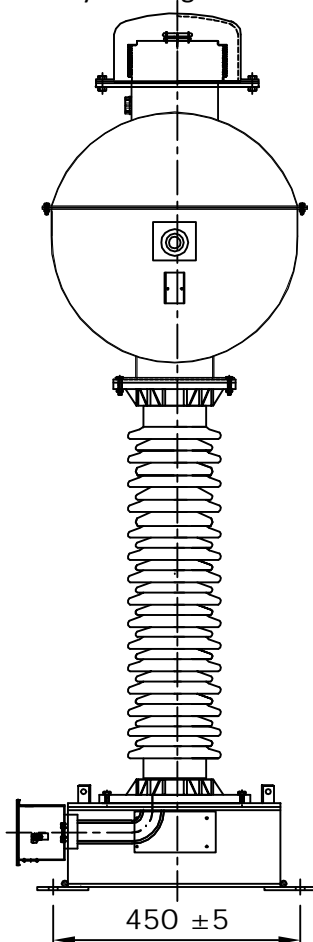
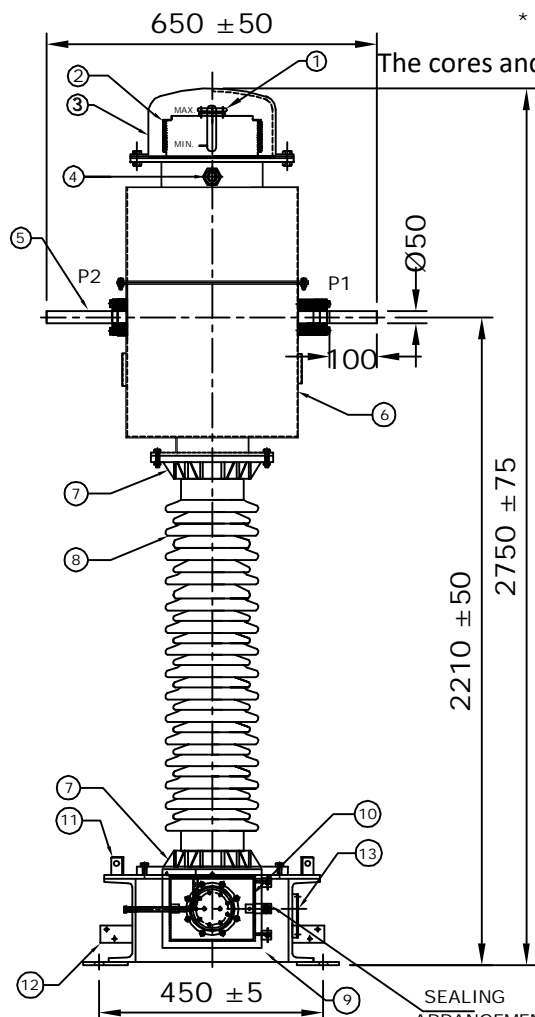
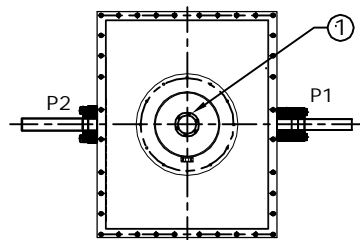


NOTES:-

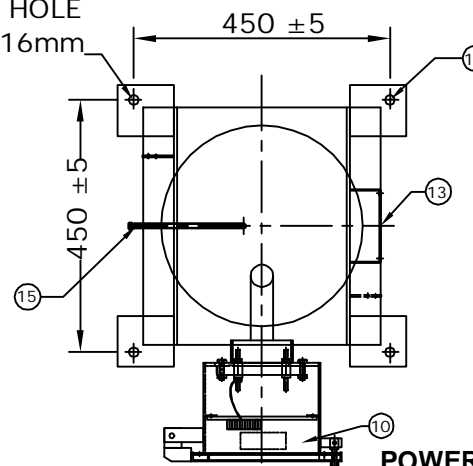
1. MAKE OF BUSHING: IEC/MODERN/ABIL/BHEL/CJI
2. ALL FERROUS PART EXPOSED TO THE ATMOSPHERE SHALL BE PAINTED WITH P.U PAINT SHADE 631 OF IS:5
3. ALL GASKETS SHALL BE FIXED IN PROPERLY MACHINED GROOVES.
4. PRIMARY WINDING SHALL BE BAR TYPE.
5. ALL HARDWARE SHALL BE HOT DIP GALVANIZED.
6. TRANSFORMER OIL AS PER IEC : 60296.
7. ALL GASKETS SHALL BE MADE OF NITRILE BUTYL RUBBER.

