

DRG.NO: 3-KAD 5381

IF IN DOUBT, ASK

**LIST OF STANDARD DRGS./ DOCUMENTS  
APPLICABLE FOR 420 kV CT,500-1000-2000-3000/1-1-1-1A**

SR. NO.	DESCRIPTION	DRG./DOC.NO.	APP. CAT.	REMARKS
01	GENERAL ARRANGEMENT	3-KAD 5382 / R0		
03	RATING/SCHEMATIC PLATE	3-KAD 5383 / R0		
04	SECONDARY BOX G.A.	3-KAD 5384 / R0		
02	SECTIONAL VIEW	3-KAD 5385 / R0		

**LIST OF VARIABLE DRGS. APPLICABLE FOR 420 kV 3000 A  
31mm/kV CREEPAGE**

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

**FOR EPC CONTRACTS ONLY**

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.

Secondary winding shall be rated for continuous current of 2 Amps.

Ground clearance of 8000 mm shall be maintained from Plinth level during erection.

REMARKS	APPROVAL LETTER NO.

Drawing approval subject to valid vendor registration

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

**Chief Engineer  
Power Systems, Planning & Design  
APTransco**

CUSTOMER : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED					
GEN. TOL.	MATL. SPEC.:		TITLE : LIST OF STANDARD DRGS./DOCUMENTS FOR 420 kV CT -31mm/kV (500-1000-2000-3000/1-1-1-1-1A)		
THIRD ANGLE PROJECTION					
SCALE: NTS	INITIALS	NAME			
ALL DIMNS. IN MM. UNLESS OTHERWISE SPECIFIED.	DRN	NSB			
	CHD	SHB			
	APPD	USS			
DATE : 27.03.2021				DRG.NO: 3-KAD 5381	
				REV	O

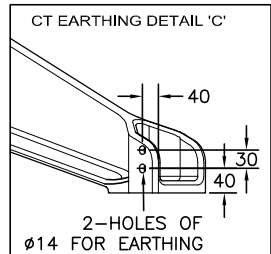
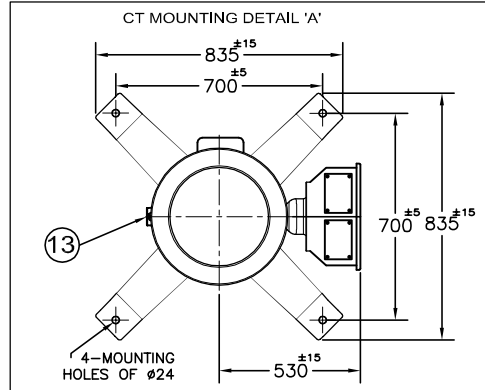
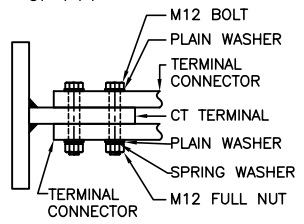
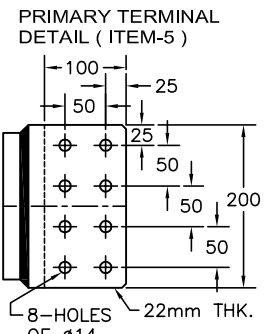
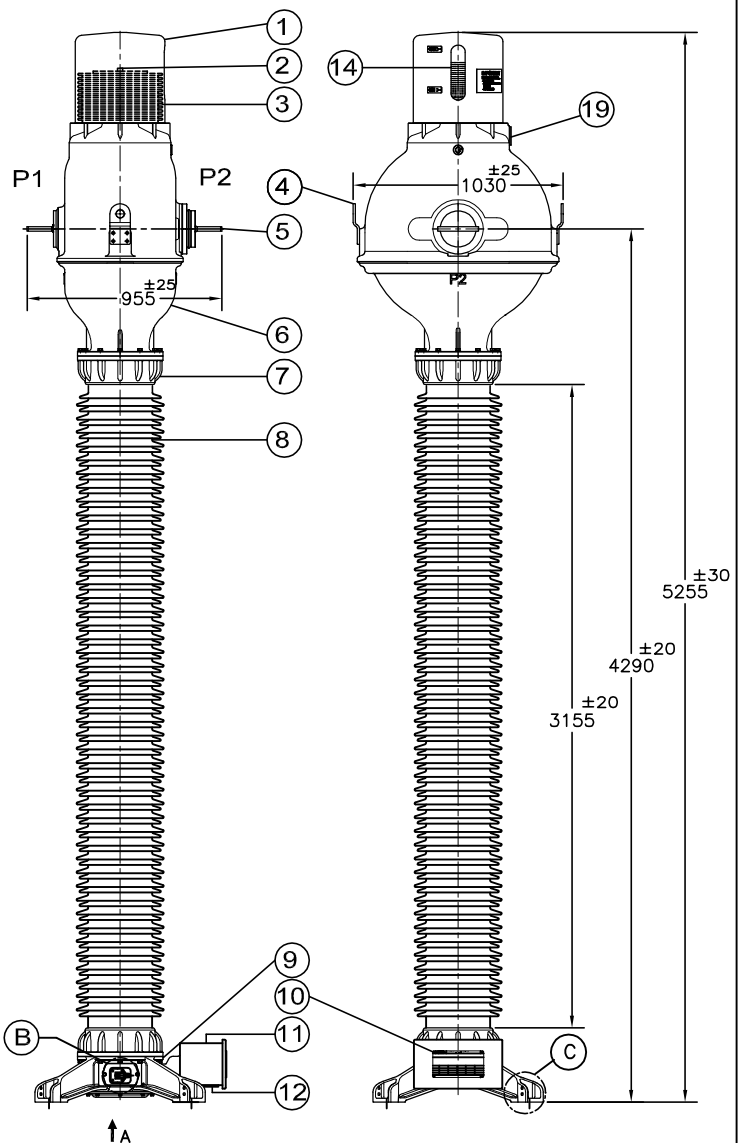
NO	REVISION	SIGN	DATE
3			
2			
1			

