ISO 9001 - 2000 COMPANY

PRESS • N • FORGE

PRESSURE RELIEF VALVE (PRV)

Model : PPRV - 3, 3S & PPRV - 6, 6S

EXCLUSIVE FEATURES OF OUR PRESSURE RELIEF VALVE (PRV)

- Type 304 Stainless Steel Deep Drawn Diaphragm with Spring Locator Convolutions.
- Specially Designed Reverse Wound Springs and Assembly Methods Provide Uniform Valve Loading and Improved Relief Rates.
- Unique Spring Retaining System on Diaphragm and Cover.
- All Stainless Steel Fasteners and Hardware.
- Automatic Instantaneous Venting and Sealing.
- 100% Tested for Proper Operation and Serialized for Traceability.
- Pressure Die Cast Porosity Free Aluminium Flange & Cover Duly UV Proof Powder Coated for Better Climate Protection.
- IP 67 Protected Switch with 1 NO & 1 NC Contacts.
- Brightly Coloured Flag, Integrated with the Switch, Gives Visual Indication of Valve Operation by Raising a Flag.

APPLICATION

Pressure Relief Valve (PRV) is a safety device for Transformers, OLTC and other similar equipments. PRV is used to prevent heavy damages to the tank in case of sudden rise of internal pressure beyond pre determined safe limit.

CONSTRUCTION

The Pressure Relief Valve is essentially a spring loaded valve having unique means of providing instantaneous amplification of actuation force.

In the cut away Line Diagram drawing (Ref. Last page) the unit is shown mounted on transformer by customer supplied Bolts through

Pressure die cast aluminium flange (2) seated on Mounting Gasket (1).

The stainless steel Diaphragm (4) rests on an Wiper Gasket (3) and is kept pressed by two heavy duty reverse wound Springs (6) and seals the port against Wiper Gasket (3) and Top Gasket (5).

The pressure die cast aluminium cover (7) retains and compresses the spring and is held in place by Compression Screws (8).

These cover mounting compression screws must never be removed without the use of extreme caution. The spring retainer prevents the dislocation of spring during repeated operations. It also has a Flag (10) which is operated by Switch Operating Rod (9)

The Switch Assembly (11) for alarm is optional and houses one NO and one NC contact (four terminals).

WORKING

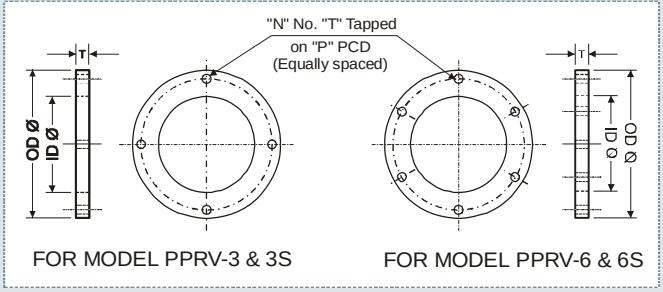
These valves have been designed in order to release the excess pressure in a very short time.

Operation is effected when, due to any reason, the pressure in the tank acting against the area defined by top gasket (5) exceeds the operating pressure (predetermined safe limit) established by springs (6). The diaphragm (4) gets lifted from its seat. The transformer pressure then quickly becomes exposed to the diaphragm area of the wiper gasket (3) resulting in a greatly increased force and causing extremely rapid opening of the diaphragm corresponding to the closed height of the springs (6). The transformer pressure is rapidly reduced to normal value and springs (6) return diaphragm (4) to the sealed position.

The lift of the diaphragm is utilized to operate brightly coloured flag (10) and limit switch (11) with the help of switch operating rod (9). This flag is clearly visible from a great distance, indicating that the valve has functioned. The flag and switch remain operated until they are reset manually by tilting the flag down.

