National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name : HAVELLS RESEARCH AND DEVELOPMENT LABORATORY, 14/3, MATHURA ROAD, FARIDABAD, HARYANA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number TC-10621 **Page No** 1 of 10

Validity 18/05/2022 to 17/05/2024 **Last Amended on** -

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 Facility				
1	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	ACB, MCCB	Creepage Distance	IEC 60947-2+A1 (Cl.no. 7.2.3.5) EN 60947-2/A2, IS/IEC 60947-2
2	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	ACB, MCCB	Requirements for the safety of the operator	IEC 60947-2+A1, (Cl.no. 7.1.5) EN 60947-2/A2, IS/IEC 60947-2
3	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	ACB, MCCB	Spacing between separate circuits	IEC 60947-2+A1, (Cl.no. 7.2.3.7) EN 60947-2/A2, IS/IEC 60947-2
4	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	ACB,MCCB	Test Sequence-I : General performance characteristics - Dielectric properties, HV test	IEC 60947-2+A1, (Cl.no. 8.3.3.3) EN 60947-2/A2, IS/IEC 60947-2
5	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Contactors	Test sequence 4 verification of ability to withstand overload currents	IS/IEC 60947-4-1, EN 60947-4-1/A1, IEC 60947-4-1 (Cl. 9.3.5)
6	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Contactors, MPCB, Starter, Relay	Glow wire testing	IS/IEC 60947-4-1, EN 60947-4-1, A1, IEC 60947-4-1 (Cl. No. 8.1.2.2)
7	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Contactors, MPCB, Starter, Relay	Test Seq-1 verification of dielectric properties	IS/IEC 60947-4-1, EN 60947-4-1, A1, IEC 60947-4-1 (Cl. No. 9.3.3.4)
8	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Contactors, MPCB, Starter, Relay	Test Seq-1, verification of operation and operating limits	IS/IEC 60947-4-1, EN 60947-4-1, A1, IEC 60947-4-1 (Cl. No. 9.3.3.1 and 9.3.3.2)
9	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Contactors, MPCB, Starter, Relay	Test Seq-1, verification of temperature rise	IS/IEC 60947-4-1, EN 60947-4-1, A1, IEC 60947-4-1 (Cl. No. 9.3.3.3)
10	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Contactors, MPCB, Starter, Relay	Test Seq-2 verification of conventional operational performance	IS/IEC 60947-4-1, EN 60947-4-1, A1 IEC 60947-4-1 (Cl. No. 9.3.3.6)
11	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Contactors, MPCB, Starter, Relay	Test Seq-2 verification of rated making and breaking capacities, change-over ability and reversibility, where applicable	IS/IEC 60947-4-1, EN 60947-4-1, A1, IEC 60947-4-1 (Cl. No. 9.3.3.5)
12	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Contactors, MPCB, Starter, Relay	Test Seq-3 performance under short-circuit conditions	IS/IEC 60947-4-1, EN 60947-4-1, A1, IEC 60947-4-1 (Cl. No. 9.3.4)
13	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Contactors, MPCB, Starter, Relay	Test sequence 5 1) verification of mechanical properties of terminals	IS/IEC 60947-4-1, EN 60947-4-1, A1, IEC 60947-4-1 (Cl. No. 9.2.1 and 9.2.2)

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Accreditation Standard ISO/IEC 17025:2017

