

Triclover Switches



Pressure Ranges from 0.2 bar to 15 bar

Please refer page no. 256 for Triclover Switch details

Introduction

The initial of our product lines, these switches are meant for light duty applications for the OEM industry. Many of them need to be used in clean atmospheres, sometimes inside a panel. These are compact, low cost and built just for the intended use. Most of them can be configured for a particular purpose by selecting the wetted parts, but electrical ratings are restricted to 5 A, 250 VAC.

APPLICATIONS

- Lubrication Systems
- Steam Sterilisers
- Hospital Equipment
- Water treatment
- Fire protection
- Machine Tools
- Boilers and Compressors
- Furnaces
- Textile Machinery
- Pharmaceuticals
- Hydraulics & Pneumatics
- Automobiles

PRODUCT SPECIFICATIONS:

- Storage temperature : Atmospheric temperature
- Operating ambient temperature : - 20° C to + 60° C
- Media temperature : for rubber diaphragms 80° C max
- Can be offered for higher temperatures with other capsule combinations
- Setpoint repeatability : $\pm 1\%$ of FSR
- Enclosure : Pressed steel powder coated with plastic cover
- Switch output : Choice of SPDT, 2SPDT, hermetically sealed, gold plated contacts
- Process connection : $\frac{1}{4}$ " BSP standard, other options like flanges, triclover clamps, diaphragm seals available.
- Accessories : Adaptors, 2" pipe-mounting brackets, syphons, impulse tubes etc.

FEATURES

- Compact
- Scale for easier setpoint (optional)
- Enclosure protection : upto IP 65 (varies with model)
- Reliable accurate microswitches for long life switching
- Customized arrangements for switching values on request
- Easy safe wiring options
- Field adjustable
- Accuracy +/- 1 % FSR
- Warranty : 2 years

*Accuracy changes with switch configuration

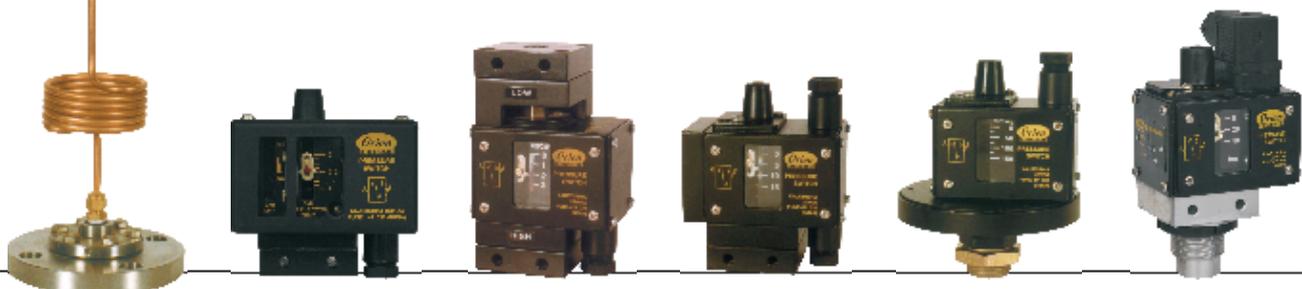
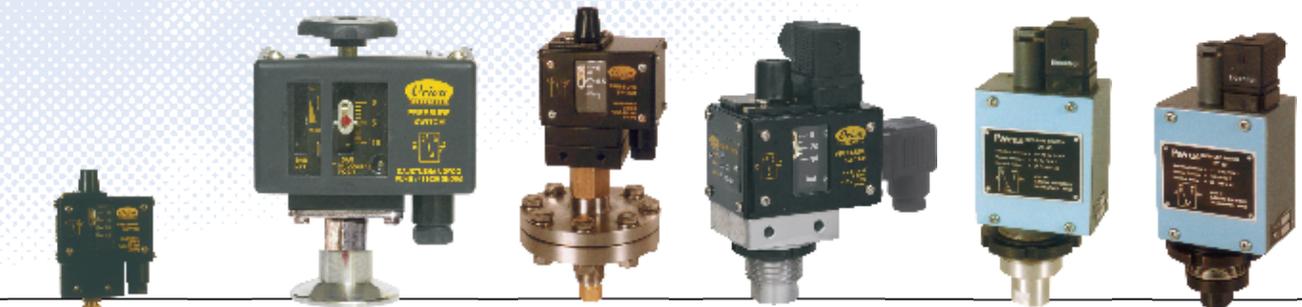
COMPACT SWITCHES

SPECIFIER'S GUIDE FOR

PRESSURE SWITCHES

PRESSURE DIFFERENCE SWITCHES

VACUUM SWITCHES



Using the section

This section on helps you make a logical choice in selecting the best product for a particular application. It allows a user familiar with our product line to locate the exact page the product is listed on. For those not familiar with our products, a logical sequence is given to help the user pick the best product for their need.

By taking a few minutes to familiarise yourself with the catalogue organization, you will find it very easy to locate the product / information you need.

1. The contents page lists the broad outline in which the catalogue is organized, and will help the user familiar with products to select the page on which the product or other useful information is listed.

2. Need Product Selection help ?

Product selection help will start with the “Pictorial Index” on Page 235, where the products are broadly classified. A brief description of each product group , a typical photo of the product within the group and the page number on which it is listed are given.

If the user is not familiar with the products, a product selection guide is provided on pages 238 through 244, where photos for each product and important specifications are given to help determine and select the best product for the application.

By evaluating and comparing these parameters, a logical selection can be made. Turn to the page on which the product information for the selected product is listed, for :

Capsule Construction details

Physical sizes

Special features

Ranges, hysteresis, electrical ratings etc.

Ordering information

Some applications

The organisation of each of these pages is demonstrated on pages 236 and 237, of this section “How to use this catalogue”.

In many cases, more than one product may work. For the most cost effective solution, compare prices and consider alternatives. Remember, the end cost includes initial product price, plus the installation, plus the service.

3. Need the terminology explained? (see page 330)

Turn to page 330 for the definitions and terminology. This will help you familiarize with the terms used throughout the catalogue.

4. Need information on Accessories? (see page 322)

Turn to page 322 for information on important accessories. These will give information on only important accessories, and information needed, when these are to be supplied with our products.

5. Need selection guidance? (see page 331)

A logical procedure on page 331 will help you to consider most of the important factors when selecting a pressure switch.

6. Need other products ? (see page 332)

Products other than those listed in this catalogue are referenced on these pages. Separate catalogues for these products are available.

PRESSURE SWITCHES

HIGH RANGE

MG/ME



P. No. 246

MN/MA



P. No. 248

HM



P. No. 258

DT



P. No. 264

MJ



P. No. 274

MK



P. No. 276

LOW RANGE

MN/MA



P. No. 272

HYGEINE RANGE

MG/ME TRICLOVER



P. No. 256

HYDRAULIC RANGE*

DN/DA



P. No. 250

HM



P. No. 260

DT



P. No. 266

DJ



P. No. 252

DK



P. No. 254

HM350



P. No. 262

PRESSURE DIFFERENCE SWITCHES

HIGH RANGE

PD



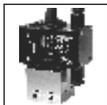
P. No. 280

DP



P. No. 278

PJ



P. No. 282

LOW RANGE

PD



P. No. 284

PA



P. No. 286

VACUUM SWITCHES

HIGH RANGE

VS1



P. No. 270

MN/MA



P. No. 268

LOW RANGE

Low range pressure difference switches can be used as vacuum switches when high pressure port is vented to atmosphere

*Hydraulic ranges are ranges typically from 2 bar to 600 bar, used in oil applications. However, these switches can be used for other media depending on wetted parts compatibility.

HOW TO USE this catalogue

Due to the variety in product types and their salient features, catalogue page formats may vary. But generally the following format is adhered to.

Elements appearing on each page will be:

1. Product family / series - A product family / series will appear on the outside page corner, depending on the left / right hand page, and will be in large bold type.
2. Product description - will appear immediately following the product family / series at top of the page and will be in bold type.
3. Features - will appear next to product description & will enlist only the major attributes.
4. Pressure capsule details - will show the construction of the pressure capsule and all its internal parts. If the process / working medium is variable, the wetted parts will be mentioned in italics. If the wetted parts are unique, the material of construction (MOC) will be mentioned

alongside in brackets. Where the material of construction is not specified, it will vary and the options are to be selected by the user considering the compatibility of the process / working medium. Modifications can be made to suit any particular medium, if the answer for your needs is not in the standard MOC listed. Products for which process / working medium is predefined, pressure capsule details are not provided (e.g as in case of comparison test pump). Pressure capsule details of accessories are not given.

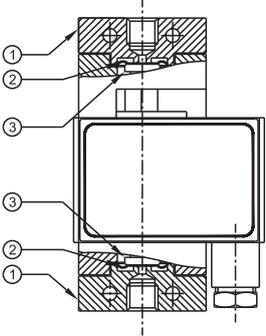
5. Installation drawing - will show the typical installation dimensions of products as they exist in their standard forms. The dimensions are mentioned in millimetres and also in inches to facilitate the user. The dimensions of accessories will have to be added to these to arrive at any particular general arrangement (GA) drawings. The dimensions are approximate and for precise dimensions, where mounting space is restricted, the user may contact the nearest sales office. Installation drawings of only fast moving accessories are given.

DP HIGH RANGE PRESSURE DIFFERENCE SWITCHES





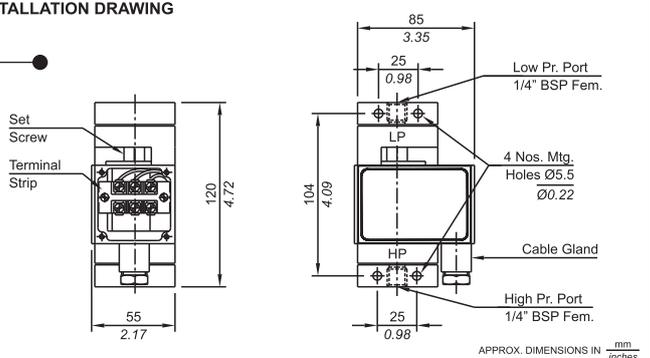
PRESSURE CAPSULE DETAILS



No. Description
1. Pressure housing
2. Diaphragm
3. Plunger

Note : wetted parts are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

Bulletin No. KA121024

278

HOW TO USE this catalogue

6. Photos - will appear on the relevant top of the page for products. If there are mounting variations / styles, all the styles for standard products will appear for easy identification. Options, if included in the photograph, are for demonstration only, and are not a part of the standard equipment. For accessories, the photos are not given due to the sheer variety and range available.

7. Logo - will appear on left hand top of page to identify the manufacturer.

8. Characteristics - Range tables and their relevant data, e.g the range covered, the differentials and maximum working pressures will generally appear on the right hand page. Additional technical details will also be mentioned, wherever required, on the right hand side of the page.

9. Ordering guide - A guide as to how to order the particular series' variations will appear on right hand bottom of the page. Only the variations available within a particular product family / series will appear here. Any additional accessories or modifications required for the product need to be mentioned in text by the user.

10. Some applications - will appear under features. This is for easy understanding of the specific use of the product.

11. Numerous combinations are possible when pressure switches are provided with accessories like chemical seals, snubbers, remote seals, pipe mounting brackets, combination of switches mounted in a panel etc. Users are requested to provide the details of accessories required in text / drawings, as separate identification codes are provided for pressure switches fitted and supplied with accessories.

HIGH RANGE PRESSURE DIFFERENCE SWITCHES DP

General information:
DP series pressure difference switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or indoor service based on the type of enclosure opted for. The repeat accuracy is better than $\pm 1\%$ FSR. A 3/8" cable entry is provided for cables and a terminal strip suitable for wired ends is provided inside the enclosure. Pressure ports are 1/4" BSPF standard.

Features:

- Compact
- Separate chamber for working parts
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250 VAC; 0.2 A, 250 VDC (res.)
- Pressure ports: 1/4" BSPF

Some Applications : Works on opposed diaphragm principle, diaphragm seals can be coupled to this switch. Used in water treatment plants, bag filters, strainers, etc.

Range Selection Table

Range Code	Range bar (psi) ΔP	Approximate Maximum Differential* bar (psi)	Maximum Working Pressure bar (psi)
H01	0.1 - 1.0 (1.45 - 14.50)	0.15 (2.18)	12 (174.05)
H02	0.1 - 1.5 (1.45 - 21.76)	0.15 (2.18)	12 (174.05)
H03	0.2 - 2.6 (2.90 - 37.71)	0.2 (2.90)	12 (174.05)
H04	0.2 - 3.6 (2.90 - 52.21)	0.2 (2.90)	12 (174.05)
H07	0.5 - 7.0 (7.25 - 101.52)	0.2 (2.90)	12 (174.05)
H10	0.5 - 10.0 (7.25 - 145.04)	0.5 (7.25)	25 (362.6)
H15	1.0 - 15.0 (14.50 - 217.71)	0.5 (7.25)	25 (362.6)
H30	5.0 - 25.0 (72.52 - 362.6)	1.0 (14.50)	35 (507.63)

*Minimum differential increases with setpoint (Graphs available on request)

How to order DP series high range pressure difference switches

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Diaphragm	Enclosure
DP - Pressure Difference Switch (Can be used for both side Positive Pressures Only)	H - High Pressure Range	U - Uncalibrated C - Calibrated	A - Aluminium B - Brass S - SS 316	0 - Neoprene 1 - Teflon	0 - IP 54
			for special wetted parts through chemical seals, please refer page 330, 331 & 332 and specify in text accordingly.		

eg. A pressure difference switch, high pressure range from 0.1-1.5 bar in calibrated style with brass pressure housing & a teflon diaphragm as wetted parts, with IP54 Enclosure shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
DP	H02	C	B	1	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

279 Bulletin No. KA121024

Product Selection Guide

High Range Pressure Switches



Page No. 246



Page No. 246



Page No. 248



Page No. 248

Model	MG	ME	MN	MA
Switch type	Single (High Pr.)	Adj. Diff. (High Pr.)	Single (High Pr.)	Adj. Diff. (High Pr.)
Differential type	Fixed	Adjustable	Fixed	Adjustable
Repeatability (% FSR)	± 1.5	± 1.5	± 1	± 1
Range covered	0.067 bar to 25 bar	0.1 bar to 25 bar	0.067 bar to 25 bar	0.1 bar to 25 bar
Enclosure Standard Optional	Pressed steel enclosures IP 40 as per IS 2147		Pr. diecast Al. (IP 54 as per IS 2147) Pr. diecast Al. (IP 65 as per IS 2147)	
WETTED PARTS	sensing element Standard Optional	Diaphragm nylon reinforced neoprene diaphragm teflon		
	Pressure housing Standard Optional	Aluminium Brass/SS316		
	Other Wetted Parts	-		
	Optional wetted parts through chem. seal	-	SS316, Hastelloy B2, Hastelloy C4, Hastelloy C22, Hastelloy C276, Inconel Alloy 600, Monel Alloy 400, Monel Alloy K500, Nickel, Platinum, Tantalum, Titanium, Zirconium, Silver, PTFE	
Temp. of working medium	80°C maximum. For higher temperature, please use impulse tubing/chemical seals.			
Switching element	SPDT Snap action switch rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive.			

Accessories can be supplied with most of the switches. Please consult sales office.

Product Selection Guide

Hydraulic Pressure Switches 2SPDT Hydraulic Pressure Switches



Page No. 250



Page No. 250



Page No. 252



Page No. 254

DN	DA	DJ	DK
Single (Hydr. Pr.)	Adj. Diff. (Hydr. Pr.)	2 SPDT (Hydr. Pr.)	2 SPDT (Hydr. Pr.)
Fixed	Adjustable	Diff. Fixed Stage Diff. Fixed	Diff. Fixed Stage Diff. Adjustable
± 1	± 1	± 2	± 2
3 bar to 400 bar		5 bar to 400 bar	5 bar to 100 bar
Pr. diecast Al. IP 65 as per IS 2147			
Piston EN8 SS			
Aluminium Brass			
Teflon, Viton, Brass, EN8			
SS316, Hastelloy B2, Hastelloy C4, Hastelloy C22, Hastelloy C276, Inconel Alloy 600, Monel Alloy 400, Monel Alloy K500, Nickel, Platinum, Tantalum, Titanium, Zirconium, Silver, PTFE			
80°C maximum. For higher temperature, please use impulse tubing/chemical seals.			
SPDT Snap action switch rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive.			

Accessories can be supplied with most of the switches. Please consult sales office.

Product Selection Guide

Hygiene Range Pressure Switches

Hydraulic Pressure Switches



Page No. 256



Page No. 256



Page No. 258



Page No. 260

Model	MG	ME	HM (HIGH)	HM
Switch type	Single (Triclover)	Single (Triclover)	High range pr. switch	Hydraulic pr. switch
Differential type	Fixed	Adjustable	Fixed	Fixed
Repeatability (% FSR)	± 1.5		± 2	± 1
Range covered	0.2 bar to 15 bar		0.2 bar to 25 bar	3 bar to 400 bar
Enclosure Standard Optional	Pressed Steel Enclosure IP 40 as per IS 2147		Machined aluminium to IP 65	Machined aluminium to IP 65
sensing element Standard Optional	Diaphragm SS316L		nylon reinforced neoprene diaphragm teflon	Piston EN8 SS
Pressure housing Standard Optional	Triclover SS316L SS316L			Aluminium Brass
Other Wetted Parts			Viton, MS/Brass, Nitrile	
Optional wetted parts through chem. seal			SS316, Hastelloy B2, Hastelloy C4, Hastelloy C22, Hastelloy C276, Inconel Alloy 600, Monel Alloy 400, Monel Alloy K500, Nickel, Platinum, Tantalum, Titanium, Zirconium, Silver, PTFE	
Temp. of working medium	80°C maximum. For higher temperature, please use impulse tubing/chemical seals.			
Switching element	SPDT Snap action switch rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive.			

Accessories can be supplied with most of the switches. Please consult sales office.

Product Selection Guide

High Range Pressure Switches Hydraulic Pressure Switches Vacuum Switches



Page No. 262



Page No. 264



Page No. 266



Page No. 268

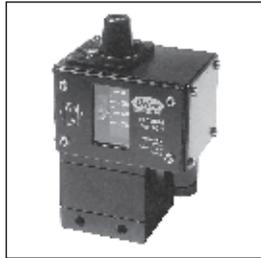
HM 350	DT (HIGH)	DT	MN	
Hydraulic pr. switch	High range pr. switch	Hydraulic pr. switch	HI range vacuum sw.	
Fixed	Fixed	Fixed	Fixed	
± 2	± 2	± 2	± 2	
35 bar to 350 bar	1 bar to 15 bar	4 bar to 600 bar	760 to 100 mm Hg vac	
Pr. diecast Al. (IP 65 as per IS 2147)	Cast aluminium to IP 54		Pr. diecast Al. (IP 54 as per IS 2147) Pr. diecast Al. (IP 65 as per IS 2147)	
Piston EN8	Diaphragm nylon reinforced neoprene diaphragm	Piston EN8 SS	Diaphragm nylon reinforced neoprene diaphragm Teflon	
MS		Aluminium Brass	Aluminium Brass/SS316	
Viton, Teflon	EN8, Brass	EN8, Brass/SS, Viton	SS	
-	-	-	-	
80°C maximum. For higher temperature, please use impulse tubing/chemical seals.				
SPDT Snap action switch rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive.				
<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>15 A, 250 VAC (res.) Optionally</td> </tr> </table>				15 A, 250 VAC (res.) Optionally
15 A, 250 VAC (res.) Optionally				

Accessories can be supplied with most of the switches. Please consult sales office.

