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Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 1: Circuit-breakers for a.c. operation

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CONTENTS

FOREWORD	9
1 Scope	11
2 Normative references	12
3 Terms and definitions	13
3.1 Devices	13
3.2 General terms	14
3.3 Constructional elements	16
3.4 Conditions of operation	18
3.5 Characteristic quantities	19
3.6 Definitions related to insulation co-ordination	23
4 Classification	25
4.1 General	25
4.2 According to the number of poles:	25
4.3 According to the protection against external influences:	26
4.4 According to the method of mounting:	26
4.5 According to the methods of connection	26
4.5.1 According to the fixation system:	26
4.5.2 According to the type of terminals:	26
4.6 According to the instantaneous tripping current (see 3.5.17)	26
4.7 According to the I^2t characteristic	26
5 Characteristics of circuit-breakers	26
5.1 List of characteristics	26
5.2 Rated quantities	27
5.2.1 Rated voltages	27
5.2.2 Rated current (I_n)	27
5.2.3 Rated frequency	27
5.2.4 Rated short-circuit capacity (I_{cn})	28
5.2.5 Rated making and breaking capacity of an individual pole (I_{cn1})	28
5.3 Standard and preferred values	28
5.3.1 Preferred values of rated voltage	28
5.3.2 Preferred values of rated current	29
5.3.3 Standard values of rated frequency	29
5.3.4 Values of rated short-circuit capacity	29
5.3.5 Standard ranges of instantaneous tripping	30
5.3.6 Standard values of rated impulse withstand voltage (U_{imp})	30
6 Marking and other product information	30
7 Standard conditions for operation in service	32
7.1 General	32
7.2 Ambient air temperature range	32
7.3 Altitude	32
7.4 Atmospheric conditions	33
7.5 Conditions of installation	33
7.6 Pollution degree	33
8 Requirements for construction and operation	33
8.1 Mechanical design	33

8.1.1	General	33
8.1.2	Mechanism	33
8.1.3	Clearances and creepage distances (see Annex B)	35
8.1.4	Screws, current-carrying parts and connections	37
8.1.5	Terminals for external conductors	38
8.1.6	Non-interchangeability	40
8.1.7	Mechanical mounting of plug-in type circuit-breakers	41
8.2	Protection against electric shock	41
8.3	Dielectric properties and isolating capability	41
8.3.1	General	41
8.3.2	Dielectric strength at power frequency	42
8.3.3	Isolating capability	42
8.3.4	Dielectric strength at rated impulse withstand voltage (U_{imp})	42
8.4	Temperature-rise	42
8.4.1	Temperature-rise limits	42
8.4.2	Ambient air temperature	42
8.5	Uninterrupted duty	43
8.6	Automatic operation	43
8.6.1	Standard time-current zone	43
8.6.2	Conventional quantities	44
8.6.3	Tripping characteristic	44
8.7	Mechanical and electrical endurance	45
8.8	Performance at short-circuit currents	45
8.9	Resistance to mechanical shock and impact	45
8.10	Resistance to heat	45
8.11	Resistance to abnormal heat and to fire	46
8.12	Resistance to rusting	46
8.13	Power loss	46
9	Tests	46
9.1	Type tests and test sequences	46
9.2	Test conditions	47
9.3	Test of indelibility of marking	48
9.4	Test of reliability of screws, current-carrying parts and connections	48
9.5	Tests of reliability of screw-type terminals for external copper conductors	50
9.6	Test of protection against electric shock	51
9.7	Test of dielectric properties	52
9.7.1	Resistance to humidity	52
9.7.2	Insulation resistance of the main circuit	52
9.7.3	Dielectric strength of the main circuit	53
9.7.4	Insulation resistance and dielectric strength of auxiliary circuits	54
9.7.5	Verification of impulse withstand voltages (across clearances and across solid insulation) and of leakage current across open contacts	54
9.8	Test of temperature-rise and measurement of power loss	57
9.8.1	Ambient air temperature	57
9.8.2	Test procedure	58
9.8.3	Measurement of the temperature of parts	58
9.8.4	Temperature-rise of a part	58
9.8.5	Measurement of power loss	58
9.9	28-day test	58

