

DRG.NO: 3-KAD 5488

IF IN DOUBT, ASK

LIST OF STANDARD DRAWINGS APPLICABLE FOR 245 kV CT (25mm/kV)

SR. NO.	DESCRIPTION	DRG./DOC.NO.	APP. CAT.	REMARKS
01	GENERAL ARRANGEMENT	3-KAD 5489/R1		
02	RATING/SCHEMATIC PLATE	3-KAD 5490/R1		
03	SECONDARY TERMINAL BOX G.A.	3-KAD 5491/R1		
04	SECTIONAL VIEW	3-KAD 5492/R0		

LIST OF VARIABLE DRAWINGS APPLICABLE FOR 245 kV CT

SR. NO.	DESCRIPTION	DRAWING NO.
01	COVER SHEET	AS APPLICABLE
02	RATING/SCHEMATIC PLATE	AS APPLICABLE

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

Drawing approval subject to valid vendor registration

REMARKS	APPROVAL LETTER NO.


**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

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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CUSTOMER : APTRANSCO			
4		GEN. TOL.	MATL.: SPEC.:
3		THIRD ANGLE PROJECTION	
2		SCALE: NTS	INITIALS NAME
1		ALL DIMNS. IN MM. UNLESS OTHERWISE SPECIFIED.	ORG NAC CHD SHB APPD USS
NO	REVISION	SIGN	DATE
			DATE : 15.07.2023

TITLE : LIST OF STANDARD DRGS. / DOCUMENTS APPLICABLE
(FOR 245 kV CT - 25mm/kV)
(500-800-1600/1-1-1-1 A)
(300-500-800-1600/1 A)



CG Power and Industrial Solutions Limited
S1 - DIVISION, AMBAD, NASHIK

DRG.NO: 3-KAD 5488

REV
1

DRG.NO: 3-KAD 5489

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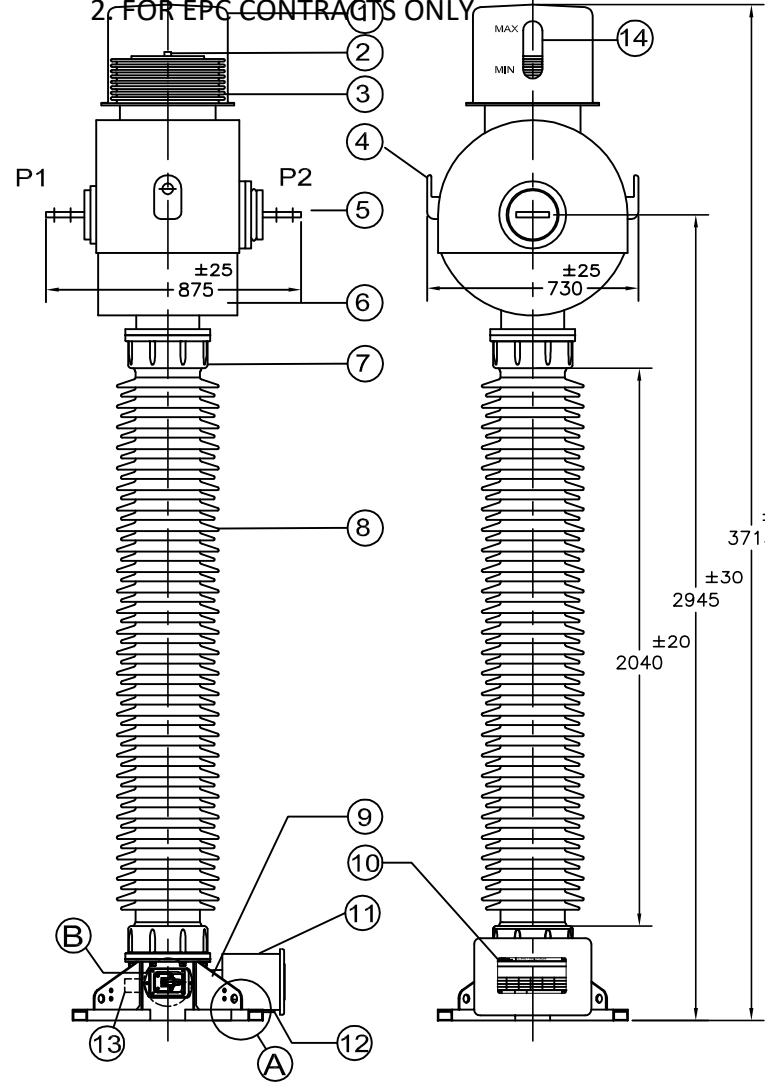
FRAME:- 382-1 TF-61.25-NT-SB