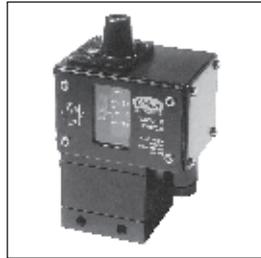
Product Selection Guide

High Range Vacuum Switches

Low Range Pressure Switches



Page No. 268



Page No. 270



Page No. 272



Page No. 272

Model	MA	VS1	MN	MA
Switch type	HI range vacuum sw.	HI range vacuum sw.	low range pr. sw.	low range pr. switch
Differential type	Adjustable	Fixed	Fixed	Adjustable
Repeatability (% FSR)	± 2	± 2	± 2	± 2
Range covered	760 to 100 mm Hg vac	760 to 100 mm Hg vac	20 to 2500 mm wg	
Enclosure Standard Optional	Pressure diecast Aluminium IP 54 as per IS 2147 IP 65 as per IS 2147			
sensing element Standard Optional	Diaphragm nylon reinforced neoprene diaphragm Teflon			
Pressure housing Standard Optional	Aluminium Brass/SS316		Aluminium SS316	
Other Wetted Parts	SS		SS, Nitrile	
Optional wetted parts through chem. seal	-		-	
Temp. of working medium	80°C maximum. For higher temperature, please use impulse tubing.			
Switching element	SPDT Snap action switch rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive.		SPDT Snap action switch rated at 2A, 250 VAC, 0.2 A, 250 VDC resistive.	2A, 250 VAC, 0.2 A, 250 VDC resistive.

Accessories can be supplied with most of the switches. Please consult sales office.

Product Selection Guide

2 SPDT High Range Pressure Switches Pressure Difference Switches



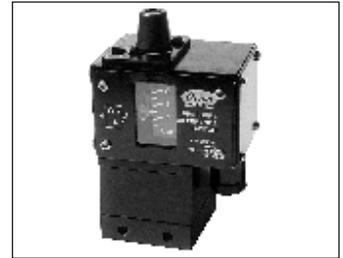
Page No. 274



Page No. 276



Page No. 278



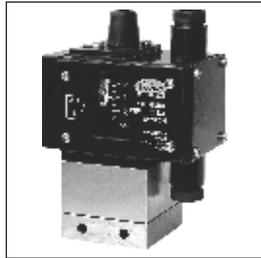
Page No. 280

MJ	MK	DP	PD
2 SPDT (HI Range Pr.)	2 SPDT (HI Range Pr.)	Pr. Difference switch	Pressure Difference Switch
Diff. Fixed, Stage Diff. Fixed	Diff. Fixed, Stage Diff. Adjustable	Fixed	Fixed
± 2	± 2	± 1	± 2
0.067 bar to 25 bar	0.1 bar to 25 bar	0.1 bar to 25 bar	0.1 bar to 3.6 bar
Pressure diecast Aluminium IP 54 as per IS 2147 IP 65 as per IS 2147			
diaphragm nylon reinforced neoprene teflon			
Aluminium Brass/SS 316			
			SS, Teflon
SS316, Hastelloy B2, Hastelloy C4, Hastelloy C22, Hastelloy C276, Inconel Alloy 600, Monel Alloy 400, Monel Alloy K500, Nickel, Platinum, Tantalum, Titanium, Zirconium, Silver, PTFE			
80°C maximum. For higher temperature, please use impulse tubing/chemical seals.			
SPDT Snap action switch TWO Microswitches rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive.		5A, 250VAC, 0.2 A, 250VDC resistive.	

Accessories can be supplied with most of the switches. Please consult sales office.

Product Selection Guide

2 SPDT Pressure Difference Switches Low Range Pressure Difference Switches



Page No. 282



Page No. 284



Page No. 286

Model	PJ	PD	PA
Switch type	2SPDT Pressure Diff.	Low range pr. diff.	Low range pr. diff.
Differential type	Fixed	Fixed	Adjustable
Repeatability (% FSR)	± 2	± 2	± 2
Range covered	0.1 bar to 3.6 bar	15 to 2500 mm wg	100 to 500 mm wg
Enclosure Standard Optional	Pressure diecast Aluminium IP 54 as per IS 2147 IP 65 as per IS 2147		
WETTED PARTS	sensing element Standard Optional	diaphragm nylon reinforced neoprene teflon	diaphragm nylon reinforced neoprene
	Pressure housing Standard Optional	Aluminium Brass/SS 316	MS SS316
	Other Wetted Parts	SS, Teflon	SS, Nitrile, Aluminium
	Optional wetted parts through chem. seal		
Temp. of working medium	80°C maximum. For higher temperature, please use impulse tubing/chemical seals.		
Switching element	5A, 250VAC, 0.2 A, 250VDC resistive. TWO Microswitches of above rating	SPDT Snap action switch rated at 5A, 250 VAC, 0.2 A, 250 VDC resistive.	

Accessories can be supplied with most of the switches. Please consult sales office.



Application Note (Pressure Difference Switches) :

*A Pressure Difference Switch can be used to sense ΔP between :

- Two positive pressures
- Two negative pressures or
- One positive, one negative pressure

It can also be used as :

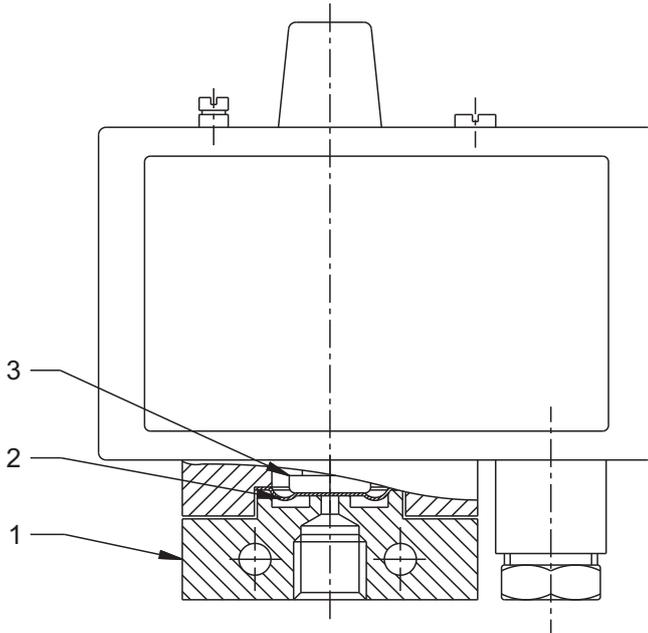
- a pressure switch, when low pressure port is vented to atmosphere
- a vacuum switch, when high pressure port is vented to atmosphere

*An exception to the rule is DP model, where both pressures need to be positive.

MG / ME HIGH RANGE PRESSURE SWITCHES



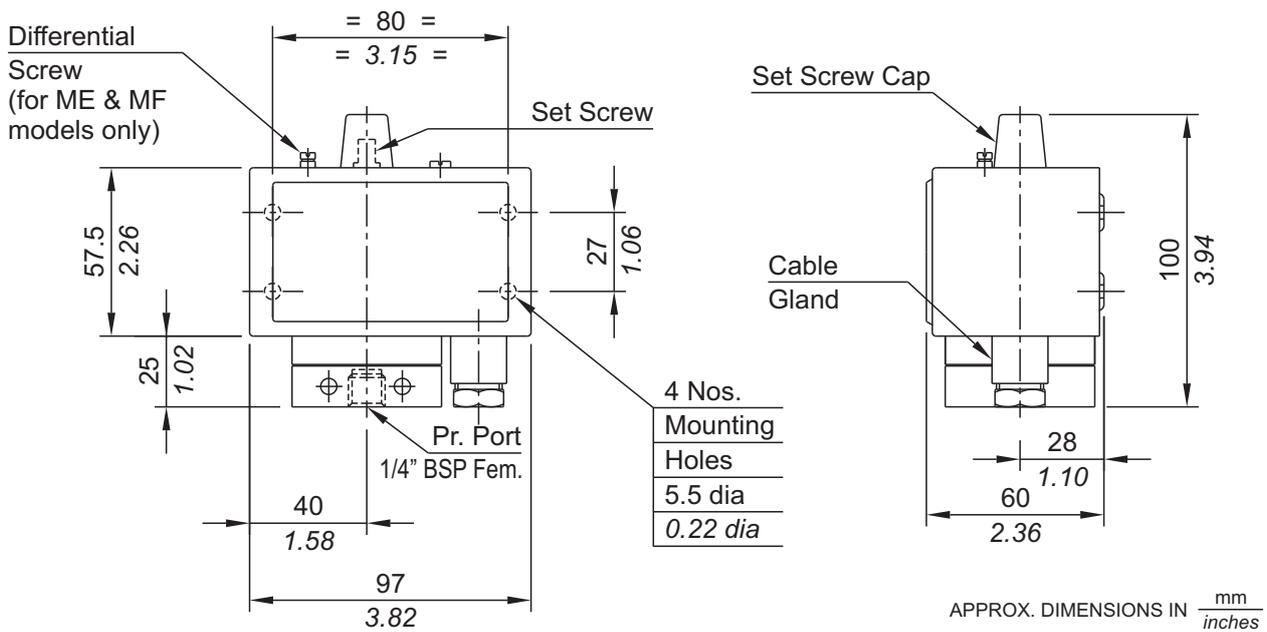
PRESSURE CAPSULE DETAILS



- No. Description**
1. Pressure Housing
 2. Diaphragm
 3. Plunger

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



HIGH RANGE PRESSURE SWITCHES MG / ME

General information:

MG / ME series pressure switches are housed in pressed steel powder coated enclosure and are recommended for panel mounting or indoor service. The repeat accuracy is better than $\pm 1.5\%$ FSR. A 3/8" cable entry is provided for cables and a terminal strip suitable for wired ends is provided inside the enclosure. Pressure port is 1/4" BSPF standard.

Features:

- Compact
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250 VAC; 0.2 A, 250VDC (res.)
- Proof pressure available can be 4 times MWP (optional)
- Pressure port: 1/4" BSPF

Some Applications : Used in textile industries, furnaces, compressors, etc.

Range Selection Table

Range Code	Range † bar (psi)	MG		ME	
		*Approximate Maximum Differential bar (psi)	* Adjustable Differential bar (psi)	Maximum Working Pressure bar (psi)	
LP	0.067 - 0.213 (0.96 - 3.09)	0.02 (0.30)	-	5 (72.52)	
LP5	0.1 - 0.5 (1.45 - 7.25)	0.10 (1.45)	-	5 (72.52)	
H01	0.1 - 1.0 (1.45 - 14.50)	0.08 (1.16)	0.12 - 1.0 (1.74 - 14.50)	12 (174.05)	
H02	0.1 - 1.5 (1.45 - 21.76)	0.10 (1.45)	0.3 - 1.0 (4.35 - 14.50)	12 (174.05)	
H03	0.2 - 2.6 (2.90 - 37.71)	0.20 (2.90)	0.3 - 1.5 (4.35 - 21.76)	12 (174.05)	
H04	0.2 - 3.6 (2.90 - 52.21)	0.20 (2.90)	0.3 - 1.5 (4.35 - 21.76)	12 (174.05)	
H07	0.5 - 7.0 (7.25 - 101.53)	0.40 (5.80)	1.0 - 6.0 (14.50 - 87.02)	12 (174.05)	
H10	0.5 - 10.0 (7.25 - 145.04)	0.60 (8.70)	1.5 - 8.0 (21.76 - 116.03)	25 (362.6)	
H15	1.0 - 15.0 (14.50 - 217.71)	0.60 (8.70)	1.8 - 10.0 (26.11 - 145.04)	25 (362.6)	
H30	5.0 - 25.0 (72.52 - 362.6)	2.50 (36.26)	2.5 - 10.0 (36.26 - 145.04)	35 (507.63)	

*Minimum differential increases with setpoint (Graphs available on request)

† rising pressure for MG series; falling pressure for ME series

? approx 50 mm Hg to 160 mm Hg. Scale calibrated in mm Hg for this range only.

How to order MG / ME series high range pressure switches.

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Diaphragm	Enclosure
MG - Fixed Differential Pressure Switch ME - Adj. Differential Pressure Switch	H - High range Pressure Switch	C - Calibrated	A - Aluminium B - Brass S - SS316	0 - Neoprene 1 - Teflon	0 - IP 40 as per IS 2147

eg. A fixed differential pressure switch, high pressure range from 0.1-1.0 bar in calibrated style with brass pressure housing & a teflon diaphragm shall be specified by

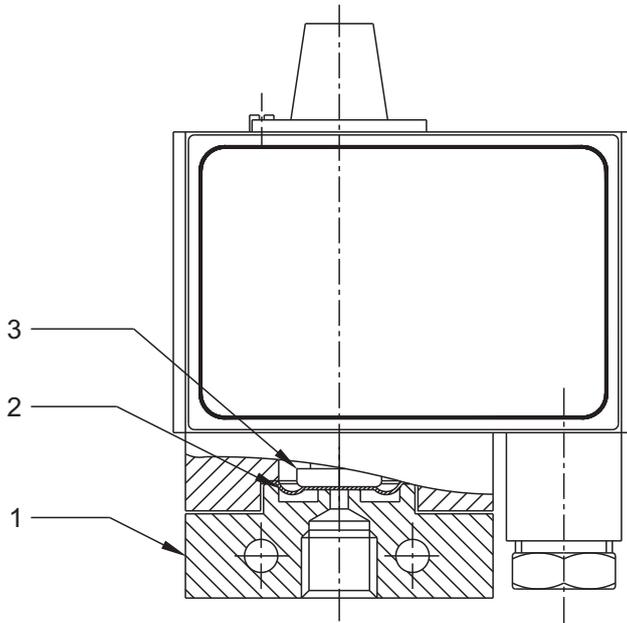
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
MG	H01	C	B	1	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, calibrated switches with standard wetted parts will be supplied.

MN / MA HIGH RANGE PRESSURE SWITCHES



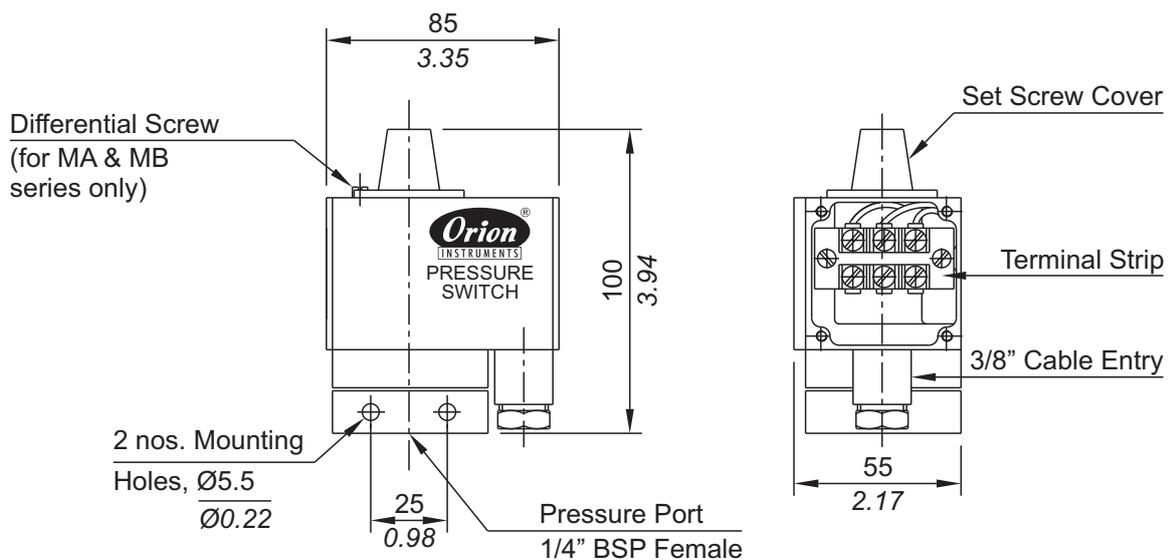
PRESSURE CAPSULE DETAILS



- No. Description**
1. Pressure Housing
 2. Diaphragm
 3. Plunger

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

HIGH RANGE PRESSURE SWITCHES MN / MA

General information:

MN / MA series pressure switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or outdoor service based on the type of enclosure opted for. The repeat accuracy is better than $\pm 1\%$ FSR. A 3/8" cable entry is provided for cables and a terminal strip suitable for wired ends is provided inside the enclosure. Pressure port is 1/4" BSPF standard.

Features:

- Compact
- Separate chamber for working parts
- Wide band adjustable differential in MA series
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250 VAC; 0.2 A, 250VDC (res.)
- Proof pressure available can be 4 times MWP (optional)
- Pressure port: 1/4" BSPF

Some Applications : Used in boilers, water treatment plants, fire fighting systems, compressors, etc.

Range Selection Table

Range Code	Range † bar (psi)	MN		MA	
		*Approximate Maximum Differential bar (psi)	*Adjustable Differential bar (psi)	Maximum Working Pressure bar (psi)	
LP	0.067 - 0.213 (0.96 - 3.09)	0.02 (0.30)	-	5 (72.52)	
LP5	0.1 - 0.5 (1.45 - 7.25)	0.10 (1.45)	-	5 (72.52)	
H01	0.1 - 1.0 (1.45 - 14.50)	0.1 (1.45)	0.15 - 1.0 (2.17 - 14.50)	12 (174.05)	
H02	0.1 - 1.5 (1.45 - 21.76)	0.20 (2.90)	0.3 - 1.0 (4.35 - 14.50)	12 (174.05)	
H03	0.2 - 2.6 (2.90 - 37.71)	0.30 (4.35)	0.2 - 1.5 (2.90 - 21.76)	12 (174.05)	
H04	0.2 - 3.6 (2.90 - 52.21)	0.30 (4.35)	0.30 - 1.5 (4.35 - 21.76)	12 (174.05)	
H07	0.5 - 7.0 (7.25 - 101.53)	0.40 (5.80)	0.80 - 6.0 (11.6 - 87.02)	12 (174.05)	
H10	0.5 - 10.0 (7.25 - 145.04)	0.60 (8.70)	1.5 - 8.0 (21.75 - 116.03)	25 (362.6)	
H15	1.0 - 15.0 (14.50 - 217.71)	0.60 (8.70)	1.5 - 10.0 (21.75 - 145.04)	25 (362.6)	
H30	5.0 - 25.0 (72.52 - 362.6)	2.50 (36.26)	2.5 - 10.0 (36.26 - 145.04)	35 (507.63)	

*Minimum differential increases with setpoint (Graphs available on request)

† rising pressure for MN series; falling pressure for MA series

? approx 50 mm Hg to 160 mm Hg. Scale calibrated in mm Hg for this range only

How to order MN / MA high range pressure switches.

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Diaphragm	Enclosure
MN - Fixed differential Switch MA - Adjustable Differential Switch	H - High Pressure ranges	U - Uncalibrated C - Calibrated	A - Aluminium B - Brass S - SS316	0 - Neoprene 1 - Teflon	0 - Standard (IP 54) 1 - IP65as per IS 2147
			for special wetted parts through chemical seals, please refer page 330,331 & 332 and specify in text accordingly.		

eg. A fixed differential switch, high pressure range from 0.1-1.0 bar in calibrated style with brass pressure housing & a teflon diaphragm & a standard enclosure shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
MN	H01	C	B	1	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and a standard enclosure will be supplied.

HYDRAULIC PRESSURE SWITCHES DN / DA

General information:

DN / DA series pressure switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel / line mounting or outdoor service. The repeat accuracy is better than $\pm 1\%$ FSR. A connector to DIN 43650 is provided for electrical wiring. Pressure port is $\frac{1}{4}$ " BSPF standard.

