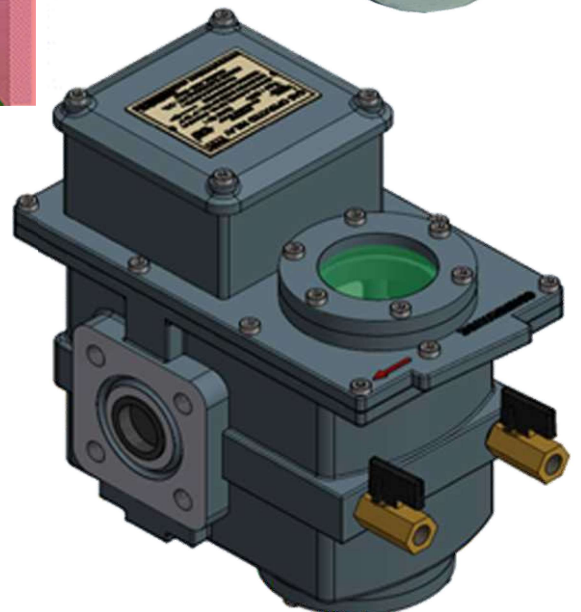
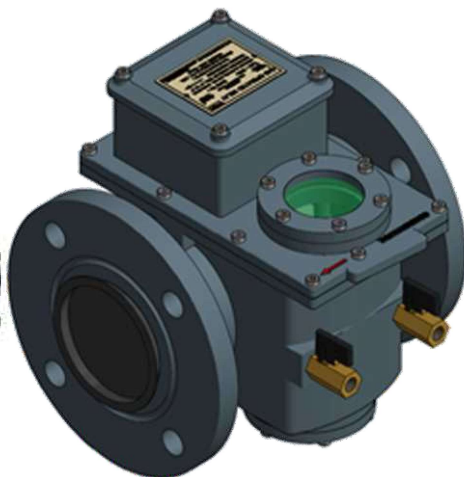
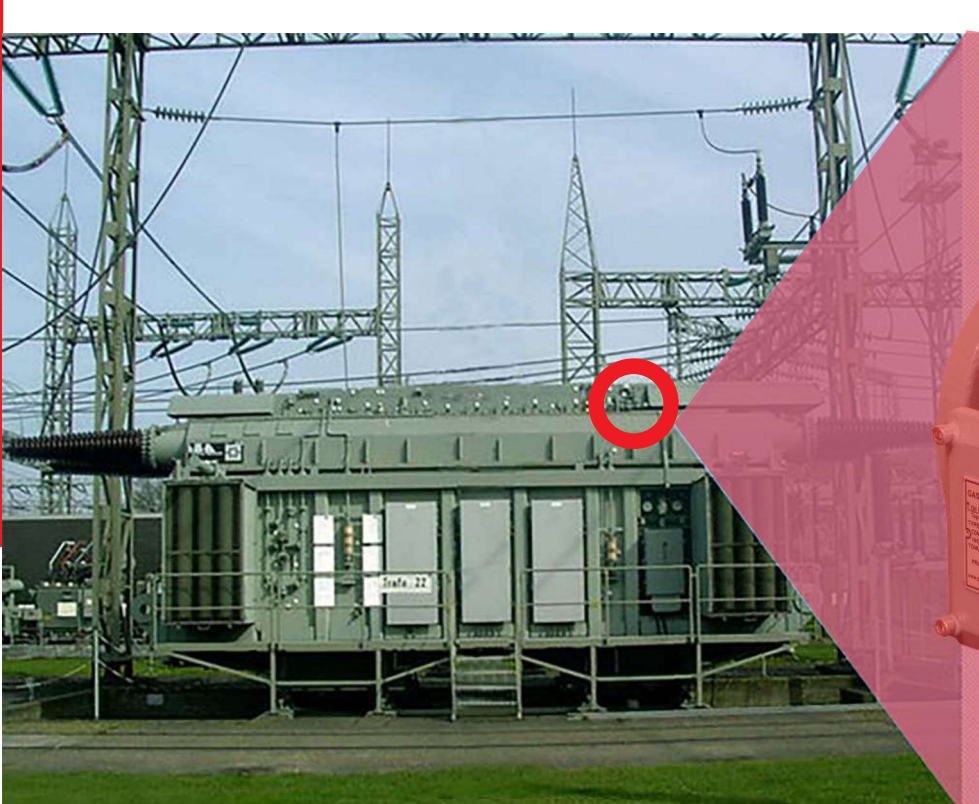


PRAYOG
ELECTRICALS PVT. LTD.



