

20 Three Phase 4 Wire L.T. Distribution Box for Aerial Bunched Conductor

1 SCOPE:

- 1.1 The L.T. Distribution Box shall be used for connection through overhead conductors or ABC line and for giving connections to the consumers. This specification covers the design, manufacture, inspection, testing and supply of L.T. Distribution Box. The L.T. Distribution Box will be installed at the Poles and it shall withstand solar radiations, rain, wind pressure and pollution.

2 **CONSTRUCTIONAL AND TECHNICAL PARTICULARS:**

- 2.1 The Distribution Box shall be made from 20 SWG CRCA MS sheet by **Deep Drawn Method with Powder Coating**. Size of the box shall be 418mm x 300mm x 120mm as shown in drawing. There shall not be any welding joint to make base and cover of the Distribution box. Roof of the box shall be tapered on both sides to drain the rain water.
- 2.2 Distribution box shall have Insulated Multiple Outgoing Connectors for R, Y, B Phases and Neutral. Distribution box shall have arrangement for one incoming cable of three phase of size up to 4core 35mm². Arrangement for four outgoing cables of size up to 4core 16mm² for three phase connection shall be provided in the distribution box. Each Incoming & outgoing cable shall be fixed inside the connection terminals by two screws of size not less than M8. The connection terminals shall be such that the outgoing cables can be fixed or removed easily without disconnecting the power supply. No current carrying part shall be approachable by hand or finger. Any current carrying part should be at a minimum distance of 5mm from the outer edge of the insulation. Insulation shall be Fire retardant.
- 2.3 Connection terminals for R, Y, and B Phases shall be mounted horizontally in a single line and Neutral shall be mounted parallel to R, Y, and B Phases in stepped pattern. Mounting arrangement shall be such that minimum clearance of 40mm is maintained between each phase and neutral. Fixing of connection terminals with the distribution box shall be preferably non-removable type to avoid theft of connection terminals.
- 2.4 Box shall be provided with U-latch sealing arrangement. A hole of 8mm & 2.5mm shall be provided in the U-latch to provide a padlock & sealing of the box respectively. U-latch shall be joined with stainless steel rivet. Box should be duly powder coated after 7-tank Phosphating process. Box should be of Light Admiralty Grey color (IS-5:1993, COLOUR NO-697). The L.T. Distribution box shall be powder coated only. The facility for 7-Tank Phosphating and powder coating shall be in-house of the tenderer to ensure proper quality, since these boxes are for outdoor applications.
- 2.5 4 Holes for incoming cables and 4 Nos. holes for outgoing cables shall be provided on the lower wall of the box. Cable holes shall be provided with rubber / plastic glands duly pasted with the box. Incoming and outgoing cable gland shall have internal diameter of 20mm. Cable Glands shall be made such that internal diameter of glands provided for cables should be closed with the film of minimum 1mm thickness. Cable will go through the cable glands by piercing the film of the glands. Gap of minimum 100mm shall be maintained between the lower wall and neutral mounted inside the distribution box for easy handling of incoming and outgoing cables.
- 2.6 **MARKING:** Following shall be provided on the cover of box.
 - a) Manufacturers name duly embossed
 - b) Utility name duly embossed
 - c) Name of scheme duly embossed
 - d) Danger marking in red color.

- 2.7 M.S. Earthing Screw of diameter 6mm with washer shall be provided in the threads of the earth clamp welded to the main body of the box.
- 2.8 The box shall comply with the requirement of IP54. The box shall be fully type tested along with dimensional details as per the requirement of relevant Indian Standard (latest edition) IS13947: Part-I and latest amendments. Tests shall be carried out from laboratories which are accredited by the National Board of Testing & Calibration Laboratories (NABL) of Govt. of India to prove that the complete box meet the requirement of IP54. The tests report shall be submitted along with the tender failing which the tender of the firm shall not be opened. Government approved laboratories should be accredited by the National Board of Testing & Calibration Laboratories (NABL) of Govt. of India. The type test reports shall not be older than 5 years.
- 2.9 Distribution Box shall be duly packed in 3Ply corrugated box. The tolerance permissible on the overall dimensions of the MMB shall be (\pm) 3%.

3.0 TESTS:

Following tests shall be performed on the box during inspection:

3.1 Visual Examination:

The L.T. Distribution box will be inspected visually, externally and internally for proper Powder Coating layer, fitting of all the components in accordance with technical Specification.

3.2 Verification of dimensions:

Verification of dimensions, external / internal clearances will be carried out as per technical specifications.

3.3 Verification of fittings: Components like insulated connection terminals, screws etc will be verified as per technical specification.

3.4 High voltage withstand test at 2.5KV:

The A.C. voltage of 2.5KV, 50HZ shall be applied for one minute as follows:

- a) Between each Phase
- b) Between each Phase and earth screw
- c) On the insulation of connection terminals

There shall not be any puncture or flash over during this test.

3.5 Current Carrying Capacity: The Current of 200 AMP shall be applied for 30 minutes through high current source on the each Phase. There shall not be overheating of the terminals during this test.