

Technical Specification of L.T. Internal Circuit Breaker

Oil Immersed Internal Circuit Breaker (L.T. Circuit Breaker):

All L.T. faults after the breaker shall be cleared by the Oil Immersed Internal Circuit Breaker. The supplier shall furnish the time/current characteristics of LT circuit breaker for various current multiples. This shall be based on the type test carried out on one of the transformers. In addition, the supplier shall carry out coordination test as indicated above, and this forms one of the tests for acceptance. MCCB is not acceptable.

Approved Makes or any other reputed makes which type test should be issued from CPRI/ERDA/NTH:

1. Ermco Components, Ph: +1-4236386171
2. P&A Power System, Ph: +1-9127542474
3. P & A Power System, +82-31-2408000 Email: pa.powersystem@gmail.com
4. Global Electrical Traders, India, Ph: +91-8130344276,
Email:-info@globalelectricaltraders.com
5. Vijay Mercantile Ltd. New Delhi, Ph. +91-9811641869 Email- vijmer@hotmail.com
6. Transguard Electrical Systems, Andhra Pradesh, Ph: +91-9440384449
Email- engineering@transcoind.com
7. M/s Crystal electrical Company Ltd., Ludhiyana
8. M/s Electro shield Power Industries Bathinda.

The breaker is to be mounted on the secondary side of the transformer under oil to minimize premature operations from primary surges as would be with undersized line fuses. Two single pole elements are preferred. THE BREAKER SHALL BE COORDINATED THERMALLY WITH THE TRANSFORMER RATING TO FOLLOW CLOSELY THE VARIATIONS OF COIL TEMPERATURE DUE TO FLUCTUATIONS IN LOADS AND AMBIENT TEMPERATURES.

This is to be accomplished by connecting the breaker in series between the secondary winding and the load current. The breaker shall be located in the same oil as the core and coil assembly so that the bimetal are sensitive to the temperature of oil as well as the load current. The circuit breaker may be an electromechanical device with three elements viz.

- (i) Temperature Sensing
- (ii) Latching and Tripping
- (iii) Current Interrupting

The temperature sensing function might be accomplished through the use of bimetallic strips, which would be built into the breaker, such that load current of the transformer flows through them. In addition to this, a magnetic tripping device is to be provided for increasing the opening speed of the breaker under high fault conditions. The circuit breaker shall be mounted inside of the transformer so that these bimetallic strips are within the top oil layer of the transformer. The latching and tripping functions of the circuit breaker may be carried out within assembly similar to those used in industrial type air circuit breaker. The circuit breaker shall also be closed and opened manually standing on ground and with a magnetic trip device also. The current interruption element shall consist of copper current carrying parts plus a set of copper tungsten current interrupting contacts. The magnetic element shall increase the opening speed of the circuit breaker under high fault current conditions. The response of circuit breaker to the activity shall remain unchanged by the addition of the magnetic trip element. The specification to which the breakers conform shall be indicated by the circuit breaker manufacturer. Circuit breaker should have been type tested to Test Sequence II in accordance with IEC: 60947-2(2009). The Type Test reports of the same should be attached by the supplier and this forms one of the criteria for acceptance
