



NABL

SCOPE OF ACCREDITATION

Laboratory	Material Testing and Standards Department, Best Undertaking, 1st Floor, Bijlee Bhavan, Kussara Bunder Road, Mazgaon, Mumbai, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	22.04.2016
Certificate Number	T-2936	Valid Until	21.04.2018
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	SWITCHGEAR EQUIPMENT			
1.	Miniature Circuit Breaker (MCB) (5 A to 100A)	Time Current Characteristics at 1.13 times of rated current	IS : 60898 (P1) – 2002 Cl. No. 9.10.1.1	5 A to 113 A 1s to 7200 s
		Time Current Characteristics at 1.45 times of rated current	IS : 60898 (P1) – 2002 Cl. No. 9.10.1.1	5 A to 145 A 1s to 7200 s
		Over Current characteristics at 2.55 times rated Current	IS : 60898 (P1) – 2002 Cl. No. 9.10.1.2	5 A to 255 A 1s to 120 s
		Temperature-rise test at rated current	IS : 60898 (P1) – 2002 Cl. No. 9.8	5A to 100 A upto 200 °C
		Measurement of Watt loss	IS : 60898 (P1) – 2002 Cl. No. 9.8	0.1 Watt to 20 Watt
2.	Moulded Case Circuit Breaker (MCCB) (100A to 630A)	Temperature-rise test at rated current	IS : 60947 (P1) – 2007 Cl. No. 8.3.3.3 IS : 60947 (P2) – 2003 Cl. No. 7.2.2	100 A to 630 A upto 200 °C
		Inverse time delay overcurrent operation at 1.05 times of rated current	IS : 60947 (P1) – 2007 Cl. No. 2.4.27 IS : 60947 (P2) – 2003 Cl. No. 7.2.1.2.4	100 A to 700 A 1s to 7200 s
		Inverse time delay overcurrent operation at 1.30 times of rated current	IS : 60947 (P1) – 2007 Cl. No. 2.4.27 IS : 60947 (P2) – 2003 Cl. No. 7.2.1.2.4	100 A to 900 A 1 s to 7200 s

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3.	LOW VOLTAGE FUSES (63 A to 315A)	Temperature-rise test at rated current	IS: 13703 (P1) – 1993 Cl. No. 8.3 IS: 13703 (P2/sec1) – 1993	63 A to 315 A upto 200 °C
		Watt Loss	IS: 13703 (P1) – 1993 & Cl. No. 8.3 IS: 13703 (P2/sec1) – 1993	1 Watt to 63 Watt
		Non fusing test	IS: 13703 (P1) – 1993 & Cl. No. 8.4.3.1 IS: 13703 (P2/sec1) – 1993	63 A to 400 A 1s to 10800 s
		Fusing test	IS: 13703 (P1) – 1993 & Cl. No. 8.4.3.1 IS: 13703 (P2/sec1) – 1993	63 A to 600A 1s to 10800 s
II.	TRANSFORMERS & REACTORS			
1.	Power Transformer (3 Phase 11kV/415V, 100 kVA to 1600 kVA)	Winding Resistance	IS : 2026 (P1) – 2011 Cl. No. 10.2	0.3 mΩ to 1.5 Ω
		No Load Loss	IS : 2026 (P1) – 2011 Cl. No. 10.5	200 Watt to 2500 Watt
		Full Load Loss at 75 °C	IS : 2026 (P1) – 2011 Cl. No. 10.4	1000 Watt to 8000 Watt
		% Impedance at 75 °C	IS : 2026 (P1) – 2011 Cl. No. 10.4	3% to 10%.

