



National Accreditation Board for  
Testing and Calibration Laboratories

**CERTIFICATE OF ACCREDITATION**

**C AND I CALIBRATIONS PVT. LTD.**

has been assessed and accredited in accordance with the standard

**ISO/IEC 17025:2017**

**"General Requirements for the Competence of Testing &  
Calibration Laboratories"**

for its facilities at

J-448, SITAPURA INDUSTRIAL AREA, JAIPUR, RAJASTHAN, INDIA

in the field of

**TESTING**

Certificate Number: TC-6711

Issue Date: 30/11/2019

Valid Until: 29/11/2021\*

\*The validity is extended for one year up to 29.11.2022

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.

(To see the scope of accreditation of this laboratory, you may also visit NABL website [www.nabl-india.org](http://www.nabl-india.org))

Name of Legal Identity : C AND I CALIBRATIONS PVT. LTD.

Signed for and on behalf of NABL



N. Venkateswaran  
Chief Executive Officer



# National Accreditation Board for Testing and Calibration Laboratories

## SCOPE OF ACCREDITATION

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<b>Certificate Number</b>	TC-6711		
<b>Validity</b>	30/11/2019 to 29/11/2021*		

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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
LOCATION 1-J-448, SITAPURA INDUSTRIAL AREA, JAIPUR, RAJASTHAN, INDIA Permanent Facility				
1	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s) (Energy meters)	AC Voltage Test	IEC 62053-22 : Clause 7.4
2	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s) (Energy meters)	Limits of Errors	IEC 62053-22 : Clause 8.1
3	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s) (Energy meters)	No-load Condition	IEC 62053-22 : Clause 8.3.2
4	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s) (Energy meters)	Power Consumption	IEC 62053-22 : Clause 7.1
5	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s) (Energy meters)	Starting Conditions	IEC 62053-22 : Clause 8.3.3
6	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s, 1 & 2) (Energy meters)	Meter Constant	IEC 62053-22 : Clause 8.4
7	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s, 1 & 2) (Energy meters)	Initial start-up of the energy meter	IEC 62053-022 : Clause 8.3.1
8	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s, 1 & 2) (Energy meters)	Initial start-up of the energy meter	IEC 62053-21 : Clause 8.3.1
9	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	AC Voltage Test	IEC 62053-21 : Clause 7.4
10	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	Limits of Errors	IEC 62053-21: Clause 8.1



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11	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	Meter Constant	IEC 62053-21 : Clause 8.1
12	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	No-load Condition	IEC 62053-21 : clause 8.3.2
13	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	Power Consumption	IEC 62053-21 : Clause 7.1
14	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	Starting Conditions	IEC 62053-21 : Clause 8.3.3
15	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Verification of Average Frequency Slot	Central Electricity Authority Notification No:502/70/CEA/DP&D
16	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Verification of Reactive Energy Registration in Total, Low and High Varh Registers	Central Electricity Authority Notification No:502/70/CEA/DP&D
17	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Initial Startup of Energy Meter	IS 15884, CI : 4.6.4.1
18	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Insulation Resistance Test	IS 15884, CI 5.4.6.4
19	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Power Consumption	Is 15884, CI : 5.4.1
20	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Test of Limits of Error	IS 15884, CI 4.6.1



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21	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and Var-hour meters (class 1 & 2) (Energy meters)	Test of Meter Constant	IS 15884, Cl : 5.6.5
22	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of No Load Condition	IS 15884, Cl : 5.6.3
23	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of Repeatability of Error	IS 15884, Cl : 5.6.7
24	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of Starting Condition	IS 15884, Cl: 5.6.4
25	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	AC Voltage Test	IS 13779 : Cl No.12.7.6.3
26	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Initial start-up of the energy meter	IS 13779 : Clause 11.4.1
27	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Insulation Resistance Test	IS 13779 : Clause 12.7.6.4
28	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of Meter Constant	IS 13779 : Clause 11.6
29	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of No-load Condition	IS 13779 : Clause 12.13
30	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of Power Consumption	IS 13779 : Cl.No.9.1



