

DIAPHRAGM INSTRUMENTS



These 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. Detect abnormal and reverse flow conditions. Measure flow rates with venturi, orifice, or pitot tube. Balance and adjust flow rates in piping system. Monitor liquid levels in tanks.

300 DGC

Small Convuluted Diaphragm Instruments

SALIENT FEATURES

- Cost effective and reliable.
- Simple and compact design.
- Easy to read dial gauge eliminates the accumulated errors of two instrument installations.
- **Working pressure up to 100 bar.**
- **Differential pressure range up to 4bar.**
- Adjustable reed contact switching.
- Indicating mechanism isolated from pressure chamber.
- Wide applications in air, gas and liquid media.
- Zero migration between high and low pressures.
- Only switch is also available.
- Manufactured in ISO certified plant.
- Exported worldwide.



Ambit Instruments Pty Ltd.

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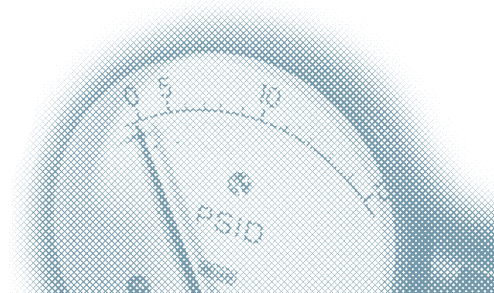
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MAGNETIC PRINCIPLE

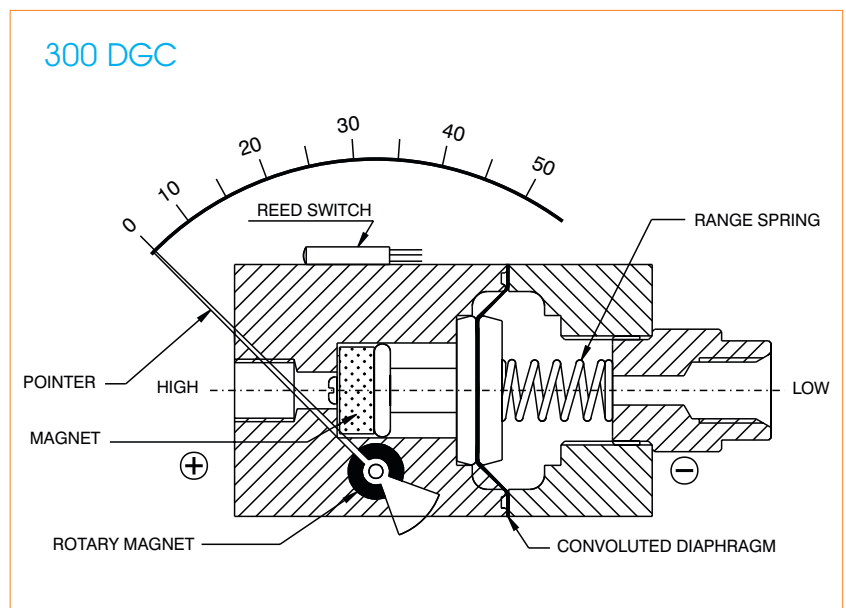


OPERATING PRINCIPLE

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 300 DGC)

Ranges	:	0-0.075 to 0-4 bar
Units of calibration	:	Kg/cm ² , mbar, mm H ₂ O, IN H ₂ O, psi
Operating principle	:	Magnetic coupling with a convoluted diaphragm sensor.
Working pressure	:	100 bar / 1500 psi
Accuracy	:	± 2 % of FSD (Ascending)
Dial sizes	:	2.5"(63 mm), 3.5"(80 mm), 4"(100 mm), 4.5"(115 mm)& 6"(150 mm)
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.
Connections	:	1/4" NPT(Female) or 1/4" BSP(Female-on request).
Wetted parts	:	Diaphragm, ceramic magnet, SS 304 spring. Other internal parts in Aluminium, Brass, or SS-316 as per the gauge body.
Seals	:	Buna-N, (Standard), Viton
Porting	:	In line (standard), Bottom or Back.
Switch	:	SPST or SPDT, one or two. 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	:	Glycerine filling, red resettable follower pointer, dual scale, strainer in (+) connection



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300 DGC

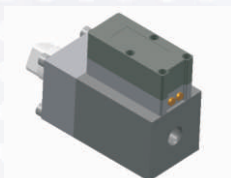
ΔP Range: 0 to 0.075 upto 4 bar
0 to 1 upto 60 psi

COMBINATIONS

Gauge

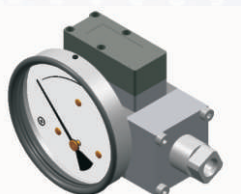


Switch



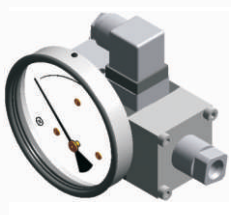
Gauge + switch

(with a terminal strip inside)



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	0-0.075 to 0-4 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", 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	100 bar / 1500 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, bottom & vent, in-line & vent, in-line & bottom, in-line & back, bottom vent & inline
Over range protection	Up to the max. working pressure from high side
Protection for gauge & switch	IP 65 / NEMA-4

Options

Switches (Adjustable in 30-100% of FSD)

Liquid filling	1 or 2 SPSTs with a DIN plug
Red follower pointer	1 or 2 SPSTs with a terminal strip
Customer logo	1 SPST with a built in relay
Dual scale	1 or 2 SPSTs with a terminal strip
Colour band	1 or 2 SPSTs with a DIN plug
Filter mesh in (+) connection	
Descending calibration	

Instrument can be calibrated with square root scale for flow measurement.

