



NORTH BIHAR POWER DISTRIBUTION COMPANY LTD.

(Regd. Office : Vidyut Bhawan, Baily Road, Patna)

Office of Chief Engineer, Project-I(Rural)

Letter No : N-XIII/RDSS/V.A/Chapra Circle-3128/2023 :...../Dated...../

CIN No.- U40109BR2012SGC018920

Contact No.: +91-9264440719

E-mail : cerdssnbpdc12@gmail.com

From,

J.K.Bhanu,

Chief Engineer, Project-I(Rural)

To,

M/s NCC Ltd.

NCC House, Survey no. 64, Madhapur,

Hyderabad, 500081

Email: elec.tenders@ncccltd.in

Sub:- Regarding approval of GTP & Drawing of 25 KVA Distribution Transformer of make M/s Precision Engineering & Thermal Components, Patna for Loss Reduction Component works under "Revamped Reforms-Based and Results-Linked Distribution Sector Scheme.

Ref:- 1) NOA No.-244&245, both dated 06.03.2023

2) Your Lt. No.- NCCL/RDSS/NBPDCL/PATNA/641, dated 04.06.2024

Sir,

With reference to the above, please find the copy of approved GTP & Drawing of following item for Loss Reduction Component works under "Revamped Reforms-Based and Results-Linked Distribution Sector Scheme":-

S.N.	Material Description	Vendor Name
1	25 KVA Distribution Transformer	M/s Precision Engineering & Thermal Components Rupaspur, Jalalpur, Dist.-Patna

Correction where required in GTP & Drawing submitted by you has been done. However, these GTP & Drawing shall be subject to correctness as per technical specifications of the tender document and the entire responsibility of correctness of the GTP & Drawing as per the specifications as well as supply of material according to the technical specifications of the contract agreement shall be that of the contractor.

In case of any conflict or contradiction between GTP & Drawing the decision of Chief Engineer, Project-I (Rural) shall be final and binding on both parties. Contractor shall have to replace the material to the entire satisfaction of the purchaser in case the material is found unsuitable for use in the project, at any stage.

Please carry out the works immediately under the conditions stated above.

Yours faithfully

Sd/-

J.K.Bhanu,

Chief Engineer, Project-I(Rural)

Memo No.:...../

Dated :...../

Copy forwarded **M/s Vindhya Telelinks Limited**, Club 125, 6th floor, Tower A, Plot No- 3, 4 & 5, Sector 125, Noida, UP-201301 / **M/s Polycab India Ltd.**, Polycab House, 771, Pandit Satwalekar Marg, Mumbai / **M/s Ashoka Buildcon Ltd.**, S.No.-861, Ashoka House, Ashoka Marg, Vadala, Nashik-422011 for information and necessary action.

Sd/-

J.K.Bhanu,

Chief Engineer, Project-I(Rural)

Memo No.: 1724 /

Dated : 07-06-24

Copy forwarded to Chief Engineer, Project-I (Urban), NBPDC / Chief Engineer (Project-II), NBPDC
for information and further needful action.

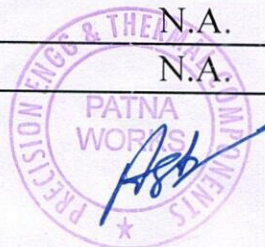


J.K. Bhanu,

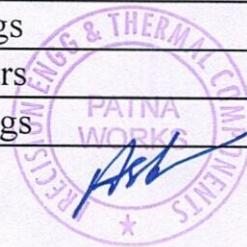
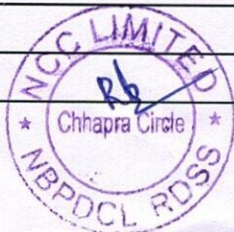
Chief Engineer, Project-I (Rural)

