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TEST REPORT

ULR-TC538919000014527F **Sheet :** 1 of 15

NAME AND ADDRESS OF CUSTOMER	**REPORT NO.:** RP-1920-004663 **DATE** : 02.05.2019	
RAJASTHAN POWERGEN TRANSFORMER PVT. LTD. KHASRA NO. 911-914, KAROLA-BHINMAL ROAD, KAROLA, SANCHORE, RAJASTHAN-343041	**CUSTOMER REF. NO.**	**DATE**
	LETTER	03.04.2019
	DATE OF SAMPLE RECEIPT	**DATE OF TESTING**
	20.03.2019	08.04.2019 TO 25.04.2019

SAMPLE DESCRIPTION	**SAMPLE IDENTIFICATION**
DISTRIBUTION TRANSFORMER (NON-SEALED TYPE) Manufactured by : RAJASTHAN POWERGEN TRANSFORMER PVT. LTD. Rating : 25 kVA Volts : 11000/433 V (at no-load) Current : 1.31/33.33 Amps Phases : 3/3 Vector group : Dyn11 Energy efficiency level : 2 Further details as per sheet no.2	ERDA sample code number : ERDA-00307717 Manufacturer serial number: RPTPL-001 Year of manufacture : 2019 Enclosed drawing numbers : 1) RPTPL-25KVA-RP-01/02-2019 SHEET 01 OF 02 2) RPTPL-25KVA-RP-02/02-2019 SHEET 02 OF 02 3) RPTPL-GA-25KVA-02-2019 4) RPTPL-CD-25KVA-05-2019
TEST DETAILS As per sheet 3 of 15.	**TEST SPECIFICATION** As per sheet 3 of 15.

TEST RESULTS : As per sheets from 4 of 15 to 14 of 15.

ENCLOSURE : Photographs of test sample – As per sheet 15 of 15.

REMARKS : 1) The transformer **conforms** to the guaranteed requirement as per above mentioned test specification for above mentioned test nos. 3,4,5,6,9,10,11, 12,14.
2) Criteria limit has not been specified for test nos. 1,2,7,8 & 13.

PREPARED BY **CHECKED BY** **APPROVED BY**
(Kapil J. Sharma)

Note : 1. This report relates only to the particular sample received for testing in good condition at E.R.D.A.,Makarpura.
2. This report cannot be reproduced in part under any circumstances.
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4. Only the tests asked for by the customer have been carried out.
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REPORT NO.: RP-1920-004663 **Sheet :** 2 of 15
DATE : 02.05.2019

TECHNICAL SPECIFICATIONS OF TEST OBJECT ASSIGNED BY CUSTOMER

1.	Name of Manufacturer	RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.
2.	Sr.No.	RPTPL-001
3.	kVA rating	25
4.	Rated Voltage H.V.(Volts)	11000
5.	Rated Voltage L.V.(Volts)	433
6.	Rated Current H.V.(Amp.)	1.31
7.	Rated Current L.V.(Amp.)	33.33
8.	Number of phases	3
9.	Energy Efficiency level	2
10.	Vector Group	Dyn11
11.	Winding Material	Aluminium
12.	Type of Cooling	ONAN
13.	Frequency (Hz)	50
14.	Guaranteed Percentage impedance (%)	4.5
15.	Total losses at 50 % load (Watts)	190
16.	Total losses at 100 % load (Watts)	635
17.	Guaranteed temperature rise of oil/Winding	35/40°C
18.	Year of Manufacture	2019
19.	Standard no.	IS 1180 (PART-1) 2014 with amendment no. 1,2 & 3,IS 2026, As per CBIP manual ,as per customer's requirement.

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REPORT NO.: RP-1920-004663 **Sheet :** 3 of 15
DATE : 02.05.2019

	TEST DETAILS	TEST SPECIFICATION
1.	Measurement of short-circuit impedance and load loss at 50 percent and 100 percent load	As per cl.no.21.2.c of IS 1180 (Part 1):2014
2.	Measurement of no-load loss and current	As per cl.no.21.2.d of IS 1180 (Part 1):2014
3.	Total losses at 50 % load	As per cl.no. 6.8 of IS 1180 (Part 1):2014
4.	Total losses at 100 % load	As per cl.no. 6.8 of IS 1180 (Part 1):2014
5.	Temperature rise test	As per customer's requirement, testing procedure followed as per Cl.no.21.3.b of IS 1180 (Part 1) :2014
6.	Magnetic balance test	As per CBIP manual; Publication no.317 - 2013
7.	Measurement of unbalance current	As per customer's requirement
8.	Measurement of zero-sequence impedance(s) on three-phase transformers	As per customer's requirement, testing procedure followed as per cl.no.10.7 of IS 2026 (Part 1): 2011
9.	Oil leakage test	As per cl.no.21.2.j of IS 1180 (Part 1):2014
10.	Pressure test (routine test)	As per cl.no.21.2.h of IS 1180 (Part 1):2014
11.	Pressure test (type test)	As per cl.no.21.3.d of IS 1180 (Part 1):2014
12.	Determinations of sound levels	As per customer's requirement, testing procedure followed as per cl. no. 21.4.a of IS 1180 (Part 1) : 2014 & cl. No.13 of IS 2026(Part 10): 2009
13.	Measurement of the Harmonics of the No-load current	As per customer`s requirement testing procedure followed as per cl.no.10.6. of IS: 2026 (PART 1)-2011
14.	Permissible flux density and over fluxing	As per cl.no.6.9 of IS 1180 (Part 1):2014

