



# National Accreditation Board for Testing and Calibration Laboratories

## SCOPE OF ACCREDITATION

**Laboratory Name :**

UNIVERSAL TESTING LABORATORIES, SHIRDI SAI ELECTRICALS LIMITED,  
PLOT NOS: 13/82, 53, 54, 55, 58, 59 & 60, INDUSTRIAL DEVELOPMENT  
AREA, CUDDAPAH, Y.S.R., ANDHRA PRADESH, INDIA

**Accreditation Standard**

ISO/IEC 17025:2017

**Certificate Number**

TC-9139

**Page No**

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**Validity**

01/12/2024 to 30/11/2028

**Last Amended on**

23/01/2025

S.No	Discipline / Group	Materials or Products tested	Component, parameter or characteristic tested / Specific Test Performed / Tests or type of tests performed	Test Method Specification against which tests are performed and / or the techniques / equipment used
Permanent Testing				
1	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Applied voltage test	IEC 60076-3+AMD1, Cl.No 10
2	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Applied voltage test	IS 2026-3, Cl.No 10
3	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Applied-voltage tests	IEEE Std C.57.12.90, Cl.No 10.6
4	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Audible sound emissions	IEEE Std C.57.12.90, Cl.No 13
5	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Check of Core and Frame Insulation	IEC 60076-1+ed3, Cl.No 11.12
6	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Check of external coating	IEC 60076-1+ed3, Cl.No 11.1.4.m
7	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Check of Phase displacement	IEC 60076-1+ed3, Cl.No 11.1.2.1.b,11.3
8	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Check of phase displacement	IS 1180-1+Amd4, Cl.No 21.2.b
9	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	check of phase displacement	IS 1180-3, Cl.No 21.2.b
10	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Check of Phase displacement	IS 2026-1, Cl.No 10.1.1b, 10.3
11	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Cross-cut test	ISO 2409
12	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Determination of capacitances windings-to earth, and between windings	IEC 60076-1+ed3 Cl.No 11.1.4.c
13	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Determination of capacitances windings-to earth, and between windings	IS 2026-1, Cl.No 10.1.3.b
14	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Determination of sound levels	IEC 60076-10+ed2



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15	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Determination of sound levels	IS 1180-1+Amd4, Cl.No.: 21.4.a
16	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Determination of sound levels	IS 1180-3, Cl.No 21.4.a
17	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Determination of sound levels	IS 2026-10
18	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Dew Point Measurement	CBIP Manual - 317 Sec BB, Cl.No.3 A32
19	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Endurance test	I.S. EN 50708-2-4
20	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Ester liquid leakage test	IS 1180-3, Cl.No 21.2.j,21.5
21	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Excitation current	IEEE Std C.57.12.90, Cl.No 8
22	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Frequency response analysis for oil-Immersed transformers	IEEE Std C57.149
23	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Frequency response analysis test	CBIP Manual - 317 Sec BB, Cl.No.3 A28
24	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Frequency response analysis test	IS 2026-18
25	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Impedance voltage	IEEE Std C.57.12.90, Cl.No 9
26	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Induced over voltage withstand test	IS 1180-1+Amd4, Cl.No 21.2.f
27	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Induced over-voltage withstand test	IS 1180-3, Cl.No 21.2.f
28	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Induced voltage withstand test	IEC 60076-3+AMD1, Cl.No 11.2



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29	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Induced voltage withstand test	IS 2026-3, Cl.No 11.2
30	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Induced-voltage tests	IEEE Std C.57.12.90, Cl.No 10.7
31	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Insulation of auxiliary wiring (AuxW)	IEC 60076-3+ed3, Cl.No 9
32	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Insulation of auxiliary wiring test	IS 2026-3, Cl.No 9
33	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Insulation power-factor Test	IEEE std C.57.12.90, Cl.No 10.10
34	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Insulation resistance tests	IEEE Std C.57.12.90, Cl.No 10.11
35	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Leake testing with pressure for liquid-immersed transformers (tightness test)	IEC 60076-1+ed3, Cl.No 11.1.2.1.g, 11.8
36	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Lightning Impulse test	IEC 60076-3+AMD1, Cl.No 13
37	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Lightning Impulse test	IS 1180-1+Amd4, Cl No 21.3.a
38	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Lightning Impulse test	IS 1180-3, Cl.No 21.3.a
39	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Lightning Impulse test	IS 2026-3, Cl.No 13
40	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Lightning Impulse test procedures	IEEE Std C.57.12.90, Cl No.:10.3
41	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Load losses	IEEE Std C.57.12.90, Cl.No 9
42	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Magnetic balance test on three phase transformers	CBIP Manual - 317 Sec BB, Cl.No 3A (23),3.17



