

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. They 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. Determine obstructions in process lines. Check condition of pumps, heat exchangers, and other processing equipment. Adjust flow rates in piping systems. Monitor liquid levels in storage tanks.

200 DGR

Rolling Diaphragm Instruments

SALIENT FEATURES

- Cost effective and reliable.
- Uses diaphragm sensor.
- Easy to read dial instrument eliminates the accumulated errors of two instruments installations.
- **High operating pressure up to 200 bar.**
- **Differential pressure range up to 7 bar.**
- Indicating mechanism isolated from pressure chamber.
- Wide applications in air, gas and liquid media.
- Reed contact switches optional.
- Zero migration between high and low pressures.
- Only switch is also available.
- Manufactured in ISO certified plant.



Ambit Instruments Pty Ltd.

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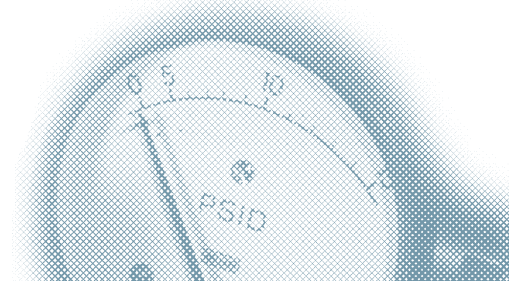
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MAGNETIC PRINCIPLE

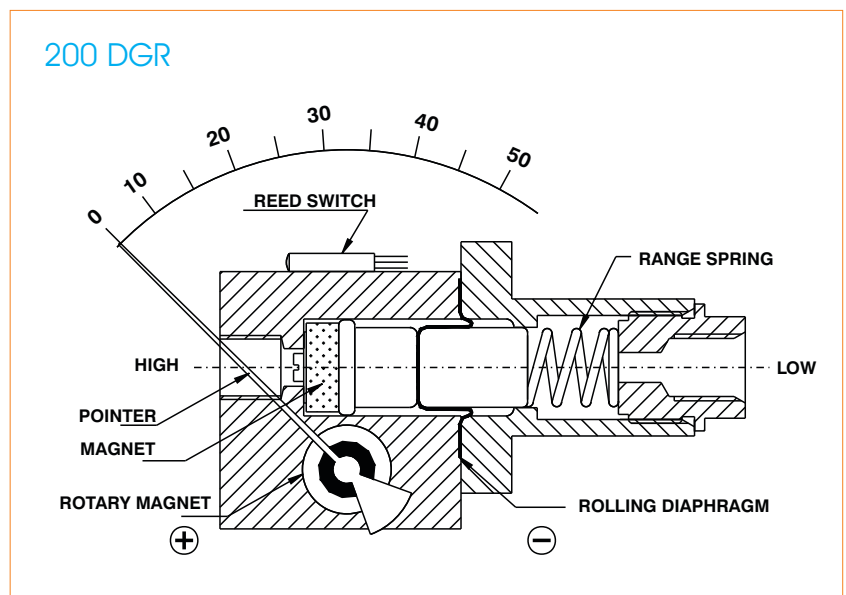


OPERATING PRINCIPLE

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 200 DGR)

Ranges	:	0-0.25 to 0-7 bar.
Units of calibration	:	Kg/cm ² , bar, mbar, kPa, psi
Operating principle	:	Magnetic coupling with a rolling diaphragm sensor.
Working pressure	:	200 bar / 3000 psi
Accuracy	:	± 2 % of FSD (Ascending)
Dial sizes	:	2.5"(63mm), 3.5"(80mm), 4"(100mm), 4.5"(115mm) & 6"(150mm).
Body Material	:	Aluminium, Brass & SS-316.
Temperature	:	80°C Max. for the media.
Protection	:	IP 65 for gauge
Migration of media	:	Zero migration between high and low pressures.
Wetted parts	:	Diaphragm, ceramic magnet, SS 304 spring. Other internal parts in Aluminium, or SS-316 as per the body.
Seals	:	Buna-N (Standard), Viton
Connections	:	1/4" NPT (F) or 1/4" BSP(F)(on request,longer lead time)
Porting	:	In line (standard), Back & bottom on request.
Switch	:	SPST or SPDT, one or two. Switches are field adjustable. The set points can be increased or decreased externally with a 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	:	Glycerine filling, Red resettable follower pointer, dual scale, DIN plug, strainer in (+) connection.



