

Drawing approval subject to valid vendor registration

FOR EPC CONTRACTS ONLY



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

ANNEXURE - II (SURGE ARRESTERS)

GUARANTEED TECHNICAL PARTICULARS FOR 30KV 10KA TYPE-SL METAL OXIDE GAPLESS PORCELAIN LIGHTNING ARRESTER

- | | | |
|--|---|---|
| 1. Name of Manufacturer | : | LAMCO INDUSTRIES PRIVATE LIMITED.
H.O & WORKS: SANATHNAGAR-IE, HYD
WORKS: AUTOMOTIVE PARK, TSIIC,
MUPPIREDDYPALLY, T.S, INDIA. |
| 2. Arrester class & type | : | Station Class Metal Oxide
Gapless Lightning Arrester "MORESTER"
Type-SL, MODEL-'STN-DT' |
| 3. Applicable standard | : | IEC 99-4 of 2014 |
| 4. Rated arrester voltage | | KV : 30 |
| 5. Max. con. operating voltage MCOV | | KV : 25.5 |
| 6. Nominal discharge current with
8/20 micro seconds wave | | KA : 10 |
| 7. Long duration discharge Class | | : 2 (STATION LOW) |
| 8. Energy dissipation capability
(cumulative of 3 sequential shorts) | | KJ/kV of Ur : 4 |
| 9. Max. switching current impulse
residual voltage at
i) 1000 A | | KVpeak : 71 |
| 10. Steep Current Impulse at Nominal
Discharge Current | | KVPeak : 101 |
| 11. Max. residual voltage with 8/20 mic. sec.wave
` | | |
| i) 5 KA | | KVpeak : 85 |
| ii) 10 KA | | KVpeak : 90 |
| iii) 20 KA | | KVpeak : 100 |
| 12. Safe fault current | | Karms : 40 @ 0.2Sec |
| 13. Lightning impulse withstand voltage of
arrester housing with 1.2/50 us wave | | KVpeak : 170 |

1). Minimum 300 mm Plinth shall be maintained for Current transformers in the substation during foundation works to ensure safe live to ground clearances as per IE rules.

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

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- | | | |
|-----|---|---|
| 14. | One minute power frequency withstand voltage of housing dry-wet | KVrms : 70 |
| 15. | High current short duration impulse withstand level with 4/10 us wave | KApeak : 100 |
| 16. | Repetitive Charge Transfer Rating (Qrs) in coulomb | : $\geq 1.0C$ |
| 17. | Pressure relief class | Class : A (40 KA) |
| 18. | Over-voltage withstand capability (with prior duty) | |
| | a) 10 seconds | KVpeak : 44 |
| | b) 1 second | KVpeak : 46 |
| | c) 0.1 second | KVpeak : 48 |
| 19. | a) Reference voltage | KV : Greater than the rated Arrester voltage at reference current |
| | b) Reference current | mA : 2 |
| 20. | Number of units per phase and Rating of each unit | : 1
KV : 30 |
| 21. | Minimum total creepage distance | mm : 900 |
| 22. | Leakage current | mA : Less than 0.8 |
| 23. | Total weight of arrester | Kgs : 11 $\pm 10\%$ |
| 24. | Overall Height of SA | mm : 480 ± 20 |
| 25. | Maximum distance recommended from equipment to be protected by SA | mtr : 15 |
| 26. | Min.distance between phase and grounded object | mm : 400 |
| 27. | Min. distance between arrester phase legs | mm : 500 |
| 28. | Partial Discharge Level @1.05 cov | : less than 10pC |
| 29. | Cantilever Strength | : 150Kg (Deflection less than 20mm) |

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2) 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/PT/CVT/Isolators requirement and compatibility.

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7537535/2023/EEMRT-ENE51

30. Sesmic Acceleration : 0.3g horizontal & vertical
31. Rated voltage of ZnO disc kV : 4.5
- i) No. of ZnO discs in a unit : 7 (for 30kV)
- ii) No. of units/arrester : 1 (30kV)
- iii) Height/Thickness of ZnO disc mm : 32 ±2
- iv) Diameter of ZnO disc mm : 48 ±2

FOR LAMCO INDUSTRIES PRIVATE LIMITED.



