PRESSURE RELIEF DEVICES

FOR OIL FILLED TRANSFORMERS

Size : 70 mm to 150 mm ● Optional: Plug and Socket With or Without Contacts ● With or Without Direction Shroud

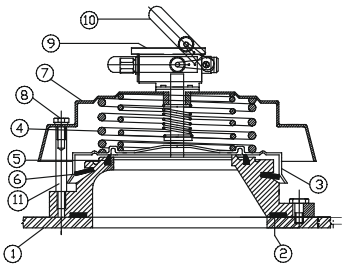
India Relevant Models Only

VIAT INSTRUMENTS

ATVUS®

AT04R2

SAMPLE CONSTRUCTION



The Pressure Relief Device consists of pressure die cast Aluminium flange (1) with a gasket (2) for mounting on transformer. The diaphragm (3) is loaded with two reverse wound calibrated springs (4) and seals the port against the top and side gasket (5 & 6). The cover (7) retains and compresses the spring and is held in place by screws (8).

The cover and the operating disc have specially designed retainers to prevent the dislocation of springs during repeated operations.

There is also usually an flag to indicate operation of the PRD (9). A switch provides connections to contacts that change connection when PRD operation is triggered.

WORKING

When pressure in the tank rises above the safe limit, the operating disc moves slightly upwards from top gasket. This exposes the transformer pressure to a greater area corresponding to the diameter of side gasket, resulting in sudden increase of force. The disk lifts instantaneously and vents gases, vapour and liquid till the pressure falls to allowable values.

APPLICATION

The T3 series Pressure Relief Devices are recommended for use in OLTC tanks and transformers from 250KVA to 5 MVA.

The T6 series Pressure Relief Devices are recommended to be used on all larger transformers.

Both T3 and T6 have varieties with direction covers, that direct exhaust oil into a pipe (that usually leads to a tank) and do not release the onto the transformer.

PRDs are much more effective, durable and safe for the transformer than explosion vent.

MOUNTING

The Pressure Relief Valve, should be preferably mounted in the horizontal position, top side up. However, it can be mounted on its side, in vertical plane also.

Any pressure head due to side mounting or conservator tanks, should be taken into consideration (approximately 0.5 psi/foot) when determining operating pressure.

INSTALLATION

Clean surface of mounting pad on tank and place the flange with gasket. Use bolts with a combination of plain thick washer and spring washer for tightening. Ensure that the gasket is placed in the groove provided in the flange. Please refer specific model operating instructions for more details

MAINTENANCE

The Pressure Relief Valve device 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 the switch may be periodically tested by manually lifting the operating ro and should be reset before putting the instrument in service.

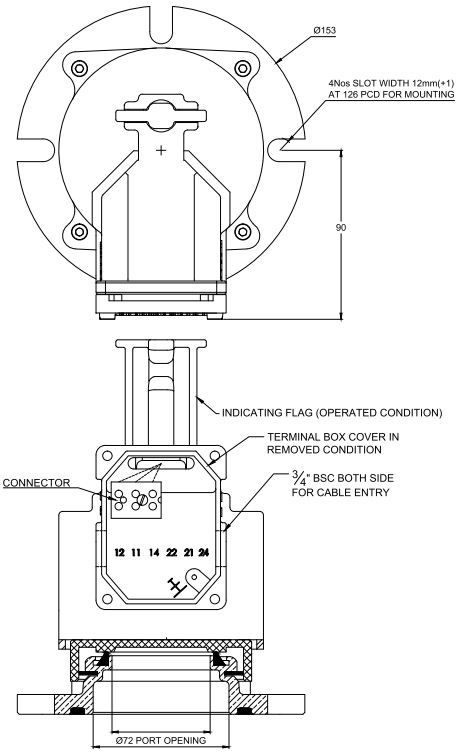
NUMBER PER INSTALLATION

No precise formula is available to determine the number of pressure relief valves to be used. However, it is recommended to use one T6 device for each 35000 litres of cooling liquid capacity on large power transformers.