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III. TRANSMISSION LINE EQUIPMENT & ACCESSORIES				
1.	Current Transformer (20/5 to 2000/5 A & upto 11 kV)	High Voltage Test	IS : 2705 – 1992 (Part 1 to 4) Cl. No. 9.3 & 9.4(Part1)	1 kV to 30 kV
		Accuracy Test	IS : 2705 – 1992 (Part 1 to 4) Cl. No. 3.3(Part2) Cl. No. 5.1(Part3)	Ratio Error- 0.1 % to 5 % (0.2A to 2400 A) Phase Error- 0.5 min to 120 min (0.2Amp to 2400 Amp)
		Knee point Test	IS : 2705 – 1992 (Part 1 to 4) Cl. No. 6.1(Part4)	30 V to 200 V 10mA to 1 A
		Verification of Terminal Marking and Polarity	IS : 2705 – 1992 (Part 1 to 4) Cl. No. 9.2 (Part1)	Qualitative
2.	Potential Transformer (11kV / 110V)	High Voltage Test	IS :3156 – 1992 (Part 1 to 4) Cl. No. 9.3 & 9.4 (Part1)	1 kV to 30 kV
		Accuracy Test	IS :3156 – 1992 (Part 1 to 4) Cl. No. 5.1(Part2)	Ratio Error- 0.1 % to 5 % (10kV to 20kV) Phase Error-5 min to 120min (10kV to 20kV)
		Verification of Terminal Marking and Polarity	IS :3156 – 1992 (Part 1 to 4) Cl. No. 9.2(Part1)	Qualitative

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
IV.	Cables & Accessories			
	Stranded Aluminum / Copper conductor, HRPVC Armoured & Unarmoured cable for working voltages upto & including 1.1 kV	Conductor Resistance test	IS : 1554 (P1) – 1988 Cl. No. 15 IS : 694 – 2010 Cl. No. 4.2	0.5 mΩ to 200 Ω
		Armour Resistance	IS : 1554 (P1) – 1988 Cl. No. 13.5	0.5 mΩ to 200 Ω
		Thickness of insulation	IS : 1554 (P1) – 1988 Cl. No. 9.2 IS : 694 – 2010 Cl. No. 5.3	0.1 mm to 20 mm
		Thickness of outer sheath	IS : 1554 (P1) – 1988 Cl. No. 14.4 IS : 694 – 2010 Cl. No. 8.3	0.1 mm to 20 mm
		Thickness of inner sheath	IS : 1554 (P1) – 1988 Cl. No. 12.3 IS : 694 – 2010 Cl. No. 8.3	0.1 mm to 20 mm
		Tensile strength of Insulation	IS : 1554 (P1) – 1988 Cl. No. 15.2 IS : 694 – 2010 Cl. No. 8.4	50 N to 1000 N 1 N/mm ² to 40 N/mm ²
		Tensile Strength of outer sheath	IS : 1554 (P1) – 1988 Cl. No. 15.2 IS : 694 – 2010 Cl. No. 8.4	50 N to 1000 N 1 N/mm ² to 40 N/mm ²

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	Stranded Aluminum / Copper conductor, HRPVC Armoured & Unarmoured cable for working voltages upto & including 1.1 kV	Elongation at break of insulation	IS : 1554 (P1) – 1988 Cl. No. 15.2 IS : 694 – 2010 Cl. No. 8.4	1 mm to 200 mm
		Elongation at break of outer sheath	IS : 1554 (P1) – 1988 Cl. No. 15.2 IS : 694 – 2010 Cl. No. 8.4	1 mm to 200 mm
		High Voltage test at room Temperature	IS : 1554 (P1) – 1988 Cl. No. 16.2 IS : 694 – 2010 Cl. No. 10.2	1 kV to 10 kV
		Conductor Resistance	IS 7098(P1) : 1988 Cl. No. 13.5	0.5 mΩ to 200 Ω
		Armour Resistance	IS 7098(P1) : 1988 Cl. No. 13.5	0.5 mΩ to 200 Ω
		Thickness of insulation	IS 7098(P1) : 1988 Cl. No. 9.2	0.1 mm to 20 mm
		Thickness of outer sheath	IS 7098(P1) : 1988 Cl. No. 14.3	0.1mm to 20mm
		Thickness of inner sheath	IS 7098(P1) : 1988 Cl. No. 12.3	0.1mm to 20mm
		Tensile Strength of outer sheath	IS 7098(P1) : 1988 Cl. No. 15.2	50 N to 1000 N 1 N/mm ² to 40 N/mm ²
		Elongation at break of outer sheath	IS 7098(P1) : 1988 Cl. No. 15.2	1mm to 200 mm
2.	Stranded Aluminium conductor, PVC sheathed, XLPE, armoured cable for working voltages upto & including 1.1 kV	High voltage test at room temperature	IS 7098(P1) : 1988 Cl. No. 16.2	1kV to 10kV