Available in engineering polymer (EP) Case



6.0"



4.5"

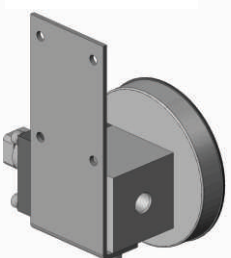


2.5"

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

MOUNTING BRACKETS

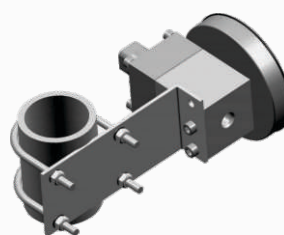
Surface mounting



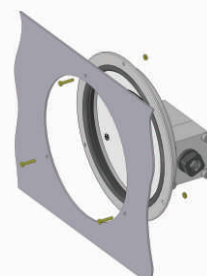
Horizontal pipe mounting



Vertical pipe mounting



Panel / Flange mounting





SELECT MODEL

1 Series	300 DGC			
2 Type	G	Gauge	S	Switch
	GS	Gauge + Switch		
3 Body material	A	Aluminum	S	SS-316
	B	Brass	M	Monel
4 Dial size	2.0	2.0" (50mm)	4.0	4.0" (100mm)
	2.5	2.5" (63 mm)	4.5	4.5" (115 mm)
	3.5	3.5" (80 mm)	6.0	6.0" (150 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.)	5	In-line & vent
	2	Rear / Back	6	In-line & bottom
	3	Bottom	7	Bottom vent & in-line
	4	Bottom & vent	8	In-line & back
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		

Advantages :

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

Notes

- Up to 1% accuracy available on request.
- Top vent not available with switch option.
- 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)

10 Switch

Select option & specifications

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	4
3 VA	5 VA	5 VA	60 VA
30 V	125 V	175 V	400 V
0.3 Amp	0.25 Amp	0.25 Amp	1 Amp
Adjustable	Adjustable	Adjustable	Factory Set

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	0.075	0.25	-	0.5	0.75	1	-	1.6	2	2.5	3	-	4
bar	0.075	0.25	-	0.5	0.75	1	-	1.6	2	2.5	3	-	4
mbar	75	250	-	-	750	-	-	-	-	-	-	-	-
psi	1	-	5	8	-	15	20	25	30	-	40	50	60
kPa	-	25	-	50	75	100	-	160	200	250	300	-	400

12 Options

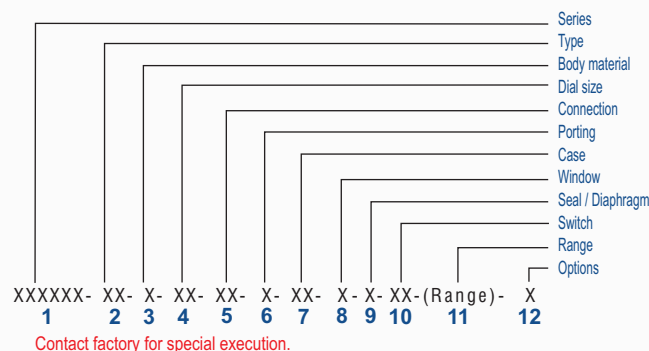
0	None
A	Glycerine*
B	Red follower pointer on acrylic window *
C	Customer Logo
D	Dual scale
E	Colour band
F	Filter mesh in (+) connection
G	Reverse Port**
H	Descending calibration (long delivery time)
N	NACE
S	Silicone oil*
I	Oxygen service (Contact factory)
M1	2" horizontal pipe mounting bracket
M2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