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31	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Test of Repeatability of error	IS 13779 : Clause 12.17
32	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Test of Starting Conditions	IS 13779 : Clause 12.14
33	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Test on Limits of Errors	IS 13779 : Clause 11.1
34	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	AC Voltage Test	IS 14697 : Clause 12.7.6.3
35	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Initial start-up of the energy meter	IS 14697 : Clause 11.4.1
36	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Insulation Resistance Test	IS 14697 : Clause 12.7.6.4
37	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Test of No-load Condition	IS 14697 : Clause 12.12
38	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Test of Repeatability of error	IS 14697 : Clause 12.16
39	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Test of Starting Conditions	IS 14697 : Clause 12.13
40	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Test on Limits of Errors	IS 14697 : Clause 11.1



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41	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 0.2s, 0.5s, 1 & 2) (Energy meters)	Test of Meter Constant	IS 14697 : Clause 12.14
42	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 0.2s, 0.5s, 1 & 2) (Energy meters)	Test of Power Consumption	IS 14697 : Clause 9.1
43	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and VARhour Meter Class 1 & Class 2 1 Phase and 3 Phase Active & Reactive	Ac Voltage Test	IS 15884, Cl 5.4.6.3
44	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Limits of current error and phase displacement	IS-2705 (part 2) : Clause 3.3
45	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Verification of Terminal Marking & Polarity	IS-2705 (part 1) : Clause 8.2
46	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Limits of current error and phase displacement	IEC 60044-1 : Clause 11.1 & 11.2 IEC 61869-1 : 2007 IEC 61869-2 : 2012 IEC 61869-4 : 2013
47	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Verification of Terminal Marking & Polarity	IEC 60044-1 : Clause 10.1 IEC 61869-1 : 2007 IEC 61869-2 : 2012 IEC 61869-4 : 2013
48	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Limits of current error and phase displacement	IS 16227(Part-1) : Cl. No.7.3.5
49	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Limits of current error and phase displacement	IS 16227(Part-2) : Cl.No.7.3.5
50	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Verification of Terminal Marking & Polarity	IS 16227(Part-1) : Cl. No.7.3.6
51	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Verification of Terminal Marking & Polarity	IS 16227(Part-2) : Cl.No.7.3.6



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LOCATION 1-J-448, SITAPURA INDUSTRIAL AREA, JAIPUR, RAJASTHAN, INDIA Site Facility				
1	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s) (Energy meters)	AC Voltage Test	IEC 62053-22 : Clause 7.4
2	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s) (Energy meters)	Limits of Errors	IEC 62053-22 : Clause 8.1
3	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s) (Energy meters)	No-load Condition	IEC 62053-22 : Clause 8.3.2
4	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s) (Energy meters)	Power Consumption	IEC 62053-22 : Clause 7.1
5	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s) (Energy meters)	Starting Conditions	IEC 62053-22 : Clause 8.3.3
6	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s, 1 & 2) (Energy meters)	Meter Constant	IEC 62053-22 : Clause 8.4
7	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s, 1 & 2) (Energy meters)	Initial start-up of the energy meter	IEC 62053-022 : Clause 8.3.1
8	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 0.2s, 0.5s, 1 & 2) (Energy meters)	Initial start-up of the energy meter	IEC 62053-21 : Clause 8.3.1
9	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	AC Voltage Test	IEC 62053-21 : Clause 7.4
10	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	Limits of Errors	IEC 62053-21: Clause 8.1



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11	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	Meter Constant	IEC 62053-21 : Clause 8.1
12	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	No-load Condition	IEC 62053-21 : clause 8.3.2
13	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	Power Consumption	IEC 62053-21 : Clause 7.1
14	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and Var-hour meters (Class 1 & 2) (Energy meters)	Starting Conditions	IEC 62053-21 : Clause 8.3.3
15	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Verification of Average Frequency Slot	Central Electricity Authority Notification No:502/70/CEA/DP&D
16	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Verification of Reactive Energy Registration in Total, Low and High Varh Registers	Central Electricity Authority Notification No:502/70/CEA/DP&D
17	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Initial Startup of Energy Meter	IS 15884, CI : 4.6.4.1
18	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Insulation Resistance Test	IS 15884, CI 5.4.6.4
19	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Power Consumption	Is 15884, CI : 5.4.1
20	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Test of Limits of Error	IS 15884, CI 4.6.1