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V. CAPACITORS				
1.	L. T. Capacitor	Measurement of Capacitance & kVAR output	IS : 13585 (P1) – 2012 Cl. No. 7	0.1 μF to 1100 μF 1kVAR to 125 kVAR
		Measurement of the Tangent of Loss angle (Tan δ) of the capacitor	IS : 13585 (P1) – 2012 Cl. No. 8	0.001% to 0.2%
		Voltage Test between terminals & container	IS : 13585 (P1) – 2012 Cl. No. 10	1 kV to 10 kV
		Test of the internal discharge device	IS : 13585 (P1) – 2012 Cl. No. 11 & 22	1 s to 120 s
VI. LAMPS, LUMINAIRES & ACCESSORIES				
1.	HPSV Lamps (Up to 400Watts)	Lamp Starting test & Lamp Electrical Characteristics	IS : 9974 (P1 & 2) – 1981 Cl. No. 7.2, 7.3 & 7.4	40V to 250 V 0.1A to 5 A 5W to 500W 100 Lux to 6000 Lux
2.	HPSV Ballast (Up to 400Watts)	Test for Power and Current output	IS : 6616 – 1982 Cl. No. 9.7	40V to 300 V 0.1A to 6 A 5W to 500W 100 Lux to 6000 Lux
3.	Ignitor for HPSV lamps (Up to 400Watts)	Pulse Height	IS : 9974 (P1 & 2) – 1981 Cl. No. 7.2 & 8.2 IS:12449 (P2) – 1988 Cl. No. 6	500V to 6000 V 0.1A to 5 Amp

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Ignitor for HPSV lamps (Up to 400Watts)	Rise Time T1	IS : 9974 (P1 & 2) – 1981 Cl. No. 7.2 & 8.2 IS:12449 (P2) – 1988 Cl. No. 6	0.2 μ Sec to 4 μ Sec
		Rise Time T2	IS : 9974 (P1 & 2) – 1981 Cl. No. 7.2 & 8.2 IS:12449 (P2) – 1988 Cl. No. 6	0.2 μ Sec to 5 μ Sec
VII. INSULATING MATERIALS & INSULATORS				
1.	New Insulating Oil	Water Content	IS : 13567 - 1992 Cl. No. 8	0.001mg to 10mg (in 5 ml sample)
		Electric Strength	IS : 6792 – 1972 Cl. No. 11	15kV to 100 kV
		Dielectric Dissipation Factor	IS : 6262 – 1971 Cl. No. 13	0.00001 to 0.1
		Kinematic viscosity	IS:1448 (P-25) – 1993 Cl. No. 6	6 to 50 cst
		Flash point	IS:1448 (P-21) – 2012 Cl. No. 10	100°C to 250°C
2.	Rubber Gloves	Hand Test Potential	IS:4770 – 1991 (RA-2012) Cl. No. 5.8	1 to 5 KV
		Break down voltage	IS:4770 – 1991 (RA-2012) Cl. No. 5.9	1 to 10 KV

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Rubber Gloves	Hand Leakage Current test at 5KVAC	IS:4770 – 1991 (RA-2012) Cl. No. 5.8	0.1 mA to 100 mA
		Thickness of Rubber Hand Gloves	IS:4770 – 1991 (RA-2012) Cl. No. 5.5	0.1 mm to 3mm

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