- \* TOTAL WEIGHT OF CT:-390Kgs (APPROX.)
- \* QUANTITY OF OIL:- 100 Ltrs (APPROX.)
- \* TOTAL CREEPAGE DISTANCE:- 3625 mm. (MINIMUM)

The cores and secondary windings shall be enclosed in rigid aluminium shell



MOUNTING HOLE  
Ø16mm



MOUNTING DETAILS

**CHIEF ENGINEER  
POWER SYSTEMS, PLANNING & DESIGN  
APTRANSCO**

| S.No. | DESCRIPTION                 | MATERIAL  | QTY |
|-------|-----------------------------|-----------|-----|
| 1     | OIL FILLING PORT            | M.S       | 1   |
| 2     | BELLOW                      | S.S       | 1   |
| 3     | BELLOW DOME                 | M.S/AL    | 1   |
| 4     | OIL LEVEL INDICATOR         | BRASS/AL. | 1   |
| 5     | PRIMARY TERMINAL Ø50x100mm  | ALUMINUM  | 1   |
| 6     | OIL TANK WITH COVER         | M.S       | 1   |
| 7     | BUSHING FLANGE (CEMENTED)   | GI/CI     | 2   |
| 8     | BUSHING                     | PORCELAIN | 1   |
| 9     | BASE                        | M.S       | 1   |
| 10    | SECONDARY TERMINAL BOX      | M.S       | 1   |
| 11    | LIFTING HOOK                | M.S       | 4   |
| 12    | EARTHING FLAT 80x50x8THICK. | M.S       | 2   |
| 13    | NAME AND RATING PLATE       | ALUMINUM  | 1   |
| 14    | MOUNTING HOLE, Ø16mm ±2     | M.S       | 4   |
| 15    | OIL DRAIN PLUG              | M.S       | 1   |

NOTE: 1. DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS  
2. FOR EPC CONTRACTS ONLY

| RO   | FOR APPROVAL         | 06.01.2021     |
|------|----------------------|----------------|
| REV. | REVISION DESCRIPTION | DATED INITIALS |
|      |                      |                |

CLIENT : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED  
PROJECT NAME : AS APPLICABLE

| UNLESS OTHERWISE SPECIFIED | DATE       | NAME  | MATERIAL |
|----------------------------|------------|-------|----------|
| DGN.                       | 06.01.2021 | SPS   | AS ABOVE |
| DRN.                       | 06.01.2021 | AKASH |          |
| CHD.                       | 06.01.2021 | BLS   |          |
| SCALE:                     | N.T.S      |       |          |