(K. ARUN)

SENIOR MANAGER (D&D)

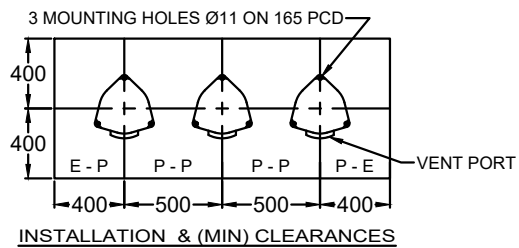
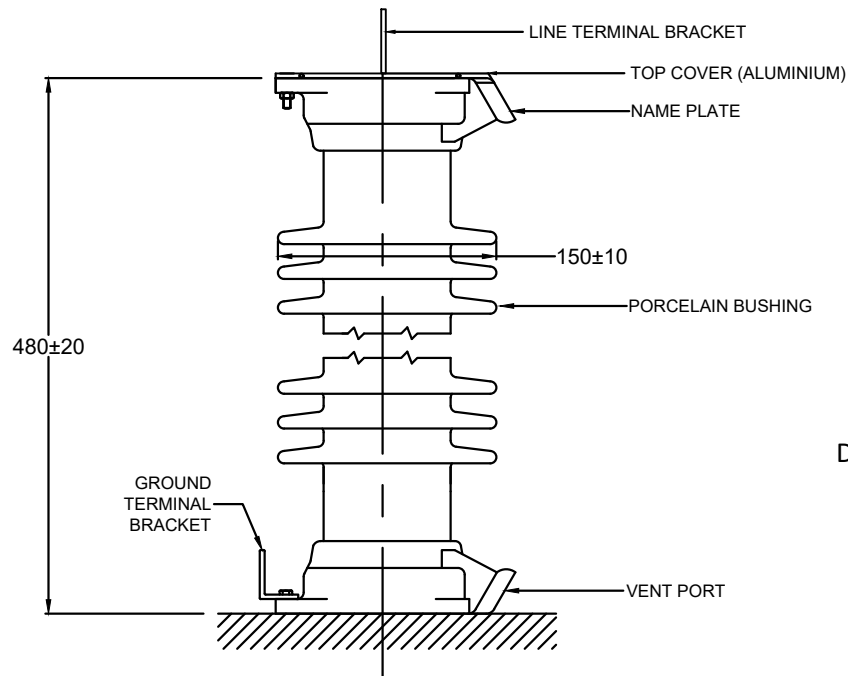
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- 1) Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators in the substation during foundation works to ensure safe live to ground clearances as per IE rules.
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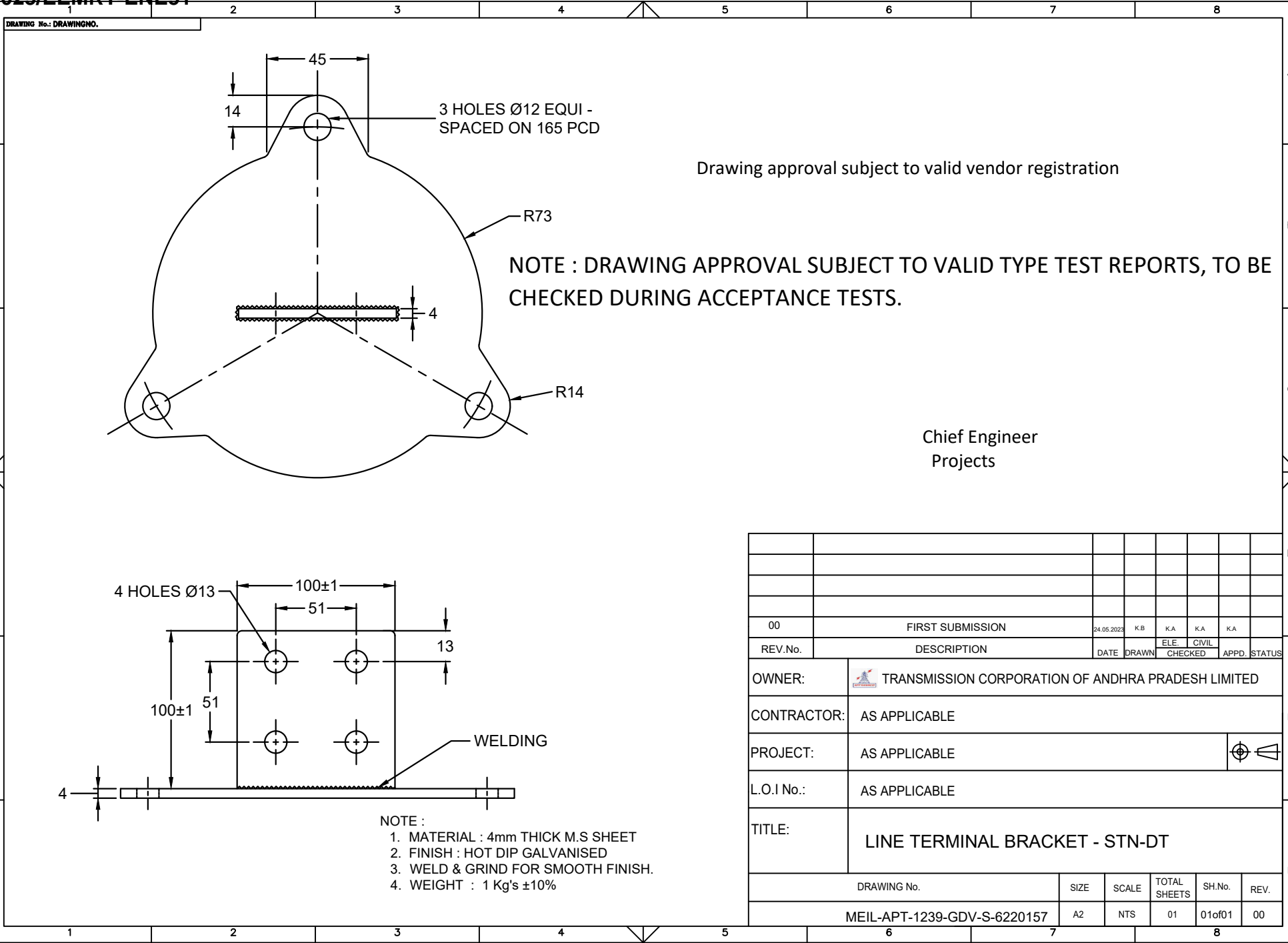
- NOTE :
1. TOTAL CREEPAGE DISTANCE : 900 mm (NOM).
 2. ARRESTER VENT PORT SHOULD BE DIRECTED TOWARDS SAFE DIRECTON.
 3. WEIGHT OF THE ARRESTER : 11±10% Kgs.

