IEC 60335-2-14

Edition 7.0 2025-02
EXTENDED VERSION

INTERNATIONAL STANDARD

This full version of IEC 60335-2-14:2025 includes the content of the references made to IEC 60335-1:2020

Household and similar electrical appliances – Safety – Part 2-14: Particular requirements for kitchen machines

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 13.120, 97.040.50

ISBN 978-2-8327-0208-6

Warning! Make sure that you obtained this publication from an authorized distributor.

® Registered trademark of the International Electrotechnical Commission

© IEC 2021

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

IEC 60335-1
Edition 6.0 2020-09

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 1: General requirements

INTERPRETATION SHEET 1

This interpretation sheet has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

The text of this Interpretation Sheet is based on the following documents:

Draft	Report on voting
61/5999/DISH	61/6009/RVDISH

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

_____

INTRODUCTION

Edition 6 of IEC 60335-1:2020 defines and introduces requirements for a detachable power supply part of an appliance. In the document, 24.2 prohibits the use of a power supply in a flexible cord.

QUESTION:

Does Subclause 24.2 prohibit the use of a detachable power supply part?

ANSWER

No, a "detachable power supply part" is a defined term and is not captured by the term "power supply" as used in Subclause 24.2.

NOTE A detachable power supply part is captured by the defined term when the output of the power supply part is detachable from the class III construction part of the appliance at:

– the power supply part, or

– the class III construction part of the appliance.

However, the supply cord (if any) does not have to be detachable from the detachable power supply part.

IEC 60335-1:2020-09/ISH1:2021-11(en)

ICS 13.120; 97.030

CONTENTS

FOREWORD 6
INTRODUCTION to IEC 60335-1:2020 9
INTRODUCTION to IEC 60335-2-14:2025 11
1 Scope 12
2 Normative references 13
3 Terms and definitions 18
4 General requirement 33
5 General conditions for the tests 33
6 Classification 38
7 Marking and instructions 38
8 Protection against access to live parts 48
9 Starting of motor-operated appliances 50
10 Power input and current 50
11 Heating 53
12 Charging of metal-ion batteries 63
13 Leakage current and electric strength at operating temperature 65
14 Transient overvoltages 67
15 Moisture resistance 68
16 Leakage current and electric strength 72
17 Overload protection of transformers and associated circuits 74
18 Endurance 74
19 Abnormal operation 74
20 Stability and mechanical hazards 86
21 Mechanical strength 95
22 Construction 97
23 Internal wiring 110
24 Components 112
25 Supply connection and external flexible cords 117
26 Terminals for external conductors 126
27 Provision for earthing 129
28 Screws and connections 130
29 Clearances, creepage distances and solid insulation 133
30 Resistance to heat and fire 141
31 Resistance to rusting 146
32 Radiation, toxicity and similar hazards 146
Annex A (informative) Routine tests 165
Annex B (normative) Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances 167
Annex C (normative) Ageing test on motors 188
Annex D (normative) Thermal motor protectors 190
Annex E (normative) Needle-flame test 191
Annex F (normative) Capacitors 192

Annex G (normative) Safety isolating transformers 194
Annex H (normative) Switches 195
Annex I (normative) Motors having basic insulation that is inadequate for the rated voltage of the appliance 197
Annex J (normative) Coated printed circuit boards 199
Annex K (informative) Overvoltage categories 200
Annex L (informative) Guidance for the measurement of clearances and creepage distances 201
Annex M (informative) Pollution degree 204
Annex N (normative) Proof tracking test 205
Annex O (informative) Selection and sequence of the tests of Clause 30 206
Annex P (informative) Guidance for the application of this standard to appliances used in tropical climates 211
Annex Q (informative) Sequence of tests for the evaluation of electronic circuits 213
Annex R (normative) Software evaluation 216
Annex S (informative) Guidance for the application of this standard on measurement of power input and current based on the requirements of 10.1 and 10.2 concerning the representative period 230
Annex T (normative) UV-C radiation effect on non-metallic materials 231
Annex U (normative) Appliances intended for remote communication through public networks 234
Annex AA (normative) Tests on sieves of centrifugal juicers 238
Bibliography 240
Index of defined terms 243

Figure 1 – Circuit diagram for leakage current measurement at operating temperature for single-phase connection of class II appliances and for parts of class II construction 147
Figure 2 – Circuit diagram for leakage current measurement at operating temperature for single-phase connection of other than class II appliances or parts of class II construction 148
Figure 3 – Circuit diagram for leakage current measurement at operating temperature for three-phase with neutral class II appliances and for parts of class II construction 149
Figure 4 – Circuit diagram for leakage current measurement at operating temperature for three-phase with neutral appliances other than those of class II or parts of class II construction 150
Figure 5 – Small part 151
Figure 6 – Example of an electronic circuit with low-power points 151
Figure 7 – Test finger nail 152
Figure 8 – Flexing test apparatus 153
Figure 9 – Constructions of cord anchorages 154
Figure 10 – An example of parts of an earthing terminal 155
Figure 11 – Examples of clearances 156
Figure 12 – Example of the placement of the cylinder 157
Figure 13 – Small parts cylinder 158
Figure 14 – Example of a specified operating region of a lithium-ion cell during charging 159
Figure 101 – Probe for measuring surface temperatures 160