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21	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and Var-hour meters (class 1 & 2) (Energy meters)	Test of Meter Constant	IS 15884, Cl : 5.6.5
22	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of No Load Condition	IS 15884, Cl : 5.6.3
23	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of Repeatability of Error	IS 15884, Cl : 5.6.7
24	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of Starting Condition	IS 15884, Cl: 5.6.4
25	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	AC Voltage Test	IS 13779 : Cl No.12.7.6.3
26	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Initial start-up of the energy meter	IS 13779 : Clause 11.4.1
27	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Insulation Resistance Test	IS 13779 : Clause 12.7.6.4
28	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of Meter Constant	IS 13779 : Clause 11.6
29	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of No-load Condition	IS 13779 : Clause 12.13
30	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 1 & 2) (Energy meters)	Test of Power Consumption	IS 13779 : Cl.No.9.1



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32	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Test of Starting Conditions	IS 13779 : Clause 12.14
33	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 1 & 2) (Energy meters)	Test on Limits of Errors	IS 13779 : Clause 11.1
34	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	AC Voltage Test	IS 14697 : Clause 12.7.6.3
35	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Initial start-up of the energy meter	IS 14697 : Clause 11.4.1
36	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Insulation Resistance Test	IS 14697 : Clause 12.7.6.4
37	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Test of No-load Condition	IS 14697 : Clause 12.12
38	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Test of Repeatability of error	IS 14697 : Clause 12.16
39	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Test of Starting Conditions	IS 14697 : Clause 12.13
40	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC watthour and var-hour meters (class 0.2s, 0.5s) (Energy meters)	Test on Limits of Errors	IS 14697 : Clause 11.1



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41	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 0.2s, 0.5s, 1 & 2) (Energy meters)	Test of Meter Constant	IS 14697 : Clause 12.14
42	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC wathour and var-hour meters (class 0.2s, 0.5s, 1 & 2) (Energy meters)	Test of Power Consumption	IS 14697 : Clause 9.1
43	ELECTRICAL- ELECTRICAL INDICATING & RECORDING INSTRUMENTS	AC Watthour and VARhour Meter Class 1 & Class 2 1 Phase and 3 Phase Active & Reactive	Ac Voltage Test	IS 15884, CI 5.4.6.3
44	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Limits of current error and phase displacement	IS-2705 (part 2) : Clause 3.3
45	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Verification of Terminal Marking & Polarity	IS-2705 (part 1) : Clause 8.2
46	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Limits of current error and phase displacement	IEC 60044-1 : Clause 11.1 & 11.2 IEC 61869-1 : 2007 IEC 61869-2 : 2012 IEC 61869-4 : 2013
47	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Verification of Terminal Marking & Polarity	IEC 60044-1 : Clause 10.1 IEC 61869-1 : 2007 IEC 61869-2 : 2012 IEC 61869-4 : 2013
48	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Limits of current error and phase displacement	IS 16227(Part-1) : Cl. No.7.3.5
49	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Limits of current error and phase displacement	IS 16227(Part-2) : Cl.No.7.3.5
50	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Verification of Terminal Marking & Polarity	IS 16227(Part-1) : Cl. No.7.3.6
51	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer 1 A - 3200 A / 5 - 1A	Verification of Terminal Marking & Polarity	IS 16227(Part-2) : Cl.No.7.3.6



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<b>LOCATION 2 - J-306, SITAPURA INDUSTRIAL AREA, JAIPUR, RAJASTHAN, INDIA</b> Permanent Facility				
1	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer Up to 33 kV	Chopped Impulse for external insulation	IS 16227 (Part 5) ; CI no 7.2.3
2	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer Up to 33 kV	Chopped Impulse for external insulation	IS:2705(Part 1) ; CI no : 9.10
3	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer Up to 33 kV	Chopped Impulse for external insulation	IS 16227 (Part 2) : CI no 7.4.1
4	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer Up to 33 kV	Chopped Impulse for external insulation	IS 16227 (Part 4) : CI no 7.4.1
5	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer Up to 33 kV	Lightning Impulse Test	IS 16227 (Part 2) : CI no 7.2.3
6	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer Up to 33 kV	Lightning Impulse Test	IS 16227-1 : CI no 7.2.3.2
7	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer Up to 33 kV	Lightning Impulse Test	IS: 2705(Part 1) : CI no: 9.8
8	ELECTRICAL- INDUCTORS & TRANSFORMERS	Current Transformer Up to 33 kV	Lightning Impulse Test	IS 16227 (Part 4) : CI no 7.4.1
9	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Full wave lightning impulse test for the line terminals (LI)	IEC:60076-3 : CI no 13
10	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Chopped wave lightning impulse test for the line terminals (LIC)	CBIP 217 ; CI no. 6.2
11	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Chopped wave lightning impulse test for the line terminals (LIC)	IEC 60076-11 : Table 4
12	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Chopped wave lightning impulse test for the line terminals (LIC)	IEC:60076-3 : CI no 14
13	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Chopped wave lightning impulse test for the line terminals (LIC)	IS:1180-1:CI no 21.3.a
14	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Full wave lightning impulse test for the line terminals (LI)	IEC:60076-11 : CI no 21
15	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Full wave lightning impulse test for the line terminals (LI)	IS:1180-1:CI no 21.3.a
16	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Lightning impulse test for the neutral terminals (LIN)	IEC 60076-03 : CI. No. 13.3.2