OIL SURGE AND GAS OPERATED RELAY (BUCHHOLZ RELAY)

With Magnetic (Reed Type) switches
NO/NC & Changeover



CONTENT INDEX

CREDENTIALS

PURPOSE

FEATURES

CONSTRUCTION

OPERATING PRINCIPAL

ANALYTICS

SPECIFICATION

SELECTION GUIDE

DIMENSIONS

INSTALLATION GUIDE

CAUTION



CREDENTIALIALS

- Serving customers more than five decades.
- Approved by most of the reputed Consultants, End customers like PGCIL, NTPC, BHEL, TATA POWER, Various Electricity boards, in India & overseas.
- Preferred by most of domestic & multinational transformer & tap changer manufacturers.
- Design with inherent ability to withstand vacuum treatment of transformer at various temperatures.
- Each relay tested for all parameters as per IS3637-1966 / IEC60076 part 22, 2019.

PURPOSE

GOR can be used in detecting minor or major faults in a transformer.

- The alarm switch will operate, after a specified volume of gas collected to give an alarm indication such as, over heating of windings
- Shorted lamination
- Failure in core bolt insulation
- Oil leakage

The trip switch will be operated by an oil surge in the event of more serious fault such as:

- Earth fault
- Winding short circuits including between phases
- Puncture of bushings
- Rapid loss of oil

FEATURES

- Unique proprietary Connection bushing to ease out at site connections. It can accommodate 3 switches of NO/NC like Alarm, Trip, Scada signal or 2 switches of change over type.
- Extendable gas release vent & fluid vent valve to bring it to operating level. This also can be used for air injection to test switches in factory.
- Electric circuit test device for manual checking of switches is provided in terminal box to avoid mishandling at site.
- Scientifically selected sealing kit & components which are suitable for various liquids used in transformer like Mineral oil (Naphthalic or paraffin based), Natural Ester, Synthetic Esters, Silicon fluid, GTL & few blends. ,
- Reliable, time-tested magnetic reed switch of various ratings.
- Unique internal design to prevent falls alarm due to air traps on top of the relay
- Anti-vibration mounting pads to give high stability against mechanical shocks and vibration

CONSTRUCTION

- The main body and the cover of GOR is made up of leak proof aluminum alloy die casting with compact design.
- The GOR can be installed easily due to integral flange provide on main body with unique O ring facility.
- This allows to use modern day seal like nitrile O ring or even traditional cork sheet gaskets.
- The volume of the gas collected inside the relay can be seen easily through two inspection glass windows provided on both side of body.
- The glasses are toughened to suit various stringent requirement of site conditions.
- The terminal box holds mechanism with transit lock, switch connections through connection bushing.
- Two reed switches (magnetic) are operated by the swing of floats.
- The connection from both switches brought through connection bushing in terminal box.

OPERATING PRINCIPAL

- Buchholz relay relies on the fact that an electrical fault inside the transformer tank is accompanied by the generation of gas and if the fault is high enough it will be accompanied by a surge of oil from the tank to the conservator which makes floats operates potential free switches from NO to NC or change over as per requirement.
- Whenever a fault occurs inside the transformer, the oil in the transformer tank gets overheated and gases are generated. The generation of the gases depends mainly on the intensity of fault produced. The heat generated during the fault will be high enough to decompose the transformer oil and the gases produced can be used to detect the winding faults. As these gasses can be collected from GOR gas vent valve for analysis.

ANALYTICS

The gas and oil relay provides protection against number of internal faults and is also able to indicate in several fault cases. The gas collected in relay can form its color, odor of different composition, which is used to indicate type of fault. By examining the gases collected it is possible to infer the fault.