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43	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	magnetic Circuit (Isolation) Test	CBIP Manual - 317 Sec BB, Cl. No.: 3.15
44	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of DC insulation resistance each winding to earth and between windings	IEC 60076-1+ed3, Cl.No 11.1.4.h
45	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of dissipation factor (Tan d) of the insulation system capacitances	IEC 60076-1+ed3, Cl.No 11.1.4.d
46	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of dissipation factor (Tan d) of the insulation system capacitances.	IS 2026-1, Cl.No 10.1.3.j
47	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of frequency response	IEC 60076-18
48	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of harmonics	IEC 60076-1+ed3, Cl.No 3.13.2,3.13.3,4.2.c,4.2.d
49	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of insulation resistance	IS 1180-1+Amd4, Cl.No 21.2.e
50	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of insulation resistance	IS 1180-3, Cl.No 21.2.e
51	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of insulation resistance to earth of the windings	IS 2026-1, Cl.No 10.1.3.j
52	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of load loss	IEC 60076-1+ed3, Cl.No 11.1.2.1c, 11.4
53	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of load loss	IS 1180-1+Amd4, Cl.No 21.2.c
54	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of load loss	IS 1180-3, Cl.No 21.2.c
55	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of load loss	IS 2026-1, Cl.No 10.1.1.c, 10.4
56	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1- $\emptyset$ & 3- $\emptyset$ , Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of magnetization Current at low Voltage	CBIP Manual - 317 Sec BB, Cl.No.: 3.23



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58	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of no-load current	IEC 60076-1+ed3, Cl.No 11.1.2.1d, 11.5
59	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of no-load current	IS 1180-1+Amd4, Cl No 21.2.d
60	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of no-load current	IS 1180-3, Cl.No 21.2.d
61	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of no-load loss	IEC 60076-1+ed3, Cl.No 11.1.2.1d, 11.5
62	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of no-load loss	IS 1180-1+Amd4, Cl.No 21.2.d
63	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of no-load loss	IS 1180-3, Cl.No 21.2.d
64	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of no-load loss	IS 2026-1, Cl.No 10.1.1d, 10.5
65	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of no-load loss and current at 90 % and 110% of rated voltage.	IEC 60076-1+ed3, Cl.No 11.1.3e, 11.5
66	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of short circuit impedance	IEC 60076-1+ed3, Cl.No 11.1.2.1c, 11.4
67	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of short circuit impedance	IS 1180-1+Amd4, Cl.No 21.2.c
68	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of short circuit impedance	IS 1180-3, Cl.No 21.2.c
69	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of short circuit impedance	IS 2026-1, Cl.No 10.1.1.c,10.4
70	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of the harmonics of the no-load current	IS 2026-1, Cl.No 10.1.3.g,10.6



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71	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of voltage ratio	IEC 60076-1+ed3, Cl.No 11.1.2.1.b, 11.3
72	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of voltage ratio	IS 1180-1+Amd4, Cl.No 21.2.b
73	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of voltage ratio	IS 1180-3, Cl.No 21.2.b
74	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of voltage ratio	IS 2026-1, Cl.No 10.1.1.b,10.3
75	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of winding resistance	IEC 60076-1+ed3, Cl.No 11.1.2.1.a,11.2
76	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of winding resistance	IS 1180-1+Amd4, Cl.No 21.2.a
77	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of winding resistance	IS 1180-3, Cl.No 21.2.a
78	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of winding resistance	IS 2026-1, Cl.No 10.1.1.a,10.2
79	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of zero sequence impedance (s) on three phase transformers	IEC 60076-1+ed3, Cl.No 11.1.4.f,11.6
80	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement of zero sequence impedance(s) on three-phase transformers	IS 2026-1, Cl.No 10.1.3.d & 10.7
81	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Measurement thickness	ASTM D7378
82	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	No- load losses	IEEE Std C.57.12.90, Cl.No 8
83	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	No-load current at 112.5 percent voltage	IS 1180-1+Amd4, Cl.No 21.4.c
84	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	No-load current at 112.5 percent voltage	IS 1180-3, Cl.No 21.4.c