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200 DGR

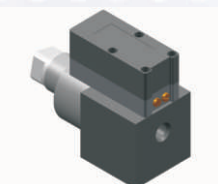
ΔP Range: 0 to 0.25 upto 7 bar
0 to 5 upto 100 psi

COMBINATIONS

Gauge



Switch



Gauge + switch

(with a terminal strip inside)



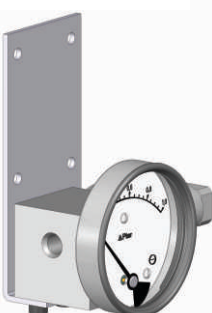
Gauge + switch

(with a DIN plug on top)



MOUNTING BRACKETS

Surface mounting



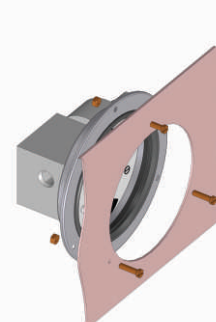
Horizontal pipe mounting



Vertical pipe mounting



Panel / Flange mounting



Specifications

Accuracy	±2% of the FSD (Ascending)
Migration	No migration. Zero leakage from high to low port
Range	0-0.25 to 0-7 bar or equivalent 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" Engineering polymer: 2.5", 4.5", 6" Bayonet: 4"
Mounting	Direct, front flange, 2" pipe & surface mounting
Maximum working pressure	200 bar / 3000 psi
Maximum process temperature	0 to 80°C (32 to 175°F)
Body material	Aluminum, Brass, SS 316, Monel
Diaphragm	Buna-N, Viton, EPDM
Window	Float glass (Std.), toughened glass, acrylic & safety glass
Connection	1/4" NPT(F) (Std.), 1/4" BSP(F) and others through adaptor
Porting	In-line, rear, bottom, in-line & bottom.
Over range protection	Up to the max. working pressure from high side. <i>Never pressurize only LP side beyond 25 bar</i>
Protection for gauge & switch	IP 65 / NEMA-4

Options

Liquid filling (glycerine/ silicone)
Red follower pointer
Customer logo
Dual scale
Color band
Filter mesh in (+) connection
Descending calibration

Switches (Adjustable in 30-100% 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



SELECT MODEL

1 Series	200 DGR			
2 Type	G	Gauge	S	Switch
	GS	Gauge + Switch		
3 Body material	A	Aluminum	S	SS-316
	B	Brass	M	Monel
4 Dial size	2.5	2.5" (63 mm)	4.5	4.5" (115 mm)
	3.5	3.5" (80 mm)	6.0	6.0" (150 mm)
	4.0	4.0" (100 mm)		
5 Connection	4N	1/4" NPT (F) (Std.)	4B	1/4" BSP (F)
	ZZ	Special connection sizes using adaptor		
6 Porting	1	In-line (Std.)	4	Inline & bottom
	2	Rear / Back		
	3	Bottom		
7 Case	S4	SS 304 (Std.)	S6	SS 316
	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)		
8 Window	F	Glass (Std.)	A	Acrylic
	T	Toughened glass	L	Safety glass
9 Seals/Diaphragm	B	Buna-N (Std.)	E	EPDM
	V	Viton		
10 Switch	Select option & specifications			

Advantages :

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

Notes

- Top vent not available.
- For SS 316 case, please contact factory (MOQ applies).
- Liquid filling + Follower pointer available.
- Switch adjustment range between 30-100% of full scale deflection (FSD). For specific details, please contact factory.
- Mounting bracket: Aluminum (Standard) ; SS (Optional)

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

+

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

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

+

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

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)

