

DIAPHRAGM INSTRUMENTS



Ambit Instruments manufactures quality differential pressure instruments designed to measure the difference in pressure between two points in a system and show it on a single dial instrument. A magnetic movement senses the differential pressure. The instrument has separate pressure and indicating chambers.

These diaphragm instruments can indicate small values of differential pressure even when used at high line pressures. These differential pressure instruments provide instantaneous and continuous information regarding system conditions helping in eliminating premature servicing of equipment, avoid unscheduled down time of costly processes and detect abnormal system conditions.

Switching Facility : Instruments can be supplied with reed switches to initiate alarms, activate other equipment, or shut the system down. Two switches are used when high and low limits are desired. Gauge-switch models provide the user with both, gauge readout and switch operation.

APPLICATIONS :

Monitor filter conditions, set filter by-pass, or initiate filter cleaning cycle. Check condition of pumps, heat exchangers, and other processing equipment. Detect abnormal and reverse flow conditions. Measure flow rates with venturi, orifice, or pitot tube.

400 DGC

Medium Convuluted Diaphragm Instruments

SALIENT FEATURES

- Cost effective and reliable.
- Uses diaphragm sensor.
- Easy to read dial instrument eliminates the accumulated errors of two instrument installations.
- **Differential pressure range from 25 mm to 600 mm H₂O .**
- **Working pressures 35 bar.**
- Indicating mechanism isolated from pressure chamber.
- Wide applications in air, gas and liquid media.
- Zero migration between high and low pressures.
- Manufactured in ISO certified plant.
- Exported worldwide.



Ambit Instruments Pty Ltd.

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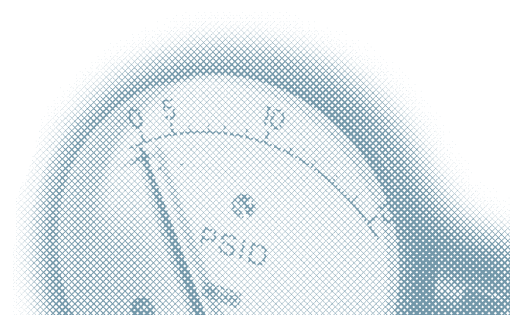
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MAGNETIC PRINCIPLE

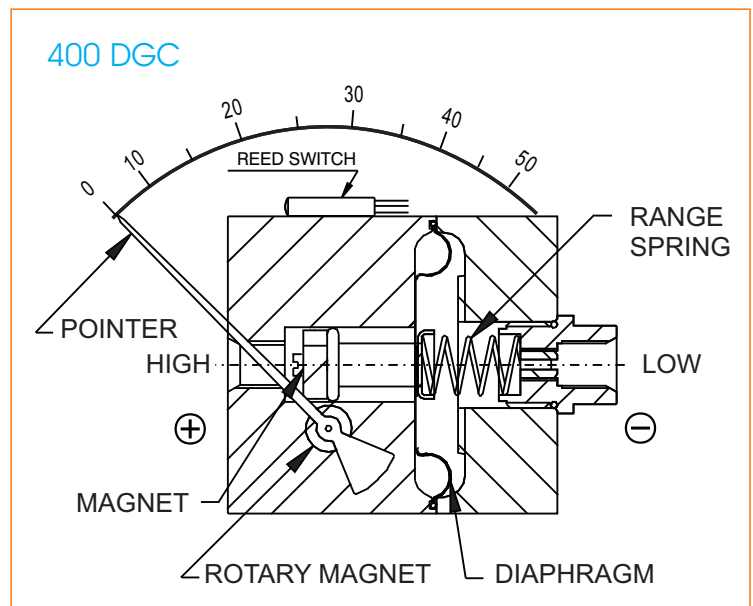


OPERATING PRINCIPLE

High and Low pressures are separated by a sensor assembly consisting of a magnet, diaphragm, and a range spring. The difference in pressure causes the sensor assembly to move in proportion to the change against a range spring.

A rotary magnet, located in a separate body cavity and isolated from the acting pressures, is rotated by magnetic coupling as per the linear movement of the sensor assembly. A pointer attached to the rotary magnet indicates differential pressure on the dial.