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REPORT NO.: RP-1920-004663 **Sheet :** 4 of 15
DATE : 02.05.2019

Sr. No.	Particulars of test and Cl. No.	Requirement as per specification	Obtained Value	Remarks
1.	**Measurement of short-circuit impedance and load loss at 50 percent and 100 percent load :** (As per cl.no.21.2.c of IS 1180 (Part 1): 2014)			---
	At 50% load : Tested with 0.6552 Amps (on HV side) Frequency : 49.995 Hz Oil temperature : 28.6 °C			
	Test current (Amps)		0.6552	
	Impedance voltage (Volts)		222.75	
	Measured load loss (Watts)		104.09	
	Impedance voltage (%) (Computed to 50% load)			
	At 28.6°C		2.03	
	At 75°C	---	2.05	
	Load loss (Watts) (Computed to 50% load)			
	At 28.6°C		104.34	
	At 75°C	---	122.98	
	At 100% load : Tested with 1.3117 Amps (on HV side) Frequency : 49.992 Hz Oil temperature : 28.6°C			
	Test current (Amps)		1.3117	
	Impedance voltage (Volts)		446.08	
	Measured load loss (Watts)		417.57	
	Impedance voltage (%) (Computed to 100% load)			
	At 28.6°C		4.05	
	At 75°C	4.5 (±10%)	4.18	**Conforms**
	Load loss (Watts) (Computed to 100% load)			
	At 28.6°C		416.49	
	At 75°C	---	490.95	---

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REPORT NO.: RP-1920-004663 **Sheet :** 5 of 15
DATE : 02.05.2019

Sr. No.	Particulars of test and Cl. No.	Requirement as per specification	Obtained Value	Remarks
2.	**Measurement of no-load loss and current :** (As per cl.no.21.2.d of IS 1180 (Part 1): 2014)Tested with average 433.92 Volts (on LV side) Frequency : 50.080 Hz RMS voltage (Volts) No-load current (mA) Measured no-load loss (Watts) Corrected no-load loss (Watts)	 ---	 435.46 192.67 58.45 58.25	---
3.	**Total losses at 50 % load (Watts) :** (As per cl.no.6.8 of IS 1180 (Part 1):2014)	Max. 190	181.23	**Conforms**
4.	**Total losses at 100 % load (Watts) :** (As per cl.no.6.8 of IS 1180 (Part 1):2014)	Max. 635	549.20	**Conforms**

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REPORT NO.: RP-1920-004663 **Sheet :** 6 of 15
DATE : 02.05.2019

Sr. No.	Particulars of test and Cl. No.	Requirement as per specification	Obtained value	Remarks
5.	**Temperature-rise test :** (As per customer's requirement, testing procedure followed as per Cl.no.21.3.b of IS 1180 (Part 1) :2014) Before starting test, the dimensions of tank were measured & recorded. Size of tank : L1-665 mm, W1-250 mm, H1-635 mm, H2-645 mm, **Specified losses fed for temperature-rise test were 635 Watts.** Specified losses were fed to the transformer (i.e. Supply was connected to HV winding and LV winding kept short-circuited) till steady state temperature-rise was attained. Top oil temperature was recorded hourly. After steady state condition, the losses were brought down in reference to the rated current one hour prior to shut down. At the shutdown, the hot windings resistance were measured and temperature-rise calculated. A) Top oil temperature-Rise : B) Winding Temperature Rise (Resistance method) 1) HV Winding : 2) LV Winding : C) Ambient temperature at shutdown : D)Time of Shutdown(HRS) :	 Max. 35°C Max. 40°C Max. 40°C	 28.1°C 32.4°C 32.8°C 38.9°C 15:30	**Conforms**

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REPORT NO.: RP-1920-004663 **Sheet :** 7 of 15
DATE : 02.05.2019

Sr. No.	Particulars of test and Cl. No.			Requirement as per specification	Obtained Value	Remarks
6.	**Magnetic balance test :** (As per CBIP manual; Publication no.317 - 2013)					**Conforms**
	Voltage Applied Between	Applied Voltage (Volts)	Measured Voltage Between			
	2u & 2n	100.03	2v & 2n	50 to 90 V	71.35	
			2w & 2n		29.39	
	2v & 2n	100.08	2u & 2n	30 to 70 V	49.31	
			2w & 2n	30 to 70 V	51.25	
	2w & 2n	100.32	2u & 2n		27.41	
			2v & 2n	50 to 90 V	73.91	
7.	**Measurement of unbalance current :** (As per customer's requirement) All the three terminals of the secondary (LV) winding shorted together, except neutral terminal. Ammeter was connected between short circuited secondary (LV) windings and neutral terminal for measurement of unbalance current. 3-phase voltage was applied to the primary (HV) winding for circulating rated current in both the windings and measured unbalance current.					---
	a) Rated secondary (LV) winding current:				33.33 Amp	
	b) Measured unbalance current :				<0.1 Amp	
	c) Measured unbalance current(%) :			--	<0.3	

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REPORT NO.: RP-1920-004663 **Sheet :** 8 of 15
DATE : 02.05.2019