Figure 102 – Schematic representation of the 30 ml spillage test 160
Figure 103 – Grinding screw with projections 161
Figure 104 – Examples of feed opening dimensions 162
Figure 105 – Slicing machine 163
Figure 106 – Protecting devices for slicing machines 164
Figure B.1 – Examples of battery-operated appliance constructions and application of normative Annex B *(1 of 2)* 186
Figure B.2 – Examples of correct polarity connection marking representing three batteries 187
Figure I.1 – Simulation of faults 198
Figure L.1 – Sequence for the determination of clearances 201
Figure L.2 – Sequence for the determination of creepage distances 202
Figure L.3 – Measurement of clearances 203
Figure O.1 – Tests for resistance to heat 206
Figure O.2 – Selection and sequence of tests for resistance to fire in hand-held appliances 207
Figure O.3 – Selection and sequence of tests for resistance to fire in attended appliances 207
Figure O.4 – Selection and sequence of tests for resistance to fire in unattended appliances 208
Figure O.5 – Some applications of the term "within a distance of 3 mm" 210
Figure Q.1 – Flowchart outlining the sequence of tests for the evaluation of electronic circuits *(1 of 2)* 214
Figure S.1 – Flowchart giving guidance on measurement of power input and current concerning the representative period 230

Table 1 – Power input deviation 51
Table 2 – Current deviation 52
Table 3 – Maximum normal temperature rises 60
Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions 63
Table 4 – Voltage for electric strength test 67
Table 5 – Characteristics of high-voltage sources 67
Table 6 – Impulse test voltage 68
Table 7 – Test voltages 73
Table 8 – Maximum winding temperature 77
Table 9 – Maximum abnormal temperature rise 83
Table 10 – Dimensions of cables and conduits 118
Table 11 – Minimum cross-sectional area of conductors 121
Table 12 – Pull force and torque 123
Table 13 – Nominal cross-sectional area of conductors 128
Table 14 – Torque for testing screws and nuts 132
Table 15 – Rated impulse voltage 134
Table 16 – Minimum clearances 134
Table 17 – Minimum creepage distances for basic insulation 138
Table 18 – Minimum creepage distances for functional insulation 139

Table 19 – Minimum thickness for accessible parts of reinforced insulation consisting of a single layer 141
Table A.1 – Test voltages 166
Table B.1 – Artificial source characteristics 169
Table B.2 – Total area of openings for metal-ion cells 177
Table B.3 – Volume of air injected at 2 070 kPa 177
Table C.1 – Test conditions 188
Table R.1 – General fault/error conditions 218
Table R.2 – Specific fault/error conditions 220
Table R.3 – Semi-formal methods 226
Table R.4 – Software architecture specification 226
Table R.5 – Module design specification 227
Table R.6 – Design and coding standards 228
Table R.7 – Software safety validation 228
Table T.1 – Minimum property retention limits after UV-C exposure 232
Table T.2 – Minimum electric strength for internal wiring after UV-C exposure 233
Table U.1 – Examples of acceptable measures against unauthorised access and transmission fault/error modes 236
Table AA.1 – Detergent composition 238

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-14: Particular requirements for kitchen machines

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

This extended version (EXV) of the official IEC Standard provides the user with the full content of the Standard.

IEC 60335-2-14:2025 EXV includes the content of IEC 60335-2-14:2025, and the references made to IEC 60335-1:2020.

The specific content of IEC 60335-2-14:2025 is displayed on a blue background.

IEC 60335-2-14 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This seventh edition cancels and replaces the sixth edition published in 2016 and Amendment 1:2019. This edition constitutes a technical revision.

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

a) alignment with IEC 60335-1:2020;
b) conversion of some notes to normative text (Clause 1, 3.1.9.111, 3.1.9.112, 3.1.9.114, 3.1.9.115, 11.7.3, 20.2, 20.107, 20.108);
c) modification to replace berry juice extractor with auger juicer and addition of a defined term (Clause 1, 3.1.9.101, 3.5.107, 11.7.102, 19.1, 19.7);
d) addition of requirements for appliances not intended for use by children (Clause 1, 7.12, 20.2, 20.106, 20.117);
e) modifications to clarify the testing under normal operating conditions (3.1.9, 3.1.9.111, 5.9, 7.12, 10.1, 11.5, 11.6, 11.7, 11.7.1 to 11.7.3, 11.7.101 to 11.7.118);
f) addition of surface temperatures for external accessible surfaces (11.3, 11.8);
g) modification of the spillage test of 15.2 to address leakage from the liquid container;
h) clarification of requirements for remote operation of kitchen machines (11.7, 19.7, 22.40, 22.49, 22.51);
i) modification of the operating period for juicers with respect to the 0,5 kg carrot load and the operating time (11.7.105);
j) clarification of overfill testing with detachable gaskets and addition of gasket leakage test (15.2, 15.102);
k) clarification of the feed opening dimension limits in 20.2;
l) addition of requirements when compliance with the standard relies on an electronic circuit for the interlock function (20.2, 20.104, 20.108, 20.113);
m) addition of test probe 18 where test probe B is applied and clarification of forces applied to test probes (20.2, 20.104, 20.106, 20.108, 20.113, 20.114, 20.117);
n) update and combine requirements for inadvertent operation of hand-held blenders and knives to cover alternative switch constructions on the market (20.103 and deletion of previous 20.115);
o) clarification of the test of 20.104;
p) update of interlock requirements to be applicable for all appliances where the interlock is required for compliance with the standard (20.113, 20.114);
q) update of the detergent used for centrifugal juicer conditioning (Annex AA).

The text of this International Standard is based on the following documents:

Draft	Report on voting
61/7347/FDIS	61/7384/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available

at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments unless that edition precludes it; in that case, the latest edition that does not preclude it is used. It was established on the basis of the sixth edition (2020) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for kitchen machines.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

– subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
– unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
– additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

– requirements: in roman type;
– *test specifications: in italic type*;
– notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

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

- reconfirmed,
- withdrawn, or
- revised.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations can need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

INTRODUCTION to IEC 60335-1:2020

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website –

www.iec.ch/tc61/supportingdocuments

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If the functions of an appliance are covered by different parts 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

Throughout this publication, when "part 2" is mentioned, it refers to the relevant part of IEC 60335.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal publications, basic safety publications and group safety publications covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards.