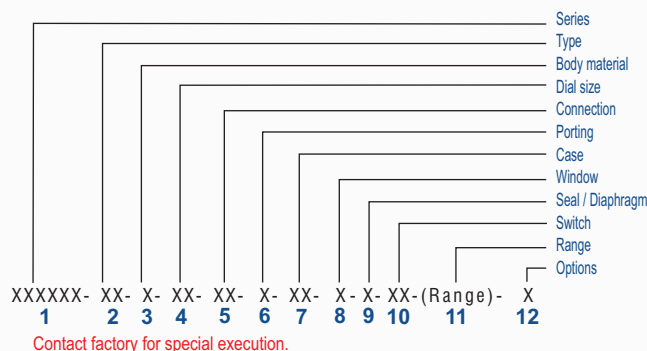
Kg/cm ²	0.25	-	0.5	0.75	1	-	2	2.5	-	4	7
bar	0.25	-	0.5	0.75	1	-	2	2.5	-	4	7
mbar	250	-	-	750	-	-	-	-	-	-	-
psi	-	5	7	-	15	25	30	-	40	60	100
kPa	25	-	50	75	100	-	200	250	-	400	700

12 Options

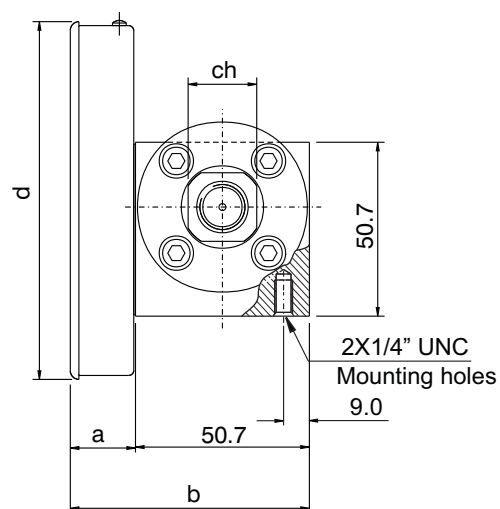
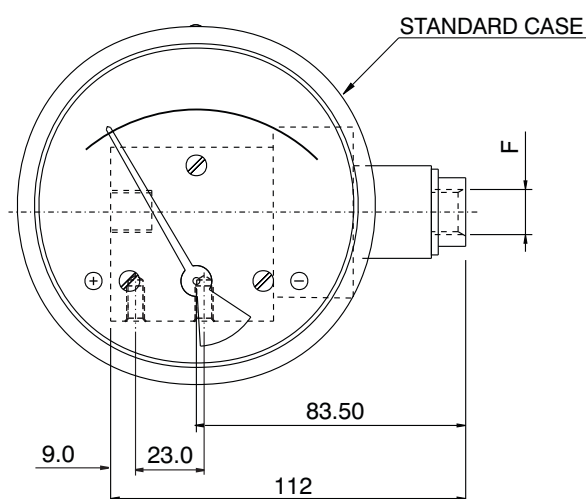
0	None
A	Glycerine*
B	Red follower pointer on acrylic window *
C	Customer Logo
D	Dual scale
E	Colour band
F	Filter mesh in (+) connection
H	Descending calibration (long delivery time)
N	NACE
S	Silicone oil*
I	Oxygen service (Contact factory)
M1	2" horizontal pipe mounting bracket
M2	Surface mounting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

* Affects accuracy

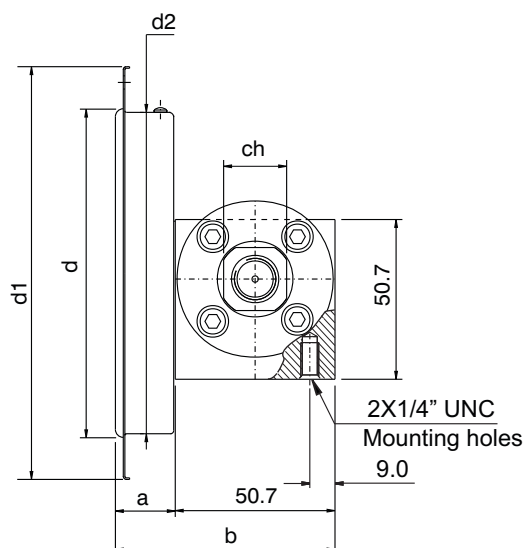
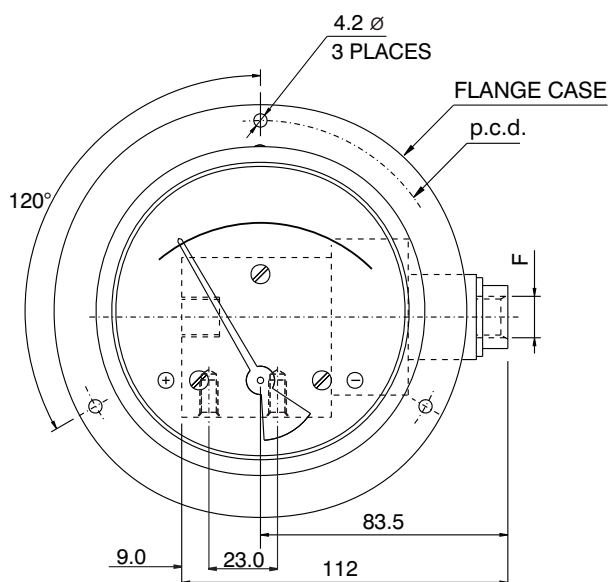
Ordering code sequence