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00	FIRST SUBMISSION	24.05.2023	K.B	K.A	K.A	K.A	
REV.No.	DESCRIPTION	DATE	DRAWN	CHECKED	APPD.	STATUS	
OWNER:		TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED					
CONTRACTOR:		AS APPLICABLE					
PROJECT:		AS APPLICABLE					
L.O.I No.:		AS APPLICABLE					
TITLE:		30kV, 10kA LIGHTNING ARRESTER (MORESTER TYPE-SL,MODEL- STN-DT)					
DRAWING No.		SIZE	SCALE	TOTAL SHEETS	SH.No.	REV.	
MEIL-APT-1239-GDV-S-2500300		A2	NTS	01	01 of 01	00	

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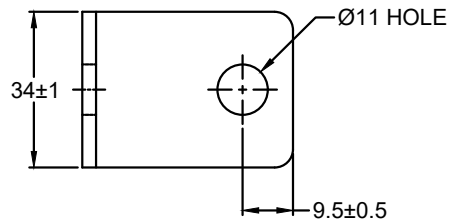
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REV.No.	DESCRIPTION	DATE	DRAWN	ELE. CHECKED	CIVIL	APPD. STATUS
OWNER:		TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED				
CONTRACTOR:		AS APPLICABLE				
PROJECT:		AS APPLICABLE				
L.O.I No.:		AS APPLICABLE				
TITLE:		LINE TERMINAL BRACKET - STN-DT				
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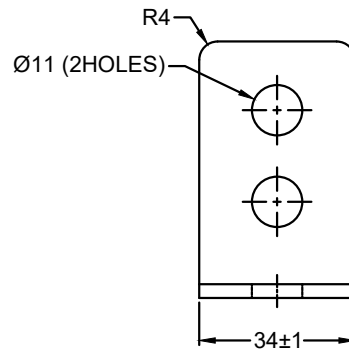
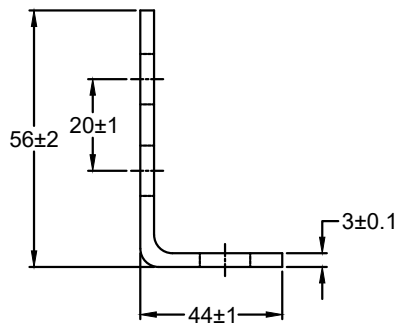
DRAWING No.: DRAWINGNO.