Features:

- Compact
- Separate chamber for working parts
- Choice of wetted parts to suit working media
- Wide band adjustable differential in DA series.
- Electrical rating : 5A,250VAC;0.2A,250VDC(res.)
- Pressure port : $\frac{1}{4}$ " BSPF

Some Applications : Used for hydraulic applications like loading and unloading in CNC, VMC machining centres, chuck clamping, etc.

Range Selection Table

Range Code	DN		DA	
	Range † bar (psi)	*Approximate Maximum Differential bar (psi)	* Adjustable Differential bar (psi)	Maximum Working Pressure bar (psi)
040	3 - 40 (43.51 - 580.15)	5 (72.52)	5 - 10 (72.52 - 145.04)	80 (1160.30)
100	10 - 100 (145.04 - 1450.38)	12 (174.05)	10 - 20 (145.04 - 290.08)	120 (1740.45)
200	7 - 200 (101.52 - 2900.76)	24 (348.09)	18 - 30 (261.06 - 435.11)	200 (2900.76)
400	100 - 400 (1450.38 - 5801.51)	40 (580.15)	30 - 40 (435.11 - 580.15)	400 (5801.51)

* minimum differential rises with setpoint (Graphs available on request)

† rising pressure for DN series; falling pressure for DA series.

Wetted Parts Table for DN / DA Series.

	Standard	Optional	Special
Piston	EN8	S.S.	for special wetted parts through chemical seals, please refer page 330,331 & 332 and specify in text accordingly.
*Backup ring	Teflon	Teflon	
O ring	Viton	Viton	
Pressure housing	Aluminium	Brass	
Surge suppressor	EN8	Brass	
Surge reducer	Brass	Brass	

* Backup ring is not used in all pressure ranges. Please contact sales office for details.

How to order DN / DA series hydraulic pressure switches.

Group 1	Group 2	Group 3	Group 4	Group 5
Model	Range	Range Scale	Wetted Parts	-
DN - Fixed diff. Hydraulic Pressure switch DA - Adjustable diff. Hydraulic Pressure Switch	Please select as per range code table	U - uncalibrated C - calibrated	S - for Standard Wetted parts. B - for optional wetted parts mentioned in table above. X - Specify wetted parts in text as per wetted parts table above.	Reserved for non Standard modifications. Code will be given by company

eg. A fixed differential hydraulic pressure switch, pressure range from 5 to 40 bar, in uncalibrated style and standard wetted parts shall be specified by

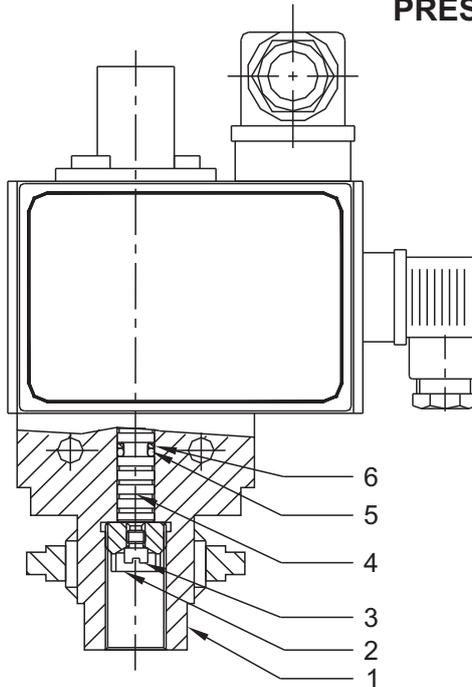
Group 1	Group 2	Group 3	Group 4	Group 5
DN	040	U	S	-

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, pressure switches with standard wetted parts will be supplied.

DJ 2 SPDT HYDRAULIC PRESSURE SWITCHES



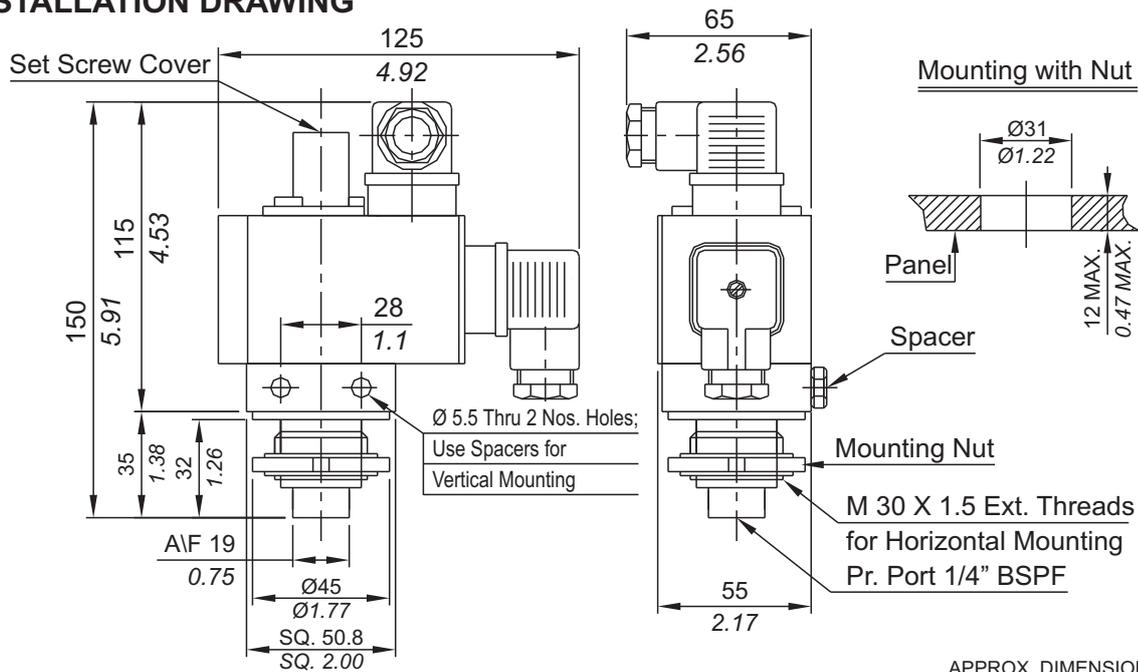
PRESSURE CAPSULE DETAILS



- No. Description**
1. Pressure Housing
 2. Surge arrestor
 3. Surge reducer
 4. Piston
 5. O ring
 6. Backup ring

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

2 SPDT HYDRAULIC PRESSURE SWITCHES

DJ

General information:

DJ series pressure switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or outdoor service based on the type of enclosure opted for. No stage differential can be set in these 2SPDT versions (DJ series). Both microswitches are synchronised for operation within practical limits and a slight stage difference is bound to remain between the setpoints (generally not exceeding 2 % of FSR). The repeat accuracy is better than $\pm 2\%$ FSR. Two separate connectors to DIN 43650 are provided for electrical wiring for two independant circuits. Pressure port is $\frac{1}{4}$ " BSPF standard.

Features:

- Compact
- Separate chamber for working parts
- Choice of wetted parts to suit working media
- Electrical rating : 5A,250VAC;0.2A,250VDC(res.)
- Electrical element : SPDT snapaction microswitch
- Pressure port: $\frac{1}{4}$ " BSPF

Some Applications : Used in fire fighting systems requiring additional safety, e.g. in large power plants, etc.

Range Selection Table

Range Code	Range (rising pressure) bar (psi)	*Approximate Maximum Differential bar (psi)	Maximum Working Pressure bar (psi)
040	5 - 40 (72.52 - 580.15)	6 (87.02)	80 (1160.3)
100	10 - 100 (145.04 - 1450.38)	12 (174.05)	120 (1440.45)
200	7 - 200 (101.52 - 2900.76)	24 (348.009)	200 (2900.76)
400	100 - 400 (1450.38 - 5801.51)	40 (580.15)	400 (5801.51)

*minimum differential rises with setpoint (Graphs available on request)

Wetted Parts Table for DJ Series.

	Standard	Optional	Special
Piston	EN8	S.S.	for special wetted parts through chemical seals, please refer page 330,331 & 332 and specify in text accordingly.
*Backup ring	Teflon	Teflon	
O ring	Viton	Viton	
Pressure housing	Aluminium	Brass	
Surge suppressor	EN8	Brass	
Surge reducer	Brass	Brass	

* Backup ring is not used in all pressure ranges. Please contact sales office for details.

How to order DJ series 2SPDT hydraulic pressure switches.

Group 1	Group 2	Group 3	Group 4	Group 5
Model	Range	Range Scale	Wetted Parts	-
DJ - 2 SPDT Fixed diff. Hydraulic Pressure Switch	Please select as per range code table	U - uncalibrated C - calibrated	S -for Standard Wetted parts. B -for optional wetted parts mentioned in table above. X -Specify wetted parts in text as per wetted parts table above	Reserved for nonstandard modifications. Code will be given by company.

eg. A 2SPDT fixed differential hydraulic pressure switch, pressure range from 5 to 40 bar, in uncalibrated style and standard wetted parts shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5
DJ	040	U	S	-

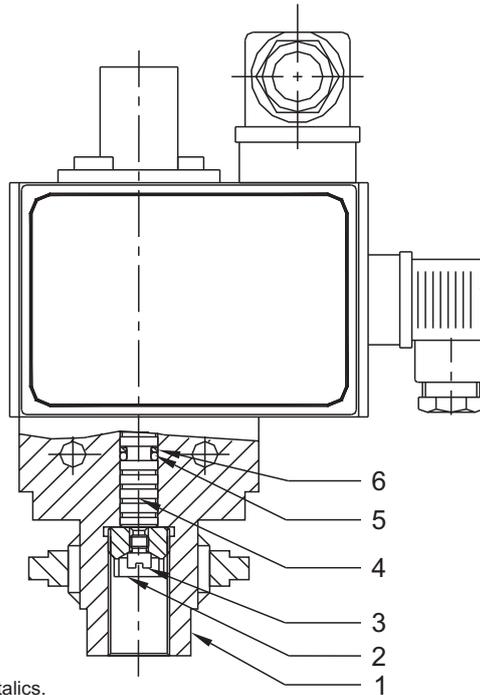
Please specify full model number to avoid ambiguity. Please refer range table & technical details table before arriving at any model number. If only the first two groups are specified while ordering, pressure switches with standard wetted parts will be supplied.

DK

2 SPDT HYDRAULIC PRESSURE SWITCHES (adjustable stage difference)



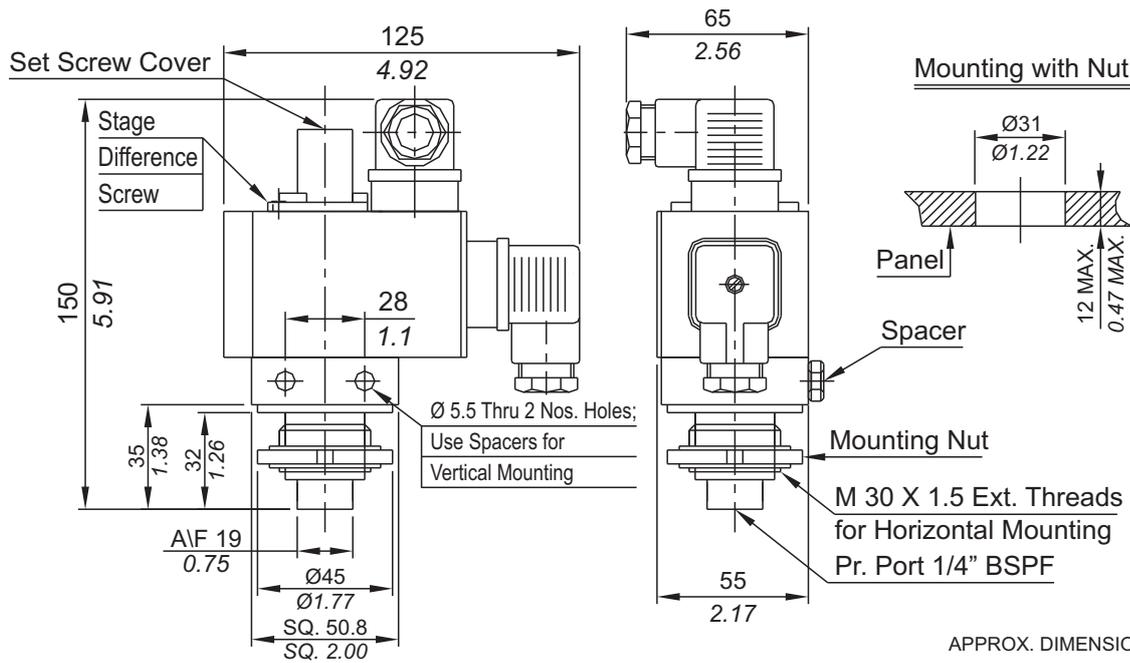
PRESSURE CAPSULE DETAILS



- No. Description**
- 1. Pressure Housing
 - 2. Surge arrestor
 - 3. Surge reducer
 - 4. Piston
 - 5. O ring
 - 6. Backup ring

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



2 SPDT HYDRAULIC PRESSURE SWITCHES (adjustable stage difference)

DK

General information:

DK series pressure switches are housed in pressure die cast aluminium powder coated enclosure (IP65) and are recommended for panel mounting or outdoor service. Stage differential can be set in these 2SPDT versions (DK series). Both microswitches are synchronised for operation such that the stage difference (or gap) can be adjusted from minimum 15 % of FSR to a maximum of 50% of FSR (on falling setpoints). The repeat accuracy is better than 2 % FSR. Two separate connectors to DIN 43650 are provided for electrical wiring for two independent circuits. Pressure port is ¼ " BSPF standard.

Features:

- Compact
- Separate chamber for working parts
- Electrical rating : 5A, 250 VAC; 0.2 A, 250 VDC (res.)
- Choice of wetted parts to suit working media
- Pressure port : ¼" BSPF

Some Applications : Used in systems requiring an alarm and trip function, e.g. HI-HI/Lo-Lo setpoints, etc.

Range Selection Table

Range Code	Range (rising pressure) bar (psi)	*Approximate Maximum Differential (Fixed) for low microswitch bar (psi)	* Approximate Maximum Differential (Fixed) for high microswitch at minimum gap bar (psi)	* Approximate Maximum Differential (Fixed) for high microswitch at maximum gap bar (psi)	Maximum Working Pressure bar (psi)
040	5 - 40 (72.52 - 580.15)	6 (87.02)	8 (116.03)	18 (261.07)	80 (1160.3)
100	10 - 100 (145.04 - 1450.38)	12 (174.05)	14 (203.05)	75 (1087.87)	200 (2900.76)

*minimum differential rises with setpoint (Graphs available on request)

Wetted Parts Table for DK Series.

	Standard	Optional	Special
Piston	EN8	S.S.	for special wetted parts through chemical seals, please refer page 330,331 & 332 and specify in text accordingly.
*Backup ring	Teflon	Teflon	
O ring	Viton	Viton	
Pressure housing	Aluminium	Brass	
Surge suppressor	EN8	Brass	
Surge reducer	Brass	Brass	

* Backup ring is not used in all pressure ranges. Please contact sales office for details.

How to order DK series 2SPDT hydraulic pressure switches.

Group 1	Group 2	Group 3	Group 4	Group 5
Model	Range	Range Scale	Wetted Parts	-
DK - 2 SPDT Fixed diff. Switch with adjustable stage difference	Please select as per range code table	U - uncalibrated	S - for Standard Wetted parts. B - for brass pressure housing, brass surge reducer & suppresser, SS piston. All seals of viton only X - Specify wetted parts in text as per wetted parts table Above	Reserved for nonstandard modifications. Code will be given by company.

eg. A 2 SPDT fixed differential hydraulic pressure switch with adjustable stage difference, pressure range from 5 to 40 bar, with two no.s 5 A, 250 VAC microswitch and standard wetted parts shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5
DK	040	U	S	-

Please specify full model number to avoid ambiguity. Please refer range table & technical details table before arriving at any model number. If only the first two groups are specified while ordering, pressure switches with standard wetted parts will be supplied.

HYGIENE RANGE PRESSURE SWITCHES MG / ME

General information:

MG series pressure switches are housed in pressed steel powder coated enclosure and are recommended for panel mounting or indoor service. The repeat accuracy is better than $\pm 1.5\%$ FSR. A 3/8" cable entry is provided for cables and a terminal strip suitable for wired ends is provided inside the enclosure. Pressure port is a triclover seal.

Features:

- Compact
- Electrical rating : 5A, 250 VAC; 0.2A, 250VDC (res.)
- Pressure port: Triclover / 1/4" BSPF

Some Applications : Used in pharma industries, food industry, bulk drugs, dairy products, etc.

Range Selection Table

	MG		ME	
Range Code	Range † bar (psi)	*Approximate Maximum Differential bar (psi)	* Adjustable Differential bar (psi)	Maximum Working Pressure bar (psi)
H03	0.2 - 2.6 (2.86 - 37.14)	0.20 (2.86)	0.3 - 1.5 (4.29 - 21.43)	12 (171.43)
H04	0.2 - 3.6 (2.86 - 51.43)	0.20 (2.86)	0.3 - 1.5 (4.29 - 21.43)	12 (171.43)
HO7	0.5 - 7.0 (7.14 - 100.00)	0.40 (5.71)	1.0 - 6.0 (14.29 - 85.71)	12 (171.43)
H10	0.5 - 10.0 (7.14 - 142.86)	0.60 (8.57)	1.5 - 8.0 (21.43 - 114.29)	25 (357.14)
H15	1.0 - 15.0 (14.29 - 214.29)	0.60 (8.57)	1.8 - 10.0 (26.11 - 142.86)	25 (357.14)

*Minimum differential increases with setpoint (Graphs available on request)

† rising pressure for MG series; falling pressure for ME series

How to order MG/ME series high range triclover pressure switches.

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Triclover Size	Enclosure
MG - Fixed Differential Triclover Pressure Switch ME - Adj. Differential Triclover Pressure Switch	H - High range Pressure Switch	C - Without Knob K - With Knob	T - Triclover SS316L S - SS316L (1/4" BSPF Pressure port)	1 - No Triclover (Teflon diaphragm) B - 1.5" OD C - 2" OD	0 - IP 40 as per IS 2147

eg. A fixed differential triclover pressure switch, high pressure range from 0.5 - 7.0 bar with knob style with triclover pressure housing with 1 & 1/2" triclover size shall be specified by

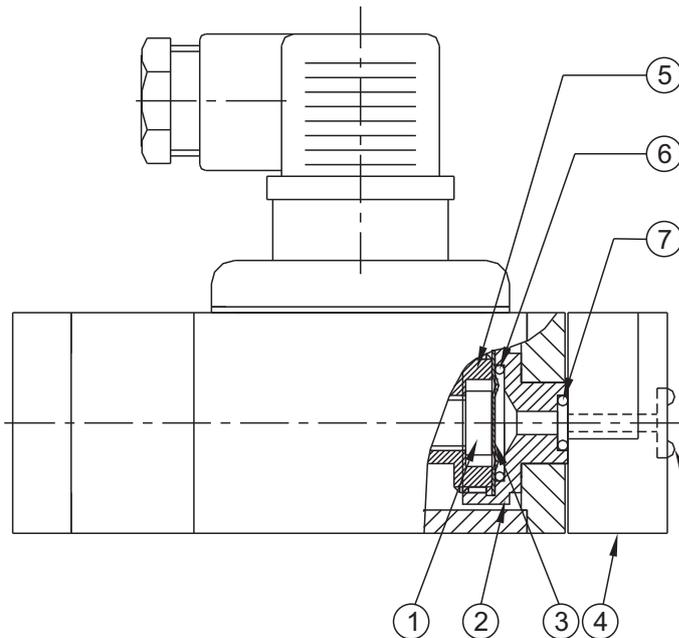
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
MG	H07	K	T	B	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, calibrated switches with standard wetted parts will be supplied.