**MEHRU**  
MEHRU ELECTRICAL & MECHANICAL ENGINEERS (P) LTD.

TITLE :  
GENERAL ARRANGEMENT DRAWING FOR 132kV CURRENT TRANSFORMER RATIO:- 500-800/1-1-1A BAR TYPE CT

DRG.NO  
ME-132CT-GA-01

SHEET No.  
1 OF 7

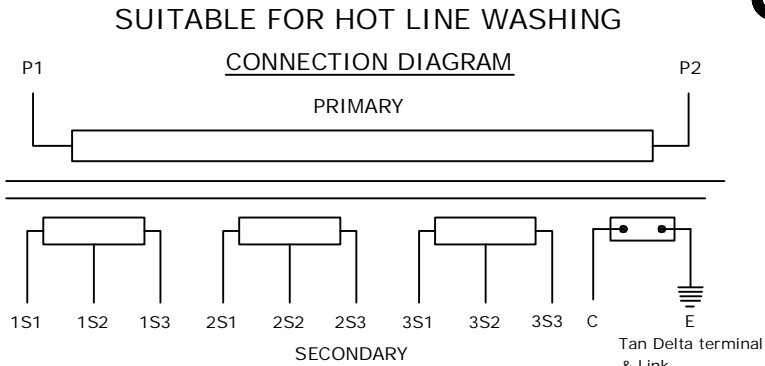
2. FOR EPC CONTRACTS ONLY



LIVE TANK CURRENT TRANSFORMER

MADE TO IS: 16227

|                                   |                     |                  |              |                |
|-----------------------------------|---------------------|------------------|--------------|----------------|
| HIGHEST SYSTEM VOLTAGE            | 145 kV              | INSULATION LEVEL |              | 275/650 kV     |
| RATED S.T.C                       | 31.5kA for 1 second | RATED FREQUENCY  |              | 50Hz           |
| NOMINAL SYSTEM VOLTAGE            | 132 kV              | CORE 1           | CORE 2       | CORE 3         |
| RATIO                             | PRIMARY(Amp)        | 500-800          | 500-800      | 500-800        |
|                                   | SECONDARY(Amp)      | 1                | 1            | 1              |
| SECONDARY TERMINALS               |                     | 1S1-1S2-1S3      | 2S1-2S2-2S3  | 3S1-3S2-3S3    |
| RATED BURDEN IN V.A               |                     | 20 VA            | ----         | 20 VA          |
| ACCURACY CLASS                    |                     | 5P               | PS           | 0.2S           |
| ALF / ISF                         |                     | 20               | ----         | ≤5 @ All Ratio |
| Min Knee point voltage @800/1A    |                     | ----             | 40 (Rct+10)V | ----           |
| Max Rct @ 75° C' @800/1A          |                     | ----             | 4 Ω          | ----           |
| Max Iext @ V <sub>k</sub> @800/1A |                     | ----             | 30 mA        | ----           |
| YEAR OF MANUFACTURE               | 2021                | SERIAL NO.       |              |                |



| FOR RATIO | PRIMARY CONNECTION | SECONDARY CONNECTION |         |          |
|-----------|--------------------|----------------------|---------|----------|
|           |                    | CORE I               | CORE II | CORE III |
| 500/1A    | P1 - P2            | 1S1-1S2              | 2S1-2S2 | 3S1-3S2  |
| 800/1A    | P1 - P2            | 1S1-1S3              | 2S1-2S3 | 3S1-3S3  |

CAUTION

- I. Secondary terminals should be short circuited before the burden is disconnected.
- II. Tan delta terminal 'C' must be shorted to be earth when operation
- III. Do not remove earth link when in operation

RATED CONTINUOUS THERMAL CURRENT: 120% OF THE RATED PRIMARY CURRENT  
 \* QUANTITY OF OIL: - 100 Ltrs (APPROX.) \* TOTAL WEIGHT OF CT: -390Kgs (APPROX.)  
 MADE IN INDIA BY \* TOTAL CREEPAGE DISTANCE: - 3625 mm. (MINIMUM)

MEHRU ELECTRICAL AND MECHANICAL ENGINEERS (P) LTD.  
 SP2/180,RIICO INDUSTRIAL AREA,KEHRANI, BHIWADI - RAJASTHAN - 301019

105 ± 15

225 ± 25

NOTES: -

1. THICKNESS OF RATING PLATE 1.2 mm
2. MATERIAL OF NAME PLATE SHALL BE AL. ANODIZED.
3. SERIAL NUMBER SHALL BE ENGRAVING BEFORE THE DISPATCH.