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- NOTE :
1. MATERIAL : M.S.SHEET.
 2. FINISH : HOT DIP GALVANISED.
 3. WEIGHT : 60 gms.±10%

REV.No.	DESCRIPTION	DATE	DRAWN	CHECKED	APPD.	STATUS
00	FIRST SUBMISSION	24.05.2023	K.B	K.A	K.A	K.A
			ELE.	CIVIL		

OWNER:	TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED					
CONTRACTOR:	AS APPLICABLE					
PROJECT:	AS APPLICABLE					
L.O.I No.:	AS APPLICABLE					
TITLE:	GROUND TERMINAL BRACKET					

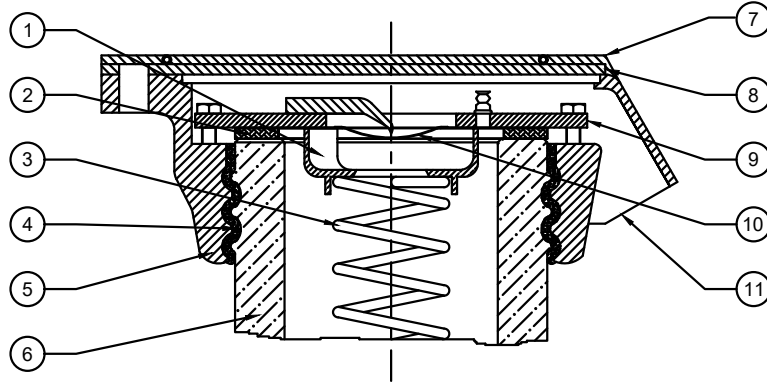
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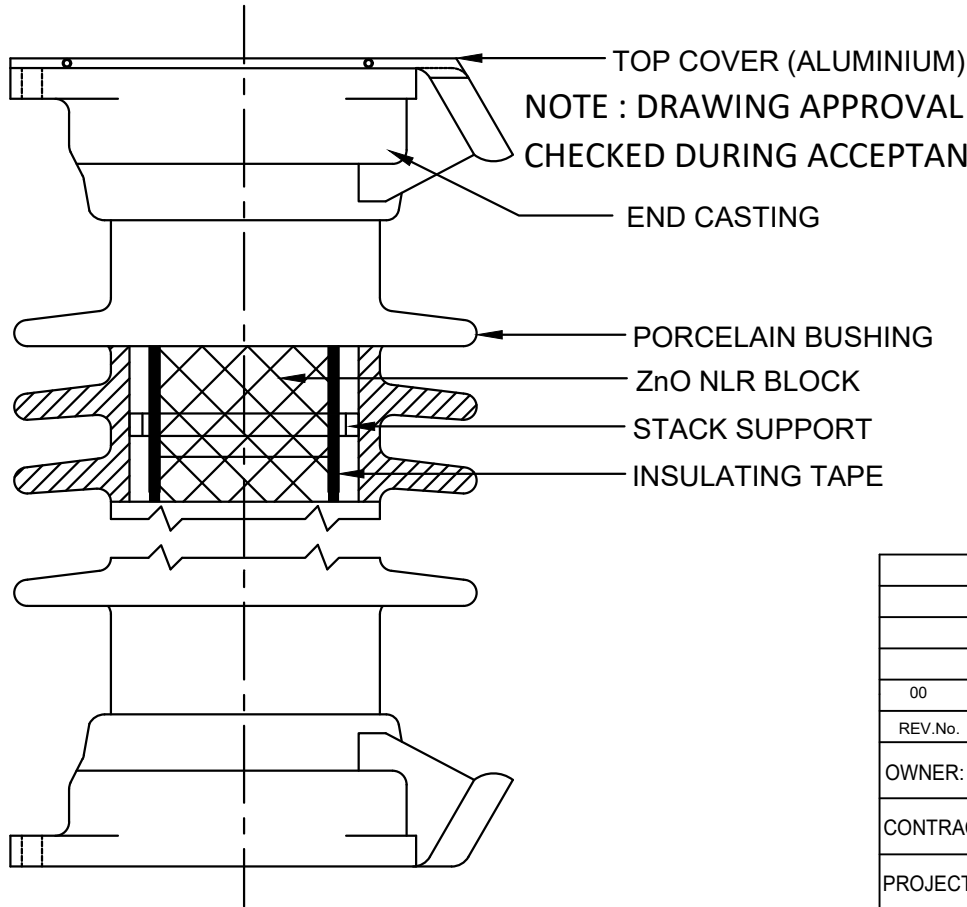
S.No.	ITEM	MATERIAL
1.	SP. SUPPORT.	ALUMINUM
2.	RUBBER GASKET.	NEOPRENE ,5mm THICK
3.	SPRING.	SPRING STEEL
4.	SULPHUR CEMENT.	SULPHUR CEMENT
5.	CASTING.	ALUMINIUM (LM-6)
6.	BUSHING.	PORCELAIN
7.	TOP COVER	ALUMINIUM
8.	END COVER PLATE.	ALUMINIUM
9.	COVER PLATE.	M.S (HOT DIP GALVANIZED)
10.	PRESSURE RELIEF DIAPHRAGM.	BRASS
11.	VENT PORT.	ALUMINIUM

