

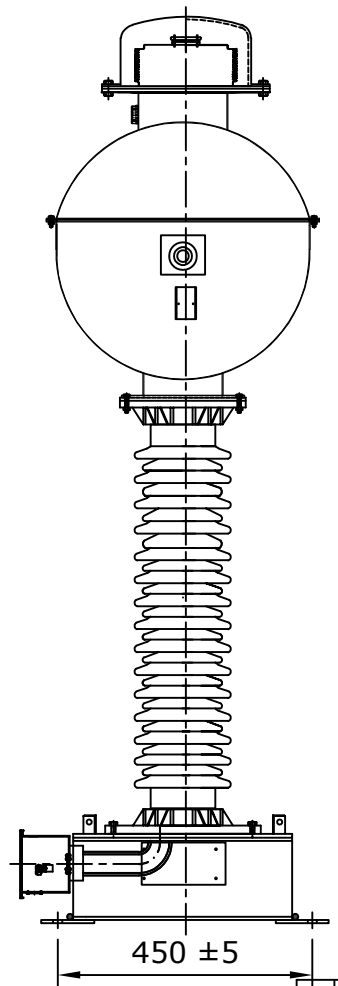
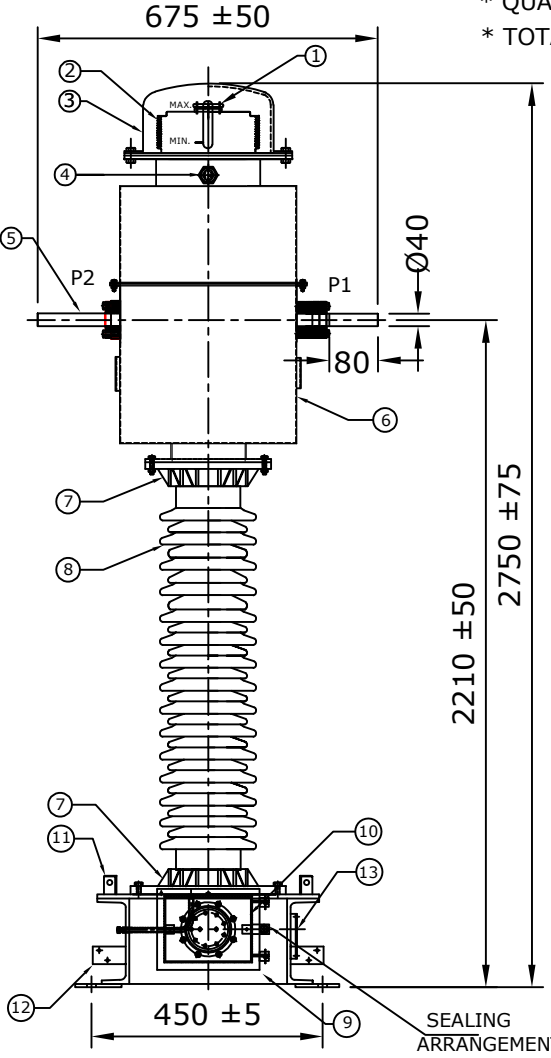
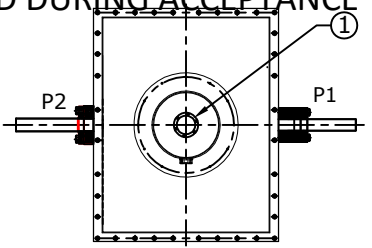
NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS.

NOTES:-

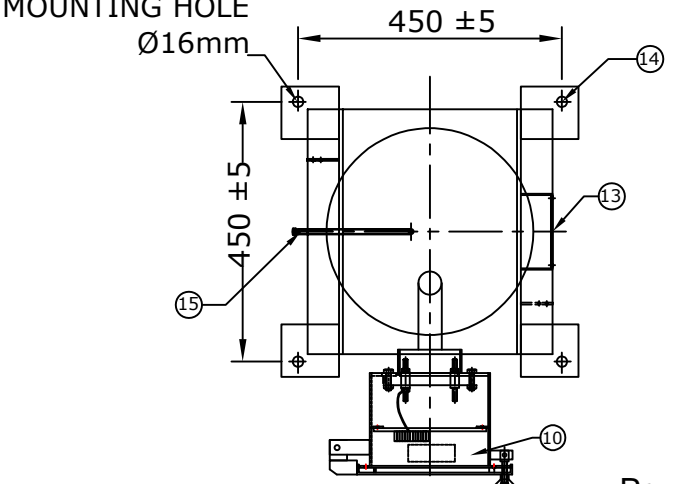
1. MAKE OF BUSHING: IEC/MODERN/ABIL/BHEL/CJI
2. ALL FERROUS PART EXPOSED TO THE ATMOSPHERE SHALL BE PAINTED WITH P.U PAINT SHADE 631 OF IS:5
3. ALL GASKETS SHALL BE FIXED IN PROPERLY MACHINED GROOVES.
4. PRIMARY WINDING SHALL BE BAR TYPE.
5. ALL HARDWARE SHALL BE HOT DIP GALVANIZED.
6. TRANSFORMER OIL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

