

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.
2. For EPC contractors only.

Drawing approval subject to valid vendor registration

LIST OF DRAWINGS

**SHOULD NOT PARALLEL WITH DISCOM STR
TERTIARY LOADING STR**

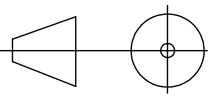

RATING: 630kVA 33KV /415V OCTC LEVEL-1 , 3 PHASE TRANSFORMER

REFERENCE DRAWINGS / DOCUMENTS		
DRAWING NO	TITLE	STATUS
ET-GA-A4-01	FITTINGS LIST OF TRANSFORMER	FOURTH SUBMISSION
ET-GA-A4-02	GENERAL ASSEMBLY OF T/F	FOURTH SUBMISSION
ET-GA-A4-03	GENERAL ASSEMBLY OF L.V.BUSDUCT	FOURTH SUBMISSION
ET-GA-A4-04	GENERAL ASSEMBLY OF MARSHALLING BOX	FOURTH SUBMISSION
ET-GA-A4-05	WIRING DIAGRAM OF MARSHALLING BOX	FOURTH SUBMISSION
ET-GA-A4-06	RATING AND DIAGRAM PLATE	FOURTH SUBMISSION
ET-GA-A4-07	PLINTH ARRANGEMENT	FOURTH SUBMISSION
ET-GA-A4-08	HV PORCELAIN BUSHING DRAWING (See attachment)	FOURTH SUBMISSION

**CHIEF ENGINEER/PROJECTS
APTRANSCO/VISAYAWADA**

Since the supply of terminanal connectors is not in the scope of manufacturer as mentioned in the drawings. The EPC contractor shall be instructed to supply the same line with CT/PT/CVT/Isolator/IVT /LA /Breaker requirement and campability.

Note: All Dimensions are in mm with subject to tolerance ±5%.

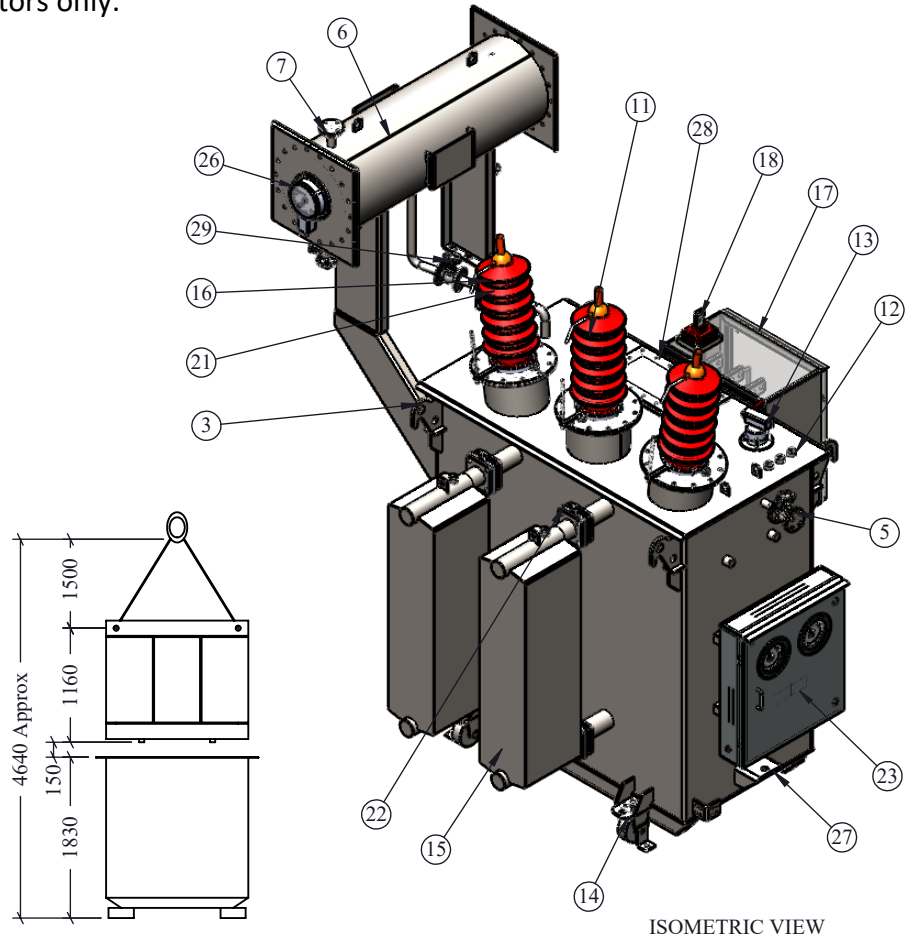
SCALE: 1:50		TITLE: LIST OF DRAWINGS	
	VER	0	
	Date	16-01-2023	
	Drawn	Lokesh	
	Checked	Raju	
ALL DIMENSIONS ARE IN MM	Approved	PR	
	DRG NO: INDEX		Sheet 1 of 8
 ESENNAR TRANSFORMERS (P) LTD. UNIT-II, HYDERABAD.			REV 3

8262343/2023/EEMRT-ENE51

5 acceptance tests.
2.For EPC contractors only.

