Bourdon, U.K.)

Unit I: Plot No: 4, 5, 6, Jawahar Co-op Industrial Estate, Kamothe, Panvel - 410 209, Dist. Raigad, Maharashtra
Tel.: 022 27421095, 27421903, 27423744, 27423745 Fax: 022-27421901 E-mail: gbipl@bom8.vsnl.net.in

Unit II: Plot No: 144, Jawahar Co-op Industrial Estate, Kamothe, Panvel - 410 209, Dist. Raigad, Maharashtra
Tel.: 09819750005 E-mail: gbipl2@general-gauges.com

BRANCHES:

NEW DELHI

511, Eros Apartment, 56, Nehru Place,
New Delhi - 110 019
Phone : 011-26433201 Fax: 011-41647464
Email : gicdelhi@general-gauges.com

VADODARA

208, Dhyey Commercial Complex, Near Shivaji Circle,
Mujmahuda, Vadodara - 390 020
Phone : 0265-3266055 Fax: 0265-2350695
Email : gicbaroda@general-gauges.com

CHENNAI

Office No 26, 1st Floor, Bora Complex, 20 Flower Street,
Saidapet, Chennai - 600 015
Phone : 044-24351763 Fax: 044-24353910
Email : gicchennai@general-gauges.com

KOLKATA

Moonsun Apartment, 5th Floor, Kaikhali,
V.I.P. Rd., Kolkata - 700 052
Phone : 09331103911 Fax: 033-25733898
Email : gickolkata@general-gauges.com

HYDERABAD

411/412, Padmavati Plaza, Opp.R.S.Brothers,
Kukatpally Hsg.Board, Hyderabad-500 072
Phone : 09395106121
Email : gichyderabad@general-gauges.com

BANGALORE

B-Wing, Unit No.1005, 10th Floor, Mittal Tower,
M.G. Road, Bangalore- 560 001
Phone : 080-41510945 Fax: 080-41510946
Email : gicbangalore@general-gauges.com

OVERSEAS NETWORK:

■ AUSTRALIA	■ BANGLADESH	■ CANADA	■ EGYPT	■ FRANCE	■ INDONESIA	■ IRAN
■ KAZAKHSTAN	■ KUWAIT	■ MALAYSIA	■ OMAN	■ QATAR	■ SAUDI ARABIA	■ SINGAPORE
■ SRI LANKA	■ THAILAND	■ UAE	■ UK	■ USA		