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17	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Lightning impulse test for the neutral terminals (LIN)	IS:1180-1 : Cl no 21.3.a
18	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Chopped wave lightning impulse test for the line terminals (LIC)	IS:2026-3 : Cl no 14 IS:11171:1985,Cl no.16,13.1(g)
19	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Full wave lightning impulse test for the line terminals (LI)	IS:11171 : Cl no 16,13.1(g)
20	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Up to 33 kV class	Lightning impulse test for the neutral terminals (LIN)	IS 2026-03 : Cl. No.13.3.2 IS 11171:Cl. no. 16,13.1(g)
21	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers , Upto 33 kV class	Full wave lightning impulse test for the line terminals (LI)	IS:2026-3 : Cl no13,14
22	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Air Pressure	IS 1180 (part 1) :Clause 15.2, 21.5, 21.5.1, 21.5.1.2 , 21.5.2.1, 21.5.2.2, 21.5.3.1, 21.5.3.2
23	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Paint Adhesion	IS 1180 (Part 1) : Clause 21.4d
24	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Vacuum	IS 1180 (Part 1) : Clause 15.2, 21.5, 21.5.1, 21.5.1.2 , 21.5.2.1, 21.5.2.2 ,21.5.3.1, 21.5.3.2
25	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Air Pressure	CBIP publication no 317 : Clause 17.3,3
26	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Induced AC Voltage Test	IEC 60076- Part 1: Clause 10.1.1(e), 10.1.2(b)
27	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	No load losses and current	IEC 60076- Part 1: Clause 10.1.1(d), 10.5
28	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Short circuit impedance and load losses	IEC 60076-Part 1 : Clause 10.1.1(c), 10.4
29	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Temperature Rise Test	IEC 60076- Part 2 : Clause 10.1.2 (a)
30	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Vacuum	CBIP publication no 317 : Clause 17.3.3
31	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Paint Adhesion	ASTM D 3359
32	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Zero sequence impedance for 3 phase transformer	IS 1180 (Part I) IEC 60076 (part I), IS 2026



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33	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	BDV in the transformer	IS 1180 (Part1) : Clause 21.4 e
34	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Insulation resistance to earth of the windings	IS 1180 (Part 1) : Clause 21.2 e
35	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Moisture Content of oil in the transformer	IS 1180 (Part 1) :Clause 21.4 e
36	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Voltage ratio and check of phase displacement (vector group)	IS 1180 (Part 1) : Clause 21.2 b, 6.5, 6.6. 7.5, 7.6, 8.5, 8.6
37	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Voltage ratio and check of phase displacement (vector group)	IS 1180 (Part 1) :Clause 21.2 b, 6.5, 6.6. 7.5, 7.6, 8.5, 8.6
38	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA,, 33 kV class	Sound Level	IS 1180 : Clause 21.4 a
39	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	BDV in the transformer	IS 13567
40	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	BDV in the transformer	IS 2026(Part I)
41	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	BDV in the transformer	IS 335 : CI 3.5
42	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Harmonics of the No Load Current	IS 2026 Part 1: Clause : 10.6
43	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Insulation resistance to earth of the windings	IS 2026 (Part-I) : Clause 10.1.3, 16.6
44	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Magnetic Balance Test at Low Voltage	CBIP publication no 317
45	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Magnetizing Current at Low Voltage	CBIP publication no 317
46	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Magnetizing Current at Low Voltage	IS 2026 (Part-I)
47	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Moisture Content of oil in the transformer	IS 13567
48	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Moisture Content of oil in the transformer	IS 2026(Part I)
49	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Moisture Content of oil in the transformer	IS 335 : CI 3.5
50	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	CBIP publication no 317