STANDARD DIMENSIONS



DIAL Ø	F	a	b	d	ch
63 (2.5")	1/4"BSP - 1/4"NPT	19	69.7	66	20
80 (3.5")	1/4"BSP - 1/4"NPT	19	69.7	83	20
100 (4")	1/4"BSP - 1/4"NPT	19	69.7	104.3	20
115 (4.5")	1/4"BSP - 1/4"NPT	19	69.7	119.7	20
150 (6")	1/4"BSP - 1/4"NPT	19	69.7	154.3	20

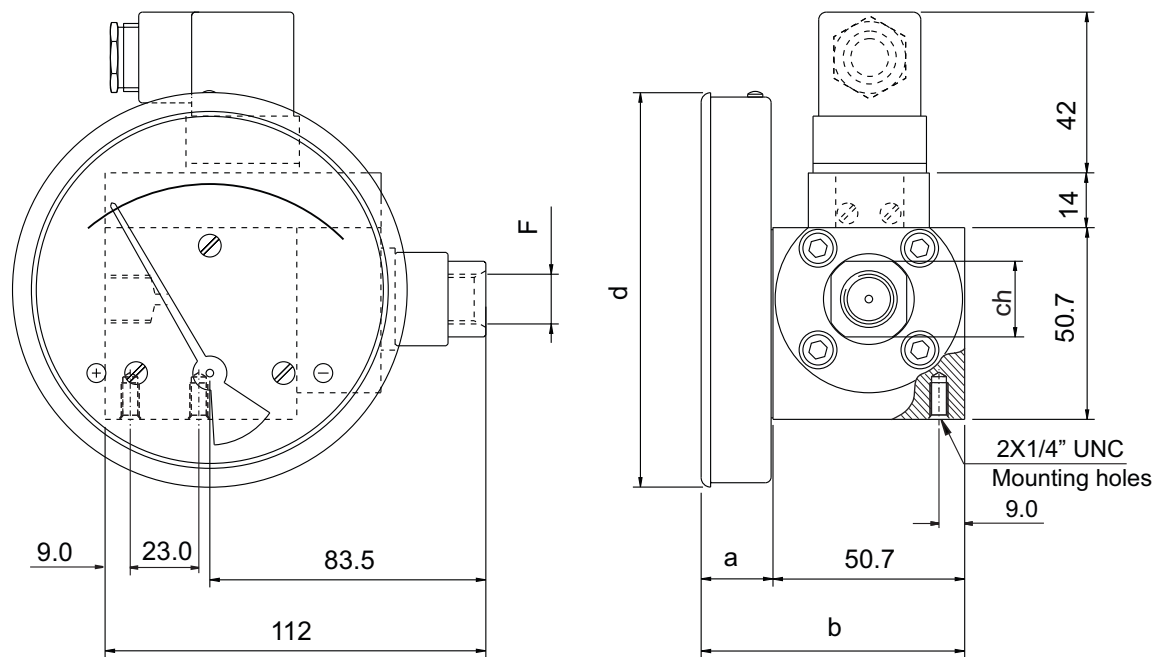


DIAL Ø	F	a	b	d1	d2	ch	p.c.d.	d *
63 (2.5")	1/4"BSP - 1/4"NPT	19	69.7	93	65	20	83	66
80 (3.5")	1/4"BSP - 1/4"NPT	19	69.7	109	82	20	99	83
100 (4")	1/4"BSP - 1/4"NPT	19	69.7	131	102	20	121	104.3
115 (4.5")	1/4"BSP - 1/4"NPT	19	69.7	146	117	20	136	119.7
150 (6")	1/4"BSP - 1/4"NPT	19	69.7	181	152.5	20	171	154.3