- * TOTAL WEIGHT OF CT:-375Kgs (APPROX.)
- * QUANTITY OF OIL:- 90 Ltrs (APPROX.)
- * TOTAL CREEPAGE DISTANCE:- 3625 mm. (MINIMUM)

| 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 Ø40x80mm | 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 |



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



Chief Engineer
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| REV. | REVISION DESCRIPTION | DATED INITIALS |
|------|----------------------|----------------|
| R0 | FOR APPROVAL | 06.01.2021 |

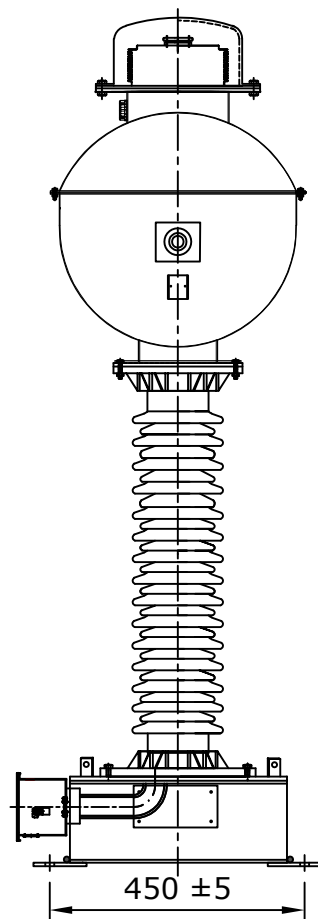
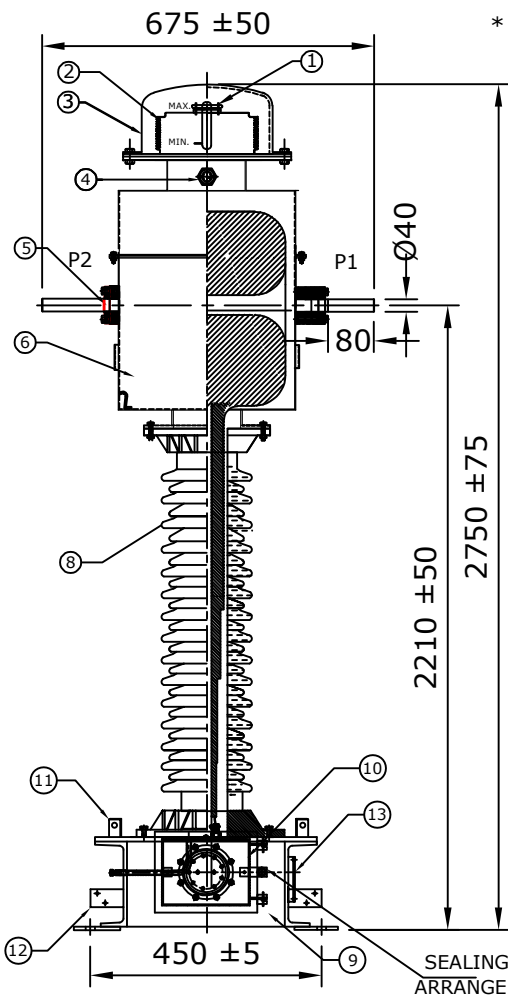
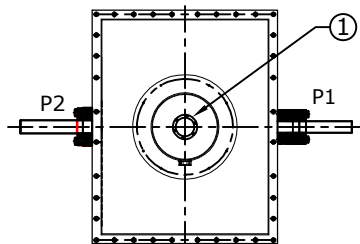
| | | | | | |
|---|-----------------|-------|----------|--|--|
| CLIENT : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED | | | | PROJECT NAME : AS APPLICABLE | |
| UNLESS OTHERWISE SPECIFIED | DATE | NAME | MATERIAL | <div style="border: 1px solid black; padding: 5px; display: inline-block;">MEHRU</div> MEHRU ELECTRICAL & MECHANICAL ENGINEERS (P) LTD. | |
| 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 : GENERAL ARRANGEMENT DRAWING FOR 132KV CURRENT TRANSFORMER RATIO:- 300-600/1-1-1A BAR TYPE CT | |
| SHEET No. 1 OF 7 | | | | DRG.NO ME-132CT-GA-04 | |

