



#### **CERTIFICATE OF ACCREDITATION**

### BVG LABORATORIES & ELECTRICAL RESEARCH CENTER

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

#16, SURVEY NO. 52/2, 11TH CROSS, BALAJINAGAR, THIGALARAPALYA MAIN ROAD, PEENYA 2ND STAGE, BENGALURU, BENGALURU URBAN, KARNATAKA, INDIA

in the field of

**TESTING** 

**Certificate Number:** 

TC-10965

**Issue Date:** 

02/09/2022

Valid Until:

01/09/2024

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)

Name of Legal Identity: BVG LABORATORIES & ELECTRICAL RESEARCH CENTER

Signed for and on behalf of NABL



N. Venkateswaran Chief Executive Officer





### **SCOPE OF ACCREDITATION**

**Laboratory Name:** 

BVG LABORATORIES & ELECTRICAL RESEARCH CENTER, #16, SURVEY NO. 52/2, 11TH CROSS, BALAJINAGAR, THIGALARAPALYA MAIN ROAD, PEENYA 2ND STAGE, BENGALURU,

BENGALURU URBAN, KARNATAKA, INDIA

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**Certificate Number Validity** 

**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- ENVIRONMENTAL TEST FACILITY	Degree of protection provided by enclosures (IP code)	Degrees of protection against access to hazardous parts indicated by the additional letter (IPXXA, IPXXB, IPXXC, IPXXD)	IS/IEC 60529 (Clause 7)
2	ELECTRICAL- ENVIRONMENTAL TEST FACILITY	Degree of protection provided by enclosures (IP code)	Tests for protection against access to hazardous parts indicated by the additional letter (IPXXA, IPXXB, IPXXC, IPXXD)	IS/IEC 60529 (Clause 15)
3	ELECTRICAL- ENVIRONMENTAL TEST FACILITY	Degree of protection provided by enclosures (IP code)	Tests for protection against access to hazardous parts indicated by the first characteristic numeral (IP1X to 4X)	IS/IEC 60529 (Clause 12)
4	ELECTRICAL- ENVIRONMENTAL TEST FACILITY	Degree of protection provided by enclosures (IP code)	Tests for protection against solid foreign objects indicated by the first charecteristic numeral (IP1X to 4X)	IS/IEC 60529 (Clause 13)
5	ELECTRICAL- ENVIRONMENTAL TEST FACILITY	Degree of protection provided by enclosures (IP code)	Degrees of protection against access to hazardous parts and against solid foreign objects indicated by the first charecteristic numeral (IP1X to IP4X)	IS/IEC 60529 (Clause 5)
6	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Insulation resistance tests	BS EN 60204-1 (Clause 18.3)
7	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Insulation resistance tests	IEC 60204-1 (Clause 18.3)
8	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Insulation resistance tests	IS 16504 (Part 1) (Clause 18.3)
9	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Verification of the continuity of the protective bonding circuit	BS EN 60204-1 (Clause 18.2.2)
10	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Verification of the continuity of the protective bonding circuit	IEC 60204-1 (Clause 18.2.2)
11	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Verification of the continuity of the protective bonding circuit	IS 16504 (Part 1) (Clause 18.2.2)
12	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Clearances and creepage distances	IS/IEC 61439-6 (Clause 10, 10.4):





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**Accreditation Standard** 

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Distribution boards intended to be operated by ordinary

persons (DBO)

persons (DBO)

persons (DBO)

persons (DBO)

persons (DBO)

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Degree of protection of

Dielectric properties

(Verification of insulation

Effective earth continuity

assembly and the protective

between the exposed

conductive parts of the

Verification assessment

assemblies

resistance)

circuit

Marking

IS/IEC 61439-3 (Clause 10,

IS/IEC 61439-3 (Clause 11,

IS/IEC 61439-3 (Clause 10,

IS/IEC 61439-3 (Clause 10,

IS/IEC 61439-3 (Clause 10,

10.3)

10.5.2)

10.2.7)

10.9.3.5)

