

NOTE: 1. DRAWING APPROVAL SUBJECT TO VALID TYPE TEST
 5987094/2022/EE/PT/ENE/51
 2. FOR EPC CONTRACTS ONLY

EPC works only

LIST OF STANDARD TECHNICAL DATA



Drawing approval subject to valid vendor registration

Rating - 30kV , 10kAp, Class 2, SL Type Porcelain Housed SURGE ARRESTER

Sr.No	Drawing No	Rev.No	Description
1	21532	R0	GENERAL ARRANGEMENT FOR 30kV,10kA SL TYPE SURGE ARRESTER(Qrs-1.6C)
2	G-033 / 21532	R0	ARRESTER NAME PLATE FOR 30kV,10kA SL TYPE SURGE ARRESTER(Qrs-1.6C)
3	G-047 / 21532	R0	TOP TERMINAL PLATE FOR 30kV,10kA SL TYPE SURGE ARRESTER(Qrs-1.6C)
4	G-016 / 30 / 21532	R0	CROSS SECTIONAL VIEW AND PRESSURE RELIEF ARRANGEMENT FOR 30kV,10kA SL TYPE SURGE ARRESTER(Qrs-1.6C)
5	G-008 / 30 / 21532	R0	PORCELAIN INSULATOR FOR 30kV,10kA SL TYPE SURGE ARRESTER(Qrs-1.6C)
6	G-057/21532	R0	V - I & V-T CHARACTERISTICS
7	G-007/21532	R0	MIN. RECOMMENDED CLEARANCES
8	G-110 / 21532	R0	ZnO ELEMENT FOR SL TYPE, SA
9	STD GTP	R0	S4/GTP/APTRANSCO/30kV-SL/25/POR/001

MANUFACTURER
CG Power and Industrial Solutions Limited
 A-3, MIDC Ambad
 Nashik-422010

CLIENT



Transmission Corporation Of Andhra Pradesh Ltd

Prepared : PSB

Checked: PSB

Approved: NJ

LOA NO :-

AS APPLICABLE

PROJECT

AS APPLICABLE

Title: List of drawing for 30kV ,10kAp , SL Type Porcelain Housed Surge Arrester

Doc No. CGPISL /S4/STD/APTRANSCO/001

DATE 30.05.2022

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1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LA/Breakers in the Substation during foundation works to ensure safe live to ground clearance as per IE rules.
2. Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings. The EPC contractor shall be instructed to supply the same in line with CT/PT/CVT/Isolator/IVT/LA/Breakers requirement and compatibility.

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BILL OF MATERIAL

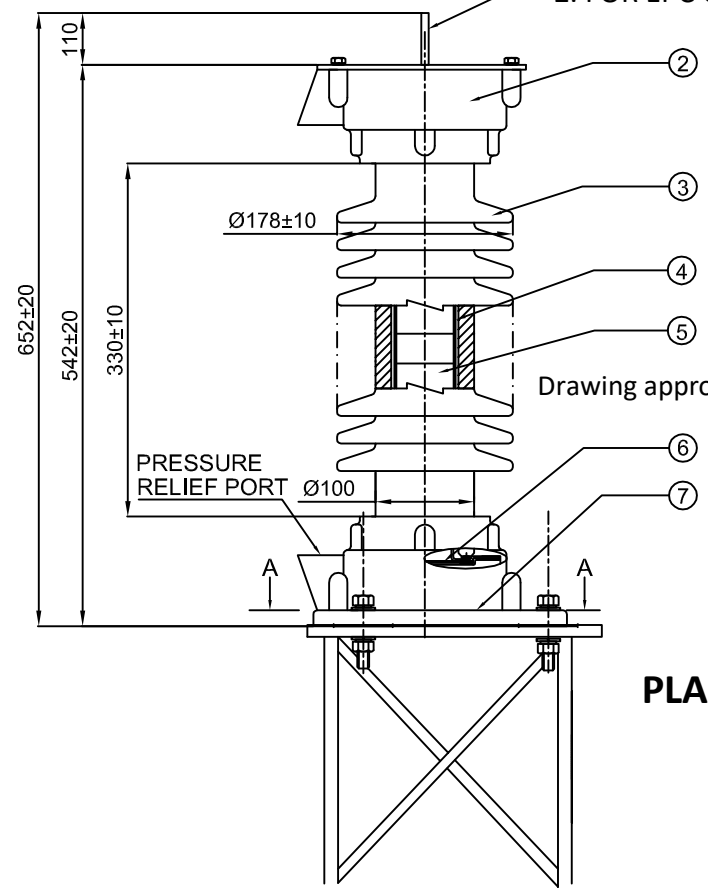
ITEM NO.	ITEM	MATERIAL
1	LINE TERMINAL PAD	MS H.D.G.
2	FLANGE	AL. ALLOY
3	INSULATOR	PORCELAIN (BROWN)
4	FRP TUBE	FIBER REINFORCED PLASTIC
5	ZnO ELEMENT	ZnO & ADDITIVES
6	PRESSURE RELIEF PLATE	Cu CLAD PAPER PHENOLIC
7	BASE PLATE	MS H.D.G.

