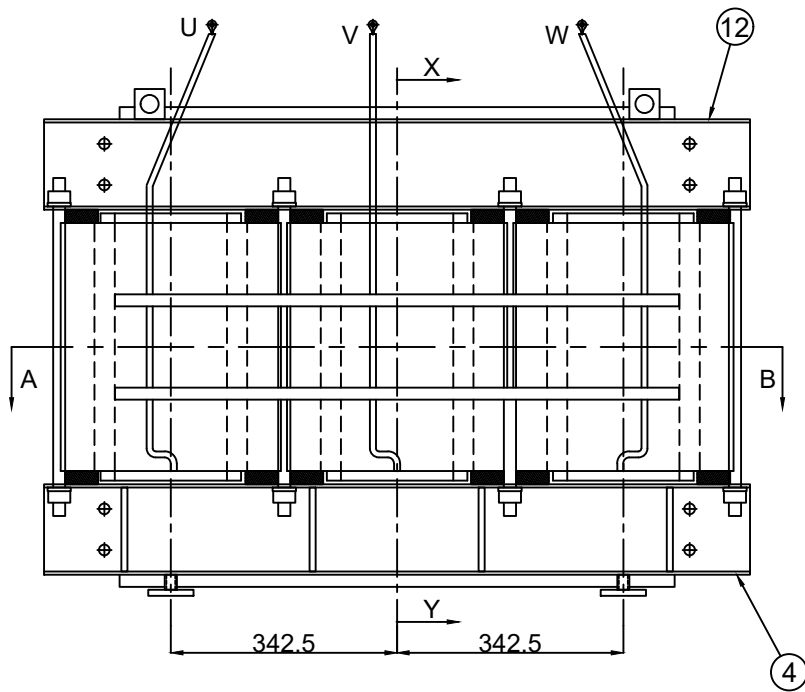


<u>GUARANTEED TECHNICAL PARTICULARS FOR 250KVA, 33/0.4 KV STATION TRANSFORMER</u>		
Sl.No	Particulars	250KVA,33/0.415KV Transformer
1	Type and make of transformer	Outdoor Type
2	Continuous maximum rating for the maximum ambient	250KVA
3	Temperature of 50oC and the temperature rise condition specified.	As Per Specs.
4	Polarity	As Per Specs.
5	Vector group reference No. and symbol (according to ISS)	Dyn11
6	Details of tank(approximate values)	
	i) Length	1100mm+/-10%
	ii) Breadth	475mm+/-10%
	iii) Height	1075mm+/-10%
	iv) Thickness of plate used	Top & Bottom : 4mm, Side 3.15mm
	v) Weight	As Per Drawings
7	Details of core	
	i) Form of core	Core type
	ii) Material and thickness of laminations	0.23mm to 0.27mm
	iii) Material used for insulating and laminations	CRGO
	iv) Diameter of core(approx)	172mm
	21 Area of Cross section of Core (approx)	210.41 Sqmm
	vi) Flux density	1.60T
	vii) Total weight of core	450Kg Approx.
8	Details of the HV windings	
	i) Type of winding	Cross Over
	ii) Conductor used	Copper
	iii) Insulation of conductor	Pressboard & Kraft Paper
	iv) No. of coils per limb	6Nos.
	v) Volts per coil	5.5KV/ Coil
	vi) No. to turns per coil	4620Nos./ Phase
	vii) Volts per turns	As Per Design
	viii) Interlayer insulation details	Pressboard & Kraft Paper
	ix) Volts between layers under 100% excitation	As Per Design
	x) End turn insulation	Pressboard & Kraft Paper
9	Details of the LV windings	
	i) Type of windings	Spiral
	ii) Conductor used	Copper
	iii) Insulation of conductor	Pressboard & Kraft Paper
	iv) No. of coils per limb	1No.
	v) Volts per coil	415V
	vi) No. to turns per coil	32Nos./ Phase
	vii) Volts per turns	As Per Design
	viii) Interlayer insulation details	Pressboard & Kraft Paper
	ix) Volts between layers under 100% excitation	As Per Design
	x) End turn insulation	Pressboard & Kraft Paper
10	Insulation details	
	i) End spacing on the HV windings	Pressboard & Kraft Paper
	ii) End Spacing on the LV windings	Pressboard & Kraft Paper
	iii) Between HV and LV windings	Pressboard & Kraft Paper
	iv) Between LV winding and core	Pressboard & Kraft Paper
11	Clearance	
	i) Minimum clearance distance to earth in air of HV terminals	320 mm
	ii) Minimum clearance distance to earth in air of LV terminals	40 mm
	iii) Minimum clearance distance between HV terminals in air	350 mm
	iv) Minimum clearance distance between HV & LV terminals in air	320 mm
	v) Minimum clearance distance between HV & LV terminals in air	320 mm