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85	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Oil leakage test	IS 1180-1+Amd4, Cl.No 21.5, 21.2.j
86	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Paint adhesion test	ASTM D3359
87	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Paint adhesion test	IS 1180-1+Amd4, Cl.No 21.4 .d
88	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Paint adhesion test	IS 1180-3, Cl.No 21.4.d
89	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Paint thickness test	ASTM D7091
90	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Paint thickness test	IS 1180-1+Amd4, Cl.No 15.5
91	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Paint thickness test	IS 1180-3, Cl.No.15.5
92	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Polarity and phase-relation tests	IEEE Std C.57.12.90, Cl.No 6
93	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Polarization Index (PI) and dielectric absorption (AI)	CBIP Manual - 317 Sec BB, Cl.No B.9
94	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Pressure deflection test on liquid immersed transformers	IEC 60076-1+ed3, Cl.No 11.1.4.j, 11.10
95	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Pressure test routine	IS 1180-1+Amd4, Cl.No 21.2.h,21.5
96	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Pressure test routine	IS 1180-3, Cl.No 21.2.h, 21.5
97	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Pressure test type	IS 1180-1+Amd4, Cl.No 21.5, 21.5.1.1, 21.5.2.1, 21.5.3.1
98	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Pressure test type	IS 1180-3 Cl.No 21.1.h,21.5



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99	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Ratio test	IEEE Std C.57.12.90, Cl.No 7
100	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Resistance measurements	IEEE Std C.57.12.90, Cl.No 5
101	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Separate source voltage withstand test	IS 1180-1+Amd4, Cl.No 21.2.g
102	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Separate-source voltage withstand test	IS 1180-3, Cl.No 21.2.g
103	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Temperature rise test	IS 1180-1+Amd4, Cl.No 21.3.b
104	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Temperature rise test	IS 1180-3, Cl.No 21.3.b
105	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Temperature rise test	IS 2026-2
106	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Temperature rise test for liquid-immersed transformers	IEC 60076-2+ed3
107	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Temperature-rise tests	IEEE Std C.57.12.90, Cl. No 11
108	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Test on on-Load tap Changers	IEC 60076-1+ed3, Cl.No 11.1.2.1.f, 11.7
109	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Test On On-Load tap Changers	IS 2026-1, Cl.No 10.1.1.f, 10.8
110	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Vacuum deflection test on liquid immersed transformers	IEC 60076-1+ed3, Cl.No 11.1.4.i, 11.9
111	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Vacuum test (Type/ Special)	IS 1180-1+Amd4, Cl.No 21.5
112	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Vacuum test (Type/ Special)	IS 1180-3, Cl.No 21.5





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113	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	Vacuum test on transformer tank	CBIP Manual - 317, Sec A Cl.No 17.3.2.a, Sec BB Cl.No.:3.27
114	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Distribution Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 2500 kVA Voltage class:up to 36 kV	zero phase sequence impedance	IEEE Std C.57.12.90, Cl.No 9.5
115	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Applied voltage test	IEC 60076-3+AMD1, Cl.No 10
116	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Applied voltage test	IS 2026-3, Cl.No 10
117	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Applied-voltage tests	IEEE Std C.57.12.90, Cl.No 10.6
118	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Audible sound emissions	IEEE Std C.57.12.90, Cl.No 13
119	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Check of Core and Frame Insulation	IEC 60076-1+ed3, Cl.No 11.12
120	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Check of external coating	IEC 60076-1+ed3, Cl.No 11.1.4.m
121	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Check of phase displacement	IEC 60076-1+ed3, Cl.No 11.1.2.1.b, 11.3
122	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Check of phase displacement	IS 2026-1, Cl.No 10.1.1b, 10.3
123	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Cross-cut test	ISO 2409
124	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Determination of capacitances windings-to earth, and between windings	IEC 60076-1+ed3, Cl.No 11.1.4.c
125	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Determination of capacitances windings-to earth, and between windings	IS 2026-1, Cl.No 10.1.3.b
126	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Determination of sound levels	IEC 60076-10+ed2



