

BUCHHOLZ RELAY WITH PLUG SOCKET

MODELS : EE-3-PS-MA/MG/ML/MD

EE-2-PS-MA/MG/ML/MD

SUITABLE FOR 80 MM (3") & 50 MM (2") NB PIPES

1.0 APPLICATION

The Buchholz Relay (BR) is a control and safety device which detects abnormal functioning inside a transformer. The working of the relay is based on the fact that any failure of the active part of an oil filled transformer produces gas inside the tank or causes a surge in oil.

2.0 FEATURES :

- 2.1 Light weight. Easy to handle.
- 2.2 Easy to read the volume of gas in BR.
- 2.3 Reliable operation of floats & switches.
- 2.4 Withstands seismic vibrations due to use of Reed Switches.
- 2.5 Taking sample of gas for analysis is easy.
- 2.6 Ready to connect plug-socket with cable.

3.0 CONSTRUCTION :

The main body and the cover of BR are made of leak proof aluminum die casting. The design is very compact. The BR can be installed easily due to integral flanges provided as per IS-3637 on main body. The volume of the gas collected inside the relay can be seen through graduated inspection toughened glass windows provided on both sides of the main body. The cover holds two floats & one flap to sense the oil surge. Two magnetic Reed switches are linked to the swing of floats. The connection from both switches is brought in the Terminal Box. A gas release cock with cap and chain & electric circuit test device with cap for manual checking of Switches is provided on the cover of BR. Air injection test device with cap is provided on the cover for checking functioning of switches by pumping air into BR. A drain cock with cap and chain is provided at the bottom of the main body. Leads from the terminal are internally connected to Plug. Matching Socket with cable is provided for cable connections. Thus the BR can be directly connected to the control circuit.

4.0 WORKING :

- 4.1 The BR has a chamber in which gas generated in the tank due to fault gets collected. When the collected gas, exceeds the predetermined volume, the top float goes down thereby operating switch for Alarm.
- 4.2 Similarly, the switch for Trip gets operated when volume of gas further increase. The switch for Trip also gets operated when a surge hits the flap.

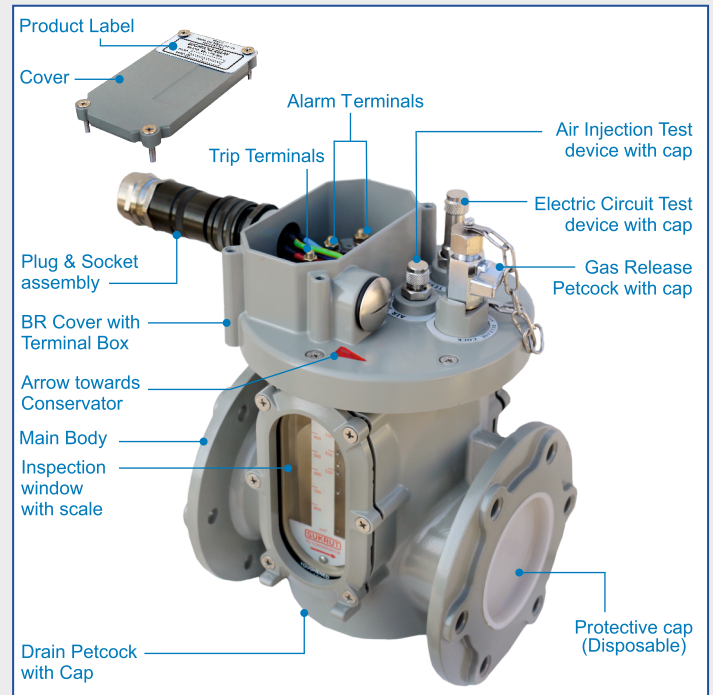
5.0 CALIBRATION :