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51	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	IS 13964
52	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Winding Resistance	IEC: 60076
53	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Permissible Flux Density and Over fluxing	IS 1180 (Part 1) : Clause 6.9, 7.9, 8.9 IEC 60076, IS:2026 (part-7)
54	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	IS 2026 (Part 1) :Clause 10.1.3 IS11171,CL13.3(b)(19)
55	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	IS 2026 (Part10) IS11171, CL 13.3(b)(19)
56	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Voltage ratio and check of phase displacement (vector group)	IS 2026 (Part-I) : Clause 10.3 IS 11171:1985:Cl 13.1(b),13.2(b)
57	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Voltage ratio and check of phase displacement (vector group)	IS 2026(Part-I) : Clause 10.3 IS11171:1985:Cl 13.2(b),13.1(b)
58	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Winding Resistance	IS 11171:Cl 13.2(a),13.1(a)
59	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Winding Resistance	IS 2026(Part-I) : (Clause 10.2) IS 1180(part-1): Cl.21.2(a)
60	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2.5 MVA 33 kV class	Oil Leakage	IS 1180 (Part 1) : Clause 21.2j, 21.5, 21.5.1.3, 21.5.2.3, 21.5.3.3IEC 60076: Part1
61	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Induced AC Voltage Test	IS 1180 (Part I) : Clause 21.2 f
62	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	No load losses and current	IS 1180 (Part I) :Clause 21.2 d
63	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Separate source AC withstand voltage test	IS 1180 (Part I) :Clause 21.2g
64	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Harmonics of the no load current	IEC 60551 Part-1 : Clause 10.1.3(9), 10.6
65	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Induced AC Voltage test	IEC 60076 Part-3
66	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Induced AC Voltage Test	IS 11171 : Clause 15
67	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Induced AC Voltage Test	IS 2026 (Part III) : Clause 12.1



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68	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Insulation Resistance to earth of the winding's	IEC 60551 - Part 1 : Clause 10.1.3(i)
69	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Measurement of short circuit impedance and load losses	IEC 60076- Part 1: Clause 10.1.1(c), 10.4
70	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Measurement of short circuit impedance and load losses	IS 1180 (Part I) : 2014 Cl 21.2c IS 2026 (part I): Cl 10.1.1c
71	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	No load losses and current	IS 2026(Part I) : Clause 10.5 IS 11171:1985:Cl. 13.1(d),13.2(d)
72	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Separate source AC withstand voltage test	IEC 60076 Part-1
73	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Separate Source AC withstand voltage test	IS 11171 : (Clause 14)
74	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Separate Source AC withstand voltage test	IS 2026(Part III):Clause 11
75	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Short circuit impedance and load losses	IS 11171
76	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Short circuit impedance and load losses	IS 2026-Part I : Clause 10.4
77	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	IEC-60551 Part-1 : Clause 10.1.3(f)
78	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	IEC-60551 Part-10
79	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Temperature Rise Test	IS 2026(Part I) :Clause 5.6
80	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Temperature Rise Test	IS 2026(Part II) : Clause 5 , 10.4 IS 11171:1985: Cl 13.1(h),(17)
81	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Unbalanced Current	CBIP publication no. GP 317
82	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Voltage ratio and check of phase displacement(vector group)	IEC 60551 Part-1: Clause 10.1.1(b), 10.3
83	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Winding Resistance	IEC 60551 Part-1: Clause 10.1.1(9), 10.2
84	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Zero sequence impedance for 3 phase transformer	IEC 60076 Part-1 : Clause 10.1.3(d), 10.7
85	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Zero sequence impedance for 3 phase transformer	IS 11171