MATERIAL LIST		
SI. NO.	DESCRIPTION	QTY
1	RATING & TERMINAL MARKING PLATE	1
2	EARTHING TERMINALS	2
3	LIFTING LUGS	4
4	DRAIN VALVE WITH BLANKING PLATE	1
5	FILTER VALVE WITH BLANKING PLATE	1
6	CONSERVATOR	1
7	CONSERVATOR OIL FILLING HOLE WITH FLANGE	1
8	OIL LEVEL INDICATOR WITH MIN. & MAX. MARKING	1
9	DEHYDRATING SILICAGEL BREATHER WITH OIL SEAL	1
10	CONSERVATOR DRAIN PLUG	1
11	AIR RELEASE PLUG	1
12	THERMOMETER WITH POCKETS	3
13	PRESSURE RELIEF VALVE WITH TRIP CONTACTS (0.49kg/cm2 , Viat -Make)	1
14	BI-DIRECTIONAL FLAT ROLLERS (150 Dia)	4
15	DETACHABLE RADIATORS WITH AIR RELEASE & DRAIN PLUG	2
16	HV BARE BUSHINGS (52KV-1000A) with Arcing horns	3
17	LV CABLE BOX	1
18	SEPARATE NEUTRAL TERMINAL	1
19	OFF CIRCUIT TAP CHANGING SWITCH WITH HANDLE	1
20	O.T.I WITH ALARM & TRIP CONTACTS (RTD-Precimeasure) Fitted in Marshalling Box	1
21	BUCHHOLZ RELAY WITH ALARM & TRIP CONTACTS (Atvus - Make)	1
22	RADIATOR CUT OFF VALVES	4
23	MARSHALLING BOX FOR CONNECTING G.O.R,O.T.I, W.T.I MOG & PRV- TERMINALS (RTD-Precimeasure)	1
24	W.T.I WITH ALARM & TRIP CONTACTS (RTD-Precimeasure) Fitted in Marshalling Box	1
25	CURRENT TRANSFORMER , for WTI fitted in LV Cable box	1
26	M.O.G. WITH LOLA CONTACTS (Precimeasure - Make)	1
27	JACKING PADS HAULING HOLES	4
28	INSPECTION COVER ON TOP COVER	1
29	BUCHHOLZ RELAY SHUT OFF VALVE (50mm VALVE)-MAKE: NEVA/EQUI	1

CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA



ISOMETRIC VIEW

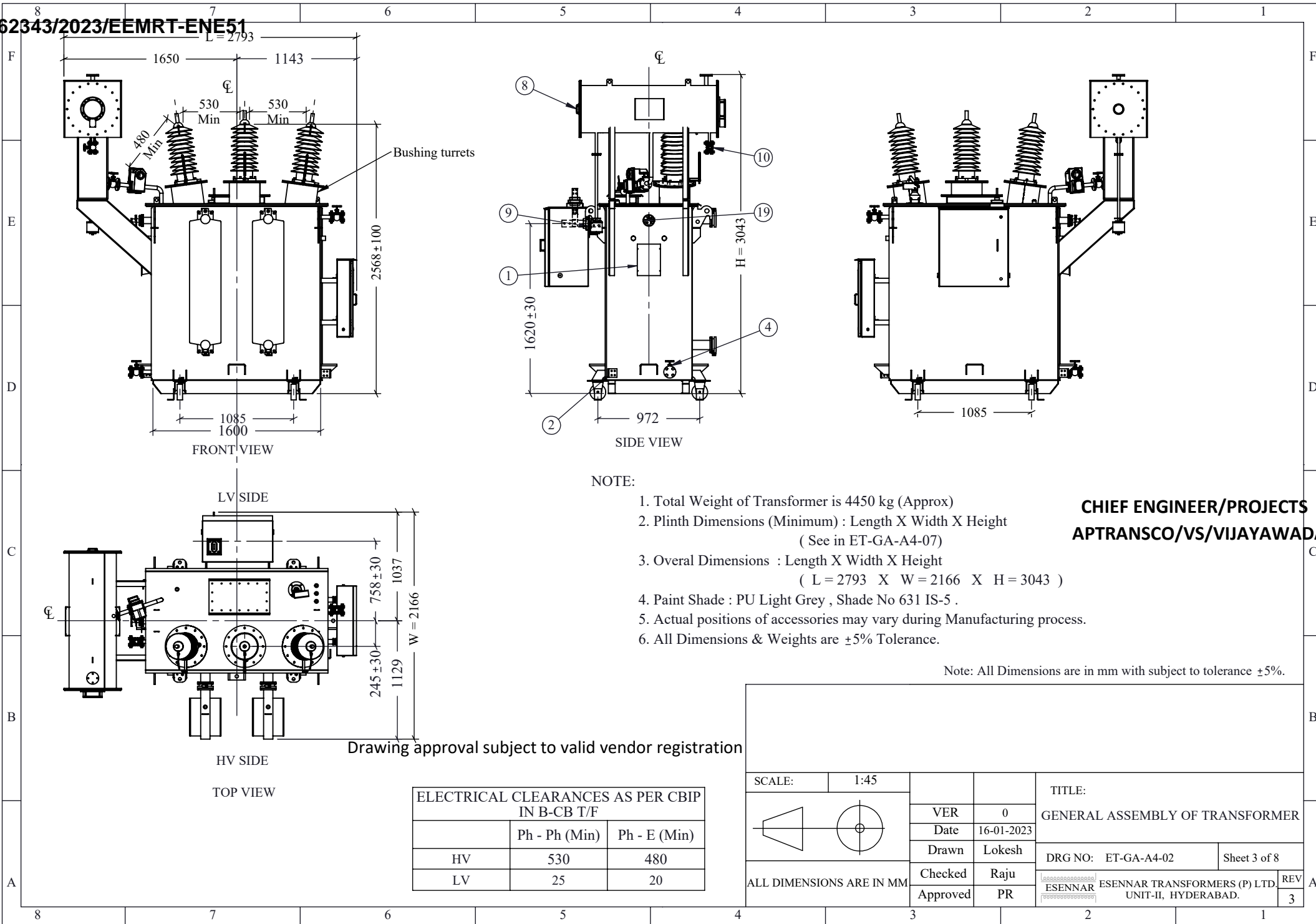
UN-TANKING HEIGHT

Note: All Dimensions are in mm with subject to tolerance ±5%.