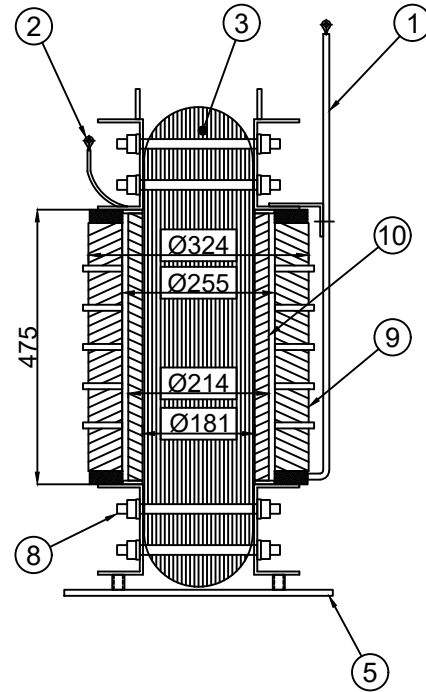
12	Insulation Strength	
i)	Impulse insulation strength(withstand values) with 1.2/50 microsecond full wave	
a)	HV Winding - HV crest	170KVp
b)	LV Winding - LV crest	NA
ii)	Impulse Chopped wave(withstand values)	
a)	HV Winding - HV crest	170KVp
b)	LV Winding - LV crest	NA
iii)	Power frequency high voltage test	
a)	HV and ground	70KVrms
b)	LV and ground	3KVrms
iv)	Induced voltage test(1 min)	As Per IS 2026
13	HV Bushings	
i)	Name of manufacturer	CJI/ Bihar/ Etc.
ii)	Type of bushing	Porcelain/ Epoxy
iii)	Rates voltage	As Per Requirement
iv)	Creepade distance of bushings	25mm/KV
14	Resistance per pahse	
i)	HV winding	62.29Ohms
ii)	LV winding	0.00274Ohms
15	Tap Changing arrangement	
i)	Type and arrangement of tap changing gear	Off Load
ii)	Location of the taps	HV Side
iii)	Details of the tap and ratio on different taps	+5% to -10% @ 2.5%
17. i)	Increase in temperature of winding at full load(resistance) with the type of cooling employed at maxim. Ambient temperature of 50oC.	45Deg C
ii)	Oil temperature rise (by thermometer) on above conditions.	40 Deg C
18	Thermal time constant.	3-4Hrs.
19	Permissible duration(in minutes) of loads following continuous running at normal rates load at a maximum ambient temperature of 50oC 10% over load	As Per IS 6600
	20% over load -do-	
	30% over load -do-	
20	Guaranteed iron loss without any plus tolerance. – watts	Total Looses @ 50% Load : 1054W @ 100% Load : 3150W
21	Guaranteed copper losses at full load and unity power factor without any plus tolerance at 75oC.	
22	Magnetising current at 90%, 100%, 110% and 120% excitations	3% @ 100% Voltage
23	Percentage resistance at 75% C	0.97%
24	Reactance voltage drop expressed at percentage of rated voltage	4.39%
25	Impedance voltage at 75oC expressed as percentage of rated voltage	4.50% +/- 10%
26	Regulation at normal full load and unity power factor tap	1.07%
27	Regulation at normal/full load and 0.8 power factor.	3.42%
28	Efficiency at unity power factor and following loads	Full Load 98.86%
	¾ Load	99.04%
	½ Load	99.16%
	¼ Load	99.05%
29	Efficiency at 0.8 power factor and following loads	Full Load 98.58%
	¾ Load	98.81%
	½ Load	98.96%
	¼ Load	98.82%
30	Quantity of oil in the transformer tank	468Ltrs.
31 i)	Total weight of transformer with oil	
ii)	Total weight of transformer with oil and fittings	1610Kg
iii)	Over all dimensions of the complete transformer	As Per Attached Drawings
32	Name and weight of the heaviest package	As Per Attached Drawings
33	Shipping dimension of the heaviest package	As Per Attached Drawings
34	Standard Specn. According to which the transformer shall be manufactured and tested.	IS 1180
35	Has, it been checked that transformer dimensions are suitable for transport up to destination railway station.	Yes