Switch : Reed switches are located adjacent to the pressure chamber and are activated by the magnetic field of the sensor assembly



TECHNICAL DATA (MODEL 400 DGC)

Ranges	: 0-25 to 0-600 mm H ₂ O
Units of calibration	: mm H ₂ O, mbar, IN H ₂ O, kPa.
Operating principle	: Magnetic coupling with a convoluted diaphragm sensor.
Working pressure	: 35 bar
Accuracy	: ± 2 % of FSD (Ascending)
Dial sizes	: 3.5" (80mm), 4" (100mm), 4.5" (115mm) & 6"(150mm)
Body Material	: Aluminium & SS-316.
Temperature.	: 80°C Max. for the media.
Protection	: IP 65 for gauge
Migration of media	: Zero migration between high and low pressures.
Connections	: 1/4" NPT(F) or 1/4" BSP(F)(on request, longer lead time)
Wetted parts	: Diaphragm, ceramic magnet, SS 304 spring, Aluminium or SS-316 as per the gauge body
Seals	: Buna-N (Standard), Viton
Porting	: In-line (Standard), Bottom or Back
Switch	: One or two SPST or one SPDT. Switches are field adjustable. The set points can be increased or decreased externally with simple screwdriver adjustments. When two switches are used, either switch can be adjusted independently.
Dial case	: Stainless steel case and flange.
Window	: Glass (Standard), Acrylic, Toughened glass on request.
Other options	: Dual scale, colour band.



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400 DGC

ΔP Range: 0 to 25 upto 600 mm H₂O
0 to 1 upto 25 inch H₂O

COMBINATIONS

Gauge



Switch



Gauge + switch (with a DIN plug on top)



Specifications

Accuracy	±2% of the FSD (Ascending)
Migration	No migration. Zero leakage from high to low port
Range	0-25 to 0-600 mm H ₂ O or similar ranges in other units
First marking on the scale	15% of the FSD
Sensing element	Diaphragm
Wetted parts	Diaphragm, body material, SS 302 spring & ceramic magnet
Case material & dial size	Stainless steel (SS 304): 2.5", 3.5", 4", 4.5", 6.0" Engineering polymer: 2.5", 4.5", 6" Bayonet: 4.0"
Mounting	Direct, front flange, 2" pipe & surface mounting
Maximum working pressure	35 bar / 500 psi.
Maximum process temperature	0 to 80°C (32 to 175°F)
Body material	Aluminum, SS 316
Diaphragm	Buna-N, Viton, EPDM
Window	Float glass (Std.), toughened glass, acrylic & safety glass
Connection	1/4" NPT - F (Std.), Optional 1/4" BSP - F with adaptor
Porting	In-line, rear, bottom, bottom & vent, in-line & vent, in-line & bottom.
Over range protection	Up to the max. working pressure from high side
Protection for gauge & switch	IP 65 / NEMA-4

Options

Liquid filling
Red follower pointer
Customer logo
Dual scale
Colour band
Filter mesh in (+) connection
Descending calibration

Switches (Adjustable in 20-80% of FSD)

1 or 2 SPSTs with a DIN plug
1 or 2 SPSTs with a terminal strip
1 SPST with a built in relay
1 or 2 SPDTs with a terminal strip
1 or 2 SPDTs with a DIN plug

Available in engineering polymer (EP) Case



6.0"



4.5"

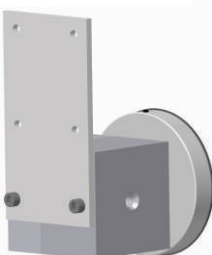


2.5"

- Removable glass
- Strong and durable
- Panel mounting possible
- Condensation can be cleaned
- Light weight