MOUNTING PAD

Mounting pad with tapped holes (to be done before welding) as per following sketch is to be provided by customer on the tank with approximate dimensions as given below. Dimensions shown are indicative you have to select final dimensions. (Mounting pad is not in the scope of supply)



FOR MODEL PPRV-3 & 3S FOR MODEL PPRV-6 & 6S

MODEL	OD	ID	T	N	T	P
PPRV-3 & 3S	150	68	15	4	M10	127
PPRV-6 & 6S	260	155	15	6	M12	235

ALL DIMENSIONS ARE IN MM.

MOUNTING

The Pressure Relief Valve should be preferably mounted in the horizontal position, top side up. Although the horizontal position is recommended, It may be mounted on its side. (In vertical plane.)

INSPECTION BEFORE COMMISSIONING

1. Remove the valve from packing and keep it on a table. Check that no parts are damaged in transit.
2. As mentioned in wiring diagram check the operation of switch with AVO meter by manually lifting the switch operating rod. After checking, the switch should be manually reset by tilting the Flag down.
3. Each PRV is tested at our works as per test certificate. However, customer is advised to check the valve by stimulating pressure conditions before it is actually installed on transformer.
4. If PRV is found operating at pressure out of tolerance limit, it will have to be returned to us for resetting. Changing of bursting pressure can not be done outside our factory.
5. While conducting such tests at your end care should be taken that small particles do not have a passage through the port opening. Such particles are likely to be trapped between diaphragm and gasket which will affect functioning of valve.
6. It should also be noted that faulty pressure gauge may lead to wrong conclusions. Hence pressure gauge of 0 to 2.5 kg/cm² may be used with least count of 0.05 kg/cm².

INSTALLATION & COMMISSIONING

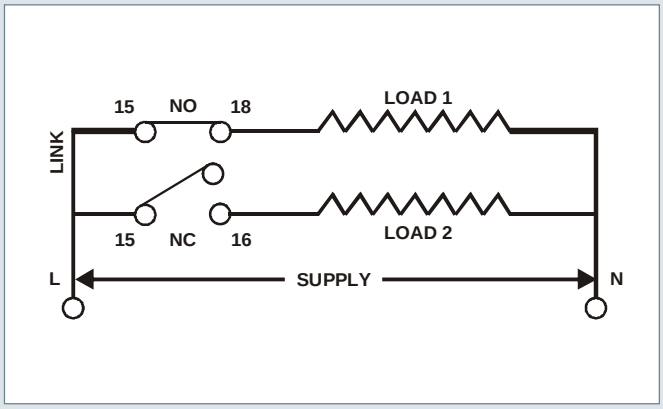
1. Each valve should be cleaned from inside (tank side) with compressed air jet. All particles should be removed from tank side. While cleaning, care should be taken that jet does not damage switch and flag mechanism.
2. Clean the surface of mounting pad on the tank
3. Ensure that rubber gasket supplied with the valve is properly cleaned & located in the recess properly.
4. Place the valve with gasket on the tank.
5. Use M10x30 bolts for 3" PRV & M12x30 bolts for 6" PRV with a combination of plain washer & spring washer for tightening.

   All the bolts should be tightened evenly so that equal pressure is exerted on gasket and base.
6. Connect control circuits to terminal plate provided in the switch box.
7. As per wiring diagram check the operation of flag and switch by lifting switch operating rod and confirm that both controls operate as required.
8. The PRV can be put to service.

MAINTENANCE

The Pressure Relief Valve has a rugged construction and does not require any maintenance. The operating pressure is factory preset and cannot be changed at site. It is strongly recommended that the compression screws on the cover be never removed without use of extreme caution. The operation of switch may be periodically tested by manually lifting the switch operating rod and should be reset before putting the instrument in service.

