

Annexure for Series Trip Coil

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Bhopal |-----
SWE | PI No. :240931085 : Enq. No. : | PO No. :

WO.No. - 92018A47602

1.0 General:

CT operated series trip coil will be used for tripping of the circuit breakers on short circuit or over current / earthfault.

2.0 Standards:

The coil should conform to relevant clauses of IEC publication 56 and to VDE specifications 0670 for auxiliary tripping devices. The type of enclosure is DIN 40050 - IP 00.

3.0 Ambient temperatures:

The series trip should function reliably at temperature ranging from -20 to +55 °C. The trip coil should be suitable for proper operation in Switchgear.

4.0 Construction & mode of operation:

The release should consist of a spring-power storing mechanism, a latching device and an electromagnet. These elements shall be accommodated side by side in a casing with a detachable cover and three through holes for fastening screws. The supply leads (min. 1.5 sq.mm) for the trip coil will be connected to a terminal block, on the outside. Length of supply lead shall be at least 600 mm. Two lugs shall be fitted beside the tripping pin for the attachment of a lever.

The energy-storing mechanism shall consist of the striker pin and its operating spring, the greater part of which is accommodated within the hole pin. When the spring is loaded, the striker pin shall be held by a latch whose sloping face is forced against the appropriately shaped striker pin, by spring. The other end of the latch shall be supported by a partly milled locking pin, provided in the cover sheets of the magnet armature. The armature is pivoted in front of the poles of the U-Shaped magnet core and is pulled away from it by the tension spring.

If the magnet coil is energized by the tripping impulses or if the tripping pin is mechanically actuated, magnet armature is swung against the pole faces. When this happens the latch loses its support and releases the striker pin which is forced out by the spring.

Following every tripping operation the striker pin will be reset to its normal position by loading the spring.

5.0 Mechanical data:

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|---|----------------|
| (a) Actuating pressure on tripping pin | : 14 N to 28 N |
| (b) Thrust of striker pin when ready for action | : 59 N approx. |
| (c) Thrust of striker pin when released | : 35 N approx. |
| (d) Thrust of striker pin when being unlatched | : 63 N approx. |

6.0 Special requirements:

- (1) Trip coil design should be such to avoid ingress of dust/oil etc. for proper operation of the plunger and should not stick housed in.
- (2) SETTING OF THE TRIP COIL MUST BE SUCH THAT IT IS NOT DISTURBED BY THE VIBRATIONS CAUSED DURING BREAKER TRIPPING/CLOSING OPERATIONS. SUPPLIER IN THEIR OFFER MUST GIVE SPECIFIC CONFIRMATION TO THIS. TESTING SHALL BE CONDUCTED WITH THE COIL MOUNTED IN THE BREAKER PANEL AND 300 OPERATIONS SHALL BE CONDUCTED WHICH SHOULD NOT CAUSE DISTURBANCE IN THE COIL SETTING.

OFFERS WITHOUT COMPLETE DETAILS/DOCUMENTS MAY NOT BE CONSIDERED.

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- (3) Supplier shall furnish all detail specification and calculation for compatibility of the trip coil & CTs alongwith the detailed specification of the coil.
 - (4) Series trip coil shall be suitable for 30000 operations.
 - (5) Series trip coil shall be connected in secondary of Summation CT. (ref. Enclosed drg.)
 - (6) Coil setting shall not get disturbed during operation of the breaker under the condition of vibrations.
 - (7) Rating plate drawing shall be submitted for BHEL's approval along with dimensional drawing of Series trip coil.

Item 001:

C.T. Secondary Connected, A.C. SERIES TRIP COIL, for 11 KV switchgear, for Over Current Protection, as per OGA Drg. 35211001761 rev.01-Item-001

- (A) Current Rating - 5 A, 50 Hz.
- (B) Operating Value - 1.0 A.
- (C) Normally series trip coils will remain shorted through the NC contacts of 3-O/C Relay(51).
- (D) O/C (51) contacts will open in case current in the CT Secondary exceeds its set value.(setting 2.5-10 Amp for O/C circuit).
- (E) Series trip coil will get introduced as soon as O/C Relay (51) energizes & its contacts are operated.
- (F) Output of CT shall be fed to Summation CT & the output of Summation CT is fed to series trip coil. Ref. DRG.35210078652 for details(Sheet 4 Of 12).

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7.0 Note :

1. 2 copies of dimensional drawings must be submitted along with the offer.
2. 2 copies of routine test certificates shall be furnished at the time of delivery.
3. 2 copies of Type test certificates shall be furnished along with the offer.

8.0 Special Instruction :

Supplier shall set the series trip coil at 1 A by injecting CT secondary current at our works and at 1.0 A plunger should not be sensitive to vibration. After setting it shall be sealed by lockite by supplier. Necessary set up for setting the coil shall be arranged by BHEL.

9.0 Performance guarantee :

Coils shall perform satisfactorily for a minimum period of 24 months after receipt of BHEL Bhopal order or 18 months from date of commissioning, whichever is earlier.

10.0 Acceptance criteria :

- (a) Suppliers routine test certificates including certificate for operation of coil at specified operating values.
- (b) Visual checks for normal latching and delatching.
- (c) Dimensional checks as per approved drawing.

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Date : 25/05/2013

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Date : 25/05/2013