MOUNTING BRACKETS

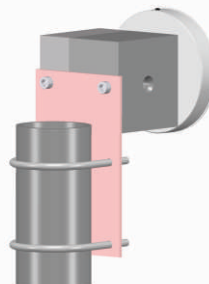
Surface mounting



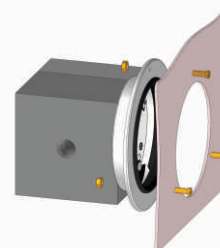
Horizontal pipe mounting



Vertical pipe mounting



Panel / Flange mounting





SELECT MODEL

1 Series	400 DGC	
2 Type	G Gauge GS Gauge + Switch	S Switch
3 Body material	A Aluminum S SS-316	
4 Dial size	2.5 2.5" (63 mm) 3.5 3.5" (80 mm) 4.0 4.0" (100mm)	4.5 4.5" (115 mm) 6.0 6.0" (150 mm)
5 Connection	4N 1/4" NPT (F) (Std.) ZZ Special connection sizes using adaptor	4B 1/4" BSP (F)
6 Porting	1 In-line (Std.) 2 Rear / Back 3 Bottom 4 Bottom & vent	5 In-line & vent 6 In-line & bottom 8 In-line & back
7 Case	S4 SS 304 (Std.) F4 SS 304 flange EP Engineering polymer (available in 2.5", 4.5", 6.0" only) BF Bayonet (available in 4.0" safety glass only)	S6 SS 316
8 Window	F Glass (Std.) T Toughened glass	A Acrylic L Safety glass
9 Seals/Diaphragm	B Buna-N (Std.) V Viton	E EPDM

Advantages :

Instrument automatically resets after line surges and cold start.
This eliminates balancing of differential pressure instrument after such events.

Notes

- 1.6% accuracy available on request.
- For SS 316 case, please contact factory (MOQ applies).
- Liquid filling + Follower pointer available.
- Switch adjustment range between 20-80% of full scale deflection (FSD). For specific details, please contact factory.
- Mounting bracket: Aluminum (Standard) ; SS (Optional)

10 Switch

0	None
1	One SPST, with a DIN plug †
2	One SPST, with a terminal strip
2A	One SPST, with built in relay
3	Two SPSTs, with a DIN plug †
4	Two SPSTs, with a terminal strip
4A	Two SPSTs. with built in relay

+

SPST Specifications (AC/DC max)

1 Standard	2	3	4
10 VA	40 VA	100 VA	60 VA
100 V	230 V	300 V	240 V
0.5 Amp	1 Amp	1 Amp	3 Amp
Adjustable	Adjustable	Adjustable	Adjustable

+

SPDT Specifications (AC/DC max)

1 Standard	2	3
3 VA	5 VA	5 VA
30 V	125 V	175 V
0.3 Amp	0.25 Amp	0.25 Amp
Adjustable	Adjustable	Adjustable

5	One SPDT, with a DIN plug †
6	One SPDT, with a terminal strip
7	Two SPDTs, with two DIN plugs
8	Two SPDTs, with a terminal strip

Example: Switch selection 21 is 1 SPST with terminal strip
with switch specifications 10VA, 100V, 0.5Amp

† DIN plug mounted on the top.

11 Range

Standard ranges : (Other ranges & units on request)

mm H2O	25	50	125	250	600
In. H2O	1	2	5	10	25
mbar	-	5	-	25	60
kPa	0.25	0.5	1.25	2.5	6

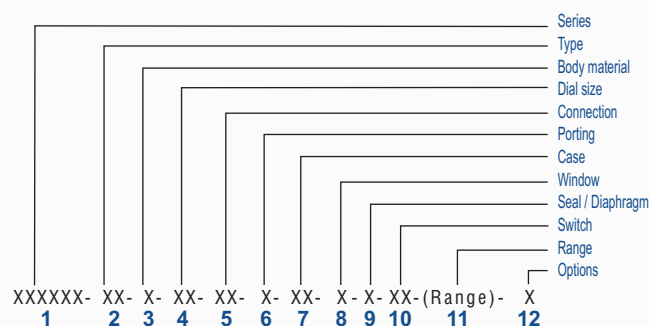
12 Options

0	None
A	Glycerine*
B	Red follower pointer on acrylic window *
C	Customer Logo
D	Dual scale
E	Colour band
F	Filter mesh in (+) connection
G	Reverse Port**
H	Descending calibration (long delivery time)
N	NACE
S	Silicone oil*
I	Oxygen service (Contact factory)
M1	2" horizontal pipe mounting bracket
M2	Surface mounting bracket
M3	2" vertical pipe mounting bracket