* Affects accuracy

** Pointer moves from right to left

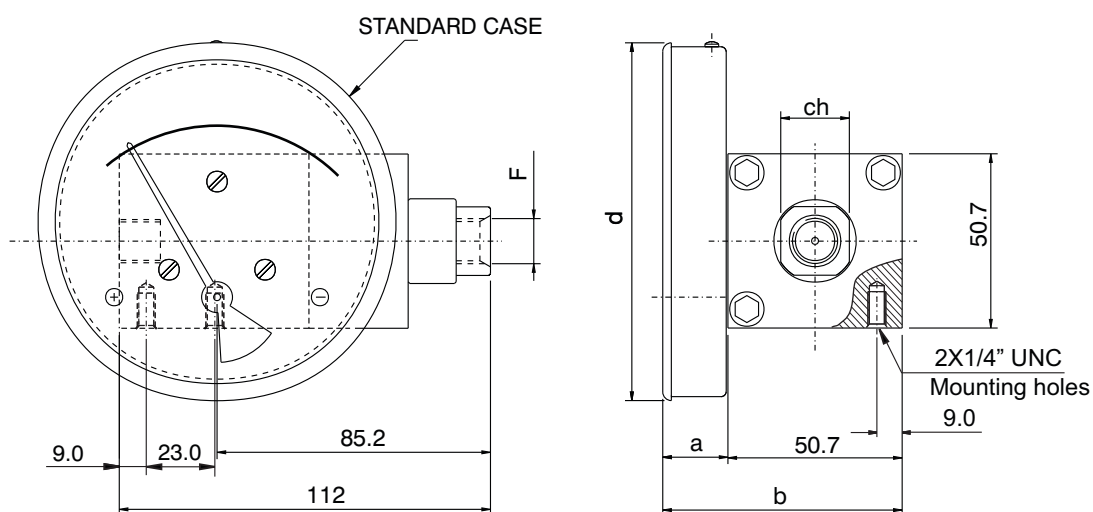
*** Minimum order quantity applies

Ordering code sequence

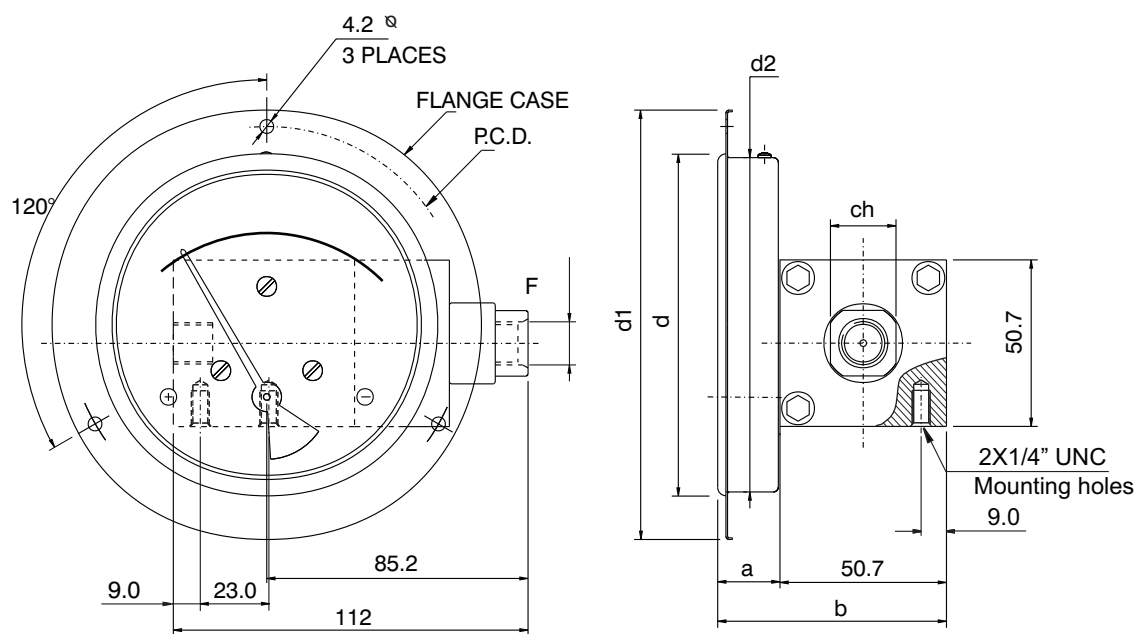




STANDARD DIMENSIONS



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

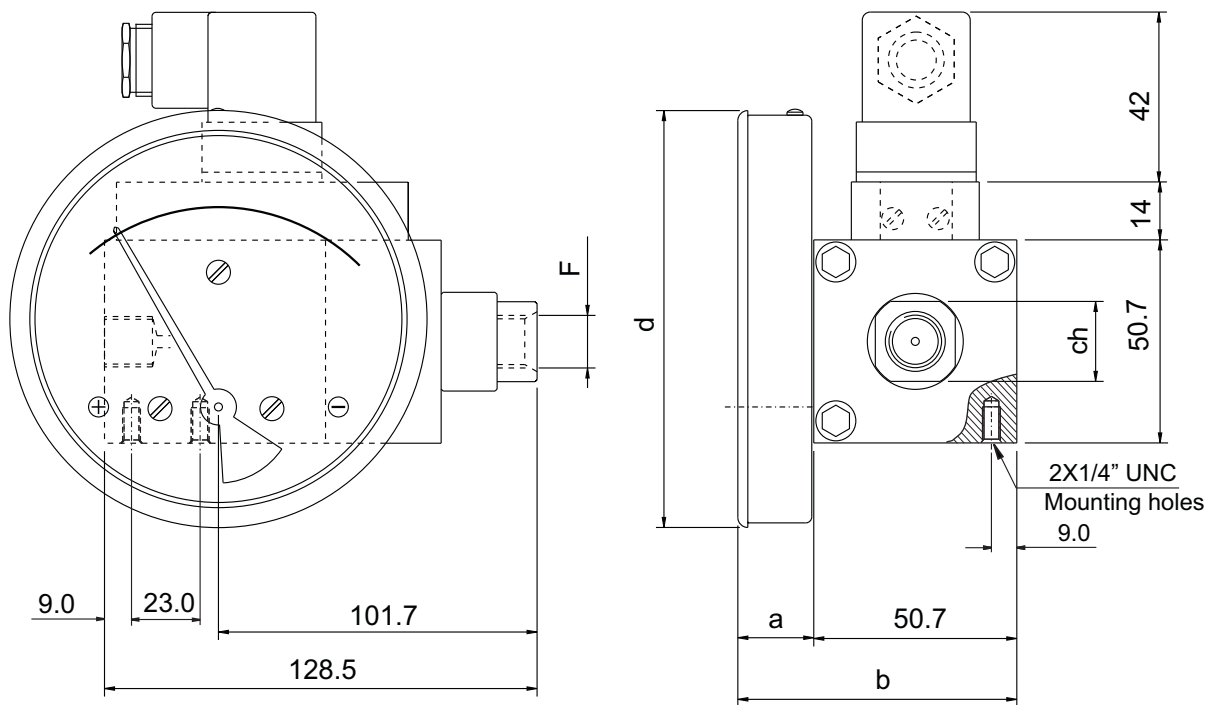


DIAL Ø	F	a	b	d1	d2	ch	p.c.d.	d *
63 (2.5")	1/4"BSP - 1/4"NPT	19	69.7	93	65	20	83	66
80 (3.5")	1/4"BSP - 1/4"NPT	19	69.7	109	82	20	99	83
100 (4")	1/4"BSP - 1/4"NPT	19	69.7	131	102	20	121	104.3
115 (4.5")	1/4"BSP - 1/4"NPT	19	69.7	146	117	20	136	119.7
150 (6")	1/4"BSP - 1/4"NPT	19	69.7	181	152.5	20	171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