- If the gas is dark grey and inflammable it may be due to flashover in oil or due to excessive overheating of the oil caused by a fault in the winding.
- If the gas is colorless and odorless or with only a faint odor of oil, the gas may be air trapped in the oil or the insulation or even can be stray gas.
- If gas is yellowish in color and inflammable it may be due to aged or faulty support insulati

SPECIFICATION

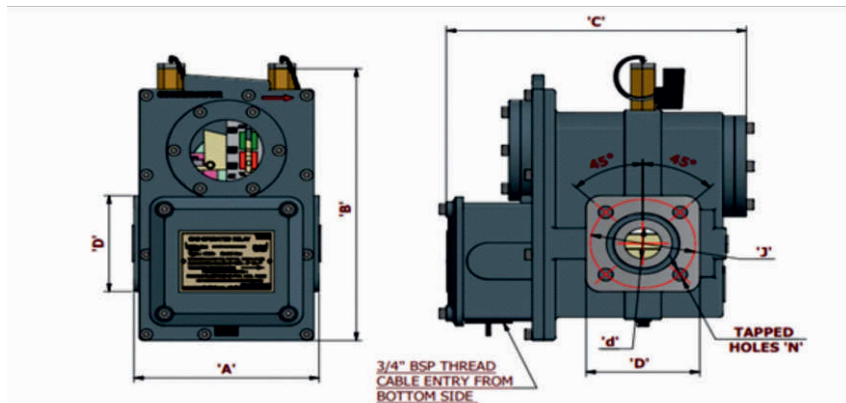
GENERAL	
Installation	Indoor or Outdoor
Working pressure	-1 to +1 bar
Ambient temp	-50 to +55 °C
Protection class	Ip65 (Including terminal box)
Altitude	Up to 100m above Sea Level
Corrosion Protection	200 Hours (as per ASTM B117)
Cable Gland size	25mm x 1 or 2
Wire size	0.5 to 4 mm ²

LIQUID	
Mineral oil / Natural Ester / Synthetic Ester / Silicon Liquid / Equivalent (As per latest IS335/IEC60296/IEC62770/IEC62770/IEC61099/IEC60836)	
Viscosity	5 to 50 Centistokes at 40 °C
Working temp	-50 to 140 °C
Installation	Indoor or Outdoor
Working pressure	-1 to +1 bar

REED SWITCH				
Rating	2A @ 240V AC or DC			
Switching voltage (0-60hz)	Max. 250V			
Initial contact resistance	Max. 100 Milliohms			
Breakdown voltage	Min. 600V (RMS)			
Resonance frequency	900Hz			
Shock resistance	Max. 50g (Durations 11ms)			
Vibration resistance	Max. 35g (50-500Hz)			
Stationary vibration (Sinusoidal)	Class 4M4 of IEC60721-3-4 (Mechanical stress)			
Non stationary vibration	Vertical shake of 100 m/s ² with Type 1 Spectrum of IEC60721-3-4.			
Voltage	Making capacity	Breaking capacity		
24V DC TO 220 V DC	250 W	L/R < 40 ms	30 W	L/R < 40 ms
230 V A C	400 VA	COS Ø 0.5	40 VA	COS Ø 0.5