9.10	Test of tripping characteristic	59
9.10.1	General	59
9.10.2	Test of time-current characteristic.....	59
9.10.3	Test of instantaneous tripping, of correct opening of the contacts and of the trip-free function	59
9.10.4	Test of effect of single-pole loading on the tripping characteristic of multipole circuit-breakers.....	60
9.10.5	Test of effect of ambient temperature on the tripping characteristic	60
9.11	Verification of mechanical and electrical endurance	61
9.11.1	General test conditions	61
9.11.2	Test procedure	61
9.11.3	Condition of the circuit-breaker after test	62
9.12	Short-circuit tests.....	62
9.12.1	General	62
9.12.2	Values of test quantities	63
9.12.3	Tolerances on test quantities	63
9.12.4	Test circuit for short-circuit performance.....	63
9.12.5	Power factor of the test circuit	65
9.12.6	Measurement and verification of I^2t and of the peak current (I_p)	65
9.12.7	Calibration of the test circuit	65
9.12.8	Interpretation of records	65
9.12.9	Condition of the circuit-breaker for test	66
9.12.10	Behaviour of the circuit-breaker during short-circuit tests.....	67
9.12.11	Test procedure	67
9.12.12	Verification of the circuit breaker after short circuit tests	72
9.13	Mechanical stresses	73
9.13.1	Mechanical shock	73
9.13.2	Resistance to mechanical stresses and impact	74
9.14	Test of resistance to heat.....	77
9.15	Resistance to abnormal heat and to fire	78
9.16	Test of resistance to rusting.....	79
Annex A	(informative) Determination of short-circuit power factor	93
A.1	General.....	93
A.2	Method 1 – Determination from d.c. component	93
A.3	Method 2 – Determination with pilot generator	93
Annex B	(normative) Determination of clearances and creepage distances	94
B.1	General.....	94
B.2	Orientation and location of a creepage distance.....	94
B.3	Creepage distances where more than one material is used.....	94
B.4	Creepage distances split by floating conductive part.....	94
B.5	Measurement of creepage distances and clearances	94
Annex C	(normative) Test sequences and number of samples	99
C.1	Test sequences	99
C.2	Number of samples to be submitted for full test procedure and acceptance criteria	101
C.3	Number of samples to be submitted for simplified test procedure	101
Annex D	(informative) Co-ordination under short-circuit conditions between a circuit-breaker and another short-circuit protective device (SCPD) associated in the same circuit.....	105

D.1	General.....	105
D.2	Overview.....	105
D.3	General requirements for the co-ordination of a circuit-breaker with another SCPD	106
D.3.1	General consideration.....	106
D.3.2	Take-over current	106
D.3.3	Behaviour of C ₁ in association with another SCPD	106
D.4	Type and characteristics of the associated SCPD	106
D.5	Verification of selectivity	107
D.6	Verification of back-up protection.....	107
D.6.1	Determination of the take-over current.....	107
D.6.2	Verification of back-up protection.....	107
D.6.3	Tests for verification of back-up protection	108
D.6.4	Results to be obtained	109
Annex E (normative)	Special requirements for auxiliary circuits for safety extra-low voltage.....	112
Annex F (informative)	Examples of terminals	113
Annex G (informative)	Correspondence between ISO and AWG copper conductors	116
Annex H (normative)	Arrangement for short-circuit test.....	117
Annex I (normative)	Routine tests	120
I.1	General.....	120
I.2	Tripping tests.....	120
I.3	Verification of clearances between open contacts	120
Annex J (normative)	Particular requirements for circuit-breakers with screwless type terminals for external copper conductors.....	121
J.1	Scope	121
J.2	Normative references.....	121
J.3	Terms and definitions.....	121
J.4	Classification	122
J.5	Characteristics of circuit-breakers	122
J.6	Marking.....	122
J.7	Standard conditions for operation in service.....	122
J.8	Constructional requirements	123
J.8.1	Connection or disconnection of conductors	123
J.8.2	Dimensions of connectable conductors	123
J.8.3	Connectable cross-sectional areas	124
J.8.4	Insertion and disconnection of conductors	124
J.8.5	Design and construction of terminals	124
J.8.6	Resistance to ageing	125
J.9	Tests	125
J.9.1	Test of reliability of screwless terminals.....	125
J.9.2	Tests of reliability of terminals for external conductors: mechanical strength.....	126
J.9.3	Cycling test.....	126
J.10	Reference documents	128
Annex K (normative)	Particular requirements for circuit-breakers with flat quick-connect terminations.....	130
K.1	Scope	130
K.2	Normative references.....	130