Drawing approval subject to valid vendor registration

SCALE:	1:35	VER	0	TITLE:	FITTINGS LIST OF TRANSFORMER	
	Date	16-01-2023	Drawn	Lokesh	DRG NO:	ET-GA-A4-01
	Checked	Raju	Approved	PR	Sheet 2 of 8	
ALL DIMENSIONS ARE IN MM				ESENNAR TRANSFORMERS (P) LTD. UNIT-II, HYDERABAD.	REV	3

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NOTE:

1. Total Weight of Transformer is 4450 kg (Approx)
2. Plinth Dimensions (Minimum) : Length X Width X Height
(See in ET-GA-A4-07)
3. Overall Dimensions : Length X Width X Height
(L = 2793 X W = 2166 X H = 3043)
4. Paint Shade : PU Light Grey , Shade No 631 IS-5 .
5. Actual positions of accessories may vary during Manufacturing process.
6. All Dimensions & Weights are ±5% Tolerance.

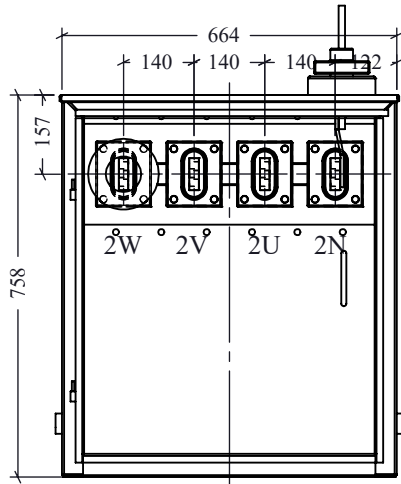
**CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA**

Note: All Dimensions are in mm with subject to tolerance ±5%.

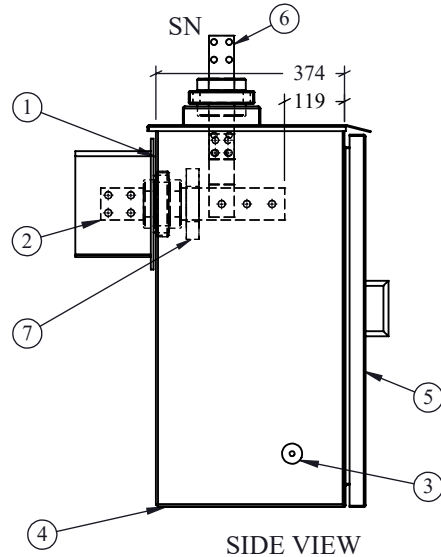
Drawing approval subject to valid vendor registration

ELECTRICAL CLEARANCES AS PER CBIP IN B-CB T/F		
	Ph - Ph (Min)	Ph - E (Min)
HV	530	480
LV	25	20

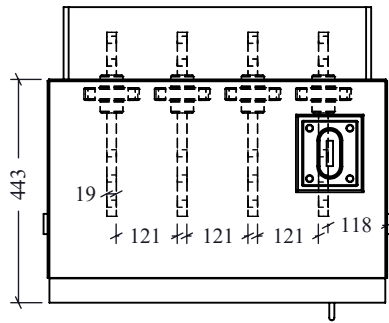
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	VER	0	
	Date	16-01-2023	
	Drawn	Lokesh	
ALL DIMENSIONS ARE IN MM	Checked	Raju	
	Approved	PR	
	DRG NO: ET-GA-A4-02		Sheet 3 of 8
ESENNAR TRANSFORMERS (P) LTD.		REV	
UNIT-II, HYDERABAD.		3	