**11/0.433 KV, 25 KVA, 3-Phase, Outdoor, 1-star rated(Level1), CRGO Core
(To be furnished by the Manufacturer)**

Sl. No.	Description	
	Name of the tenderer.	
1	Make	
2	Name of Manufacturer	PRECISION ENGINEERING AND THERMAL COMPONENTS
3	Place of Manufacture	<i>Patna</i>
4	Voltage Ratio	11/0.433kv
5	Rating in KVA	25 KVA
6	Core Material used and Grade:	
	(a) Flux density	1.6 T (Max) ✓
	(b)Over fluxing without saturation (Curve to be furnished by the Manufacturer in support of his claim)	1.8 T ✓
7	Maximum temperature rise of:	Checked
	(a) Winding by resistance method	40 c ✓
	(b) Oil by thermometer	35 c ✓
8	Magnetizing (no-load) current at :	Checked
	(a). 90% Voltage	2.75% APPROVED
	(b) 100% Voltage	3% Subject to the condition that you are not absolved of the responsibility of correctness of materials.
	(c) 110% Voltage	6%
9	Core loss in watts:	Checked
	(a) Normal voltage	NA
	(b) Maximum voltage	NA
10	Resistance of windings at 20°C	
	(with 5% tolerance):	
	(a) HV Winding (ohms)	N.A.
	(b) LV Winding (ohms)	N.A.

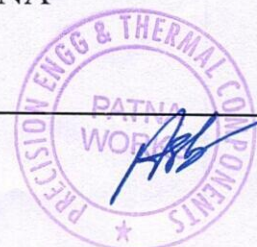


11	Full load losses (watts) at 75°C	N.A.
12	Total Losses at 100% load at 75°C	190 Watts
13	Total Losses at 50% load at 75°C	635 Watts
14	Current density used for: (Amper/sq mm)	
	(a) HV Winding	1.2 Amper/sq mm ✓
	(b) LV Winding	1.2 Amper/sq mm ✓
15	Clearances: (mm)	
	(a) Core and LV	3.5 mm ✓
	(b) LV and HV	11 mm ✓
	(c) HV Phase to Phase	10 MM
	(d) End insulation clearance to earth	20 MM
	(e) Any point of winding to tank	25 MM ✓
16	Efficiency at 75°C	
	(a) Unity P.F	97.91%
	(b) 0.8 P.F.	
	(1) 125% load	97.71%
	(2) 100% load	97.41%
	(3) 75% load	97.82%
	(4) 50% load	98.13%
	(5) 25% load	97.94%
17	Regulation at:	Subject to the condition that you are not absolved of the responsibility of correctness of materials.
	(a) Unity P.F.	1.84
	(b) 0.8 P.F. at 75°C	3.96
18	% Impedance at 75°C	4.5%±10%
19	Flash Test:	
	(i) HV 28 kV/50 HZ for 1 minute	WILL WITHSTOOD
	(ii) LV 3 kV/50 Hz for 1 minute	WILL WITHSTOOD
20	Over potential Test(Double Voltage and Double frequency for 1 minute)	WILL WITHSTOOD
21	Impulse test	75 kvp
22	Mass of : (kg)	
	(a) Core and Winding Assembly	135 kgs
	(b) Tank and fittings	92 kgs
	(c) Oil weight	70 kgs
	(d) Volume of Oil	86 Ltrs
	(f) Total weight	297 kgs



* It is to be ensured that type test for supplied transformer of same design as per terms & condition of Ts/NIT.