K.3	Terms and definitions.....	130
K.4	Classification	131
K.5	Characteristics of circuit-breakers.....	131
K.6	Marking.....	131
K.7	Standard conditions for operation in service.....	131
K.8	Constructional requirements	131
K.8.1	Clearances and creepage distances (see Annex B)	131
K.8.2	Terminals for external conductors	132
K.9	Tests	132
K.9.1	Mechanical overload-force.....	132
K.10	Reference documents	136
Annex L (normative) Specific requirements for circuit-breakers with screw-type terminals for external untreated aluminium conductors and with aluminium screw-type terminals for use with copper or with aluminium conductors		137
L.1	Scope	137
L.2	Normative references.....	137
L.3	Terms and definitions.....	137
L.4	Classification	138
L.5	Characteristics of circuit-breakers.....	138
L.6	Marking.....	138
L.7	Standard conditions for operation in service.....	138
L.8	Constructional requirements	139
L.9	Tests	139
L.9.1	Test conditions	141
L.9.2	Current cycling test.....	141
Bibliography.....		147
<u>IEC 60898-1:2015</u>		
Figure 1	– Thread forming tapping screw (3.3.22).....	79
Figure 2	– Thread cutting tapping screw (3.3.23)	79
Figure 3	– Typical diagram for all short circuit tests except for 9.12.11.2.2)	80
Figure 4	– Typical diagram for short circuit tests according to 9.12.11.2.2)	81
Figure 5	– Detail of impedance Z and Z ₁	81
Figure 6	– Example of short-circuit making or breaking test record in the case of a single-pole device on single phase a.c.....	83
Figure 7	– Mechanical shock test apparatus (9.13.1)	84
Figure 8	– Standard test finger (9.6)	85
Figure 9	– Mechanical impact test apparatus (9.13.2)	86
Figure 10	– Striking element for pendulum for mechanical impact test apparatus (9.13.2).....	87
Figure 11	– Mounting support for mechanical impact test (9.13.2).....	88
Figure 12	– Example of mounting for a rear fixed circuit-breaker for mechanical impact test (9.13.2).....	89
Figure 13	– Example of mounting of a panel board type circuit-breaker for mechanical impact test (9.13.2).....	90
Figure 14	– Application of force for mechanical test on a rail-mounted circuit-breaker (9.13.2.3).....	91
Figure 15	– Ball-pressure test apparatus.....	91