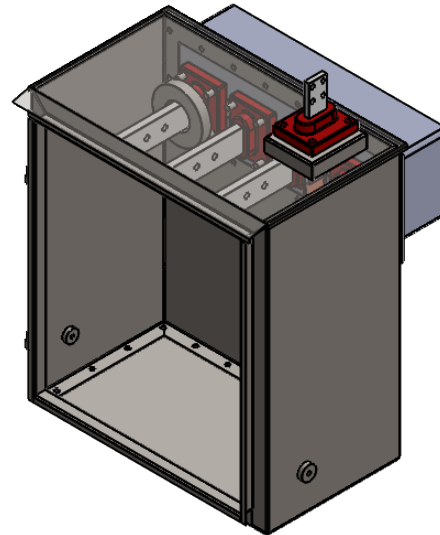
FRONT VIEW



SIDE VIEW



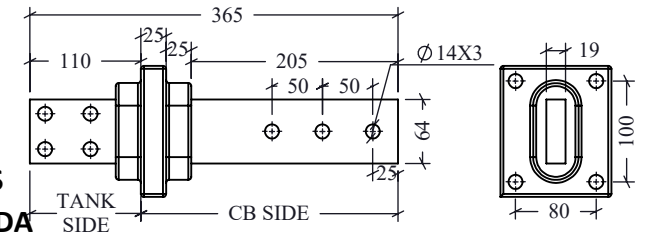
TOP VIEW



ISOMETRIC VIEW

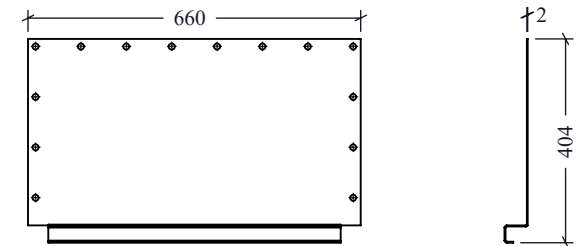
BILL OF MATERIAL		
PT.NO	DESCRIPTION	QTY
1	MOUNTING PLATE FITTED TO THE T/F	1
2	EPOXY BUSHINGS (1.1kV-2150A)	4
3	EARTHING BOSS	2
4	DETACHABLE GLANDE PLATE	1
5	FRONT DOOR WITH HANDLE	1
6	SEPERATE NEUTRAL TERMINAL	1
7	CURRENT TRANSFORMER FOR WTI-880/5A	1

BUSHING DETAILS



CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA

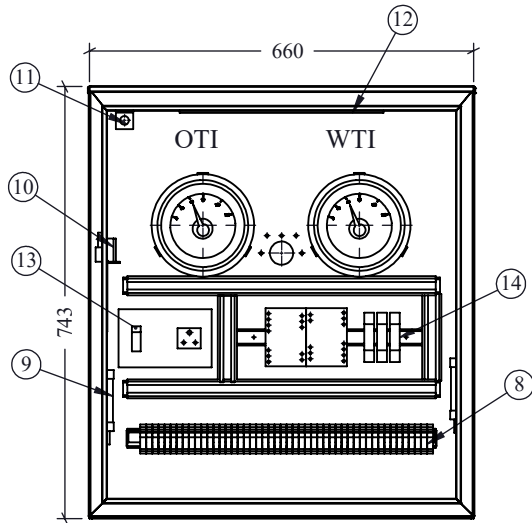
DETACHABLE GLANDE PLATE



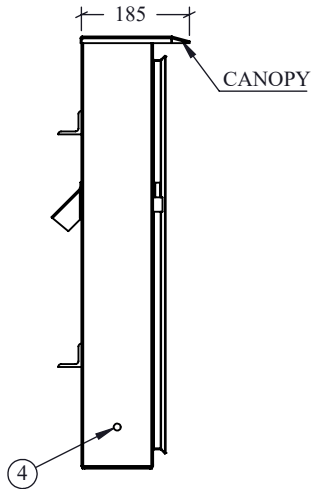
Note: All Dimensions are in mm with subject to tolerance ±5%.

- NOTE:
- CABLE BOX IS FABRICATED WITH 2MM THK. CRCA SHEET.
 - THIS CABLE BOX IS SUITABLE FOR IP-55
 - ELECTRICAL CLEARANCES IN LV CB
Ph-Ph = 25 MM MIN.
Ph-E = 20 MM MIN.
 - CABLE GLANDS AND LUGS ARE NOT IN ESENNAR SCOPE.
 - PAINT SHADE: PU LIGHT GREY ,SHADE NO.631,IS-5

SCALE: 1:15		TITLE: GENERAL ASSEMBLY OF LV CABLE BOX	
	VER 0	DRG NO: ET-GA-A4-03 Sheet 4 of 8	
	Date 16-01-2023		
	Drawn Lokesh	ESENNAR TRANSFORMERS (P) LTD. REV 3 UNIT-II, HYDERABAD.	
ALL DIMENSIONS ARE IN MM		Checked Raju	Approved PR