NOTES:-

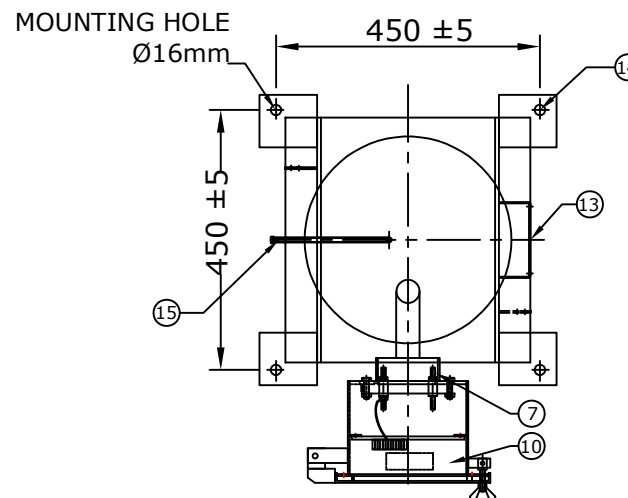
1. MAKE OF BUSHING: IEC/MODERN/ABIL/BHEL/CJI
2. ALL FERROUS PART EXPOSED TO THE ATMOSPHERE SHALL BE PAINTED WITH P.U PAINT SHADE 631 OF IS:5
3. ALL GASKETS SHALL BE FIXED IN PROPERLY MACHINED GROOVES.
4. PRIMARY WINDING SHALL BE BAR TYPE.
5. ALL HARDWARE SHALL BE HOT DIP GALVANIZED.
6. TRANSFORMER OIL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

- * TOTAL WEIGHT OF CT:-375Kgs (APPROX.)
- * QUANTITY OF OIL:- 90 Ltrs (APPROX.)
- * TOTAL CREEPAGE DISTANCE:- 3625 mm. (MINIMUM)

| 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 Ø40x80mm | 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 |



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

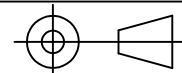


MOUNTING DETAILS

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| REV. | REVISION DESCRIPTION | DATED INITIALS |
|------|----------------------|----------------|
| R0 | FOR APPROVAL | 06.01.2021 |

| | | | | |
|---|---|---------------------|---|--|
| CLIENT : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED | | | | <div style="border: 1px solid black; padding: 2px; display: inline-block;">MEHRU</div> MEHRU ELECTRICAL & MECHANICAL ENGINEERS (P) LTD. |
| PROJECT NAME : AS APPLICABLE | | | | |
| UNLESS OTHERWISE SPECIFIED | DATE | NAME | MATERIAL | |
| 1. ALL DIMENSIONS ARE IN mm. 2. TOLERANCE WHEREVER NOT INDICATED ±5% | DGN. 06.01.2021 DRN. 06.01.2021 CHD. 06.01.2021 SCALE: N.T.S | SPS AKASH BLS | AS ABOVE | |
| SHEET No. 2 OF 7 | | | TITLE : SECTIONAL ARRANGEMENT DRAWING FOR 132kV CURRENT TRANSFORMER RATIO:- 300-600/1-1-1A BAR TYPE CT |  DRG.NO ME-132CT-SE-04 |



LIVE TANK CURRENT TRANSFORMER

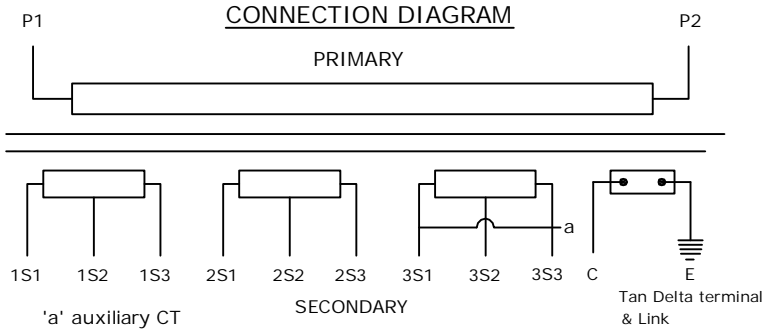
MADE TO IS: 16227

| | | | | |
|--------------------------------|---------------------|------------------|---------------|----------------|
| 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) | 300-600 | 300-600 | 300-600 |
| | 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 @600/1A | | ---- | 60I (Rct+10)V | ---- |
| Max Rct @ 75° C' @600/1A | | ---- | 6 Ω | ---- |
| Max Iext @ Vk @600/1A | | ---- | 100 mA | ---- |
| YEAR OF MANUFACTURE | | 2021 | SERIAL NO. | |