Figure 16 – Example of application of force for mechanical test on two-pole plug-in circuit-breaker, the holding in position of which depends solely on the plug-in connections (9.13.2.4)	92
Figure 17 – Diagrammatic representation (9.15)	92
Figure B.1 – Examples of methods of measuring creepage distances and clearances	98
Figure D.1 – Overcurrent co-ordination between a circuit-breaker and a fuse or back-up protection by a fuse – Operating characteristics	110
Figure D.2 – Total selectivity between two circuit-breakers	110
Figure D.3 – Back-up protection by a circuit-breaker – Operating characteristics	111
Figure F.1 – Examples of pillar terminals	113
Figure F.2 – Examples of screw terminals and stud terminals	114
Figure F.3 – Examples of saddle terminals	115
Figure F.4 – Examples of lug terminals	115
Figure H.1 – Test arrangement	118
Figure H.2 – Grid circuit	118
Figure H.3 – Grid circuit	119
Figure J.1 – Connecting samples	126
Figure J.2 – Examples of screwless-type terminals	128
Figure K.1 – Example of position of the thermocouple for measurement of the temperature-rise	133
Figure K.2 – Dimensions of male tabs	134
Figure K.3 – Dimensions of round dimple detents (see Figure K.2)	135
Figure K.4 – Dimensions of rectangular dimple detents (see Figure K.2)	135
Figure K.5 – Dimensions of hole detents	135
Figure K.6 – Dimensions of female connectors	136
Figure L.1 – General arrangement for the test	145
Figure L.2	145
Figure L.3	146
Figure L.4	146
Figure L.5	146
Figure L.6	146
Table 1 – Preferred values of rated voltage	29
Table 2 – Ranges of instantaneous tripping	30
Table 3 – Rated impulse withstand voltage as a function of the nominal voltage of the installation	30
Table 4 – Minimum clearances and creepage distances	36
Table 5 – Connectable cross-sections of copper conductors for screw-type terminals	39
Table 6 – Temperature-rise values	42
Table 7 – Time-current operating characteristics	44
Table 8 – Maximum power loss per pole	46
Table 9 – List of type tests	47
Table 10 – Cross-sectional areas (S) of test copper conductors corresponding to the rated currents	48
Table 11 – Screw thread diameters and applied torques	49

Table 12 – Pulling forces	50
Table 13 – Test voltage of auxiliary circuits	54
Table 14 – Test voltage for verification of impulse withstand voltage	56
Table 15 – Test voltage for verifying the suitability for isolation, referred to the rated impulse withstand voltage of the circuit breakers and the altitude where the test is carried out	57
Table 16 – Applicability of short-circuit tests	63
Table 17 – Power factor ranges of the test circuit	65
Table 18 – Ratio k between service short-circuit capacity (I_{CS}) and rated short-circuit capacity (I_{CN})	69
Table 19 – Test procedure for I_{CS} in the case of single- and two-pole circuit-breakers	70
Table 20 – Test procedure for I_{CS} in the case of three- and four-pole circuit-breakers	70
Table 21 – Test procedure for I_{CS} in the case of three-phase tests for single-pole circuit-breakers of rated voltage 230/400 V	71
Table 22 – The test procedure for I_{CN}	71
Table 23 – Test procedure for I_{CN} in the case of three-phase tests for single-pole circuit-breakers of rated voltage 230/400 V	72
Table C.1 – Test sequences	100
Table C.2 – Number of samples for full test procedure	101
Table C.3 – Reduction of samples for series of circuit-breakers having different numbers of poles	103
Table C.4 – Test sequences for a series of circuit-breakers being of different instantaneous tripping classifications	104
Table J.1 – Connectable conductors	124
Table J.2 – Cross-sections of copper conductors connectable to screwless-type terminals	124
Table J.3 – Pull forces	126
Table K.1 – Informative table on colour code of female connectors in relationship with the cross section of the conductor	131
Table K.2 – Overload test forces	132
Table K.3 – Dimensions of tabs	133
Table K.4 – Dimensions of female connectors	136
Table L.1 – Marking for terminals	138
Table L.2 – Connectable cross-sections of aluminium conductors for screw-type terminals	139
Table L.3 – List of tests according to the material of conductors and terminals	140
Table L.4 – Connectable conductors and their theoretical diameters	140
Table L.5 – Cross sections (S) of aluminium test conductors corresponding to the rated currents	141
Table L.6 – Test conductor length	142
Table L.7 – Equalizer and busbar dimensions	142
Table L.8 – Test current as a function of rated current	144
Table L.9 – Example of calculation for determining the average temperature deviation D_{av}	144

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL ACCESSORIES –
CIRCUIT-BREAKERS FOR OVERCURRENT PROTECTION
FOR HOUSEHOLD AND SIMILAR INSTALLATIONS –****Part 1: Circuit-breakers for a.c. operation**

FOREWORD

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International Standard IEC 60898-1 has been prepared by sub-committee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

This second edition cancels and replaces the first edition published in 2002, Amendment 1:2002 and Amendment 2:2003. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Revision of 9.5 Terminals
- b) Revision of the test of glow wire
- c) Simplification of the figures for short circuit tests.