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TECHNICAL DETAILS

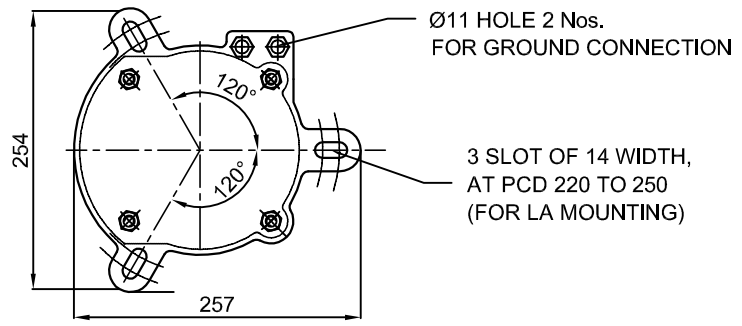
RATED VOLTAGE (Ur)	30kVrms
MCOV (Uc)	25.5kVrms
CREEPAGE (DISTANCE)	900mm
WEIGHT	20±10%kg
NOMINAL DISCHARGE CURRENT	10kAp
DESIGNATION	SL
TYPE :- STATION CLASS / CLASS-2	
ENERGY HANDLING CAPABILITY :- 4kJ / kV	
PRESSURE RELIEF CLASS :- CLASS A (40kAp)	
CANTILEVER STRENGTH :- 150kg	
ALL UNITS ARE HERMETICALLY SEALED.	
ALL METAL PARTS ARE H.D.G.	

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LA BASE MOUNTING DETAIL VIEW A-A

CUSTOMER		TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD				TITLE :	
3		THIRD ANGLE PROJECTION			GENERAL ARRANGEMENT FOR 30kV,10kA SL TYPE LIGHTNING ARRESTER (Qrs-1.6C)		
		SCALE: NTS	INITIALS	NAME	CG Power and Industrial Solutions Limited LIGHTNING ARRESTER DIVISION, AMBAD, NASIK.		
2		ALL DIMN. IN mm. UNLESS OTHERWISE SPECIFIED.	DRN	NNJ			
1		GEN. TOL. ±6%	APPD	NJ			
NO	REVISION	DATE	DATE:	24.05.2022	DRG NO. : 21532	REV 0	
		CGL W.O.: APTRANSCO_STD_30KV		SH 1 OF 1			

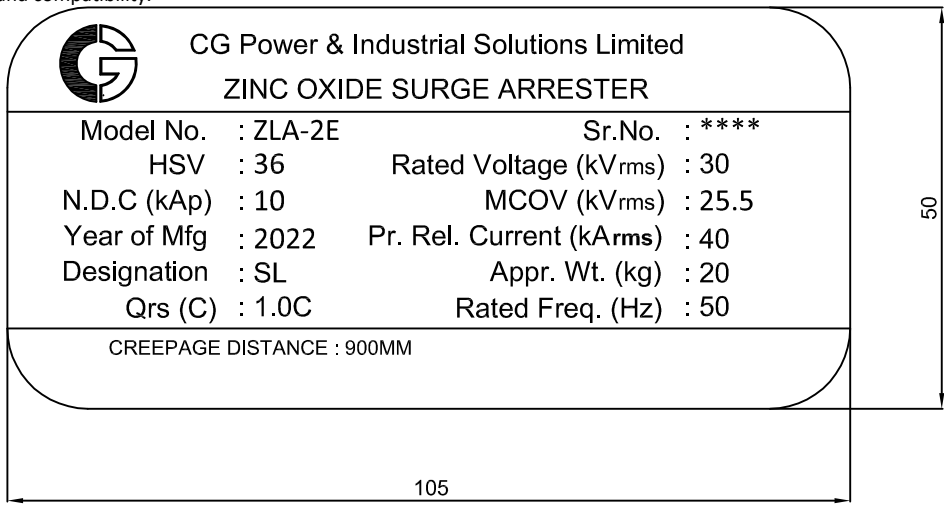
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ARRESTER NAME PLATE