- \* PRIMARY WINDING AREA : 1964 sq.mm
- \* CURRENT DENSITY : 0.49 A/sq.mm

Drawing approval subject to valid vendor registration

**CHIEF ENGINEER**  
**POWER SYSTEMS, PLANNING & DESIGN**  
**APTRANSCO**

|   |        |            |       |  |
|---|--------|------------|-------|--|
| CLIENT : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED   |        |            |       |  |
| PROJECT NAME : AS APPLICABLE  |        |            |       |  |
| UNLESS OTHERWISE SPECIFIED  | DGN.   | 06.01.2021 | SPS   | MATERIAL<br><br>AL. ANODIZED                         |
|   | DRN.   | 06.01.2021 | AKASH |  |
|   | CHD.   | 06.01.2021 | BLS   |  |
|   | SCALE: | N.T.S      |       |  |
| 1. ALL DIMENSIONS ARE IN mm.<br>2. TOLERANCE WHEREVER NOT INDICATED ±5%                               |        |            |       | <br>MEHRU ELECTRICAL & MECHANICAL ENGINEERS (P) LTD. |
| TITLE :<br>NAME PLATE DRAWING FOR 132KV CURRENT TRANSFORMER<br>RATIO: - 500-800/1-1-1A<br>BAR TYPE CT |        |            |       |  |
| SHEET No.   |        | 3 OF 7     |       | <br>DRG.NO<br>ME-132CT-NP-01                         |

|      |                      |                |
|------|----------------------|----------------|
| RD   | FOR APPROVAL         | 06.01.2021     |
| REV. | REVISION DESCRIPTION | DATED INITIALS |

REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS

2. FOR EPC CONTRACTS ONLY

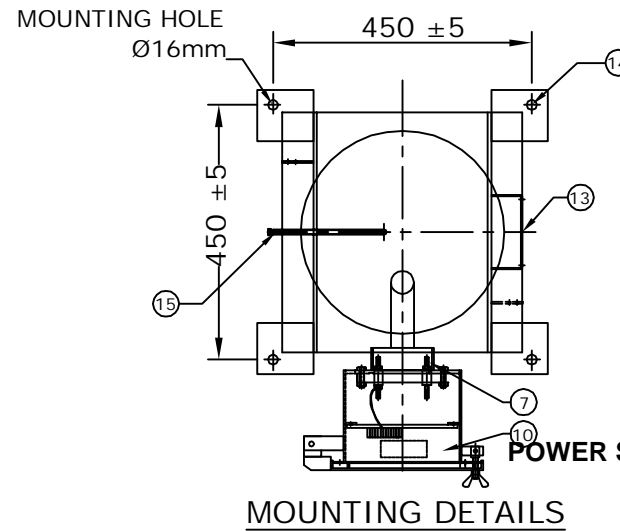
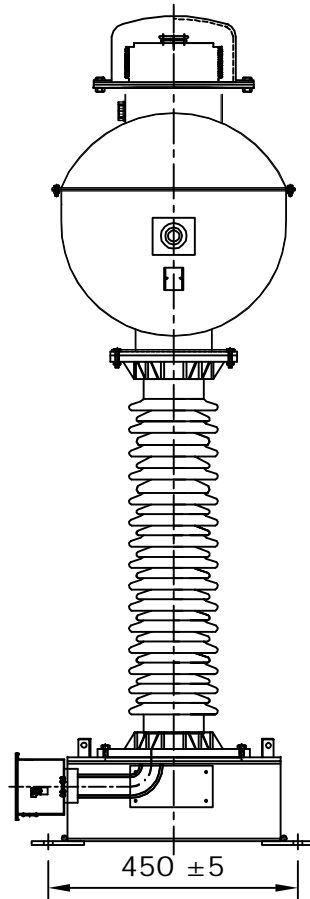
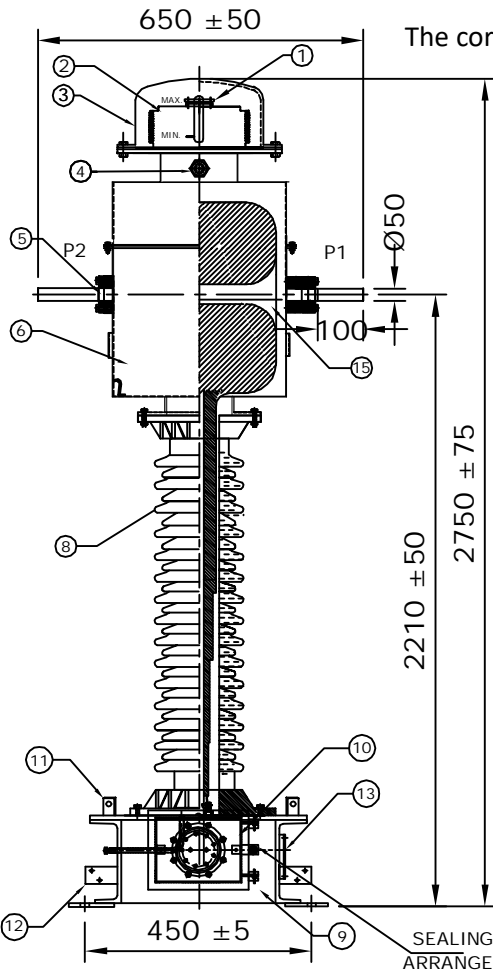
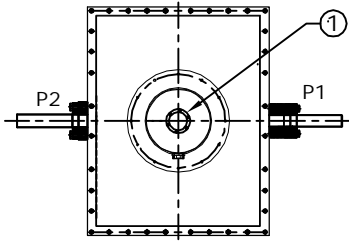
NOTES:-