RATED CONTINUOUS THERMAL CURRENT: 120% OF THE RATED PRIMARY CURRENT
 * QUANTITY OF OIL: - 90 Ltrs (APPROX.) * TOTAL WEIGHT OF CT:-375Kgs (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

SUITABLE FOR HOT LINE WASHING



| FOR RATIO | PRIMARY CONNECTION | SECONDARY CONNECTION | | |
|-----------|--------------------|----------------------|---------|------------------------|
| | | CORE I | CORE II | CORE III |
| 300/1A | P1 - P2 | 1S1-1S2 | 2S1-2S2 | 3S1-3S2 Short-3S2-a |
| 600/1A | P1 - P2 | 1S1-1S3 | 2S1-2S3 | 3S1-3S3 Short-3S3-a |

- 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

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.

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

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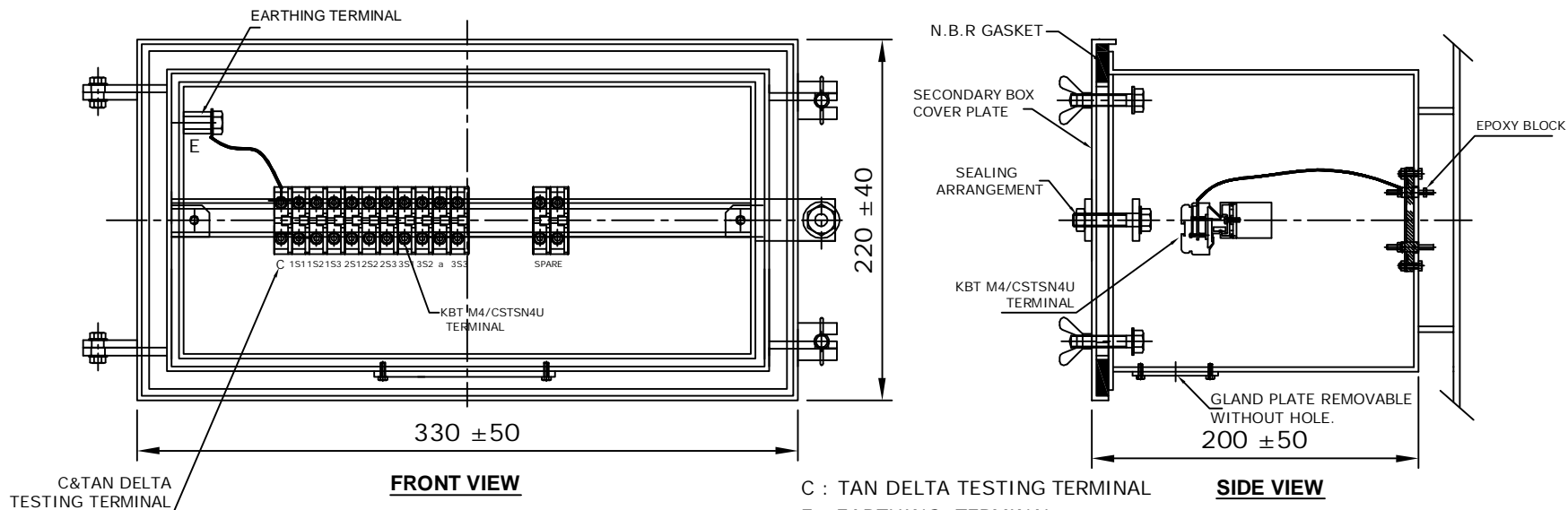
- * PRIMARY WINDING AREA : 1257sq.mm
- * CURRENT DENSITY : 0.57 A/sq.mm

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

Chief Engineer
 Power Systems, Planning & Design
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| | | |
|------|----------------------|----------------|
| RD | FOR APPROVAL | 06.01.2021 |
| REV. | REVISION DESCRIPTION | DATED INITIALS |