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CUSTOMER		TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD			
3		THIRD ANGLE PROJECTION			TITLE: ARRESTER NAME PLATE FOR 30kV 10kA SL TYPE, SA(Qrs-1.6C)
		SCALE: NTS	DRN	INITIALS	
2		ALL DIMN. IN mm. UNLESS OTHERWISE SPECIFIED.	NNJ	CHD	PSB
			APPD		
1		GEN. TOL. ±6%			
NO	REVISION	DATE	DATE:	24.05.2022	CGL W.O.: APTRANSCO_STD_30kV
					SH 1 OF 1

CG Power and Industrial Solutions Limited LIGHTNING ARRESTER DIVISION, AMBAD, NASIK.
DRG NO. : G-033 / 21532
REV 0

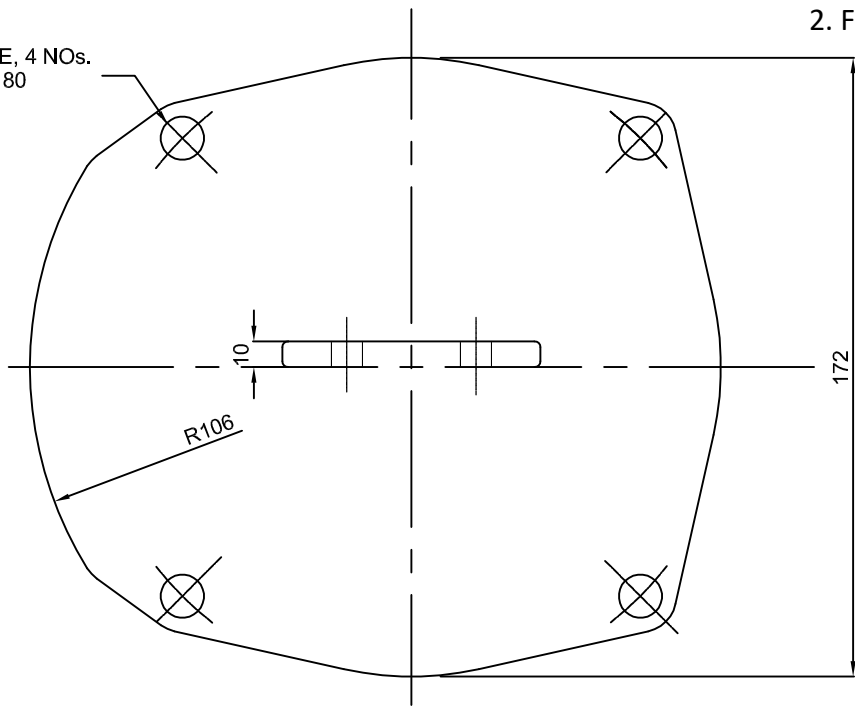
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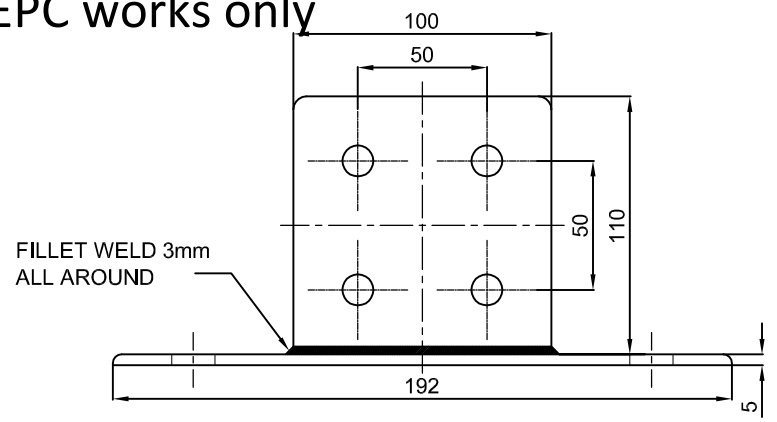
Ø12 HOLE, 4 NOS.
AT PCD 180



1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LA/Breakers in the Substation during foundation works to ensure safe live to ground clearance as per IE rules.
2. Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings. The EPC contractor shall be instructed to supply the same in line with CT/PT/CVT/Isolator/IVT/LA/Breakers requirement and compatibility.