AT A GLANCE

Liquid in Tank	Transformer Oil (Models for FR3, Ester Oils and natural oils available on demand)
Standard operating pressures (Kg/cm2)	0.35, 0,42, 0.49, 0.56, 0.70, 1.4
Operating tolerances	Operating pressure — Tolerance Upto0.90 Kg/cm2 — ±0.07Kg/cm2 Above 0.90 & upto 1.4 Kg/cm2 — ±0.14 Kg/cm2
Valve operation	Instantaneous
Valve resetting	Automatic
Switch resetting	Manual
Number of switches	Depends on model. In general 1NO 1NC and 2NO 2NC models available
Contact rating	As per individual drawings
Cable terminal	Terminal box or plug and socket type
Enclosure protection	IP 67 / IP X7

T3-M PRD, 70mm PORT WITH INTEGRATED SWITCH



FEATURES

- Single integrated body with no exposed switch and trigger mechanism
- Patent pending design with quick acting switch trigger
- Large terminal box with entries from two directions for extremely easy wiring
- Identical mounting and installation to outgoing model requires no change in transformer design
- Springs treated and coated to prevent rust and corrosion due to harsh environment.
- Inner and outer springs reverse wound and paired for consistent operating pressure.

VARIETY AND CODING

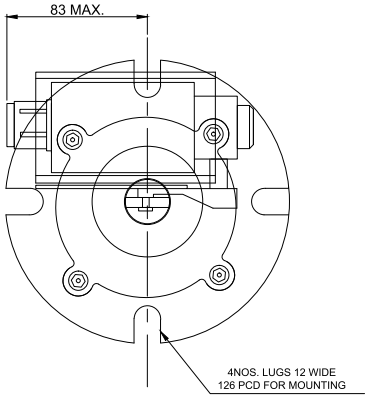
SWITCH CONFIGURATION
1M :- 1NO-1NC CONTACT
2M :- 2NO-2NC CONTACT
1M 1NO :- 1NO CONTACT (FOR PLUG& SOCKET)
2M 2NO :- 2NO CONTACT (FOR PLUG& SOCKET)
1M 1CO :- SINGLE CHANGE OVER CONTACT (FOR PLUG& SOCKET)

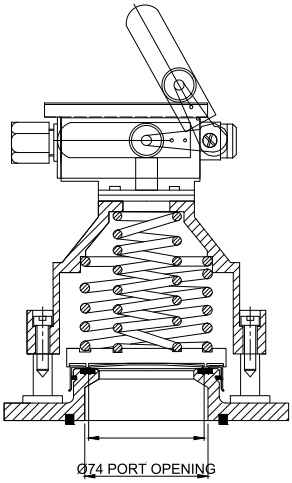
T3	1M	XX	XX

REFER STD,OPERATING PRESSURE IN 'AT A GLANCE'

ELECTRICAL CONNECTION TYPE
BLANK-TERMINAL BOX TYPE (STD)
2C :- 2 CORE PLUG AND SOCKET CONNECTOR
3C :- 3 CORE PLUG AND SOCKET CONNECTOR
4C :- 4 CORE PLUG AND SOCKET CONNECTOR

T3- PRD, 70mm PORT (OUTGOING MODE)





FEATURES

- Outgoing legacy model with external switch
- Limit switch installed on top of body

VARIETY AND CODING

SWITCH CONFIGURATION
1 :- 1NO-1NC CONTACT
1 1NO :- 1NO CONTACT (FOR PLUG& SOCKET)
1 1CO :- SINGLE CHANGE OVER CONTACT (FOR PLUG& SOCKET)

T3	1	XX	XX

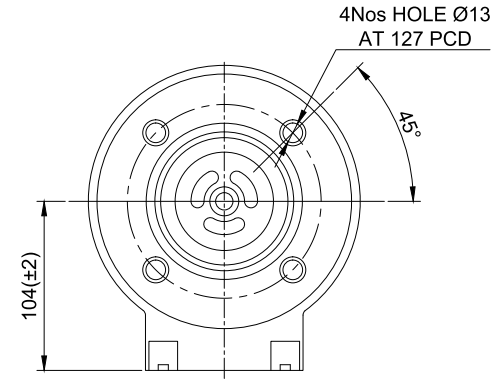
REFER STD,OPERATING PRESSURE IN 'AT A GLANCE'