Validity

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
13	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Degree of protection of assemblies	IS/IEC 61439-6 (Clause 10, 10.3):
14	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Dielectric properties (Verification of insulation resistance)	IS/IEC 61439-6 (Clause 11, 11.9):
15	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Effective earth continuity between the exposed conductive parts of the assembly and the protective circuit	IS/IEC 61439-6 (Clause 10, 10.5.2):
16	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Marking	IS/IEC 61439-6 (Clause 10, 10.2.7):
17	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Verification assessment	IS/IEC 61439-6 (Clause 10, 10.9.3.5):
18	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Verification of temperature rise	IS/IEC 61439-6 (Clause 9,9.2, 10, 10.10, 10.10.2):
19	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution boards intended to be operated by ordinary persons (DBO)	Clearances and creepage distances	IS/IEC 61439-3 (Clause 10, 10.4)





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ended on -

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25	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution boards intended to be operated by ordinary persons (DBO)	Verification of temperature rise	IS/IEC 61439-3 (Clause 9,9.2, 10, 10.10, 10.10.2)
26	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Dielectric properties (Verification of insulation resistance)	IEC 61439-1 (Clause 11.9)
27	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Verification assessment	IEC 61439-1 (Clause 10.9.3.5)
28	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Verification assessment	IS/IEC 61439-1 (Clause 10.9.3.5)
29	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Clearances and creepage distances	IEC 61439-1 (Clause 10.4, 8.3)
30	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Clearances and creepage distances	IS/IEC 61439-1 (Clause 10.4, 8.3)
31	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Degree of protection of assemblies	IS/IEC 61439-1 (Clause 10.3 8.2.2, 8.2.3, 8.4.2.3)
32	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Degree of protection of assemblies (IP code)	IEC 61439-1 (Clause 10.3, 8.2.2, 8.2.3, 8.4.2.3)
33	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Dielectric properties (Verification of insulation resistance)	IS/IEC 61439-1 (Clause 11.9)
34	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Effective earth continuity between the exposed conductive parts of the assembly and the protective circuit	IS/IEC 61439-1 (Clause 10.5.2)
35	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Effective earth continuity between the exposed-conductive-parts of the class 1 assembly and the protective circuit	IEC 61439-1 (Clause 10.5.2)
36	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Marking	IEC 61439-1 (Clause 10.2.7)





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37	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Marking	IS/IEC 61439-1 (Clause 10.2.7)
38	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Mechanical operation	IEC 61439-1 (Clause 10.2.8)
39	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Temperature-rise	IEC 61439-1 (Clause 9.2, 10.10, 10.10.2)
40	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Verification of temperature rise	IS/IEC 61439-1 (Clause 9.2, 10.10, 10.10.2)
41	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Clearances and creepage distances	IEC 61439-2 (Clause 10, 10.4)
42	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Degree of protection of assemblies	IS/IEC 61439-2 (Clause 10.3, 8.2.101, 8.101)
43	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Effective earth continuity between the exposed-conductive-parts of the class 1 assembly and the protective circuit	IEC 61439-2 (Clause 10, 10.5.2)
44	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Clearances and creepage distances	IS/IEC 61439-2 (Clause 10, 10.4)
45	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Degree of protection of PSC-assemblies (IP Code)	IEC 61439-2 (Clause 10.3, 8.2.101, 8.101)
46	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Dielectric properties (Verification of insulation resistance)	IEC 61439-2 (Clause 11, 11.9)
47	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Dielectric properties (Verification of insulation resistance)	IS/IEC 61439-2 (Clause 11, 11.9)
48	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Effective earth continuity between the exposed conductive parts of the assembly and the protective circuit	IS/IEC 61439-2 (Clause 10, 10.5.2)





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49	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Marking	IEC 61439-2 (Clause 10, 10.2.7)
50	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Marking	IS/IEC 61439-2 : (Clause 10, 10.2.7)
51	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Mechanical operation	IEC 61439-2 (Clause 10, 10.2.8)
52	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Temperature-rise	IEC 61439-2 (Clause 9, 9.2, 10, 10.10.2)
53	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Verification assessment	IEC 61439-2 (Clause 10.9.3.5)
54	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Verification assessment	IS/IEC 61439-2 (Clause 10, 10.9.3.5)
55	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Verification of temperature rise	IS/IEC 61439-2 (Clause 9,9.2, 10, 10.10, 10.10.2)