The text of this standard is based on the following documents:

FDIS	Report on voting
23E/881/FDIS	23E/894/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

In this standard, the following print types are used:

- Requirements proper: in roman type.
- *Test specifications: in italic type.*
- Explanatory matter: in smaller roman type.

A list of all parts in the IEC 60898 series, published under the general title *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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The contents of the corrigendum of November 2015 have been included in this copy.

ELECTRICAL ACCESSORIES – CIRCUIT-BREAKERS FOR OVERCURRENT PROTECTION FOR HOUSEHOLD AND SIMILAR INSTALLATIONS –

Part 1: Circuit-breakers for a.c. operation

1 Scope

This part of IEC 60898 applies to a.c. air-break circuit-breakers for operation at 50 Hz, 60 Hz or 50/60 Hz, having a rated voltage not exceeding 440 V (between phases), a rated current not exceeding 125 A and a rated short-circuit capacity not exceeding 25 000 A.

As far as possible, it is in line with the requirements contained in IEC 60947-2.

These circuit-breakers are intended for the protection against overcurrents of wiring installations of buildings and similar applications; they are designed for use by uninstructed people and for not being maintained.

They are intended for use in an environment with pollution degree 2.

They are suitable for isolation.

Circuit-breakers of this standard, with exception of those rated 120 V or 120/240 V (see Table 1), are suitable for use in IT systems.

This standard also applies to circuit-breakers having more than one rated current, provided that the means for changing from one discrete rating to another is not accessible in normal service and that the rating cannot be changed without the use of a tool.

This standard does not apply to

- circuit-breakers intended to protect motors;
- circuit-breakers, the current setting of which is adjustable by means accessible to the user.

For circuit-breakers having a degree of protection higher than IP20 according to IEC 60529, for use in locations where arduous environmental conditions prevail (e.g. excessive humidity, heat or cold or deposition of dust) and in hazardous locations (e.g. where explosions are liable to occur), special constructions may be required.

This standard does not apply to circuit-breakers for a.c. and d.c. operation, which is covered by IEC 60898-2.

This standard does not apply to circuit-breakers which incorporate residual current tripping devices, which is covered by IEC 61009-1, IEC 61009-2-1, and IEC 61009-2-2.

A guide for co-ordination under short-circuit conditions between a circuit-breaker and another short-circuit protective device (SCPDS) is given in Annex D. For more severe overvoltage conditions, circuit-breakers complying with other standards (e.g. IEC 60947-2) should be used.

For an environment with a higher pollution degree, enclosures giving the appropriate degree of protection should be used.

NOTE 1 Circuit-breakers within the scope of this standard can also be used for protection against electric shock in case of fault, depending on their tripping characteristics and on the characteristics of the installation. The criterion of application for such purposes is dealt with by installation rules.

This standard contains all requirements necessary to ensure compliance with the operational characteristics required for these devices by type tests.

It also contains the details relative to test requirements and methods of testing necessary to ensure reproducibility of test results.

This standard states

- a) the characteristics of circuit-breakers;
- b) the conditions with which circuit-breakers shall comply, with reference to:
 - 1) their operation and behaviour in normal service;
 - 2) their operation and behaviour in case of overload;
 - 3) their operation and behaviour in case of short-circuits up to their rated short-circuit capacity;
 - 4) their dielectric properties;
- c) the tests intended for confirming that these conditions have been met and the methods to be adopted for the tests;
- d) the data to be marked on the devices;
- e) the test sequences to be carried out and the number of samples (see Annex C);
- f) the co-ordination under short-circuit conditions with another short-circuit protective device (SCPD) associated in the same circuit (see Annex D);
- g) the routine tests to be carried out on each circuit-breaker to reveal unacceptable variations in material or manufacture, likely to affect safety (see Annex I).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)*. Available from: <http://www.electropedia.org/>

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60269 (all parts), *Low-voltage fuses*

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60417, *Graphical symbols for use on equipment*. Available from: <http://www.graphical-symbols.info/equipment>

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60664-1:2007, *Insulation co-ordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*