PART- II		
1.	Name of Manufacturer	
2.	Type of transformer	Outdoor Type
3.	Details of Minimum clearance in air (in mm)	
a)	Between H.V. Poles and earth	320 mm
b)	Between L.V. Poles and earth	40 mm
c)	Between H.V. Poles	350 mm
d)	Between L.V. poles	75 mm
e)	Between H.V. & L.V. Poles	320 mm
4	Permissible duration of over load following continuous running at normal rated load in an ambient temp. of 50 deg. C.	
a)	10% over load	As Per IS 6600
b)	20% over load	
c)	30% over load	
5.	Terminal arrangement H.V. side.	Bare Bushing
6	Terminal arrangement of L.V. side.	Cable Box
7	Details of tank without fittings: (Approx) in	
a)	Overall length	As Per GA Drawing Attached
b)	Overall Breadth	As Per GA Drawing Attached
c)	Overall Height	As Per GA Drawing Attached
d)	Overall Weight	1610Kg
e)	Thickness of tank sheet	Top & Bottom : 4mm, Side 3.15mm
8	Details of core:	
a)	Diameter (Approx.)	172mm
b)	Cross sectional area (Approx.)	210.41Sqmm
c)	Max. flux density at rated voltage and frequency.	1.6T
d)	Material and thickness of laminations.	CRGO
e)	Weight of stamping in core.	
	(i) Core And yoke separately in Kg	450Kg Approx.
	(ii) Yoke	
f)	Material used for insulating the laminations.	Varnish
9	H.V. Coil Construction Details:	
a.	Type of winding	Cross Over
b.	Conductor used and size	Copper (1.32 mm Dia)
c.	Number of coil per limb	6Nos/ Phase
d.	Insulation of conductor	Pressboard & Kraft Paper
e.	Inter layer reinforcement details	Pressboard & Kraft Paper
f.	End turn insulation	Pressboard & Kraft Paper
g	Normal working current density	2.50Amps/ Sqmm Max.
h	Weight of Insuated Conductor Used in One Leg of The HV	50Kg Approx
i	Number of turns	4620Nos./ Phase
j	Mean length of turns	As Per Design
k	Interlayer insulation details	Pressboard & Kraft Paper
l)	Volts per coil	As Per Design
m	Volts per layer	As Per Design
10	L.V. Coil construction details:	
a)	Type of windings	Spiral
b)	Conductor used and size	Copper (11.40x3.70mm)
c)	Number of coils per limb	One no.
d)	Insulation of conductor	Pressboard & Kraft Paper
e)	Inter layer insulation details	Pressboard & Kraft Paper
f)	End turn insulation	Pressboard & Kraft Paper
g)	Normal working current density	2.5Amp/Sqmm Max.
h)	Weight of insulated conductor used in one leg of the L.V.	27.5kg Approx.
i)	Number of turns	32Nos./ Phase
j)	Mean length of turns	As Per Design
k)	Volts per coil	As Per Design
l)	Volts per layer	As Per Design