Individual countries may wish to consider the application of this standard, as far as is reasonable, to appliances not mentioned in a part 2, and to appliances designed on new principles. In this case, consideration should be given to defining normal operation, specifying the classification of the appliance according to Clause 6 and specifying whether the appliance is operated attended or unattended. Consideration should also be given to particular categories of likely users and to related specific risks such as access to live parts, hot surfaces or hazardous moving parts.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of this standard if, when examined and tested, it is found to have other features which impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with this standard.

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

– IEC standards published by TC 59 concerning methods of measuring performance;
– CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;
– CISPR 14-2 concerning electromagnetic immunity;
– IEC standards published by TC 111 concerning environmental matters.

INTRODUCTION to IEC 60335-2-14:2025

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website https://www.iec.ch/tc61/supportingdocuments.

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules can differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal publications, basic safety publications and group safety publications covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

– IEC standards published by TC 59 concerning methods of measuring performance;
– CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;
– CISPR 14-2 concerning electromagnetic immunity;
– IEC standards published by TC 111 concerning environmental matters.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-14: Particular requirements for kitchen machines

1 Scope

This part of IEC 60335 deals with the safety of electric kitchen machines for household and similar purposes, their **rated voltage** being not more than 250 V including direct current (DC) supplied appliances and **battery-operated appliances**.

Examples of appliances that are within the scope of this standard are

– bean slicers;
– **auger juicers**;
– **blenders**;
– can openers;
– centrifugal juicers;
– churns;
– citrus-fruit squeezers;
– coffee mills not exceeding a hopper **rated capacity** of 500 g;
– cream whippers;
– egg beaters;
– **food mixers**;
– **food processors**;
– grain grinders not exceeding a hopper **rated capacity** of 3 l;
– graters;
– ice-cream machines, including those for use in refrigerators and freezers;
– knife sharpeners;
– knives;
– **mincers**;
– **noodle makers**;
– peelers;
– shredders;
– sieving machines;
– slicing machines.

Appliances intended for normal household and similar use and that can also be used by laypersons in shops, in light industry, bed and breakfast and on farms, are within the scope of this standard. However, if the appliance is intended to be used professionally to process food for commercial consumption, the appliance is not considered to be for household and similar use only.

As far as is practicable, this standard deals with the common hazards presented by appliances which are encountered by all persons in and around the home. However, in general, it does not take into account:

– persons (including children) whose

- physical, sensory or mental capabilities; or
- lack of experience and knowledge

prevents them from using the appliance safely without supervision or instruction;

– children playing with the appliance.

It does not take into account the use of the following appliances by children:

– bean slicers;
– **blenders** including **hand-held blenders**;
– juicers other than citrus-fruit squeezers;
– **food mixers**;
– **food processors**;
– knives;
– **mincers**;
– **noodle makers**;
– lathe-type or **hand-held peelers**;
– vegetable graters/shredders;
– slicing machines.

Attention is drawn to the fact that

– for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements can be necessary;
– in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

This standard does not apply to

– slicing machines having a circular knife the blade of which is inclined at an angle exceeding 45° to the vertical;
– breadmakers (IEC 60335-2-9);
– soy milk makers (IEC 60335-2-15);
– food waste disposers (IEC 60335-2-16);
– ice-cream appliances with incorporated motor compressors (IEC 60335-2-24);
– kitchen machines intended for commercial purposes (IEC 60335-2-64);
– kitchen machines intended for industrial purposes;
– kitchen machines intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas).

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 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

IEC 60065:2014, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC TR 60083, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

IEC 60085:2007, *Electrical insulation – Thermal evaluation and designation*

IEC 60112:2003, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*
IEC 60112:2003/AMD1:2009[1]

IEC 60127 (all parts), *Miniature fuses*

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

IEC 60227-5:2011, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)*

IEC 60238, *Edison screw lampholders*

IEC 60245 (all parts), *Rubber insulated cables – Rated voltages up to and including 450/750 V*

IEC 60252-1:2010, *AC motor capacitors – Part 1: General – Performance, testing and rating – Safety requirements – Guidance for installation and operation*
IEC 60252-1:2010/AMD1:2013[2]

IEC 60309-2, *Plugs, socket-outlets and couplers for industrial purposes – Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories*

IEC 60320 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60320-1, *Appliance couplers for household and similar general purposes – Part 1: General requirements*

IEC 60320-2-3, *Appliance couplers for household and similar general purposes – Part 2-3: Appliance couplers with a degree of protection higher than IPX0*

IEC 60320-3, *Appliance couplers for household and similar general purposes – Part 3: Standard sheets and gauges*

IEC 60384-14:2013, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection*

---

1 There exists a consolidated edition 4.1:2009 that includes edition 4 and its Amendment 1.

2 There exists a consolidated edition 2.1:2013 that includes edition 2 and its Amendment 1.

to the supply mains
IEC 60384-14:2013/AMD1:2016[3]

IEC 60417, *Graphical symbols for use on equipment*

IEC 60445:2017, *Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals, conductor terminations and conductors*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
IEC 60529:1989/AMD1:1999
IEC 60529:1989/AMD2:2013[4]

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

IEC 60598-1:2014, *Luminaires – Part 1: General requirements and tests*
IEC 60598-1:2014/AMD1:2017[5]

IEC 60603-11, *Connectors for frequencies below 3 MHz for use with printed boards – Part 11: Detail specification for concentric connectors (dimensions for free connectors and fixed connectors)*

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

IEC 60664-3:2016, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60664-4:2005, *Insulation coordination for equipment within low-voltage systems – Part 4: Consideration of high-frequency voltage stress*

IEC 60691, *Thermal-links – Requirements and application guide*

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 60695-2-12, *Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials*

IEC 60695-2-13, *Fire hazard testing – Part 2-13: Glowing/hot-wire based test methods – Glow-wire ignition temperature (GWIT) test method for materials*

IEC 60695-10-2, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test*

IEC 60695-11-5:2016, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

IEC 60695-11-10, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

---

[3] There exists a consolidated edition 4.1:2016 that includes edition 4 and its Amendment 1.