Sr. No.	Particulars of test and Cl. No.	Requirement as per specification	Obtained Value	Remarks
8.	**Measurement of zero-sequence impedance(s) on three-phase transformers :** (As per customer's requirement, testing procedure followed as per cl.no.10.7 of IS 2026 (Part 1) : 2011) The 2u, 2v and 2w terminals of LV winding shorted together. A test current (i.e. 1/3rd of rated current) was circulated between shorted terminals and 2n and measured a voltage across them. The obtained values are tabulated as below: Test current (Amps) Measured Voltage (Volts) $Z\,ps = \frac{3V}{I}$ (Ω/Phase) $Z\,ps = \frac{3V \times kVA}{I \times 10\,(kV)^2}$ (%)	--- ---	 11.098 1.130 0.305 4.07	---
9.	**Oil leakage test :** (As per cl.no.21.2.j of IS 1180 (Part1: 2014) The assembled transformer with all fittings including bushings in position was tested at a pressure at the top equivalent to the head that was available at the base of the tank for 8 hours.	There should be no leakage at any point	No leakage observed.	**Conforms**
10.	**Pressure test (routine test) :** (As per cl.no.21.2.h of IS 1180 (Part 1: 2014) The transformer was tested at an air pressure of 35 kPa above atmosphere pressure maintained inside the tank for 10 min.	There should be no leakage at any point.	No leakage observed.	**Conforms**

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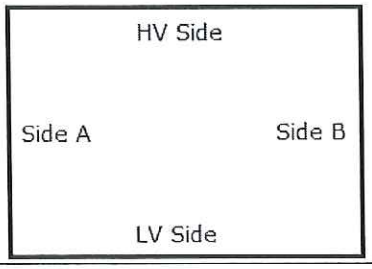
REPORT NO.: RP-1920-004663 **Sheet :** 9 of 15
DATE : 02.05.2019

Sr. No.	Particulars of test and Cl. No.	Requirement as per specification	Obtained Value	Remarks
11.	**Pressure test (type test) :** (As per cl.no.21.3.d of IS 1180(Part 1): 2014) ➢ The transformer tank was subjected to air pressure of 80 kPa for 30 minutes. The permanent deflection of flat plates were recorded, after pressure has been released.			**Conforms**
	Deflection Measured at / Length of Plate (mm)			
	HV side 665	Max. 5.0 mm	0.9 mm	
	LV side 665	Max. 5.0 mm	0.6 mm	
	Side A 250	Max. 5.0 mm	0.1 mm	
	Side B 250	Max. 5.0 mm	0.0 mm	
	➢ The transformer tank was subjected to vacuum of 250 mm of Mercury for 30 minutes. The permanent deflection of flat plates were recorded, after vacuum has been released.			
	Deflection Measured at / Length of Plate (mm)			
	HV side 665	Max. 5.0 mm	0.8 mm	
	LV side 665	Max. 5.0 mm	0.7 mm	
	Side A 250	Max. 5.0 mm	0.2 mm	
	Side B 250	Max. 5.0 mm	0.1 mm	
		There should be no air leakage at any point.	No air leakage observed.	

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REPORT NO.: RP-1920-004663 **SHEET:** 10 OF 15
DATE : 02.05.2019

Particulars of Tests & Cl. No.:
12) Determinations of sound levels [A- Weighted Sound Power Level Measurement]
[As per customer's request, testing procedure followed as per Cl. No. 21.4.a of IS 1180 (Part 1):2014 & Cl. No. 13 of IS 2026 (Part 10): 2009]

Condition of transformer	Transformer was energized at no load condition & excited at the rated voltage of sinusoidal waveform & rated frequency.
Details of equipment used:	**Name:** Sound level meter **Make:** Lutron **Meter Type:** Type 1 **Serial No.:** I.62852 **Calibration Report No. & Date:** V-181201-1-4 DTD. 01.12.2018

TEST RESULTS:

A-Weighted sound pressure levels of the background noise

Sr. No.	Measurement Locations (Refer Sketch Below)	At the start of test dB(A)	At the end of test dB(A)
1	A	46.3	46.2
2	B	46.2	46.8
3	C	46.6	46.8
4	D	46.3	46.6
5	E	46.7	46.0
6	F	46.9	46.7
7	G	46.8	46.5
8	H	46.3	46.2
9	I	46.4	46.4
10	J	46.8	46.8
Arithmetic Average $\overline{L_{bgA}}$		**46.5**	**46.5**

A-Weighted sound pressure levels at energized condition L_{pAi}

Sr. No.	Measurement Locations (Refer Sketch Below) dB(A)	L_{pAi} dB(A)
1	A	46.9
2	B	47.0
3	C	47.3
4	D	47.8
5	E	47.6
6	F	47.3
7	G	47.4
8	H	47.7
9	I	47.2
10	J	47.3
	Arithmetic Average $\overline{L_{pA0}}$	**47.4**

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REPORT NO.: RP-1920-004663 **SHEET:** 11 OF 15
DATE : 02.05.2019

TEST PARAMETERS:

Measurement distance : 1 m,

Microphone Spacing: 1 m

Measurement made : Half of the height of the transformer tank

Method followed: Sound pressure measurement as per Cl. No. 11, 11.3 & Table 2 of IS 2026 (Part 10): 2009.