REV.No.	DESCRIPTION	DATE	DRAWN	CHECKED	APPD.	STATUS
00	FIRST SUBMISSION	24.05.2023	K.B	K.A	K.A	K.A
OWNER:		TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED				
CONTRACTOR:		AS APPLICABLE				
PROJECT:		AS APPLICABLE				
L.O.I No.:		AS APPLICABLE				
TITLE:		PRESSURE RELIEF AND SEALING ARRANGEMENT OF MORESTER (STN-DT)				
DRAWING No.		SIZE	SCALE	TOTAL SHEETS	SH.No.	REV.
MEIL-APT-1239-GDV-S-4220045		A2	NTS	01	01 of 01	00

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TOP COVER (ALUMINIUM)
 NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS.

END CASTING

PORCELAIN BUSHING

ZnO NLR BLOCK

STACK SUPPORT


INSULATING TAPE

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00	FIRST SUBMISSION	24.05.2023	K.B	K.A	K.A	K.A	
REV.No.	DESCRIPTION	DATE	DRAWN	ELE. CHECKED	CIVIL	APPD.	STATUS

OWNER:  TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

CONTRACTOR: AS APPLICABLE

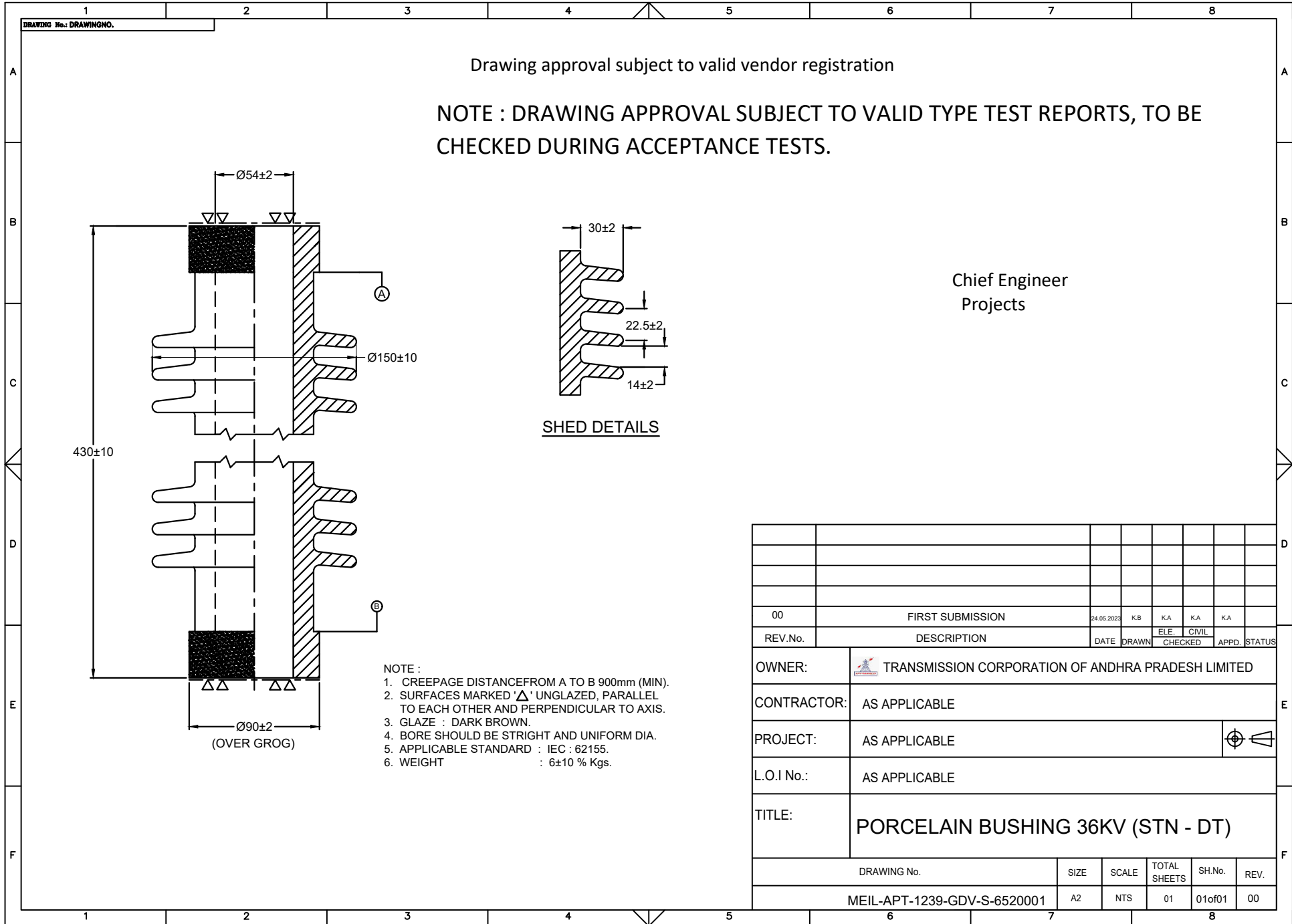
PROJECT: AS APPLICABLE 

L.O.I No.: AS APPLICABLE

TITLE: SECTIONAL VIEW OF MORESTER - STN DT