DRG.NO: 3-KAD 5382

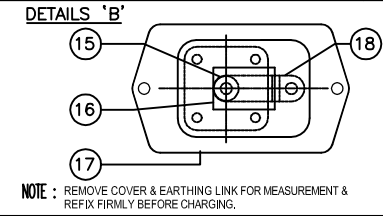
IF IN DOUBT, ASK

FRAME:- 031ACT-1TF3000A-13020

All information contained in this document is confidential & should not be used without prior consent of CG Power and Industrial Solutions Limited



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	STEEL HDG
5	2	PRIMARY TERMINAL FLAT TYPE	ALUMINIUM
6	1	HOUSING	ALUMINIUM
7	2	INSULATOR FLANGE	ALUMINIUM
8	1	INSULATOR	PORCELAIN
9	1	BASE	ALUMINIUM
10	1	RATING/SCHEMATIC PLATE	ALUMINIUM
11	1	SECONDARY TERMINAL BOX	STEEL HDG
12	2	GLAND PLATE	STEEL HDG
13	1	OIL SAMPLING VALVE	STEEL GALVANISED
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)
19	1	OIL INDICATOR	POLYCARBONATE



**ITEM NO. 16**

WARNING  
\* Cy TERMINAL - DO NOT  
OPEN WHILE IN SERVICE \*

MAKE OF PORCELAIN : MODERN / IEC / ABIL

NOTE: 1) DO NOT USE LIFTING LUGS FOR LIFTING THE FULL CT  
2) THE C.T. IS SUITABLE FOR HORIZONTAL TRANSPORTATION  
REFER INSTRUCTION MANUAL FOR HANDLING & TRANSPORTATION