Certificate Number TC-10621 **Page No** 2 of 10

Validity 18/05/2022 to 17/05/2024 **Last Amended on** -

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14	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCB	Clearance & creepage distances	IEC 60898-1:ed.2-03 (Cl.8.1.3) EN 60898-1+A13/IS/IEC 60898-1
15	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCB	Marking & Product information	IEC 60898-1:ed.2-03 (Cl.6) EN 60898-1+A13, IS/IEC 60898-1
16	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCB	Mechanism	IEC 60898-1:ed.2-03 (Cl. 8.1.2) EN 60898-1+A13, IS/IEC 60898-1
17	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCB	Sequence A2: Resistance to abnormal heat and fire	IEC 60898-1:ed.2-03 (Cl. 9.15) EN 60898-1+A13, IS/IEC 60898-1
18	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCB	Sequence B: 28-day test	IEC 60898-1:ed.2-03 (Cl. 9.9) EN 60898-1+A13, IS/IEC 60898-1
19	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCB	Sequence B: Temperature rise	IEC 60898-1:ed.2-03 (Cl. 9.8) EN 60898-1+A13, IS/IEC 60898-1
20	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCB	Sequence C: Mechanical and Electrical Endurance	IEC 60898-1:ed.2-03 (Cl. 9.11) EN 60898-1+A13, IS/IEC: 60898-1
21	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCB	Sequence C: Performance at reduced short-circuit currents	IEC 60898-1:ed.2-03 (Cl. 9.12.11.2.1) EN 60898-1+A13, IS/IEC 60898-1
22	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCB	Sequence C: Verification of the circuit-breaker after short-circuit tests	IEC 60898-1:ed.2-03 (Cl. 9.12.12) EN 60898-1+A13, IS/IEC: 60898-1
23	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Classification	IEC 60947-2+A1 (Cl. No. 3) EN 60947-2/A2, IS/IEC 60947-2
24	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Ability to make and break under no load, normal load and overload conditions	IEC 60947-2+A1 (Cl. No. 7.2.4) EN 60947-2/A2, IS/IEC 60947-2
25	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Ability to make and break under short-circuit conditions	IEC 60947-2+A1(Cl.no. 7.2.5) in conjuction with IEC 60947-1+AMD1+AMD2, IEC 60947-1, EN 60947-2, EN 60947-2/A1, EN 60947-2/A2, IS/IEC 60947-2
26	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Characteristics of circuit-breakers	IEC 60947-2+A1 (Cl. No.4) EN 60947-2/A2, IS/IEC 60947-2

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Accreditation Standard ISO/IEC 17025:2017

Certificate Number TC-10621 **Page No** 3 of 10

Validity 18/05/2022 to 17/05/2024 **Last Amended on** -

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27	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Clearances	IEC 60947-2+A1 (Cl. No. 7.2.3.4) EN 60947-2/A2, IS/IEC 60947-2
28	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Impulse withstand voltage	IEC 60947-2+A1 (Cl. No. 7.2.3.2) EN 60947-2/A, IS/IEC 60947-2
29	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Marking	IEC 60947-2+A1 (Cl. No. 5.2) EN 60947-2, A2, IS/IEC 60947-2
30	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Opening	IEC 60947-2+A1 (Cl. No. 7.2.1.2) EN 60947-2/A2, IS/IEC 60947-2
31	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Solid insulation	IEC 60947-2+A1 (Cl. No. 7.2.3.6) EN 60947-2/A2, IS/IEC 60947-2
32	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Stored energy closing	IEC 60947-2+A1 (Cl.no. 7.2.1.1.6) EN 60947-2/A2, IS/IEC 60947-2
33	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Temperature-rise	IEC 60947-2+A1 (Cl.no. 7.2.2) EN 60947-2/A2, IS/IEC 60947-2
34	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-I : General performance characteristics (Verification of main contact position (where applicable)	IEC 60947-2+A1 (Clause no.8.3.3.10) EN 60947-2/A2, IS/IEC 60947-2
35	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-I: General performance characteristics - Tripping limits and characteristics	IEC 60947-2+A1 (Clause no. 8.3.3.2) EN 60947-2/A2, IS/IEC 60947-2
36	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-I: General performance characteristics - Verification of overload releases	IEC 60947-2+A1 (Clause no. 8.3.3.8) EN 60947-2/A2, IS/IEC 60947-2
37	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-II : Rated service short-circuit breaking capacity -Verification of temperature-rise	IEC 60947-2+A1 (Clause no. 8.3.4.5) EN 60947-2/A2, IS/IEC 60947-2
38	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-II: Rated service short-circuit breaking capacity -Verification of dielectric withstand	IEC 60947-2+A1 (Clause no. 8.3.4.4) EN 60947-2/A2, IS/IEC 60947-2

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Accreditation Standard ISO/IEC 17025:2017