[4] There exists a consolidated edition 2.2:2013 that includes edition 2 and its Amendment 1 and Amendment 2.

[5] There exists a consolidated edition 8.1:2017 that includes edition 8 and its Amendment 1.

IEC 60730-1:2013, *Automatic electrical controls – Part 1: General requirements*
IEC 60730-1:2013/AMD1:2015[6]

IEC 60730-2-8:2018, *Automatic electrical controls – Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements*

IEC 60730-2-9:2015, *Automatic electrical controls – Part 2-9: Particular requirements for temperature sensing controls*
IEC 60730-2-9:2015/AMD1:2018[7]

IEC 60730-2-10, *Automatic electrical controls for household and similar use – Part 2-10: Particular requirements for motor-starting relays*

IEC 60738-1, *Thermistors – Directly heated positive temperature coefficient – Part 1: Generic specification*

IEC 60799, *Electrical accessories – Cord sets and interconnection cord sets*

IEC 60811-504:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 504: Mechanical tests – Bending tests at low temperature for insulation and sheaths*

IEC 60811-505:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 505: Mechanical tests – Elongation at low temperature for insulations and sheaths*

IEC 60906-1, *IEC system of plugs and socket-outlets for household and similar purposes – Part 1: Plugs and socket-outlets 16 A 250 V a.c.*

IEC 60934, *Circuit-breakers for equipment (CBE)*

IEC 60990:2016, *Methods of measurement of touch current and protective conductor current*

IEC 60999-1:1999, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm^2 up to 35 mm^2 (included)*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

---

6 There exists a consolidated edition 5.1:2015 that includes edition 5 and its Amendment 1.

7 There exists a consolidated edition 4.1:2018 that includes edition 4 and its Amendment 1.

IEC 61000-4-11:2020, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase*

IEC 61000-4-13:2002, *Electromagnetic compatibility (EMC) – Part 4-13: Testing and measurement techniques – Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests*
IEC 61000-4-13:2002/AMD1:2009
IEC 61000-4-13:2002/AMD2:2015[8]

IEC 61000-4-34:2005, *Electromagnetic compatibility (EMC) – Part 4-34: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase*
IEC 61000-4-34:2005/AMD1:2009[9]

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61058-1:2016, *Switches for appliances – Part 1: General requirements*

IEC 61058-1-1:2016, *Switches for appliances – Part 1-1: Requirements for mechanical switches*

IEC 61058-1-2:2016, *Switches for appliances – Part 1-2: Requirements for electronic switches*

IEC 61180, *High-voltage test techniques for low-voltage equipment – Definitions, test and procedure requirements, test equipment*

IEC 61210, *Connecting devices – Flat quick-connect terminations for electrical copper conductors – Safety requirements*

IEC 61558-1:2017, *Safety of transformers, reactors, power supply units and combinations thereof – Part 1: General requirements and tests*

IEC 61558-2-6:2009, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers*

IEC 61558-2-16:2009, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units*
IEC 61558-2-16:2009/AMD1:2013[10]

IEC 61770, *Electric appliances connected to the water mains – Avoidance of backsiphonage and failure of hose-sets*

IEC 62133-1:2017, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 1: Nickel systems*

---

8 There exists a consolidated edition 1.2:2015 that includes edition 1 and its Amendment 1 and Amendment 2.

9 There exists a consolidated edition 1.1:2009 that includes edition 1 and its Amendment 1.

10 There exists a consolidated edition 1.1:2013 that includes edition 1 and its Amendment 1.

IEC 62133-2:2017, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems*

IEC 62151, *Safety of equipment electrically connected to a telecommunication network*

IEC 62471:2006, *Photobiological safety of lamps and lamp systems*

IEC 62477-1, *Safety requirements for power electronic converter systems and equipment – Part 1: General*

IEC 62821 (all parts), *Electric cables – Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltages up to and including 450/750 V*

ISO 178, *Plastics – Determination of flexural properties*

ISO 179-1, *Plastics – Determination of Charpy impact properties – Part 1: Non-instrumented impact test*

ISO 180, *Plastics – Determination of Izod impact strength*

ISO 527 (all parts), *Plastics – Determination of tensile properties*

ISO 1463, *Metallic and oxide coatings – Measurement of coating thickness – Microscopical method*

ISO 2178, *Non-magnetic coatings on magnetic substrates – Measurement of coating thickness – Magnetic method*

ISO 2768-1, *General tolerances – Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 4892-1:2016, *Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance*

ISO 4892-2: 2013, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*

ISO 7000, *Graphical symbols for use on equipment – Registered symbols*

ISO 8256, *Plastics – Determination of tensile-impact strength*

ISO 9772, *Cellular plastics – Determination of horizontal burning characteristics of small specimens subjected to a small flame*

ISO 9773, *Plastics – Determination of burning behaviour of thin flexible vertical specimens in contact with a small-flame ignition source*

IEC 60335-2-14

Edition 7.0 2025-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Household and similar electrical appliances – Safety – Part 2-14: Particular requirements for kitchen machines

Appareils électrodomestiques et analogues – Sécurité – Partie 2-14: Exigences particulières pour les machines de cuisine



IEC 60335-2-14:2025-02(en-fr)