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86	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Zero sequence impedance for 3 phase transformer	IS 2026 (Part I) : Clause 10.7
87	ELECTRICAL- INDUCTORS & TRANSFORMERS	Voltage Transformer Up to 33 kV	Chopped Impulse for external insulation	IS 16227 (Part 3) : CI no 7.4.1
88	ELECTRICAL- INDUCTORS & TRANSFORMERS	Voltage Transformer Up to 33 kV	Chopped Impulse for external insulation	IS 16227 (Part 4) : CI no 7.4.1
89	ELECTRICAL- INDUCTORS & TRANSFORMERS	Voltage Transformer Up to 33 kV	Chopped Impulse for external insulation	IS:3156(Part 1) : CI no 9.8
90	ELECTRICAL- INDUCTORS & TRANSFORMERS	Voltage Transformer Up to 33 kV	Lightning Impulse Voltage Test on Primary Terminal	IS 16227 (Part 3) : CI no 7.2.3
91	ELECTRICAL- INDUCTORS & TRANSFORMERS	Voltage Transformer Up to 33 kV	Lightning Impulse Voltage Test on Primary Terminal	IS 16227 (Part 4) :CI no 7.2.3
92	ELECTRICAL- INDUCTORS & TRANSFORMERS	Voltage Transformer Up to 33 kV	Lightning Impulse Voltage Test on Primary Terminal	IS:16227-1 : CI no 7.2.3.2
93	ELECTRICAL- INDUCTORS & TRANSFORMERS	Voltage Transformer Up to 33 kV	Lightning Impulse Voltage Test on Primary Terminal	IS:3156(Part 1) : CI no 9.6
94	ELECTRICAL- TRANSMISSION LINE EQUIPMENT & ACCESSORIES	Insulator, Bushing Up to 36 kV	Dry Impulse withstand voltage	IS :2099 CI, No 11.4
95	ELECTRICAL- TRANSMISSION LINE EQUIPMENT & ACCESSORIES	Insulator, Bushing Up to 36 kV	Dry Impulse withstand voltage	IS:2544 : CI no 9.3
96	ELECTRICAL- TRANSMISSION LINE EQUIPMENT & ACCESSORIES	Insulator, Bushing Up to 36 kV	Dry Impulse withstand voltage	IS:731 : CI no 10.3
97	ELECTRICAL- TRANSMISSION LINE EQUIPMENT & ACCESSORIES	Insulator, Bushing Up to 36 kV	Dry Impulse withstand voltage	IS:9431: CI no 9.2
98	ELECTRICAL- TRANSMISSION LINE EQUIPMENT & ACCESSORIES	Insulator, Bushing Up to 36 kV	Fifty percent Dry Impulse Flashover voltage	IS :2099 : CI, No 11.4
99	ELECTRICAL- TRANSMISSION LINE EQUIPMENT & ACCESSORIES	Insulator, Bushing Up to 36 kV	Fifty percent Dry Impulse Flashover voltage	IS:2544 : CI no 9.3.6



# National Accreditation Board for Testing and Calibration Laboratories

## SCOPE OF ACCREDITATION

**Laboratory Name :**

C AND I CALIBRATIONS PVT. LTD., J-448, SITAPURA INDUSTRIAL AREA, JAIPUR,  
RAJASTHAN, INDIA

**Accreditation Standard**

ISO/IEC 17025:2017

**Certificate Number**

TC-6711

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**Validity**

30/11/2019 to 29/11/2021\*

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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
100	ELECTRICAL-TRANSMISSION LINE EQUIPMENT & ACCESSORIES	Insulator, Bushing Up to 36 kV	Fifty percent Dry Impulse Flashover voltage	IS:731 : Cl no 10.3.5
101	ELECTRICAL-TRANSMISSION LINE EQUIPMENT & ACCESSORIES	Insulator, Bushing Up to 36 kV	Fifty percent Dry Impulse Flashover voltage	IS:9431: Cl no 9.2.3