HM HIGH RANGE PRESSURE SWITCHES



PRESSURE CAPSULE DETAILS



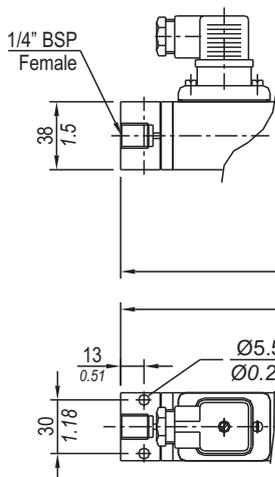
No. Description

1. Plunger
2. Pressure housing
3. Diaphragm
4. Base
5. Disc
6. High pressure seal
7. Pressure housing seal
8. Base seal (O ring)
(N.A for line mounting style)

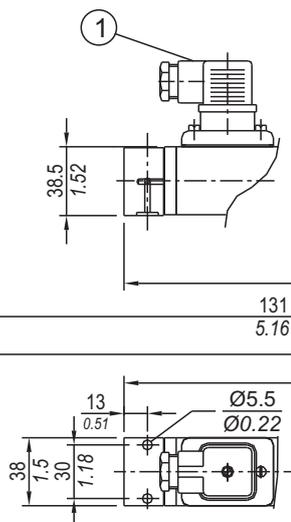
Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING

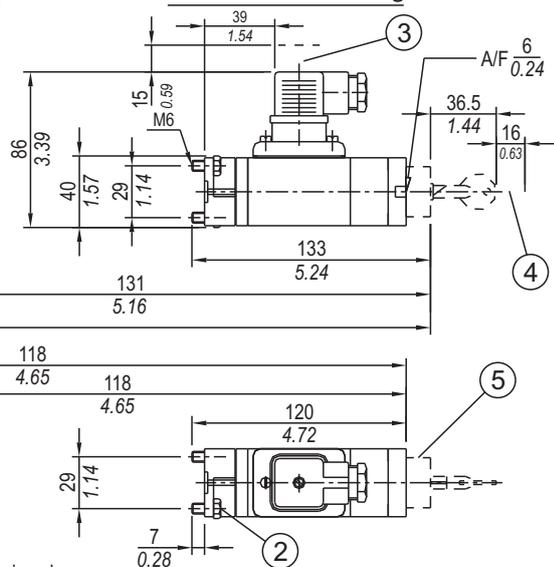
For line mounting



For subplate mounting



For vertical stacking



- ① can be rotated 90° ② two fixing screws ③ space for removing plug
 ④ space for removing key ⑤ lockable protective cap

APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

HIGH RANGE PRESSURE SWITCHES **HM**

General information:

HM series pressure switches have a machined aluminium powder coated enclosure and are recommended for manifold mounting hydraulic applications, where setpoints are low but working pressures are high. The repeat accuracy is better than $\pm 2\%$ FSR. A connector to DIN 43650 is provided for wiring. Three mounting styles are available.

Features:

- Compact
- Lightweight
- Three mounting styles
- low on-off differentials
- low setpoints with high working pressures
- Lockable protective cap to avoid tampering (optional)
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250 VAC; 0.2 A, 250 VDC (res.)

Some Applications : Used in high/low pressure alarms in CNC machines, manifolds/in stacks, etc.

Range Selection Table

Range Code	Range (falling pressure) bar (psi)	*Approximate Maximum Differential bar (psi)	Maximum Working Pressure bar (psi)
H01	0.2 - 1.0 (2.90 - 14.50)	0.20 (2.90)	12 (174.05)
H04	0.2 - 3.6 (2.90 - 52.21)	0.40 (5.80)	12 (174.05)
H07	0.5 - 7.0 (7.25 - 101.52)	0.40 (5.80)	12 (174.05)
H10	0.5 - 10.0 (7.25 - 145.04)	0.80 (11.60)	25 (362.6)
H15	1.0 - 15.0 (14.50 - 217.71)	1.00 (14.50)	25 (362.6)
H30	5.0 - 25.0 (72.52 - 362.6)	2.50 (36.26)	35 (507.63)

*differential rises with setpoint (Graphs available on request)

Wetted Parts Table for HM High Series.

	Standard	Optional
Pressure Housing	Aluminium	Brass
Diaphragm	Neoprene	Teflon
High Pressure Seal	Nitrile	Viton
Pressure Housing Seal	Nitrile	Viton
Base	M.S.	Brass
Base Seal	Nitrile	Viton

How to order HM High series pressure switches.

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Base Type	Protective Cap	Wetted Parts	Enclosure
HM - High range Pressure Switch	H - High Range Pressure Switch	S - for Subplate mounting. L - for line Mounting V - for vertical Stacking	U - without any protective cap P - with a lockable protective cap	M - for Standard Wetted parts. B - for optional wetted parts mentioned in table above X - Specify wetted parts in text as per wetted parts	0 - IP 65 as per IS 2147

eg. A high range pressure switch, pressure range from 0.2 to 3.6 bar, as a vertical element with a lockable protective cap & standard wetted parts with a standard enclosure shall be specified by

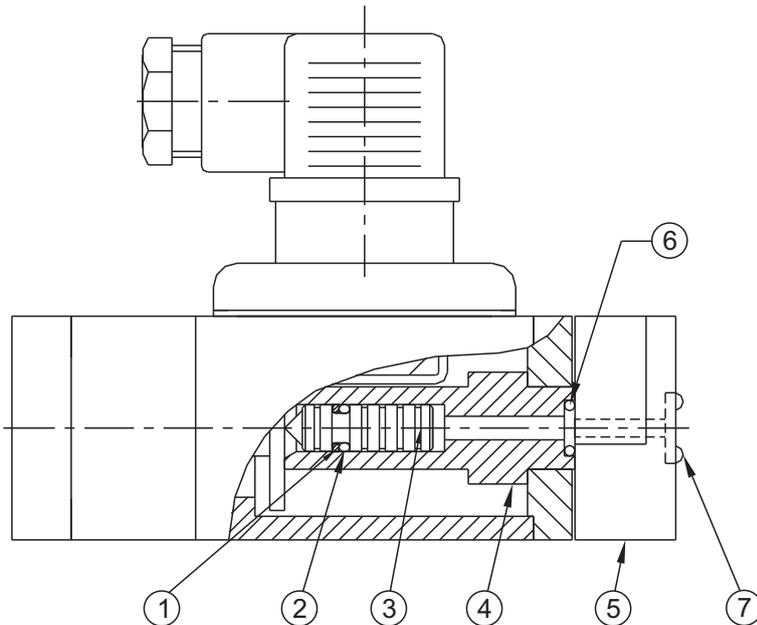
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
HM	H04	V	P	M	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, pressure switches with standard wetted parts will be supplied.

HM HYDRAULIC PRESSURE SWITCHES



PRESSURE CAPSULE DETAILS



- No. Description**
1. Backup ring
 2. Piston seal
 3. Piston
 4. Pressure housing
 5. Base
 6. Pressure housing seal
 7. Base seal (O ring)
(N.A for line mounting style)

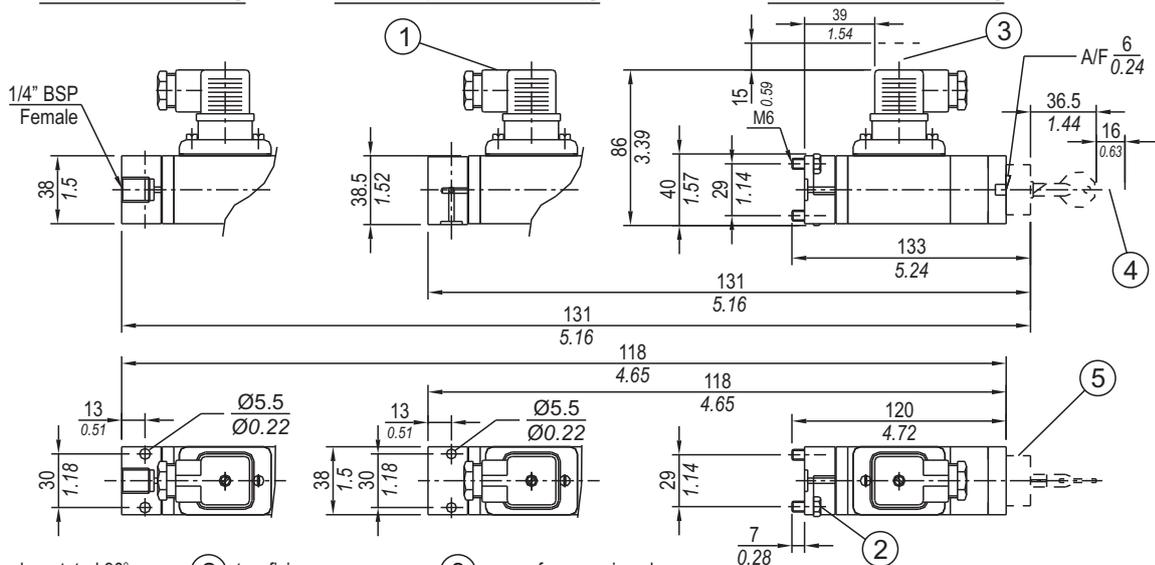
Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING

For line mounting

For subplate mounting

For vertical stacking



- ① can be rotated 90° ② two fixing screws ③ space for removing plug
 ④ space for removing key ⑤ lockable protective cap

APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

HYDRAULIC PRESSURE SWITCHES **HM**

General information:

HM series pressure switches have a machined aluminium powder coated enclosure and are recommended for manifold mounting hydraulic applications. When fitted with different types of chemical seals these can also be used for various processes. The repeat accuracy is better than $\pm 1\%$ FSR. A connector to DIN 43650 is provided for wiring.

Features:

- Compact
- Lightweight
- Three mounting styles
- Lockable protective cap to avoid tampering (optional)
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250 VAC; 0.2 A, 250 VDC (res.)

Some Applications : Used in compressors, hydraulic power packs, manifolds/stacks with sandwich plates, etc.

Range Selection Table

Range Code	Range (falling pressure) bar (psi)	*Approximate Maximum Differential bar (psi)	Maximum Working Pressure bar (psi)
040	3 - 40 (43.51 - 580.15)	5 (72.52)	200 (2900.76)
100	10 - 100 (145.04 - 1450.38)	12 (174.05)	200 (2900.76)
200	7 - 200 (101.52 - 2900.76)	24 (348.09)	200 (2900.76)
400	100 - 400 (1450.38 - 5801.51)	40 (580.15)	400 (5801.51)

*differential rises with setpoint (Graphs available on request)

Wetted Parts Table for HM Hydraulic Series.

	Standard	Optional	Special
Piston	EN8	S.S.	for special wetted parts through chemical seals, please refer page 330,331 & 332 and specify in text accordingly.
Piston Seal	Viton	Viton	
Pressure housing	Aluminium	Brass/ M.S.	
Housing Seal	Nitrile	Viton	
Base	M.S.	Brass	
Base Seal	Nitrile	Viton	

How to order HM Hydraulic Series pressure switches.

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Base Type	Protective Cap	Wetted Parts	Enclosure*
HM - Hydraulic Pressure Switch	Hydraulic Pressure Range	S - for Subplate mounting. L - for line Mounting V - for vertical Stacking	U - without any protective cap P - with a lockable protective cap	M - for Standard Wetted parts. B - for Brass pressure housing, brass base, SS piston. All seals of Viton only X - Specify wetted parts in text as	0 - IP 65 as per IS 2147

*HM series flameproof versions will be available with 1/4" BSPF threading arrangement only. For corrosive media, a separate chemical seal can be provided.

eg. A hydraulic pressure switch, pressure range from 5 to 40 bar, as a vertical element with a lockable protective cap & standard wetted parts with a standard enclosure shall be specified by

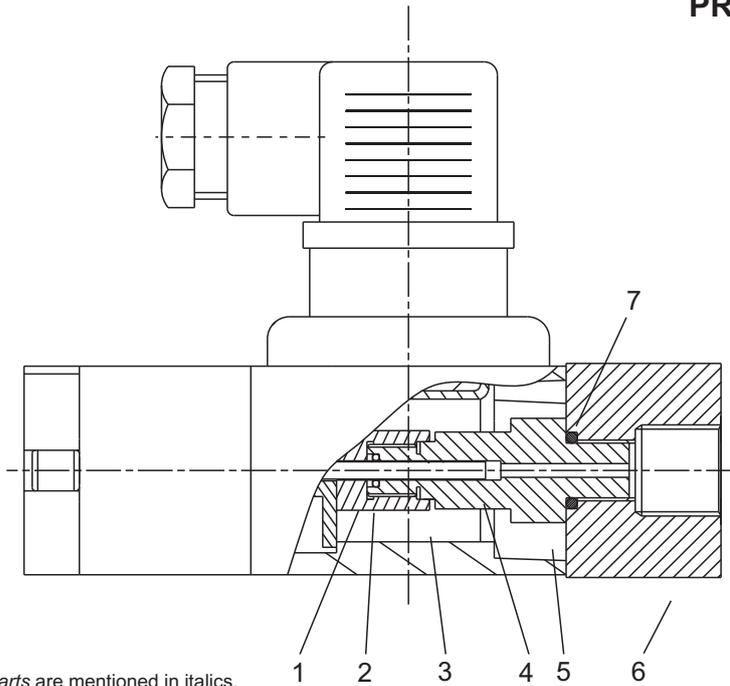
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
HM	040	V	P	M	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, pressure switches with standard wetted parts will be supplied.

HM350 HYDRAULIC PRESSURE SWITCHES



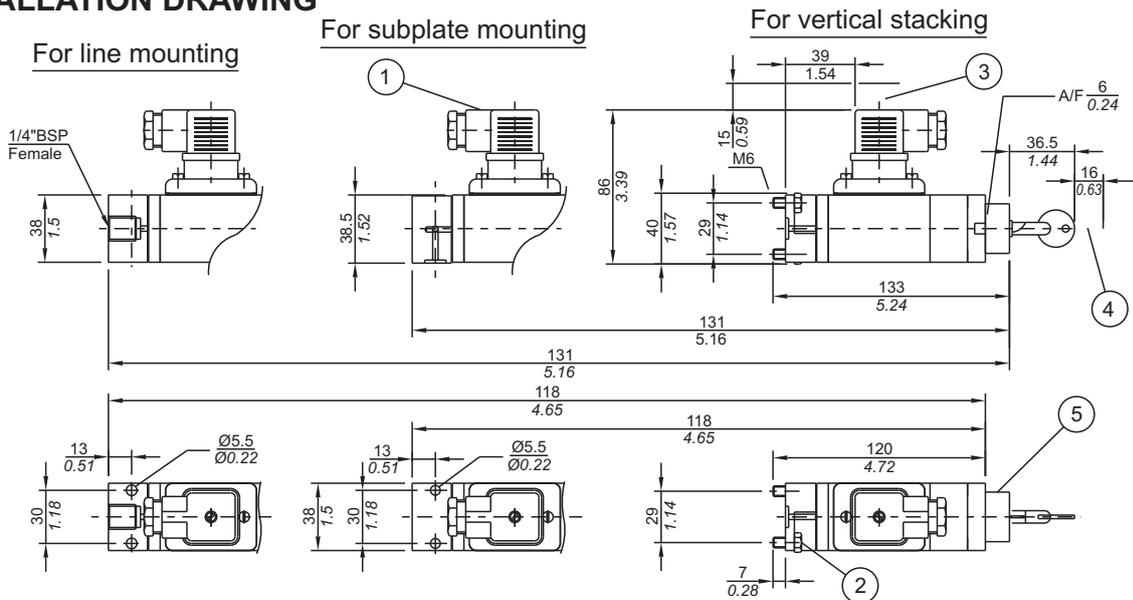
PRESSURE CAPSULE DETAILS



- | No. | Description |
|-----|-------------------------|
| 1. | Backup ring (Teflon®) |
| 2. | O Ring (Viton®) |
| 3. | Cap |
| 4. | Piston (S.S.) |
| 5. | Pressure Housing (M.S.) |
| 6. | Base (M.S.) |
| 7. | Sealing Ring (Viton®) |

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



- ① can be rotated 90° ② two fixing screws ③ space for removing plug
 ④ space for removing key ⑤ lockable protective cap

APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

HYDRAULIC PRESSURE SWITCHES **HM350**

GENERAL INFORMATION :

HM series pressure switches have a pressure die-cast aluminium powder coated enclosure and are recommended for manifold mounting hydraulic applications. The repeat accuracy is better than $\pm 1\%$ FSR. A connector to DIN 43650 is provided for wiring. Mainly intended for high pressure hydraulic presses.

FEATURES :

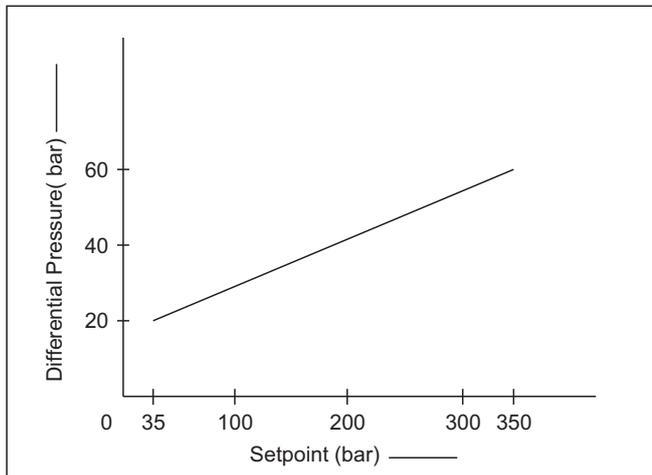
- Compact
- Lightweight
- Three mounting styles
- Lockable protective cap to avoid tampering (optional)
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250VAC; 0.2A, 250 VDC (res.)

Some Applications : Used in high/low pressure alarms in CNC machines, compressors, hydraulic power packs, manifolds/stacks with sandwich plates, etc.