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

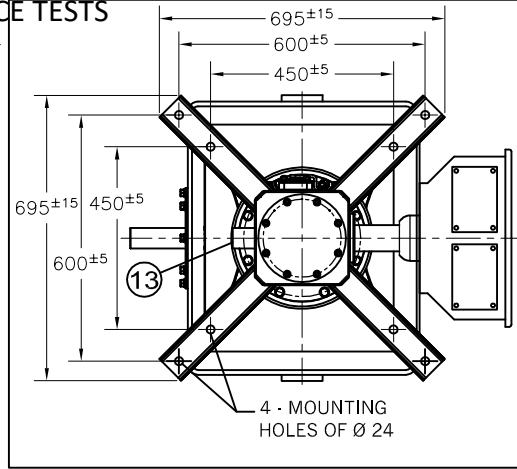
2. FOR EPC CONTRACTS ONLY



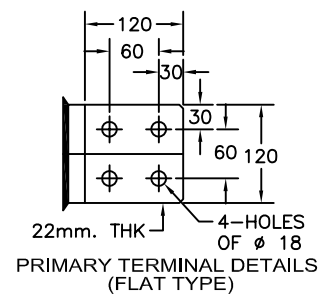
NOTE: REFER INSTRUCTION MANUAL FOR HANDLING & TRANSPORTATION

Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

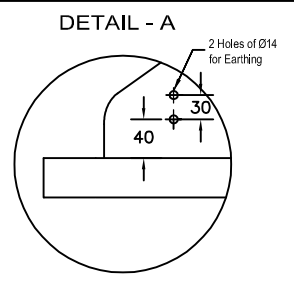
CT MOUNTING DETAIL



PRIMARY TERMINAL DETAIL (ITEM-5)

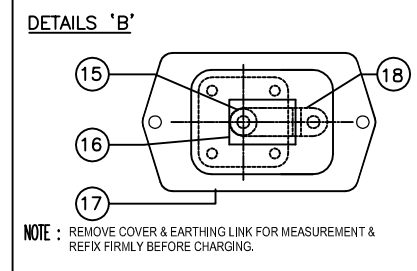


EARTHING DETAILS



NO.	QTY.	DESCRIPTION	MATERIAL
1	1	HOOD	ALUMINIUM
2	1	OIL PRESENCE INDICATOR	POLY CARBONATE
3	1	BELLOWS	STAINLESS STEEL
4	2	LIFTING LUG Ø 40	ALUMINIUM
5	2	PRIMARY TERMINAL	ALUMINIUM
6	1	HOUSING	ALUMINIUM
7	2	PORCELAIN FLANGE	ALUMINIUM
8	1	PORCELAIN INSULATOR	PORCELAIN
9	1	BASE	STEEL HDG
10	1	RATING PLATE	ALUMINIUM
11	1	SECONDARY TERMINAL BOX	STEEL HDG
12	2	GLAND PLATE	STEEL HDG
13	1	OIL FILLING/SAMPLING VALVE	STEEL EG
14	1	BELLOWS LEVEL INDICATOR	POLYCARBONATE
15	1	CAPACITANCE & TAN DELTA MEASUREMENT TERMINAL Cy	BRASS
16	1	WARNING STICKER	ALUMINIUM
17	1	COVER	ALUMINIUM
18	1	EARTHING LINK	COPPER (NICKEL PLATED)