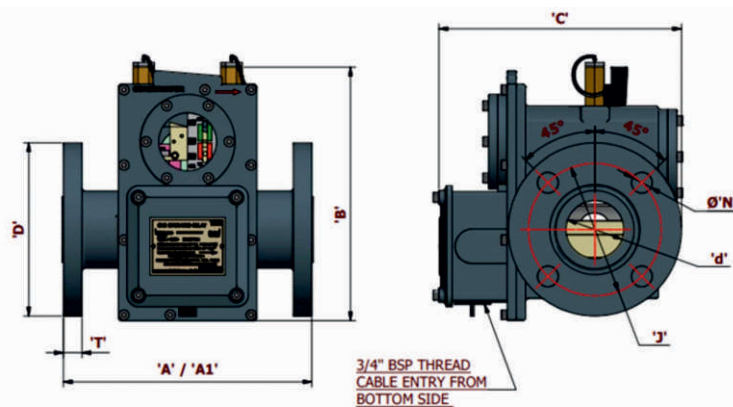
DIMENSIONS

GOR -1



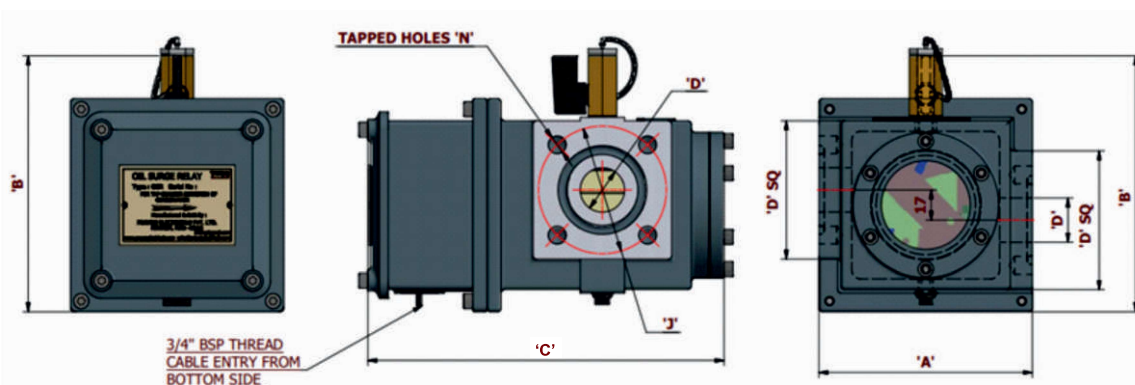
TRANSFORMER RATING	DIMENSIONS			PIPE FLANGE 'D'	NOM. PIPE BORE 'd'	NO. OF HOLES & DIA 'N'	'J' PCD	APPROX. NET WT.
	A	B	C					
UPTO 1 MVA (GOR-I)	127	220	205	SQ 78 x 78	Ø25	4 TAP HOLES M10x14 DEEP	72	4.2 KG

GOR -2 & 3



TRANSFORMER RATING	DIMENSIONS				PIPE FLANGE 'D'	NOM. PIPE BORE 'd'	NO. OF HOLES & DIA 'N'	'J' PCD	APPROX. NET WT.
	A / A1	B	C	T					
1 MVA TO 10 MVA (GOR-II)	184 / 215	220	210	16	Ø150	Ø50	4 HOLES Ø18	115	5.1 KG
ABOVE 10 MVA (GOR-III)	184 / 215	220	230	16	Ø185	Ø80	4 HOLES Ø18	145	6.1 KG