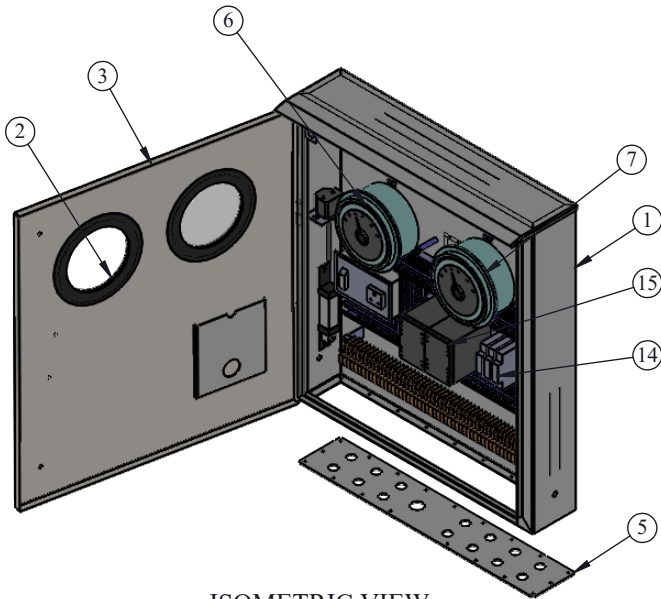
FRONT VIEW



SIDE VIEW

Drawing approval subject to valid vendor registration

MATERIAL LIST			
PT NO	DESCRIPTION	QTY	MAKES
1	ENCLOSURE	1	STURDYVOLT
2	VISIBLE GLASS - TOUGHENED GLASS	2	STURDYVOLT
3	FRONT DOOR WITH HANDLE	1	STURDYVOLT
4	EARTHING BOSS	2	STURDYVOLT
5	GLAND PLATE -DETACHABLE TYPE	1	STURDYVOLT
6	OIL TEMPERATURE INDICATOR(O.T.I) -RTD TYPE (1031H Model)	1	PRECIMEASURE
7	WINDING TEMPERATURE INDICATOR (W.T.I) -RTD TYPE (1031H Model)	1	PRECIMEASURE
8	TERMINAL BLOCKS	As Req.	ELMEX/CONNECT WELL
9	SPACE HEATER -230V AC 20W	1	RKH
10	THERMOSTAT (20°C TO 80°C)	1	GIRISH
11	PUSH BUTTON	1	ANY REPUTED
12	LED LAMP (5W)	1	HAVELLS
13	SWITCH BOARD WITH 3-PIN SOCKET	1	ANY REPUTED
14	MCB -(2A)	3	ANY REPUTED
15	CURRENT CONVERTER UNITS (4-20mA SCADA OUTPUT & INBUILT RS-485 PORT)	2	PRECIMEASURE

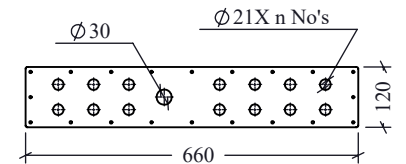


ISOMETRIC VIEW

Note:-

1. Marshalling Box is Made With **2.0mm** Thk CRCA Sheet.
2. This Marshalling Box is Suitable For IP:55
3. This Marshalling Box is Shown by considering front door is removed/Hidden in Front View, front door & Top Plate are removed/Hidden in Isometric View .
4. This Marshalling Box is Manufactured With Canopy.
5. Actual Positions of Accessories May Vary During Manufacturing Process.
6. This Marshalling Box is Weather Proof & Suitable for Out Door Application
7. 20% Spare Terminals will be Provided.
8. Neoprine Gaskets are provided b/w Door & Body.
9. Paint shade: **PU LIGHT GREY Shade no: 631-IS: 5**

GLAND PLATE (3mm Thk)

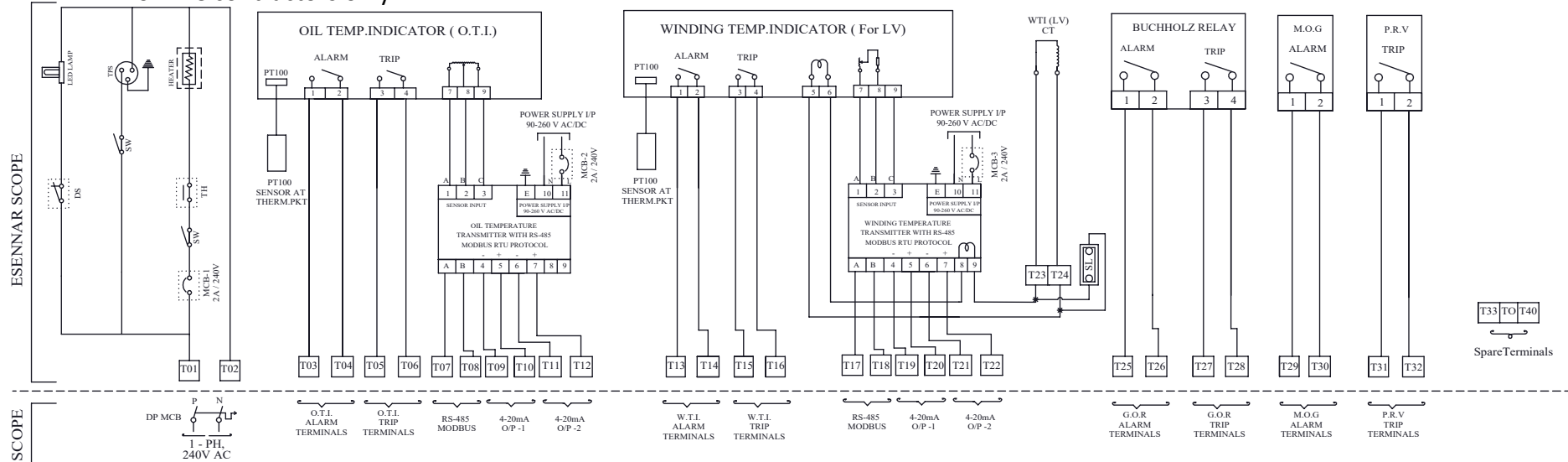


Note: All Dimensions are in mm with subject to tolerance ±5%.

**CHIEF ENGINEER/PROJECTS
APTRANSCO/VISVIJAYAWADA**

SCALE:	1:15			TITLE: GENERAL ASSEMBLY OF MARSHALLING BOX	
	VER	0		DRG NO: ET-GA-A4-04 Sheet 5 of 8	
	Date	16-01-2023			
	Drawn	Lokesh		ESENNAR TRANSFORMERS (P) LTD. UNIT-II, HYDERABAD.	
Checked	Raju				
Approved	PR		REV		
ALL DIMENSIONS ARE IN MM					

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**CHIEF ENGINEER/PROJECTS
 APTRANSCO/VS/VIJAYAWADA**

- NOTE :
1. TERMINAL BLOCKS ARE OF 1100V GRADE & 41 Amps CONTINUOUS RATING.
 - 2 A - ALARM CONTACT IS POTENTIAL FREE & NORMALLY OPEN DURING HEALTHY CONDITION.
 3. T - TRIP CONTACTS IS POTENTIAL FREE & NORMALLY OPEN DURING HEALTHY CONDITION.
 4. WTI - CT TERMINALS WILL BE WITH SHORTING LINK WITH EARTHING FACILITY.
 5. RECOMMENDED MAXIMUM TEMPERATURE SETTING OF O.T.I. & W.T.I.(SEE IN SIDE TABLE).