23	Oil Data:	
	(1) Quantity for first filling (minimum) litre)	86 ltrs ✓
	(2) Grade of oil used	New EHV Gr-II
	(3) Maker's name	Raj Petro, APAR, SAVITA, IOCL <i>type tested only. As per IS: 335</i>
	(4) BDV at the time of filling (kV)	65kV ✓
24	Transformer:	
	(1) Overall length x breadth x height (mm x mm x mm)	890x850x755 mm
	(2) Tank length x breadth x height	684x275x610/590 mm
	(3) Thickness of plates for	
	(a) Side plate (min)	3.15 mm
	(b) Top and bottom plate (min)	5.00 mm
25	Radiation:	
	(1) Heat dissipation by tank walls excluding top and bottom	NA
	(2) Heat dissipation by cooling tube	NA
	(3) Diameter and thickness of cooling tube	NA
	(4) Whether calculation sheet for selecting cooling area to ensure that the transformer is capable of giving continuous rated output without exceeding temperature rise is enclosed.	yes APPROVED Subject to the condition that you are not absolved of the responsibility of correctness of materials. <i>an</i>
26	Inter layer insulation provided in design for:	C. E., Project-I (Rural) NBPDC
	(1) Top and bottom layer	8Mil
	(2) In between all layer	4Mil
	(3) Details of end insulation	Total 20mm
	(4) Whether wedges are provided at 50% turns of the HV coil	NA



Checked /
AEE(P-1) ESE(P-1)

27	Insulation materials provided	
	(a) For Conductors	
	(1) HV	SEM
	(2) LV	DPC
	(b) For Core	PHOSFATE COATING
28	Material and Size of the wire used	ALUMINIUM
	(1) HV Dia (mm) (SWG)	1.01 mm
	[] []	
	(2) LV	
	(a) Strip size	8.25x3.85
	(b) No. of Conductors in parallel	one
	(c) Conductor cross section (min)	31.76 Sq mm
29	Whether the name plate gives all particulars as required in Tender	Yes
30	Particulars of bushings HV/LV	
	(1) Maker's name	Adpro, Shine, Bppl
	(2) Type IS-3347/IS-2099/IS7421	IS-3347/IS-2099
	(3) Rating as per IS	17.5 KV/630 Amps
	(4) Dry power frequency voltage withstand test	28
	(5) Wet power frequency voltage withstand test	28

Checked
 ACC(P-1) EEL(P-1) ESE(P-1)

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Subject to the condition that you are not absolved of the responsibility of correctness of materials.

