

INTERNATIONAL STANDARD



**Electrical accessories – Circuit-breakers for overcurrent protection for
household and similar installations –
Part 3: Circuit-breakers for DC operation**



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**Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations –
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CONTENTS

FOREWORD	9
1 Scope	11
2 Normative references	12
3 Terms and definitions	12
3.1 Devices	13
3.2 General terms	13
3.3 Constructional elements	15
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 current direction through the poles	25
4.4 According to the protection against external influences	26
4.5 According to the method of mounting	26
4.6 According to the methods of connection	26
4.6.1 According to the fixation system	26
4.6.2 According to the type of terminals	26
4.7 According to the instantaneous tripping current (see 3.5.18)	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 direct current (I_n)	27
5.2.3 Rated short-circuit capacity (I_{cn})	27
5.2.4 Rated making and breaking capacity of an individual pole (I_{cn1})	27
5.3 Standard and preferred values	28
5.3.1 Preferred values of rated voltage	28
5.3.2 Preferred values of rated current	28
5.3.3 Values of rated short-circuit capacity	28
5.3.4 Standard ranges of instantaneous tripping	29
5.3.5 Standard value of rated impulse withstand voltage (U_{imp})	29
6 Marking and other product information	29
7 Standard conditions for operation in service	31
7.1 General	31
7.2 Ambient air temperature range	31
7.3 Altitude	31
7.4 Atmospheric conditions	31
7.5 Conditions of installation	31
7.6 Pollution degree	31
8 Requirements for construction and operation	31
8.1 Mechanical design	31
8.1.1 General	31
8.1.2 Mechanism	32

8.1.3	Clearances and creepage distances (see Annex A)	33
8.1.4	Screws, current-carrying parts and connections	35
8.1.5	Terminals for external conductors	36
8.1.6	Non-interchangeability	38
8.1.7	Mechanical mounting of plug-in type circuit-breakers	39
8.2	Protection against electric shock	39
8.3	Dielectric properties and isolating capability	40
8.3.1	General	40
8.3.2	Dielectric properties	40
8.3.3	Isolating capability	40
8.3.4	Dielectric strength at rated impulse withstand voltage (U_{imp})	40
8.4	Temperature rise	40
8.4.1	Temperature rise limits	40
8.4.2	Ambient air temperature	41
8.5	Uninterrupted duty	41
8.6	Automatic operation	41
8.6.1	Standard time-current zone	41
8.6.2	Conventional quantities	42
8.6.3	Tripping characteristic	42
8.7	Mechanical and electrical endurance	43
8.8	Performance at short-circuit currents and at small DC currents	43
8.9	Resistance to mechanical shock and impact	43
8.10	Resistance to heat	43
8.11	Resistance to abnormal heat and to fire	43
8.12	Resistance to rusting	43
8.13	Behaviour in case of making inrush current	43
8.14	Power loss	44
8.15	Requirement of small DC currents	44
9	Tests	44
9.1	Type tests and test sequences	44
9.2	Test conditions	45
9.3	Test of indelibility of marking	46
9.4	Test of reliability of screws, current-carrying parts and connections	47
9.5	Tests of reliability of screw-type terminals for external copper conductors	48
9.6	Test of protection against electric shock	49
9.7	Test of dielectric properties	50
9.7.1	Resistance to humidity	50
9.7.2	Insulation resistance of the main circuit	50
9.7.3	Dielectric strength of the main circuit	51
9.7.4	Insulation resistance and dielectric strength of auxiliary circuits	52
9.7.5	Verification of impulse withstand voltages (across clearances and across solid insulation) and of leakage current across open contacts	53
9.8	Test of temperature rise and measurement of power loss	55
9.8.1	Ambient air temperature	55
9.8.2	Test procedure	55
9.8.3	Measurement of the temperature of parts	55
9.8.4	Temperature rise of a part	56
9.8.5	Measurement of power loss	56
9.9	28-day test	56