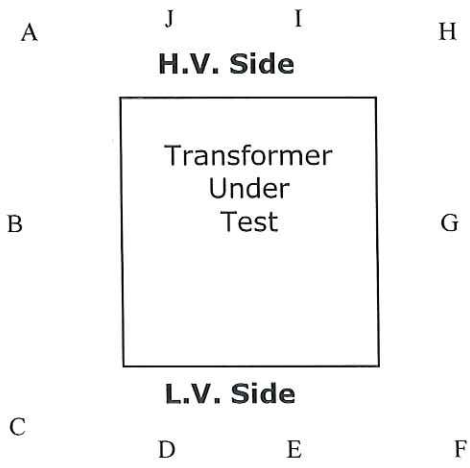
Length of prescribed contour: 10.806 m

Transformer Tank Height: 0.645 m

Person present during sound level measurement: 3

A-Weighted sound pressure level ($\overline{L_{pA0}}$):	47.4 dB(A)
Corrected average A-weighted sound pressure level ($\overline{L_{pA}}$):	40.1 dB(A)
Calculated A- weighted sound power level (L_{WA}) :	49.5 dB(A)

REMARKS: 1] Guaranteed value of sound pressure level is considered as 48 dB(A) as mentioned in customer's letter.
2] Transformer conforms to the requirement of guaranteed value of Sound pressure level.



Sketch showing the locations of sound measurement

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REPORT NO.: RP-1920-004663 Date: 02.05.2019

Sr. No.	Particulars of test and clause no.	Requirement as per specification.	Obtained value	Remarks
13	**Measurement of the Harmonics of the No-load current** (As per customer's request testing procedure followed as per cl. no. 10.6 of IS 2026 (Part 1):2011)	The harmonics of the no-load current in the three phases shall be measured and magnitude of the harmonics shall be expressed as a percentage of the fundamental component.	Refer table 1 for individual current harmonics components & individual voltage harmonics components measured at LV side at rated voltage i.e. 433 V Current THD: R-ph: 27.26% Y-ph: 28.8% B-ph: 23.15% Voltage THD: R-ph: 2.11% Y-ph: 1.96% B-ph: 2.22%	---

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REPORT NO.: RP-1920-004663 Date: 02.05.2019

TABLE-1 : Harmonics in voltage and current (as a percentage of fundamental)

Harmonic order	Current I_R in %	Current I_R in Amps	Voltage V_{RY} in %	Current I_Y in %	Current I_Y in Amps	Voltage V_{YB} in %	Current I_B in %	Current I_B in Amps	Voltage V_{BR} in %
1	100.00	0.19	100.00	100.00	0.16	100.00	100.00	0.20	100.00
2	0.52	0.00	0.03	0.67	0.00	0.01	1.05	0.00	0.04
3	10.58	0.02	0.25	13.41	0.02	0.27	3.77	0.01	0.43
4	0.18	0.00	0.02	0.40	0.00	0.04	0.49	0.00	0.02
5	24.44	0.05	2.02	24.82	0.04	1.85	22.22	0.04	2.08
6	0.17	0.00	0.02	0.05	0.00	0.04	0.15	0.00	0.02
7	5.70	0.01	0.48	5.57	0.01	0.48	5.06	0.01	0.57
8	0.06	0.00	0.01	0.07	0.00	0.02	0.03	0.00	0.02
9	0.15	0.00	0.09	0.51	0.00	0.14	0.54	0.00	0.24
10	0.05	0.00	0.01	0.02	0.00	0.02	0.05	0.00	0.00
11	0.65	0.00	0.12	1.02	0.00	0.10	0.82	0.00	0.09
12	0.01	0.00	0.01	0.06	0.00	0.01	0.04	0.00	0.02
13	0.15	0.00	0.04	0.30	0.00	0.05	0.20	0.00	0.09
14	0.05	0.00	0.01	0.04	0.00	0.01	0.04	0.00	0.02
15	0.13	0.00	0.04	0.15	0.00	0.04	0.01	0.00	0.10
16	0.03	0.00	0.02	0.10	0.00	0.02	0.03	0.00	0.01
17	0.31	0.00	0.10	0.53	0.00	0.11	0.31	0.00	0.07
18	0.05	0.00	0.01	0.07	0.00	0.02	0.02	0.00	0.01
19	0.27	0.00	0.07	0.54	0.00	0.18	0.24	0.00	0.05
20	0.03	0.00	0.01	0.10	0.00	0.02	0.04	0.00	0.02
21	0.14	0.00	0.05	0.16	0.00	0.12	0.09	0.00	0.04
22	0.03	0.00	0.01	0.04	0.00	0.01	0.09	0.00	0.02
23	0.14	0.00	0.03	0.29	0.00	0.05	0.12	0.00	0.04
24	0.04	0.00	0.02	0.06	0.00	0.03	0.03	0.00	0.01
25	0.04	0.00	0.01	0.07	0.00	0.02	0.07	0.00	0.00
THD %	27.26		2.11	28.80		1.96	23.15		2.22
Parameter measured	0.20 A		432.20 V	0.17 A		436.60 V	0.21 A		437.40 V

Prepared by Checked by

High Voltage Products Division * Vadodara *

TC 27682855

ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION
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Certificate No. : TC-5389

ULR-TC538919000014527F

REPORT NO.: RP-1920-004663 **Sheet :** 14 of 15
DATE : 02.05.2019

Sr. No.	Particulars of test and Cl. No.	Requirement as per specification	Obtained Value	Remarks
14.	**Permissible flux density and overfluxing :** (As per cl.no.6.9 of IS 1180 (Part 1):2014) **[a] Overfluxing test :** Test voltage at rated frequency was applied to the L.V. winding terminals and H.V. winding terminals were kept open circuited and exciting current was recorded at 100 % and 112.5 % of rated voltage. Rated full load current of L.V. winding = 33.33 Amps			**Conforms**

% of rated Voltage	Test voltage (Volts)	No load current		
100 %	435.46	192.67 mA	Max. 3.0 %	0.578 %
112.5 %	487.16	402.05 mA	Max. 6.0 %	1.206 %

[b] Permissible flux density :

Transformer was opened for the measurement of total area of the core. The core was dismantled and various dimensions of width and thickness were measured to calculate the total area of the core. Number of turns of L.V. winding were counted.