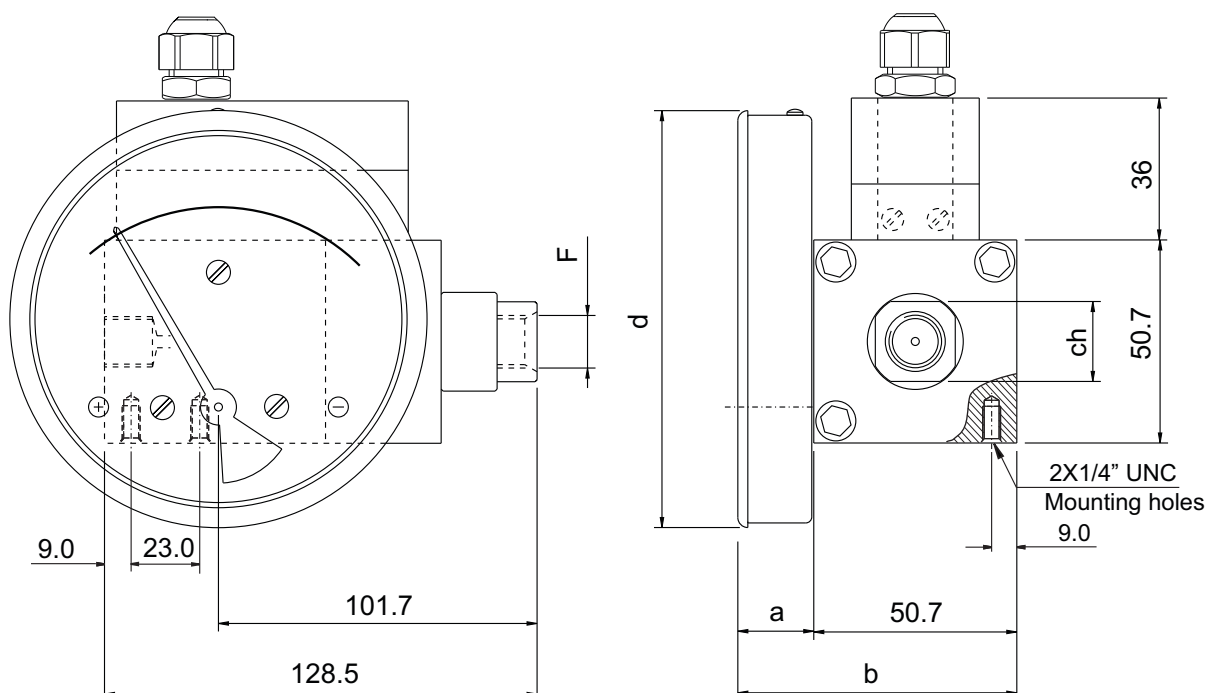
* PANEL CUTOUT = d +1



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

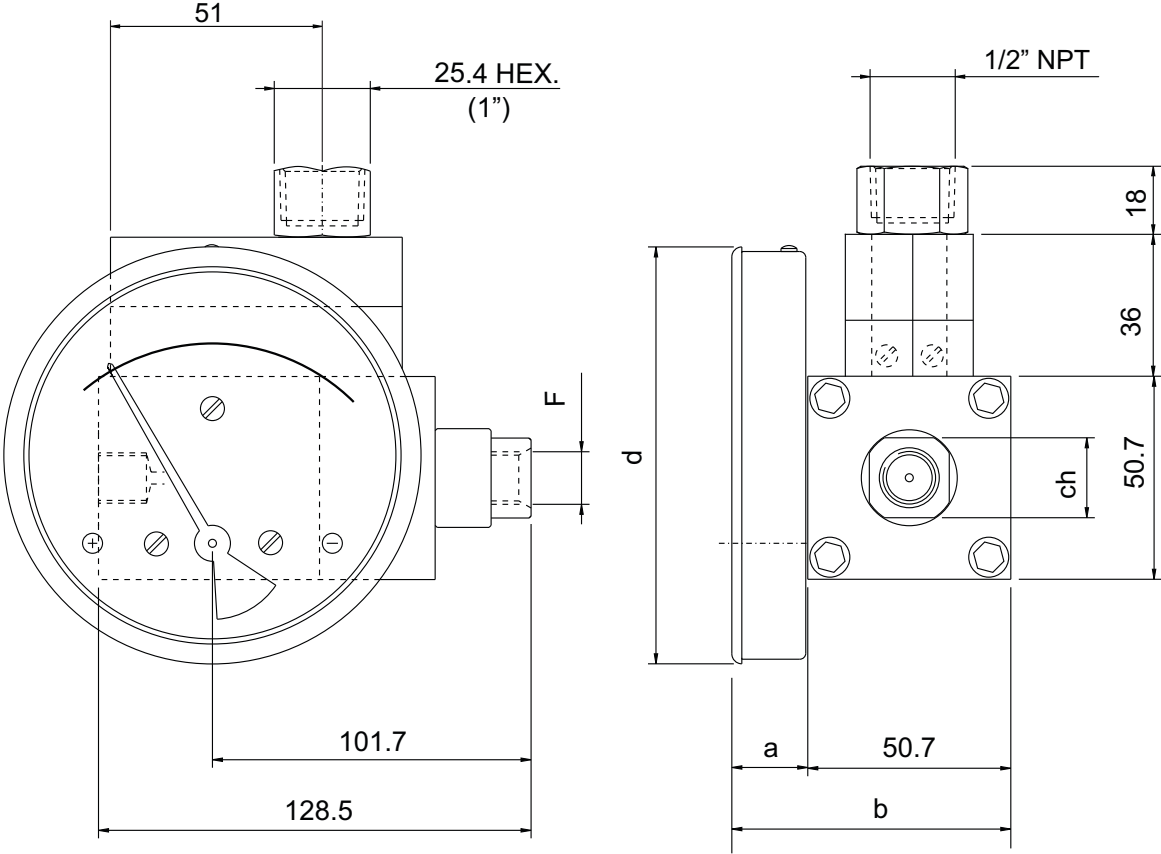


DIAL Ø	F	a	b	d	ch
63	1/4"BSP - 1/4"NPT	19	69.7	66	20
80	1/4"BSP - 1/4"NPT	19	69.7	83	20