9.10	Test of tripping characteristic	56
9.10.1	General	56
9.10.2	Test of time-current characteristic.....	56
9.10.3	Test of instantaneous tripping, of correct opening of the contacts and of the trip-free function	57
9.10.4	Test of effect of single-pole loading on the tripping characteristic of multipole circuit-breakers.....	58
9.10.5	Test of effect of ambient temperature on the tripping characteristic	58
9.11	Verification of mechanical and electrical endurance	58
9.11.1	General test conditions	58
9.11.2	Test procedure	59
9.11.3	Condition of the circuit-breaker after test	59
9.12	Short-circuit tests.....	60
9.12.1	General	60
9.12.2	Values of test quantities	60
9.12.3	Tolerances on test quantities.....	61
9.12.4	Test circuit for short-circuit performance.....	61
9.12.5	Time constant of the test circuits	62
9.12.6	Measurement and verification of I^2t and of the peak current (I_p).....	62
9.12.7	Calibration of the test circuit	62
9.12.8	Interpretation of records	62
9.12.9	Condition of the circuit-breaker for test	63
9.12.10	Behaviour of the circuit-breaker during short-circuit tests.....	64
9.12.11	Test procedure	64
9.12.12	Verification of the circuit breaker after short circuit tests.....	67
9.13	Mechanical stresses	68
9.13.1	Mechanical shock	68
9.13.2	Resistance to mechanical stresses and impact	68
9.14	Test of resistance to heat.....	71
9.15	Resistance to abnormal heat and to fire	72
9.16	Test of resistance to rusting.....	73
9.17	Verification of the behaviour in case of making inrush current.....	73
9.17.1	General	73
9.17.2	Values of the test quantities.....	74
9.17.3	Limit deviations of the test quantities	74
9.17.4	Test circuit for the determination of the withstand capacity against making currents	74
9.17.5	Testing for determination of the withstand capacity against making currents	74
Annex A (normative)	Determination of clearances and creepage distances	88
A.1	General.....	88
A.2	Orientation and location of a creepage distance.....	88
A.3	Creepage distances where more than one material is used.....	88
A.4	Creepage distances split by floating conductive part.....	88
A.5	Measurement of creepage distances and clearances	88
Annex B (normative)	Test sequences and number of samples necessary to prove compliance with this document	93
B.1	Test sequences	93
B.2	Number of samples to be submitted for full test procedure and acceptance criteria	94

B.3	Number of samples to be submitted for simplified test procedure	95
Annex C (informative) Co-ordination under short-circuit conditions between a circuit-breaker and another short-circuit protective device (SCPD) associated in the same circuit.....		
C.1	General.....	98
C.2	Purpose	98
C.3	General requirements for the co-ordination of a circuit-breaker with another SCPD	99
C.3.1	General consideration.....	99
C.3.2	Take-over current	99
C.3.3	Behaviour of C_1 in association with another SCPD	99
C.4	Type and characteristics of the associated SCPD	99
C.5	Verification of selectivity	100
C.6	Verification of back-up protection	100
C.6.1	Determination of the take-over current.....	100
C.6.2	Verification of back-up protection.....	100
C.6.3	Tests for verification of back-up protection	101
C.6.4	Results to be obtained	102
Annex D (informative) Examples of terminals.....		
Annex E (informative) Correspondence between IEC and AWG copper conductors.....		
Annex F (normative) Arrangement for short-circuit test		
Annex G (normative) Routine tests		
G.1	General.....	113
G.2	Tripping tests.....	113
G.3	Verification of clearances between open contacts	113
Annex H (normative) Particular requirements for circuit-breakers with screwless type terminals for external copper conductors.....		
H.1	Scope	114
H.2	Normative references.....	114
H.3	Terms and definitions.....	114
H.4	Classification	115
H.5	Characteristics of circuit-breakers.....	115
H.6	Marking and other product information	115
H.7	Standard conditions for operation in service.....	115
H.8	Requirements for construction and operation	116
H.8.1	Connection or disconnection of conductors.....	116
H.8.2	Dimensions of connectable conductors	116
H.8.3	Connectable cross-sectional areas	117
H.8.4	Insertion and disconnection of conductors	117
H.8.5	Design and construction of terminals	117
H.8.6	Resistance to ageing	117
H.9	Tests	117
H.9.1	Test of reliability of screwless terminals.....	117
H.9.2	Tests of reliability of terminals for external conductors: mechanical strength	118
H.9.3	Cycling test.....	119
H.10	Reference documents	121
Annex I (normative) Particular requirements for circuit-breakers with flat quick-connect terminations		
122		