- 5.1 Alarm switch: Gas Volume Range as per IS-3637

EE-3	200 to 300 cc
EE-2	175 to 225 cc

- 5.2 Trip Switch : Rate of Steady Flow of Oil as per IS-3637

EE-3	90 to 160 cm / sec
EE-2	75 to 140 cm / sec



6.0 SPECIFICATIONS :

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|--------------------------|-----------------------------|
| 6.1 Liquid | : Transformer Oil - IS-335 |
| 6.2 Working Temperature | : -10° to +115°C |
| 6.3 Working Pressure | : 0 to 1 kg/cm ² |
| 6.4 Environment | : Indoor or Outdoor |
| 6.5 Ingress Protection | : IP-67 |
| 6.6 Corrosion resistance | : C4-M |

7.0 MOUNTING :

Depending on pipe line, proper model should be selected. BR should be installed in 80 mm (3") or 50 mm (2") size of pipe line at an inclination as per customer's suitability between 1° to 9°. Maintain the direction of oil flow as per marked arrow on the cover of the BR. Wiring should be done to suite selected model (See Wiring Diagrams)

8.0 ROUTINE TESTS :

- 8.1 Switch operation for Alarm for gas volume.
- 8.2 Switch operation for Trip for loss of oil.
- 8.3 Switch operation for Trip during surge in oil.
- 8.4 Static Pr. Test for BR assembly at 2.5 kg/cm² for 24hrs.
- 8.5 2 kV Test between terminals & body for 1 Min.

9.0 TYPE TESTS :

- 9.1 IP-67 Test carried out at IDEMI Mumbai
 - 9.2 All Type Tests as per IS-3637 carried out at ERDA, Vadodara.
 - 9.3 Seismic Vibration Test at ARAI, Pune.
- Type test reports are available on request.

10.0 HOW TO ORDER :

Select the suitable pipe size and model from following table & send RFQ / Purchase Order. Eg: EE-3-PS-MA or EE-2-PS-MA

MA	1 Alarm + 1 Trip
MG	1 Alarm + 2 Trip
ML	1 Alarm + 1 Trip with Changeover Contacts
MD	1 Alarm + 1 Trip (Normally Closed)



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FIG 1.

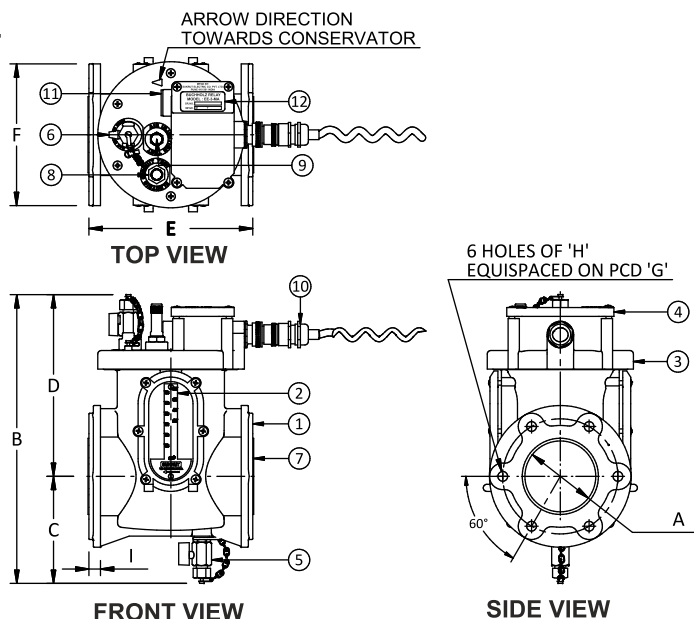
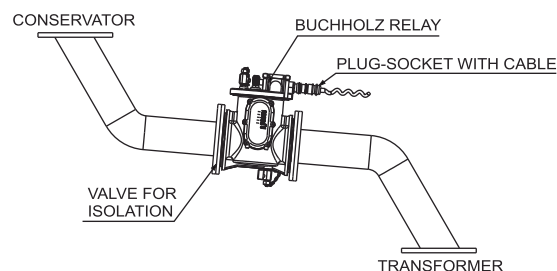