MAKE OF PORCELAIN : MODERN/IEC/CJI/RAVIKIRAN



ITEM NO. 16

WARNING
"Cy TERMINAL - DO NOT OPEN WHILE IN SERVICE"

TOTAL WEIGHT = 800±10% kg.
TOTAL OIL WEIGHT = 200±10% kg.
CREEPAGE DISTANCE = 6125mm

CUSTOMER : APTRANSCO

GEN. TOL.	MATL.:	TITLE : STANDARD DRAWINGS GENERAL ARRANGEMENT (FOR 245 kV CT-25mm/kV) (500-800-1600/1.1-1.1 A) (300-500-800-1600/1 A)
	SPEC.:	
THIRD ANGLE PROJECTION		
SCALE: NTS	INITIALS	NAME
ALL DIMNS. IN MM. UNLESS OTHERWISE SPECIFIED.	DRN	NAC
	CHD	SHB
	APPD	USS
DATE : 15.07.2023		DRG.NO: 3-KAD 5489
NO		REV 1



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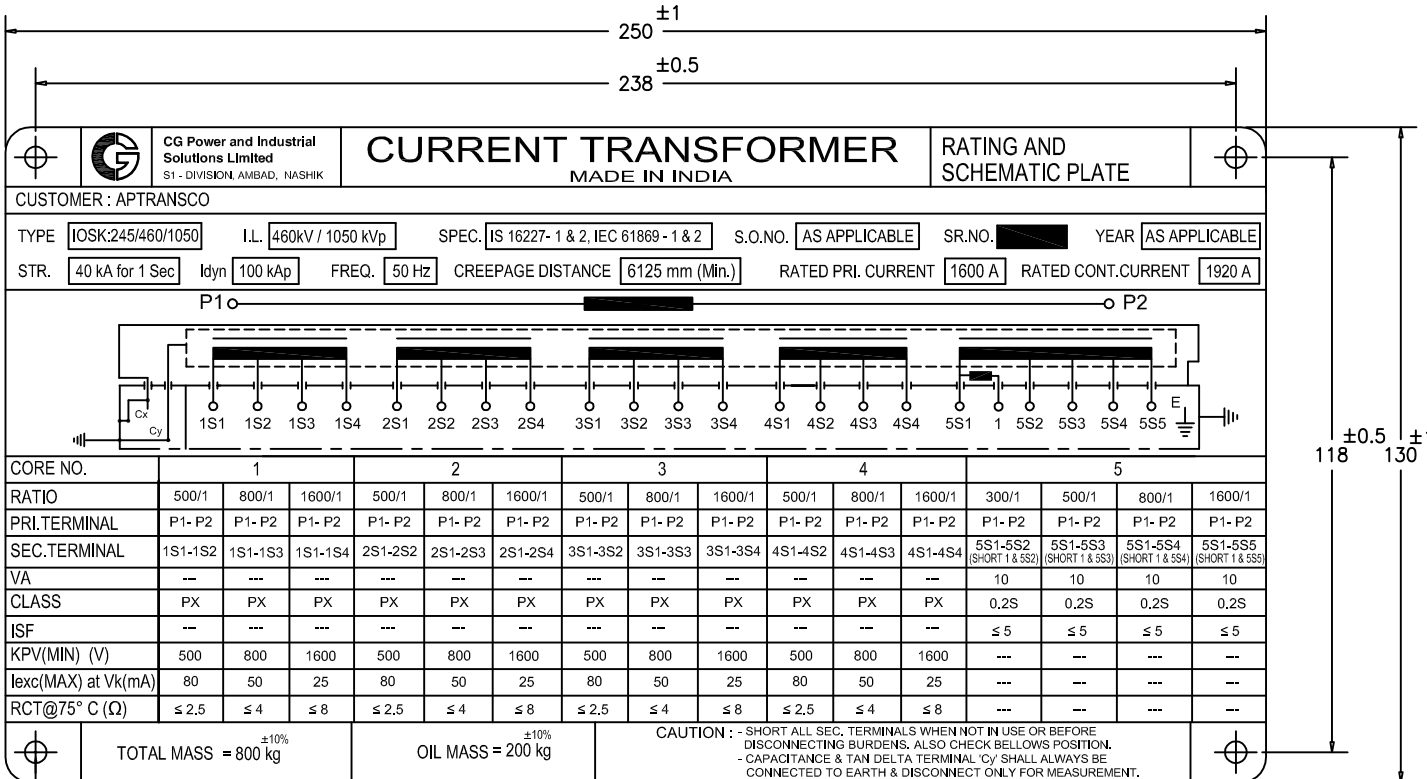
DRG.NO: 3-KAD 5490