Total measured area of the core: **5345.57** mm^2
Stacking factor : **0.97** (As specified by customer)
Total no. of turns of L.V winding: **152** per phase
Rated Voltage of L.V winding : **250 V** per phase
Rated frequency : **50** Hz

Flux density is calculated with +12.5 percent combined voltage and frequency variation from rated voltage and frequency.

$$\text{Flux density} = \frac{\text{112.5 \% of voltage per phase}}{\text{(4.44 x Freq.(Hz) x Turns x Area of Core)}}$$

Max. 1.90 Tesla | 1.61 Tesla

PREPARED BY **CHECKED BY**

TC 2776781

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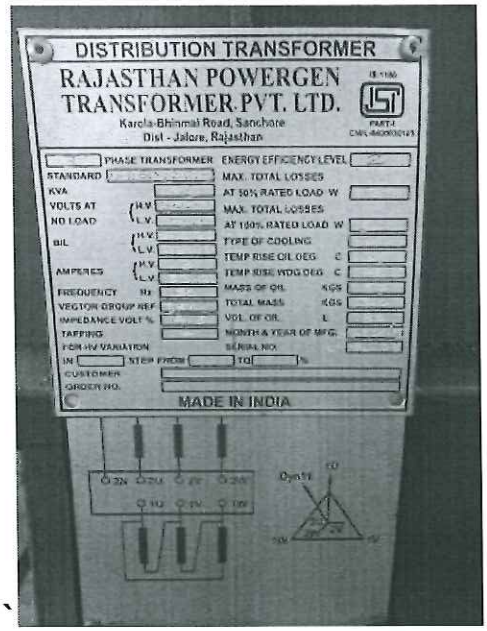
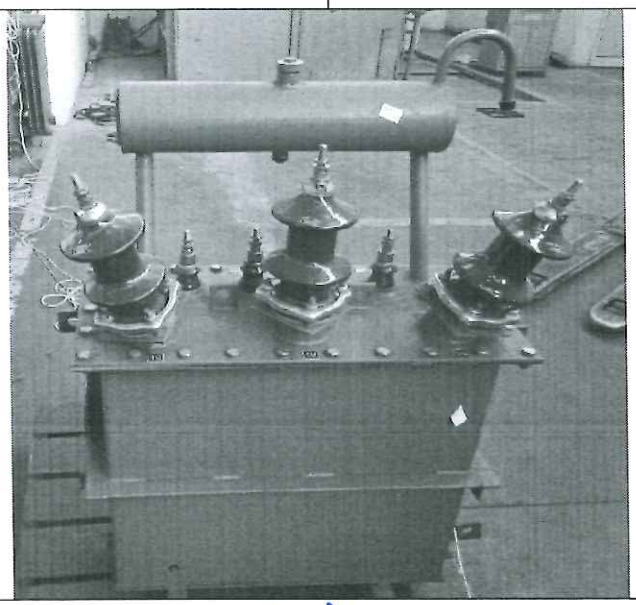
ULR-TC538919000014527F

REPORT NO.: RP-1920-004663 **Sheet :** 15 of 15
DATE : 02.05.2019

PHOTOGRAPHS OF TEST SAMPLE





PREPARED BY **CHECKED BY**

TC 2768290

DISTRIBUTION TRANSFORMER

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.

KAROLA–BHINMAL ROAD KAROLA SANCHORE–343041
RAJASTHAN.(INDIA)

IS: 1180
PART-I
CM/L-8400030105

3	PHASE TRANSFORMER				
STANDARD		IS:1180 (2014)	ENERGY EFFICIENCY LEVEL		2
KVA		25	MAX. TOTAL LOSSES AT 50% RATED LOAD W		190
VOLTS AT NO LOAD	HV	11000	MAX. TOTAL LOSSES AT 100% RATED LOAD W		635
	LV	433	TYPE OF COOLING		ONAN
BIL	HV	95kVp/28kVrms	TEMP RISE OIL DEG C		35
	LV	–/3kVrms	TEMP RISE WDG DEG C		40
AMPERES	HV	1.31	MASS OF OIL KGS		67
	LV	33.33	TOTAL MASS KGS		300
FREQUENCY		50 Hz	VOL. OF OIL L		80
VECTOR GROUP REF.		Dyn–11	MONTH & YEAR OF MFG.		MAR–2019
IMPEDANCE VOLT %		4.5	SERIAL NO.		RPTPL–001
TAPPING		–			

FOR HV VARIATION IN [ ] STEP FROM [ ] TO [ ] %

CUSTOMER
ORDER NO.