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150	1/4"BSP - 1/4"NPT	19	69.7	154.3	20





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

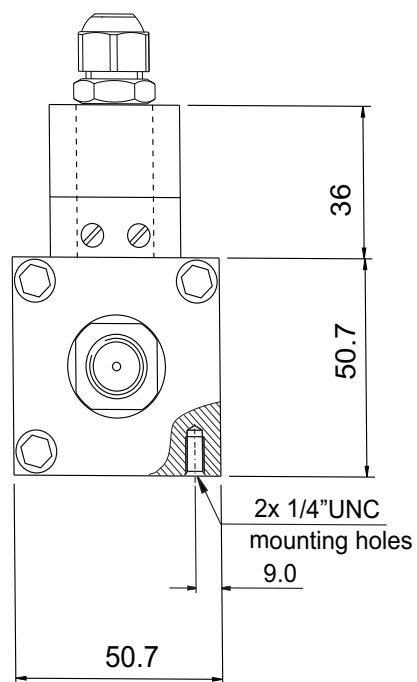
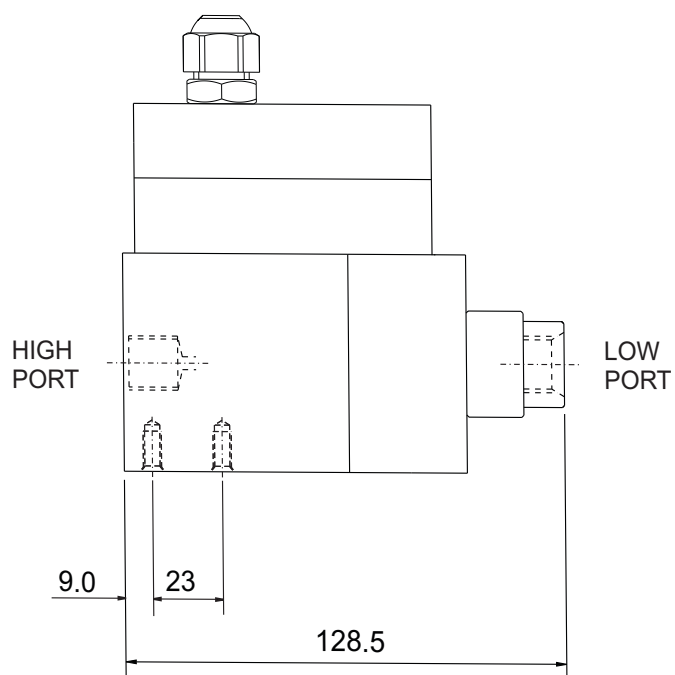