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TOTAL MASS = 800 kg ±10%
 OIL MASS = 200 kg ±10%
 CAUTION : - SHORT ALL SEC. TERMINALS WHEN NOT IN USE OR BEFORE DISCONNECTING BURDENS. ALSO CHECK BELLOWS POSITION.
 - CAPACITANCE & TAN DELTA TERMINAL 'C' SHALL ALWAYS BE CONNECTED TO EARTH & DISCONNECT ONLY FOR MEASUREMENT.

- 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.
- 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.

Chief Engineer/Projects APTRANSCO/Vs/Vijayawada.

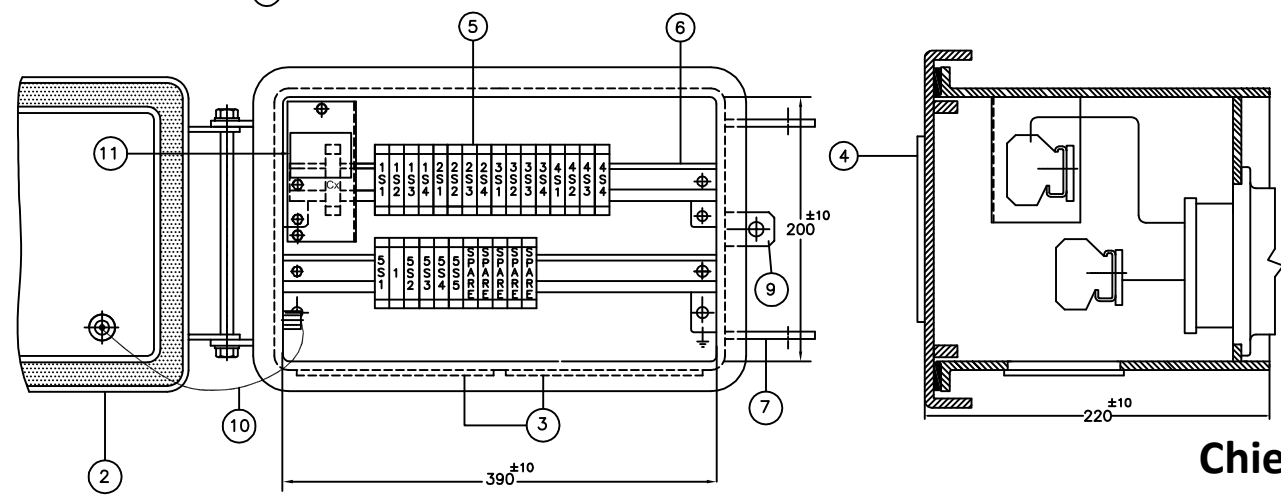
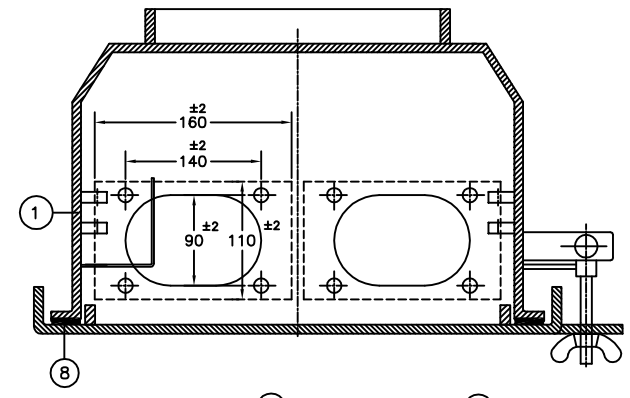
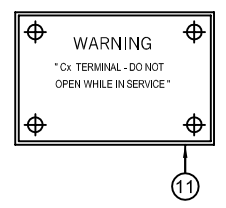
CUSTOMER : APTRANSCO			
GEN. TOL.	MATL.:	TITLE : STANDARD DRAWINGS	
	SPEC.:	RATING/SCHEMATIC PLATE	
THIRD ANGLE PROJECTION		(FOR 245 kV CT-25mm/kV)	
SCALE: NTS	INITIALS	NAME	(500-800-1600/1-1-1-1 A)
			(300-500-800-1600/1 A)
ALL DIMNS. IN MM. UNLESS OTHERWISE SPECIFIED.	ORG	NAC	CG Power and Industrial Solutions Limited S1 - DIVISION, AMBAD, NASHIK
	CHD	SHB	
	APPD	USS	
DRG.NO: 3-KAD 5490	REVISION	SIGN	DATE : 15.07.2023