MADE IN INDIA

95
105

95
105

Test Report No. RP-1920-004663
Date : 2-5-19
Product : 25 KVA DT
Verified by :
Verification of this drawing by ERDA is limited to relevant dimensional checks only. Verified dimensions are marked with '*'

SIZE: 105x105 mm HOLE CENTER: 95x95 mm

NOTE:
* SERIAL NO,
YEAR OF MANUFACTURE &
MONTH OF MANUFACTURE
WILL BE PUNCHED AT THE TIME OF DISPATCH
MATERIAL : Anodized Aluminum
THICKNESS : 1.5mm

REV. NO.	DATE SIGN	BRIEF DESCRIPTION
	16.03.2019	01 of 02

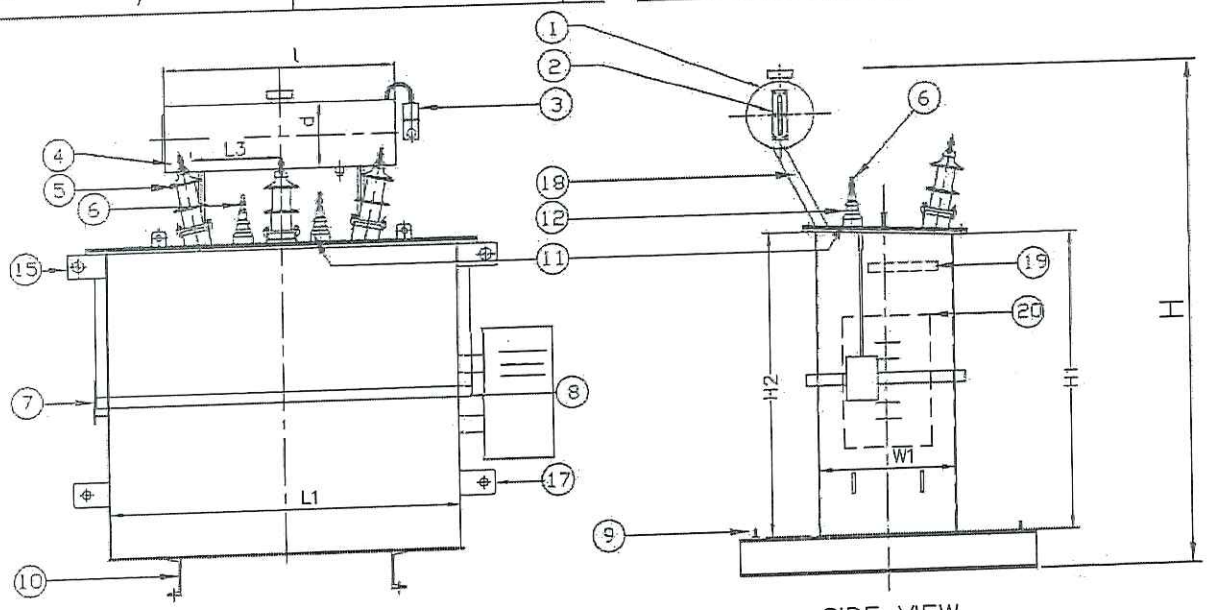
RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.
KAROLA–BHINMAL ROAD KAROLA SANCHORE–343041
RAJASTHAN.

DRN BY
CHD BY
APPD BY

RATING & TERMINAL MARKING PLATE FOR
25 KVA, 11/0.433 KV DISTRIBUTION TRANSFORMER
3 PHASE, ENERGY EFFICIENCY LEVEL-2

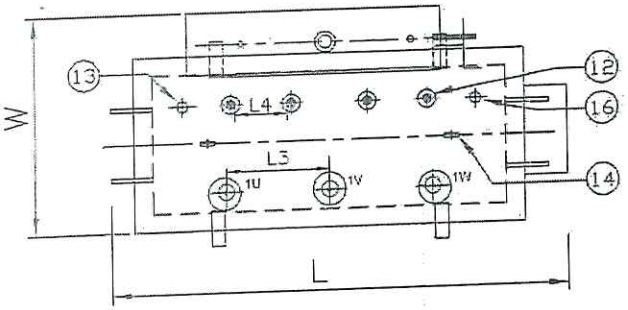
DRG. NO.RPTPL–25KVA–RP–01/02–2019

High Voltage Products Division, Vadodara



ELEVATION

SIDE VIEW



PLAN

SR.NO.	ACCESSORIES	QTY.	TECHNICAL DETAILS AS PER SPEC.	AS PER OFFER
1	CONSERVATOR WITH OIL FILLING HOLE WITH CAP & DRAIN PLUG	1	M.S.	M.S
2	OIL LEVEL GAUGE WITH 3 POSITION	1	—	—
*3	SILICACEL BREATHER (500 Grams.)	1	AL. DIE CAST	AL. DIE CAST
4	H.V. TERMINAL 12m.m. DIA WITH NUT	3	BRASS	BRASS
5	H.V. BUSHING 12KV, 250A	3	PORCELAIN	PORCELAIN
6	L.V. TERMINAL 12 m.m. DIA. WITH NUT	4	BRASS	BRASS
7	RATING &TERMINAL MARKING PLATE	1	ANODISED	ANODISED
8	STIFFENER ANGLE SIZE (40x40x5 mm.)	4	M.S.	M.S.
9	EARTHING TERMINAL WITH LUGS SIZE(16 Amp.)	2	M.S.	M.S.
10	BASE CHANNELS 75x40x460mm. LONG	2	M.S.	M.S.
11	L.V. BUSHING TURRET	4	TENDER DRG	TENDER DRG
12	L.V. BUSHING 1.1KV,250A	4	PORCELAIN	PORCELAIN
13	THERMOMETER POCKET	1	M.S.	M.S.
14	LIFTING LUGS FOR COVER	2	M.S.	M.S.
15	LIFTING LUGS FOR TANK REINFORCED WITH FLAT	2	M.S.	M.S.
16	AIR RELEASE PLUG	1	M.S.	M.S.
17	PULLING LUG	4	M.S.	M.S.
18	CONSERVATOR PIPE	2	M.S.	M.S.
*19	METALLIC TIN PLATE	1	S.S.	S.S.
*20	MCCB BOX	1	—	—

	COOLING DETAILS	
1	TOTAL SURFACE AREA :-TANK: 1.1684 sq. m.	
2	NUMBER OF RADIATORS	N. A.
3	HEIGHT x WIDTH OF FINS	N. A.
1	TOTAL NUMBER OF COOLING FINS	N. A.