CONTENTS

FOREWORD 4
INTRODUCTION 7
1 Scope 8
2 Normative references 10
3 Terms and definitions 10
4 General requirement 14
5 General conditions for the tests 14
6 Classification 14
7 Marking and instructions 15
8 Protection against access to live parts 16
9 Starting of motor-operated appliances 17
10 Power input and current 17
11 Heating 17
12 Charging of metal-ion batteries 23
13 Leakage current and electric strength at operating temperature 23
14 Transient overvoltages 23
15 Moisture resistance 23
16 Leakage current and electric strength 25
17 Overload protection of transformers and associated circuits 25
18 Endurance 25
19 Abnormal operation 25
20 Stability and mechanical hazards 27
21 Mechanical strength 35
22 Construction 35
23 Internal wiring 36
24 Components 37
25 Supply connection and external flexible cords 37
26 Terminals for external conductors 38
27 Provision for earthing 38
28 Screws and connections 38
29 Clearances, creepage distances and solid insulation 38
30 Resistance to heat and fire 38
31 Resistance to rusting 39
32 Radiation, toxicity and similar hazards 39
Annexes 45
Annex B (normative) Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances 46
Annex C (normative) Ageing test on motors 48
Annex R (normative) Software evaluation 49
Annex AA (normative) Tests on sieves of centrifugal juicers 50
Bibliography 52

Figure 101 – Probe for measuring surface temperatures 39
Figure 102 – Schematic representation of the 30 ml spillage test 40
Figure 103 – Grinding screw with projections 41
Figure 104 – Examples of feed opening dimensions 42
Figure 105 – Slicing machine 43
Figure 106 – Protecting devices for slicing machines 44

Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions 23
Table AA.1 – Detergent composition 50

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-14: Particular requirements for kitchen machines

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60335-2-14 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This seventh edition cancels and replaces the sixth edition published in 2016 and Amendment 1:2019. This edition constitutes a technical revision.

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

a) alignment with IEC 60335-1:2020;
b) conversion of some notes to normative text (Clause 1, 3.1.9.111, 3.1.9.112, 3.1.9.114, 3.1.9.115, 11.7.3, 20.2, 20.107, 20.108);
c) modification to replace berry juice extractor with auger juicer and addition of a defined term (Clause 1, 3.1.9.101, 3.5.107, 11.7.102, 19.1, 19.7);

d) addition of requirements for appliances not intended for use by children (Clause 1, 7.12, 20.2, 20.106, 20.117);

e) modifications to clarify the testing under normal operating conditions (3.1.9, 3.1.9.111, 5.9, 7.12, 10.1, 11.5, 11.6, 11.7, 11.7.1 to 11.7.3, 11.7.101 to 11.7.118);

f) addition of surface temperatures for external accessible surfaces (11.3, 11.8);

g) modification of the spillage test of 15.2 to address leakage from the liquid container;

h) clarification of requirements for remote operation of kitchen machines (11.7, 19.7, 22.40, 22.49, 22.51);

i) modification of the operating period for juicers with respect to the 0,5 kg carrot load and the operating time (11.7.105);

j) clarification of overfill testing with detachable gaskets and addition of gasket leakage test (15.2, 15.102);

k) clarification of the feed opening dimension limits in 20.2;

l) addition of requirements when compliance with the standard relies on an electronic circuit for the interlock function (20.2, 20.104, 20.108, 20.113);

m) addition of test probe 18 where test probe B is applied and clarification of forces applied to test probes (20.2, 20.104, 20.106, 20.108, 20.113, 20.114, 20.117);

n) update and combine requirements for inadvertent operation of hand-held blenders and knives to cover alternative switch constructions on the market (20.103 and deletion of previous 20.115);

o) clarification of the test of 20.104;

p) update of interlock requirements to be applicable for all appliances where the interlock is required for compliance with the standard (20.113, 20.114);

q) update of the detergent used for centrifugal juicer conditioning (Annex AA).

The text of this International Standard is based on the following documents:

Draft	Report on voting
61/7347/FDIS	61/7384/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments unless that edition precludes it; in that case, the latest edition that does not preclude it is used. It was established on the basis of the sixth edition (2020) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for kitchen machines.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

– subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;

– unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;

– additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

– requirements: in roman type;

– *test specifications: in italic type*;

– notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

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

- reconfirmed,
- withdrawn, or
- revised.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations can need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website https://www.iec.ch/tc61/supportingdocuments.

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules can differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal publications, basic safety publications and group safety publications covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

– IEC standards published by TC 59 concerning methods of measuring performance;
– CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;
– CISPR 14-2 concerning electromagnetic immunity;
– IEC standards published by TC 111 concerning environmental matters.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-14: Particular requirements for kitchen machines

1 Scope

This clause of Part 1 is replaced with the following.

This part of IEC 60335 deals with the safety of electric kitchen machines for household and similar purposes, their **rated voltage** being not more than 250 V including direct current (DC) supplied appliances and **battery-operated appliances**.

Examples of appliances that are within the scope of this standard are

– bean slicers;
– **auger juicers**;
– **blenders**;
– can openers;
– centrifugal juicers;
– churns;
– citrus-fruit squeezers;
– coffee mills not exceeding a hopper **rated capacity** of 500 g;
– cream whippers;
– egg beaters;
– **food mixers**;
– **food processors**;
– grain grinders not exceeding a hopper **rated capacity** of 3 l;
– graters;
– ice-cream machines, including those for use in refrigerators and freezers;
– knife sharpeners;
– knives;
– **mincers**;
– **noodle makers**;
– peelers;
– shredders;
– sieving machines;
– slicing machines.

Appliances intended for normal household and similar use and that can also be used by laypersons in shops, in light industry, bed and breakfast and on farms, are within the scope of this standard. However, if the appliance is intended to be used professionally to process food for commercial consumption, the appliance is not considered to be for household and similar use only.