DRG.NO: 3-KAD 5491

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NO.	QTY.	DESCRIPTION	MTRL./RATING
1	1	SECONDARY TERMINAL BOX	M.S HDG
2	1	SECONDARY TERMINAL BOX COVER	M.S HDG
3	2	GLAND PLATE	M.S HDG
4	1	RATING & SCHEMATIC PLATE	ALUMINIUM
5	23+5 SPARE	STUD TYPE SECONDARY TERMINAL BLOCK	ELMEX MAKE,
6	2	TERMINAL MOUNTING BRACKET	M.S POWDER COATED
7	1	LOCKING ARRANGEMENT	S.S, BRASS
8	1	GASKET	EPDM SPONGE RUBBER
9	1	BRACKET FOR PAD LOCK	M.S HDG
10	1	COPPER CABLE FOR BOX DOOR EARTHING	COPPER
11	1	WARNING PLATE FOR 'Cx' TERMINAL	ALUMINIUM

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DEGREE OF PROTECTION : IP55

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**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

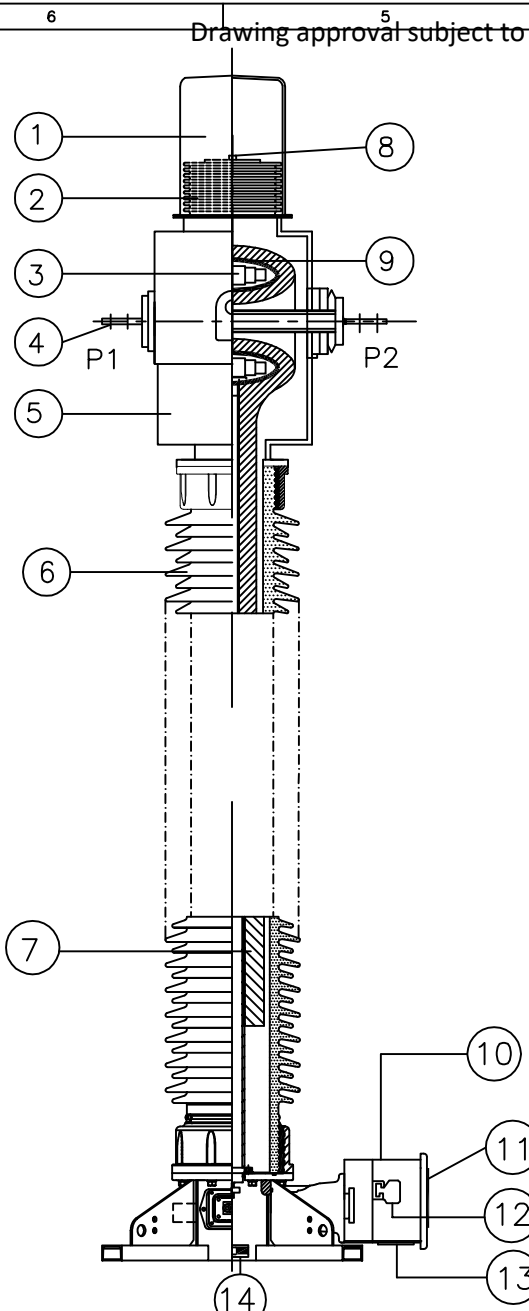
2				
1	20% SPARE TERMINALS ADDED AS PER CUSTOMER COMMENTS DTD 21.12.23	PBN USS	23.12.23	
NO	REVISION	SIGN	DATE	