TOTAL MASS	= 1450 ±10% kg
OIL MASS	= 345 ±10% kg
TOTAL CREEPAGE	= 13020 mm

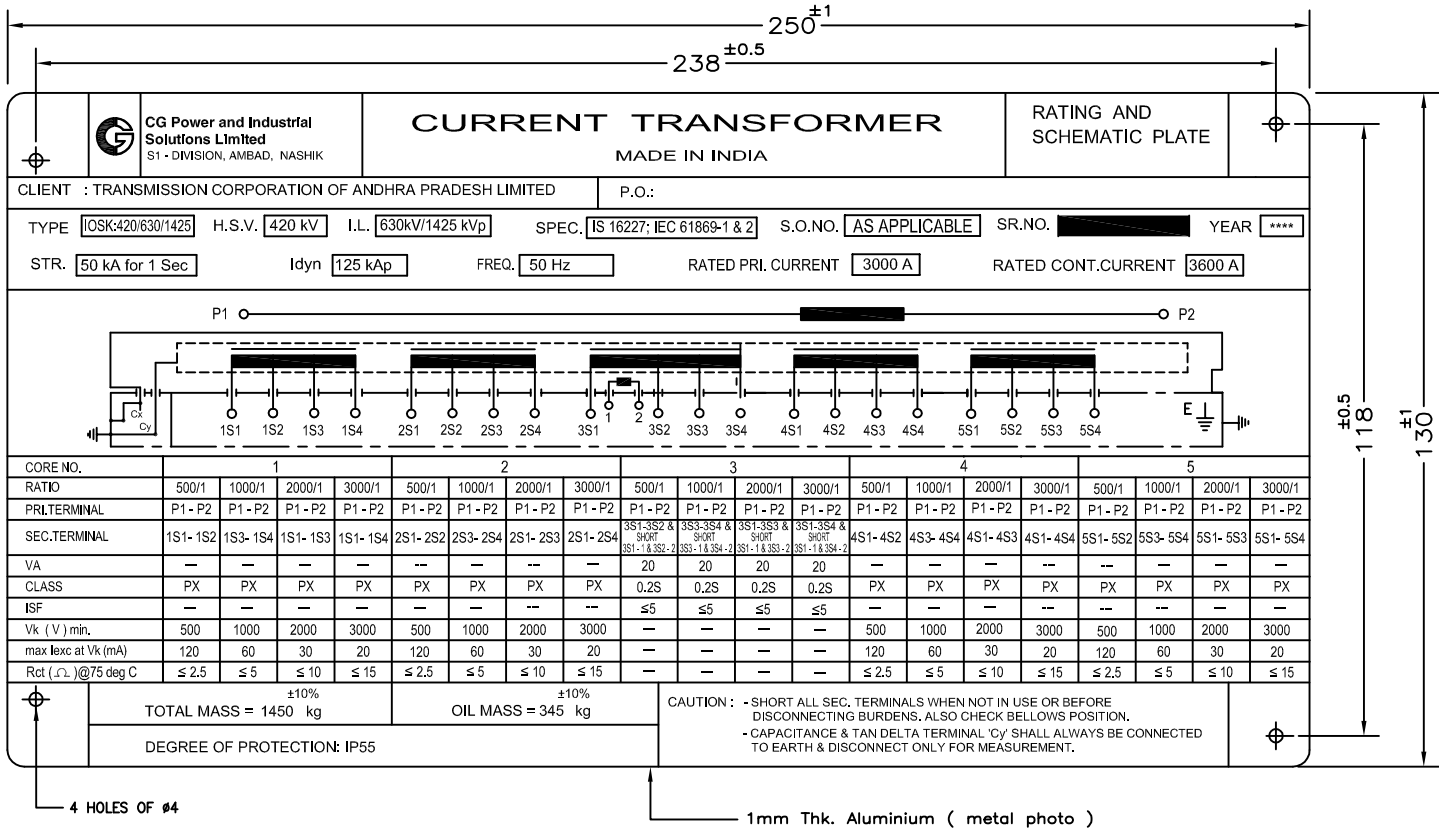
Drawing approval subject to valid vendor registration

Chief Engineer  
Power Systems, Planning & Design  
APTransco

CUSTOMER : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED					
GEN. TOL.	MATL. SPEC.	TITLE : STANDARD DRAWINGS GENERAL ARRANGEMENT			
THIRD ANGLE PROJECTION		(420 kV CT, 500-1000-2000-3000/1-1-1-1-1A)			
SCALE: NTS	INITIALS	NAME	<b>CG Power and Industrial Solutions Limited</b> S1 - DIVISION, AMBAD, NASHIK		
ALL DIMS. IN MM. UNLESS OTHERWISE SPECIFIED.	DRN	NSB			
	CHD	SHB			
	APPD	USS	DRG.NO: 3-KAD 5382		
NO	REVISION	SIGN	DATE	DATE : 27.03.2021	REV 0

DRG.NO: 3-KAD 5383

IF IN DOUBT, ASK



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

Secondary winding shall be rated for continuous current of 2 Amps.