Certificate Number TC-10621 **Page No** 4 of 10

Validity 18/05/2022 to 17/05/2024 **Last Amended on** -

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39	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-II: Rated service short-circuit breaking capacity -Verification of overload releases	IEC 60947-2+A1 (Clause no. 8.3.4.6) EN 60947-2/A2, IS/IEC 60947-2
40	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-II: Rated service short-circuit breaking capacity-Verification of operational performance capability	IEC 60947-2+A1 (Clause no. 8.3.4.3) EN 60947-2/A2, IS/IEC 60947-2
41	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-III : Rated ultimate shortcircuit breaking capacity-Verification of overload releases	IEC 60947-2+A1 (Clause no. 8.3.5.2) EN 60947-2/A2, IS/IEC 60947-2
42	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-III: Rated ultimate shortcircuit breaking capacity -Verification of dielectric withstand	IEC 60947-2+A1 (Clause no. 8.3.5.4) EN 60947-2/A2, IS/IEC 60947-2
43	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-VI :Combined test sequence - Rated service short-circuit breaking capacity	IEC 60947-2+A1 (Clause no. 8.3.4.2) EN 60947-2/A2, IS/IEC 60947-2
44	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-VI :Combined test sequence- Operational performance capability	IEC 60947-2+A1 (Clause no. 8.3.8.5) EN 60947-2/A2, IS/IEC 60947-2
45	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-VI :Combined test sequence- Verification of dielectric withstand	IEC 60947-2+A1 (Clause no. 8.3.8.6) EN 60947-2/A2, IS/IEC 60947-2
46	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-VI :Combined test sequence -Verification of overload releases	IEC 60947-2+A1 (Clause no. 8.3.8.2) EN 60947-2/A2, IS/IEC 60947-2
47	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-VI :Combined test sequence -Verification of temperature-rise	IEC 60947-2+A1 (Clause no. 8.3.8.7) EN 60947-2/A2, IS/IEC 60947-2
48	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB, ACB	Test Sequence-VI :Combined test sequence-Verification of overload releases	IEC 60947-2+A1 (Clause no. 8.3.8.8) EN 60947-2/A2, IS/IEC 60947-2
49	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-IV : Rated short-time withstand current-Verification of temperature-rise	IEC 60947-2+A1 (Clause no. 8.3.6.4) EN 60947-2/A2, IS/IEC 60947-2
50	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Additional requirements for circuit-breakers suitable for isolation	IEC 60947-2+A1 (Clause no. 7.1.3) EN 60947-2/A2, IS/IEC 60947-2

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Accreditation Standard ISO/IEC 17025:2017

Certificate Number TC-10621 **Page No** 5 of 10

Validity 18/05/2022 to 17/05/2024 **Last Amended on** -

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51	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Additional requirements for equipment provided with a neutral pole	IEC 60947-2+A1 (Clause no. 7.1.7) EN 60947-2/A2, IS/IEC 60947-2
52	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Clearances and creepage distances	IEC 60947-2+A1 (Clause no. 7.1.4) EN 60947-2/A2, IS/IEC 60947-2
53	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Constructional Requirement-General	IEC 60947-2+A1 (Clause no. 7.1.1) EN 60947-2/A2, IS/IEC 60947-2
54	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Constructional requirements-Withdrawable circuit-breakers	IEC 60947-2+A1 (Clause no. 7.1.2) EN 60947-2/A2, IS/IEC 60947-2
55	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Dependent manual closing	IEC 60947-2+A1 (Clause no.7.2.1.1.2) EN 60947-2/A2, IS/IEC 60947-2
56	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Dependent power closing	IEC 60947-2+A1 (Clause no.7.2.1.1.4) EN 60947-2/A2, IS/IEC 60947-2:
57	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Independent manual closing	IEC 60947-2+A1 (Clause no.7.2.1.1.3) EN 60947-2/A2, IS/IEC 60947-2
58	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Independent power closing	IEC 60947-2+A1 (Clause no.7.2.1.1.5) EN 60947-2/A2, IS/IEC 60947-2
59	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	List of construction breaks	IEC 60947-2+A1 (Clause no. 7.1.6) EN 60947-2/A2, IS/IEC 60947-2
60	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Normal service, mounting and transport conditions	IEC 60947-2+A1 (Clause no. 6) EN 60947-2/A2, IS/IEC 60947-2
61	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Operating conditions-General	IEC 60947-2+A1 (Clause no.7.2.1.1.1) EN 60947-2/A2, IS/IEC 60947-2
62	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-I : General performance characteristics - Dielectric properties, Impulse tester	IEC 60947-2+A1 (Clause no. 8.3.3.3) EN 60947-2/A2, IS/IEC 60947-2
63	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-I : General performance characteristics - Mechanical operation and operational performance capability	IEC 60947-2+A1 (Clause no. 8.3.3.4) EN 60947-2/A2, IS/IEC 60947-2

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Accreditation Standard ISO/IEC 17025:2017