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EPC works only



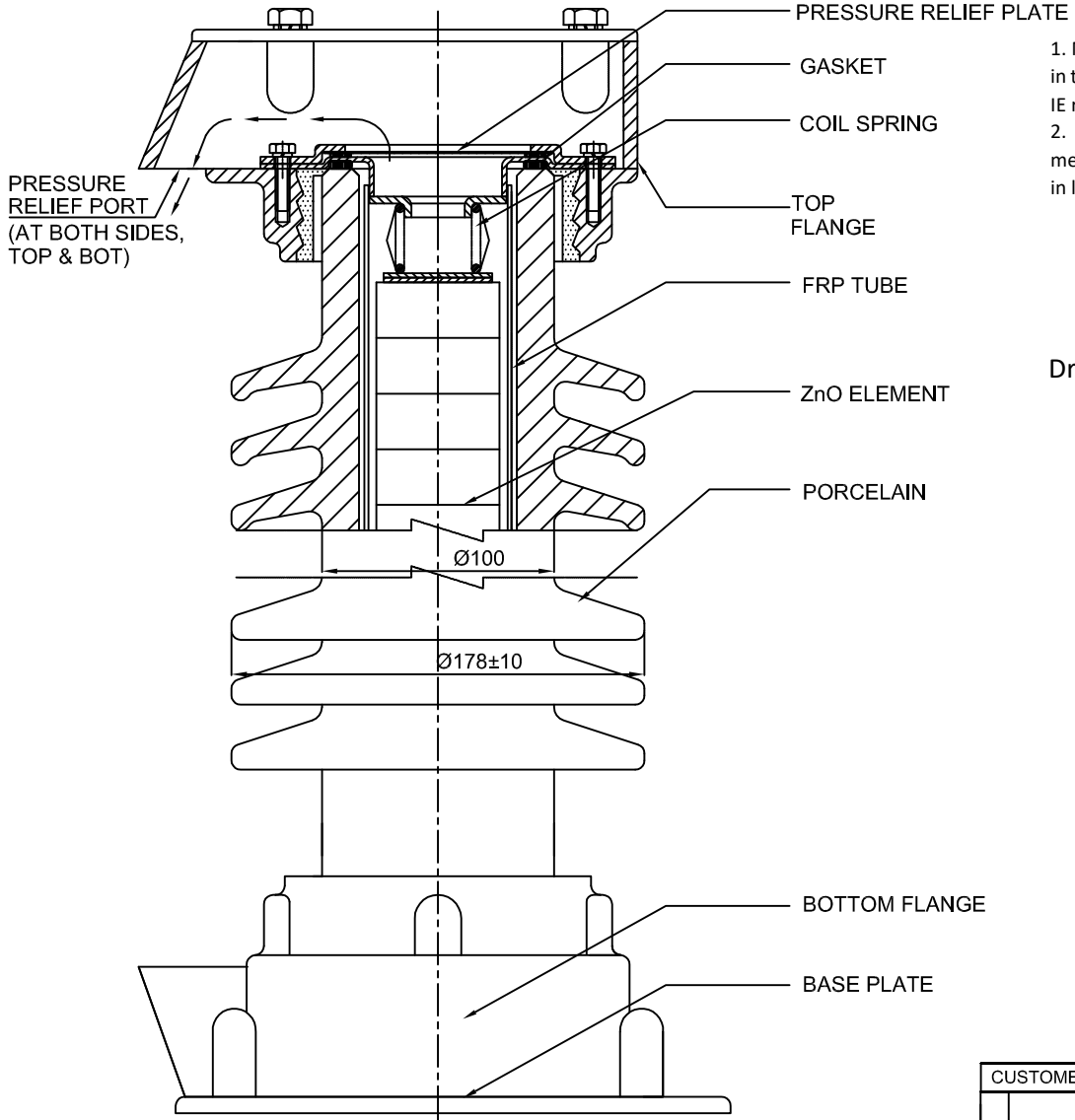
- NOTE:
1. FINISH : HDG
 2. HDG 85 MICRONS MIN. THK.

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CUSTOMER		TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD			
3		THIRD ANGLE PROJECTION			TITLE :
		SCALE: NTS		INITIALS	NAME
2		ALL DIMN. IN mm. UNLESS OTHERWISE SPECIFIED.	DRN	NNJ	
			CHD	PSB	
1		GEN. TOL. ±6%	APPD	NJ	
NO	REVISION	DATE	DATE:	24.05.2022	DRG NO. : G-056 / 21532
					REV 0
					CGL W.O.: APTRANSCO_STD_30KV
					SH 1 OF 1

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1. BURSTING PRESSURE OF ARRESTER : 3kg/cm^2 (Max.)