C.E., Project-I (Rural)
 NBPDCI

For Precision Engineering & Thermal Components

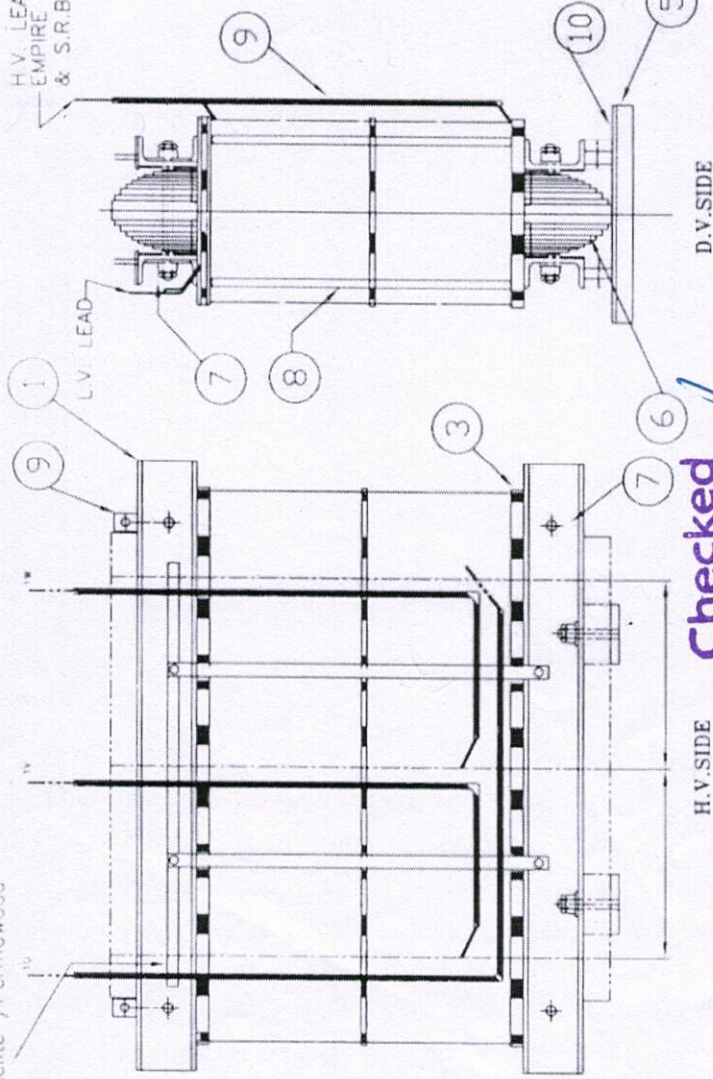


Note:—

- 1) Transformer shall be suitable for loading as per IS:6600.
- 2) All fitting and accessories to be provided as per TS.
- 3) Bushing shall be as per relevant IS.
- 4) Arching Horns to be provided with HV Bushing
- 5) Audible sound level at rated voltage & frequency shall be < 50 db
- 6) CRGO shall be procured from PCCIL approved vendor only.
- 7) Side tank shall be painted with varnish/Hot oil resistant paint
- 8) LV & HV bushing shall be provided with suitable Terminal connectors with eye bolts as per IS:5082.

(Handwritten signature)

Bakelite / Permwood



H.V. LEAD COVERED BY EMPIRE SLEEVING & S.R.B.P. TUBE

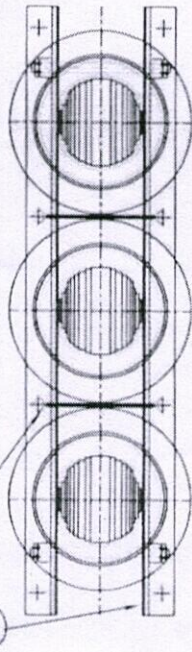
H.V. SIDE

D.V. SIDE

H.V. CONDUCTOR SIZE = 1.02 AL SEM
E.S.E(P-1)
E.S.E(P-1)
E.S.E(P-1)
E.S.E(P-1)

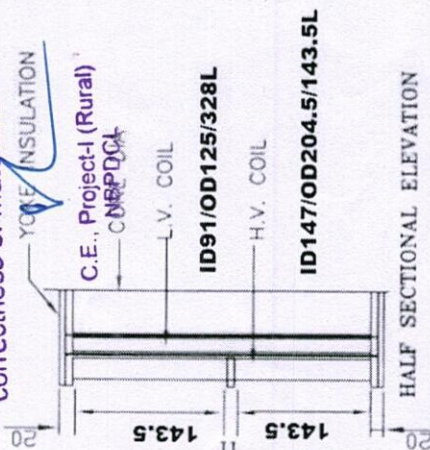
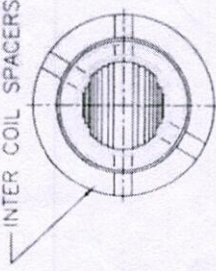
APPROVED

Subject to the condition that you are not absolved of the responsibility of correctness of materials.



TOP PLAN

INTER COIL SPACERS 4-Nos.



HALF SECTIONAL ELEVATION

◆ ALL DIMENSIONS IN MM

10	FOOT PLATE INSULATION	PRESS BOARD - 2 mm	2
9	HT LEAD INSULATION	S R B P TUBES	-
8	TIE ROD WITH SRBP TUBE	12 mm. DIA. M.S. ROD	4
7	CORE STUDS WITH SRBP TUBE	12 mm DIA. M.S. ROD	4
6	CORE CONSTRUCTION	C.R.G.D.	-
5	FOOT PLATE	75x40 MM (M.S.CHANNEL)	2
4	PHASE BARRIER	PRESS BOARD (1.00x2)	2
3	YDKE INSULATION	P.C.P.B	2
2	CORE CLAMP INSULATION	PRESS BOARD (20 x 1)	2
1	CORE CLAMP CHANNEL	75 x 40 CHANNEL	4
##	LIST OF FITTINGS	MAT.	QTY