Certificate Number TC-10621 **Page No** 6 of 10

Validity 18/05/2022 to 17/05/2024 **Last Amended on** -

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64	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-I : General performance characteristics - Overload performance	IEC 60947-2+A1 (Clause no. 8.3.3.5) EN 60947-2/A2, IS/IEC 60947-2
65	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-I : General performance characteristics - Verification of temperature-rise	IEC 60947-2+A1 (Clause no. 8.3.3.7) EN 60947-2/A2, IS/IEC 60947-2
66	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-I: General performance characteristics - Dielectric properties, HV test	IEC 60947-2+A1 (Clause no. 8.3.3.3) EN 60947-2/A2, IS/IEC 60947-2
67	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-I: General performance characteristics - Dielectric properties, Lekage current test	IEC 60947-2+A1 (Clause no. 8.3.3.3) EN 60947-2/A2, IS/IEC 60947-2
68	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-III : Rated ultimate shortcircuit breaking capacity -Verification of overload releases	IEC 60947-2+A1 (Clause no. 8.3.3.5) EN 60947-2/A2, IS/IEC 60947-2
69	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-III : Rated ultimate shortcircuit breaking capacity-Rated ultimate short-circuit breaking capacity	IEC 60947-2+A1 (Clause no. 8.3.5.3) EN 60947-2/A2, IS/IEC 60947-2
70	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-IV : Rated short-time withstand current Verification of dielectric withstand	IEC 60947-2+A1 (Clause no. 8.3.6.6) EN 60947-2/A2, IS/IEC 60947-2
71	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-IV : Rated short-time withstand current - Verification of overload releases	IEC 60947-2+A1 (Clause no. 8.3.6.2) EN 60947-2/A2, IS/IEC 60947-2
72	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-IV : Rated short-time withstand current - Verification of overload releases	IEC 60947-2+A1 (Clause no. 8.3.6.7) EN 60947-2/A2, IS/IEC 60947-2
73	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	MCCB,ACB	Test Sequence-IV : Rated short-time withstand current-Verification of temperature-rise	IEC 60947-2+A1 (Clause no. 8.3.6.4) EN 60947-2/A2, IS/IEC 60947-2
74	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Clearance & creepage distances	IEC 61009-1, AMD2 (Cl. 8.1.3) EN61009-1+A12 IS 12640 (Part 2) / IEC 61009-1
75	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Marking & other Product information	IEC 61009-1, AMD2 (Cl. 6) EN61009-1+A12, IS 12640 (Part 2) / IEC 61009-1

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Accreditation Standard ISO/IEC 17025:2017

Certificate Number TC-10621 **Page No** 7 of 10

Validity 18/05/2022 to 17/05/2024 **Last Amended on** -

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76	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Sequence A2: Resistance to abnormal heat and fire- Glow Wire test	IEC 61009-1, AMD 2 (Cl. 9.15) EN61009-1+A12, IS 12640 (Part 2) / IEC 61009-1
77	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Sequence B :Temperature-rise	IEC 61009-1, AMD2 (Cl. 9.8) EN61009-1+A12, IS 12640 (Part 2) / IEC 61009-1
78	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Sequence C1: (Verification of the RCBO after short-circuit tests)	IEC 61009-1, AMD2 (Cl. 9.12.12) EN61009-1+A12, IS 12640 (Part 2) / IEC 61009-1
79	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Sequence C1: Mechanical and electrical endurance	IEC 61009-1, AMD2 (Cl. 9.10) EN61009-1+A12, IS 12640 (Part 2) / IEC 61009-1
80	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Sequence C1: Performance at reduced short-circuit currents	IEC 61009-1, AMD2 (Cl. 9.12.11.2.1) EN61009-1+A12, IS 12640 (Part 2) / IEC 61009-1
81	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Sequence D1: Performance at I (delta)m	IEC 61009-1, AMD2 (Cl. 9.12.13) EN61009-1+A12, IS 12640 (Part 2) / IEC 61009-1
82	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Sequence D1: Test device	IEC 61009-1, AMD2 (Cl. 9.16) EN61009-1+A12, IS 12640 (Part 2) / IEC 61009-1
83	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Sequence E0: Overcurrent operating characteristics	IEC 61009-1, AMD2 (Cl. 9.9.2) EN61009-1+A12, IS 12640 (Part 2) / IEC 61009-1
84	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCBO	Sequence F1: Performance at rated short-circuit capacity	IEC 61009-1, AMD2 (Cl.no.9.12.11.4 c) (and 9.12.12.2) EN61009-1+A12, IS 12640 (Part 2) / IEC 61009-1
85	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-D2:Verification of the suitability of RCCBs for use in IT-systems	IEC 61008-1 (Third edition)+A2 (Cl. 9.11.2.3 c) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
86	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-E:Coordination at Inc	IEC 61008-1 (Third edition)+A2 (Cl. 9.11.2.4 a) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
87	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Clearance & creepage distances	IEC 61008-1 (Third edition)+A2 (Cl. 8.1.3) EN 61008-1+A2, IS 12640 Part 1 / IEC 61008-1:
88	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Marking & other Product information	IEC 61008-1 (Third edition)+A2 (Cl. 6) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1