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<b>LOCATION 2 - J-306, SITAPURA INDUSTRIAL AREA, JAIPUR, RAJASTHAN, INDIA</b> Site Facility				
1	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Air Pressure	IS 1180 (part 1) :Clause 15.2, 21.5, 21.5.1, 21.5.1.2 , 21.5.2.1, 21.5.2.2, 21.5.3.1, 21.5.3.2
2	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Paint Adhesion	IS 1180 (Part 1) : Clause 21.4d
3	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Vacuum	IS 1180 (Part 1) : Clause 15.2, 21.5, 21.5.1, 21.5.1.2 , 21.5.2.1, 21.5.2.2 ,21.5.3.1, 21.5.3.2
4	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Air Pressure	CBIP publication no 317 : Clause 17.3,3
5	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Induced AC Voltage Test	IEC 60076- Part 1: Clause 10.1.1(e), 10.1.2(b)
6	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	No load losses and current	IEC 60076- Part 1: Clause 10.1.1(d), 10.5
7	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Short circuit impedance and load losses	IEC 60076-Part 1 : Clause 10.1.1(c), 10.4
8	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Temperature Rise Test	IEC 60076- Part 2 : Clause 10.1.2 (a)
9	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Vacuum	CBIP publication no 317 : Clause 17.3.3
10	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Paint Adhesion	ASTM D 3359
11	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Zero sequence impedance for 3 phase transformer	IS 1180 (Part I) IEC 60076 (part I), IS 2026
12	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	BDV in the transformer	IS 1180 (Part1) : Clause 21.4 e
13	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Insulation resistance to earth of the windings	IS 1180 (Part 1) : Clause 21.2 e
14	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Moisture Content of oil in the transformer	IS 1180 (Part 1) :Clause 21.4 e
15	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Voltage ratio and check of phase displacement (vector group)	IS 1180 (Part 1) : Clause 21.2 b, 6.5, 6.6, 7.5, 7.6, 8.5, 8.6



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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
16	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Voltage ratio and check of phase displacement (vector group)	IS 1180 (Part 1) :Clause 21.2 b, 6.5, 6.6, 7.5, 7.6, 8.5, 8.6
17	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA,, 33 kV class	Sound Level	IS 1180 : Clause 21.4 a
18	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	BDV in the transformer	IS 13567
19	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	BDV in the transformer	IS 2026(Part I)
20	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	BDV in the transformer	IS 335 : Cl 3.5
21	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Harmonics of the No Load Current	IS 2026 Part 1: Clause : 10.6
22	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Insulation resistance to earth of the windings	IS 2026 (Part-I) : Clause 10.1.3, 16.6
23	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Magnetic Balance Test at Low Voltage	CBIP publication no 317
24	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Magnetizing Current at Low Voltage	CBIP publication no 317
25	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Magnetizing Current at Low Voltage	IS 2026 (Part-I)
26	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Moisture Content of oil in the transformer	IS 13567
27	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Moisture Content of oil in the transformer	IS 2026(Part I)
28	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Moisture Content of oil in the transformer	IS 335 : Cl 3.5
29	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	CBIP publication no 317
30	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	IS 13964
31	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Winding Resistance	IEC: 60076
32	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Permissible Flux Density and Over fluxing	IS 1180 (Part 1) : Clause 6.9, 7.9, 8.9 IEC 60076, IS:2026 (part-7)
33	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	IS 2026 (Part 1) :Clause 10.1.3 IS11171,CL13.3(b)(19)



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34	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	IS 2026 (Part10) IS11171, CL 13.3(b)(19)
35	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Voltage ratio and check of phase displacement (vector group)	IS 2026 (Part-I) : Clause 10.3 IS 11171:1985:Cl 13.1(b),13.2(b)
36	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Voltage ratio and check of phase displacement (vector group)	IS 2026(Part-I) : Clause 10.3 IS11171:1985:Cl 13.2(b),13.1(b)
37	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Winding Resistance	IS 11171:Cl 13.2(a),13.1(a)
38	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Winding Resistance	IS 2026(Part-I) : (Clause 10.2) IS 1180(part-1): Cl.21.2(a)
39	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2.5 MVA 33 kV class	Oil Leakage	IS 1180 (Part 1) : Clause 21.2], 21.5, 21.5.1.3, 21.5.2.3, 21.5.3.3IEC 60076: Part1
40	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Induced AC Voltage Test	IS 1180 (Part I) : Clause 21.2 f
41	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	No load losses and current	IS 1180 (Part I) :Clause 21.2 d
42	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Separate source AC withstand voltage test	IS 1180 (Part I) :Clause 21.2g
43	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 2500 kVA , 33 kV class	Temperature Rise Test	IS 1180 (Part I): Clause 21.2, 21.3 b 6.10, 7.10, 8.10
44	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Harmonics of the no load current	IEC 60551 Part-1 : Clause 10.1.3(9), 10.6
45	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Induced AC Voltage test	IEC 60076 Part-3
46	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Induced AC Voltage Test	IS 11171 : Clause 15
47	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Induced AC Voltage Test	IS 2026 (Part III) : Clause 12.1
48	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Insulation Resistance to earth of the winding's	IEC 60551 - Part 1 : Clause 10.1.3(i)
49	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Measurement of short circuit impedance and load losses	IEC 60076- Part 1: Clause 10.1.1(c), 10.4
50	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Measurement of short circuit impedance and load losses	IS 1180 (Part I) : 2014 Cl 21.2c IS 2026 (part I): Cl 10.1.1c