- Note:-1. G.O.R : BUCHHOLTZ RELAY
 2. M.O.G : MAGNETIC OIL LEVEL GAUGE
 3. PB : PUSH BUTTON.
 4. E : EARTH.
 5. P.R.V : PRESSURE RELIEF VALVE
 6. DS : DOOR SWITCH
 7. TPS : TRIPLE PIN SOCKET
 8. SL : SHORT LINK

Note: All Dimensions are in mm with subject to tolerance 5%.

DEVICE	ALARM	TRIP
O.T.I	80°C	85°C
W.T.I	85°C	90°C

SCALE:	1:50	TITLE:		WIRING DIAGRAM OF MARSHALLING BOX	
	VER	0		DRG NO: ET-GA-A4-05 Sheet 6 of 8	
	Date	16-01-2023			
	Drawn	Lokesh		ESENNAR TRANSFORMERS (P) LTD. UNIT-II, HYDERABAD.	
Checked	Raju		REV		
Approved	PR				

ALL DIMENSIONS ARE IN MM UNLESS SPECIFIED

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.
2.For EPC contractors only.

DISTRIBUTION TRANSFORMER

ESENNAR ESENNAR TRANSFORMERS (P) LTD. IS-1180
UNIT-II, HYDERABAD.PHONE : 9912347123/24/25 CML-6300051389

DISCONNECT INCOMING SUPPLY BEFORE OPERATING OFF CIRCUIT TAP SWITCH

3 PHASE TRANSFORMER

STANDARD	IS 1180 (PART 1) Amendment nO.4	ENERGY EFFICIENCY LEVEL	1
kVA	630	MAX. TOTAL LOSSES AT 50 % RATED LOAD	W 1999.5
VOLTS AT HV	33000	MAX. TOTAL LOSSES AT 100 % RATED LOAD	W 5697.5
NO LOAD LV	415	TYPE OF COOLING	ONAN
BIL(Kvp/kV)	HV LI250 AC95	TEMP RISE	OIL °C 40
	LV LI- AC3		WDG °C 45
AMPERES	HV 11.02	MASS OF OIL	kg 774
	LV 876.49		TOTAL MASS
FREQUENCY Hz	50	VOL OF OIL	lt 910
VECTOR GROUP	Dyn1	MONTH & YEAR OF MFG.	
IMPEDANCE VOLT %		SERIAL NO.	ET2-
TAPPINGS	OFF CKT		

FOR HV VARIATION IN 08 STEPS FROM +10.0 % TO -10.0 %

CUSTOMER _____

ORDER NUMBER _____

MADE IN INDIA

OFF-CKT TAP CHANGER	NO LOAD VOLTAGE
SW PSTN	CONNECTION H.V VOLTS L.V VOLTS
1	7 - 8 36300
2	8 - 6 35475
3	6 - 9 34650
4	9 - 5 33825
5	5 - 10 33000
6	10 - 4 32175
7	4 - 11 31350
8	11 - 3 30525
9	3 - 12 29700

LV

HV

WTI CT DETAILS

RATING: 880/5A

CHIEF ENGINEER/PROJECTS
APTRANSCO/VISVIJAYAWADA

CUSTOMER NOTE 1 : 1.IMPEDANCE, YEAR OF MFG, DATE OF DISPATCH & SERIAL NO. will be punched after completion of Testing.
2. Tapping range is +10.0 % to -10.0 % in steps of 2.5%.

SUPPLIER NOTE 2 : 1. Letters figures & Dark portion to be Chromium plated back ground in Dull Black..
2. Material :20g SS Sheet
3.All Dimensions are in mm
4.ESENNAR logo & " Disconnecting.....Switch " should be in RED COLOUR.

Drawing approval subject to valid vendor registration

Note: All Dimensions are in mm with subject to tolerance ±5%.