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		Permanent Facility		-
1	ELECTRICAL- ENVIRONMENTAL TEST FACILITY	Degree of protection provided by enclosures (IP code)	Degrees of protection against access to hazardous parts indicated by the additional letter (IPXXA, IPXXB, IPXXC, IPXXD)	IS/IEC 60529 (Clause 7)
2	ELECTRICAL- ENVIRONMENTAL TEST FACILITY	Degree of protection provided by enclosures (IP code)	Tests for protection against access to hazardous parts indicated by the additional letter (IPXXA, IPXXB, IPXXC, IPXXD)	IS/IEC 60529 (Clause 15)
3	ELECTRICAL- ENVIRONMENTAL TEST FACILITY	Degree of protection provided by enclosures (IP code)	Tests for protection against access to hazardous parts indicated by the first characteristic numeral (IP1X to 4X)	IS/IEC 60529 (Clause 12)
4	ELECTRICAL- ENVIRONMENTAL TEST FACILITY	Degree of protection provided by enclosures (IP code)	Tests for protection against solid foreign objects indicated by the first charecteristic numeral (IP1X to 4X)	IS/IEC 60529 (Clause 13)
5	ELECTRICAL- ENVIRONMENTAL TEST FACILITY	Degree of protection provided by enclosures (IP code)	Degrees of protection against access to hazardous parts and against solid foreign objects indicated by the first charecteristic numeral (IP1X to IP4X)	IS/IEC 60529 (Clause 5)
6	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Insulation resistance tests	BS EN 60204-1 (Clause 18.3)
7	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Insulation resistance tests	IEC 60204-1 (Clause 18.3)
8	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Insulation resistance tests	IS 16504 (Part 1) (Clause 18.3)
9	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Verification of the continuity of the protective bonding circuit	BS EN 60204-1 (Clause 18.2.2)
10	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Verification of the continuity of the protective bonding circuit	IEC 60204-1 (Clause 18.2.2)
11	ELECTRICAL- SAFETY TESTING FACILITY	Safety of machinery - electrical equipment of machines	Verification of the continuity of the protective bonding circuit	IS 16504 (Part 1) (Clause 18.2.2)
12	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Clearances and creepage distances	IS/IEC 61439-6 (Clause 10, 10.4):





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13	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Degree of protection of assemblies	IS/IEC 61439-6 (Clause 10, 10.3):
14	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	Dielectric properties (power- frequency withstand test)	IEC 61439-6 (Clause 11.9)
15	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	Dielectric properties (power- frequency withstand test)	IS/IEC 61439-6 (Clause 11.9)
16	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Dielectric properties (Verification of insulation resistance)	IS/IEC 61439-6 (Clause 11, 11.9):
17	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Effective earth continuity between the exposed conductive parts of the assembly and the protective circuit	IS/IEC 61439-6 (Clause 10, 10.5.2):
18	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	External door or cover mounted operating handles of insulating material	IEC 61439-6 (Clause 10.9.5)
19	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	External operating handles of insulating material	IS/IEC 61439-6 (Clause 10.9.5)
20	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	Impulse withstand voltage test	IEC 61439-6 (Clause 10.9.3.2)
21	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	Impulse withstand voltage test	IS/IEC 61439-6 (Clause 10.9.3.2)
22	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Marking	IS/IEC 61439-6 (Clause 10, 10.2.7):
23	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	Power-frequency withstand voltage	IEC 61439-6 (Clause 10.9.2)
24	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	Power-frequency withstand voltage	IS/IEC 61439-6 (Clause 10.9.2)





