

Group – D : Sl. No. – 1) LT Distribution Box

Technical Specifications

1. SCOPE

1.1 This specification covers design, manufacture, testing at manufacturer works before dispatch and supply of L.T. Distribution Cabinet suitable for outdoor installation in Pole mounted /Plinth Mounted distribution sub-sections of following capacity.

i) L.T. Distribution Cabinet for 63 KVA 11/0.433KV

1.2 The Technical Specification contained herein are for the guidance of the bidders, Any deviation from the Purchasers specification will be considered on their relative merits from the consideration of performance, efficiency, reliability and over all economy consists with the requirements stipulated herein.

2. COMPLETENESS OF CONTRACT:

All fittings or accessories no specifically mentioned herein but necessary or usual for similar equipment and their efficient working shall be provided by the contractor without extra charges.

3. ATMOSPHERIC CONDITIONS:

a)	Maximum temperature of air in shade	45 ⁰ C
b)	Minimum temperature of air in shade	0 ⁰ C
c)	Maximum temperature of air in sun	50 ⁰ C
d)	Maximum humidity	100%
e)	Average number of thunder storm days per annum	70days
f)	Average number of dust storm days per annum	20 days
g)	Maximum rainfall per annum	2000mm
h)	average rainfall per annum	1500mm
i)	Maximum ambient temperature daily average	45 ⁰ C
j)	wind pressure	200Kg/M2
k)	Altitude	Less than 1000m

4. DESCRIPTION OF MATERIALS

The L.T. Distribution cabinets are meant for installation in the D.P. Structure plinth Mounted/Pole Mounted Distribution 11/433 KV sub station of the ratings indicated above. These Distribution Cabinets are to be outdoor type and to be fabricated out of 2 mm CR sheet steel duly acid treated and finished with one coat anticorrosive primer and two coats of gray epoxy paint. The body of the boxes shall have sufficient reinforcement with suitable size of channels keeping a provision for fixing these boxes either on DP structure or plinths.

The Box shall have double door with locking arrangement and a door handle conforming to IS 8623/1977 .The roof of the box shall be slightly slanting both sides as per drawing with an over hang of 50mm to the front and back side. For maintenance point of view doors may be provided front side as per the requirement. The nuts, bolts , washers used in the box shall be galvanized to avoid rusting. The door hinges shall not be visible from outside. The box shall have a solid earthing point and arrangement for sufficient ventilation.

The boxes should confirm to IP 54 degree of protection. The bidders shall have to enclose type test certificate for degree of protection (P-54) after their product duly tested at CPRI failing which their bid is liable for rejection. Preference

The box shall have provision of bus bars of Electrolytic Cooper mounted on epoxy resin cast bus insulators fixed on suitable fixing arrangement. The bus bars shall be conveniently placed so as to provide adequate clearance from the body of the box conforming to I.E. Rules applicable for L.T. supply. There should be heat shrinkable bus bar insulation tubing on the busbars.

The arrangement and dimensions shall be as per the drawing enclosed.

The box shall consist of one incoming MCCB and 2 sets of Kit-kat fuse unit rating detailed later for out going feeders.

Suitable cable glands of heavy duty, double compression type shall be provided at the bottom of the box. One for incoming cable and two/three for outgoing cables, Detachable plates shall be provided for fixing of cable glands

SIZE OF BOX 1000x800x500mm (Minimum)

SIZE OF BUSBAR 40 X5 MM size electrolytic Aluminum (Minimum)

A neutral Busbar similar to phase Busbar is to be provided.

KIT KAT FUSE UNIT : Shall be of reputed make as per IS-2086
(make- Anchor/Havells/ Ripcon)

Outgoing feeders – Kit Kat -200 A (2 Sets); (Each set of 3nos)

The kit kats should have 500 V rating. All contact parts are plated and made of copper and brass with A class porcelain with extended terminal fitted with slots hex bolts with nuts.

The terminal capacity of the kit kat fuses should be such as to accommodate 3x1/2 x70 mm² size cable

The outgoing terminal of the cables is to be connected to the extended terminal of the kit kat by Bimetallic lugs, duly crimped with Die less crimping tools.