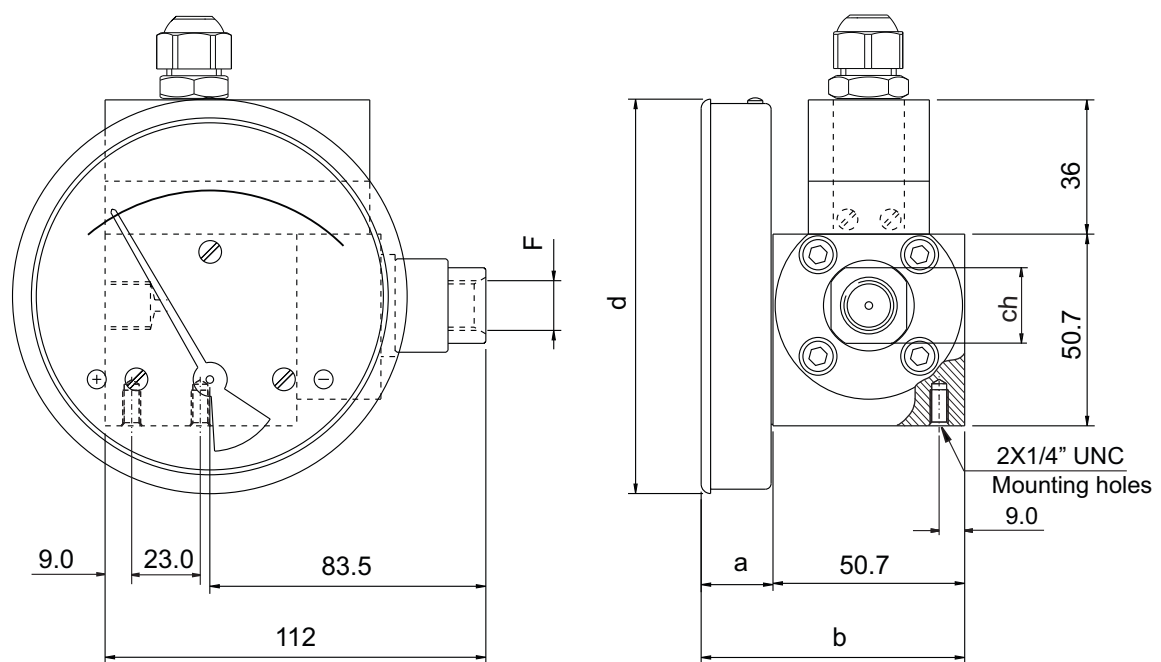
* PANEL CUT OUT = $d + 1$ mm.