Range Selection Table

Range Code	Range (rising pressure) bar (psi)	Approximate Maximum Differential* bar (psi)	Maximum Working Pressure bar (psi)
HM350	35 - 350 (507.63 - 5076.32)	60 (870.22)	500 (7251.89)

* Differential rises with setpoint



How to order HM350 Hydraulic pressure switches

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Base Type	Protective Cap	Wetted Parts	Enclosure
HM - Hydraulic Pressure Switch	350	S - for Subplate mounting. L - for line Mounting V - for vertical Stacking	U - without any protective cap P - with a lockable protective cap	M - for Standard Wetted parts	0 - IP 65 as per IS 2147

Eg. A hydraulic pressure switch, pressure range from 35 bar to 350 bar, as a subplate mounting element without a lockable protective cap and standard wetted parts with a standard enclosure shall be specified by

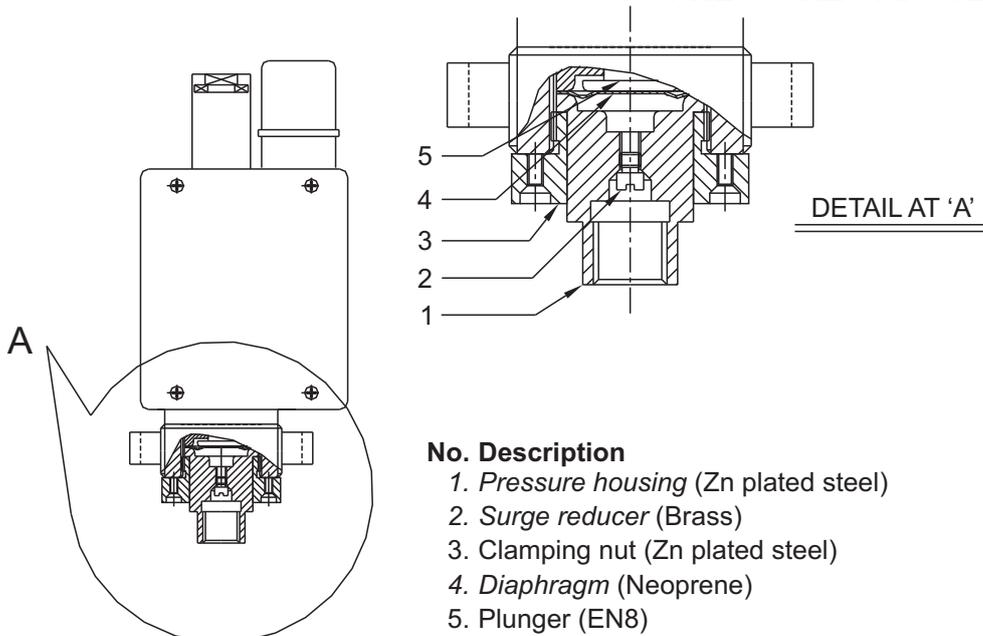
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
HM	350	S	U	M	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

DT HIGH RANGE PRESSURE SWITCHES

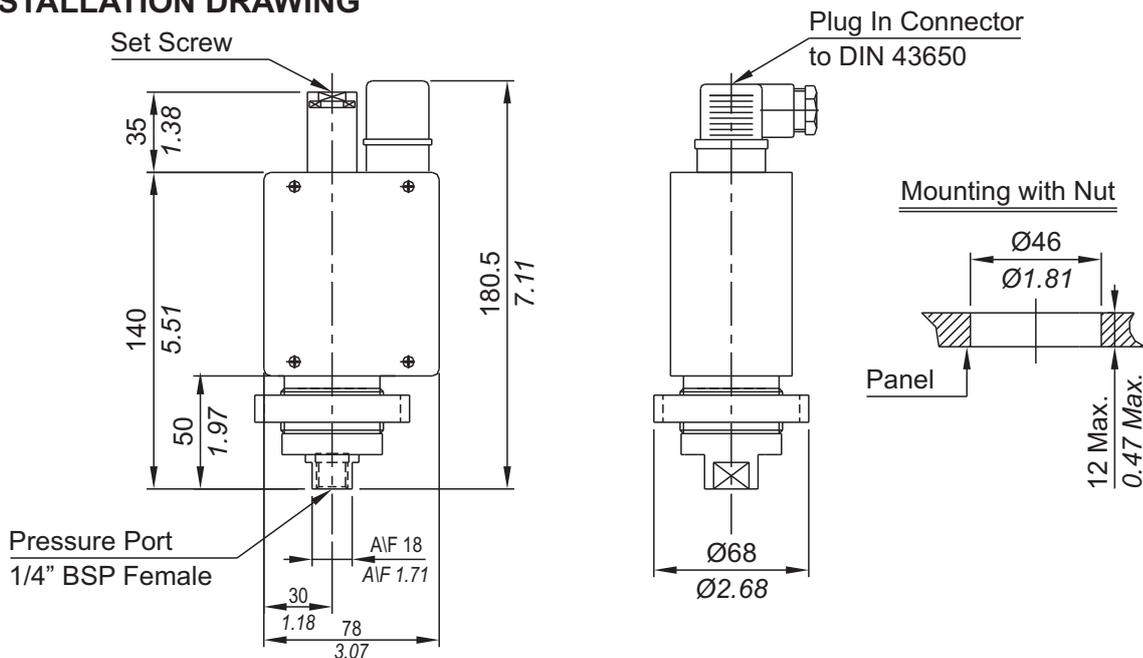


PRESSURE CAPSULE DETAILS



Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

HIGH RANGE PRESSURE SWITCHES

DT

General information:

DT series pressure switches have a cast aluminium enclosure (IP54) and are recommended for panel / line mounted hydraulic / pneumatic applications. The repeat accuracy is better than $\pm 2\%$ FSR. An electrical connector to DIN 43650 is provided for wiring. Pressure port is $\frac{1}{4}$ " BSPF standard.

Features:

- Robust construction
- 15 A switching possible (optional)
- Panel mounting
- Protective lock to avoid tampering (optional)
- Electrical rating : 5A,250VAC;0.2A,250VDC(RES.) (optionally 15 A, 250 VAC)

Some Applications : Used in high pressure power packs, press application, space and defence, etc.

Range Selection Table

Range Code	Range (rising pressure) bar (psi)	*Approximate Maximum Differential bar (psi)	Maximum Working Pressure bar (psi)
10	1 - 10 (14.50 - 145.04)	1 (14.50)	15 (217.71)
15	2 - 15 (29.00 - 217.71)	2 (29.00)	15 (217.71)

*differential rises with setpoint (Graphs available on request)

How to order DT high range pressure switches.

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Microswitch	Wetted Parts	Protective Lock	
DT - High Range Pressure Switch	Please select as per range code table	C - rated at 5A, 250 VAC (res.) H - rated at 15A, 250 VAC (res.)	S - Standard	U - without any lock P - with a protective lock	Reserved for non standard modifications. Code will be given by company

eg. A hydraulic pressure switch, pressure range from 1 to 10 bar, with a standard 5 A,250 VAC microswitch, standard wetted parts and a protective lock shall be specified by

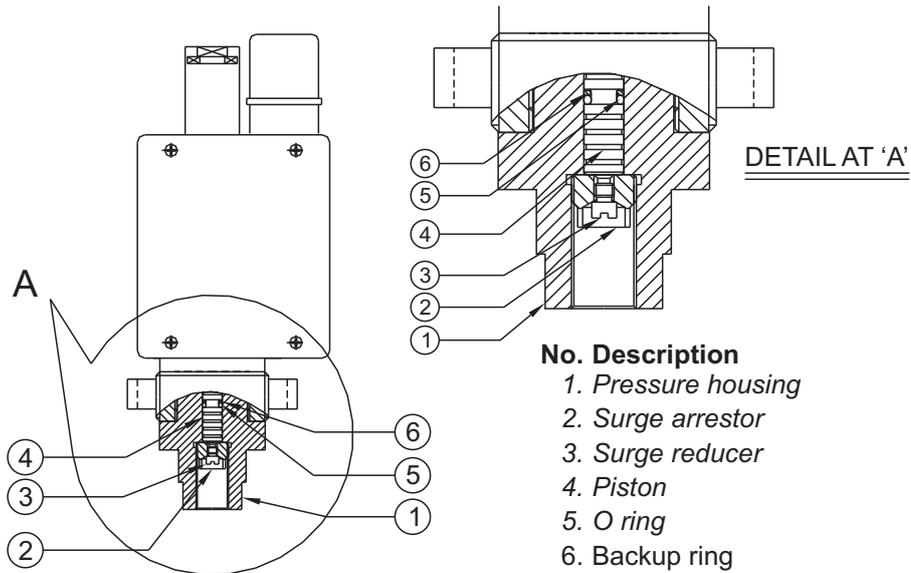
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
DT	10	C	S	P	-

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, pressure switches without a protective lock & with standard wetted parts will be supplied.

DT HYDRAULIC PRESSURE SWITCHES

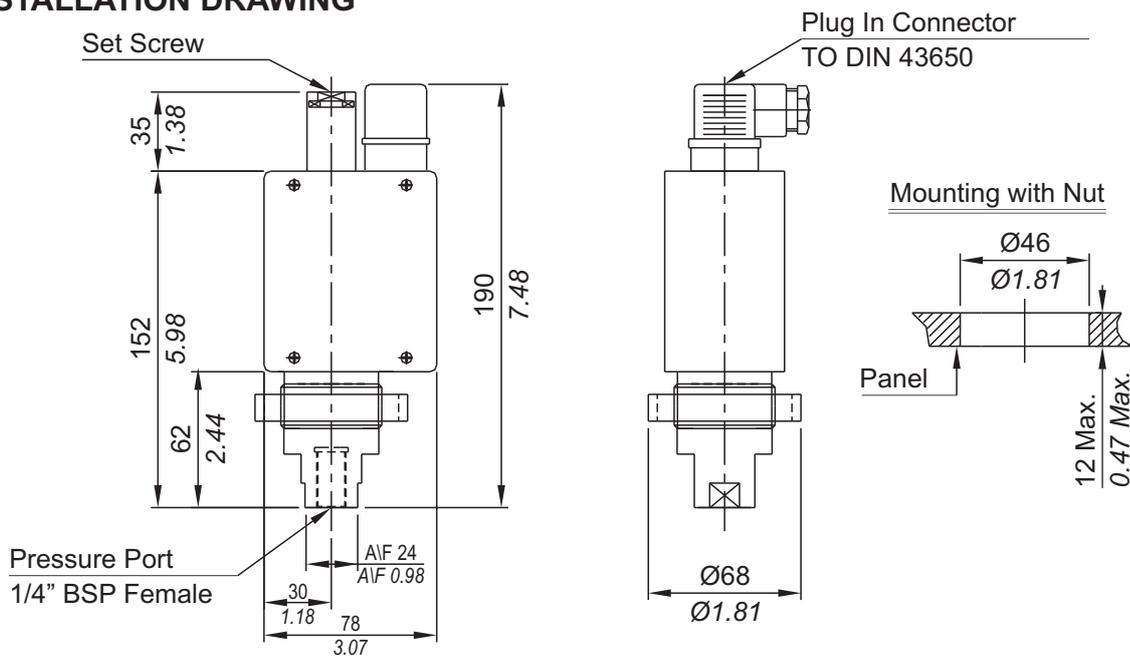


PRESSURE CAPSULE DETAILS



Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

HYDRAULIC PRESSURE SWITCHES **DT**

General information:

DT series pressure switches have a cast aluminium enclosure (IP54) and are recommended for panel / line mounted hydraulic applications. The repeat accuracy is better than $\pm 2\%$ FSR. An electrical connector to DIN 43650 is provided for wiring. Pressure port is $\frac{1}{4}$ " BSPF standard.

Features:

- Robust construction
- 15 A switching possible (optional)
- Panel mounting
- Protective lock to avoid tampering (optional)
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250 VAC; 0.2 A, 250 VDC (res.) (Optionally 15A, 250 VAC)

Some Applications : Used for heavy duty machine tool applications, low on-off differential, better sensitivity, high electrical rating(15A), etc.

Range Selection Table

Range Code	Range (rising pressure) bar (psi)	*Approximate Maximum Differential bar (psi)	Maximum Working Pressure bar (psi)
20A	4 - 20 (58.01 - 290.08)	3 (43.51)	200 (2900.76)
40	5 - 40 (72.52 - 580.15)	5 (72.52)	80 (1160.3)
100	10 - 100 (145.04 - 1450.38)	12 (174.05)	120 (1740.45)
200	7 - 200 (101.52 - 2900.76)	24 (348.09)	200 (2900.76)
400	100 - 400 (1450.38 - 5801.51)	40 (580.15)	400 (5801.51)
600	60 - 600 (870.22 - 8702.26)	90 (1305.34)	600 (8702.26)

*differential rises with setpoint (Graphs available on request)

Wetted Parts Table for DT Series.

	Standard	Optional	Special
Piston	EN8	S.S.	for special wetted parts through chemical seals, please refer page 330,331 & 332 and specify in text accordingly.
*Backup ring	Teflon	Teflon	
O ring	Viton	Viton	
Pressure housing	Aluminium	Brass	
Surge suppressor	EN8	Brass	
Surge reducer	Brass	Brass	

* Backup ring is not used in all pressure ranges. Please contact sales office for details.

How to order DT series hydraulic pressure switches.

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Microswitch	Wetted Parts	Protective Lock	
DT - Hydraulic Pressure Switch	Please select as per range code table	C - rated at 5A, 250 VAC H - rated at 15A, 250 VAC	S - for Standard Wetted parts B - for optional wetted parts mentioned in table above X - Specify wetted parts in text as per technical	U - without any lock P - with a protective lock	Reserved for non standard modifications. Code will be given by company

eg. A hydraulic pressure switch, pressure range from 5 to 40 bar, with a standard 5A,250 VAC microswitch, standard wetted parts and a protective lock shall be specified by

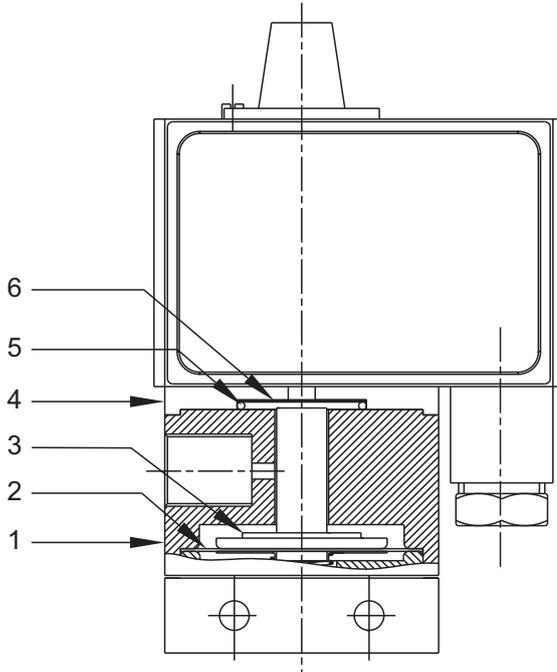
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
DT	40	C	S	P	-

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, pressure switches with standard wetted parts will be supplied.

MN / MA VACUUM SWITCHES



PRESSURE CAPSULE DETAILS

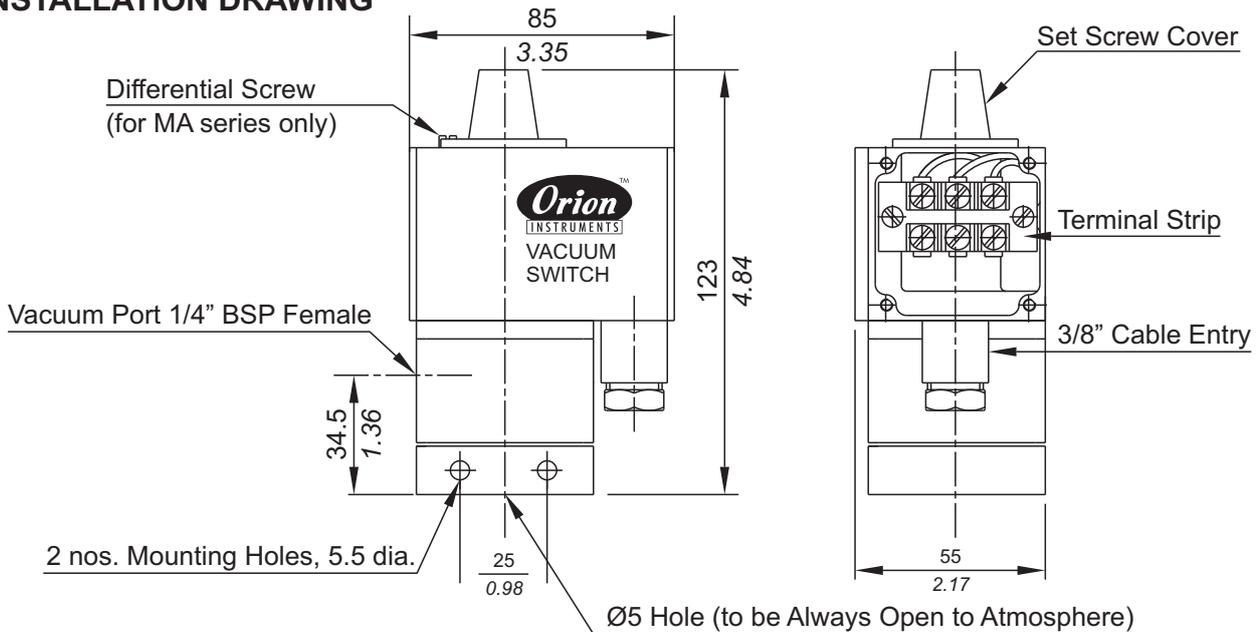


No. Description

1. *Disc*
2. *Diaphragm*
3. *Plunger (SS 316)*
4. *Junction Plate*
5. *Sealing 'O' ring (Teflon®)*
6. *Sealing diaphragms (Teflon®)*

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

VACUUM SWITCHES MN / MA

GENERAL INFORMATION :

MN / MA series vacuum switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or outdoor service based on the type of enclosure opted for. The repeat accuracy is better than $\pm 2\%$ FSR. A 3/8" cable entry is provided for cables and a terminal strip suitable for wired ends is provided inside the enclosure. Pressure port is 1/4" BSPF standard.

FEATURES :

- Compact
- Separate chamber for working parts
- Wide band adjustable differential in MA series.
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250VAC; 0.2A, 250 VDC
- Pressure port : 1/4" BSPF

Some Applications : Used in grinding machines for holding jobs, vacuum systems, blowers, pumps, etc.

RANGE SELECTION TABLE

Range code	Range vacuum (falling) mm Hg ("Hg)	MN	MA	Maximum Working Pressure bar (psi)
		*Approximate Maximum Differential (Fixed) mm Hg ("Hg)	*Adjustable Differential mm Hg ("Hg)	
V00	† 760 - 100 (29.92 - 3.94)	100 (3.94)	100 - 500 (3.94 - 19.69)	12 (174.05)

* Minimum differential increases with setpoint (Graphs available on request)

† Typical values achieved at sea level, total vacuum that can be achieved varies mainly with altitude.