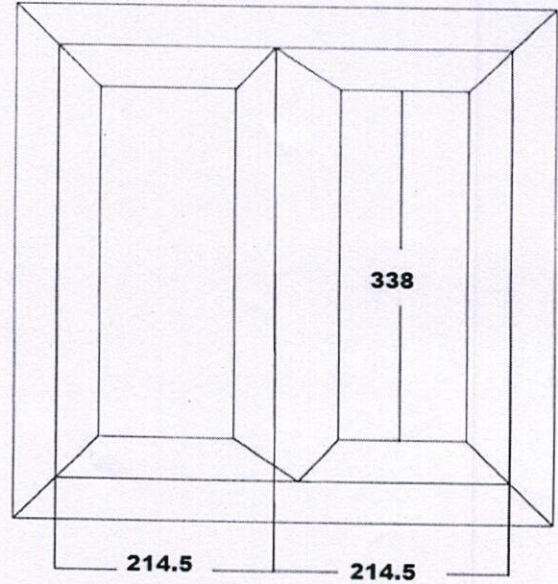
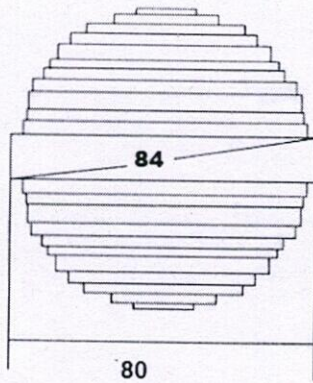
PRECISION ENGINEERING & THERMAL COMPONENTS
RUPASPUR, JALAI PUR, PATNA, BIHAR - 801506

OUTLINE DRAWING

DRN BY: U.S.
APPRD BY: [Signature]

D/ATE: 01.05.2023
SCALE: N.T.S.
CUST REF.:
DRG. NO: OL/25/03

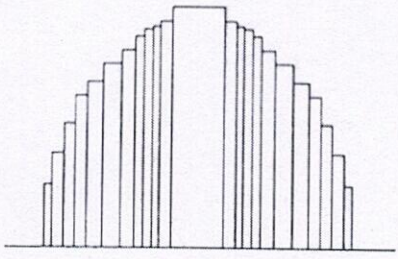




Checked
 AEE(P-1) EEE(P-1) ESE(P-1)

STEP	WIDTH (mm)	THICKNESS	AREA
1	80	25.61	2048.80
2	75	12.22	916.50
3	70	8.60	602.00
4	65	6.77	440.05
5	60	5.58	334.80
6	55	4.70	258.50
7	50	4.01	200.50
8	45	3.43	154.35
9	40	2.94	117.60
10	30	4.60	138.00
Total			5211.10

YOKE SECTION



NET AREA = 5054.767 mm sq.
 NO. OF TURN = 148 (LT side)
 FLUX DENSITY = 1.5 Tesla
 No of Turn = 6512 (HT side)



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C.E., Project-I (Rural)
 NBPDCI

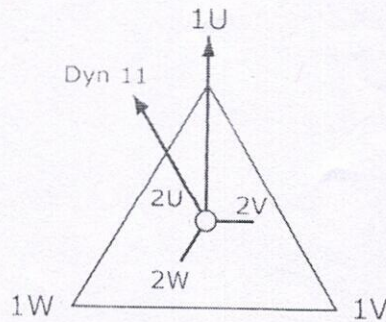
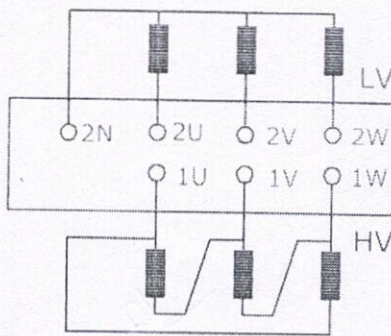
PRECISION ENGINEERING & THERMAL COMPONENTS RUPASPUR, JALALPUR, PATNA, BIHAR -801506			
DRN BY	U.S.	CORE DETAILS	
APPRD BY	H.K.R.K.S.		
DATE	01.05.2023	25 KVA, 11/0.433KV, 3PH, 50HZ AL.WOUND DISTN. I/FS E.E. LEVEL-2	
SCALE	N.T.S	CUST REF.	DRG.NO: OL/25/04