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25	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	Testing of conductors and hazardous live parts covered by insulating material to provide protection against electric shock	IEC 61439-6 (Clause 10.9.6)
26	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	Testing of enclosures made of insulating material	IEC 61439-6 (Clause 10.9.4)
27	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar Trunking Systems (Busways)	Testing of enclosures made of insulating material	IS/IEC 61439-6 (Clause 10.9.4)
28	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Verification assessment	IS/IEC 61439-6 (Clause 10, 10.9.3.5):
29	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Busbar trunking systems (Busways)	Verification of temperature rise	IS/IEC 61439-6 (Clause 9,9.2, 10, 10.10, 10.10.2):
30	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution Boards Intended to be Operated by Ordinary Persons ( DBO )	Power-frequency withstand voltage	IS/IEC 61439-3 (Clause 10.9.2)
31	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution Boards Intended to be Operated by Ordinary Persons ( DBO )	Dielectric properties (power- frequency withstand test)	IS/IEC 61439-3 (Clause 11.9)
32	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution Boards Intended to be Operated by Ordinary Persons ( DBO )	External operating handles of insulating material	IS/IEC 61439-3 (Clause 10.9.5)
33	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution Boards Intended to be Operated by Ordinary Persons ( DBO )	Impulse withstand voltage test	IS/IEC 61439-3 (Clause 10.9.3.2)
34	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution Boards Intended to be Operated by Ordinary Persons ( DBO )	Testing of enclosures made of insulating material	IS/IEC 61439-3 (Clause 10.9.4)
35	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution boards intended to be operated by ordinary persons (DBO)	Clearances and creepage distances	IS/IEC 61439-3 (Clause 10, 10.4)
36	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution boards intended to be operated by ordinary persons (DBO)	Degree of protection of assemblies	IS/IEC 61439-3 (Clause 10, 10.3)
37	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution boards intended to be operated by ordinary persons (DBO)	Dielectric properties (Verification of insulation resistance)	IS/IEC 61439-3 (Clause 11, 11.9)





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38	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution boards intended to be operated by ordinary persons (DBO)	Effective earth continuity between the exposed conductive parts of the assembly and the protective circuit	IS/IEC 61439-3 (Clause 10, 10.5.2)
39	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution boards intended to be operated by ordinary persons (DBO)	Marking	IS/IEC 61439-3 (Clause 10, 10.2.7)
40	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution boards intended to be operated by ordinary persons (DBO)	Verification assessment	IS/IEC 61439-3 (Clause 10, 10.9.3.5)
41	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Distribution boards intended to be operated by ordinary persons (DBO)	Verification of temperature rise	IS/IEC 61439-3 (Clause 9,9.2, 10, 10.10, 10.10.2)
42	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Power-frequency withstand voltage	IS/IEC 61439-1 (Clause 10.9.2)
43	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Dielectric properties (Verification of insulation resistance)	IEC 61439-1 (Clause 11.9)
44	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Verification assessment	IEC 61439-1 (Clause 10.9.3.5)
45	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Verification assessment	IS/IEC 61439-1 (Clause 10.9.3.5)
46	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Clearances and creepage distances	IEC 61439-1 (Clause 10.4, 8.3)
47	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Clearances and creepage distances	IS/IEC 61439-1 (Clause 10.4, 8.3)
48	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Degree of protection of assemblies	IS/IEC 61439-1 (Clause 10.3 8.2.2, 8.2.3, 8.4.2.3)
49	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Degree of protection of assemblies (IP code)	IEC 61439-1 (Clause 10.3, 8.2.2, 8.2.3, 8.4.2.3)
50	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Dielectric properties (power- frequency withstand test)	IEC 61439-1 (Clause 11.9)





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51	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Dielectric properties (power- frequency withstand test)	IS/IEC 61439-1 (Clause 11.9)
52	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Dielectric properties (Verification of insulation resistance)	IS/IEC 61439-1 (Clause 11.9)
53	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Effective earth continuity between the exposed conductive parts of the assembly and the protective circuit	IS/IEC 61439-1 (Clause 10.5.2)
54	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Effective earth continuity between the exposed-conductive-parts of the class 1 assembly and the protective circuit	IEC 61439-1 (Clause 10.5.2)
55	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	External door or cover mounted operating handles of insulating material	IEC 61439-1 (Clause 10.9.5)
56	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	External operating handles of insulating material	IS/IEC 61439-1 (Clause 10.9.5)
57	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Impulse withstand voltage test	IEC 61439-1 (Clause 10.9.3.2)
58	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Impulse withstand voltage test	IS/IEC 61439-1 (Clause 10.9.3.2)
59	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Marking	IEC 61439-1 (Clause 10.2.7)
60	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Marking	IS/IEC 61439-1 (Clause 10.2.7)
61	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Mechanical operation	IEC 61439-1 (Clause 10.2.8)
62	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Power-frequency withstand voltage	IEC 61439-1 (Clause 10.9.2)