I.1	Scope	122
I.2	Normative references.....	122
I.3	Terms and definitions.....	122
I.4	Classification	123
I.5	Characteristics of circuit-breakers.....	123
I.6	Marking and other product information	123
I.7	Standard conditions for operation in service.....	123
I.8	Requirements for construction and operation	123
I.8.1	Clearances and creepage distances (see Annex A)	123
I.8.2	Terminals for external conductors	124
I.9	Tests	124
I.9.1	Mechanical overload-force	124
Annex J (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		129
J.1	Scope	129
J.2	Normative references.....	129
J.3	Terms and definitions.....	129
J.4	Classification	130
J.5	Characteristics of circuit-breakers.....	130
J.6	Marking and other product information	130
J.7	Standard conditions for operation in service.....	130
J.8	Constructional requirements	131
J.9	Tests	131
J.9.1	Test conditions	133
J.9.2	Current cycling test.....	133
J.10	Reference documents	138
Bibliography.....		139
Figure 1 – Thread forming tapping screw		76
Figure 2 – Thread cutting tapping screw		76
Figure 3 – Single-pole circuit-breaker or pole of multiple circuit breaker.....		76
Figure 4 – Two-pole circuit-breaker with two protected poles		76
Figure 5 – Three-pole circuit-breaker with two protected poles and non-polarized protected M pole		77
Figure 6 – Calibration of the test circuit in case of direct currents		77
Figure 7 –Mechanical shock test apparatus (see 9.13.1).....		78
Figure 8 – Standard test finger (see 9.6).....		79
Figure 9 – Mechanical impact test apparatus (see 9.13.2).....		80
Figure 10 – Striking element for pendulum for mechanical impact test apparatus (see 9.13.2).....		81
Figure 11 – Mounting support for mechanical impact test (see 9.13.2)		82
Figure 12 – Example of mounting for a rear fixed circuit-breaker for mechanical impact test (see 9.13.2)		83
Figure 13 – Example of mounting of a panel board type circuit-breaker for mechanical impact test (see 9.13.2)		84
Figure 14 – Application of force for mechanical test on a rail-mounted circuit-breaker (see 9.13.2.4)		85

Figure 15 – Ball-pressure test apparatus.....	85
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 (see 9.13.2.5).....	86
Figure 17 – Diagrammatic representation (see 9.15).....	87
Figure 18 – Impedance Z_1 for test circuit in Figures 3, 4 and 5 for the simulation of making currents	87
Figure A.1 – Examples of methods of measuring creepage distances and clearances.....	92
Figure C.1 – Overcurrent co-ordination between a circuit-breaker and a fuse or back-up protection by a fuse – Operating characteristics	103
Figure C.2 – Total selectivity between two circuit-breakers	104
Figure C.3 – Back-up protection by a circuit-breaker – Operating characteristics	105
Figure D.1 – Examples of pillar terminals	106
Figure D.2 – Examples of screw terminals and stud terminals	107
Figure D.3 – Examples of saddle terminals	108
Figure D.4 – Examples of lug terminals.....	108
Figure F.1 – Test arrangement.....	111
Figure F.2 – Grid circuit	112
Figure F.3 – Grid circuit	112
Figure H.1 – Connecting samples	119
Figure H.2 – Examples of screwless-type terminals	121
Figure I.1 – Example of position of the thermocouple for measurement of the temperature rise	125
Figure I.2 – Dimensions of male tabs	126
Figure I.3 – Dimensions of round dimple detents (see Figure I.2).....	127
Figure I.4 – Dimensions of rectangular dimple detents (see Figure I.2)	127
Figure I.5 – Dimensions of hole detents	127
Figure I.6 – Dimensions of female connectors.....	128
Figure J.1 – General arrangement for the test.....	137
Figure J.2	137
Figure J.3	138
Figure J.4	138
Figure J.5	138
Figure J.6	138
Table 1 – Preferred values of rated voltage and corresponding supply systems	28
Table 2 – Ranges of instantaneous tripping	29
Table 3 – Minimum clearances and creepage distances.....	34
Table 4 – Connectable cross-sections of copper conductors for screw-type terminals	37
Table 5 – Temperature rise values	40
Table 6 – Time-current operating characteristics.....	41
Table 7 – Maximum power loss per pole	44
Table 8 – List of type tests	45
Table 9 – Cross-sectional areas (S) of test copper conductors corresponding to the rated currents	46