GAUGE + SWITCH WITH REED CONTACTS WITH DIN PLUG AND TERMINAL STRIP

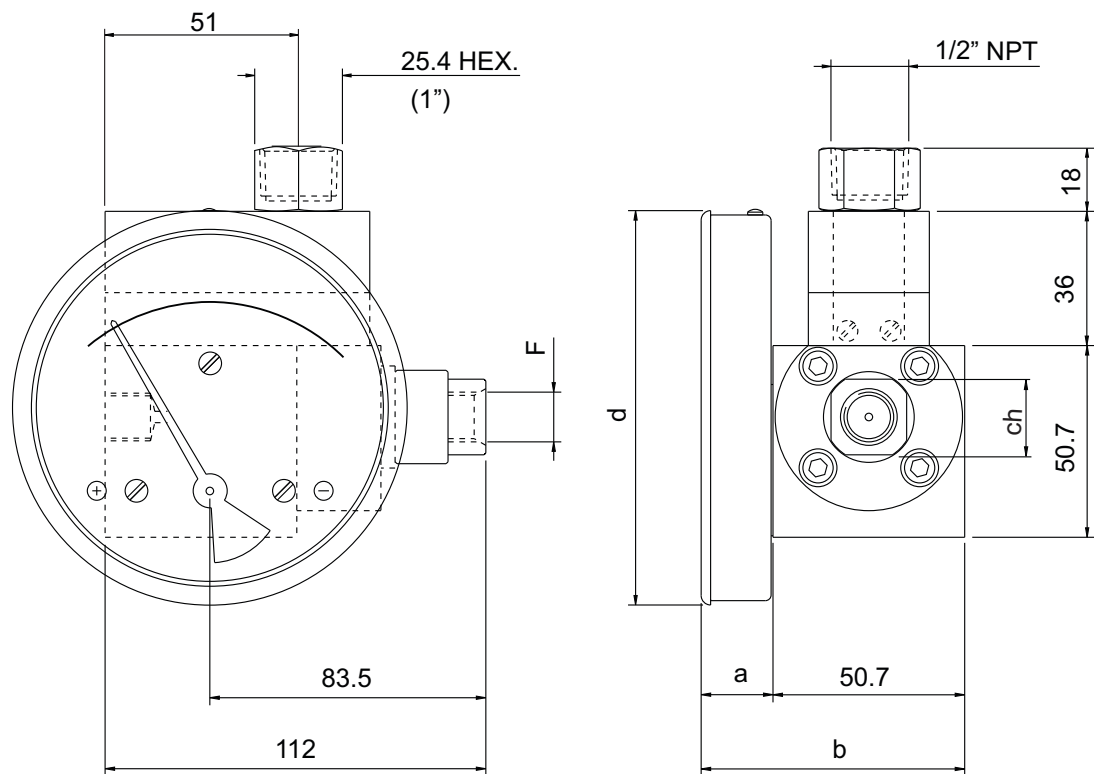


DIAL Ø	F	a	b	d	ch
63 (2.5")	1/4"BSP - 1/4"NPT	19	69.7	66	20
80 (3.5")	1/4"BSP - 1/4"NPT	19	69.7	83	20
100 (4")	1/4"BSP - 1/4"NPT	19	69.7	104.3	20
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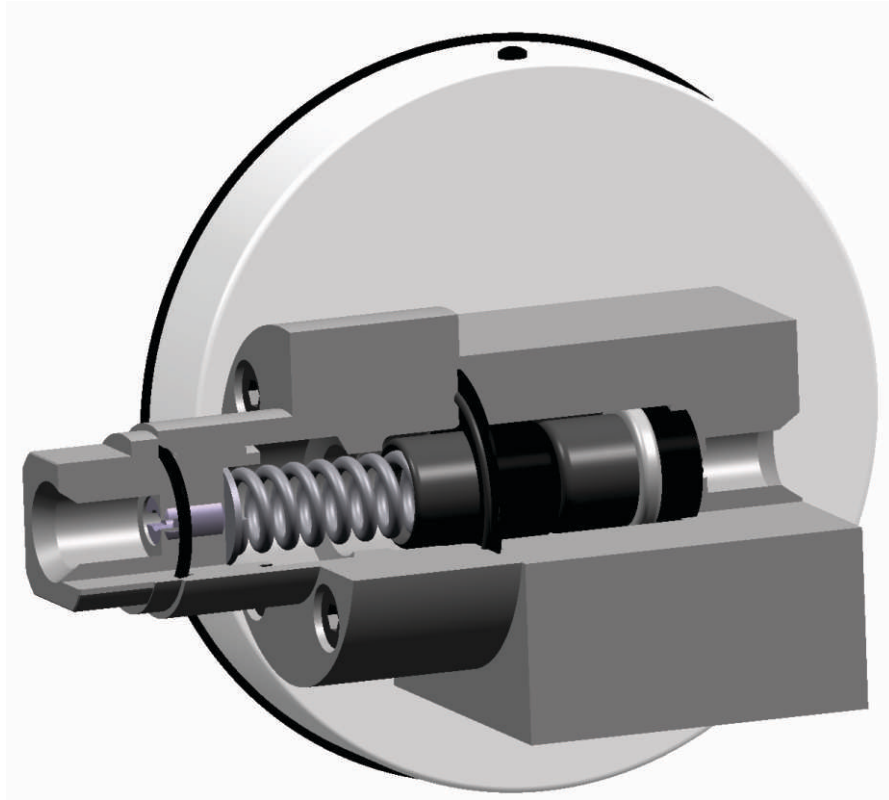