Drawing approval subject to valid vendor registration

Chief Engineer  
Power Systems, Planning & Design  
APTransco

2			
1			
NO	REVISION	SIGN	DATE

CUSTOMER : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED			
GEN. TOL.	MATL.:	TITLE: STANDARD DRAWINGS RATING/SCHEMATIC PLATE	
	SPEC.:	(420 kV CT, 500-1000-2000-3000/1-1-1-1-1A)	
THIRD ANGLE PROJECTION			
SCALE: NTS	INITIALS	NAME	
ALL DIMNS. IN MM. UNLESS OTHERWISE SPECIFIED.	ORG	NSB	
	CHD	SHB	
	APPD	USS	
DATE : 27.03.2021		DRG.NO: 3- KAD 5383	
		REV 0	



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

All information contained in this document is confidential & should not be used without prior consent of CG Power and Industrial Solutions Limited

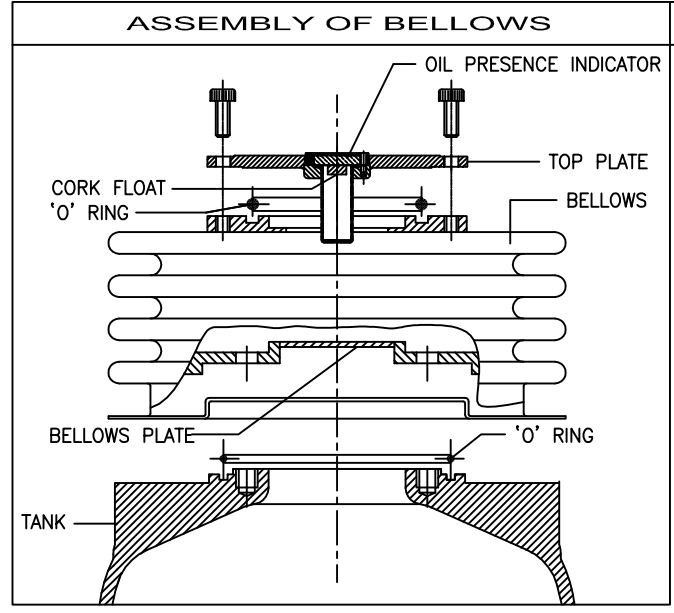
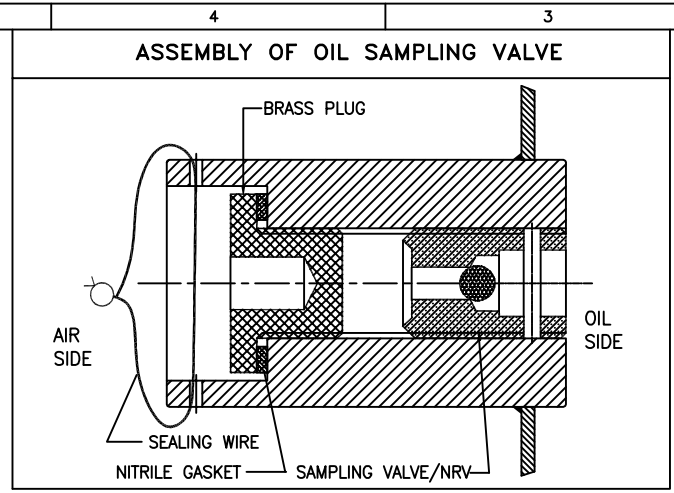
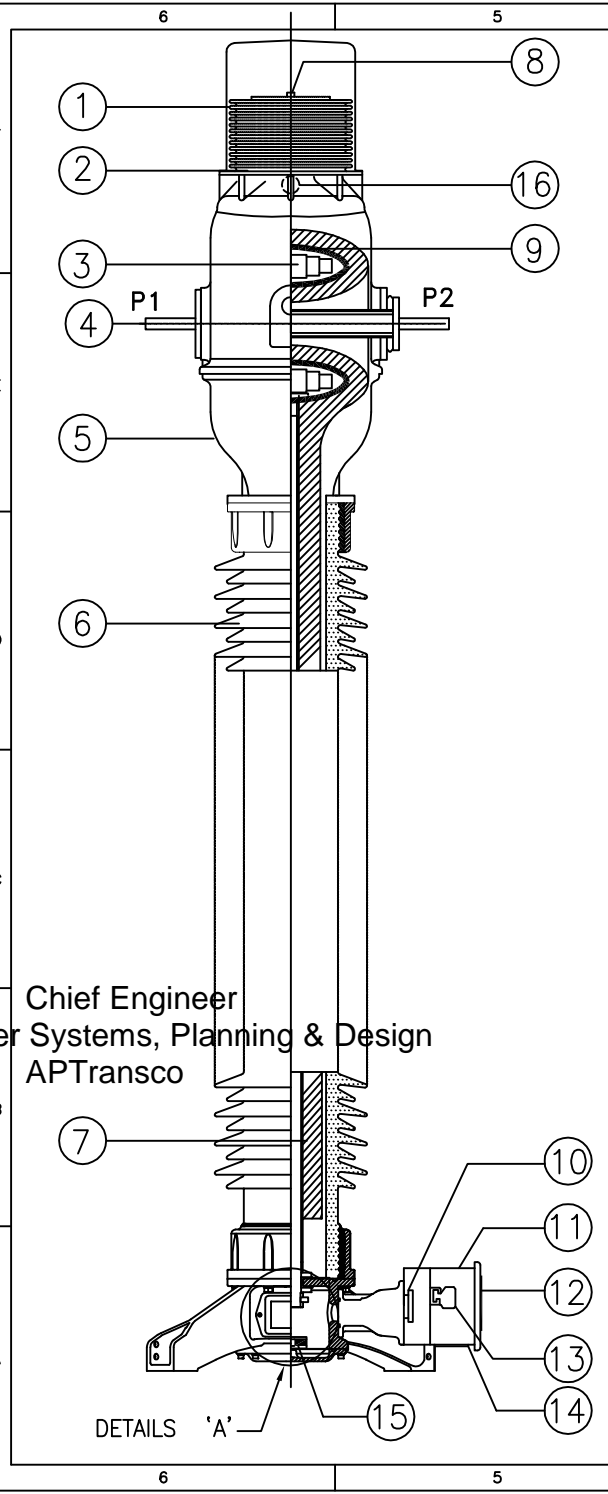