HOW TO ORDER MN / MA SERIES VACUUM SWITCHES

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Disc	Diaphragm	Enclosure
MN - Fixed differential Vacuum Switch MA - Adjustable diff. Vacuum Switch	V00 - High range vacuum Switch	C - Calibrated U - Uncalibrated	A - Aluminium B - Brass S - SS 316	0 - Neoprene 1 - Teflon	0 - Standard (IP54) 1 - IP65 as per IS 2147

Eg. A fixed differential vacuum switch, high range from 760 mm Hg vac. To 100 mm Hg vac. in uncalibrated style, with brass pressure housing, a Teflon diaphragm & a standard enclosure shall be specified by

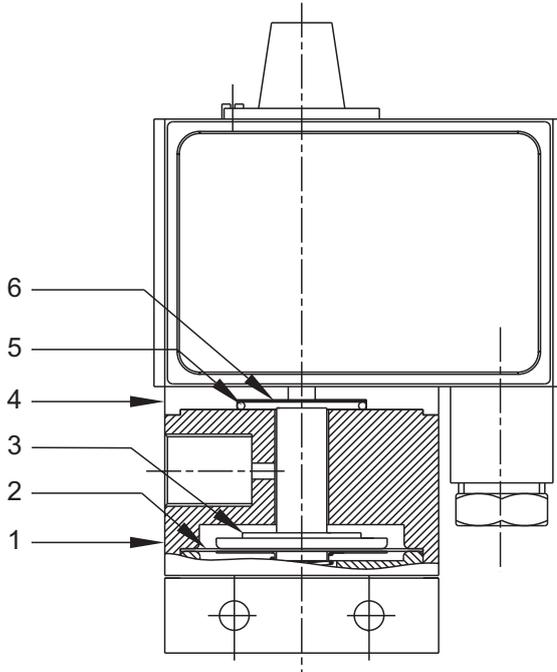
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
MN	V00	U	B	1	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

VS1 VACUUM SWITCHES



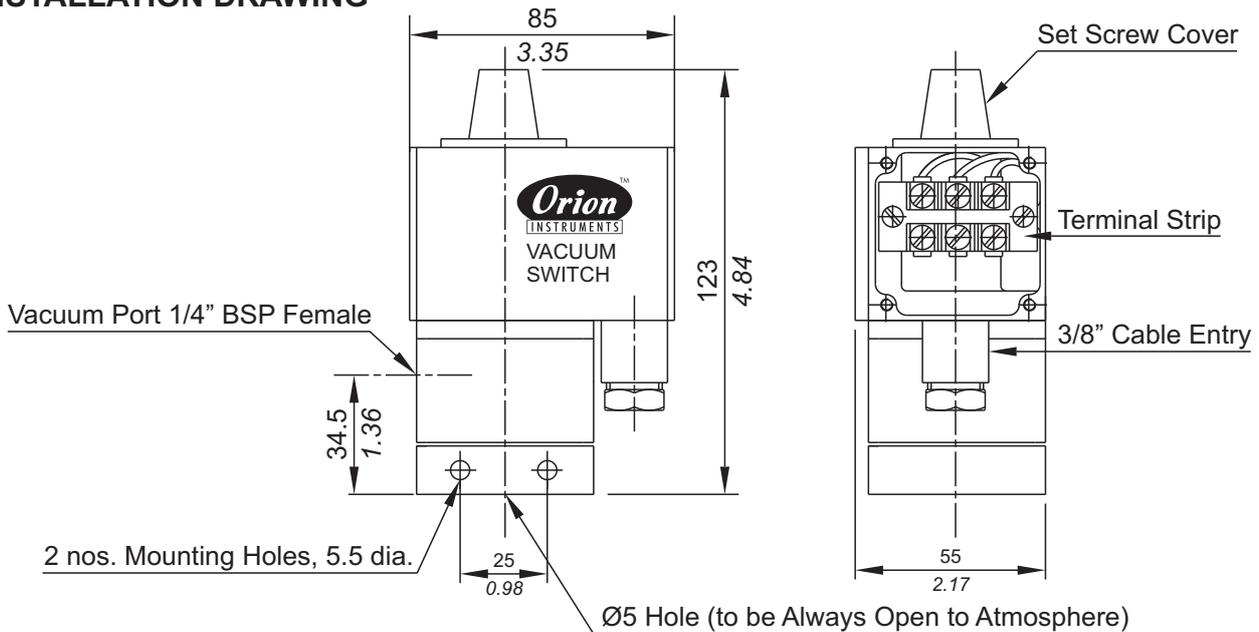
PRESSURE CAPSULE DETAILS



- | No. | Description |
|-----|-------------------------------------|
| 1. | <i>Disc (Aluminium)</i> |
| 2. | <i>Diaphragm (Teflon®)</i> |
| 3. | <i>Plunger (SS 316)</i> |
| 4. | Junction Plate |
| 5. | <i>Sealing 'O' ring (Teflon®)</i> |
| 6. | <i>Sealing diaphragms (Teflon®)</i> |

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

VACUUM SWITCHES VS1

GENERAL INFORMATION :

VS1 series vacuum switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or outdoor service. The repeat accuracy is better than $\pm 2\%$ FSR. A 3/8" cable entry is provided for cables and a terminal strip suitable for wired ends is provided inside the enclosure. Pressure port is 1/4" BSPF standard.

FEATURES :

- Compact
- Separate chamber for working parts
- Electrical rating : 5A, 250VAC; 0.2A, 250 VDC
- Pressure port : 1/4" BSPF

Some Applications : Vacuum Systems requiring low on-off differential.

RANGE SELECTION TABLE

Range code	Range vacuum (falling) mm Hg ("Hg)	*Approximate Maximum Differential (Fixed) mm Hg ("Hg)	Maximum Working Pressure bar (psi)
V00	† 760 - 100 (29.92 - 3.94)	10 (0.39)	12 (174.05)

* Minimum differential increases with setpoint (Graphs available on request)

† Typical values achieved at sea level, total vacuum that can be achieved varies mainly with altitude.

HOW TO ORDER VS1 SERIES VACUUM SWITCHES

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Disc	Diaphragm	Enclosure
VS1 - Fixed differential Vacuum Switch	-	-	-	-	-

Eg. A fixed differential vacuum switch, high range from 760 mm Hg vac. To 100 mm Hg vac. shall be specified by

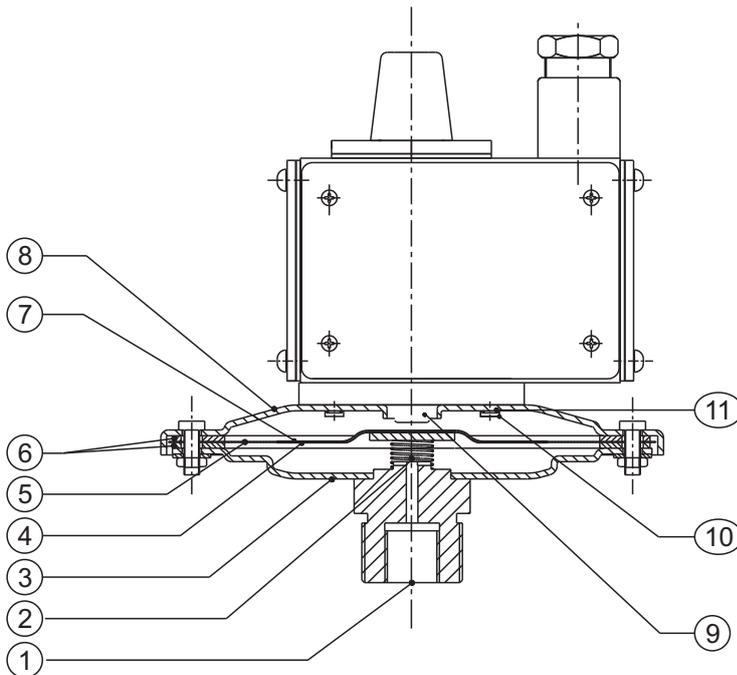
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
VS1	-	-	-	-	-

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

MN / MA LOW RANGE PRESSURE SWITCHES



PRESSURE CAPSULE DETAILS



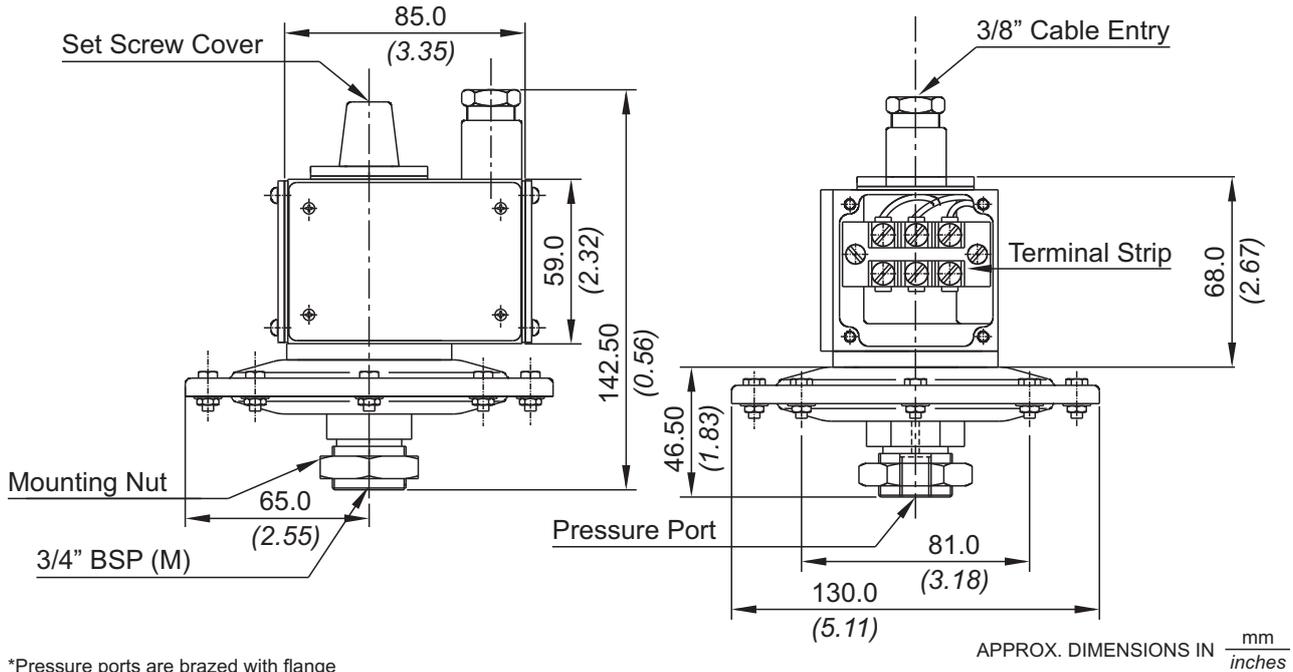
No. Description

1. *Pressure Port (M.S.)**
2. *Support Spring (S.S.)*
3. *Bottom Flange (M.S.)*
4. *Support plate (Aluminium)*
5. *Diaphragm (Neoprene)*
6. *Gasket (Nitrile)*
7. *Top Plate (Aluminium)*
8. *Top flange (M.S.)*
9. *Plunger*
10. *Top Flange Screw (M.S.)*
11. *Sealing 'O' ring (Nitrile)*

*Pressure ports are brazed with flange

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



*Pressure ports are brazed with flange

LOW RANGE PRESSURE SWITCHES MN / MA

General information:

MN /MA series low pressure range switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or outdoor service based on the type of enclosure opted for. The repeat accuracy is better than $\pm 2\%$ FSR. A 3/8" cable entry is provided for cables and a terminal strip suitable for wired ends is provided inside the enclosure. Pressure port is 1/4" BSPF standard.

Features:

- Separate chamber for working parts
- Wide band adjustable differential in MA series.
- Choice of wetted parts to suit working media
- Electrical rating : 2A, 250 VAC; 0.2A, 250 VDC (res.)
- Proof pressure available is 1.5 times MWP
- Pressure port : 1/4" BSPF

Some Applications : Used in air dryers, low vacuum systems, etc.

Range Selection Table

Range Code	MN		MA	
	†Range mm wg ("wc)	*Approximate Maximum Differential (Fixed) mm wg ("wc)	* Adjustable Differential mm wg ("wc)	Maximum Working Pressure bar (psi)
L02	20 - 150 (0.787 - 5.905)	30 (1.181)	30 - 100 (1.181 - 3.937)	2 (29.00)
L03	50 - 250 (1.969 - 9.843)	50 (1.969)	50 - 250 (1.969 - 9.843)	2 (29.00)
L05	100 - 500 (3.937 - 19.685)	75 (2.952)	50 - 300 (1.969 - 11.811)	2 (29.00)
L10	100 - 1000 (3.937 - 39.370)	100 (3.937)	100 - 600 (3.937 - 23.622)	2 (29.00)
L15	100 - 1500 (3.937 - 59.055)	125 (4.921)	125 - 900 (4.921 - 35.433)	2 (29.00)
L25	200 - 2500 (7.874 - 98.425)	150 (5.906)	150 - 1500 (5.906 - 59.055)	2 (29.00)

*Minimum differential increases with setpoint (Graphs available on request)

†Rising pressure for MN series, falling pressure for MA series

How to order MN / MA low range pressure switches

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Diaphragm	Enclosure
MN - Fixed Differential pressure switch MA- Adjustable differential pressure Switch	L - Low ranges	U - Uncalibrated C - Calibrated	M - M.S. S - SS316	0 - Neoprene 1 - Teflon	0 - IP 54 1 - IP 65

eg. A fixed diff. pressure switch, low pressure range from 200-2500 mmwg in uncalibrated style with M.S. pressure housing, a teflon diahragm & IP65 enclosure shall be specified by

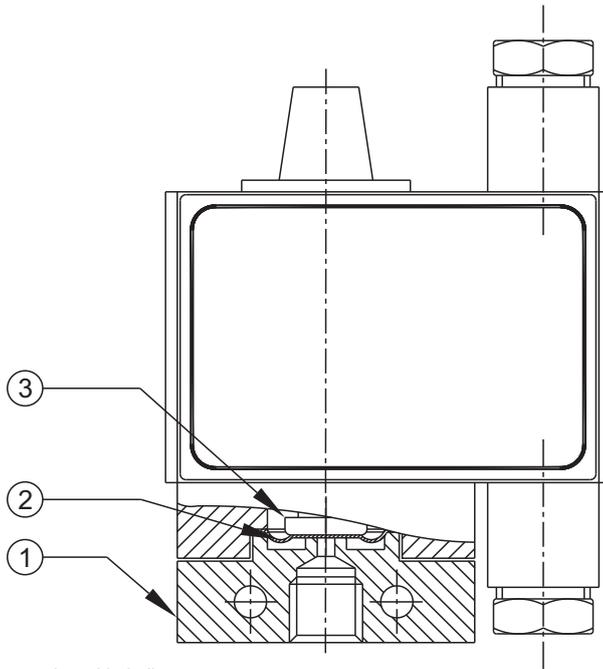
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
MN	L25	U	M	1	1

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

MJ 2 SPDT HIGH RANGE PRESSURE SWITCHES



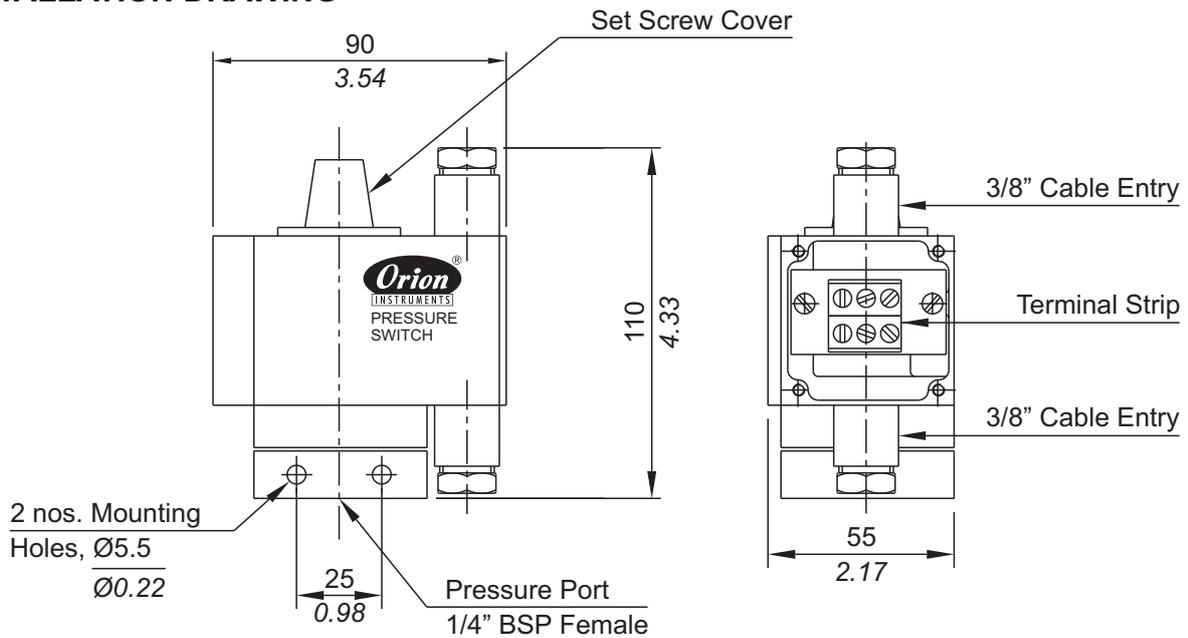
PRESSURE CAPSULE DETAILS



- No. Description**
1. Pressure housing
 2. Diaphragm
 3. Plunger

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

2 SPDT HIGH RANGE PRESSURE SWITCHES

MJ

General information:

MJ series pressure switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or outdoor service based on the type of enclosure opted for. No stage differential can be set in these 2SPDT versions (MJ series). Both microswitches are synchronised for operation within practical limits and a slight stage difference is bound to remain between the setpoints (generally not exceeding $\pm 2\%$ of FSR). The scale indicates the rising setpoint for one of the microswitches. The repeat accuracy is better than $\pm 2\%$ FSR. 3/8" cable entries are provided for cables and a terminal strip suitable for wired ends is fitted inside the enclosure. Other variations for cable termination, such as plugin connectors can be provided. Pressure port is 1/4" BSPF standard.

Features:

- Compact
- Separate chamber for working parts
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250 VAC; 0.2A, 250 VDC (res.)
- Proof pressure available can be 4 times MWP (optional)
- Pressure port : 1/4" BSPF

Some Applications : Used in transformers, boilers, water treatment plants, fire fighting systems, compressors, etc.

Range Selection Table

Range Code	Range (rising pressure) bar (psi)	Approximate Maximum Differential* (fixed) bar (psi)	Maximum Working Pressure bar (psi)
LP	† 0.067 - 0.213 (0.96 - 3.09)	0.04 (0.58)	5 (72.52)
H01	0.1 - 1.0 (1.45 - 14.50)	0.16 (2.32)	12 (174.05)
H02	0.1 - 1.5 (1.45 - 21.76)	0.20 (2.90)	12 (174.05)
H03	0.2 - 2.6 (2.90 - 37.71)	0.40 (5.80)	12 (174.05)
H04	0.2 - 3.6 (2.90 - 52.21)	0.40 (5.80)	12 (174.05)
H07	0.5 - 7.0 (7.25 - 101.52)	0.80 (11.60)	12 (174.05)
H10	0.5 - 10.0 (7.25 - 145.04)	1.20 (17.40)	25 (362.6)
H15	1.0 - 15.0 (14.50 - 217.71)	1.20 (17.40)	25 (362.6)
H30	5.0 - 25.0 (72.52 - 362.6)	3.00 (43.51)	35 (507.63)

*Minimum differential increases with setpoint (Graphs available on request)

† approx 50 mmHg to 160 mmHg. Scale Calibrated in mmHg for this range only.