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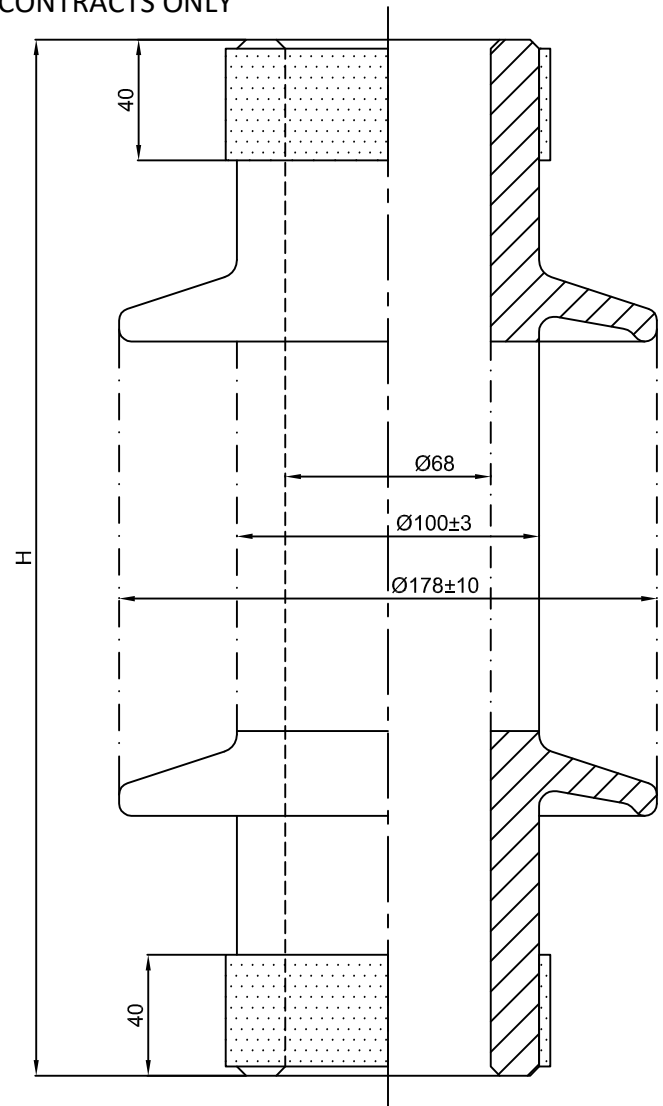
IF IN DOUBT ,ASK

CUSTOMER		TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD				
3		THIRD ANGLE PROJECTION			TITLE: CROSS SECTIONAL VIEW AND PRESSURE RELIEF ARRANGEMENT FOR 30kV, 10kA SL TYPE SA (Qrs-1.6C)  CG Power and Industrial Solutions Limited LIGHTNING ARRESTER DIVISION, AMBAD, NASIK.	
		SCALE: NTS		INITIALS		NAME
2		ALL DIMN. IN mm. UNLESS OTHERWISE SPECIFIED.	DRN	NNJ		
1		GEN. TOL. ±6%	APPD	NJ		
NO	REVISION	DATE	DATE:	24.05.2022	DRG NO. : G-016 / 30 / 21532	
					REV 0	
					CGL W.O.: APTRANSCO_STD_30KV	
					SH 1 OF 1	

NOTE: 1. DRAWING APPROVAL SUBJECT TO VALID TYPE TEST

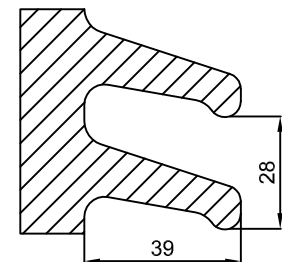
REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS
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SHED FORM



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RATED VOLTAGE (kV)	HEIGHT (H) mm	TOTAL CREEPAGE (mm)
30kV	410	900

1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LA/Breakers in the Substation during foundation works to ensure safe live to ground clearance as per IE rules.
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NOTE:

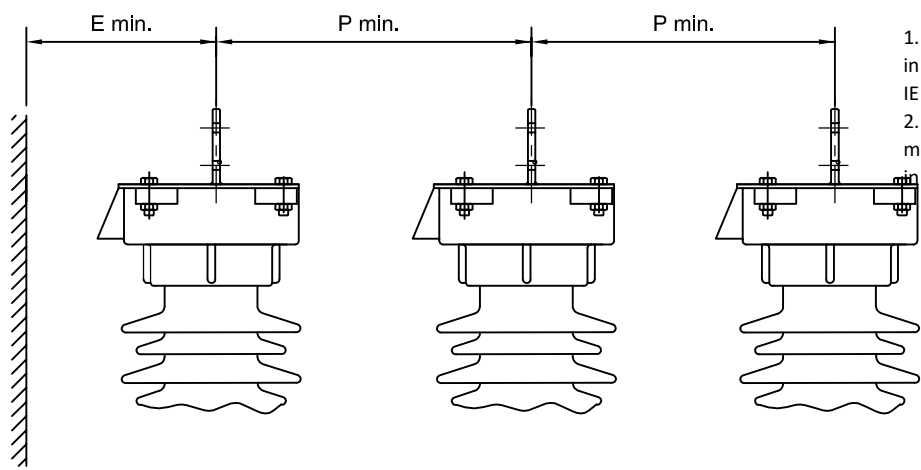
1. PORCELAIN COLOUR : GLAZE - BROWN
2. BENDING STRENGTH : 325kg M
3. ELECTRICAL TEST AS PER IS : 5621
4. SHED PROFILE AS PER IEC : 815