DRG.NO: 3- KAD 5385

IF IN DOUBT, ASK

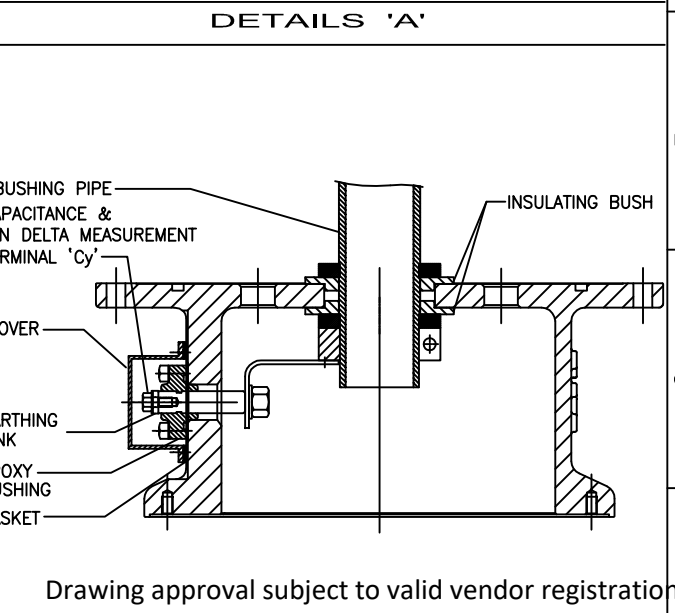
All information contained in this document is confidential & should not be used without prior consent of CG Power and Industrial Solutions Limited

Chief Engineer  
Power Systems, Planning & Design  
APTransco



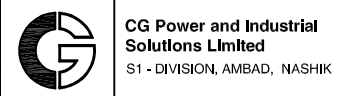
NOTE.....  
INSULATING OIL SHALL BE EHV GRADE AS PER IS:335, IEC:60296  
\* CORE - CRGO Si-Fe, OR EQUIVALENT ALLOY, NANO CRYSTALLINE  
\* SEC. WINDING - ENAMELLED COPPER

SR.NO.	QTY.	DESCRIPTION	MATERIAL
1	1	HOOD	ALUMINIUM
2	1	BELLOWS	STAINLESS STEEL
3	5	CORE WITH SECONDARY WINDING	*
4	2	PRIMARY TERMINAL	ALUMINIUM
5	1	HOUSING	ALUMINIUM
6	1	INSULATOR	PORCELAIN
7	1	CONDENSER BUSHING	KRAFT PAPER (OIP)
8	1	OIL PRESENCE INDICATOR	POLYCARBONATE
9	1	SHELL	ALUMINIUM
10	2	MULTI TERMINAL MONOBLOCK	EPOXY
11	1	SECONDARY TERMINAL BOX	STEEL, HDG
12	1	RATING/SCHEMATIC PLATE	ALUMINIUM
13	23+5 SPARE	SECONDARY TERMINALS	ELMEX MAKE/ EQUI.
14	2	GLAND PLATE	STEEL, HDG
15	1	AUX. CHOKE	*
16	1	OIL INDICATOR	POLYCARBONATE