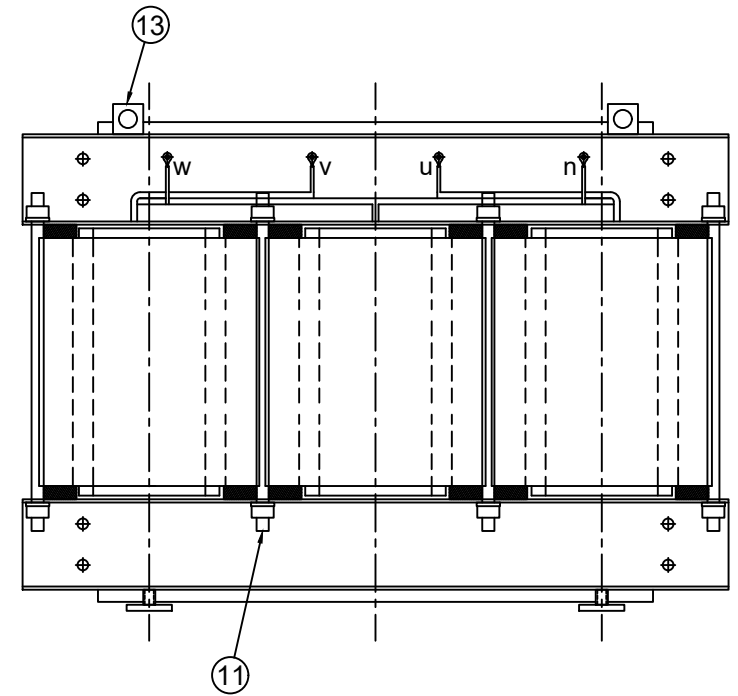
11	Insulation details	
a)	End spacing of L.V.	Pressboard & Kraft Paper
b)	End spacing of H.V.	Pressboard & Kraft Paper
c)	Between H.V. & L.V. windings	Pressboard & Kraft Paper
d)	Inter phase barrier	Pressboard & Kraft Paper
e)	End phase barrier	Pressboard & Kraft Paper
12	Performance reference temp. deg. C.	50Deg C
13	Particulars of H.V. Bushings (without arcing horns)	
a)	Name of manufacture	CJI/ Bihar/ Etc.
b)	Type	Porcelain/ Epoxy
c)	Dry flash over voltage	As Per IS 3347
d)	Wet flash over voltage	
e)	Voltage rating	
f)	Dry withstand voltage for One minute	
g)	Wet withstand voltage for 30 seconds	
h)	Under oil flash over voltage	
i)	Impulse withstand voltage for 1/50 S. Wave	
a)	Positive wave	
b)	Negative wave	
d)	Total creepage distance in air	
k)	Height of bushings above transformer tank	
14	Particulars of L.V. Neutral bushing:	
a)	Name of manufacture	CJI/ Bihar/ Etc.
b)	Type	Porcelain/ Epoxy
c)	Dry flash over voltage	As Per IS 3347
d)	Wet flash over voltage	
e)	Voltage rating	
f)	Dry withstand voltage for One minute	
g)	Wet withstand voltage for 30 seconds	
h)	Under oil flash over voltage	
i)	Impulse withstand voltage for 1/50 S. Wave	
a)	Positive wave	
b)	Negative wave	
j)	Total creepage distance in air	
k)	Height of bushings above transformer tank	
15	L.V. Cable Box	
	(a) Number of glands	As Per Requirement
16.	Particulars of taps	
a)	Type & arrangement	Off Load
b)	No. and particulars of steps and ratio on different taps	+5% to -10% @ 2.5%
c)	Whether provided on H.V. or L.V. side	HV Side
d)	Whether arrangement for indication of Tap position provided.	Yes
e)	Tap position of the principal tap	Three No.
f)	Whether a tap changing counter provided.	Provided
g)	Weight of oil in tap changing gear if housed separately.	In Tank
17	Time constant of transformer	3-4Hrs.
18	Quantity of Oil:	
a)	In the transformer tank	468Ltrs.
b)	Reserve oil provided	
19	Approximate Weights	
a)	Core and windings	As Per Rating & diagram Plate Enclsoed
b)	Tank and fittings	
c)	Transformer oil	
d)	Total weight of transformer	
e)	Name & weight of heaviest package	
20	Approximate overall dimensions (in mm)	
a)	Length	As Per GA Drawing Attached
b)	Breadth	
c)	Height	
21	Standard specification according to which transformers will be manufactured and tested.	IS 1180
22	Details of fittings, indicating name of manufacturer, drawing and I.S. reference and no. required per transformers.	As Per GA Drawing Attached