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MEIL-APT-1239-GDV-S-4420008	A2	NTS	01	01 of 01	00

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SHED DETAILS

- NOTE :
1. CREEPAGE DISTANCE FROM A TO B 900mm (MIN).
 2. SURFACES MARKED 'Δ' UNGLAZED, PARALLEL TO EACH OTHER AND PERPENDICULAR TO AXIS.
 3. GLAZE : DARK BROWN.
 4. BORE SHOULD BE STRIGHT AND UNIFORM DIA.
 5. APPLICABLE STANDARD : IEC : 62155.
 6. WEIGHT : 6±10 % Kgs.

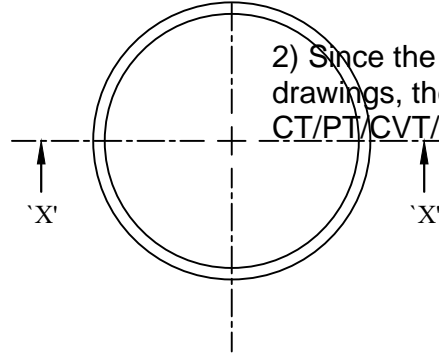
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	CONTRACTOR:	AS APPLICABLE				
	PROJECT:	AS APPLICABLE				
	L.O.I No.:	AS APPLICABLE				
	TITLE:	PORCELAIN BUSHING 36KV (STN - DT)				
	DRAWING No.	SIZE	SCALE	TOTAL SHEETS	SH.No.	REV.
	MEIL-APT-1239-GDV-S-6520001	A2	NTS	01	01 of 01	00

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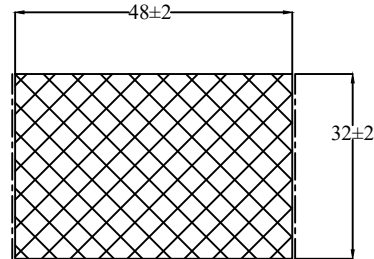
1) Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators in the substation during foundation works to ensure safe live to ground clearances as per IE rules.

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SECTION AT 'XX'

TECHNICAL PARAMETERS :