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<b>Validity</b>	30/11/2019 to 29/11/2021*		

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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
51	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	No load losses and current	IS 2026(Part I) : Clause 10.5 IS 11171:1985:Cl. 13.1(d),13.2(d)
52	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Separate source AC withstand voltage test	IEC 60076 Part-1
53	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Separate Source AC withstand voltage test	IS 11171 : (Clause 14)
54	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Separate Source AC withstand voltage test	IS 2026(Part III):Clause 11
55	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Short circuit impedance and load losses	IS 11171
56	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Short circuit impedance and load losses	IS 2026-Part I : Clause 10.4
57	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	IEC-60551 Part-1 : Clause 10.1.3(f)
58	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Sound Level	IEC-60551 Part-10
59	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Temperature Rise Test	IS 2026(Part I) :Clause 5.6
60	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Temperature Rise Test	IS 2026(Part II) : Clause 5 , 10.4 IS 11171:1985: Cl 13.1(h),(17)
61	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Unbalanced Current	CBIP publication no. GP 317
62	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Voltage ratio and check of phase displacement(vector group)	IEC 60551 Part-1: Clause 10.1.1(b), 10.3
63	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Winding Resistance	IEC 60551 Part-1: Clause 10.1.1(9), 10.2
64	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Zero sequence impedance for 3 phase transformer	IEC 60076 Part-1 : Clause 10.1.3(d), 10.7
65	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Zero sequence impedance for 3 phase transformer	IS 11171
66	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution /Power Transformers 5 kVA to 5 MVA , 33 kV class	Zero sequence impedance for 3 phase transformer	IS 2026 (Part I) : Clause 10.7
67	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Up to 100 MVA, 220 kV Class	Winding Resistance	IS 2026 (Part-I) : Clause 10.2
68	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 100 MVA, 220 kV Class	Magnetic Balance Test at Low Voltage	CBIP publication no 317



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69	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 100 MVA, 220 kV Class	Magnetizing Current at Low Voltage	CBIP publication no 317
70	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 100 MVA, 220 kV Class	Magnetizing Current at Low Voltage	IS 2026 (Part-I)
71	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 100 MVA, 220 kV Class	Voltage ratio and check of phase displacement (vector group)	IS 2026 (Part-I) : Clause 10.3
72	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 100 MVA, 220 kV Class	Voltage ratio and check of phase displacement (vector group)	IS 2026 (Part-I) : Clause 10.3
73	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 100 MVA, 220 kV Class	Winding Resistance	IS 11171
74	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 100 MVA, 220 kV Class	Insulation resistance to earth of the windings	IS 2026 (Part-I) ; (Clause 10.1.3, 16.6)
75	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 2500 kVA, 33 kV Class	Insulation resistance to earth of the windings	IS 1180 (Part 1) : Clause 21.2 e
76	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 2500 kVA, 33 kV Class	Voltage ratio and check of phase displacement (vector group)	IS 1180 (Part 1) : Clause 21.2 b, 6.5, 6.6, 7.5, 7.6, 8.5, 8.6
77	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 2500 kVA, 33 kV Class	Voltage ratio and check of phase displacement (vector group)	IS 1180 (Part 1) : Clause 21.2 b, 6.5, 6.6, 7.5, 7.6, 8.5, 8.6
78	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 2500 kVA, 33 kV Class	Winding Resistance	IS 1180 (Part 1) Clause 21.2 a
79	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Up to 100 MVA, 220 kV Class	Insulation resistance to earth of the winding's	IEC 60076- Part 1 : Clause 10.1.3(i)
80	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Up to 100 MVA, 220 kV Class	Voltage Ratio and Check of Phase displacement (Vector Group)	IEC 60076 Part 1 : Clause 10.1.1(b), 10.3
81	ELECTRICAL- INDUCTORS & TRANSFORMERS	Distribution/Power Transformers Upto 100 MVA, 220 kV Class	Winding Resistance	IEC 60076- Part 1 : Clause 10.1.1(9), 10.2