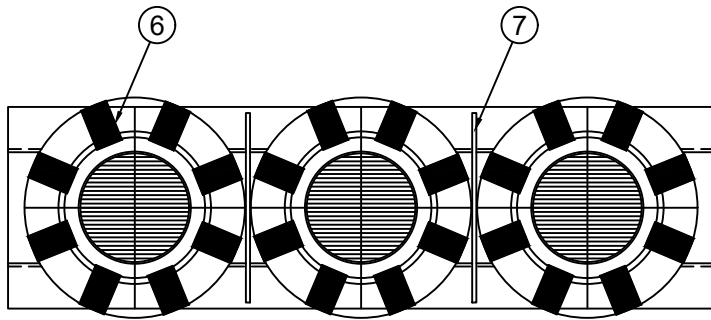
HV SIDE- DELTA CONNECTION



SECTION AT 'X-Y'
END ELEVATION



LV SIDE-STAR CONNECTION



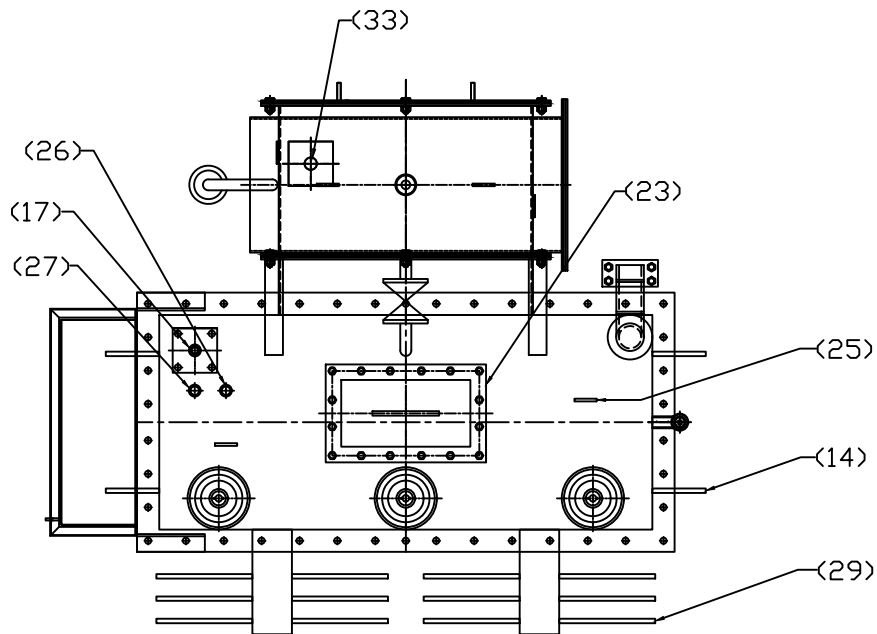
SECTION AT 'A-B'
PLAN

	LV (AL)	HV (AL)
BARE	11.40x3.7	01.32Ø
COVERING	DPC	SE

NOTES:-
ALL DIMENSIONS ARE IN mm.
TOLERANCE±5%

SL.NO.	DESCRIPTION	SIZE	DRG NO.	QTY.	UNIT.
13	LIFTING LUG	-	-	2	NO.
12	TOP CORE CLAMP	-	-	2	NO.
11	TIE ROD	-	-	8	NO.
10	LV COILS	-	-	3	NO.
9	HV COILS	-	-	18	NO.
8	CORE BOLT	-	-	8	NO.
7	PHASE BARRIERS	-	-	2	NO.
6	SPECERS	-	-	-	NO.
5	FOOT PLATE	-	-	2	NO.
4	BOTTOM CORE CLAMP	-	-	2	NO.
3	CORE	-	-	1	NO.
2	LV TERMINALS	-	-	4	NO.
1	HV TERMINALS	-	-	3	NO.