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63	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Temperature-rise	IEC 61439-1 (Clause 9.2, 10.10, 10.10.2)
64	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Testing of conductors and hazardous live parts covered by insulating material to provide protection against electric shock	IEC 61439-1 (Clause 10.9.6)
65	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Testing of enclosures made of insulating material	IEC 61439-1 (Clause 10.9.4)
66	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-Voltage Switchgear and Controlgear Assemblies	Testing of enclosures made of insulating material	IS/IEC 61439-1 (Clause 10.9.4)
67	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Low-voltage switchgear and controlgear assemblies	Verification of temperature rise	IS/IEC 61439-1 (Clause 9.2, 10.10, 10.10.2)
68	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Clearances and creepage distances	IEC 61439-2 (Clause 10, 10.4)
69	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Degree of protection of assemblies	IS/IEC 61439-2 (Clause 10.3, 8.2.101, 8.101)
70	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Effective earth continuity between the exposed-conductive-parts of the class 1 assembly and the protective circuit	IEC 61439-2 (Clause 10, 10.5.2)
71	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Clearances and creepage distances	IS/IEC 61439-2 (Clause 10, 10.4)
72	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Degree of protection of PSC- assemblies (IP Code)	IEC 61439-2 (Clause 10.3, 8.2.101, 8.101)
73	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Dielectric properties (power- frequency withstand test)	IEC 61439-2 (Clause 11.9)
74	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Dielectric properties (power- frequency withstand test)	IS/IEC 61439-2 (Clause 11.9)





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75	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Dielectric properties (Verification of insulation resistance)	IEC 61439-2 (Clause 11, 11.9)
76	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Dielectric properties (Verification of insulation resistance)	IS/IEC 61439-2 (Clause 11, 11.9)
77	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Effective earth continuity between the exposed conductive parts of the assembly and the protective circuit	IS/IEC 61439-2 (Clause 10, 10.5.2)
78	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	External door or cover mounted operating handles of insulating material	IEC 61439-2 (Clause 10.9.5)
79	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	External operating handles of insulating material	IS/IEC 61439-2 (Clause 10.9.5)
80	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Impulse withstand voltage test	IEC 61439-2 (Clause 10.9.3.2)
81	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Impulse withstand voltage test	IS/IEC 61439-2 (Clause 10.9.3.2)
82	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Marking	IEC 61439-2 (Clause 10, 10.2.7)
83	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Marking	IS/IEC 61439-2 : (Clause 10, 10.2.7)
84	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Mechanical operation	IEC 61439-2 (Clause 10, 10.2.8)
85	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Power-frequency withstand voltage	IEC 61439-2 (Clause 10.9.2)
86	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Power-frequency withstand voltage	IS/IEC 61439-2 (Clause 10.9.2)
87	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Temperature-rise	IEC 61439-2 (Clause 9, 9.2, 10, 10.10.2)





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88	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Testing of conductors and hazardous live parts covered by insulating material to provide protection against electric shock	IEC 61439-2 (Clause 10.9.6)
89	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Testing of enclosures made of insulating material	IEC 61439-2 (Clause 10.9.4)
90	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power Switchgear and Controlgear Assemblies	Testing of enclosures made of insulating material	IS/IEC 61439-2 (Clause 10.9.4)
91	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Verification assessment	IEC 61439-2 (Clause 10.9.3.5)
92	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Verification assessment	IS/IEC 61439-2 (Clause 10, 10.9.3.5)
93	ELECTRICAL- SWITCHGEAR & PROTECTIVE EQUIPMENT	Power switchgear and controlgear assemblies	Verification of temperature rise	IS/IEC 61439-2 (Clause 9,9.2, 10, 10.10, 10.10.2)