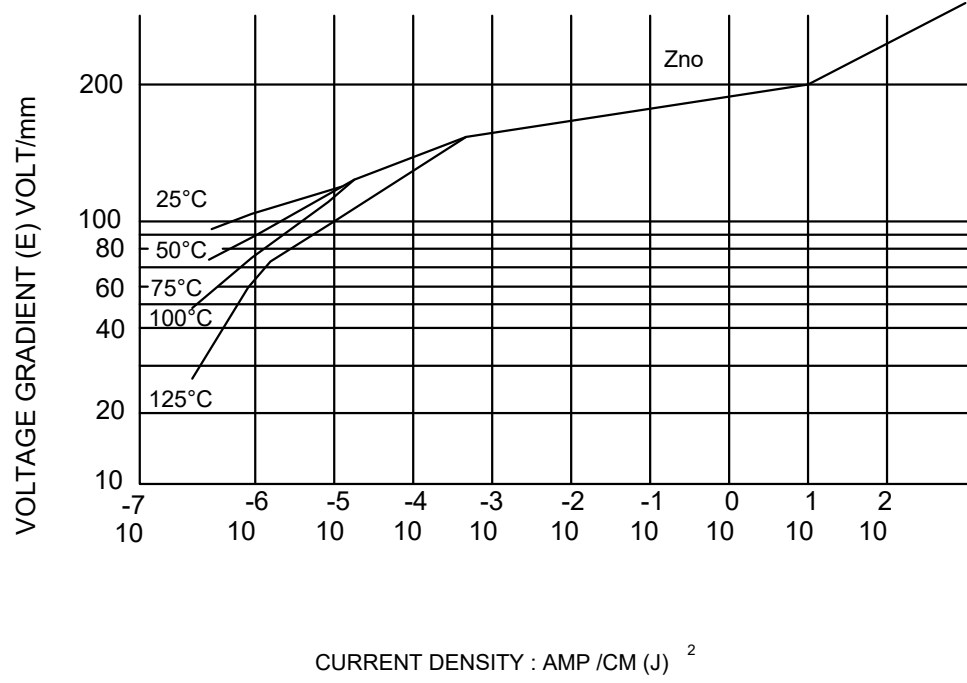
- 1. RATED VOLTAGE (Ur) : 4.5kV (rms)
- 2. MCOV (Uc) : 3.82 kV (rms)
- 3. NOMINADISCHARGE CURRENT (In) : 10KA (PEAK)
- 4. TYPE : STATION LOW DUTY
- 5. REFERENCE STANDARD : IEC 60099-4 ,Ed.3.0,2014-06

REV.No.	DESCRIPTION	DATE	DRAWN	ELE. CHECKED	CIVIL	APPD.	STATUS
00	FIRST SUBMISSION	02.06.2023	K.B	K.A	K.A	K.A	
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CONTRACTOR:		AS APPLICABLE					
PROJECT:		AS APPLICABLE					
L.O.I No.:		AS APPLICABLE					
TITLE:		4.5 KV,10KA STATION LOW(SL)ZINC OXIDE BLOCK					
DRAWING No.			SIZE	SCALE	TOTAL SHEETS	SH.No.	REV.
MEIL-APT-1239-GDV-S-6220082-T			A2	NTS	01	01of01	00

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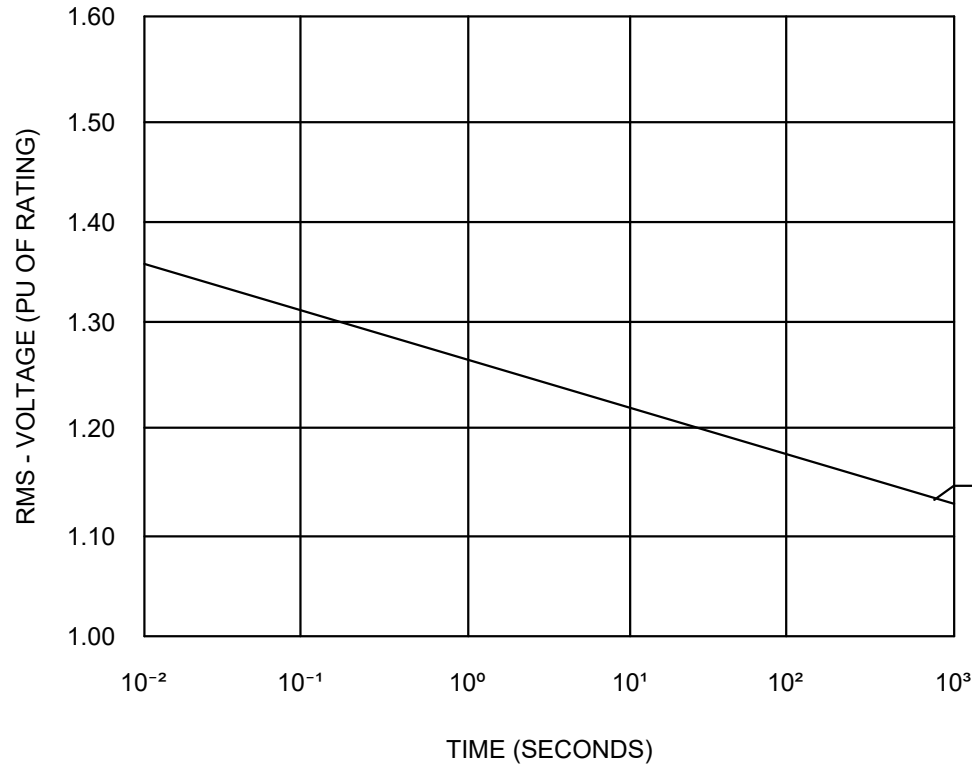