TITLE			
JOB NO.			
CUSTOMER		UPPTCL	
VOLTAGE		INPUT: 33000 VOLT	OUTPUT: 415 VOLT
		KVA 250	



TOP VIEW

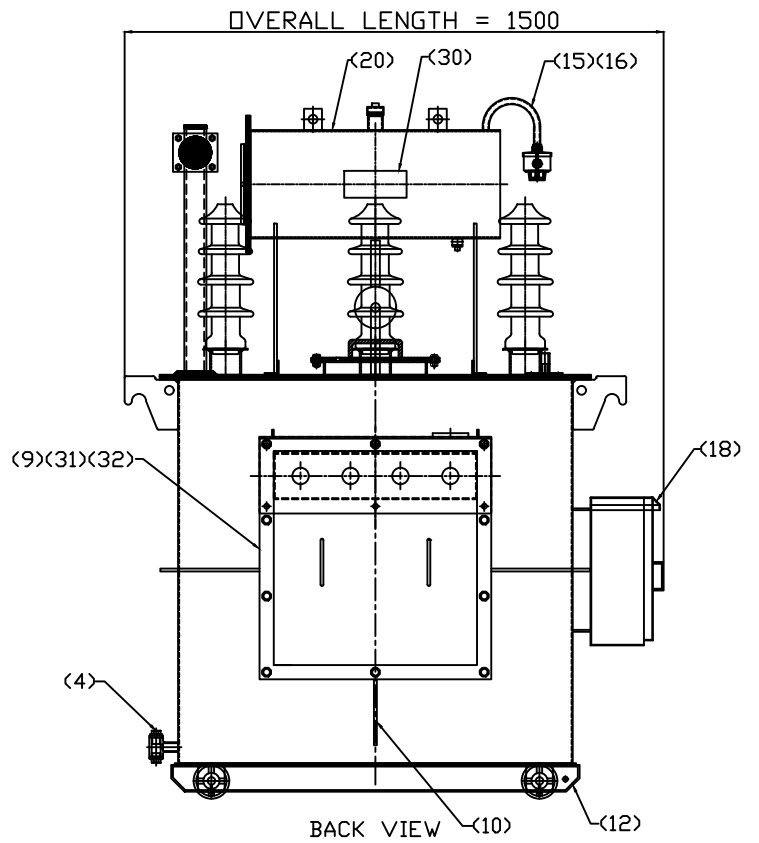
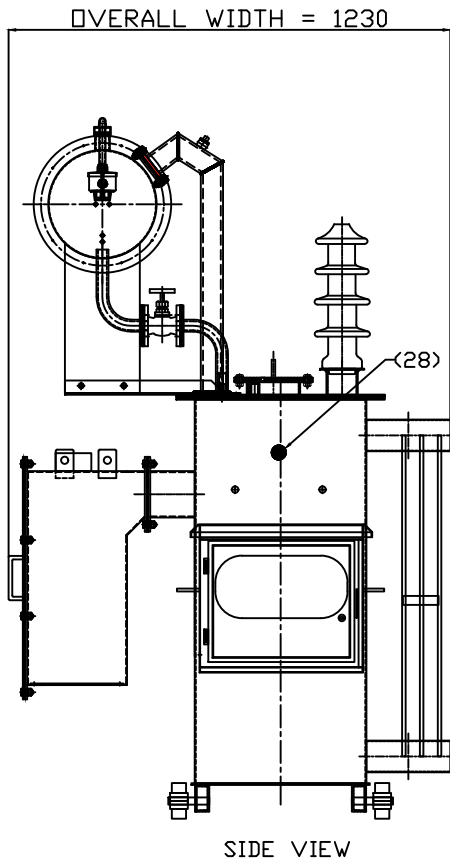
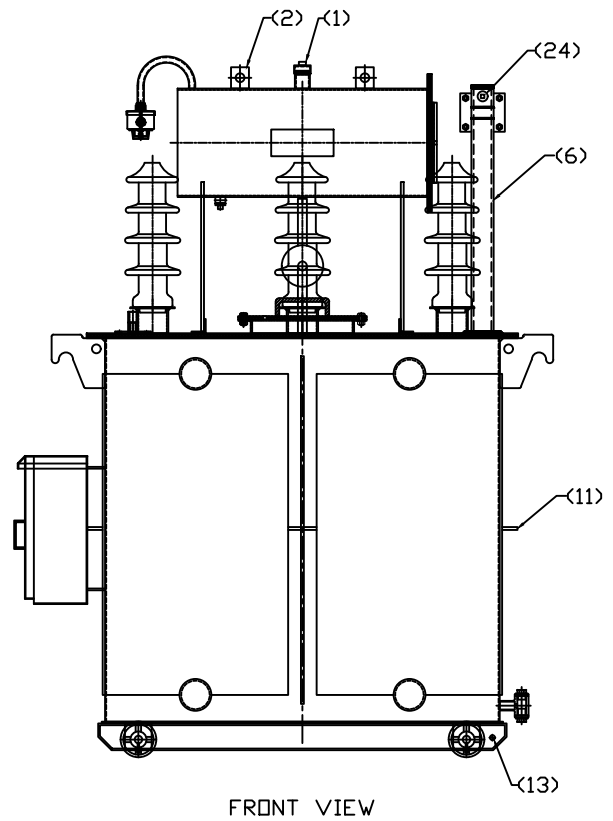
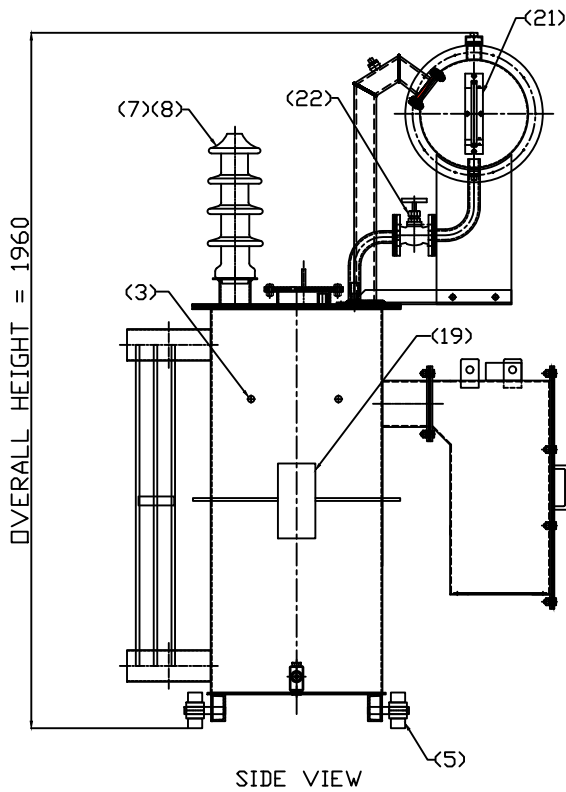
NOTES:-