GAUGE + SWITCH WITH REED CONTACTS WITH TERMINAL STRIP & 1/2" CONDUIT CONNECTION



DIAL Ø	F	a	b	d	ch
63 (2.5")	1/4"BSP - 1/4"NPT	19	69.7	66	20
80 (3.5")	1/4"BSP - 1/4"NPT	19	69.7	83	20
100 (4")	1/4"BSP - 1/4"NPT	19	69.7	104.3	20
115 (4.5")	1/4"BSP - 1/4"NPT	19	69.7	119.7	20
150 (6")	1/4"BSP - 1/4"NPT	19	69.7	154.3	20

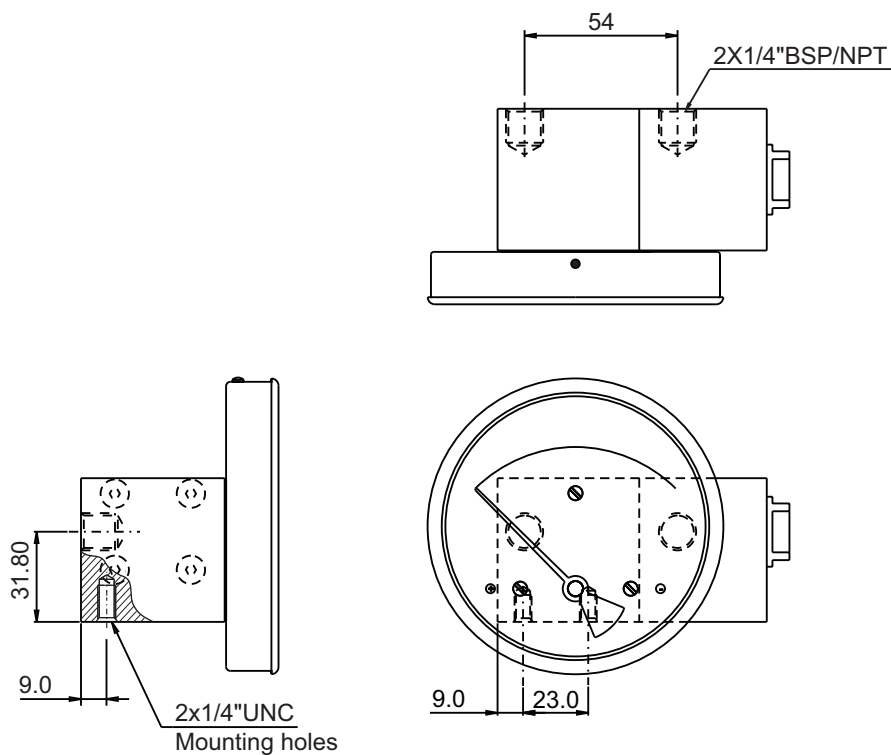
CUT SECTION



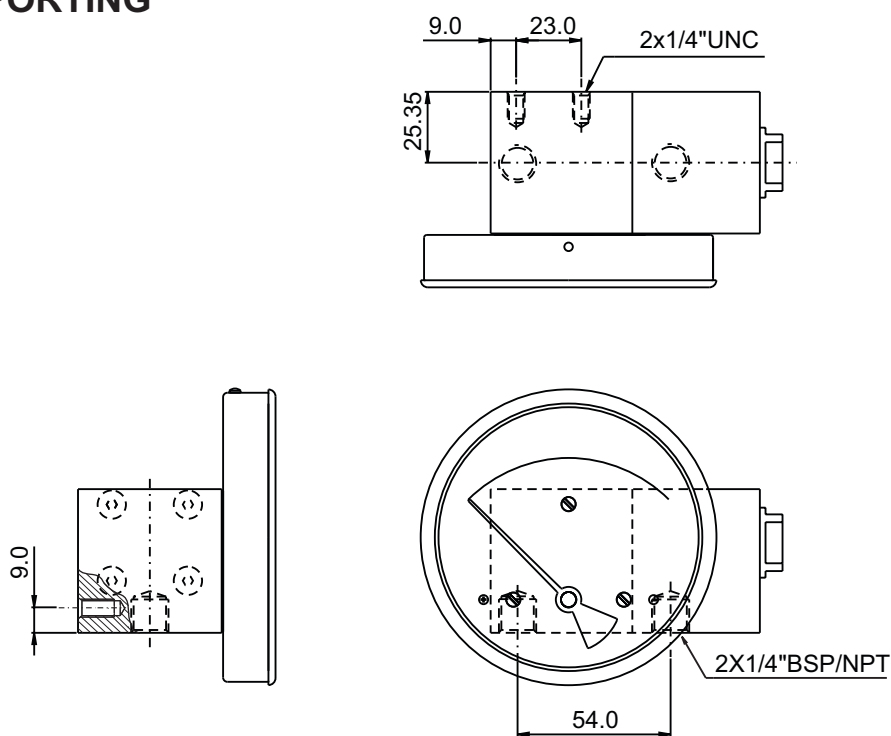