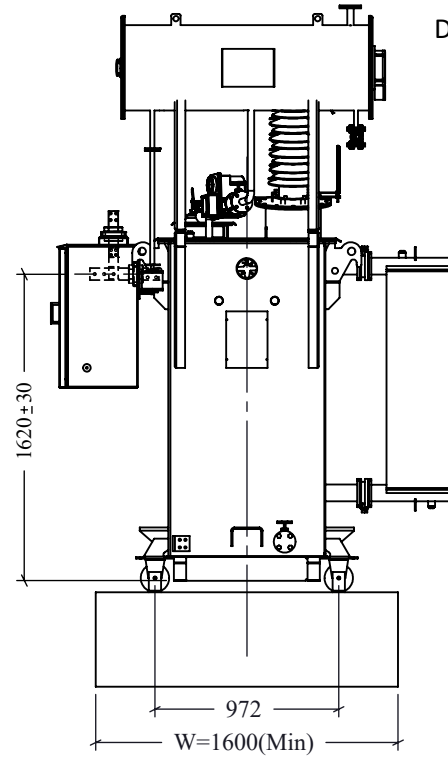
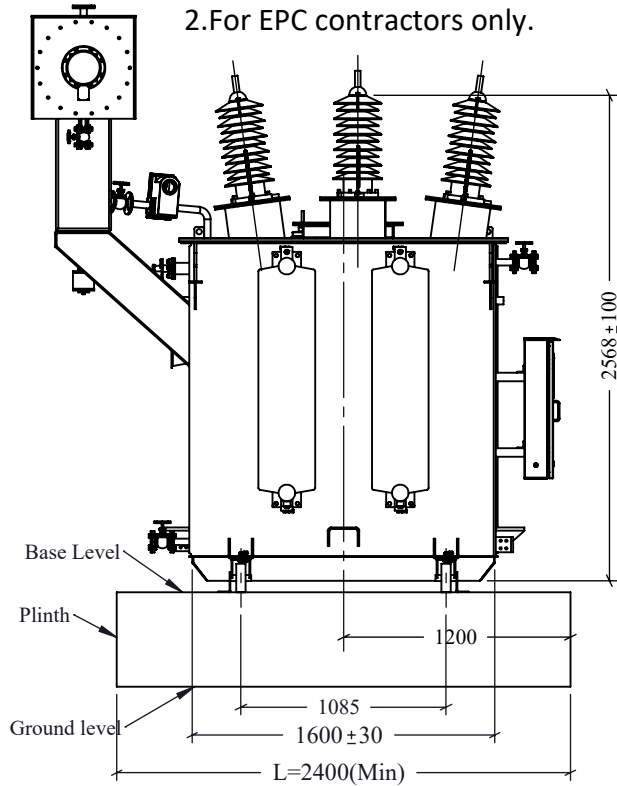
SCALE:	1:2			TITLE: RATING AND DIAGRAM PLATE
	VER	0		DRG NO: ET-GA-A4-06 Sheet 7 of 8
	Date	16-01-2023		
	Drawn	Lokesh		
ALL DIMENSIONS ARE IN MM	Checked	Raju		ESENNAR TRANSFORMERS (P) LTD. UNIT-II, HYDERABAD.
	Approved	PR		

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during

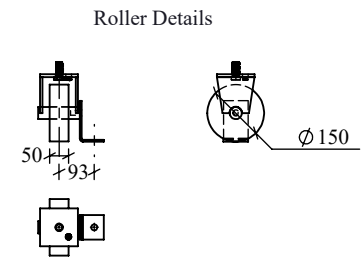
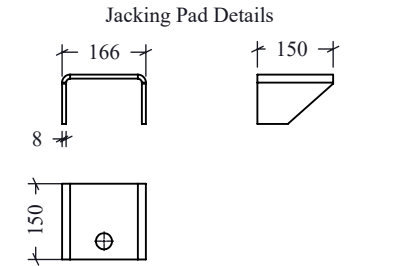
acceptance tests.

2. For EPC contractors only.

Drawing approval subject to valid vendor registration



**CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA**



Note: All Dimensions are in mm with subject to tolerance ± 5%.

NOTE:

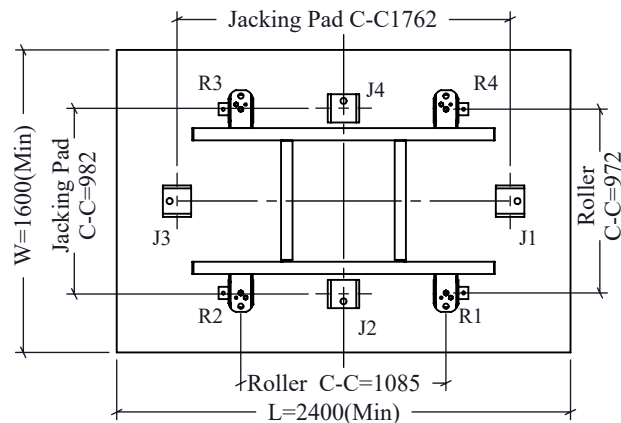
1. TOTAL WEIGHT OF TRANSFORMER IS 3065 kg's (Approx).
2. PLINTH LENGTH L=2400(Min)
3. PLINTH WIDTH W=1600(Min)
4. ALL DIMENSIONS ARE IN MM
5. ±5% TOLERANCE WHEREVER IT IS NOT MENTIONED.
6. J1,J2,J3,J4 ARE JACKING PADS
7. R1,R2,R3,R4 ARE ROLLERS (WHEELS)

LOAD ON JACKING PAD

- J1 - 766.5 Kg.(MAX) J2 - 766.5 Kg.(MAX)
- J3 - 766.5 Kg.(MAX) J4 - 766.5 Kg.(MAX)

LOAD ON ROLLER

- R1 - 766.5 Kg.(MAX) R2 - 766.5 Kg.(MAX)
- R3 - 766.5 Kg.(MAX) R4 - 766.5 Kg.(MAX)



SCALE:	1:40	TITLE:	
	VER	0	PLINTH ARRANGEMENT OF T/F
	Date	16-01-2023	
	Drawn	Lokesh	DRG NO: ET-GA-A4-07
ALL DIMENSIONS ARE IN MM	Checked	Raju	ESENNAR TRANSFORMERS (P) LTD. UNIT-II, HYDERABAD.
	Approved	PR	