DIAL Ø	F	a	b	d	ch
63	1/4"BSP - 1/4"NPT	19	69.7	66	20
80	1/4"BSP - 1/4"NPT	19	69.7	83	20
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150	1/4"BSP - 1/4"NPT	19	69.7	154.3	20

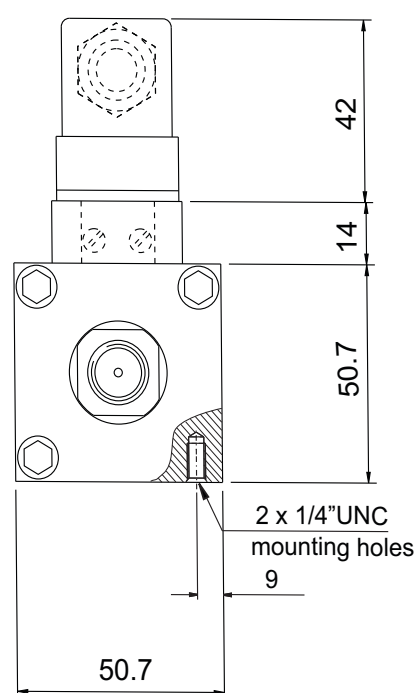
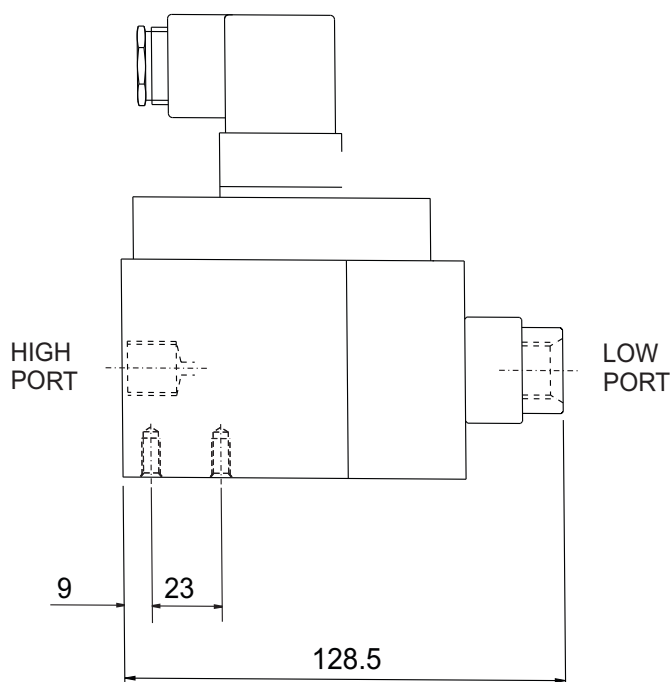