1. MAKE OF BUSHING: IEC/MODERN/ABIL/BHEL/CJI
2. ALL FERROUS PART EXPOSED TO THE ATMOSPHERE SHALL BE PAINTED WITH P.U PAINT SHADE 631 OF IS:5
3. ALL GASKETS SHALL BE FIXED IN PROPERLY MACHINED GROOVES.
4. PRIMARY WINDING SHALL BE BAR TYPE.
5. ALL HARDWARE SHALL BE HOT DIP GALVANIZED.
6. TRANSFORMER OIL AS PER IEC : 60296.
7. ALL GASKETS SHALL BE MADE OF NITRILE BUTYL RUBBER.

- \* TOTAL WEIGHT OF CT: -390Kgs (APPROX.)
- \* QUANTITY OF OIL:- 100 Ltrs (APPROX.)
- \* TOTAL CREEPAGE DISTANCE: - 3625 mm. (MINIMUM)

The cores and secondary windings shall be enclosed in rigid aluminium shell

| S.No. | DESCRIPTION                 | MATERIAL  | QTY |
|-------|-----------------------------|-----------|-----|
| 1     | OIL FILLING PORT            | M.S       | 1   |
| 2     | BELLOW                      | S.S       | 1   |
| 3     | BELLOW DOME                 | M.S/AL.   | 1   |
| 4     | OIL LEVEL INDICATOR         | BRASS/AL. | 1   |
| 5     | PRIMARY TERMINAL Ø50x100mm  | ALUMINUM  | 1   |
| 6     | OIL TANK WITH COVER         | M.S       | 1   |
| 7     | SECONDARY TERMINAL          | BRASS     | --- |
| 8     | BUSHING                     | PORCELAIN | 1   |
| 9     | BASE                        | M.S       | 1   |
| 10    | SECONDARY TERMINAL BOX      | M.S       | 1   |
| 11    | LIFTING HOOK                | M.S       | 4   |
| 12    | EARTHING FLAT 80x50x8THICK. | M.S       | 2   |
| 13    | NAME AND RATING PLATE       | ALUMINUM  | 1   |
| 14    | MOUNTING HOLE, Ø16mm±2      | M.S       | 4   |
| 15    | OIL DRAIN PLUG              | M.S       | 1   |




**CHIEF ENGINEER  
POWER SYSTEMS, PLANNING & DESIGN  
APTRANSCO**

CLIENT : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED  
PROJECT NAME : AS APPLICABLE

| UNLESS OTHERWISE SPECIFIED              | DATE            | NAME  | MATERIAL |
|---|-----------------|-------|----------|
| 1. ALL DIMENSIONS ARE IN mm.            | DGN. 06.01.2021 | SPS   | AS ABOVE |
| 2. TOLERANCE WHEREVER NOT INDICATED ±5% | DRN. 06.01.2021 | AKASH |          |
|   | CHD. 06.01.2021 | BLS   |          |
|   | SCALE:          | N.T.S |          |