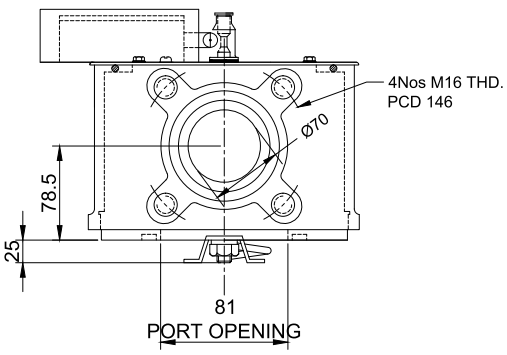
ELECTRICAL CONNECTION TYPE
BLANK-TERMINAL BOX TYPE (STD)
-2C: 2 CORE PLUG AND SOCKET CONNECTOR
-3C: 3 CORE PLUG AND SOCKET CONNECTOR

COMPARISON BETWEEN T3 AND T3-M

T3	T3 M
	
Limit switch exposed on top of PRD	Micro switches integrated inside cover of PRD
Switch trigger mechanism in open and potentially susceptible to damage	Switch trigger mechanism completely protected and invisible
Wiring to be done inside limit switch with single direction entry	Spacious terminal box with cable entry from two sides for easy, accessible wiring
Instantaneous operation of PRD (release of oil) Rotary switch trigger mechanism requires 80 degree rotation of flag for switch operation	Instantaneous operation of PRD (release of oil) Direct plunger switch trigger provides much faster operation of switch
Standard 126 mm PCD mounting with slot	Identical mounting dimensions.

T3-SH PRD, 80MM PORT, WITH SHROUD





FEATURES

- Direction cover (shroud) can be used to direct oil into pipe
- Shroud can be rotated and fixed in any position
- Stainless steel operating diaphragm
- All stainless steel hardware.
- Accurately calibrated spring for most accurate operating pressure
- Springs are inside oil and protected by default
- Computerised on line test certificate for each individual unit.

VARIETY AND CODING

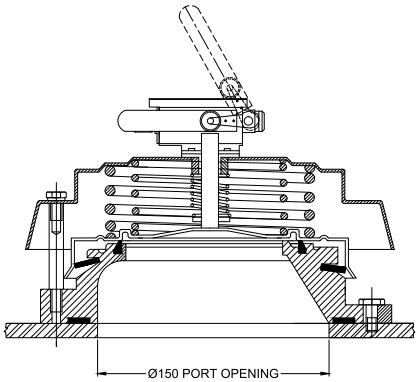
SWITCH CONFIGURATION
1 :- 1NO-1NC CONTACT
2 :- 2NO-2NC CONTACT
1 1NO :- 1NO CONTACT (FOR PLUG& SOCKET)
2 2NO :- 2NO CONTACT (FOR PLUG& SOCKET)

T3	SH	XX	XX	XX

REFER STD.OPERATING PRESSURE
IN 'AT A GLANCE'

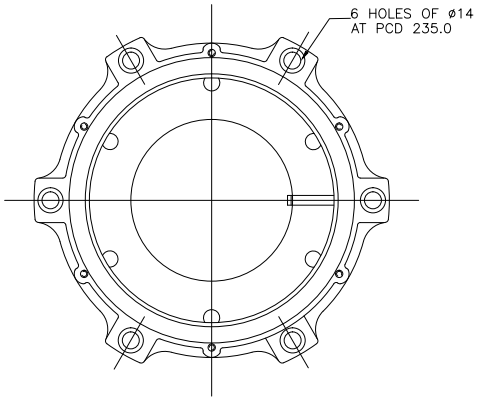
ELECTRICAL CONNECTION TYPE
-2C: 2 CORE PLUG AND SOCKET CONNECTOR
-3C: 3 CORE PLUG AND SOCKET CONNECTOR
-4C: 4 CORE PLUG AND SOCKET CONNECTOR
-5C: 5 CORE PLUG AND SOCKET CONNECTOR