105

DISTRIBUTION TRANSFORMER

3 PHASE TRANSFORMER		ENERGY EFFICIENCY LEVEL	2
STANDARD	IS:1180(PART-I):2014	SERIAL NO.	
KVA	25	MAX.TOTAL LOSSES AT 50% RATED LOAD	190W
VOLTS AT NO LOAD	{ HV 11000 LV 433	MAX.TOTAL LOSSES AT 100% RATED LOAD	635W
BIL	{ HV 75KVP LV	TYPE OF COOLING	ONAN
AMPERES	{ HV 1.31 LV 33.33	TEMP.RISE { OIL °C WDGS °C	35 / 40
WOUND	AL	CORE & WINDING KG.	135
FREQUENCY Hz	50	MASS OF OIL KG.	85
VECTOR GROUP	Dyn 11	TOTAL MASS KG.	321
IMPEDANCE VOLTAGE	4.5%	VOL. OF OIL LTR.	104
DISPACH DATE		MONTH & YEAR OF MFG.	
CUSTOMER'S REF.		DATE OF EXPIRY	
ORDER NO.			

MADE IN INDIA



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Subject to the condition that you are not absolved of the responsibility of correctness of materials.

C.E., Project-I (Rural)
NBPDCI



PRECISION ENGINEERING & THERMAL COMPONENTS RUPASPUR, JALALPUR, PATNA, BIHAR -801506			
DRN BY	U.S	NAME PLATE DRAWING	
APPRD BY		25 KVA ,11/0.433KV,3PH,50HZ AL.WOUND DISTN.T/FS E.E.LEVEL-1	
DATE	01.05.2023	CUST REF.	
SCALE	N . T . S		DRG.NO: OL/25/01

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 AEE(P-1) EEE(P-1) ESE(P-1)