WIRING DIAGRAM



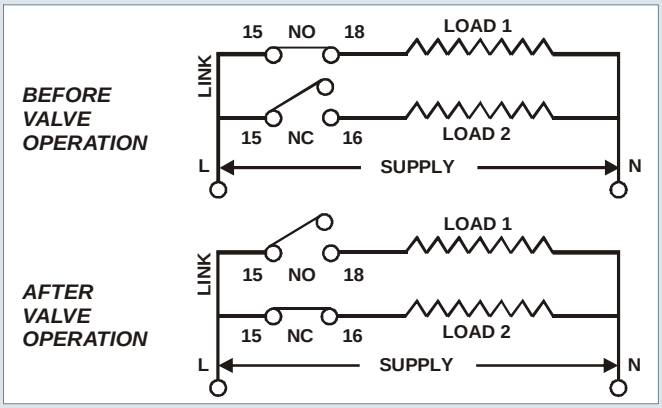
TECHNICAL SPECIFICATIONS

Operating Liquid	:	Transformer Oil.
Operating Temperature	:	0 - 100^0 C of Transformer Oil.
Port Opening	:	70 mm Dia Nominal for PPRV-3 & PPRV-3S 150 mm Dia Nominal for PPRV-6 & PPRV-6S
Operating - Bursting Pressure (Any one value as per order)	:	0.42 kg/cm^2 (6 psi) 0.49 kg/cm^2 (7 psi) 0.56 kg/cm^2 (8 psi) 0.70 kg/cm^2 (10 psi)
Operating Tolerance	:	± 0.10 kg/cm^2 (± 1.4 psi)
Operating Time	:	Instantaneous.
Valve Resetting	:	Automatic.
Switch	:	Limit Switch
Switch & Flag Resetting	:	Manual
Environment	:	Indoor or Outdoor
Dimension	:	Refer Table of Dimensions.

SWITCH SPECIFICATIONS

Number of Switch	:	1 Limit switch
Operation	:	Automatic
Contact Rating	:	AC 15 Rating : 1.5 AMP at 415V; 5.0 AMP at 240V DC 13 Rating : 0.1 AMP at 220V
Number of Contacts	:	1 NO + 1 NC
Weather Protection	:	IP67
Cable Entry	:	3/4" x 16 TPI