CUSTOMER		TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD			
3		THIRD ANGLE PROJECTION			TITLE: PORCELAIN INSULATOR FOR 30kV, 10KA SL TYPE SURGE ARRESTER(Qrs-1.6C)
		SCALE: NTS	INITIALS	NAME	
2		ALL DIMN. IN mm. UNLESS OTHERWISE SPECIFIED.	DRN	NNJ	CG Power and Industrial Solutions Limited LIGHTNING ARRESTER DIVISION, AMBAD, NASIK.
			CHD	PSB	
1		GEN. TOL. ±6%	APPD	NJ	DRG NO. : G-008 / 30 / 21532
NO	REVISION	DATE	DATE:	24.05.2022	CGL W.O.: APTRANSCO_STD_30KV
					SH 1 OF 1

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1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LA/Breakers in the Substation during foundation works to ensure safe live to ground clearance as per IE rules.
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E min. - MINIMUM RECOMMENDED CLEARANCES BETWEEN CENTRE OF ARRESTER AND EARTHED OBJECT.
P min. - MINIMUM RECOMMENDED CLEARANCE BETWEEN TWO ADJACENT PHASE OF ARRESTER.

TABLE

SR.NO.	LA RATED VOLTAGE (kV)	E min. (mm)	P min. (mm)
1.	30	550	700

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CUSTOMER		TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD			
3		THIRD ANGLE PROJECTION			TITLE:
		SCALE: NTS		INITIALS	NAME
2		ALL DIMN. IN mm. UNLESS OTHERWISE SPECIFIED.	DRN	NNJ	 CG Power and Industrial Solutions Limited LIGHTNING ARRESTER DIVISION, AMBAD, NASIK.
			CHD	PSB	
1		GEN. TOL. ±6%	APPD	NJ	DRG NO. : G - 007 / 21532
NO	REVISION	DATE	DATE:	24.05.2022	CGL W.O.: APTRANSCO_STD_30KV SH 1 OF 1

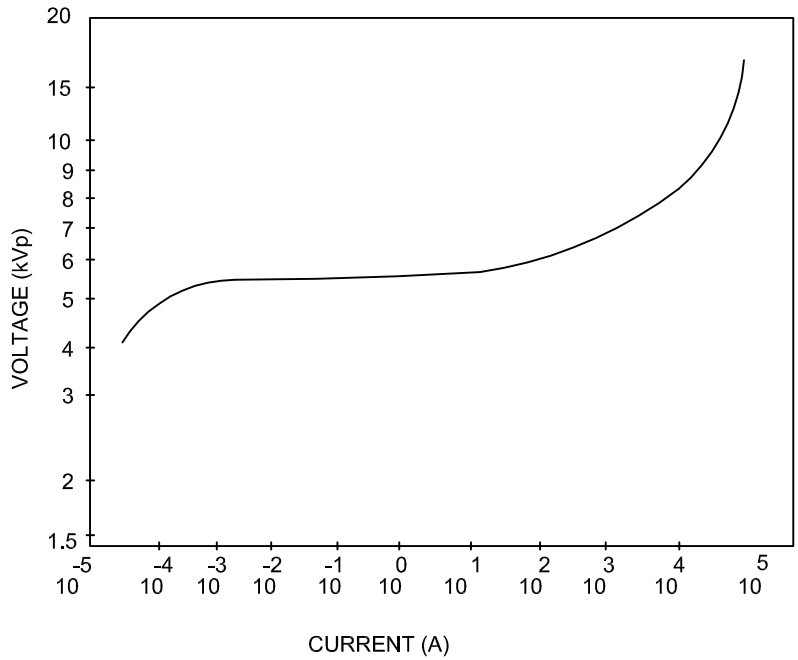
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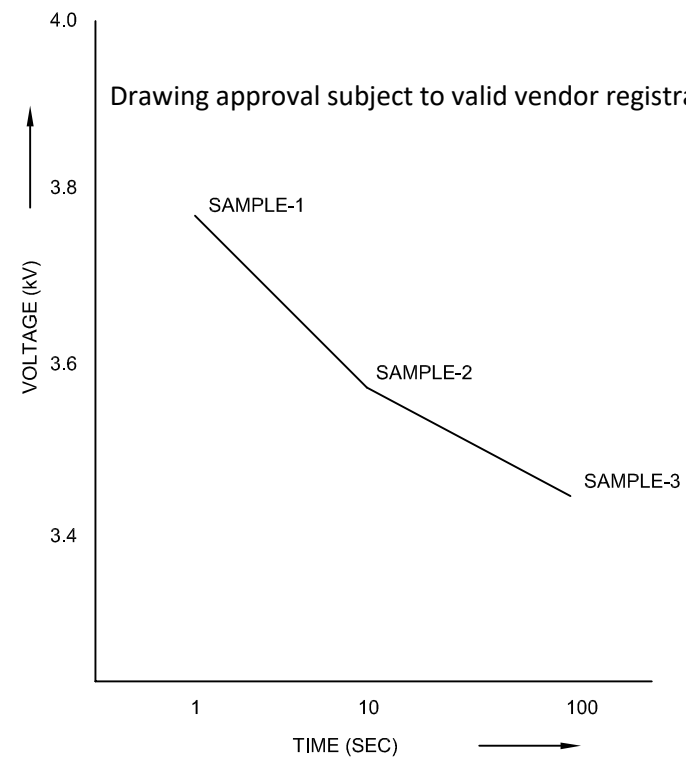
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POWER FREQUENCY VOLTAGE Vs CURRENT CHARACTERISTICS