CUSTOMER APTRANSCO			
GEN. TOL.	MATL.:	TITLE : STANDARD DRAWINGS SECONDARY BOX G.A.	
	SPEC.:	(FOR 245 kV CT 25mm/kV)	
THIRD ANGLE PROJECTION			
SCALE: NTS	INITIALS	NAME	(500-800-1600/1-1-1-1 A) (300-500-300-1600/1 A)
ALL DIMS. IN MM. UNLESS OTHERWISE SPECIFIED.	ORG	NAC	CG Power and Industrial Solutions Limited S1 - DIVISION, AMBAD, NASHIK
	CHD	SHB	
	APPD	USS	
DRG.NO: 3-KAD 5491			REV 1
DATE : 15.07.2023			

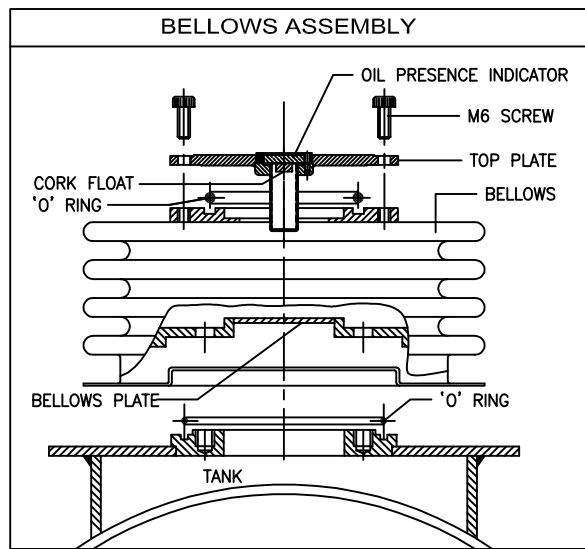
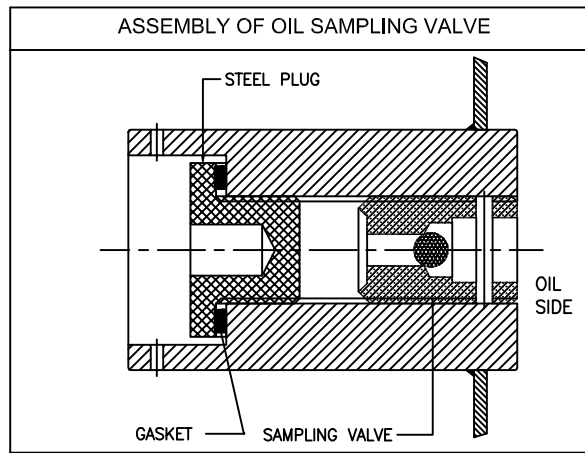
DRG.NO: 3-KAD 5492