**CHIEF ENGINEER /PROJECTS
APTRANSCO/VISVIJAYAWADA**

00	FIRST SUBMISSION	24.05.2023	KB	KA	KA	KA			
REV.No.	DESCRIPTION	DATE	DRAWN	CHECKED	APPD.	STATUS			
OWNER:	TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED								
CONTRACTOR:	AS APPLICABLE								
PROJECT:	AS APPLICABLE								
L.O.I No.:	AS APPLICABLE								
TITLE:	CHARACTERISTIC CURVES OF ZnO ELEMENTS								
DRAWING No.		SIZE	SCALE	TOTAL SHEETS	SH.No.	REV.			
MEIL-APT-1239-GDV-S-8221010		A2	NTS	01	01 of 01	00			

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1) TOV CAPABILITY WITHOUT ENERGY ABSORPTION

**CHIEF ENGINEER /PROJECTS
APTRANSCO/Vs/VIJAYAWADA**

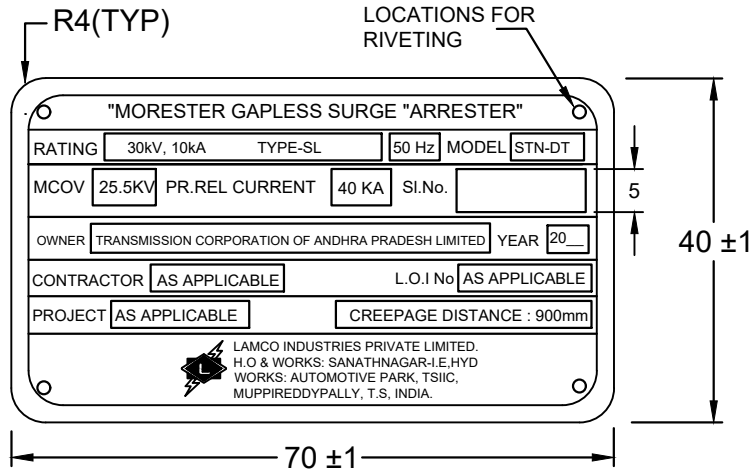
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OWNER:		TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED				
CONTRACTOR:		AS APPLICABLE				
PROJECT:		AS APPLICABLE				
L.O.I No.:		AS APPLICABLE				
TITLE:		POWER FREQUENCY VOLTAGE Vs TIME CHARACTERISTICS (10 KA)				
DRAWING No.		SIZE	SCALE	TOTAL SHEETS	SH.No.	REV.
MEIL-APT-1239-GDV-S-8221019		A2	NTS	01	01 of 01	00

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- NOTE: ±0.05
- 1) MATERIAL : THICKNESS 0.51mm (25 SWG) ALUMINIUM SHEET.
 - 2) PRINTING:
 - a) BORDER LINE AND LETTERS WHITE ON BLACK BACKGROUND.
 - b) LETTER 'L' IN MONOGRAM IS BLACK ON WHITE BACKGROUND.
 - c) RECTANGULAR BLANKS WHITE, LETTERS BLACK.
 - d) LETTERS TO BE ETCHED.

REV.No.	DESCRIPTION	DATE	DRAWN	CHECKED	APPD.	STATUS
01	FIRST SUBMISSION	02.06.2023	K.B	K.A	K.A	K.A
				ELE. CIVIL		
OWNER:	TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED					
CONTRACTOR:	AS APPLICABLE					
PROJECT:	AS APPLICABLE					
L.O.I No.:	AS APPLICABLE					
TITLE:	NAME PLATE - STN-DT					
DRAWING No.		SIZE	SCALE	TOTAL SHEETS	SH.No.	REV.
MEIL-APT-1239-GDV-S-8420002		A2	NTS	01	01of01	01

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