How to order MJ series 2SPDT high range pressure switches

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Diaphragm	Enclosure
MJ - 2 SPDT Fixed differential Switch	H - High Pressure range	U - without scale C - with a scale corresponding to low microswitch	A - Aluminium B - Brass S - SS 316	0 - Neoprene 1 - Teflon	0 - Standard (IP 54) 1 - IP65 as per IS 2147
			for special wetted parts through chemical seals, please refer page 330,331 & 332 and specify in text accordingly.		

eg. A 2SPDT fixed differential switch, high pressure range from 0.1-1.0 bar in calibrated style with brass pressure housing, a teflon diaphragm & a standard enclosure shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
MJ	H01	C	B	1	0

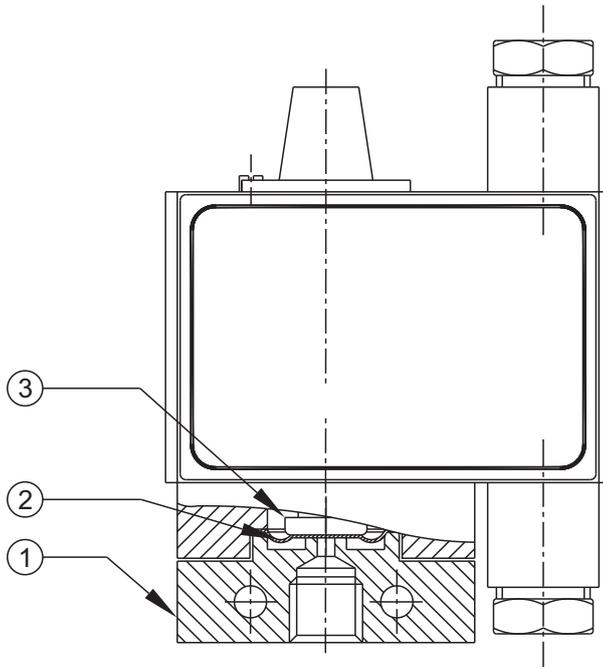
Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and a standard enclosure will be supplied

MK

2 SPDT HIGH RANGE PRESSURE SWITCHES (adjustable stage difference)



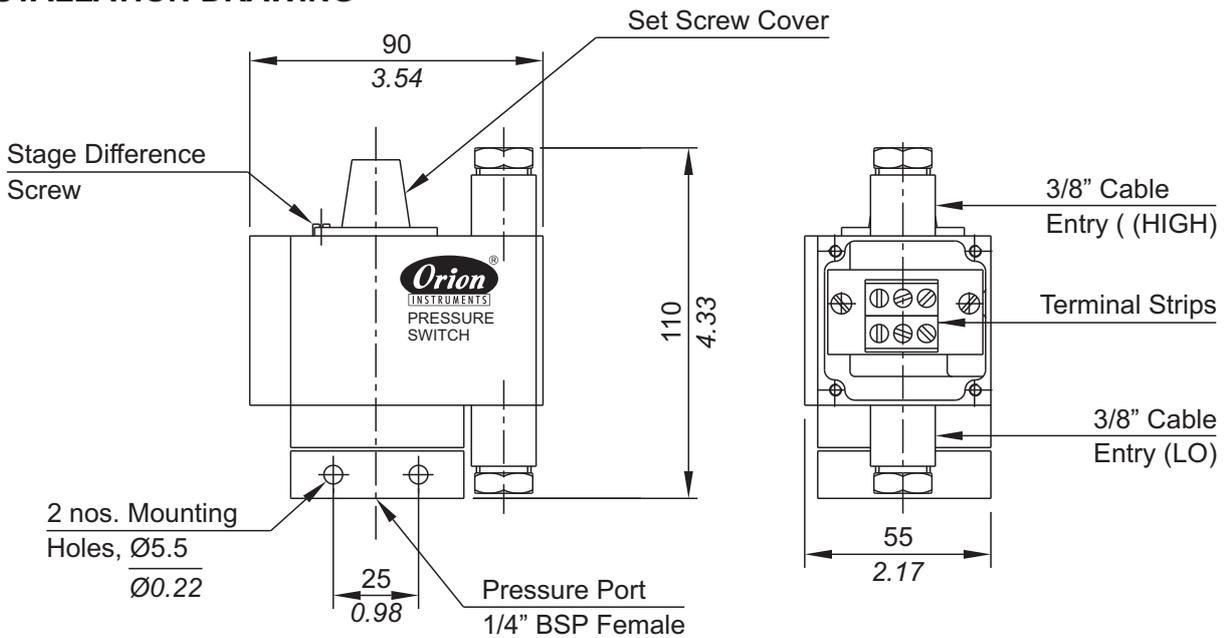
PRESSURE CAPSULE DETAILS



- No. Description**
- 1. Pressure housing
 - 2. Diaphragm
 - 3. Plunger

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

2 SPDT HIGH RANGE PRESSURE SWITCHES (adjustable stage difference)

MK

General information:

MK series pressure switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or outdoor service based on the type of enclosure opted for. Stage differential can be set in these 2SPDT versions (MK series). Both microswitches are synchronised for operation such that the stage difference (or gap) can be adjusted from minimum 15 % of FSR to a maximum of 50% of FSR (on falling setpoints). The scale indicates falling setpoint for low microswitch. The repeat accuracy is better than $\pm 2\%$ FSR. 3/8" cable entries are provided for cables and a terminal strip suitable for wired ends is fitted inside the enclosure. Other variations for cable termination, such as plugin connectors can be provided. Pressure port is 1/4" BSPF standard.

Features:

- Compact
- Separate chamber for working parts
- Adjustable stage difference
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250 VAC; 0.2 A, 250 VDC (res.)
- Proof pressure available can be 4 times MWP (optional)
- Pressure port: 1/4" BSPF

Some Applications : Used in systems requiring an alarm and trip function, e.g. HI-HI/Lo-Lo setpoints, etc. Also used in transformers.

Range Selection Table

Range Code	Range (falling pressure) bar (psi)	*Approximate Maximum Differential (Fixed) for low microswitch bar (psi)	* Approximate Maximum Differential (Fixed) for high microswitch at minimum gap bar (psi)	* Approximate Maximum Differential (Fixed) for high microswitch at maximum gap bar (psi)	Maximum Working Pressure bar (psi)
H01	0.1 - 1.0 (1.45 - 14.50)	0.15 (2.18)	0.4 (5.80)	1.5 (21.75)	12 (174.05)
H02	0.1 - 1.5 (1.45 - 21.76)	0.20 (1.45)	0.5 (7.25)	1.8 (26.11)	12 (174.05)
H03	0.2 - 2.6 (2.90 - 37.71)	0.20 (2.90)	0.5 (7.25)	1.0 (14.50)	12 (174.05)
H04	0.2 - 3.6 (2.90 - 52.21)	0.20 (2.90)	0.5 (7.25)	1.0 (14.50)	12 (174.05)
H07	0.5 - 7.0 (7.25 - 101.52)	0.40 (5.80)	1.5 (21.75)	2.5 (36.26)	12 (174.05)
H10	0.5 - 10.0 (7.25 - 145.04)	0.60 (8.70)	1.5 (21.75)	4.5 (65.27)	25 (362.6)
H15	1.0 - 15.0 (14.50 - 217.71)	0.8 (11.60)	2.0 (29.00)	6.5 (94.27)	25 (362.6)
H30	5.0 - 25.0 (72.52 - 362.6)	1.50 (21.75)	2.5 (36.26)	12.0 (174.05)	35 (507.63)

*Minimum differential increases with setpoint (Graphs available on request)

How to order MK series high range pressure switches

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Diaphragm	Enclosure
MK- 2 SPDT Fixed differential switch with adjustable stage difference	H - High Pressure range	U - without scale C - with a scale corr. to low microswitch	A - Aluminium B - Brass S - SS 316	0 - Neoprene 1 - Teflon	0 - Standard (IP 54) 1 - IP65 as per IS 2147
			for special wetted parts through chemical seals, please refer page 330,331 & 332 and specify in text accordingly.		

eg. A 2 SPDT High Range Pressure switch with adjustable stage difference, high pressure range from 1-10 bar in calibrated style with brass pressure housing, a teflon diaphragm & a standard enclosure shall be specified by

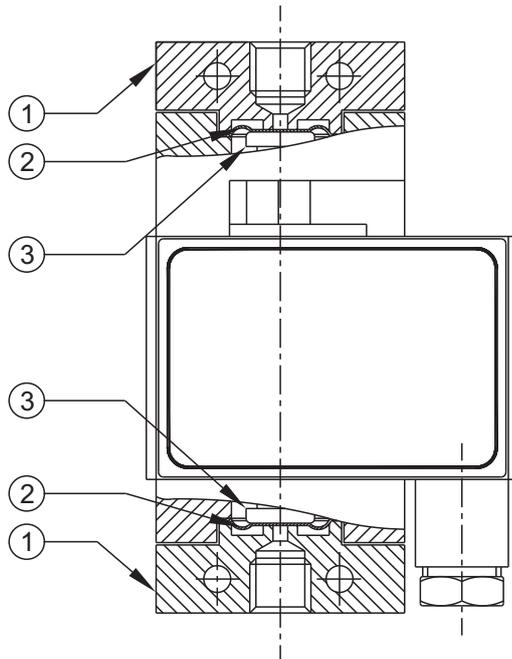
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
MK	H10	C	B	1	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

DP HIGH RANGE PRESSURE DIFFERENCE SWITCHES



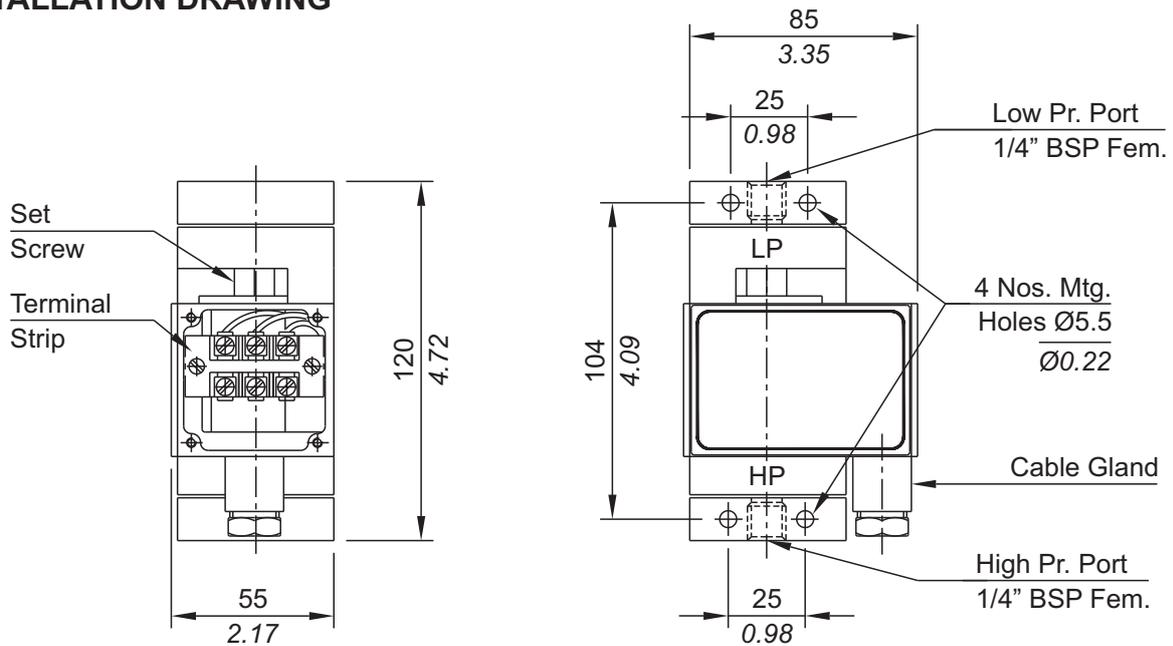
PRESSURE CAPSULE DETAILS



- No. Description**
 1. Pressure housing
 2. Diaphragm
 3. Plunger

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

HIGH RANGE PRESSURE DIFFERENCE SWITCHES **DP**

General information:

DP series pressure difference switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or indoor service based on the type of enclosure opted for. The repeat accuracy is better than $\pm 1\%$ FSR. A 3/8" cable entry is provided for cables and a terminal strip suitable for wired ends is provided inside the enclosure. Pressure ports are 1/4" BSPF standard.

Features:

- Compact
- Separate chamber for working parts
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250 VAC; 0.2 A, 250 VDC (res.)
- Pressure ports: 1/4" BSPF

Some Applications : Works on opposed diaphragm principle, diaphragm seals can be coupled to this switch. Used in water treatment plants, bag filters, strainers, etc.

Range Selection Table

Range Code	Range bar (psi) ?P	Approximate Maximum Differential* bar (psi)	Maximum Working Pressure bar (psi)
H01	0.1 - 1.0 (1.45 - 14.50)	0.15 (2.18)	12 (174.05)
H02	0.1 - 1.5 (1.45 - 21.76)	0.15 (2.18)	12 (174.05)
H03	0.2 - 2.6 (2.90 - 37.71)	0.2 (2.90)	12 (174.05)
H04	0.2- 3.6 (2.90 - 52.21)	0.2 (2.90)	12 (174.05)
H07	0.5 - 7.0 (7.25 - 101.52)	0.2 (2.90)	12 (174.05)
H10	0.5 - 10.0 (7.25 - 145.04)	0.5 (7.25)	25 (362.6)
H15	1.0 - 15.0 (14.50 - 217.71)	0.5 (7.25)	25 (362.6)
H30	5.0 - 25.0 (72.52 - 362.6)	1.0 (14.50)	35 (507.63)

*Minimum differential increases with setpoint (Graphs available on request)

How to order DP series high range pressure difference switches

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Diaphragm	Enclosure
DP - Pressure Difference Switch (Can be used for both side Positive Pressures Only)	H - High Pressure Range	U - Uncalibrated C - Calibrated	A - Aluminium B - Brass S - SS 316	0 - Neoprene 1 - Teflon	0 - IP 54
			for special wetted parts through chemical seals, please refer page 330,331 & 332 and specify in text accordingly.		

eg. A pressure difference switch, high pressure range from 0.1-1.5 bar in calibrated style with brass pressure housing & a teflon diaphragm as wetted parts, with IP54 Enclosure shall be specified by

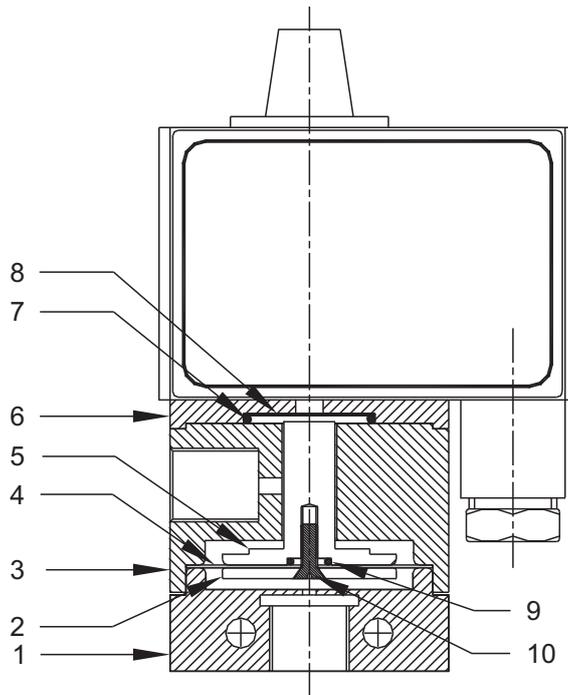
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
DP	H02	C	B	1	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

PD HIGH RANGE PRESSURE DIFFERENCE SWITCHES



PRESSURE CAPSULE DETAILS

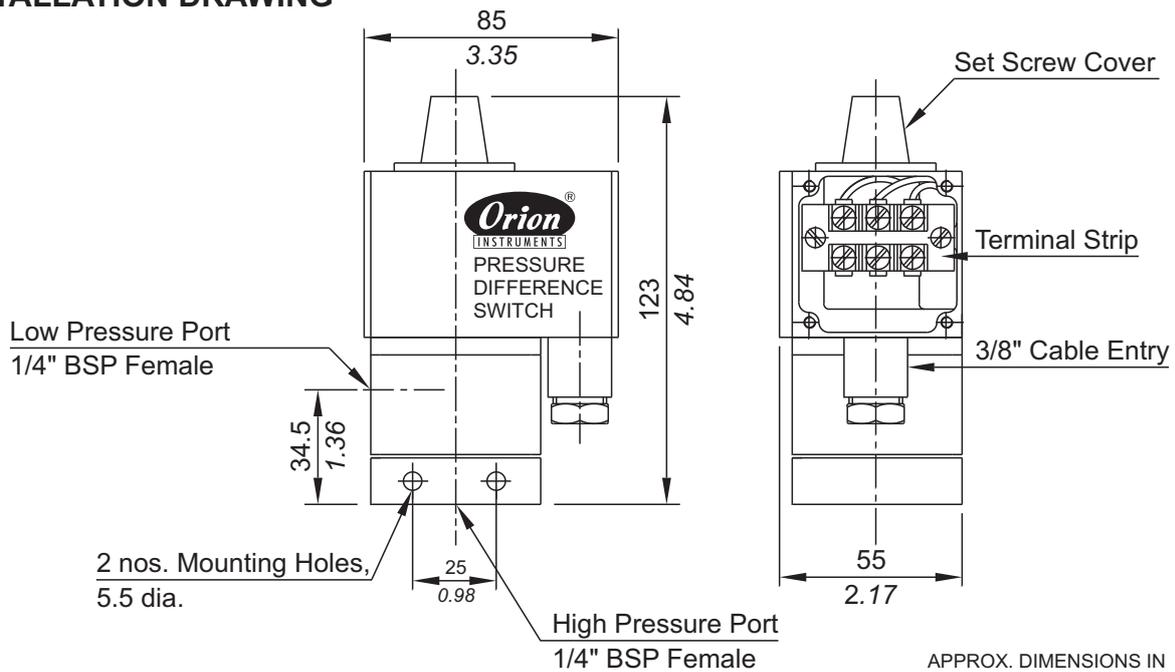


No. Description

1. *Pressure Housing*
2. *HP Plunger (SS316)*
3. *Disc*
4. *Diaphragm*
5. *LP Plunger (SS316)*
6. *Junction Plate*
7. *Sealing 'O' ring (Teflon®)*
8. *Sealing diaphragms (Teflon®)*
9. *'O' ring (Teflon®)*
10. *CSK screw (SS)*

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

HIGH RANGE PRESSURE DIFFERENCE SWITCHES PD

GENERAL INFORMATION :

PD series pressure difference switches are housed in pressure die cast aluminium powder coated enclosure and recommended for panel mounting or outdoor service based on the type of enclosure opted for. The repeat accuracy is better than $\pm 1\%$ FSR. A 3/8" cable entry is provided for cables and a terminal strip suitable for wired ends is provided inside the enclosure. Pressure ports are 1/4" BSPF standard.

FEATURES :

- Compact
- Separate chamber for working parts
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250VAC; 0.2A, 250 VDC (res.)
- Pressure ports : 1/4" BSPF

Some Applications : Used in water treatment plants, bag filters, strainers, etc.