* Affects accuracy

** Pointer moves from right to left

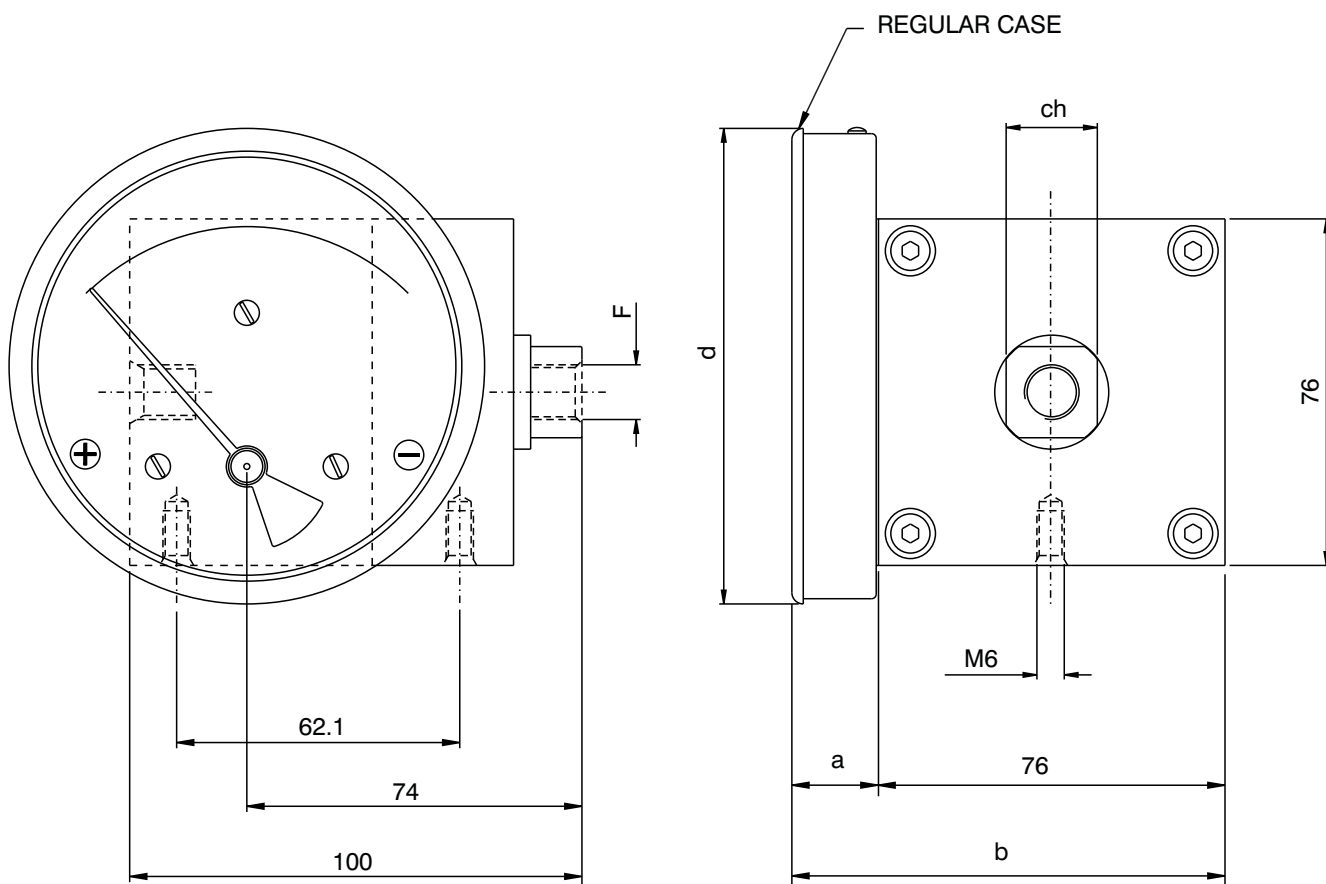
Ordering code sequence



Contact factory for special execution.