- 1 - ALL DIMENSIONS ARE IN mm.
- 2 - TOLERANCE: [+/-] 10 %
- 3 - POSITION OF FITTINGS & ACCESSORIES ARE SHOWN APPROXIMATE AND MAY BE LIGHTLY CHANGE AT THE TIME OF MANUFACTURING

SNo.	Description	Size/Drg No	Qty	Unit
33	EARTHING BUSHING		1	No.
32	LT POCKET		1	No.
31	LT BUSHING		4	No.
30	LOGO PLATE		1	No.
29	RADIATORS		2	No.
28	NORMAL TAPPING SWITCH		1	No.
27	DTI POCKET		1	No.
26	THERMOMETER POCKET		1	No.
25	TOP COVER LIFTING LUG		2	No.
24	AIR RELEASE PLUG		1	No.
23	INSPECTION WINDOW		1	No.
22	SHUT OFF VALVE		1	No.
21	OIL LEVEL GAUGE (PRISMATIC)		1	No.
20	CONSERVATOR		1	No.
19	NAME RATING PLATE		1	No.
18	MARSHALLING BOX		1	No.
17	WTI POCKET		1	No.
16	SILICAGEL BREATHER		1	No.
15	BREATHER PIPE		1	No.
14	TANK LIFTING LUGS		4	No.
13	EARTHING TERMINAL HOLE		2	No.
12	UNI-DIRECTIONAL UNDERBASE CH.		2	No.
11	HORIZONTAL STIFFENER		1	No.
10	VERTICAL STIFFENER		2	No.
9	LT CABLE BOX		1	No.
8	HT BUSHING POCKET		3	No.
7	HV BUSHING		3	No.
6	EXPLOSION VENT PIPE		1	No.
5	WHEELS		4	No.
4	DRAIN VALVE		1	No.
3	LOCKING BOX NUT		4	No.
2	CONSERVATOR LIFTING LUG		2	No.
1	OIL FILLING NIPPLE WITH CAP		1	No.