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127	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Determination of sound levels	IS 2026-10
128	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Dew Point Measurement	CBIP Manual - 317 Sec BB, Cl.No.3 A32
129	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Endurance test	I.S. EN 50708-2-4
130	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Excitation current	IEEE Std C.57.12.90, Cl.No 8
131	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Frequency response analysis (FRA) test	CBIP Manual - 317 Sec BB, Cl.No.3 A28
132	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Frequency response analysis (FRA) test	IS 2026-18
133	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Frequency response analysis for oil-immersed transformers	IEEE Std C57.149
134	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Impedance voltage	IEEE Std C.57.12.90, Cl.No 9
135	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Induced voltage withstand test	IEC 60076-3+AMD1, Cl.No 11.2
136	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Induced voltage withstands test	IS 2026-3, Cl.No 11.2
137	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Induced-voltage tests	IEEE Std C.57.12.90, Cl. No 10.7
138	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Insulation of auxiliary wiring (AuxW)	IEC 60076-3+AMD1, Cl.No 9
139	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Insulation of auxiliary wiring test	IS 2026-3, Cl.No 9
140	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Insulation power-factor Test	IEEE std C.57.12.90, Cl.No.: 10.10



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141	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Insulation resistance tests	IEEE Std C.57.12.90:CI.No-10.11
142	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Leake testing with pressure for liquid-immersed transformers (tightness test)	IEC 60076-1+ed3, CI.No 11.1.2.1.g, 11.8
143	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Lightning Impulse test	IEC 60076-3+AMD1, CI No 13
144	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Lightning Impulse test	IS 2026-3, CI.No 13
145	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Lightning Impulse test procedures	IEEE Std C.57.12.90, CI No 10.3
146	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Load losses	IEEE Std C.57.12.90, CI.No-9
147	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Magnetic balance test on three phase transformers	CBIP Manual - 317:CI. No.: 3 A(23),3.17 Sec.: BB:
148	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	magnetic Circuit (Isolation) Test	CBIP Manual - 317 Sec BB, CI.No 3.15
149	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of DC insulation resistance each winding to earth and between windings	IEC 60076-1+ed3, CI.No 11.1.4.h
150	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of dissipation factor (Tan d) of the insulation system capacitances	IEC 60076-1+ed3, CI.No 11.1.4.d
151	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of dissipation factor (Tan d) of the insulation system capacitances.	IS 2026-1, CI.No 10.1.3.j
152	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of frequency response	IEC 60076-18
153	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of harmonics	IEC 60076-1+ed3, CI.No 3.13.2, 3.13.3, 4.2.c,4.2.d
154	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of insulation resistance to earth of the windings	IS 2026-1, CI.No 10.1.3.j



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155	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of load loss	IEC 60076-1+ed3, Cl.No 11.1.2.1c, 11.4
156	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of load loss	IS 2026-1, Cl.No 10.1.1.c, 10.4
157	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of magnetization Current at low Voltage	CBIP Manual - 317 Sec BB, Cl.No 3.23
158	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of no- load current	IEC 60076-1+ed3, Cl.No 11.1.2.1d, 11.5
159	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of no-load current	IS 2026-1, Cl.No 10.1.1.d, 10.5
160	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of no-load loss	IEC 60076-1+ed3, Cl.No 11.1.2.1d, 11.5
161	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of no-load loss	IS 2026-1, Cl.No 10.1.1.d, 10.5
162	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of no-load loss and current at 90 % and 110% of rated voltage.	IEC 60076-1+ed3, Cl.No 11.1.2.1e, 11.5
163	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of short circuit impedance	IEC 60076-1+ed3, Cl.No 11.1.2.1c, 11.4
164	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of short circuit impedance	IS 2026-1, Cl.No 10.1.1.c, 10.4
165	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of the harmonics of the no-load current	IS 2026-1, Cl.No 10.1.3.g, 10.6
166	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of voltage ratio	IEC 60076-1+ed3, Cl.No 11.1.2.1.b, 11.3
167	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of voltage ratio	IS 2026-1, Cl. No-10.1.1.b, 10.3
168	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of winding resistance	IEC 60076-1+ed3, Cl.No 11.1.2.1.a, 11.2