POWER FREQUENCY VOLTAGE Vs TIME CHARACTERISTICS



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NOTE :
1. Ur = 3.4kV
2. Uc = 2.8kV
3. NDC = 10kAp
4. FOLLOWING GRAPH REPRESENTS CHARACTERISTICS ONLY FOR SINGLE ZnO BLOCK FOR OFFERED RATING.

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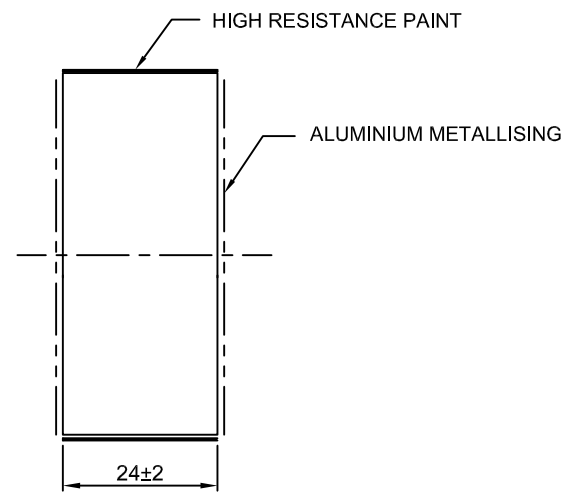
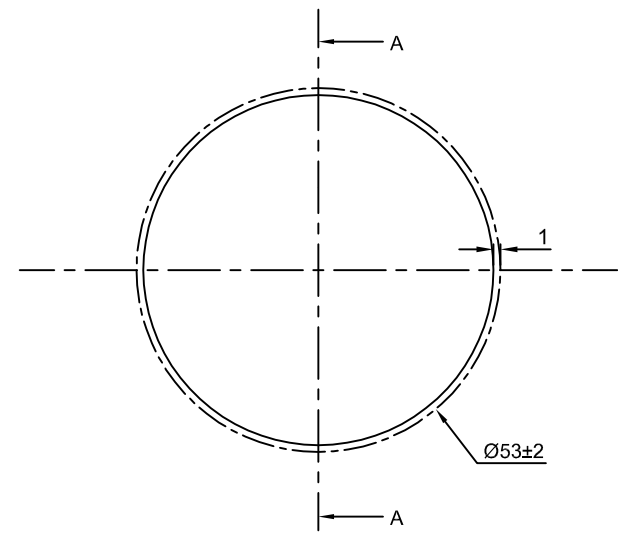
CUSTOMER		TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD			
3		THIRD ANGLE PROJECTION			TITLE : V - I & V-T CHARACTERISTICS
		SCALE: NTS		INITIALS	
2		ALL DIMN. IN mm. UNLESS OTHERWISE SPECIFIED.	DRN	NNJ	 CG Power and Industrial Solutions Limited LIGHTNING ARRESTER DIVISION, AMBAD, NASIK.
			CHD	PSB	
1		GEN. TOL. ±6%	APPD	NJ	DRG NO. : G-057 / 21532
NO	REVISION	DATE	DATE:	24.05.2022	CGL W.O.: APTRANSCO_STD_30kV
					SH 1 OF 1