As far as is practicable, this standard deals with the common hazards presented by appliances which are encountered by all persons in and around the home. However, in general, it does not take into account:

– persons (including children) whose
  - physical, sensory or mental capabilities; or
  - lack of experience and knowledge

  prevents them from using the appliance safely without supervision or instruction;
– children playing with the appliance.

It does not take into account the use of the following appliances by children:

– bean slicers;
– **blenders** including **hand-held blenders**;
– juicers other than citrus-fruit squeezers;
– **food mixers**;
– **food processors**;
– knives;
– **mincers**;
– **noodle makers**;
– lathe-type or **hand-held peelers**;
– vegetable graters/shredders;
– slicing machines.

Attention is drawn to the fact that

– for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements can be necessary;
– in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

This standard does not apply to

– slicing machines having a circular knife the blade of which is inclined at an angle exceeding 45° to the vertical;
– breadmakers (IEC 60335-2-9);
– soy milk makers (IEC 60335-2-15);
– food waste disposers (IEC 60335-2-16);
– ice-cream appliances with incorporated motor compressors (IEC 60335-2-24);
– kitchen machines intended for commercial purposes (IEC 60335-2-64);
– kitchen machines intended for industrial purposes;
– kitchen machines intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

IEC 60811-504:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 504: Mechanical tests – Bending tests at low temperature for insulation and sheaths*

IEC 60811-505:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 505: Mechanical tests – Elongation at low temperature for insulations and sheaths*

SOMMAIRE

AVANT-PROPOS 56
INTRODUCTION 59
1 Domaine d'application 60
2 Références normatives 62
3 Termes et définitions 62
4 Exigences générales 67
5 Conditions générales d'essais 67
6 Classification 67
7 Marquage et instructions 67
8 Protection contre l'accès aux parties actives 69
9 Démarrage des appareils à moteur 69
10 Puissance et courant 70
11 Échauffements 70
12 Charge des batteries à ions métalliques 76
13 Courant de fuite et rigidité diélectrique à la température de régime 76
14 Surtensions transitoires 76
15 Résistance à l'humidité 77
16 Courant de fuite et rigidité diélectrique 78
17 Protection contre la surcharge des transformateurs et des circuits associés 78
18 Endurance 78
19 Fonctionnement anormal 79
20 Stabilité et dangers mécaniques 80
21 Résistance mécanique 90
22 Construction 90
23 Conducteurs internes 91
24 Composants 92
25 Raccordement au réseau et câbles souples extérieurs 92
26 Bornes pour conducteurs externes 93
27 Dispositions en vue de la mise à la terre 93
28 Vis et connexions 93
29 Distances dans l'air, lignes de fuite et isolation solide 93
30 Résistance à la chaleur et au feu 93
31 Protection contre la rouille 94
32 Rayonnement, toxicité et dangers analogues 94
Annexes 100
Annexe B (normative) Appareils alimentés par batteries, batteries séparables et batteries amovibles pour les appareils alimentés par batteries 101
Annexe C (normative) Essai de vieillissement des moteurs 103
Annexe R (normative) Évaluation des logiciels 104
Annexe AA (normative) Essais des filtres de centrifugeuses 105
Bibliographie 107

Figure 101 – Dispositif de mesure des températures de surface 94
Figure 102 – Représentation schématique de l'essai de débordement de 30 ml 95
Figure 103 – Vis de broyage avec projections 96
Figure 104 – Exemples de dimensions de l'orifice d'approvisionnement 97
Figure 105 – Machine à trancher 98
Figure 106 – Dispositifs de protection des trancheurs 99

Tableau 101 – Échauffements maximaux pour les surfaces accessibles extérieures spécifiées en conditions de fonctionnement normal 76
Tableau AA.1 – Composition du détergent 105

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

_____

APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

Partie 2-14: Exigences particulières pour les machines de cuisine

AVANT-PROPOS

1) La Commission Électrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. À cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
2) Les décisions ou accords officiels de l'IEC concernant les questions techniques représentent, dans la mesure du possible, un accord international sur les sujets étudiés, étant donné que les Comités nationaux de l'IEC intéressés sont représentés dans chaque comité d'études.
3) Les Publications de l'IEC se présentent sous la forme de recommandations internationales et sont agréées comme telles par les Comités nationaux de l'IEC. Tous les efforts raisonnables sont entrepris afin que l'IEC s'assure de l'exactitude du contenu technique de ses publications; l'IEC ne peut pas être tenue responsable de l'éventuelle mauvaise utilisation ou interprétation qui en est faite par un quelconque utilisateur final.
4) Dans le but d'encourager l'uniformité internationale, les Comités nationaux de l'IEC s'engagent, dans toute la mesure possible, à appliquer de façon transparente les Publications de l'IEC dans leurs publications nationales et régionales. Toutes divergences entre toutes Publications de l'IEC et toutes publications nationales ou régionales correspondantes doivent être indiquées en termes clairs dans ces dernières.
5) L'IEC elle-même ne fournit aucune attestation de conformité. Des organismes de certification indépendants fournissent des services d'évaluation de conformité et, dans certains secteurs, accèdent aux marques de conformité de l'IEC. L'IEC n'est responsable d'aucun des services effectués par les organismes de certification indépendants.
6) Tous les utilisateurs doivent s'assurer qu'ils sont en possession de la dernière édition de cette publication.
7) Aucune responsabilité ne doit être imputée à l'IEC, à ses administrateurs, employés, auxiliaires ou mandataires, y compris ses experts particuliers et les membres de ses comités d'études et des Comités nationaux de l'IEC, pour tout préjudice causé en cas de dommages corporels et matériels, ou de tout autre dommage de quelque nature que ce soit, directe ou indirecte, ou pour supporter les coûts (y compris les frais de justice) et les dépenses découlant de la publication ou de l'utilisation de cette Publication de l'IEC ou de toute autre Publication de l'IEC, ou au crédit qui lui est accordé.
8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
9) L'IEC attire l'attention sur le fait que la mise en application du présent document peut entraîner l'utilisation d'un ou de plusieurs brevets. L'IEC ne prend pas position quant à la preuve, à la validité et à l'applicabilité de tout droit de brevet revendiqué à cet égard. À la date de publication du présent document, l'IEC n'avait pas reçu notification qu'un ou plusieurs brevets pouvaient être nécessaires à sa mise en application. Toutefois, il y a lieu d'avertir les responsables de la mise en application du présent document que des informations plus récentes sont susceptibles de figurer dans la base de données de brevets, disponible à l'adresse https://patents.iec.ch. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets.