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169	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of winding resistance	IS 2026-1, Cl.No 10.1.1.a,10.2
170	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of zero sequence impedance (s) on three phase transformers	IEC 60076-1+ed3, Cl.No 11.1.4.f, 11.6
171	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement of zero sequence impedance(s) on three-phase transformers	IS 2026-1, Cl.No 10.1.3.d,10.7
172	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Measurement Thickness	ASTM D7378
173	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	No- load losses	IEEE Std C.57.12.90, Cl.No 8
174	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Paint adhesion test	ASTM D3359
175	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Paint thickness test	ASTM D7091
176	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Polarity and phase-relation tests	IEEE Std C.57.12.90, Cl.No 6:
177	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Polarization Index (PI) and dielectric absorption (AI)	CBIP Manual - 317 Sec BB, Cl.No 3.5,
178	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Pressure deflection test on liquid immersed transformers	IEC 60076-1+ed3, Cl.No11.1.4.j, 11.10
179	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Ratio test	IEEE Std C.57.12.90, Cl.No 7
180	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Resistance measurements	IEEE Std C.57.12.90, Cl.No 5
181	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Temperature rise test	IS 2026-2
182	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Temperature rise test for liquid-immersed transformers	IEC 60076-2+ed3



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183	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Temperature-rise tests	IEEE Std. C.57.12.90, Cl.No 11
184	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Test On On-Load Tap Changers	IEC 60076-1+ed3, Cl.No 11.1.2.1.f, 11.7
185	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Test On On-Load tap Changers	IS 2026-1, Cl.No 10.1.1.f, 10.8
186	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Vacuum deflection test on liquid immersed transformers	IEC 60076-1+ed3, Cl.No 11.1.4.i, 11.9
187	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	Vacuum test on transformer tank	CBIP Manual - 317 Sec A, Cl.No 17.3.2.a, Sec BB, Cl.No 3.27
188	ELECTRICAL- INDUCTORS & TRANSFORMERS	Oil Immersed, 1-Ø & 3-Ø, Power Transformer (Sealed/ Non-Sealed and Outdoor/ Indoor type) Range: up to 25000 kVA Voltage class:up to 36 kV	zero phase sequence impedance	IEEE Std C.57.12.90, Cl.No 9.5
189	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Acidity (Neutralization Number)	ASTM D3487, Cl.No X2.3.4 :2024, ASTM D664
190	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Acidity (Neutralization Number)	IEC 60296, Cl.No 6.8 : 2020, IEC 62021-1
191	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Acidity (Neutralization Number)	IS 335, Cl.No 6.7: 2018, IEC 62021-1
192	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Appearance	ASTM D3487, Cl.No X2.1.8: 2024, ASTM D1524
193	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Appearance	IEC 60296, Cl.No 6.7
194	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Appearance	IS 335, Cl.No 6.6
195	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Break Down Voltage	ASTM D3487, Cl.No X2.2.1: 2024, ASTM D 1816
196	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Break Down Voltage	IEC 60296, Cl.No 6.4: 2020, IEC 60156



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197	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Break Down Voltage	IS 335, Cl.No 6.4: 2018, IS 6792
198	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Color	ASTM D3487, Cl.No X2.1.2: 2024, ASTM D1500
199	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Color	IEC 60296, Cl.No 6.7: 2020, ISO 2049
200	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Density	ASTM D3487, Cl.No X2.1.6: 2024, ASTM D1298
201	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Density	IEC 60296, Cl.No 6.5: 2020, ISO 3675
202	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Density	IS 335, Cl.No 6.16: 2018 , IS 1448-16
203	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Dielectric Dissipation Factor (Tan Delta)	ASTM D3487, Cl.No X2.2.3: 2024, ASTM D924
204	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IEC 60296, Cl.No 6.6: 2020, IEC 60247
205	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IEC 60296, Cl.No 6.6: 2020, IEC 61620
206	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IS 335, Cl.No 6.5: 2018, IS 16086
207	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Flash Point	ASTM D3487, Cl.No X2.1.3: 2024, ASTM D93
208	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Flash Point	IEC 60296, Cl.No 6.14: 2020, ISO 2719
209	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Flash Point	IS 335, Cl.No 6.15: 2018, IS 1448-21
210	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Interfacial tension	ASTM D3487, Cl.No X2.1.4: 2024, ASTM D971