T6 PRD, 150 MM PORT, WITHOUT SHROUD



FEATURES

- Teflon coated stainless steel operating disc with deep drawn spring locator.
- Pressure die cast, vacuum impregnated and pure polyester powder coated mounting flange.
- All stainless steel hardware.
- Springs specially treated and coated to prevent rust and corrosion due to harsh environment.
- Inner and outer springs reverse wound and paired for consistent operating pressure.
- Computerised on line test certificate for each individual unit.



VARIETY AND CODING

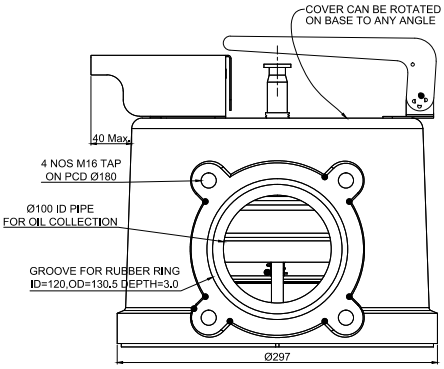
SWITCH CONFIGURATION
1 :- 1NO-1NC CONTACT
2 :- 2NO-2NC CONTACT
2 2NO :- 2NO CONTACT (FOR PLUG& SOCKET)
1 1CO :- SINGLE CHANGE OVER CONTACT (FOR PLUG& SOCKET)

T6	1	XX	XX

REFER STD,OPERATING PRESSURE IN 'AT A GLANCE'

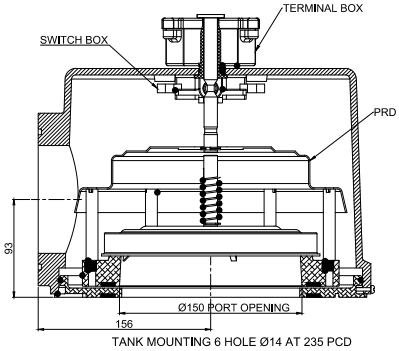
ELECTRICAL CONNECTION TYPE (REFER CONTACT WIRING DIAGRAM)
BLANK-TERIMAL BOX TYPE (STD)
-2C: 2 CORE PLUG AND SOCKET CONNECTOR
-3C: 3 CORE PLUG AND SOCKET CONNECTOR
-4C: 4 CORE PLUG AND SOCKET CONNECTOR
-5C: 5 CORE PLUG AND SOCKET CONNECTOR
-6C: 6 CORE PLUG AND SOCKET CONNECTOR
-7C: 7 CORE PLUG AND SOCKET CONNECTOR

T6 SH-N PRD, 150MM PORT, WITH 100MM EXHAUST SHROUD



FEATURES

- Direction cover (shroud) can be used to direct oil into pipe
- Shroud can be rotated and fixed in any position
- Switch is placed below shroud and is not exposed to the elements
- Switch trigger mechanism is also placed below shroud and is protected from the elements
- Much better water ingress protection by design than competition
- Teflon coated stainless steel operating disc with deep drawn spring locator.
- Springs specially treated and coated to prevent rust and corrosion due to harsh environment.
- Inner and outer springs reverse wound and paired for consistent operating pressure.



VARIETY AND CODING

SWITCH CONFIGURATION
1 :- 1NO-1NC CONTACT
2 :- 2NO-2NC CONTACT
1 1NO :- 1NO CONTACT (FOR PLUG& SOCKET)
2 2NO :- 2NO CONTACT (FOR PLUG& SOCKET)
1 1CO :- SINGLE CHANGE OVER CONTACT (FOR PLUG& SOCKET)

