

Laboratory Transformer Testing Laboratory, Bharat Bijlee Limited, No. 2, MIDC,
 Thane-Belapur Road, Airoli, Navi Mumbai, Maharashtra
Accreditation Standard ISO/IEC 17025: 2005
Certificate Number TC-7497 (in lieu of T-3044) **Page 1 of 4**
Validity 21.07.2018 to 20.07.2020 **Last Amended on** --

Sl.	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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ELECTRICAL TESTING

I.	TRANSFORMERS & REACTORS			
1.	Power Transformers Up to 200MVA, Single Phase & Three Phase Transformer, HT Voltage Up to 220kV, LT Voltage Up to 66kV	Measurement of Insulation Resistance and Polarization Index	IS 2026 (Part1) Cl.10.1.3 (j) CBIP Manual, Section BB Cl.3.5 Page 234 IEC 60076-1 Cl. 11.1.4 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	1M Ω to 1T Ω
		Measurement of Voltage Ratio	IS 2026 (Part1), Cl.10.3 IEC 60076-1 Cl. 11.3 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	1 to 2000
		Check of Ratio & Polarity of built in Current Transformers	IEC 60076-1 Cl. 11.1.2.1	1 to 2000
		Check of voltage vector relationship	IS 2026 (Part1) Cl.10.3 IEC 60076-1 Cl. 11.3 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	1V to 600 V
		Magnetic Balance Test	CBIP Manual , Section BB Cl.3.17 Page 253	1V to 600 V
		Magnetization Current at Low Voltage	CBIP Manual, Section BB Cl.3.23, Page 257	1V to 600 V 0.5 mA to 30 A
		Measurement of Winding Resistance	IS 2026 (Part1), Cl.10.2 IEC 60076-1 Cl. 11.2 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	1m Ω to 10 Ω

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		Measurement of No Load Loss & current	IS 2026 (Part1), Cl.10.5 IEC 60076-1 Cl. 11.5 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	0.8kV to 76 kV 0.1A to 30 A 1kW to 200 kW
		Measurement of Load Loss And Impedance voltage	IS 2026 (Part1), Cl.10.4 IEC 60076-1 Cl. 11.4 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	Impedance Voltage: 0.8 kV to 76 kV 10A to 5000 A Load Loss: 1kW to1000 kW
		Separate Source voltage withstand test / Applied Voltage Test	IS 2026 (Part3), Cl.11 IEC 60076-3 Cl. 10 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	10 kV to 300 kV
		Short Duration AC Test (ACSD) / Line Terminal AC Withstand Voltage Test (LTAC)	IS 2026 (Part3), Cl.12.2 / 12.3 IEC 60076-3 , Cl. 11 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	10 kV to 300 kV 15 pC to 5000 pC
		Long Duration AC Test (ACLD) / Induced Voltage Test with PD Measurement (IVPD)	IS 2026 (Part 3), Cl.12.4 IEC 60076-3 Cl. 11 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	10kV to 300 kV 15 pC to 5000 pC
		Tests on OLTC assembled on Transformer Dielectric Test on control wiring	IS 2026 (Part 1), Cl.10.8 IEC 60076-1 Cl. 11.7 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	1 kV to 5 kV AC
		Measurement of Zero Sequence Impedance of three phase Transformer	IS 2026 (Part 1), Cl.10.7 IS 2026 (Part 1) Cl. 11.6 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	0.8 kV to 76 kV 10 A to 2000 A 5 % to 35%

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		Determination of Sound Level	IS 2026 (Part 1), Cl.10.1.3 CBIP Manual , Section BB Cl.3.11 Page 248 IEC 60076-10 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006 NEMA-TR1	50 dB to 100dB
		Measurement of Harmonics in No Load Current & Voltage	IS 2026 (Part 1), Cl.10.6 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	1 st to 21th Harmonic for voltage & current.
		Measurement of Capacitance & Dissipation factor (Tan δ) of Windings	IS 2026 (Part 1), Cl.10.1.3 (b) CBIP Manual, Section BB Cl.3.16 Page 252 IEC 60076-1 Cl. 11.1.4 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	Capacitance 100 pF to 25 nF Tan δ 0.02% to 2.00 %
		Measurement of Capacitance & Dissipation factor (Tan δ) of Bushings	IS 2099 IEC 60137 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	Capacitance - 100 pF to 25 nF Tan δ - 0.02% to 2.00 %
		Measurement of the Power taken by Fans & Oil Pump Motors	IS 2026 (Part 1), Cl.10.1.3 (h) CBIP Manual , Section BB Cl.3.13 Page 250 IEC 60076-1, Cl. 11.1.3 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	100W to 10 kW
		Magnetic Circuit Insulation test	CBIP Manual, Section BB Cl.3.15 Page 251 IEC 60076-1 Cl. 11.1.2.2	1kV to 5kV

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		Temperature Rise Test	IS 2026 (Part 2) IEC 60076-2 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	0.8 kV to 76 kV 10 A to 5000 A 10W to 1000 kW 5 °C to 65 °C Rise
		Lightning Impulse Test	IS 2026 (Part 3), CL.13,14 IEC 60076-3 Cl. 13 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	40 kVp to 2100 kVp Rise Time: 1.2 μS ± 30 % Fall Time: 50 μS ±20 %
		Switching Impulse Test	IS 2026 (Part 3), CL.15, IEC 60076-3 Cl. 14 IEEE Std. C57.12.90.2006 IEEE Std. C57.12.00.2006	40 kVp to 1700 kVp Rise Time: > 100 μS Fall Time: >500 μS
		Measurement of Frequency Response (SFRA)	CBIP Manual, Section BB Cl.3.22 Page 256 IEC 60076-1 Cl. 11.1.4	20 Hz to 2 MHz