L'IEC 60335-2-14 a été établie par le comité d'études 61 de l'IEC: Sécurité des appareils électrodomestiques et analogues. Il s'agit d'une Norme internationale.

Cette septième édition annule et remplace la sixième édition parue en 2016 et l'Amendement 1:2019. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) le texte a été aligné sur l'IEC 60335-1:2020;

b) certaines notes ont été converties en texte normatif (Article 1, 3.1.9.111, 3.1.9.112, 3.1.9.114, 3.1.9.115, 11.7.3, 20.2, 20.107, 20.108);

c) l'extracteur de jus de baies a été remplacé par l'extracteur de jus à broyeur et un terme défini a été ajouté (Article 1, 3.1.9.101, 3.5.107, 11.7.102, 19.1, 19.7);

d) des exigences ont été ajoutées pour les appareils qui ne sont pas destinés à être utilisés par des enfants (Article 1, 7.12, 20.2, 20.106, 20.117);

e) les essais en conditions de fonctionnement normal ont été clarifiés (3.1.9, 3.1.9.111, 5.9, 7.12, 10.1, 11.5, 11.6, 11.7, 11.7.1 à 11.7.3, 11.7.101 à 11.7.118);

f) des températures de surface ont été ajoutées pour les surfaces accessibles extérieures (11.3, 11.8);

g) l'essai de débordement du 15.2 a été modifié pour couvrir les fuites du récipient de liquide;

h) les exigences pour la commande à distance des machines de cuisine ont été clarifiées (11.7, 19.7, 22.40, 22.49, 22.51);

i) la période de fonctionnement des extracteurs de jus a été modifiée en ce qui concerne la charge de 0,5 kg de carottes et la durée de fonctionnement (11.7.105);

j) les essais de débordement avec des joints amovibles ont été clarifiés et l'essai d'étanchéité des joints a été ajouté (15.2, 15.102);

k) les limites des dimensions des orifices d'approvisionnement ont été clarifiées au 20.2;

l) des exigences ont été ajoutées pour la fonction de verrouillage lorsque la conformité à la norme repose sur un circuit électronique (20.2, 20.104, 20.108, 20.113);

m) le calibre d'essai 18 a été ajouté lorsque le calibre d'essai B est appliqué et les forces appliquées aux calibres d'essai ont été clarifiées (20.2, 20.104, 20.106, 20.108, 20.113, 20.114, 20.117);

n) les exigences relatives au fonctionnement intempestif des mélangeurs portatifs et des couteaux ont été mises à jour et combinées afin de couvrir les constructions alternatives d'interrupteurs disponibles sur le marché (20.103 et suppression de l'ancien 20.115);

o) l'essai du 20.104 a été clarifié;

p) les exigences de verrouillage ont été mises à jour de manière à s'appliquer à tous les appareils pour lesquels le verrouillage est exigé aux fins de la conformité à la norme (20.113, 20.114);

q) le détergent utilisé pour le conditionnement des centrifugeuses a été mis à jour (Annexe AA).

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
61/7347/FDIS	61/7384/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/publications.

Une liste de toutes les parties de la série IEC 60335, publiées sous le titre général *Appareils électrodomestiques et analogues – Sécurité*, se trouve sur le site web de l'IEC.

La présente partie 2 doit être utilisée conjointement avec la dernière édition de l'IEC 60335-1 et ses amendements sauf si cette édition l'exclut. Dans ce cas, la dernière édition qui n'exclut pas la présente partie 2 est utilisée. Elle a été établie sur la base de la sixième édition (2020) de cette norme.

NOTE 1 L'expression "la Partie 1" utilisée dans la présente norme fait référence à l'IEC 60335-1.

La présente partie 2 complète ou modifie les articles correspondants de l'IEC 60335-1, de façon à transformer cette publication en norme IEC: Exigences de sécurité pour les machines de cuisine.

Lorsqu'un paragraphe particulier de la Partie 1 n'est pas mentionné dans cette partie 2, ce paragraphe s'applique pour autant que cela soit raisonnable. Lorsque la présente norme mentionne "addition", "modification" ou "remplacement", le texte correspondant de la Partie 1 doit être adapté en conséquence.

NOTE 2 Le système de numérotation suivant est utilisé:

– les paragraphes, tableaux et figures qui s'ajoutent à ceux de la Partie 1 sont numérotés à partir de 101;
– à l'exception de celles qui sont dans un nouveau paragraphe ou de celles qui concernent des notes de la Partie 1, les notes sont numérotées à partir de 101, y compris celles des articles ou paragraphes qui sont remplacés;
– les annexes qui sont ajoutées sont désignées AA, BB, etc.

NOTE 3 Les caractères d'imprimerie suivants sont utilisés:

– exigences: caractères romains;
– *modalités d'essais: caractères italiques*;
– notes: petits caractères romains.

Les termes en **gras** dans le texte sont définis à l'Article 3. Lorsqu'une définition concerne un adjectif, l'adjectif et le nom associé figurent également en gras.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous webstore.iec.ch dans les données relatives au document recherché. À cette date, le document sera

- reconduit,
- supprimé, ou
- révisé.