ESENNAR

TRANSFORMERS (P) LTD.-Unit-II

**SHOULD NOT PARALLEL WITH DISCOM STR**GUARANTEED TECHNICAL PARTICULARS

SL. NO.	DESCRIPTION	UNIT	TECHNICAL PARTICULARS
1.0	Make		ESENNAR
2.0	ISI Marked		Yes
3.0	KVA	kVA	630
4.0	Voltage Ratio	V	33000/415
5.0	Winding Material		Copper
6.0	Ref. Standard.		IS : 1180 (Part I) : 2014 , Amendment No.4
7.0	Energy efficiency level		LEVEL 1
8.0	BIS License No		CM/L-6300051389
9.0	Phase		3
10.0	Service		Outdoor
11.0	Mounting		Plinth
12.0	Wound		Double
13.0	Temp. Rise in Oil [Degree C.]		40
14.0	By Resistance [Degree C.]		45
15.0	Ambient temperature		50
16.0	Winding Material		Copper
17.0	Type of Cooling		ONAN
18.0	Class of Insulation		Class "A"
19.0	Vector Group		Dyn1
20.0	Frequency [Hz]		50
21.0	Phase		3
22.0	Insulation Level [kV/Kvp]	[HV]	95/250
		[LV]	3/--
23.0	Primary Connection	[HV]	Delta
24.0	Primary Volts	V	33000
25.0	Primary Wires		3
26.0	Primary rated current	A	11.02
27.0	Secondary Connection	[LV]	Star
28.0	Secondary Volts	V	415
29.0	Secondary Wires		4
30.0	Secondary rated current	A	876.49
31.0	Type of tap changer :		OFF CIRCUIT Tap Changer
	Taps on Primary winding:		+10% to -10% in steps of 2.5%
32.0	No. of switch positions		9

CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA

Drawing approval subject to valid vendor registration

33.0	Terminal Arrangement	[HV]		Bare
		[LV]		Cable Box
34.0	Losses (Max)			
	At 50% Loading		Watts	2000
	At 100% Loading		Watts	5698
35.0	Impedance(Z)[Percentage] * SUBJECT TO IS TOLERANCE			
	HV - LV *			4.50%
36.0	* No Load Current(% of Rated Current)			Less than 1.5%
37.0	Weights & Dimensions(Subject to Tolerance of ±10%)			
a)	Core & Windings with clamps (Untanking Wt.)	Kgs	1500	
b)	Tank & Fittings	Kgs	791	
c)	Oil (Mineral)	Ltrs	910 (774 Kgs)	
d)	Total Weight	Kgs	3065	
e)	Overall dimensions of Transformer			
	Length	mm	2793	
	Breadth	mm	2166	
	Height	mm	3043	
38.0	HV - LV Orientation	deg.	180	
39.0	Bushing - IS:2099 & IS: 3347			
	a) Porcelain Bushings(52Kv-1000A)		3	
		[HV]		
	b) Epoxy Bushings (2150A)	[LV]	4	
40.0	Painting [Finish]		PU LIGHT GREY (631)	
			Shade No. 631-IS: 5	
Note 1 : The Specifications including the physical weights mentioned in this offer are indicative in nature. Due to Continuous improvement in design, these parameters may vary in the final product. However the performance (NLL & LL) and warranty parameters would be intact.				
II) Tests				
II. A)	Routine Tests		II. B)	Special Tests
1)	Measurement of Voltage ratio and check of phase displacement			
2)	Measurement of Insulation Resistance			
3)	Measurement of no-load loss and current			
4)	Measurement of short Circuit and Load Loss at 50% and 100% Load for IS:1180			
5)	Measurement of Winding resistance			
6)	Separte source voltage withstand test			
7)	Induced over voltage withstanad test			
8)	Total loss at 50% Load and 100% load for IS :1180			

CHIEF ENGINEER/PROJECTS
APTRANSCO/VISVIJAYAWADA

acceptance tests.

8262343/2023/EMRT-ENE51

iii) STANDARD FITTINGS AND ACCESSORIES		
S.No	DESCRIPTION	QTY(NO.S)
1)	Rating and Terminal Marking Plate	One
2)	Earthing Terminals	Two
3)	Lifting Lugs	Four
4)	Drain Valve with Blanking Plate	One
5)	Filter Valve with Blanking Plate	One
6)	Conservator	One
7)	Conservator Oil Filling Hole With Flange	One
8)	Oil Level Indicator with Min. and max Marking	One
9)	Dehydrating Breather	One
10)	Conservator Drain Plug	One
11)	Air Release Device	One
12)	Pressure Relief Valve with Trip Contacts(Viat -Make)	One
13)	Thermometer with Pocket	Three
14)	Rollers Bi directional	Four
15)	Radiators Weldable	Two
16)	HV Bare Bushing	Three
17)	LV Cable Box	One
18)	Seperate Neutral Terminal	One
19)	OFF CIRCUIT Tap Changer	One
20)	OTI with Alarm and Trip Contacts (Precimeasure – Make) (CCU for 4-20mA SCADA O/P & In Built RS-485 Port)	One
21)	Buchholz relay with Alarm and Trip Contacts (Atvus –Make)	One
22)	Current Transformer	One
23)	Marshalling Box	One
24)	W.T.I. With Alarm and Trip Contacts (Precimeasure – Make) (CCU for 4-20mA SCADA O/P & In Built RS-485 Port)	One
25)	W.T.I. Pocket	One
26)	M.O.G. with LOLA Contacts (Precimeasure – Make)	One
27)	Buchhloz relay with shut off valve	One
28)	Jacking Pads	Four
29)	Arcing Horns	One
30)	Extra Transformer Oil	One
31)	Radiator Cut Off Valves	Four
32)	Inspection Cover On Top Cover	One

Since the supply of terminanal connectors is not in the scope of manufacturer as mentioned in the drawings. The EPC contractor shall be instructed to supply the same line with CT/PT/CVT/Isolator/IVT /LA /Breaker requirement and campability.

CHIEF ENGINEER/PROJECTS
APTRANSCO/VIS/VIJAYAWADA