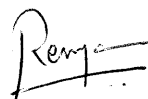


PRODUCT STANDARD
EDC-ECI
BAP/BHEL/RANIPET – 632 406

TECI: [REDACTED]:FRPJB:REV 00
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EFFECTIVE DATE : 01.01.2013

TITLE : TECHNICAL SPECIFICATION FOR BOUGHT ITEMS FOR ESP
ITEM : FRP JUNCTION BOX
CUSTOMER : NTPC & NON NTPC

NAME		DESIGNATION	SIGNATURE	DATE
PREPARED	REMYA KUKKILLIYA	ENGINEER		01.01.2013
CHECKED	S.RANGARAJAN	DGM		01.01.2013
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ISSUED BY

EDC – ECI

REVISION NO: 00

INITIAL RELEASE: 01.01.2013

1.0 SCOPE OF SUPPLY:

The scope of supply of Junction box includes manufacturing, inspection, testing, packing and delivery of junction Boxes (FRP) as per this specification and attached drawings.

2.0 APPLICATION:

The junction boxes are used in power station to interconnect various field-mounted electrical equipments pertaining to boiler auxiliaries.

3.0 APPLICABLE STANDARDS:

The Junction boxes shall be manufactured and tested as per the following standards.

IS 13947 - Low voltage Switchgear and Control Gear specification.

IS 694 - PVC insulated Cables for working voltages up to and including 1100 specification

4.0 SITE CONDITIONS:

4.1	Ambient temperature	:	1 Deg.C to 50 Deg.C
4.2	Relative humidity	:	100% RH
4.3	Atmospheric condition	:	Highly dusty, abrasive and polluted, conducive to fungus growth, climate is tropical. Environment is as prevalent in a coal fired thermal power station.
4.4	Design temperature	:	50 Deg.C
4.5	Location	:	Out door

5.0 GENERAL REQUIREMENTS:

5.1	Enclosure material & gland plate	:	4 mm FRP sheet steel
5.2	Enclosure protection	:	IP 65 as per IS 13947
5.3	Terminal block type & arrangement	:	ELMEX or equivalent type of BHEL approved make mounted on DIN rail.
5.4	Terminal block insulating material	:	Melamine
5.5	Terminal block voltage grade	:	650 V (Minimum)

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- | | | | |
|------|---|---|--|
| 5.6 | Door Gasketing | : | Neoprene gasket 6 mm thick of shore hardness 20 to 30 & density 0.4 gm/cc shall be provided on all mating surfaces. |
| 5.7 | Door Opening | : | Removable door |
| 5.8 | Lug type | : | Annealed tinned solder less crimping type copper lugs shall be provided for all the terminals on both sides. Lug type shall be as mentioned in attached drawing. |
| 5.9 | Cable Gland type | : | Nickel chromium plated Brass Double Compression type cable glands fixed on the gland plate, with dummy plugs. |
| 5.10 | Number of earthing terminals | : | Two as per attached drawing. |
| 5.11 | Location of earthing symbol | : | Just above the earthing terminal. Symbol to be black lines on yellow background. |
| 5.12 | Rated voltage grade of junction box | : | 415V |
| 5.13 | Mounting fasteners | : | 4 sets of chromium plated bolts, nuts and spring washers for mounting the JB shall be supplied. |
| 5.14 | Suitable DIN rails along with clamps and screws shall be provided for terminal block mounting. All terminals are to be numbered serially by suitable identification label of PVC material in white background with black numbers. Terminal blocks shall be fixed to TB supporting DIN rail by means of suitable end plates with screws. | | |
| 5.15 | Stickers have to be fixed over the cable glands to indicate the cable size. | | |
| 5.16 | Non rusting name plate of 2 ply lamicaid in white colour with the following inscription in black letters shall be fixed to the name plate mounting bracket on top of the junction box with plated screws. | | |

EP JUNCTION BOX (POWER) VAR*

BHEL/BAP/RANIPET

* - As applicable in the enquiry drawing

The name plate indicating the name of the supplier shall be provided on the door. name plate shall contain vendor details like year of manufacture, weight of the job, BHEL PO number & date.

- 5.17 The un -toleranced dimensions shall be as per IS 2102.
- 5.18 For cable glands, lugs & TBs, the type reference indicated in above table is that of a particular manufacturer. Equivalent type of cable glands, lugs & TBs of other BHEL approved makes given in this specification can also be used.
- 5.19 Terminal block to supplied and mounted by vendor. Terminal block shall be of NTPC approved make and rating as recommended in the table. Terminal blocks are to be mounted horizontally. Suitable din rail/base for mounting terminal shall be provided. All terminals are to be identified by suitable identified label. The strip shall be of PVC white background with black letters.
- 5.20 Bolts and nuts required for mounting the junction boxes and fitting are to be electro galvanised and supplied by the vendor.
- 5.21 Internal looping shall be made with 1100v grade PVC insulated stranded copper conductor cable and termination with crimping type annealed tinned copper lugs of dowels make.
- 5.22 Earthing bolts and nuts with rose Courtney washer shall be provided at opposite points on outside of the junction box body with earth symbol made of aluminium.
- 5.23 For external cable termination, two numbers in as shall be fitted and supplied in each terminal. The TB shall be suitable for terminating two in a single block for both incoming and outgoing cables.

6.0 MAKE OF COMPONENTS

- | | | | |
|-----|-------------------|---|--|
| 6.1 | Terminal block | : | ELMEX |
| 6.2 | Crimping type lug | : | DOWELL |
| 6.3 | Cable glands | : | COMET / BRACCO / ARUP ENGG. / QPIE/
SUNIL & Co. |
| 6.4 | PVC wires | : | ISI (BIS) APPROVED/CERTIFIED MAKES |

7.0 PACKING

Each JB shall be fully wrapped in a polythene cover to avoid water entry and then packed separately in cardboard box. Finally all such boxes shall be packed in a wooden crate.

8.0 DRAWING

Manufacturing drawings prepared in AUTO CAD shall be submitted in SOFT MEDIA in addition to **4 sets of** hard copies for approval by BHEL, (prior to start of manufacture) within 10 days from the date of purchase order.