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Certificate Number TC-10621 **Page No** 8 of 10

Validity 18/05/2022 to 17/05/2024 **Last Amended on** -

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
89	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Mechanism	IEC 61008-1 (Third edition)+A2 (Cl. 8.1.2) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
90	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-A2:Resistance to abnormal heat and fire	IEC 61008-1 (Third edition)+A2 (Cl. 9.14) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
91	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-B:Temperature-rise	IEC 61008-1 (Third edition)+A2 (Cl. 9.8) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
92	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-C: Mechanical and Electrical Endurance	IEC 61008-1 (Third edition)+A2 (Cl. 9.10) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
93	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-D1: Performance at I(delta)m	IEC 61008-1 (Third edition)+A2 (Cl. 9.11.2.3 a,b) EN 61008-1+A2 IS 12640-Part 1 / IEC 61008-1
94	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-D1:Test device	IEC 61008-1 (Third edition)+A2 (Cl. 9.16) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
95	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-D2:Verification of the suitability of RCCBs for use in IT-systems	IEC 61008-1 (Third edition)+A2 (Cl. 9.11.2.3 c) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
96	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-E:Coordination at Inc	IEC 61008-1 (Third edition)+A2 (Cl. 9.11.2.4 a) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
97	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-E:Performance at Im	IEC 61008-1 (Third edition)+A2 (Cl. 9.11.2.2) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
98	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-F:Coordination at I(delta)c	IEC 61008-1 (Third edition)+A2 (Cl. 9.11.2.4 c) EN 61008-1+A2, IS 12640-Part 1 / IEC 61008-1
99	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	RCCB	Sequence-F:Coordination at Im	IEC 61008-1 (Third edition)+A2 (Cl. 9.11.2.4 b) EN 61008-1+A2, IS 12640 Part 1/IEC 61008-1
100	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Clearances and creepage distances	IEC 60947-3, IS/IEC 60947 (PART 3), EN 60947-3/A2, IEC 60947-1 (Cl.no: 8.1.4) IS/IEC 60947 (PART 1) (Cl.no: 7.1.4)

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Accreditation Standard ISO/IEC 17025:2017

Certificate Number TC-10621 **Page No** 9 of 10

Validity 18/05/2022 to 17/05/2024 **Last Amended on** -

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
101	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Current-carrying parts and their connections	IEC 60947-3, IS/IEC 60947 (PART 3), EN 60947-3/A2, IEC 60947-1 (Cl.no: 8.1.3) IS/IEC 60947 (PART 1) (Cl.no: 7.1.3)
102	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Glow wire Testing	IEC 60947-3, IS/IEC 60947 (PART 3), EN 60947-3/A2, IEC 60947-1 (Cl.no: 8.1.2.2) IS/IEC 60947 (PART 1) (Cl.no: 7.1.2.2)
103	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Mechanical Properties of Terminals (for use with unprepared conductors only)	IEC 60947-3, IS/IEC 60947 (PART 3) (Cl. No. 8.2.4) EN 60947-3/A2
104	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test Sequence I: General Performance Characteristics Dielectric verification	IEC 60947-3 (cl-9.3.4.5) IS/IEC 60947 (PART 3) (cl-8.3.3.4) EN 60947-3/A2
105	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test Sequence I: General Performance Characteristics Dielectric Properties -Lekage Current	IEC 60947-3 (Cl. No. 9.3.4.3) IS/IEC 60947 (PART 3), (Cl. No. 8.3.3.2) EN 60947-3/A2
106	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test Sequence I: General Performance Characteristics Dielectric Properties-Impulse	IEC 60947-3 (Cl. No. 9.3.4.3) IS/IEC 60947 (PART 3), (Cl. No. 8.3.3.2) EN 60947-3/A2
107	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test Sequence I: General Performance Characteristics Dielectric Properties-Power Frequency Withstand	IEC 60947-3 (Cl. No. 9.3.4.3) IS/IEC 60947 (PART 3), (Cl. No. 8.3.3.2) EN 60947-3/A2
108	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test Sequence I: General Performance Characteristics Dielectric verification	IEC 60947-3 (Cl. No. 9.3.4.5) IS/IEC 60947 (PART 3) (Cl. No. 8.3.3.4) EN 60947-3/A2
109	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test Sequence I: General Performance Characteristics Leakage Current	IEC 60947-3 (Cl. No. 9.3.4.6) IS/IEC 60947 (PART 3) (Cl. No. 8.3.3.5) EN 60947-3/A2
110	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test Sequence I: General Performance Characteristics Making and breaking capacities	IEC 60947-3 (Cl. No. 9.3.4.4) IS/IEC 60947 (PART 3) (Cl. No. 8.3.3.3) EN 60947-3/A2
111	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test Sequence I: General Performance Characteristics Temperature-Rise	IEC 60947-3 (Cl. No. 9.3.4.2) IS/IEC 60947 (PART 3) (Cl. No. 8.3.3.1) EN 60947-3/A2
112	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test Sequence II: Operational Performance Capability Operational performance (Mechanical)	EC 60947-3 (Cl. No. 9.3.5.2) IS/IEC 60947 (PART 3) (Cl. No. 8.3.4.1) EN 60947-3/A2