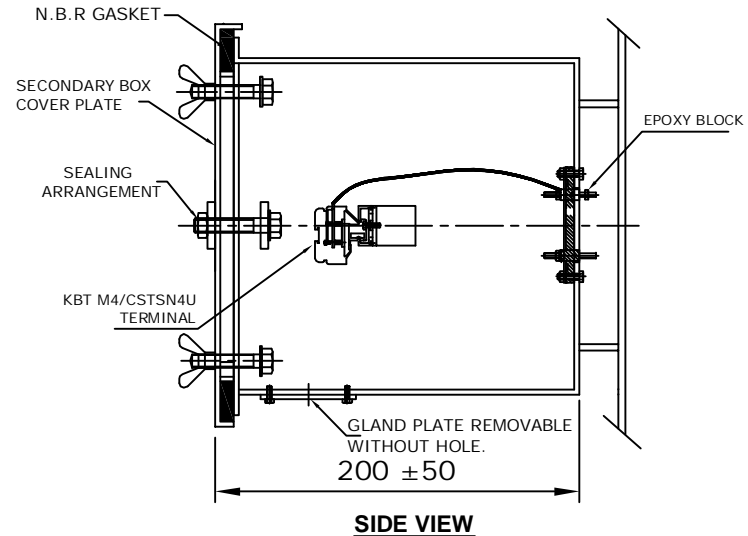
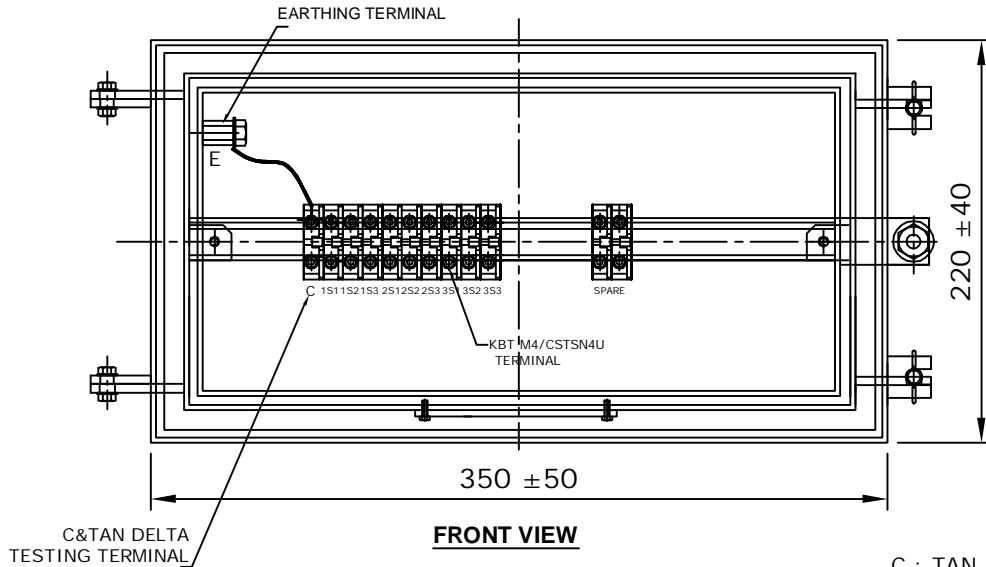
|                  |   |   |
|------------------|---|---|
| TITLE :          | SECTIONAL ARRANGEMENT DRAWING<br>FOR 132KV CURRENT TRANSFORMER<br>RATIO:- 500-800/1-1-1A<br>BAR TYPE CT | <br>MEHRU ELECTRICAL &<br>MECHANICAL<br>ENGINEERS (P) LTD. |
| SHEET No. 2 OF 7 |   |   |

Drawing approval subject to valid vendor registration

| REV. | REVISION DESCRIPTION | DATED INITIALS |
|------|----------------------|----------------|
| RD   | FOR APPROVAL         | 06.01.2021     |