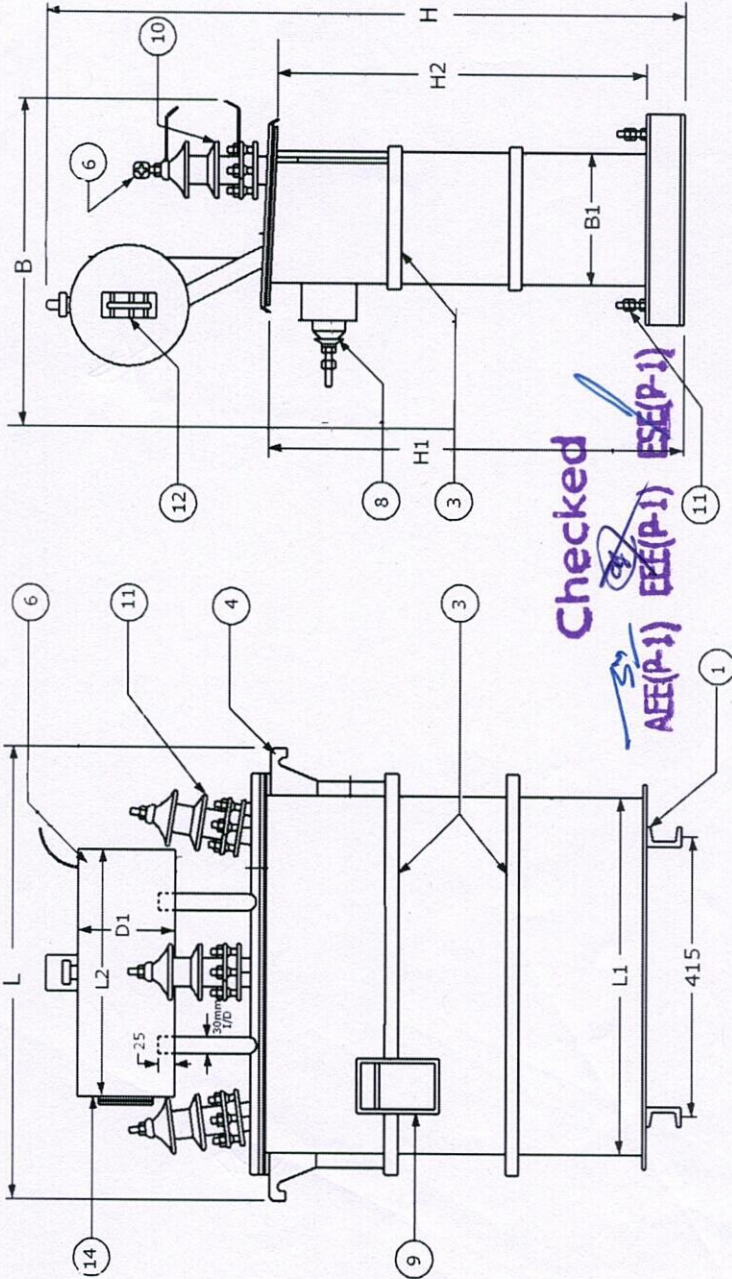
175

ELECTRICAL CLEARANCE IN AIR IN mm MIN

CLEARANCE BETWEEN	H V	H1	H2
PHASE TO PHASE	255	75	75
PHASE TO EARTH	140	40	40

DIMENSIONS IN mm	L1	B1	H1	H2	CONSERVATOR	
TANK (INSIDE)	685	285	673	657	D1	L2
OVERALL	L	B	H	1490	180	400

S.No	WEIGHT CHART	FIGURES
1	CORE COIL WINDING	135 Kgs.
2	TANK WITH FITTINGS	101 Kgs.
3	WEIGHT OF OIL	85 Kgs.
4	TOTAL WEIGHT	321 Kgs.
5	OIL VOLUME	104 Ltrs.



Checked
 AEE(P-1) EEE(P-1) ESE(P-1)

TANK SHEET THICKNESS	3.15 mm
SIDES	5.0 mm
TOP & BOTTOM	5.0 mm

APPROVED

Subject to the condition that you are not absolved of the responsibility of correctness of materials.

C.E., Project-I (Rural)
 NBPDCCL



#	DESCRIPTION	QTY
14	CONSERVATOR	1
13	AIR FREE BREATHER	1
12	OIL LEVEL GAUGE WITH THREE MARKING	1
11	EARTHING TERMINALS	2
10	THERMOMETER POCKET	1
9	NAME AND RATING PLATE	1
8	L.V. BHUSING	4
7	ANTI THEFT FASTENERS	1
6	H.T. BHUSHING WITH BI-METALLIC CONNECTOR, ARCING HORNS	3
5	P.R.V DEVICE	1
4	LIFTING LUNG	2
3	TANK BODY STIFFENER 50X50X6	2
2	AIR RELEASE PLUG	1
1	UNDER BASE CHANNELS - 75X40X460	2

PRECISION ENGINEERING & THERMAL COMPONENTS
 RUPASPUR, JALALPUR, PATNA, BIHAR - 801506

U.S.
 OUTLINE DRAWING

DRN BY	U.S.	25 KVA, 11/0.433KV, 3PH, 50HZ AL. WOUND DISTN.T./FS E.E.LEVEL-2
APPRD BY		
DATE	01-05-2023	CUST REF.
SCALE	N.T.S	DRG.NO: OI/25/04

NOTE:
 1. TOLERANCE WEIGHTS & DIMENSIONS ± 5%