1	WEIGHTS IN KGS. (+/- 10% TOL.)		5	DIMENSIONS IN m.m.
	CORE	80		TRANSFORMER OVERALL (+/- 10% TOLERANCE)
	WINDINGS	33		L = 908
	TANK & FITTINGS	86		W = 495
	OIL	67		H = 1150
	TOTAL WEIGHT	300		TRANSFORMER TANK (+/- 10% TOLERANCE)
2	THICKNESS IN m.m.			L1 = 665
	TANK SIDE PLATES (MIN.)	3.15		W1 = 250
	TOP & BOTTOM PLATES (MIN.)	5		H1/H2 = 635 / 645
3	TOLERANCE		6	BUSHING CLEARANCES WITH ANGLE
	OVERALL DIMENSIONS	+/- 10 %		L3 (H.V.) 255 PHASE TO PHASE
4	DIMENSIONS OF CONSERVATOR			L4 (L.V.) 75 PHASE TO PHASE
	a) INSIDE DIAMETER IN mm.	140		L5 (H.V.) 205 PHASE TO EARTH
	b) LENGTH IN mm.	600		L6 (L.V.) 55 PHASE TO EARTH
	c) CAPACITY IN LTRS.	9.		

Test Report No. RP-1970-000662
Date : 2-5-19
Product : 25 KVA DT
Verified by : [illegible]
Verification of this drawing by ERDA is limited to relevant dimensional checks only. Verified dimensions are marked with ✱

NOTE

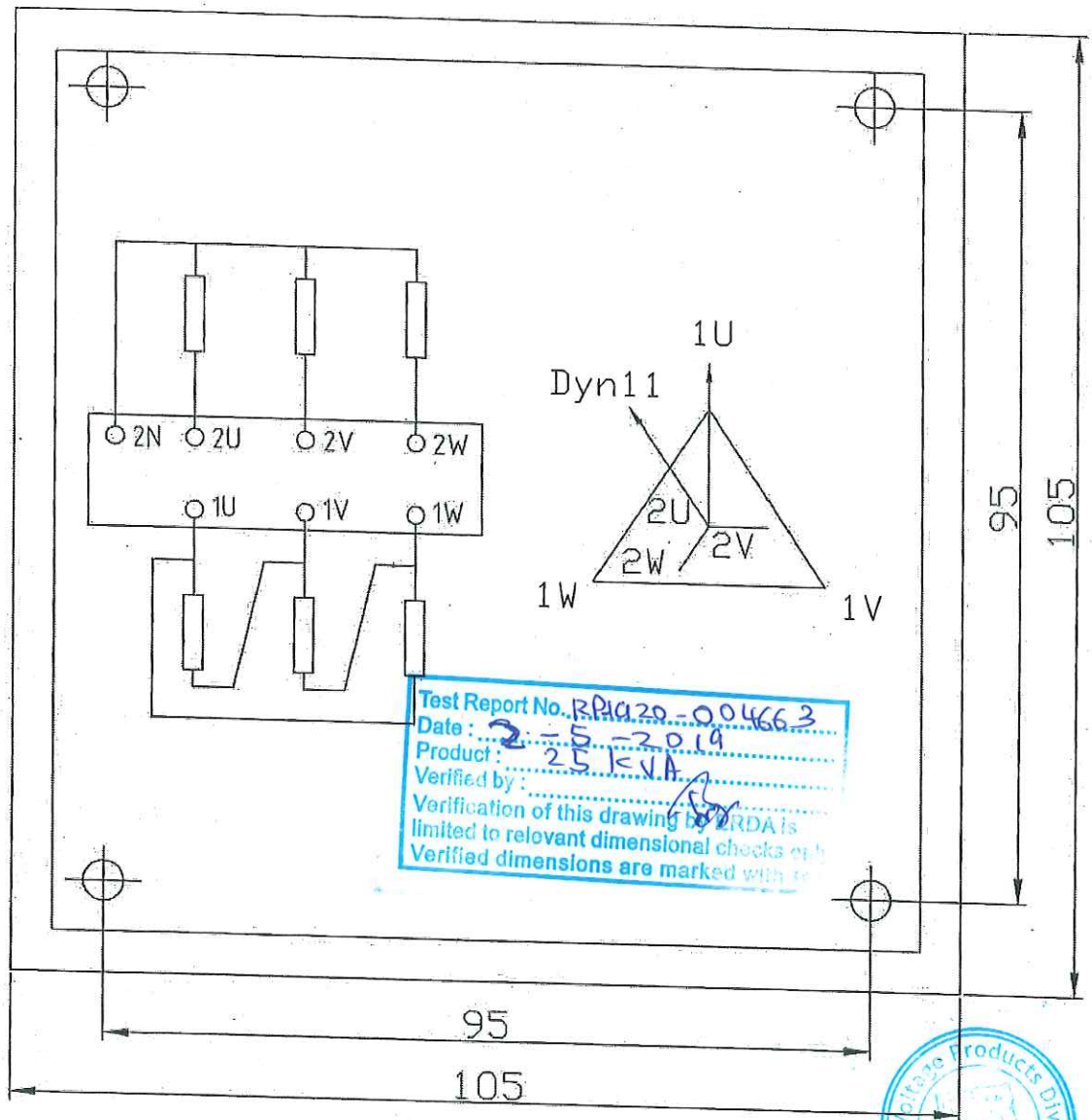
1 SHAPE OF TANK: RECTANGULAR SHAPE
2 ALL DIMENSIONS ARE IM mm UNLESS OTHERWISE STATED.
3 METALLIC TIN PLATE: OPPOSITE SIDE OF COMBINED NAME PLATE
4 * NOT PROVIDED DURING TESTING