Range Selection Table

Range Code	Range bar (psi) ? P	Approximate Maximum Differential* bar (psi)	Maximum Working Pressure bar (psi)
H01	0.1 - 1.0 (1.45 - 14.50)	0.1 (1.45)	12 (174.05)
H02	0.1 - 1.5 (1.45 - 21.76)	0.1 (1.45)	12 (174.05)
H03	0.2 - 2.6 (2.90 - 37.71)	0.2 (2.90)	12 (174.05)
H04	0.2 - 3.6 (2.90 - 52.21)	0.2 (2.90)	12 (174.05)

*Minimum differential increases with setpoint (Graphs available on request)

How to order PD series high range pressure difference switches

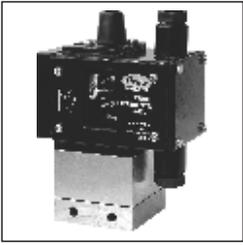
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Diaphragm	Enclosure
PD - Pressure Difference Switch	H - High Pressure Range	U - Uncalibrated C - Calibrated	A - Aluminium B - Brass S - SS 316	0 - Neoprene 1 - Teflon	0 - IP 54 1 - IP 65

Eg. A pressure difference switch, high pressure range from 0.1-1.5 bar in calibrated style with brass pressure housing & teflon diaphragm as wetted parts & a standard enclosure shall be specified by

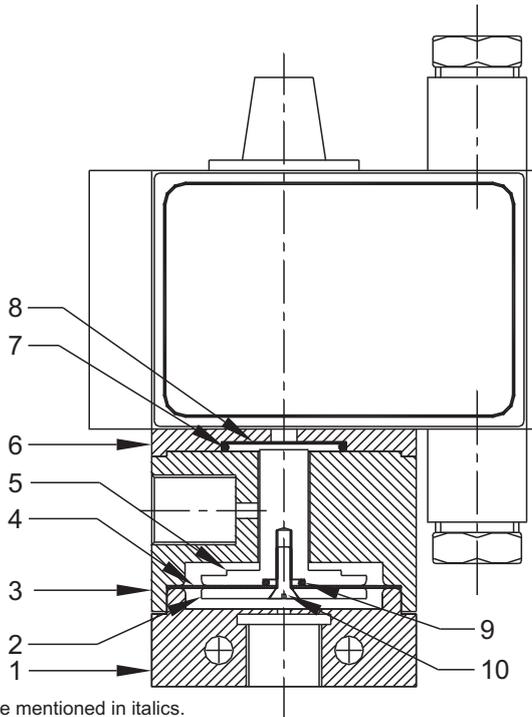
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
PD	H02	C	B	1	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

PJ 2 SPDT HIGH RANGE PRESSURE DIFFERENCE SWITCHES



PRESSURE CAPSULE DETAILS

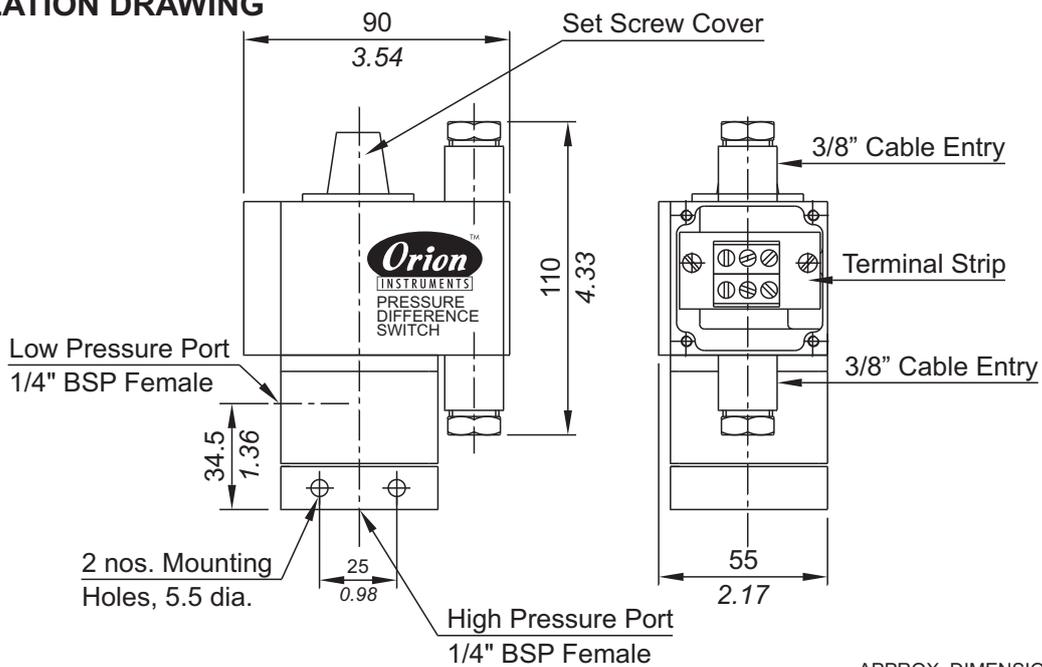


No. Description

1. Pressure Housing
2. SS Plate
3. Disc
4. Diaphragm
5. Plunger (SS 316)
6. Junction Plate
7. 'O' ring (Teflon[®])
8. Sealing diaphragms (Teflon[®])
9. O' ring
10. CSK screw (SS 316)

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

2 SPDT HIGH RANGE PRESSURE DIFFERENCE SWITCHES

PJ

GENERAL INFORMATION :

PJ series pressure difference switches are housed in die cast aluminium powder coated enclosure and are recommended for panel mounting or outdoor service depending on the type of enclosure opted for. No stage differential can be set in these 2SPDT versions (PJ series). Both microswitches are synchronized for operation within practical limits and a slight stage difference is bound to remain between the setpoints (generally not exceeding 2% of FSR). The scale indicates the falling setpoint for one of the microswitches. The repeat accuracy is better than 2% FSR. 3/8" cable entries are provided for cables and a terminal strip suitable for wired ends is fitted inside the enclosure. Other variations for cable termination such as plugin connectors can be provided. Pressure ports are 1/4" BSPF standard.

FEATURES :

- Compact
- Separate chamber for working parts
- Choice of wetted parts to suit working media
- Electrical rating : 5A, 250VAC; 0.2A, 250 VDC
- Pressure ports : 1/4" BSPF

Some Applications : Switch fitted with extra microswitch for emergencies, typical use in large power plants that require 24x7 operation, water treatment plants, bag filters, strainers, etc.

Range Selection Table

Range Code	Range (falling pressure) Δp bar (psi)	Approximate Maximum Differential* (Fixed) bar (psi)	Maximum Working Pressure bar (psi)
H01	0.1 - 1.0 (1.45 - 14.50)	0.20 (2.90)	12 (174.05)
H02	0.1 - 1.5 (1.45 - 21.76)	0.20 (2.90)	12 (174.05)
H03	0.2 - 2.6 (2.90 - 37.71)	0.40 (5.80)	12 (174.05)
H04	0.2 - 3.6 (2.90 - 52.21)	0.40 (5.80)	12 (174.05)

*Minimum differential increases with setpoint (Graphs available on request)

How to order PJ series 2 SPDT pressure difference switches

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Disc	Diaphragm	Enclosure
PJ - 2 SPDT Pressure Difference Switch	Please select as per Range Selection Table	C -Calibrated U -Uncalibrated	A -Aluminium B -Brass S -SS 316	0 - Neoprene 1 - Teflon	0 - Standard (IP 54) 1 - IP 65 as per IS 2147

Eg. A 2 SPDT Pressure Difference Switch, high pressure range from 0.2 bar to 3.6 bar in calibrated style with brass pressure housing, brass pressure disc and a neoprene diaphragm, with IP65 enclosure shall be specified by

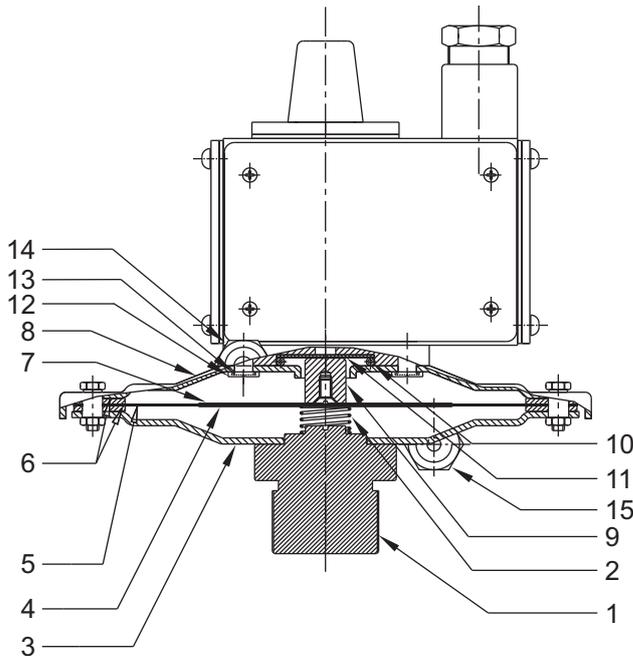
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
PJ	H04	C	B	0	1

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

PD LOW RANGE PRESSURE DIFFERENCE SWITCHES (M.S.)



PRESSURE CAPSULE DETAILS



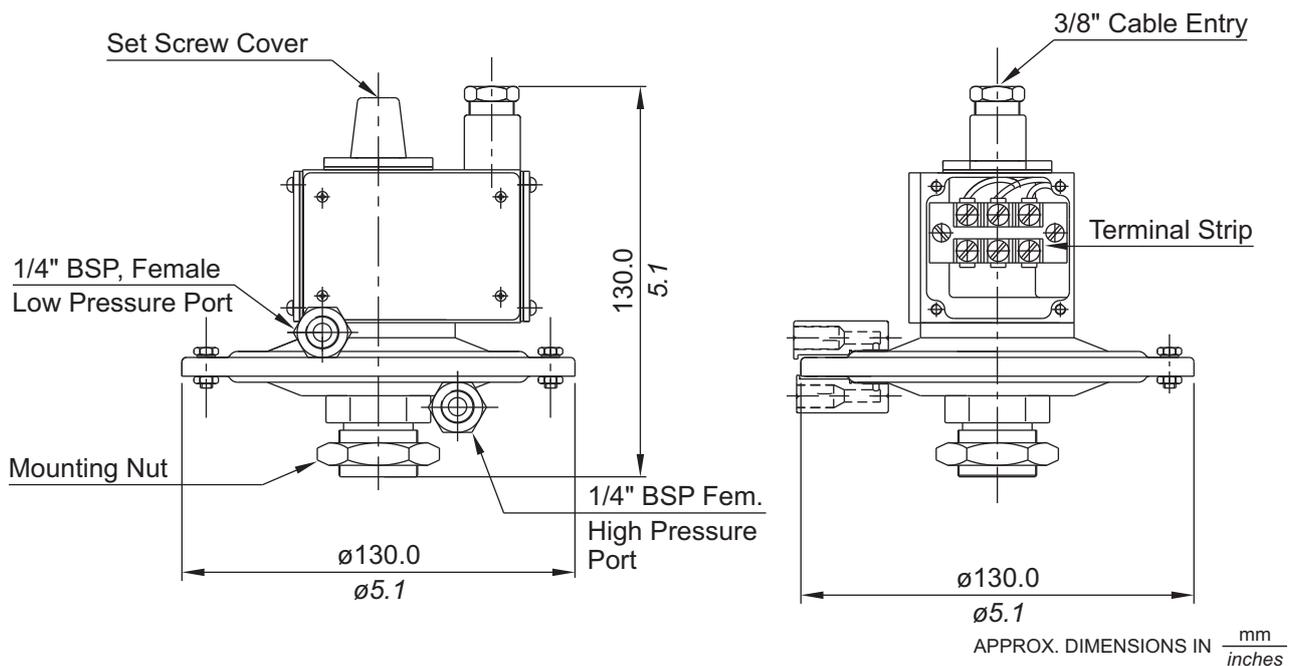
No. Description

1. Pressure housing (M.S.)*
2. Support spring (S.S.)
3. Bottom flange (M.S.)*
4. Support plate (Aluminium)
5. Diaphragm (Neoprene)
6. Gasket (Nitrile)
7. Top plate (Aluminium)
8. Top flange (M.S.)*
9. Transfer pin (Aluminium)
10. O' Ring (Teflon)
11. Sealing diaphragm (Teflon)
12. Top flange screw (M.S.)
13. Sealing 'O' Ring (Nitrile)
14. Low Pressure Port(M.S)
15. High Pressure Port(M.S)

*Pressure housing is brazed with bottom flange

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



LOW RANGE PRESSURE DIFFERENCE SWITCHES (M.S.) PD

GENERAL INFORMATION :

PD series pressure difference switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or outdoor service based on the type of enclosure opted for. The repeat accuracy is better than $\pm 2\%$ FSR. A 3/8" cable entry is provided for cables and a terminal strip suitable for wired ends is provided inside the enclosure. Pressure ports are 1/4" BSPF standard.

FEATURES :

- Compact
- Separate chamber for working parts
- Electrical rating : 5A, 250VAC; 0.2A, 250 VDC (res.)
- High pressure port : 1/4" BSPF
- Low pressure port : 1/4" BSPF
- Can be used for Δp between +ve +ve, -ve +ve & -ve -ve pressure/vacuum

Some Applications : Used in low vacuum systems, clean room applications, air blower systems, furnaces, cooling systems, etc.

Range Selection Table

Range Code	Range (Δp) mm wc ("wc) (falling)	*Approximate Maximum Differential (Fixed) mm wg ("wc)	Maximum Working Pressure bar (psi)
L02	15 - 150 (0.590 - 5.905)	30 (1.181)	0.5 (7.252)
L03	50 - 250 (1.969 - 9.843)	50 (1.969)	0.5 (7.252)
L05	100 - 500 (3.937 - 19.685)	50 (1.969)	0.5 (7.252)
L10	100 - 1000 (3.937 - 39.370)	50 (1.969)	0.5 (7.252)
L15	100 - 1500 (3.937 - 59.055)	50 (1.969)	0.5 (7.252)
L25	200 - 2500 (7.874 - 98.425)	150 (5.906)	0.5 (7.252)

* Maximum differential increases with setpoint. (Graphs available on request)

How to order PD low range series switches

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Diaphragm	Enclosure
PD - Pressure Difference Switch	L - Low Pressure Range	U - Uncalibrated C - Calibrated	M - Mild Steel	0 - Neoprene	0 - Standard (IP 54) 1 - IP 65 as per IS 2147

Eg. A pressure difference switch, low range pressure from 50 to 250 mm WC in calibrated style with mild steel pressure housing and neoprene diaphragm as wetted parts, with standard enclosure shall be specified by

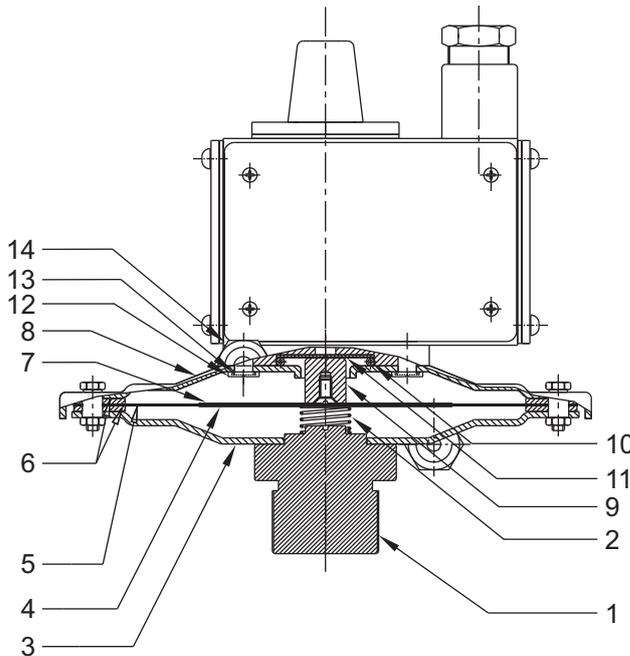
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
PD	L03	C	M	0	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

PA LOW RANGE PRESSURE DIFFERENCE SWITCHES



PRESSURE CAPSULE DETAILS



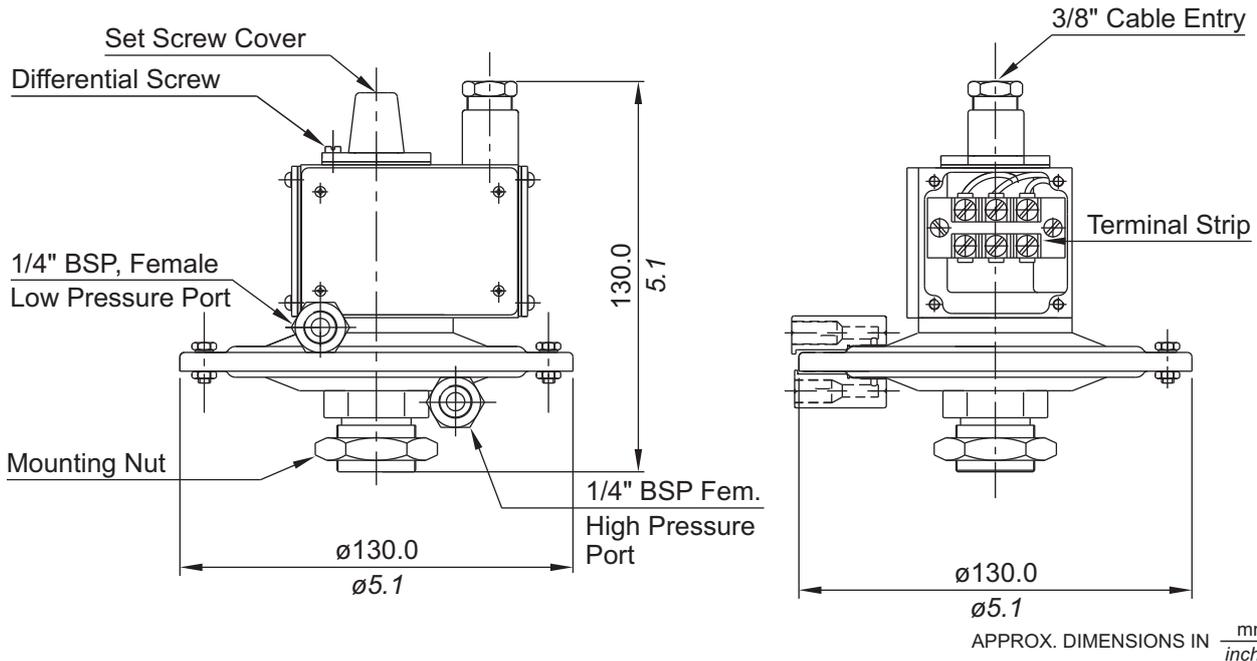
No. Description

1. Pressure housing (M.S.)*
2. Support spring (S.S.)
3. Bottom flange (M.S.)*
4. Support plate (Aluminium)
5. Diaphragm (Neoprene)
6. Gasket (Nitrile)
7. Top plate (Aluminium)
8. Top flange (M.S.)*
9. Transfer pin (Aluminium)
10. O' Ring (Teflon)
11. Sealing diaphragm (Teflon)
12. Top flange screw (M.S.)
13. Sealing 'O' Ring (Nitrile)
14. Low Pressure Port(M.S)
15. High Pressure Port(M.S)

*Pressure housing is brazed with bottom flange

Note : *wetted parts* are mentioned in italics.

INSTALLATION DRAWING



APPROX. DIMENSIONS IN $\frac{\text{mm}}{\text{inches}}$

LOW RANGE PRESSURE DIFFERENCE SWITCHES

PA

General information:

PA series pressure switches are housed in pressure die cast aluminium powder coated enclosure and are recommended for panel mounting or outdoor service, based on the type of enclosure opted for. The on-off differential can be varied in this switch, within the limits specified. The repeat accuracy is better than $\pm 2\%$ FSR. A separate terminal block is provided for electrical wiring. Pressure ports are 1/4" BSPF standard.

FEATURES :

- Compact
- Separate chamber for working parts
- Electrical rating : 5A, 250VAC; 0.2A, 250 VDC (res.)
- High pressure port : 1/4" BSPF
- Low pressure port : 1/4" BSPF
- Can be used for ?p between +ve +ve, -ve +ve & -ve -ve pressure/vacuum

Some Applications : Used in bag filter operations requiring cutin/cutoff to stop and start air purging cycles, etc.

Range Selection Table

Range Code	Range (?p) mm wc ("wc) (falling)	* Adjustable Differential mm wg ("wc)	Maximum Working Pressure bar (psi)
L05	100 - 500 (3.937 - 19.685)	100 - 400 (3.937 - 15.748)	0.5 (7.252)

* Maximum differential increases with setpoint. (Graphs available on request)

Other ranges can be provided on request.

How to order PA low range pressure difference switches

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Model	Range Code	Range Scale	Pressure Housing	Diaphragm	Enclosure
PA - Pressure Difference Switch (Adjustable Differential)	L - Low Pressure Range	U - Uncalibrated C - Calibrated	M - Mild Steel	0 - Neoprene	0 - Standard (IP 54) 1 - IP 65 as per IS 2147

Eg. A pressure difference switch (Adjustable Differential), low range pressure from 100 to 500 mm WC in calibrated style with mild steel pressure housing and neoprene diaphragm as wetted parts, with standard enclosure shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
PA	L05	C	M	0	0

Please specify full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.