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Certificate Number TC-10621 **Page No** 10 of 10

Validity 18/05/2022 to 17/05/2024 **Last Amended on** -

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
113	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test Sequence II: Operational Performance Capability Temperature-Rise Verification	IEC 60947-3 (Cl. No. 9.3.5.5) IS/IEC 60947 (PART 3) (Cl. No. 8.3.4.4) EN 60947-3/A2
114	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test sequence V: overload performance capability Dielectric verification	IEC 60947-3 (Cl. No. 9.3.8.3) IS/IEC 60947 (PART 3) (Cl. No. 8.3.7.2) EN 60947-3/A2
115	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test sequence V: overload performance capability Leakage current	IEC 60947-3 (Cl. No. 9.3.8.4) IS/IEC 60947 (PART 3) (Cl. No. 8.3.7.3) EN 60947-3/A2
116	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors , Switch-disconnectors and fuse combination units	Test sequence V: overload performance capability Temperature-rise verification	IEC 60947-3 (cl.-9.3.8.5) IS/IEC 60947 (PART 3) (cl. No. 8.3.7.4) EN 60947-3/A2
117	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors, Switch-disconnectors and fuse combination units	Marking	IEC 60947-3, IS/IEC 60947 (PART 3) (Cl. No. 5.2) EN 60947-3/A2
118	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors, Switch-disconnectors and fuse combination units	Test Sequence I: General Performance Characteristics Temperature-rise verification	IEC 60947-3 (Cl. No. 9.3.4.7) IS/IEC 60947 (PART 3) (Cl. No. 8.3.3.6) EN 60947-3/A2
119	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors, Switch-disconnectors and fuse combination units	Test Sequence II: Operational Performance Capability Operational performance (Electrical)	IEC 60947-3 (Cl. No. 9.3.5.2) IS/IEC 60947 (PART 3) (Cl. No. 8.3.4.1) EN 60947-3/A2
120	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors, Switch-disconnectors and fuse combination units	Test sequence IV: conditional short-circuit current Dielectric verification	IEC 60947-3 (Cl. No. 9.3.7.4) IS/IEC 60947 (PART 3) (Cl. No. 8.3.6.3) EN 60947-3/A2
121	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors, Switch-disconnectors and fuse combination units	Test sequence IV: conditional short-circuit current Fuse protected short-circuit WithStand	IEC 60947-3 (Cl. No. 9.3.7.3.1 a) IS/IEC 60947 (PART 3) (Cl. No. 8.3.6.2) EN 60947-3/A2
122	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors, Switch-disconnectors and fuse combination units	Test sequence IV: conditional short-circuit current Leakage current	IEC 60947-3 (Cl. No. 9.3.7.5) IS/IEC 60947 (PART 3) (Cl. No. 8.3.6.4) EN 60947-3/A2
123	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors, Switch-disconnectors and fuse combination units	Test sequence IV: conditional short-circuit current Temperature-rise Verification	IEC 60947-3 (Cl. No. 9.3.7.6) IS/IEC 60947 (PART 3) (Cl. No. 8.3.6.5) EN 60947-3/A2
124	ELECTRICAL-SWITCHGEAR & PROTECTIVE EQUIPMENT	Switches, disconnectors, Switch-disconnectors and fuse combination units	Test sequence V: overload performance capability Overload test	IEC 60947-3 (Cl. No. 9.3.8.2) IS/IEC 60947 (PART 3), (Cl No. 8.3.7.1) EN 60947-3/A2