OSR



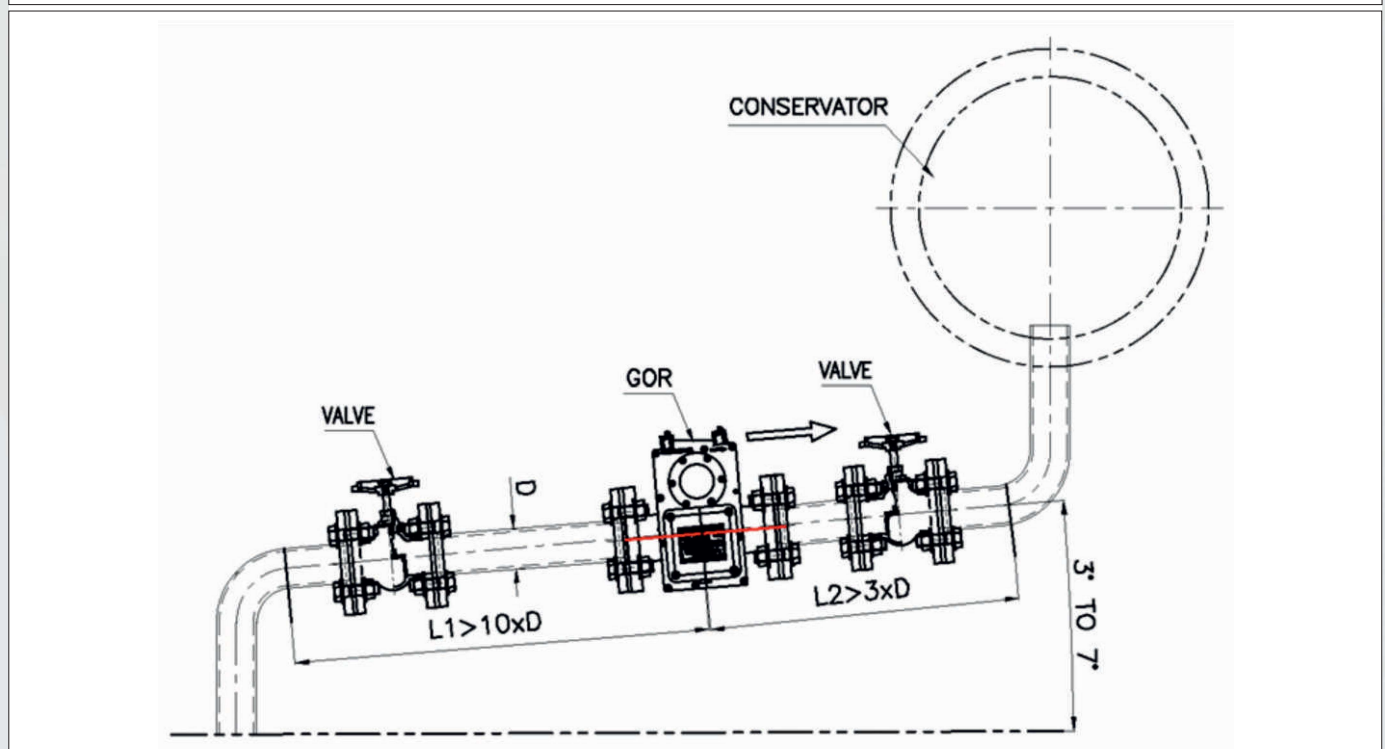
OSR-DIMENSIONS			FLANGE 'D'	NOM. PIPE BORE 'd'	NO. OF HOLES & DIA 'N'	'J' PCD	APPROX. NET WT.
A	B	C					
120	145	205	SQ 78 x 78	Ø25	4 TAP HOLES M10x12 DEEP	72	2.5 KG

SELECTION GUIDE

TYPE	BORE DIA	FLANGE SHAPE & SIZE (MM)	FLANGE MOUNTING	STEADY OIL FLOW FOR TRIP (CM/SEC)	GAS VOLUME FOR ALARM (CC)	TYPICAL USE
GOR-1	25NB	SQUARE 78X78	4 TAPPED HOLES OF M10 ON 72 PCD	70-130	90-165	UPTO 1MVA
GOR-2	50NB	ROUND 150DIA	4 HOLES DIA 18 ON 115 PCD	75-140	175-225	1 TO 10MVA
GOR-3	80NB	ROUND 185DIA	4 HOLES DIA 18 ON 145 PCD	90-160	200-300	ABOVE 10MVA

INSTALLATION GUIDE

The pipe from the transformer to the Buchholz relay must exit the transformer at the highest point and it must be inclined straight.



CAUTION

Installation, electrical connection and fitting the device may only be performed by qualified personnel and only in accordance with instruction manual.

It is the responsibility of the user to ensure that the device is used for specified application only. For safety reasons, please avoid any unauthorized and improper usage.

All relevant fire protection regulations & LAND OF LAW must be strictly followed.



PRAYOG ELECTRICALS PVT. LTD.

Office : Office no.2, Uttekar Heights, 572, Shanivar Peth, Opp. Kesari Wada, Kelkar Road, Pune-411030. Maharashtra, India.

Works 1 : Gat no.311, Urawade Road, Plot No.4, Kasar Amboli, At. Priangut, Tal. Mulshi, Dist. Pune-412115, Maharashtra, India

Works 2 : Gat no.269/6, Dhangar Wadi, Shirval, Tal. Khandala, Dist. Satara-412801. Maharashtra, India.

Tel. No. : 020 - 24452797 / 9503422977

Website : www.prayogelectricals.com

Email Id : prayog@gmail.com / pritchatur@prayogelectricals.com