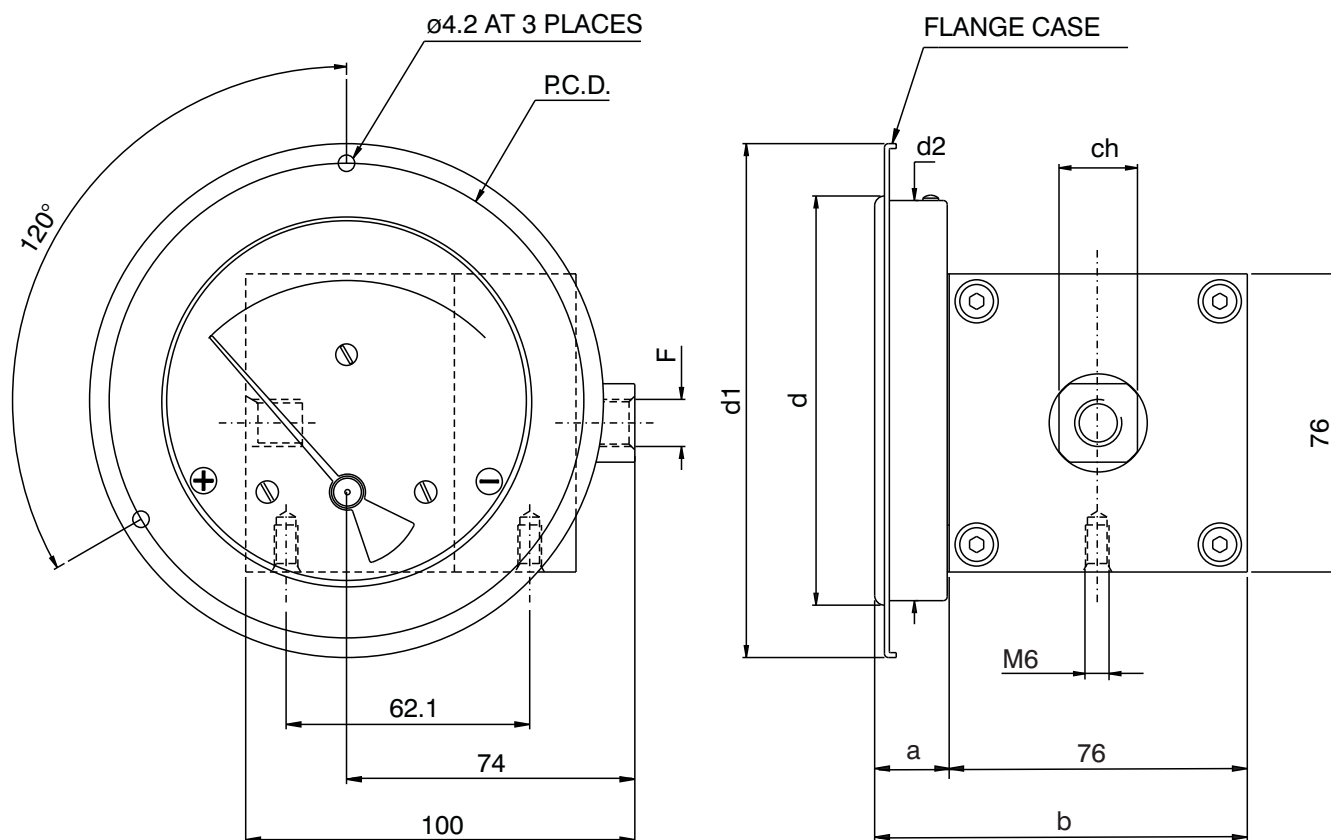
STANDARD DIMENSIONS



DIAL Ø	F	a	b	d	ch
80 (3.5")	1/4"BSP - 1/4"NPT	19	95	83	20
100 (4")	1/4"BSP - 1/4"NPT	19	95	104.3	20
115 (4.5")	1/4"BSP - 1/4"NPT	19	95	119.7	20
150 (6")	1/4"BSP - 1/4"NPT	19	95	154.3	20



