

**TECHNICAL SPECIFICATIONS FOR 3 PHASE L.T. DISTRIBUTION BOX FOR  
AERIAL BUNCHED CABLE**

The L.T. Distribution Box is used for connection through overhead ABC line and for giving connections to the consumers. The L.T. Distribution Box will be installed at the poles and it should have anti-corrosive, dust proof, rust proof, shock proof, vermin proof, U.V. stabilized and flame retardant property. Base door or other joint should not bend, soften on heating and it should be of tamper proof construction. The material of box should withstand temperature rise, hot spot temperature and occasional arcing of bus bar system.

The Box/Kiosk shall be made out of thermosetting plastic i.e. Glass Fiber Reinforced Polyester Sheet Moulding Compound (SMC) as per IS: 13410-1992 having properties as given in GTP.

The box should have sealing as well as pad locking arrangement. M.S. Flat with 12 mm dia hole should be provided for pole mounting.

The Distribution Box shall have 3 phase Bus bars of EC grade Aluminium of appropriate sizes as per requirement. The Bus bars shall be provided with colour coding for identification. Each Bus bar shall be provided with facility of cable termination as under:

- a) Incoming : 4 no. holes i.e 1 No lead per phase, thus 4 polymeric gland of 25 mm dia at bottom.
- b) Outgoing : 4 no. holes suitable for 4x16 sq. mm armoured cable (Max) and 8 no. holes for 2x10 sq. mm armoured cable (Max)

To facilitate easy working on termination on bus bar, the arrangement for termination of each lead on bus bar should have 6 mm dia holes duly fitted with M 6x20 screw, 1 custom designed Aluminum palm washer, 1 washer, 1 spring washer and 1 fly nut.

In order to restrict entry of tool from unused (cable entry) holes, partition plate should be provided between wall of the box and bus bar system. The service wire/cables will be taken from entry hole, suitably bent and taken to bus bar and finally the wire/cable shall be terminated and lightened using fly nut.

The assembly of four nos. Al. Busbars shall be mounted on one SMC Step mounting arrangement. The mounting arrangement of Bus bars shall be such that minimum clearance of 50 mm is maintained between Busbar and Box wall on all sides. This clearance will provided adequate space for working as well as bending of wires. Also there should be minimum clearance of 40 mm between each bus bar so as to take care of clearance and creepage distance requirements in line with IS: 13947.

The dimension of box shall appropriate as per requirement. Thickness of box shall be 3 mm. The colour of box shall be Off White such that it does not absorb heat of solar radiation. Repressible plastics and of dark colour will not acceptable.

There shall be an arrangement in distribution box to release minimum 8 no. single phase connection with cable size 2x10 sq. mm (max) and 4 no. connections of 3 phase with cable size 4x16 sq. mm (max) having 20 no. terminals points on neutral bus bar.

The bidder shall have to submit their design with sample box with tender documents before opening the techno commercial part (I & II) for approval of their design. If design of bidder is not found satisfactory as per requirement, the bid shall not be considered for further evaluation.

## **TESTING**

One sample selected from first lot should be tested at Govt. approved independent test house for compliance of performance parameters as given in GTP including Material identification to be carried out by CIPET/IR Spectrometry. The test report should be submitted to purchaser before completion of order.

Inspection of each lot, sampling plans for test: 1 nos. selected randomly from Lot for testing at works.

| Sr. No. | Test Requirement for Meter Box                  | Reference Standards   |
|---------|---|---|
| (a)     | Marking   | IS:14772  |
| (b)     | Dimensions and construction                     | - do -  |
| (c)     | Heat Deflection Temperature (Min. 150°C)        | IS:13411  |
| (d)     | Spirit Burner Test (Self Extinguishing)         | IS:4249   |
| (e)     | Melting Point (Does Not Melt up to 250 deg. C.) | 13360 Part 6 Sec. 10, 1992. Section 1 method 'A' Capillary tube method. |

**GUARANTEED TECHNICAL PARTICULARS FOR THREE PHASE****L.T. DISTRIBUTION BOX**

| Sl. No. | Particulars  | Detailed Particulars         | Offered |
|---------|--|------------------------------|---------|
| 1       | Material   | Thermosetting Plastic        |         |
| 2       | Grade of Material  | SMC IS: 13410 Grade S1       |         |
| 3       | Thickness of base/door (mm)  | 3 mm (min)                   |         |
| 4       | <b>Properties of material of construction for (FRPP and for SMC</b>  |                              |         |
| a)      | Heat Deflection Temp. (Ref. Standard ISO 75-III)   | 150°C                        |         |
| b)      | Exposure to flame (Ref. Standard IS: 4249)   | Self Extinguishing           |         |
| c)      | Melting Point (Test upto 250°C) (Ref. Standard IS: 13360 Part 6 Sec. 10, 1992. Section 1 Method 'A' Capillary tube method) | Does not melt                |         |
| 5       | <b>Clear inside dimensions of Meter Box</b>  | According to requirement     |         |
| a)      | Height   |                              |         |
| b)      | Width  |                              |         |
| c)      | Depth  |                              |         |
| 6       | <b>Earthing arrangement</b>  |                              |         |
| a)      | No. of earth bolts   | 1 No.                        |         |
| b)      | Material of earthing bolt  | MSZP                         |         |
| c)      | Dia. & length of bolts   | M 6×25                       |         |
| 7       | <b>Sealing arrangement</b>   | 2 Nos. on door               |         |
| 8       | Facility of Padlock  | Hole for locking arrangement |         |
| 9       | Colour of meter box  | Off white                    |         |
| 10      | <b>Cable Entry Exit Arrangement</b>  |                              |         |

|           |  |   |  |
|-----------|--|---|--|
| <b>a)</b> | Incoming                                     | Ø 25 holes with gland 4 nos. at bottom  |  |
| <b>b)</b> | Outgoing                                     | 4 no. holes for 4x16 sq. mm armoured cable & 8 no. hole for 2x10 sq. mm armoured cable with rubber grommet. |  |
| <b>11</b> | <b>Bus Bars</b>                              |   |  |
| <b>a)</b> | Bus Bars MoC                                 | E.C. Grade Aluminium  |  |
| <b>b)</b> | Phase & Neutral Bus bar Size and Quantity    | 25 × 6 mm (min) size: long 3 Nos. (R, Y, B),<br>40 × 6 mm (mm) size: long 1 No. (N)                         |  |
| <b>c)</b> | Arrangement of connection Phase Bus Bar      | 8 Nos. connection of single phase & 4 no. service connections of three phase. (O/G) for ABC (I/C)           |  |
| <b>d)</b> | Connection arrangement                       | As required   |  |
| <b>12</b> | <b>Clearances</b>                            |   |  |
| <b>a)</b> | Bus Bar & Box wall                           | Min 50 mm on all sides  |  |
| <b>b)</b> | Between Bus Bars                             | Min 40 mm   |  |
| <b>13</b> | <b>Bus Bar Mounting arrangement</b>          |   |  |
| <b>a)</b> | Arrangement                                  | SMC Stepped mounting  |  |
| <b>14</b> | <b>Pole mounting arrangement</b>             |   |  |
| <b>a)</b> | Back strips for pole/wall structure mounting | 25 × 3 mm (min), Zinc passivated MS flats with hole for 12 mm dia bolts.                                    |  |