Drawing approval subject to valid vendor registration

CUSTOMER : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED			
GEN. TOL.	MATL.:	TITLE : STANDARD DRAWINGS	
	SPEC.:	SECTIONAL VIEW	
THIRD ANGLE PROJECTION			
SCALE: NTS	INITIALS	NAME	
ALL DIMS. IN MM. UNLESS OTHERWISE SPECIFIED.	DRN	NSB	
	CHD	SHB	
	APPD	USS	
DATE : 27.03.2021			REV 0



NO	REVISION	SIGN	DATE
3			
2			
1			

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

**Annexure-A**  
**GUARANTEED TECHNICAL PARTICULARS FOR CURRENT TRANSFORMERS**  
**(420kV 3000A CT, 5 Core 31mm Creepage)**

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
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 - 9.79 Amp/mm <sup>2</sup> (approx.) - As per IEC
b) i)	Area of cross section of primary winding	5105 mm <sup>2</sup> (approx.)
ii)	Area of cross section of secondary winding	1.167 mm <sup>2</sup> (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)	400 kV / root3
7	Rated highest voltage (kV rms)	420 kV
8	Rated frequency (Hz)	50 Hz
9	Rated primary current (A)	3000A
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 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 of molded epoxy resin type	Yes ( Epoxy Monoblock)
23	Whether primary terminal bushings are	Not applicable

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.

	of molded Epoxy cast resin/Glass fiber reinforced Polymer	
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)	50 kA
36	Rated dynamic withstand current (kAp)	125 kA
37	Rated continuous thermal current (pu) where pu = rated current	Rated Extended Primary Current 120% for 3000/1A Tap 180 % for 2000/1A Tap & 200% for Lower tap Ratios
38	1.2/50 micro second impulse withstand voltage (kVp)	1425 kVp
39	One minute power frequency withstand voltage (kV rms) of primary winding (Dry)	630 kV rms
40	One minute power frequency withstand voltage of secondary winding (kV rms)	5 KV rms
41 a)	Minimum total Creepage distance of insulator bushing (mm)	13020 mm / (31mm/kV) Porcelain Insulator
b)	Protected Creepage of distance of bushing (mm)	< 50 % of total Creepage

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

42	Details of Cores	Core 1	Core 2	Core 3	Core 4	Core 5
42.1	Current Ratios A/A	500-1000-2000-3000/1-1-1-1-1A				
42.2	Output burden (VA)	-	-	20	-	-
42.3	Class of accuracy	PX	PX	0.2S	PX	PX
42.4	ISF	--	-	≤ 5	-	-
42.5	Min. knee point voltage (kpv) in volts	500 @ 500/1 1000@1000/1 2000@2000/1 3000@ 3000/1		-	500 @ 500/1 1000@1000/1 2000@2000/1 3000@ 3000/1	
42.6	Secondary resistance corrected to 75 deg.C in ohms	≤ 2.5@ 500/1 ≤ 5 @1000/1 ≤ 10@2000/1 ≤ 15 @ 3000/1		-	≤ 2.5@ 500/1 ≤ 5 @1000/1 ≤ 10@2000/1 ≤ 15 @ 3000/1	
42.7	Max. Exciting current (mA) at Vk - 100% of knee point voltage	120 @ 500/1 60 @1000/1 30 @2000/1 20 @ 3000/1		-	120 @ 500/1 60 @1000/1 30 @2000/1 20 @ 3000/1	
42.8	Application	Protection		Metering	Protection	
43	Weight of oil (Kg.)	345 Kg. ± 10% (approx.)				
44	Approximate weight of Copper used (Kgs)	53 Kg. (approx.)				
45	Approximate weight of Steel used (Kgs)	-				
46	Total Weight (Kg.)	1450 Kg. ± 10%. (approx.)				
47	Mounting details	700mm x700mm (Please refer GA Drawing)				
48	Overall dimensions	Please refer GA Drawing				
49	Characteristics (whether graphs enclosed):	No				
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 core for Metering CRGO steel or other equivalent alloys for Protection Cores				
51	Cantilever strength (kG)	500 kg.				

Variation of Tan Delta value from 10 KV to Um/ Sqrt 3 shall not exceed 15 %.

Chief Engineer  
Power Systems, Planning & Design  
APTransco