SWITCH WITH DIN PLUG / TERMINAL STRIP

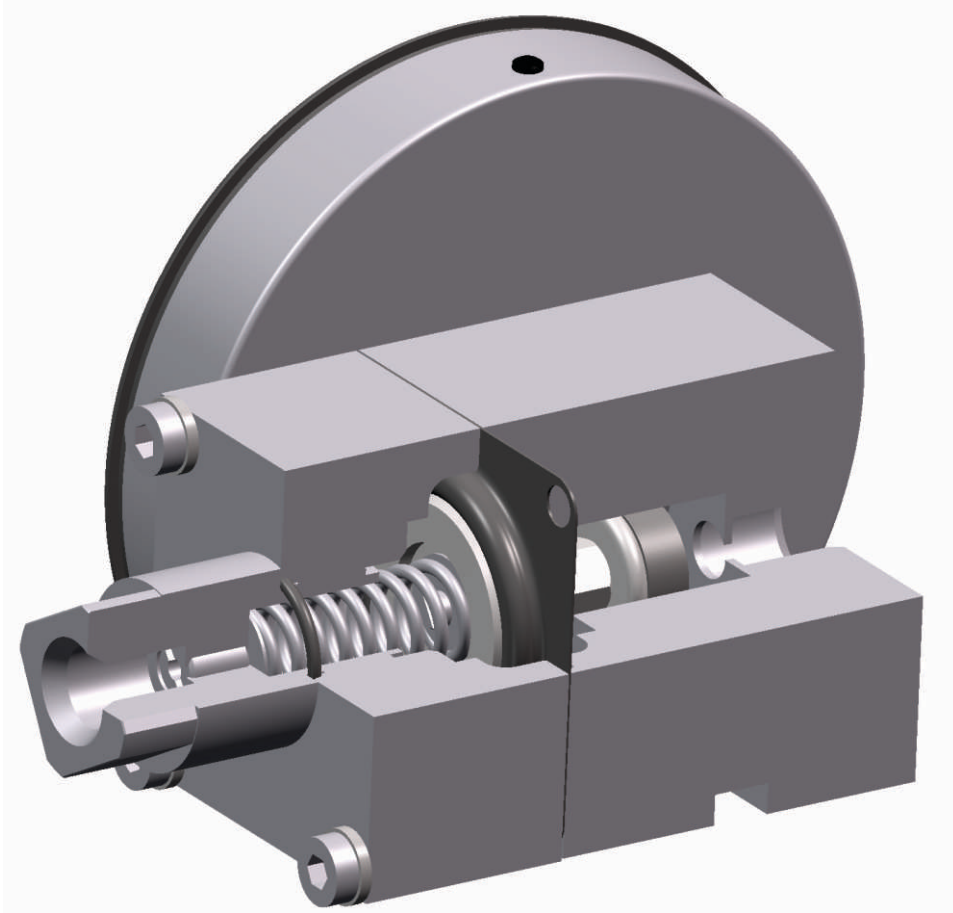
WITH TERMINAL STRIP



WITH DIN PLUG



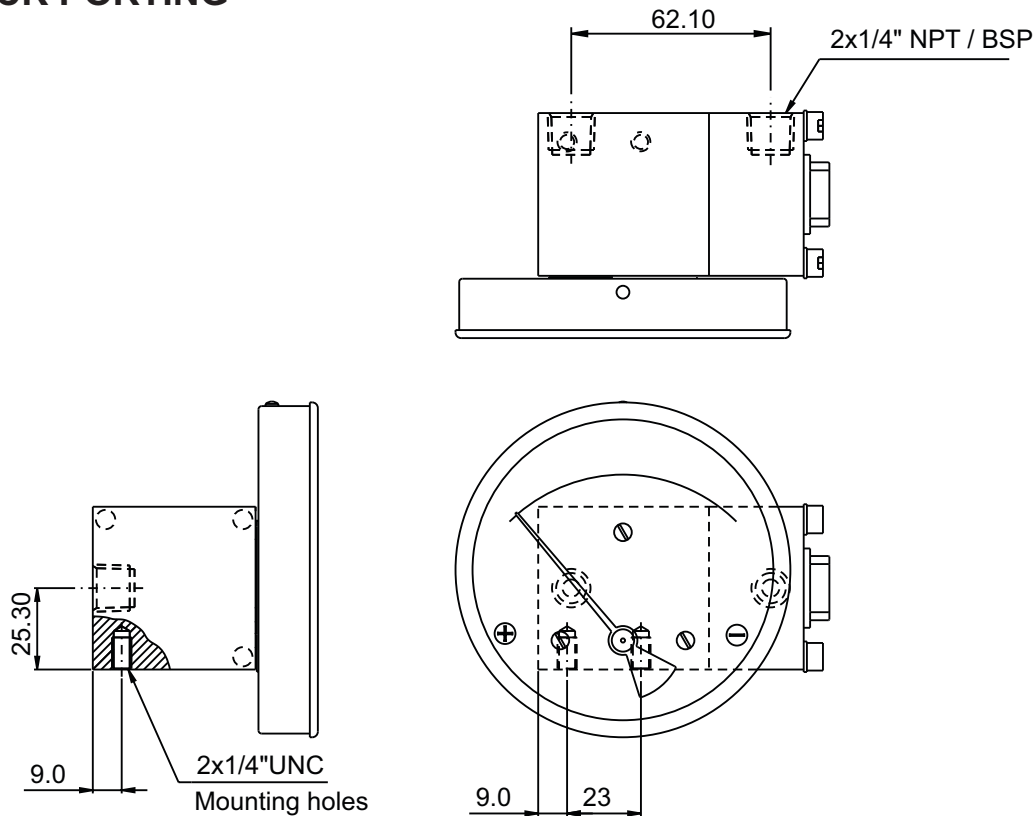
CUT SECTION



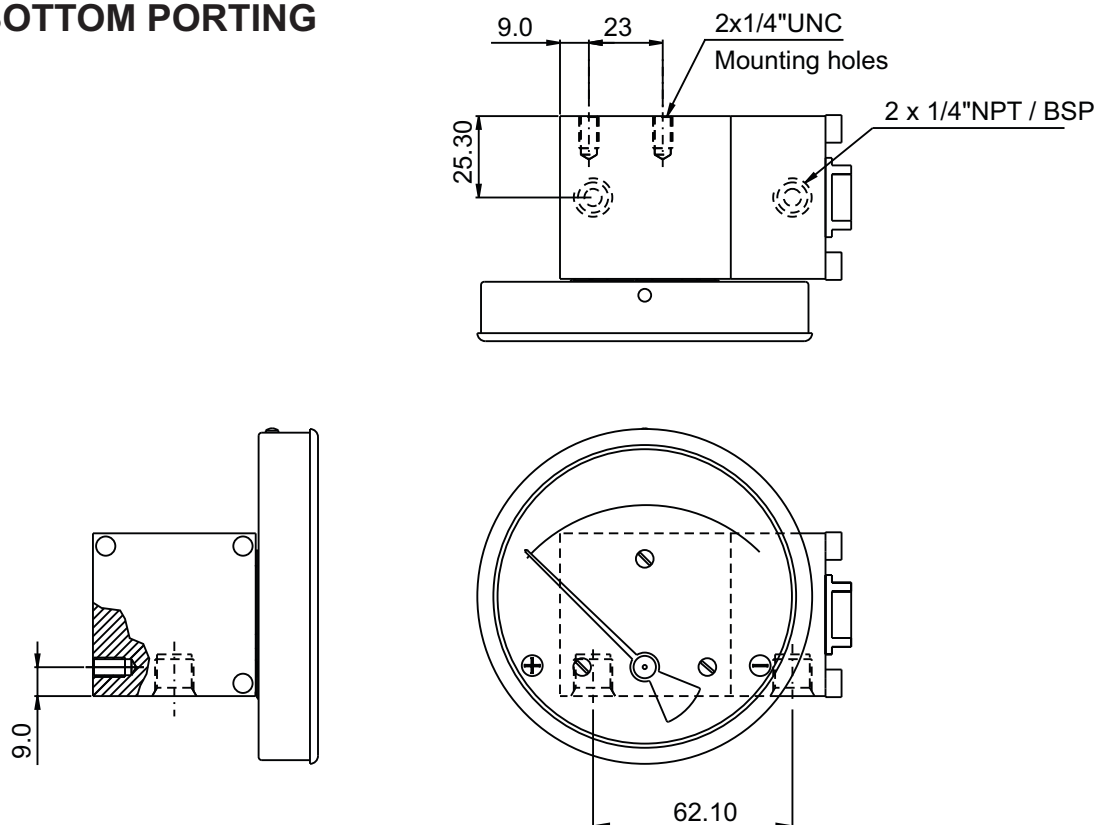


PORTING DETAILS

BACK PORTING



BOTTOM PORTING

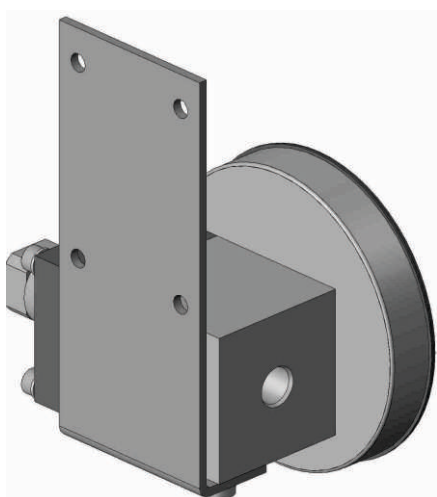


NOTE : 2x1/4"UNC MOUNTING HOLES PROVIDED ON REQUEST.