PORTING DETAILS

BACK PORTING



BOTTOM PORTING

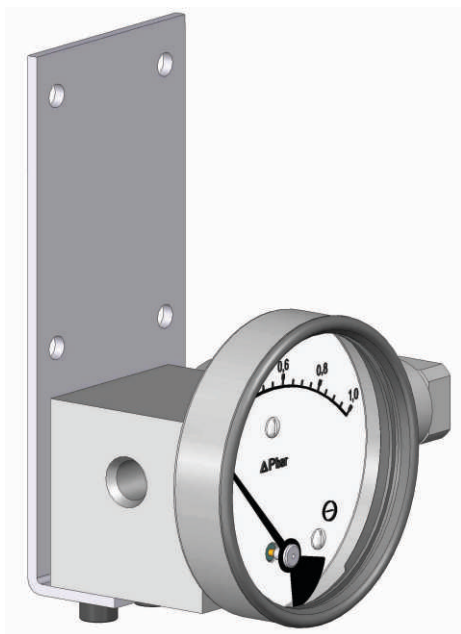


NOTE : 2x1/4\"UNC MOUNTING HOLES PROVIDED ON REQUEST.



MOUNTING COMBINATIONS

SURFACE MOUNTING



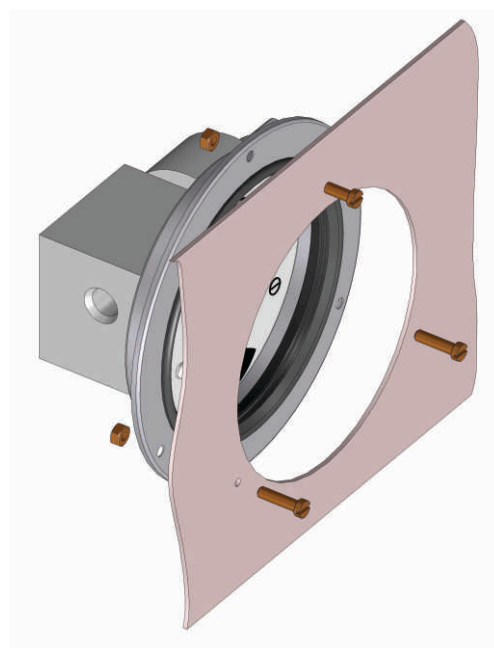
HORIZONTAL PIPE MOUNTING



VERTICAL PIPE MOUNTING

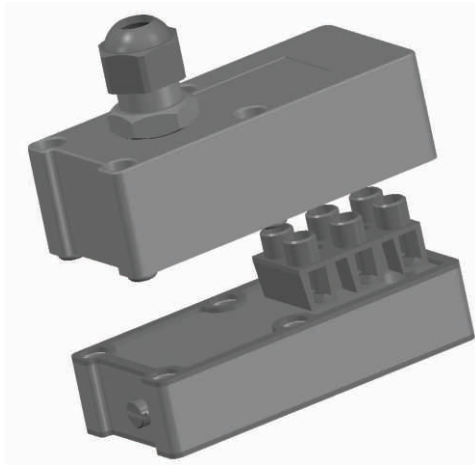


PANEL MOUNTING



SWITCH COVER COMBINATIONS

Terminal strip and cable gland (IP65)



DIN plug