STANDARD DIMENSIONS (FOR FLANGE)

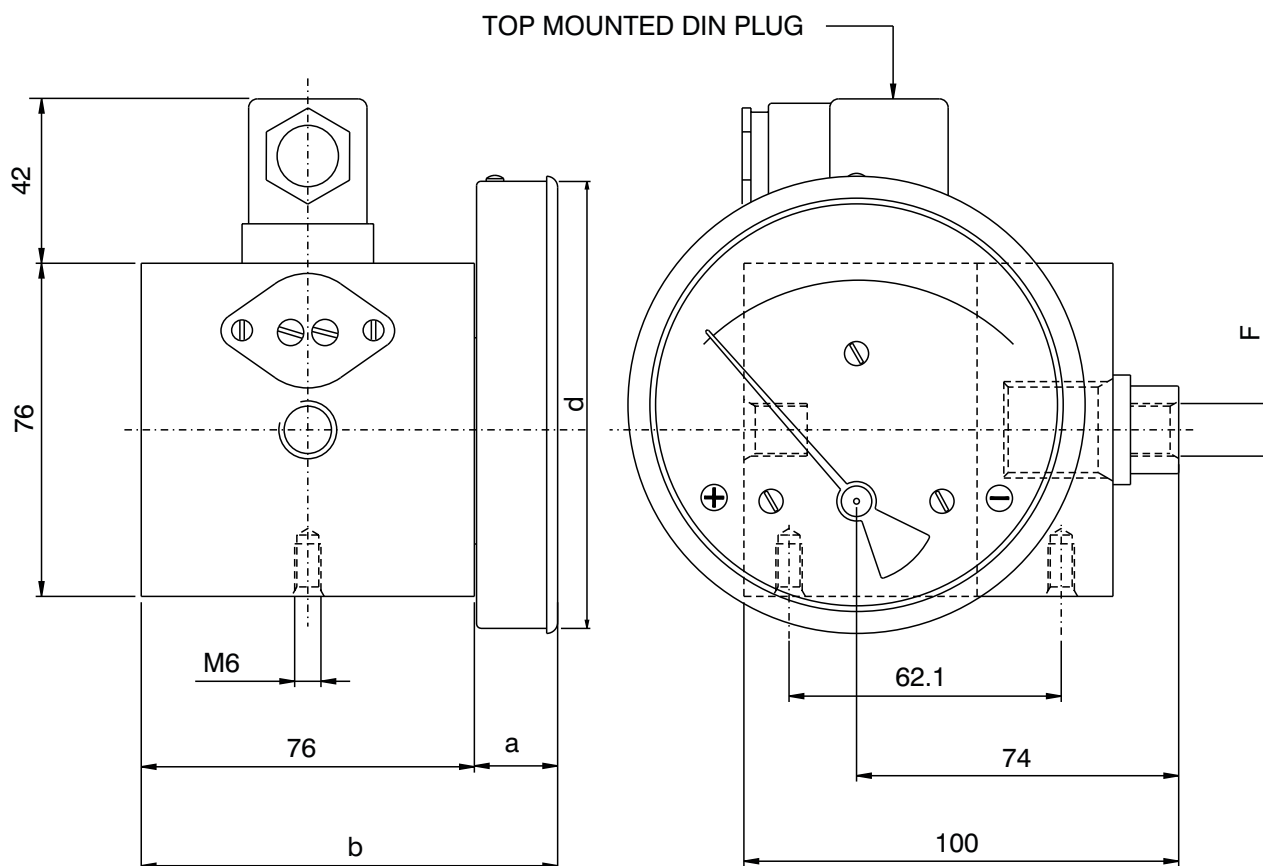


DIAL Ø	F	a	b	d1	d2	ch	p. c. d	d
80 (3.5")	1/4" BSP - 1/4" NPT	19	95	109	82.0	20	99	83.0
100 (4.0")	1/4" BSP - 1/4" NPT	19	95	131	102.0	20	121	104.3
115 (4.5")	1/4" BSP - 1/4" NPT	19	95	146	117.0	20	136	119.7
150 (6.0")	1/4" BSP - 1/4" NPT	19	95	181	152.5	20	171	154.3

* PANEL CUTOUT = d + 1 mm.