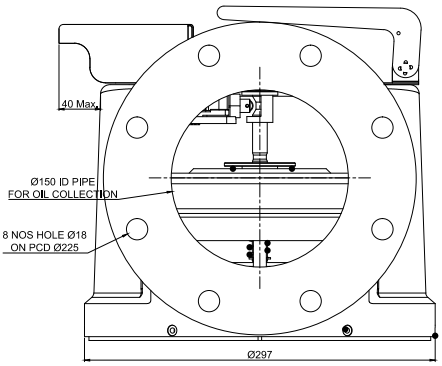
EXHAUST SIZE
N :- REGULAR 100 MM EXHAUST
XL :- 150mm IMPROVED EXHAUST

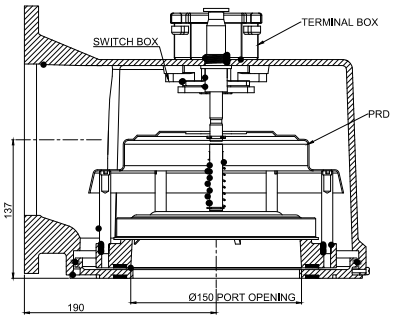
T6	SH	N	1	XX	XX

REFER STD,OPERATING PRESSURE IN 'AT A GLANCE'

ELECTRICAL CONNECTION TYPE
BLANK-TERIMAL BOX TYPE (STD)
-2C: 2 CORE PLUG AND SOCKET CONNECTOR
-3C: 3 CORE PLUG AND SOCKET CONNECTOR
-4C: 4 CORE PLUG AND SOCKET CONNECTOR
-5C: 5 CORE PLUG AND SOCKET CONNECTOR
-6C: 6 CORE PLUG AND SOCKET CONNECTOR
-7C: 7 CORE PLUG AND SOCKET CONNECTOR

T6 SH - XL PRD, 150MM PORT AND 150 MM EXHAUST SHROUD





TANK MOUNTING 6 HOLE Ø14 AT 235 PCD

FEATURES

- Direction cover (shroud) with 150mm exhaust provides significantly higher exhaust flow under practical conditions
- Shroud can be rotated and fixed in any position
- Flange type exhaust allows easy installation
- Switch is placed below shroud and is not exposed to the elements
- Switch trigger mechanism is also placed below shroud and is protected from the elements
- Much better water ingress protection by design than competition
- Teflon coated stainless steel operating disc with deep drawn spring locator.
- Springs specially treated and coated to prevent rust and corrosion due to harsh environment.
- Inner and outer springs reverse wound and paired for consistent operating pressure.
- Plug and socket variants for PGCIL 420/765 KV

ADVANTAGES

- The 150mm exhaust allows 150mm pipe to be used. The larger exhaust opening and pipe reduce the backpressure on the PRD disk during PRD operation, especially for long exhaust pipes with multiple bends.
- This reduces the chances that backpressure on the disk may close the disk causing the PRD the open and close several times
- Hence under practical conditions, the XL 150 exhaust PRD enables better protection of transformer

VARIETY AND CODING

SWITCH CONFIGURATION
1 :- 1NO-1NC CONTACT
2 :- 2NO-2NC CONTACT
1 1NO :- 1NO CONTACT (FOR PLUG& SOCKET)
2 2NO :- 2NO CONTACT (FOR PLUG& SOCKET)
1 1CO :- SINGLE CHANGE OVER CONTACT (FOR PLUG& SOCKET)

EXHAUST SIZE
N :- REGULAR 100 MM EXHAUST
XL :- 150mm IMPROVED EXHAUST

T6	SH	XL	1	XX	XX

REFER STD.OPERATING PRESSURE IN 'AT A GLANCE'

ELECTRICAL CONNECTION TYPE
BLANK-TERIMAL BOX TYPE (STD)
-2C: 2 CORE PLUG AND SOCKET CONNECTOR
-3C: 3 CORE PLUG AND SOCKET CONNECTOR
-4C: 4 CORE PLUG AND SOCKET CONNECTOR
-5C: 5 CORE PLUG AND SOCKET CONNECTOR
-6C: 6 CORE PLUG AND SOCKET CONNECTOR
-7C: 7 CORE PLUG AND SOCKET CONNECTOR

Due to our policy of continuous product improvement, dimensions and designs are subject to change.

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