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SR.NO.	DESCRIPTION	MATERIAL
1	HOOD	ALUMINIUM
2	BELLOWS	STAINLESS STEEL
3	CORE WITH SECONDARY WINDING	*
4	PRIMARY TERMINAL	ALUMINIUM
5	HOUSING	ALUMINIUM
6	INSULATOR	PORCELAIN
7	CONDENSER BUSHING	KRAFT PAPER (OIP)
8	OIL PRESENCE INDICATOR	POLY CARBONATE
9	SHELL	ALUMINIUM
10	SECONDARY TERMINAL BOX	M.S. HDG.
11	RATING/SCHEMATIC PLATE	ALUMINIUM
12	SECONDARY TERMINALS	STUD TYPE
13	GLAND PLATE	M.S. HDG.
14	AUXILIARY CORE	NANO-CRYSTALLINE

NOTE.....
 INSULATING OIL SHALL BE EHV GRADE AS PER IS 335, IEC 296
 * CORE - CRGO Si-Fe/EQUIVALENT HIGH PERMEABILITY MATERIAL, MU-METAL, NANO-CRYSTALLINE
 * SEC. WINDING - ENAMELLED COPPER

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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**Chief Engineer/Projects
 APTRANSCO/VS/Vijayawada.**

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CUSTOMER : APTRANSCO		TITLE : STANDARD DRAWINGS SECTIONAL VIEW (FOR 245 kV CT-25mm/kv) (500-800-1600/1-1-1-1 A) (300-500-800-1600/1 A)	
GEN. TO:	MATL.:	 CG Power and Industrial Solutions Limited S1 - DIVISION, AMBAD, NASHIK	
SPEC.:			
THIRD ANGLE PROJECTION			
SCALE: NTS	INITIALS	NAME	DRG.NO: 3-KAD 5492
ALL DIMNS. IN MM. UNLESS OTHERWISE SPECIFIED.	DRN	NAC	REV 0
	CHD	SHB	
	APPD	USS	
NO	REVISION	SIGN	DATE
			DATE : 15.07.2023

8363145/2024/EEMPT-ENE51

DRAWING APPROVAL SUBJECT TO VALID TYPE TEST

REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS

2. FOR EPC CONTRACTS ONLY

Annexure-A**GUARANTEED TECHNICAL PARTICULARS FOR CURRENT TRANSFORMERS****(245kV CT: 1600-800-500/1-1-1-1 A & 1600-800-500-300/1A)****Creepage Distance: 25 mm/kV**

1	Type of tank/Installation Dead/Live Tank Type	Live tank, Single phase, Oil Filled, Outdoor Type
2	Type of mounting	Pedestal Mounting
3	Manufacturer's Name and address and Country of Manufacture	CG Power and Industrial Solutions Limited, A-3 MIDC, Ambad, Nashik , INDIA
4	Whether Conforming to IEC 61869 standard	Yes, IEC 61869-1&2 , IS 16227-1&2
5 a) i)	Primary and Secondary winding made out of	Primary – Aluminum, Secondary – Copper
ii)	Primary windings -Design density for short circuit current -Conductivity of metal used -	Aluminum - 11.49 Amp/mm ² (approx.) - As per IEC
b)	i) Area of cross section of primary winding	3480 mm ² (approx.) Flat Type Primary- Tube Construction
	ii) Area of cross section of secondary winding	1.167 mm ² (min.)
c)	Material used for providing Primary terminals	Aluminium
d)	Material used for providing secondary terminals	Copper Alloy
e)	Whether Primary is Rigid Bar type in case of live tank	Yes, Rigid Bar type
6	Rated primary voltage (kV rms)	220 kV / root3
7	Rated highest voltage (kV rms)	245 kV
8	Rated frequency (Hz)	50 Hz
9	Rated primary current (A)	1600A
10	Rated secondary current (A)	1
11	Ratio taps (on secondary side only)	On Secondary Side
12	Type of insulation	Class A
13	Seismic acceleration (g)	0.3 g vertical
14	RIV at 1.1 x Rated voltage (mv)	< 1000 micro volts
15	Tank material and Tank coating	Aluminium Tank with Natural finish
16	Hardware exposed to atmosphere	Stainless Steel
17	Bolts, Nuts and Washers	Stainless Steel.
18	Porcelain housing and it make (Single piece only)	IEC/Modern/ABIL/CJI/RAVIKIRAN or Equivalent Make
19	Sealing (Nitrogen gas cushion/Metal bellow)	Stainless Steel bellows
20	Instrument security factor	<5 (For Metering core)
21	Whether Tan Delta test tap provided	Yes
22	Whether secondary terminal plate is	Yes (Epoxy Monoblock)