Table 10 – Screw thread diameters and applied torques	47
Table 11 – Pulling forces	48
Table 12 – Test voltage of auxiliary circuits	52
Table 13 – Test voltage for verification of impulse withstand voltage	54
Table 14 – 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	55
Table 15 – Applicability of tests	60
Table 16 – Ratio k between service short-circuit capacity (I_{CS}) and rated short-circuit capacity (I_{CN})	66
Table B.1 – Test sequences	93
Table B.2 – Number of samples for full test procedure	95
Table B.3 – Reduction of samples for series of circuit-breakers having different numbers of poles	96
Table B.4 – Test sequences for a series of circuit-breakers being of different instantaneous tripping classifications	97
Table H.1 – Connectable conductors	116
Table H.2 – Cross-sections of copper conductors connectable to screwless-type terminals	117
Table H.3 – Pull forces	118
Table I.1 – Informative table on colour code of female connectors in relationship with the cross section of the conductor	123
Table I.2 – Overload test forces	124
Table I.3 – Dimensions of tabs	125
Table I.4 – Dimensions of female connectors	128
Table J.1 – Marking for terminals	130
Table J.2 – Connectable cross-sections of aluminium conductors for screw-type terminals	131
Table J.3 – List of tests according to the material of conductors and terminals	132
Table J.4 – Connectable conductors and their theoretical diameters	132
Table J.5 – Cross sections (S) of aluminium test conductors corresponding to the rated currents	133
Table J.6 – Test conductor length	134
Table J.7 – Equalizer and busbar dimensions	134
Table J.8 – Test current as a function of rated current	136
Table J.9 – Example of calculation for determining the average temperature deviation D	136

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 3: Circuit-breakers for DC operation

FOREWORD

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IEC 60898-3 edition 1.1 contains the first edition (2019-04) [documents 23E/1122/FDIS and 23E/1126/RVD] and its amendment 1 (2022-02) [documents 23E/1229/CDV and 23E/1126/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 60898-3 has been prepared by sub-committee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

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

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.

In this document, the following print types are used:

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

The following differences exist in the countries indicated below.

- 4.7, Note 2: In China, other ranges of instantaneous tripping defined by the manufacturer are allowed.
- Clause 6, Notes 1 and 2: In the following countries: DK, FI, NO, SE and ZA the marking of the symbol on the circuit-breaker is mandatory to indicate that the device provides isolation for the installation downstream. In Australia this marking on the circuit-breaker is mandatory but is not required to be visible after installation.
- H.1, Note: In CZ, DK, NL, NO and CH, the upper limit of current for use of screwless terminals is 16 A.
- H.3.3, Note 1 to entry: In the following countries only universal screwless type terminals are accepted: AT, BE, CN, DK, DE, ES, FR, IT, PT and SE.
- Clause I.1, Note: The use of circuit-breakers with flat quick-connect terminations for rated currents up to and including 20 A is accepted in BE, FR, IT, ES, PT and US.
- I.8.2.2, Note 1: The use for rated currents up to and including 20 A is accepted in BE, FR, IT, PT, ES and US.
- Clause J.1, Note: In Austria, Australia and Germany, the use of aluminium screw-type terminals for use with copper conductors is not allowed.
- In Austria and Germany, terminals for aluminium conductors only are not allowed.
- In Spain, the use of aluminium conductors is not allowed for final circuits in household and similar installations e.g. offices, shops.
- In Denmark, the minimum cross-sectional area for aluminium conductors is 16 mm².

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under webstore.iec.ch in the data related to the specific publication. At this date, the publication will be

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

Part 3: Circuit-breakers for DC operation

1 Scope

This part of IEC 60898 applies to DC circuit-breakers, having a rated DC voltage not exceeding 440 V, a rated current not exceeding 125 A and a rated short-circuit capacity not exceeding 10 000 A.

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 in compliance with this document are suitable for use in TN, TT, and, under specific conditions, IT systems.

This document 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 document 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 can be required.

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

This document does not apply to circuit-breakers for AC operation, which is covered by IEC 60898-1.

This document does not apply to circuit-breakers for AC and DC operation, which is covered by IEC 60898-2.

Circuit breakers according to this document have a high resistance against unwanted tripping, regardless whether caused by in-rush currents through loading of electronic loads or by switching operations in the circuit.

NOTE Circuit-breakers within the scope of this document can also be used for protection against electric shock in case of a 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 document 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.

Guidance on the coordination, under short-circuit conditions, between a circuit-breaker and another short-circuit protective device (SCPD) is given in Annex C.

Routine tests intended to reveal, as far as safety is concerned, unacceptable variations in material or manufacture are given in Annex G.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-441, *International Electrotechnical Vocabulary – Switchgear, controlgear and fuses* (available at <http://www.electropedia.org>)

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

IEC 60228:2004, *Conductors of insulated cables*

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

IEC 60417, *Graphical symbols for use on equipment* (available at <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*

IEC 60695-2-10, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure*

IEC 60695-2-11:2014, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

IEC 60947-2:2016, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-441, and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>