

Laboratory	Transformer Testing Laboratory, Tesla Transformers Limited, Plot No. 23-A, Sector-B, Industrial Area Govindpura, Bhopal, Madhya Pradesh		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	10.09.2014
Certificate Number	T-3101	Valid Until	09.09.2016
Last Amended on	-	Page	1 of 3

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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I. TRANSFORMERS AND REACTORS

1. Transformer Upto 50 MVA, 132 kV, 50 Hz, 3 PHASE Dry Type Transformer Upto 2.5 MVA, 33 kV, 50 Hz, 3 Phase	Insulation Resistance	IS 2026: 2009 IS 1180:1989 IEC 60076: 2011 IS 11171:1985	0 to 1000 G Ω 500 V to 5000 V DC
	Voltage Ratio & Check Of Phase Displacement	IS 2026: 2011 IS 1180: 1989 IEC 60076: 2013 IS 11171: 1985	2 to 2000
	Vector Group Test	IS 2026: 2011 IS 1180: 1989 IEC 60076: 2011 IS 11171:1985	All Vector Groups
	Winding Resistance	IS 2026: 2011 IS 1180: 1989 IEC 60076: 2011 IS 11171: 1985	250 $\mu \Omega$ to 500 Ω
	No Load Loss & Current	IS 2026: 2011 IS 1180: 1989 IEC 60076: 2011 IS 11171: 1985	10 W to 100 kW 10 MA to 50 A
	Short Circuit Impedance And Load Loss	IS 2026: 2011 IS 1180: 1989 IEC 60076: 2011 IS 11171: 1985	10 W to 500 kW Impedance: Upto 50% 10 V to 25 kV
	Induced Ac Voltage Test	IS 2026: 2011 IS 1180: 1989 IEC 60076: 2011 IS 11171: 1985	500 V to 275 kV

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	Transformer Upto 50 MVA, 132 kV, 50 Hz, 3 PHASE Dry Type Transformer Upto 2.5 MVA, 33 kV, 50 Hz, 3 Phase	Separate Source AC Withstand Voltage Test	IS 2026: 2011 IS 1180: 1989 IEC 60076: 2011 IS 11171: 1985	2 to 300 kV rms AC
		Magnetic Balance Test	CBIP PUB. NO. 295 March 2006	0.1 to 1000 V
		capacitance between windings to earth, and between windings & dissipation factor (tan delta) of the insulation system capacitance	IS 2026: 2011 IEC 60076: 2011 IS 11171: 1985	Tan Delta: 0.001% to 1% Capacitance: 500 pF to 50000 pF
		Harmonics Of No Load Current	IS 2026: 2011 IEC 60076:2011 IS 11171:1985	0 to 50 th Order
		Sound Level	IS 2026: 2001	30 dB to 130 dB
		Zero Sequence Impedance(S) On Three Phase Transformer	IS 2026: 2011 IEC 60076: 2011 IS 11171: 1985	Upto 50 MVA , 132 kV
		Over Exciation Test	CBIP PUB. NO. 295 March 2006	1 to 38 kV 0.01 A to 50 A
		Lightning Impulse Voltage Withstand Test	IS 2026: 2009 IS 1180: 1989 IEC 60076: 2013 IS 11171: 1985	Full Wave : 40 to 1600 kVp Chopped Wave : 40 to 1200 kVp Energy: 160 kJ
		Temperature Rise Test	IS 2026: 2011 IS 1180: 1989 IEC 60076: 2011 IS 11171: 1985	Loss: 10 W to 500 kW Temp: 0 to 130°C

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Last Amended on - **Page** 3 of 3

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	Transformer Upto 50 MVA, 132 kV, 50 Hz, 3 PHASE	Power Taken By The Fan And Oil Pump Motors	IS 2026: 2011 IEC 60076: 2011 IS 11171: 1985	10 W to 10 kW
	Dry Type Transformer Upto 2.5 MVA, 33 kV, 50 Hz, 3 Phase	Test On On-Load Tap Changer	IS 2026: 2011 IEC 60076: 2011	Upto 433 V

II. ELECTRICAL MATERIALS- LIQUID DIELECTRIC MATERIALS

1.	Insulating Oil	Break Down Voltage Test	IS 335: 1993 IS 1866: 2000 IS 6792: 2008	1 to 100 kV AC
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-X-X-X-X-X-X-X-X-X-X-X-X-