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	of molded epoxy resin type	
23	Whether primary terminal bushings are of molded Epoxy cast resin/Glass fiber reinforced Polymer	Not applicable
24	Whether all seals are of "O" ring type	Yes "O" ring
25	Whether all "O" Rings are fixed in machined grooves with adequate space for compression'	Yes
26	Whether the main hollow insulator has the flanges cemented at both ends	Yes
27	Whether "O" Rings are of Nitrile butyl rubber or Viton	Yes (Viton)
28	Whether the Short circuit Ampere-turns of the CT being supplied is same as type tested CTs	Yes
29	Tan Delta	< 0.4 %
30	Whether ratio selection is achieved only in secondary	Yes
31	Whether ratio selection is achieved only in secondary	Yes
32	Whether Non return drain valve for oil sampling is arranged for 132kV and above CT/IVT	Yes
33	Acceptable limit of temperature	As per IS/IEC
34	Partial Discharge Level	< 5pC at 1.2 xUm /√3, < 10pC at Um (where Um is highest system voltage)
35	Rated short time withstand current for 1 sec. duration (kA rms)	40 kA
36	Rated dynamic withstand current (kAp)	100 kA
37	Rated continuous thermal current (pu) where pu = rated current	120% of rated primary current
38	1.2/50 micro second impulse withstand voltage (kVp)	1050 kVp
39	One minute power frequency withstand voltage (kV rms) of primary winding (Dry)	460 kV rms
40	One minute power frequency withstand voltage of secondary winding (kV rms)	3 KV rms
41 a)	Minimum total Creepage distance of insulator bushing (mm)	6125 mm / (25mm/kV) Porcelaine Insulator
b)	Protected Creepage of distance of bushing (mm)	< 50 % of total Creepage

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REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS
8363145/2024/EEMRT-ENE51
 2. FOR EPC CONTRACTS ONLY

		Core 1	Core 2	Core 3	Core 4	Core 5
42	Details of Cores	Core 1	Core 2	Core 3	Core 4	Core 5
42.1	Current Ratios A/A	1600-800-500/1A				1600-800-500-300/1A
42.2	Output burden (VA)	-				10
42.3	Class of accuracy	PX				0.2S
42.4	Accuracy limit factor / ISF	-				< 5
42.5	Min. knee point voltage (kpv) in volts	1600-800-500				NA
42.6	Secondary resistance corrected to 75 deg.C in ohms	≤8- ≤4-≤2.5				NA
42.7	Max. Exciting current (mA) at - 20% of knee point voltage - 50% of knee point voltage - 100% of knee point voltage	25@1600/1A - 50 @ 800/1A - 80 @ 500/1A at Vk				NA
42.8	Application	M1 Protecti on	M2 Protecti on	Bus- bar Protec tion	Spare Protecti on	Metering
43	Weight of oil (Kg.)	As per GA drawing attached				
44	Approximate weight of Copper used (Kgs)	27 Kg. (approx.)				
45	Approximate weight of Steel used (Kgs)	-				
46	Total Weight (Kg.)	As per GA drawing attached				
47	Mounting details	450mm x 450mm and 600mm x600mm (Please refer GA Drawing)				
48	Overall dimensions	Please refer GA Drawing				
49	Characteristics (whether graphs enclosed):	Not applicable				
a)	Ratio and phase angle curves	NA				
b)	Magnetization curves	Not applicable				
c)	Ratio correction factor curves	NA				
50	Core					
a)	Area of cross section (sq.cm.)	As per Standard design practice				
b)	Flux density at rated primary current and rated burden	As per Standard design practice				
c)	Grade	Nano-crystalline for Metering core, CRGO for protection Cores				

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Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.