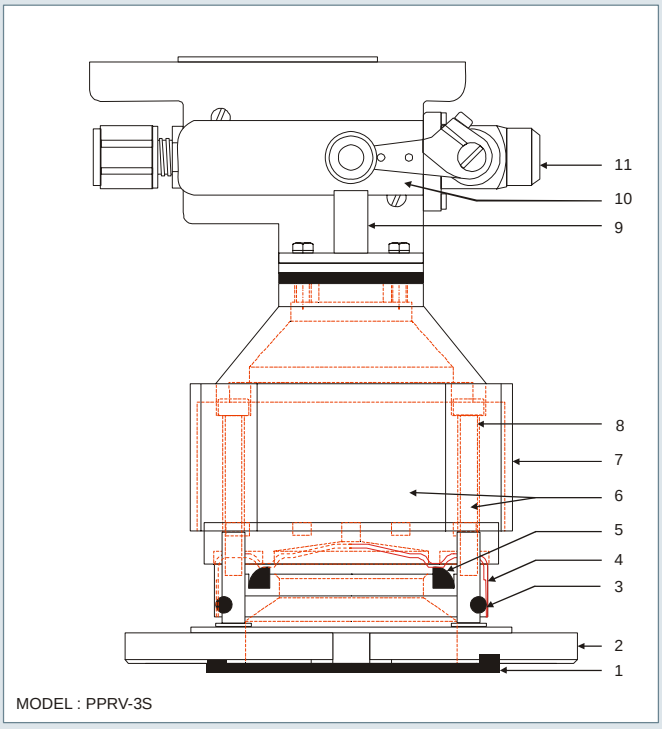
SWITCH OPERATION



ORDERING SPECIFICATIONS

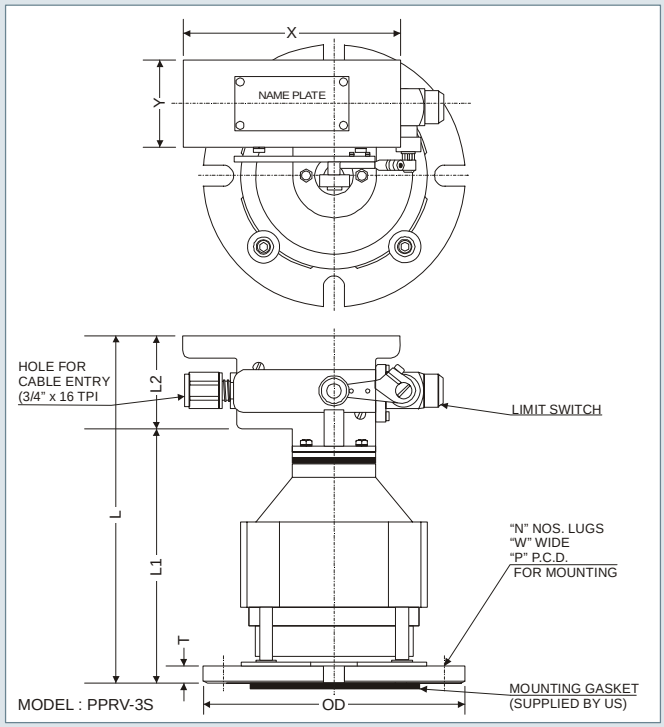
MODEL NO	DESCRIPTION	OPERATING PRESSURE (To Specify any one Value)
PPRV - 3S	PRV-3" with Limit Switch	0.42 kg/cm^2 (6 psi) OR 0.49 kg/cm^2 (7 psi)
PPRV - 3	PRV-3" without Limit Switch & Flag	
PPRV - 6S	PRV-6" with Limit Switch	0.42 kg/cm^2 (6 psi) OR 0.49 kg/cm^2 (7 psi) OR 0.56 kg/cm^2 (8 psi) OR 0.70 kg/cm^2 (10 psi)
PPRV - 6	PRV-6" without Limit Switch & Flag	

LINE DIAGRAM



MODEL : PPRV-3S

TABLE OF DIMENSIONS



MODEL : PPRV-3S

11	LIMIT SWITCH ASSEMBLY	-
10	FLAG	STEEL
9	SWITCH OPERATING ROD	BRASS
8	COMPRESSION SCREW	STAINLESS STEEL
7	COVER	ALUMINIUM
6	SPRINGS	STAINLESS STEEL
5	TOP GASKET	NITRILE RUBBER
4	DIAPHRAGM	STAINLESS STEEL
3	WIPER GASKET	NITRILE RUBBER
2	FLANGE	ALUMINIUM
1	MOUNTING GASKET	NITRILE RUBBER
S.NO.	**DESCRIPTION**	**MATERIAL**

ALL DIMENSIONS ARE IN MM		
Y	57	57
X	120	120
P	127	235
W	12	16
N	4	6
T	10	12.5
OD	150	260
L2	52	52
L1	142	166
L	194	218
	PPRV-3	**PPRV-6**

It is Company's policy to improve the design and hence specifications of this catalogue may be changed without any prior notice.

MANUFACTURING RANGE OF OUR GROUP

- Bushing Metal Parts as per IS & DIN standard.
- L. V. Winding / Coil.
- Radiator Valve. (Throttle / Butterfly Valve)
- Linear Tap Switch. (Off Load Tap Changer).
- Oil Draining Device.
- Copper Bus Bars, Strips, Flats, Rods, Profiles, & Sections.
- Highly Flexible Copper Conductors.
- Cable Connector Assembly.
- Buchholz (Gas operated) Relay.
- Oil Surge Relay. (OSR)
- Magnetic Oil Level Gauge. (MOG)
- Prismatic Oil Level Gauge. (POG)
- Silica Gel Breather. (Air-Dehumidifier)
- Pressure Relief Valve. (PRV)
- Wheel (Roller) Assembly & Roller.
- Pressed, Forged, Machined, Casted, Moulded Components.

Pl. Correspond at our H.O. -

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Our Group: **Engineering Art Industry**
Press - N - Forge
Shree - ji Powerlines
Shree - ji International

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