NOTE: 1. DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS

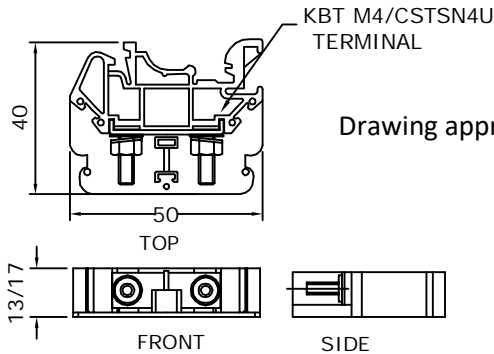
2. FOR EPC CONTRACTS ONLY



C : TAN DELTA TESTING TERMINAL  
E : EARTHING TERMINAL

NOTES:-

1. SECONDARY TERMINAL BOX SHALL BE PROVIDE GLAND PLATE REMOVABLE WITHOUT HOLE.
2. SECONDARY TERMINAL BOX SHALL BE PROVIDED WITH COVER.
3. M.S SHEET THICKNESS FOR TERMINAL BOX 3.0mm & FOR COVER 2.0mm.
4. MATERIAL OF GASKET : NITRILE BUTYL RUBBER GASKET.
5. DEGREE OF PROTECTION : IP 55
6. 20% SPARE TERMINAL SHALL BE PROVIDED.



MATERIAL: POLYAMIDE  
MAKE: ELMEX/CONNECTWELL

TERMINAL (DETAIL)

Drawing approval subject to valid vendor registration

**CHIEF ENGINEER  
POWER SYSTEMS, PLANNING & DESIGN  
APTRANSCO**

|   |   |                     |  |  |
|---|---|---------------------|--|--|
| CLIENT : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED             |   |                     |  | <div style="border: 1px solid black; padding: 2px; display: inline-block;">MEHRU</div><br>MEHRU ELECTRICAL & MECHANICAL ENGINEERS (P) LTD. |
| PROJECT NAME : AS APPLICABLE  |   |                     |  |  |
| UNLESS OTHERWISE SPECIFIED  | DATE  | NAME                | MATERIAL   |  |
| 1. ALL DIMENSIONS ARE IN mm.<br>2. TOLERANCE WHEREVER NOT INDICATED ±5% | DGN. 06.01.2021<br>DRN. 06.01.2021<br>CHD. 06.01.2021<br>SCALE: N.T.S | SPS<br>AKASH<br>BLS | M.S  |  |
| SHEET No. 4 OF 7  |   |                     | TITLE :<br>SECONDARY TERMINAL BOX DRAWING FOR 132KV CURRENT TRANSFORMER<br>RATIO:- 500-800/1-1-1A<br>BAR TYPE CT | <br>DRG.NO ME-132CT-STB-01   |

|      |                      |                |
|------|----------------------|----------------|
| RO   | FOR APPROVAL         | 06.01.2021     |
| REV. | REVISION DESCRIPTION | DATED INITIALS |

4573981/2021/EEMRT-ENE51

REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS

2. FOR EPC CONTRACTS ONLY

Guaranteed Technical Particulars for 132kV Current Transformer

| Sl. No.  | Item Description   | Unit      | GTP as per Bid   |
|----------|--|-----------|--|
| <b>E</b> | <b>CURRENT TRANSFORMER</b>   |           |  |
| 1        | Make   |           | Mehru Electrical & Mechanical Engineers (P) Ltd, Bhiwadi, (Raj), Inida |
| 2        | Type and Designation   |           | Outdoor, Oil Cooled Live Tank Type, Current Transformer                |
| 3        | Applicable standards   |           | IS 16227   |
| 4        | Class  |           | A  |
| 5        | Rated Voltage  | 132 kV    | 132 kV   |
| 6        | Rated Primary current  | Amps      | 500-800A   |
| 7        | Rated Secondary current  | Amps      | 1  |
| 8        | Rated output (Burden)  | VA        | Core:-1; 20VA, Core 2: NA, Core:3: 20VA,                               |
| 9        | Rated output at 0.8 lag. p.f.  | VA        | N/A  |
| 10       | Class of accuracy  |           | Core:1 - 5P, Core: 2 - PS, Core:-3: 0.2S                               |
| 11       | Accuracy limit factor  |           | Core1: 20  |
| 12       | Knee point voltage for highest tap                                       | Volts     | Core:2: 40(Rct+10)V  |
| 13       | CT Resistance of secondary winding corrected to 75 deg.C for highest tap | Ohms      | Core-2-4   |
| 14       | Magnetising current at knee-voltage point @highest tap                   |           | Core-2-30mA  |
| 15       | secondary limiting voltage   | kV        | As per IS 16227  |
| 16       | Instrument security factor for winding meant for metering                |           | Core-3-≤ 5 at all taps   |
| 17       | One minute Power Frequency withstand test voltage of                     |           |  |
| a)       | Primary winding  | kV (rms)  | 275  |
| b)       | Secondary winding  | kV (rms)  | 3  |
| 18       | 1.2/50' Impulse wave withstand voltage of primary winding                | kV (peak) | 650  |
| 19       | One minute dry P.F. withstand voltage of primary winding                 | kV (rms)  | 275  |
| 20       | Creepage distance  | mm        | 25mm/kV i.e. 3625mm (Min.)   |
| 21       | Rated continuous thermal current   | Amps      | 120% of rated primary current  |
| 22       | Ratios available at highest taps   |           | Yes  |
| 23       | Rated short time thermal current   | kA (rms)  | 31.5 kA  |
| 24       | Rated time for above   | Sec.      | 1  |
| 25       | Rated dynamic current for primary  | kA (Peak) | 78.75  |