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ZnO ELEMENT TYPE D5



SECTION AA

EPC works only


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ZnO ELEMENT DETAILS :

1. Ur = 3.4kV
2. MCOV = 2.8kV
3. NDC = 10kAp
4. THERMAL ENERGY RATED (kJ/kVrms) = 4 kJ/kV.
5. REPETATIVE CHARGE TRANSFER RATING : Qrs : 1.0C
6. ARRESTER TYPE : STATION CLASS / SL TYPE
7. LINE DISCHARGE CLASS : CLASS-2

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CUSTOMER		TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD			
3		THIRD ANGLE PROJECTION			TITLE :
		SCALE: NTS		INITIALS	NAME
2		ALL DIMN. IN mm. UNLESS OTHERWISE SPECIFIED.	DRN	NNJ	 CG Power and Industrial Solutions Limited LIGHTNING ARRESTER DIVISION, AMBAD, NASIK.
			CHD	PSB	
1		GEN. TOL. ±6%	APPD	NJ	DRG NO. : G-110 / 21532
NO	REVISION	DATE	DATE:	24.05.2022	CGL W.O.: APTRANSCO_STD_30KV SH 1 OF 1

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CG Power and Industrial Solutions Limited

Switchgear Division: Power Systems

A-3 MIDC, Ambad, Nashik 422 010, Maharashtra, India

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ANNEXURE II (PORCELAIN SURGE ARRESTERS) GUARANTEED TECHNICAL PARTICULARS		
Sr.No	Description	33kV
1	Name of Manufacturer	CG Power and Industrial Solutions Limited
2	Arrester Class & Type	Station Class, Gapless type , SL Type
3	Applicable Standard	IEC 60099-4 (2014)
4	Rated Arrester Voltage (kV)	30
5	Maximum continuous operating Voltage (kV)	25.5
6	Nominal Discharge current (kA) with 8/20 micro-sec wave	10
7	Designation of Arrester Long Duration discharge class	Station Class, SL(Station Low duty) / Line Discharge Class - Class 2 (As per IEC 60099-4 (2009)
8	Long Duration Discharge Class (IEC:60099-4 Ed. 2.2, 2009)	Class 2
9	a. Thermal Energy Rating W _{th} in kJ/kV of U _r b. Repetitive charge transfer rating (Q _{rs}) in coulomb	W _{th} - 4 kJ/kV _{Ur} Q _{rs} - ≥1.0 C
10	Maximum Switching current impulse residual voltage at	
	I) 1000Amps	71
	ii) 500Amps	66
	ii) 250Amps	60
11	Maximum steep impulse residual voltage (1 / 20 micro second) current wave at 10kA (kVp)	101
12	Maximum residual voltage with 8/20 micro-sec wave (kVp)	
	I) 5 kA	85
	ii) 10kA	90
	III) 20kA	100
13	Safe Fault current (kA _{rms})	40kArms at 0. 2sec
14	Lightning Impulse withstand voltage of Arrester Housing with 1.2/50 micro-second wave (kVp)	170

Registered Office:

CG House, 6th Floor, Dr Annie Besant Road, Worli, Mumbai 400 030, India

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Corporate Identity Number: L99999MH1937PLC002641



murugappa

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15	One minute power frequency withstand voltage of housing (Dry/Wet) - kVrms	70
16	High current short duration impulse withstand level with 4/10 micro-sec wave (kA) Peak	100
17	Pressure Relief Class	Class A _ with pressure relief device
18	Over-voltage withstand Capability kVp	
	a) 10seconds	44
	b) 1 second	46
	c) 0.1 second	48
19	a) Reference Voltage (kV)	>= 30kV
	b) Reference current (mA)	3 mAp
20	Number of units per phase and rating of each unit.	Single
21	Minimum total creepage distance (mm)	900
22	Leakage current (mA)	<= 3 mAp
23	Total weight of Arrester (kg)	20 kgs (approx)
24	Maximum cantilever strength of Surge Arrester (Including wind load) with maximum deflection	150kg (deflection less than 20mm)
25	Overall Height of Surge Arresters (mm)	Ref GA Drg.
26	Maximum distance recommended from equipment to be protected by Surge Arrester (mm)	As per IE rules
27	Minimum distance between grounded object	As per IE rules
28	Minimum distance between arrester phase legs	As per IE rules
29	Any other particulars	No
30	Partial Discharge level a 1.05COV to mention	Less than 10pC
31	Seismic Acceleration	0.3 g (Horizontal + Vertical)

Registered Office:

CG House, 6th Floor, Dr Annie Besant Road, Worli, Mumbai 400 030, India

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Corporate Identity Number: L99999MH1937PLC002641



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