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.
KAROLA-BHINMAL ROAD KAROLA, SANCHORE-343041

GENERAL ARRANGEMENT DRAWING
25 KVA 11/0.433 KV DIST. TRANSFORMER
ENERGY EFFICIENCY LEVEL-2

DRG.NO.: RPTPL-GA-25KVA-02-2019
DATE: 16.03.2019

High Voltage Products * Vadodara * Division



Test Report No. RPTG20-00466.3
Date : 2-5-2019
Product : 25 KVA
Verified by :
Verification of this drawing by ERDA is limited to relevant dimensional checks only.
Verified dimensions are marked with ✓

High Voltage Products Division, Vadodara

SIZE: 105x105 mm HOLE CENTER: 95x95 mm

NOTE:
* SERIAL NO ,
YEAR OF MANUFACTURE &
MONTH OF MANUFACTURE
WILL BE PUNCHED AT THE TIME OF DISPATCH
MATERIAL : Anodized Aluminum
THICKNESS : 1.5 mm

REV. NO.	DATE SIGN	BRIEF DESCRIPTION
	16.03.2019	02 of 02

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.
KAROLA–BHINMAL ROAD KAROLA SANCHORE–343041
RAJASTHAN

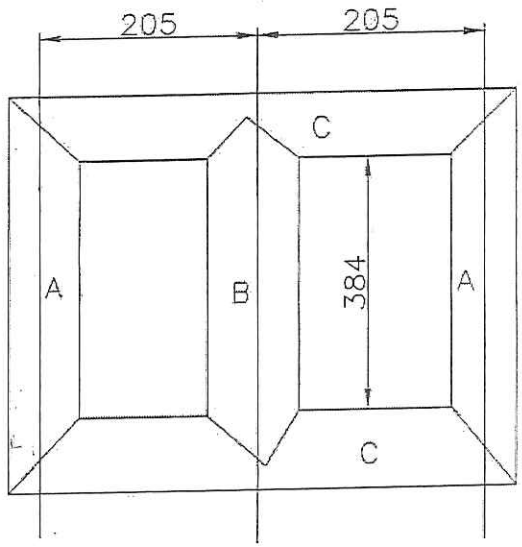
DRN BY	
CHD BY	
APPD BY	

RATING & TERMINAL MARKING PLATE FOR
25 KVA, 11/0.433 KV DISTRIBUTION TRANSFORMER
3 PHASE , ENERGY EFFICIENCY LEVEL–2

DRG. NO. RPTPL–25KVA–RP–02/02–2019

Stacked core Tyep CRGO Steel	
CORE DIA	84
WINDOW HEIGHT	384
LEG CENTRE	205
FLUX DENSITY	1.47
OVER FLUX DENSITY	1.65
L.V PHASE VOLTAGE	250 V
LV TURNS PER PHASE	152
RATED FREQUENCY.	50 HZ
STACKING FACTOR	0.97

Step	Width Lamination	Stack Thickness	Area in cm2
1	80	25.1	20.08
2	75	2x6.1	9.15
3	70	2x4.3	6.02
4	65	2x3.3	4.29
5	60	2x2.7	3.24
6	55	2x2.3	2.53
7	50	2x2	2.00
8	45	2x1.7	1.53
9	40	2x1.4	1.12
10	30	2x2.2	1.32
11	20	2x1.5	0.6



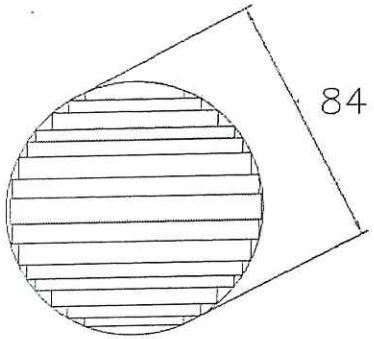
TOTAL GROSS CORE AREA = 51.88 cm^2

$$\text{flux density at 100\% voltage} = \frac{250 \times 10000}{4.44 \times 50 \times 152 \times 0.97 \times 51.88}$$

$$= 1.47 \text{ Tesla}$$

$$\text{flux density at 112\% voltage} = \frac{281.2 \times 10000}{4.44 \times 50 \times 152 \times 0.97 \times 51.88}$$

$$= 1.65 \text{ Tesla}$$



High Voltage Products Division * Vadodara *

Test Report No. RP-1920-004663
Date : 2-5-2019
Product : 25 KVA.
Verified by :
Verification of this drawing by ERDA is limited to relevant dimensional checks only. Verified dimensions are marked with ***

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.
KAROLA–BHINMAL ROAD KAROLA SANCHORE–343041.

CORE DETAILS DRAWING
25 KVA 11/0.433 KV DIST. TRANSFORMER
ENERGY EFFICIENCY LEVEL–2

DRG.NO.: RPTPL–CD–25KVA–05–2019

DATE: 16.03.2019