## 4573981/2021/EEMRT-ENE51

|    |  |               |   |
|----|--|---------------|---|
| 26 | Class of insulation  |               | A   |
| 27 | Max. Temperature rise over ambient of 50 deg.C at any part of oil  | deg.C         | 50c max   |
| 28 |  |               |   |
| a) | Radio interference voltage   |               | As per IS 16227 Clause 6.11.2 <2500uV                                 |
| b) | Partial discharge level  |               | <10 pC at Um & <5 pc at 1.2Um/ $\sqrt{3}$                             |
| 29 | Temp. rise after passing short time thermal current for one second | deg.C         | 50c max   |
| 30 | Current density in primary winding at                              |               |   |
| a) | Normal rating  |               | 0.49 Amp/sqmm (max)   |
| b) | Short time rating of 1 Sec.  |               | 16.04 Amp/sqmm(max.)  |
| c) | Dynamic rating   |               | 40.5 Amp/sqmm (max.)  |
| 31 | Type of primary winding  |               | Aluminium   |
| 32 | No. of primary turns   |               | 1   |
| 33 | No. of secondary turns   |               | 500+300   |
| 34 | Flux density at knee point   |               | 1.4 Tesla   |
| 35 | Radio interference voltage   | (micro volts) |   |
| a) | with terminal connector mountd                                     |               | <2500uV   |
| b) | under test condition   |               | <2500uV   |
| 36 | Variation in ratio and phase angle error due to variation in       |               |   |
| a) | Voltage by 1%  |               | N/A   |
| b) | Frequency by 1 Hz.   |               | N/A   |
| 37 | Mounting details   |               | 450 $\pm$ 5 x 450 $\pm$ 5 mm  |
| 38 | Source/grade of oil and standard with which it complies            |               | EHV Grade Transformer Oil as per IS 335/IEC 60296 of any reputed make |
| 39 | Quantity of insulating oil   | Litres        | 100 Ltr Approx  |
| 40 | Weight of Oil  | kg            | 80 kgs Approx   |

NOTE: 1. DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS  
2. FOR EPC CONTRACTS ONLY

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POWER SYSTEMS, PLANNING & DESIGN  
APTRANSCO**

Drawing approval subject to valid vendor registration

## 4573981/2021/EEMRT-ENE51

|    |  |    |                             |
|----|--|----|-----------------------------|
| 41 | Total Weight including Oil               | kg | 390kG Approx                |
| 42 | Overall dimensions (mm)                  |    | 2750±75 x 650±50 x 450±5 mm |
| 43 | Wheather sealed (if so, type of sealing) |    | Yes, By SS BELLOW           |
| 44 | Tan delta                                |    | <0.005                      |
| 45 | a) Weight of Steel                       |    | 104 kgs (Approx.)           |
|    | b) Wight of Aluminum                     |    | 4.1 kgs (Approx.)           |
|    | c) Weight of copper                      |    | 3.2 kgs (Approx.)           |

NOTE: 1. DRAWING APPROVAL SUBJECT TO VALID TYPE TEST  
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 APTRANSCO**

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