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211	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Interfacial tension	IEC 60296, Cl.No 6.9: 2020, ASTM D971
212	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Interfacial tension	IEC 60296, Cl.No 6.9: 2020, IEC 62961
213	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Interfacial tension	IS 335, Cl.No 6.8: 2018, ASTM D971
214	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Interfacial tension	IS 335, Cl.No 6.8: 2018, IS 6104
215	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Water Content	ASTM D3487, Cl.No X2.3.3: 2024, ASTM D1533
216	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Water Content	IEC 60296, Cl.No 6.3: 2020, IEC 60814
217	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Water Content	IS 335, Cl.No 6.3: 2018, IEC 60814
218	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating mineral oil for transformers	Water Content	IS 335, Cl.No 6.3: 2018, IS 13567
219	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Acidity (Neutralization Number)	IEC 62770, Cl.No 4.4.1: 2013, IEC 62021-3
220	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Acidity (Neutralization Number)	IS 16659, Cl.No 4.4.1: 2017, IEC 62021-3
221	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Appearance	IEC 62770, Cl.No 4.2.1
222	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Appearance	IS 16659, Cl.No 4.2.1
223	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Break Down Voltage	IEC 62770, Cl.No 4.3.1: 2013, IEC 60156
224	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Break Down Voltage	IS 16659, Cl.No 4.3.1: 2017, IEC 60156





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225	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Density	IEC 62770, Cl.No 4.2.5: 2013, ISO 3675
226	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Density	IS 16659, Cl.No 4.2.5: 2017, ISO 3675
227	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IEC 62770, Cl.No 4.3.2: 2013, IEC 60247
228	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IS 16659, Cl.No 4.3.2: 2017, IEC 60247
229	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Flash Point	IEC 62770, Cl.No 4.6.1: 2013, ISO 2719
230	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Flash Point	IS 16659, Cl.No 4.6.1: 2017, ISO 2719
231	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Water Content	IEC 62770, Cl.No 4.2.4: 2013, IEC 60814
232	ELECTRICAL- INSULATING MATERIALS & INSULATORS	New insulating natural ester oil for transformers	Water Content	IS 16659, Cl.No 4.2.4: 2017, IEC 60814
233	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Acidity (Neutralization Number)	IEC 60422, Cl.No 7.6: 2024, IEC 62021-1
234	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Acidity (Neutralization Number)	IEEE C57.106, Cl.No 5.3.4: 2006, ASTM D664
235	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Acidity (Neutralization Number)	IS 1866, Cl.No 5.5: 2017, IEC 62021-1
236	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Appearance	IEC 60422, Cl.No 7.3
237	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Appearance	IEEE C57.106, Cl.No 5.1.8: 2006, ASTM D1524
238	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Appearance	IS 1866, Cl.No 5.2: 2017, ISO 2049



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239	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Break Down Voltage	IEC 60422, Cl.No 7.4: 2024, IEC 60156
240	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Break Down Voltage	IEEE C57.106, Cl.No 5.2.1: 2006, ASTM D 1816
241	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Break Down Voltage	IS 1866, Cl.No 5.3: 2017, IEC 60156
242	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Color	IEC 60422, Cl.No 7.2: 2024, ASTM D1500
243	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Color	IEC 60422, Cl.No 7.2: 2024, ISO 2049
244	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Color	IEEE C57.106, Cl.No 5.1.2: 2006, ASTM D1500
245	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Color	IS 1866, Cl.No 5.2: 2017, ISO 2049
246	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Density	IEC 60422, Cl.No 7.16: 2024 , ISO 3675
247	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Density	IEEE C57.106, Cl.No 5.1.6: 2006, ASTM D1298
248	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Density	IS 1866, Cl.No 5.14: 2017, ISO 3675
249	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IEC 60422, Cl.No 7.7: 2024, IEC 60247
250	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IEEE C57.106, Cl.No 5.2.3: 2006, ASTM D924
251	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IS 1866, Cl.No 5.6: 2017, IEC 60247
252	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IS 1866, Cl.No 5.6: 2017, IS 16086