FIG 2. APPLICATION OF BUCHHOLZ RELAY



- Notes:**
1. Mounting inclination angle should be between 1° to 9°
 2. Hardware & Gaskets are not supplied by Sukrut

PART LIST FOR FIG. 1

SR NO.	DESCRIPTION	MATERIAL	QTY	SR NO.	DESCRIPTION	MATERIAL	QTY
1.	RELAY BODY	ALUMINIUM	1	7.	PROTECTIVE CAP	PLASTIC	2
2.	INSPECTION WINDOW WITH SCALE COVER FOR BR	GLASS	2	8.	ELECTRIC CIRCUIT TEST DEVICE WITH CAP	BRASS	1
3.	COVER FOR BR	ALUMINIUM	1	9.	AIR INJECTION TEST DEVICE WITH CAP	BRASS	1
4.	TERMINAL BOX COVER	ALUMINIUM	1	10.	PLUG & SOCKET	—	1
5.	DRAIN COCK 1/4" BSP WITH CAP & CHAIN	BRASS	1	11.	BRASS PLUG FOR CABLE ENTRY	BRASS	1
6.	GAS RELEASE COCK 1/4" BSP WITH CAP & CHAIN	BRASS	1	12.	LABEL - SR.NO. & MODEL PLATE	ALUMINIUM	1

MOUNTING DIMENSIONS

REFERENCE	SUITABLE PIPE SIZE : A	B	C	D	E	F	G	H	I
1	50 NB	282	102	180	185	140	110	11	13
2	80 NB	309	113	196	185	160	130	11	13

STANDARD WIRING DIAGRAM FOR BR MODELS

FIG 3. MODEL - PS-MA CONTACT POSITION IN HEALTHY CONDITION 2 MAGNETIC REED SWITCHES WITH 4 TERMINALS (NORMALLY OPEN) RATED CURRENT : A.C. • 2 Amps, 240V D.C. • 2 Amps, 240V	FIG. 4. MODEL - PS-MD CONTACT POSITION IN HEALTHY CONDITION 2 MAGNETIC REED SWITCHES WITH 4 TERMINALS (NORMALLY CLOSED) RATED CURRENT : A.C. • 240V, 2 Amps D.C. • 240V, 2 Amps	FIG. 5. MODEL - PS-MG CONTACT POSITION IN HEALTHY CONDITION 3 MAGNETIC REED SWITCHES WITH 6 TERMINALS (NORMALLY OPEN) RATED CURRENT : A.C. • 2 Amps, 240V D.C. • 2 Amps, 240V	FIG. 6. MODEL - PS-ML CONTACT POSITION IN HEALTHY CONDITION 2 MAGNETIC REED SWITCHES WITH 6 TERMINALS (NORMALLY OPEN) RATED CURRENT : A.C. • 1 Amps, 240V D.C. • 1 Amps, 240V
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GENERAL NOTES :

1. Every Buchholz Relay is factory set. Setting cannot be altered at site.
2. If any specific values of Alarm and Trip contact within the limits are required, they must be specified in the Purchase Order.
3. For any Assistance, correspondence must be made by giving reference of Sr. No. of BR.
4. Except mounting dimensions & PCD, other dimensions given in this catalogue are for guidance only. They will not be part of Inspection Schedule.



SUKRUT ELECTRIC CO. PVT. LTD.

Plot No. Pap-B-63, MIDC Chakan Industrial Area Phase - II, Village Bhamboli, Taluka Khed District Pune 410 501, Maharashtra, India.

Mobile : +91 75077 78841 / 75077 78842

Email : marketing@sukrutelectric.com

Web : www.sukrutelectric.com



We continuously review specifications and where appropriate, introduce modifications. We, therefore reserve the right to change specifications in this catalogue without prior notice.

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