MCCB OF REPUTED MAKE : (Make must be specified in the bid)

THE MCCB SHOULD CONFORM TO THE FOLLOWING

TECHNICAL SPECIFICATION

- i) Standard IS 13947 (Part-2) /1993 & IEC Pub -947 -2 (1989)
- ii) Rated voltage 415 vol. Ac
- iii) No. of poles 3
- iv) Utilisation category A
- v) Rated current 100A, (with over current protection setting 70% to 100%)
- vi) Rated service short circuit breaking capacity: The percentage of rated service short circuit breaking capacity (I.Cs) to rated ultimate short circuit breaking capacity (icu) shall be mentioned as per the Table- 1, page 13 of IS 13947 (Part-2) /1989.
- vii) Type of protection:- Overload protection is a must with static /electro magnetic /thermo magnetic trip release.
- viii) The terminal capacity of the MCCBs should be such as to accommodate 4 core X 70 sq mm LT cable. The in coming cable should be connected to the terminals of the M.C.C.B. with Bi- metallic lugs preferably of Usha Martin/Dowel make duly crimped with Die press& crimping tools. There should be a metallic /heat resistant insulating barrier between the MCCB side & that of kit kat fuses so that the heat generated in Kit Kat fuses carrying current and during fuse blow should not pass to the MCCB.

5. GENERAL

- a) The L.T. distribution Boxes should be of the dimensions as per the drawing enclosed. The bidders can quote with their own design suitably accommodating the components in conforming to the approved clearances and technical requirement as indicated in this bid. The dimensions are only illustrative. Tolerances of dimensions are 10% over & above the dimensions specified. The bidder may specify their own dimensions within + 10% limit and quote accordingly.
- b) The distribution boxes shall be duly wired with suitable size of PVC insulated single core copper cable or equivalent section copper/aluminum flat.
- c) Terminal connectors for the earth connections to be provided in the box.
- d) The distribution cabinet should be preferably of IP-54 protective category, with provision for lighting inside the cabinet. NESCO & SI. No. Punching Marks should be given on any one of the side walls of each box as an identification of NESCO property, besides furnishing

a non-detachable name plate which should exhibit the details of L.T. Distribution Cabinet.

- e) The bidders are required to furnish the Guaranteed Technical Particulars in the format given.

6. **TESTS:**

The M.C.C.B. to be mounted with Distribution Boxes shall have been fully type tested as per the relevant standard in any NABL approved Testing Laboratory. Copies of type test reports must be enclosed with the tender failing, which the bid is liable for rejection. Purchaser reserves the right to demand repetition of the tests without any extra cost.

7. **INSPECTION: -**

The inspection may be carried out by the Purchaser at any stage of manufacture. The successful bidder shall grant free access to the Purchaser's representative at a reasonable time when the work is in progress. Inspection and acceptance of any equipment under the specification by the Purchaser shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective.

The supplier shall keep the Purchaser informed in advance about the manufacturing programme so that arrangement can be made for inspection.

The purchaser reserves the right to insist for witnessing the acceptance/routine testing of the bought out items.

8. **ACCEPTANCE AND ROUTINE TESTS:-**

All acceptance and routine tests as stipulated in the relevant standards shall be carried out by the supplier in presence of owner's representative.

Immediately after finalization of the programme of type/acceptance/routine testing, the supplier shall give fifteen days advance intimation to the Purchaser to enable him to depute his representative for witnessing the tests.

9. **DOCUMENTATION: -**

The Bidder shall furnish following drawings along with the offer.

- (a) General outline and assembly drawing of the L.T. Distribution Box.
- (b) Cross Sectional view.
- (c) Arrangement of terminals & details of connection studs provided.
- (d) Name plate.
- (e) Schematic drawing.
- (f) Type test reports MCCB & Distribution box.
- (g) Test reports, literature of the bought out items and raw materials.
- (h) Testing facilities available at the works.
- (i) List of customers with detailed address/purchase reference, quantity and year of supply with user certificate for such items.