TITLE			
JOB-NO			
CUSTOMER	UPPTCL		
PROJECT			
VOLTAGE	INPUT : 33000VOLT	OUTPUT : 415VOLT	
	KVA 250		

FIRST ANGLE PROJECTION



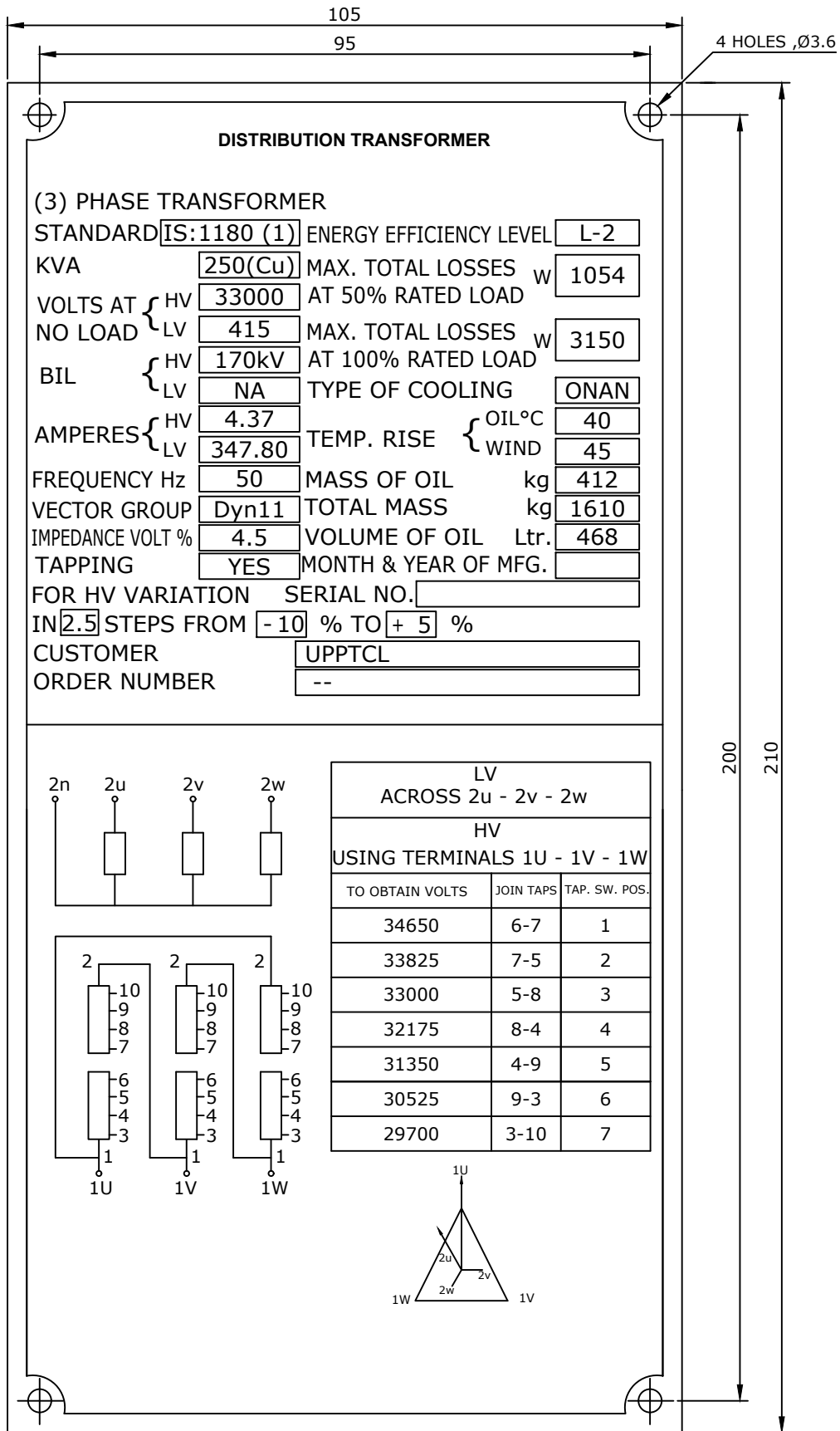
NOTES:-

- 1 - ALL DIMENSIONS ARE IN mm.
- 2 - TOLERANCE: [+/-] 10 %

JOB OVERALL DIMENSIONS:-

LENGTH = 1500 mm
 WIDTH = 1230 mm
 HEIGHT = 1960 mm

TITLE			
JOB-NO			
CUSTOMER	UPPTCL		
PROJECT			
VOLTAGE	INPUT :33000VOLT	OUTPUT :15VOLT	
		KVA	
		250	



NOTES :-

- ALL DIMENSIONS ARE IN mm.
- TOLERANCES ± 2%

TITLE		
JOB-NO		
CUSTOMER	UPPTCL	
PROJECT		
VOLTAGE	INPUT : 33000VOLT	OUTPUT : 415VOLT
	KVA 250	