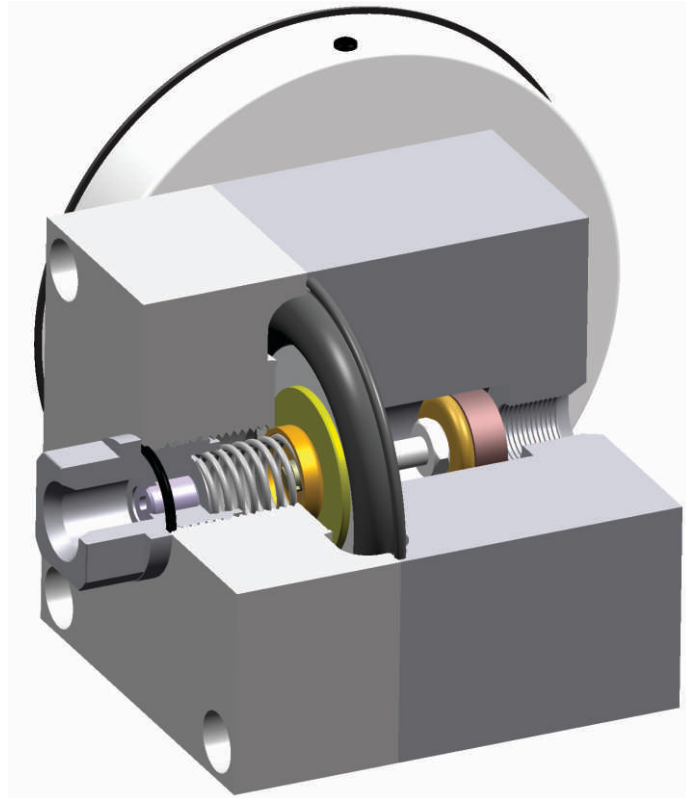


GAUGE + SWITCH WITH REED CONTACTS & DIN PLUG



DIAL Ø	F	a	b	d
80 (3.5")	1/4"BSP - 1/4"NPT	19	95	83
100 (4")	1/4"BSP - 1/4"NPT	19	95	104.3
115 (4.5")	1/4"BSP - 1/4"NPT	19	95	119.7
150 (6")	1/4"BSP - 1/4"NPT	19	95	154.3