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253	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Flash Point	IEC 60422, Cl.No 7.13: 2024 , ISO 2719
254	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Flash Point	IEEE C57.106, Cl.No 5.1.3: 2006, ASTM D93
255	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Flash Point	IS 1866, Cl.No 5.11: 2017, IS 1448-21
256	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Flash Point	IS 1866, Cl.No 5.11: 2017, ISO 2719
257	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Interfacial tension	IEC 60422, Cl.No 7.11: 2024, ASTM D971
258	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Interfacial tension	IEC 60422, Cl.No 7.11: 2024, IEC 62961
259	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Interfacial tension	IEEE C57.106, Cl.No 5.1.4: 2006, ASTM D971
260	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Interfacial tension	IS 1866, Cl.No 5.9: 2017, ASTM D971
261	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Interfacial tension	IS 1866, Cl.No 5.9: 2017, IS 6104
262	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Specific Resistance (Resistivity)	IEC 60422, Cl.No 7.7: 2024, IEC 60247
263	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Specific Resistance (Resistivity)	IS 1866, Cl.No 5.6: 2017, IEC 60247
264	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Specific Resistance (Resistivity)	IS 1866, Cl.No 5.6: 2017, IS 6103
265	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Water Content	IEC 60422, Cl.No 7.5: 2024, IEC 60814
266	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Water Content	IEEE C57.106, Cl.No 5.3.7: 2006, ASTM D1533



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267	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Water Content	IS 1866, Cl.No 5.4: 2017, IEC 60814
268	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating mineral oil for transformers	Water Content	IS 1866, Cl.No 5.4: 2017, IS 13567
269	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Acidity (Neutralization Number)	IEC 62975, Cl.No 9.5: 2021, IEC 62021-3
270	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Acidity (Neutralization Number)	IEEE C 57.147, Cl.No 4.3: 2018, ASTM D664
271	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Appearance	IEC 62975, Cl.No 9.2: 2021, ASTM D1500
272	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Appearance	IEC 62975, Cl.No 9.2: 2021, ISO 2049
273	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Appearance	IEEE C 57.147, Cl.No 4.17: 2018, ASTM D1524
274	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Break Down Voltage	IEC 62975, Cl.No 9.3: 2021, IEC 60156
275	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Break Down Voltage	IEEE C57.147, Cl.No 4.4: 2018, ASTM D 1816
276	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Color	IEC 62975, Cl.No 9.2: 2021, ASTM D1500
277	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Color	IEC 62975, Cl.No 9.2: 2021, ISO 2049
278	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Color	IEEE C57.147, Cl.No 4.8: 2018, ASTM D1500
279	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Density	IEC 62975, Cl.No 9.10: 2021, ISO 3675
280	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Density	IEEE C 57.147, Cl.No 4.11: 2018, ASTM D1298



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281	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IEC 62975, Cl.No 9.6: 2021, IEC 60247
282	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Dielectric Dissipation Factor (Tan Delta)	IEEE C57.147, Cl.NO 4.6: 2018, ASTM D924
283	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Flash Point	IEC 62975, Cl.No 9.8
284	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Flash Point	IEEE C57.147, Cl.No 4.10: 2018, ASTM D93
285	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Interfacial tension	IEC 62975, Cl.No 9.9: 2021, IEC 62961
286	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Interfacial tension	IEEE C57.147, Cl.No 4.7: 2018, ASTM D971
287	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Specific Resistance (Resistivity)	IEC 62975, Cl.No 9.6: 2021, IEC 60247
288	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Water Content	IEC 62975, Annex A: 2021, IEC 60814
289	ELECTRICAL- INSULATING MATERIALS & INSULATORS	Used insulating natural ester oil for transformers	Water Content	IEEE C57.147, Cl.No 4.16: 2018, ASTM D1533