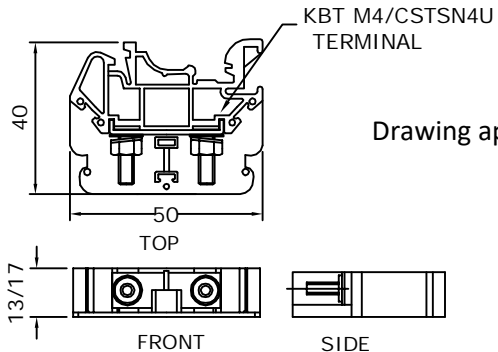
| | | | | | |
|---|--------|------------|-------|------------------------------|--|
| CLIENT : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED | | | | PROJECT NAME : AS APPLICABLE | |
| UNLESS OTHERWISE SPECIFIED 1. ALL DIMENSIONS ARE IN mm. 2. TOLERANCE WHEREVER NOT INDICATED ±5% | DGN. | 06.01.2021 | SPS | MATERIAL AL. ANODIZED | MEHRU ELECTRICAL & MECHANICAL ENGINEERS (P) LTD. |
| | DRN. | 06.01.2021 | AKASH | | |
| | CHD. | 06.01.2021 | BLS | | |
| | SCALE: | N.T.S | | | |
| TITLE : | | | | | |
| NAME PLATE DRAWING FOR 132KV CURRENT TRANSFORMER | | | | DRG.NO ME-132CT-NP-04 | |
| RATIO:- 300-600/1-1-1A | | | | | |
| BAR TYPE CT | | | | | |
| SHEET No. 3 OF 7 | | | | | |



C : TAN DELTA TESTING TERMINAL
 E : EARTHING TERMINAL
 'a' auxiliary CT

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)

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| | | |
|------|----------------------|----------------|
| 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 |
| 1. ALL DIMENSIONS ARE IN mm. 2. TOLERANCE WHEREVER NOT INDICATED ±5% | DGN. | 06.01.2021 | SPS |
| | DRN. | 06.01.2021 | AKASH |
| | CHD. | 06.01.2021 | BLS |
| | SCALE: | N.T.S | |
| TITLE : | | | M.S |
| SECONDARY TERMINAL BOX DRAWING FOR 132KV CURRENT TRANSFORMER RATIO:- 300-600/1-1-1A BAR TYPE CT | | | |
| SHEET No. 4 OF 7 | | | MEHRU MEHRU ELECTRICAL & MECHANICAL ENGINEERS (P) LTD. |
| | | | DRG.NO ME-132CT-STB-04 |

| Guaranteed Technical Particulars for 132kV Current Transformer | | | |
|--|---|-----------|--|
| Sl. No. | Item Description | Unit | GTP as per Bid |
| E | CURRENT TRANSFORMER | | |
| 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 | 300-600A |
| 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 @highest tap | Volts | Core:2: 60(Rct+10)V |
| 13 | CT Resistance of secondary winding corrected to 75 deg.C @highest tap | Ohms | Core- 2-6ohms |
| 14 | Magnetising current at knee-voltage point @highest tap | | Core-2-100mA |
| 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 | 1.2/50Hz Impulse wave withstand voltage of primary winding | kV (peak) | 650 |
| 19 | One minute dry P.F. withstand voltage of primary winding | kV (rms) | 275 |

4622871/2021/EEMRT-ENE51

| | | | |
|----|--|---------------|---------------------------------------|
| 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 |
| 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 | | | |
| b) | Radio interference voltage | | As per IS 16227 Clause 6.11.2 <2500uV |
| c) | Partial discharge level | | <10 pC at Um & <5 pc at 1.2Um/√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 | | 0.57 Amp/sqmm (max) |
| b) | Short time rating of 1 Sec. | | 25.1 Amp/sqmm(max.) |
| c) | Dynamic rating | | 63 Amp/sqmm (max.) |
| 31 | Type of primary winding | | Aluminium |
| 32 | No. of primary turns | | 1 |
| 33 | No. of secondary turns | | 600 |
| 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 | | |

4622871/2021/EEMRT-ENE51

| | | | |
|-------|---|--------|---|
| a) | Voltage by 1% | | N/A |
| b) | Frequency by 1 Hz. | | N/A |
| 37 | Mounting details | | 450±5 x 450±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 | 90 Ltr Approx |
| 40 | Weight of Oil | kg | 72 kgs Approx |
| 41 | Total Weight including Oil | kg | 375kG Approx |
| 42 | Overall dimensions (mm) | | 2750±75 x 675±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 | | 2.9 kgs (Approx.) |
| c) | Weight of copper | | 4.8 kgs (Approx.) |

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

Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings, the EPC contractors shall be instructed to supply the same in line with CT/IVT/CVT requirement and compatibility.

FOR EPC CONTRACTS ONLY

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

Chief Engineer
Power Systems, Planning & Design
APTransco

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