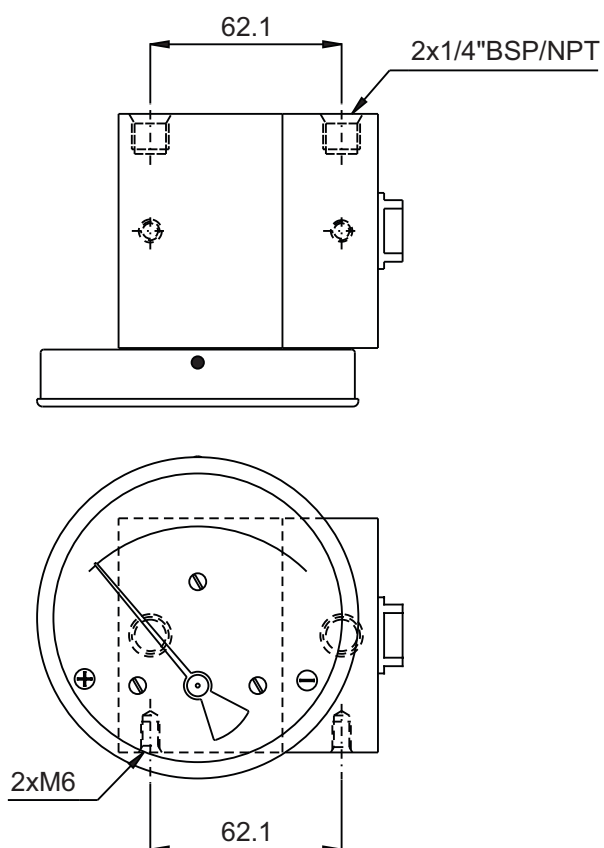
CUT SECTION



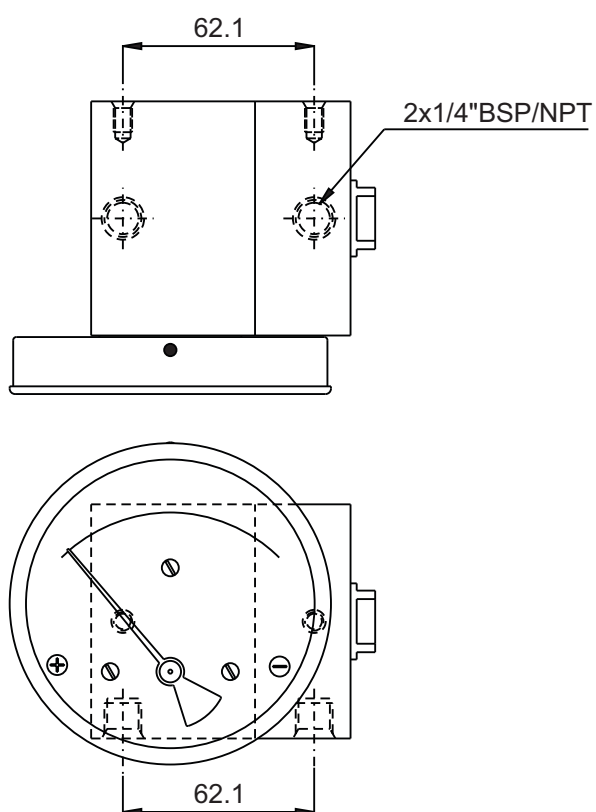


PORTING DETAILS

BACK PORTING



BOTTOM PORTING

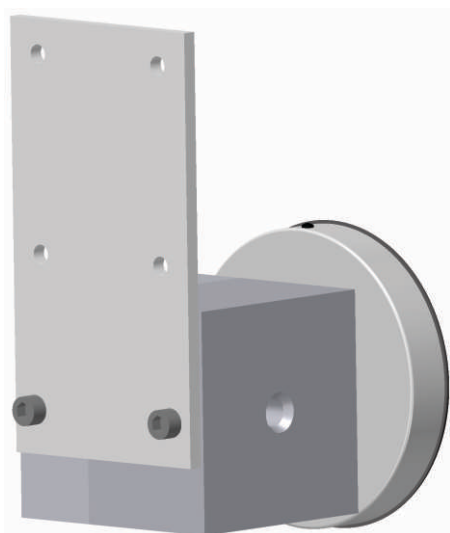


Note : 2 x M6 Mounting holes provided on adjacent face at the same porting distance.



MOUNTING COMBINATIONS

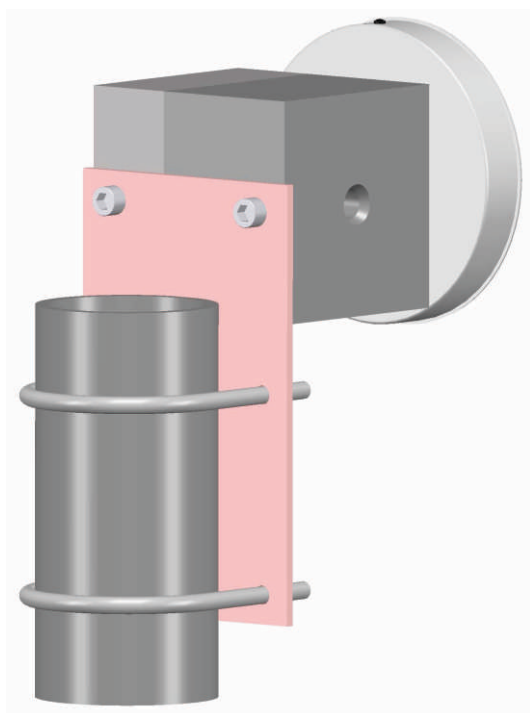
SURFACE MOUNTING



HORIZONTAL PIPE MOUNTING



VERTICAL PIPE MOUNTING



PANEL MOUNTING