MOUNTING COMBINATIONS

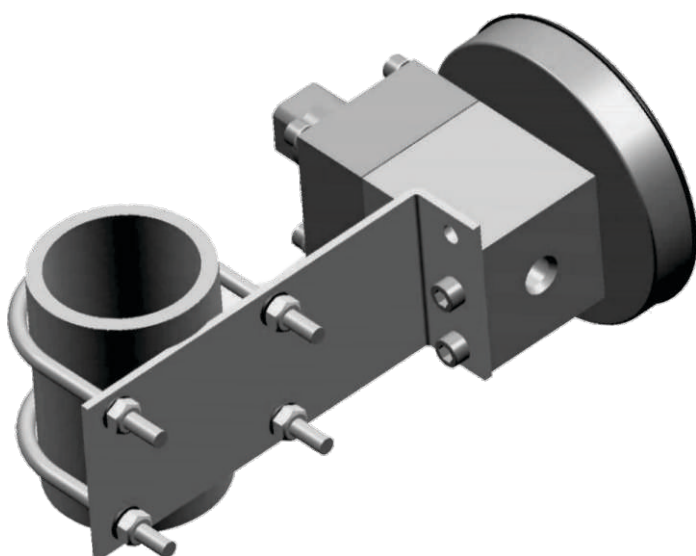
SURFACE MOUNTING



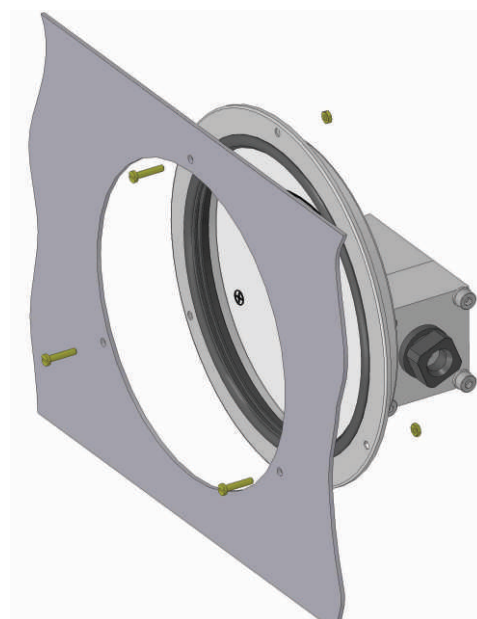
HORIZONTAL PIPE MOUNTING



VERTICAL PIPE MOUNTING

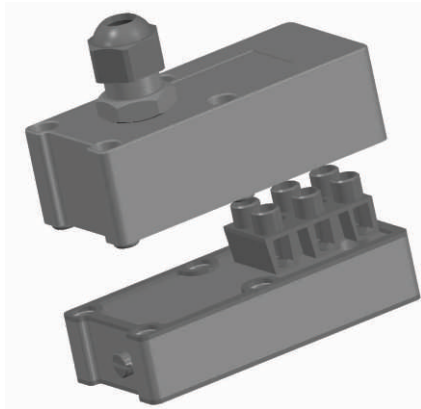


PANEL MOUNTING



SWITCH COVER COMBINATIONS

With terminal strip and PG gland



With DIN plug