NOTE 4 L'attention des Comités nationaux est attirée sur le fait que les fabricants d'appareils et les organismes d'essai peuvent avoir besoin d'une période transitoire après la publication d'une nouvelle publication IEC, ou d'une publication amendée ou révisée, pour fabriquer des produits conformes aux nouvelles exigences et pour adapter leurs équipements aux nouveaux essais ou aux essais révisés.

Le comité recommande que le contenu de cette publication soit adopté pour application nationale (obligatoire) au plus tôt 12 mois et au plus tard 36 mois après la date de publication.

INTRODUCTION

Il a été admis par hypothèse, en établissant la présente Norme internationale, que l'exécution de ses dispositions était confiée à des personnes expérimentées et ayant une qualification appropriée.

Les documents de recommandations concernant l'application des exigences de sécurité des appareils peuvent être obtenus par le biais des documents d'accompagnement du comité d'études 61 sur le site web de l'IEC à l'adresse: https://www.iec.ch/tc61/supportingdocuments.

Cette information est donnée à l'intention des utilisateurs de la présente Norme internationale et ne constitue nullement un remplacement du texte normatif de la présente norme.

La présente norme reconnaît le niveau de protection internationalement accepté contre les dangers électriques, mécaniques, thermiques, liés au feu et au rayonnement des appareils, lorsqu'ils fonctionnent comme en usage normal en tenant compte des instructions du fabricant. Elle couvre également les situations anormales auxquelles on peut s'attendre dans la pratique et elle tient compte de la façon dont les phénomènes électromagnétiques peuvent affecter le fonctionnement sûr des appareils.

La présente norme tient compte autant que possible des exigences de l'IEC 60364, de façon à rester compatible avec les règles d'installation quand l'appareil est raccordé au réseau d'alimentation. Cependant, des règles d'installation nationales peuvent être différentes.

Si un appareil relevant du domaine d'application de la présente norme comporte également des fonctions couvertes par une autre partie 2 de l'IEC 60335, la partie 2 correspondante est appliquée à chaque fonction séparément, dans la limite du raisonnable. Si cela s'applique, l'influence d'une fonction sur les autres fonctions est prise en compte.

Lorsqu'une partie 2 ne comporte pas d'exigences complémentaires pour couvrir les risques traités dans la Partie 1, la Partie 1 s'applique.

NOTE 1 Cela signifie que les comités d'études responsables pour les parties 2 ont déterminé qu'il n'était pas nécessaire de spécifier des exigences particulières pour l'appareil en question en plus des exigences générales.

La présente norme est une norme de famille de produits traitant de la sécurité d'appareils et a préséance sur les normes horizontales et génériques couvrant le même sujet.

NOTE 2 Les publications horizontales, les publications fondamentales de sécurité et les publications groupées de sécurité couvrant un danger ne s'appliquent pas, parce qu'elles ont été prises en considération lorsque les exigences générales et particulières ont été étudiées pour la série de normes IEC 60335.

Un appareil conforme au texte de la présente norme ne sera pas nécessairement jugé conforme aux principes de sécurité de la norme si, lorsqu'il est examiné et soumis aux essais, il apparaît qu'il présente d'autres caractéristiques qui compromettent le niveau de sécurité visé par ces exigences.

Un appareil utilisant des matériaux ou présentant des modes de construction différents de ceux décrits dans les exigences de la présente norme peut être examiné et soumis aux essais en fonction de l'objectif poursuivi par ces exigences et, s'il est jugé pratiquement équivalent, il peut être estimé conforme aux principes de sécurité de la présente norme.

NOTE 3 Les normes traitant des aspects non relatifs à la sécurité des appareils électrodomestiques sont:

– les normes IEC publiées par le comité d'études 59 concernant les méthodes de mesure de l'aptitude à la fonction;
– les normes CISPR 11 et CISPR 14-1, ainsi que les normes applicables de la série IEC 61000-3 concernant les émissions électromagnétiques;
– la norme CISPR 14-2 concernant l'immunité électromagnétique;
– les normes IEC publiées par le comité d'études 111 concernant l'environnement.

APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

Partie 2-14: Exigences particulières pour les machines de cuisine

1 Domaine d'application

L'article de la Partie 1 est remplacé par le texte suivant.

La présente partie de l'IEC 60335 traite de la sécurité des machines de cuisine électriques pour usages domestiques et analogues, dont la **tension assignée** est inférieure ou égale à 250 V, y compris les appareils alimentés en courant continu et les **appareils alimentés par batteries**.

La liste suivante répertorie les exemples d'appareils qui relèvent du domaine d'application de la présente norme:

– machines à couper les haricots;
– **extracteurs de jus à broyeur**;
– **mélangeurs**;
– ouvre-boîtes;
– centrifugeuses;
– barattes;
– presse-agrumes;
– moulins à café dont la **capacité assignée** de la trémie ne dépasse pas 500 g;
– fouets à crème;
– fouets à œufs;
– **batteurs**;
– **préparateurs culinaires**;
– moulins à grains dont la **capacité assignée** de la trémie ne dépasse pas 3 l;
– râpes;
– sorbetières, y compris celles utilisées dans les réfrigérateurs et les congélateurs;
– affûte-couteaux;
– couteaux;
– **hachoirs**;
– **appareils pour faire des nouilles**;
– éplucheuses;
– coupe-légumes;
– machines à tamiser;
– machines à trancher.

Les appareils destinés à un usage domestique normal et analogue et qui peuvent être également utilisés par des usagers non avertis dans des magasins, chez des artisans, dans des chambres d'hôtes et dans des fermes sont compris dans le domaine d'application de la présente norme. Toutefois, si un appareil est destiné à être utilisé par des professionnels pour la préparation d'aliments à des fins commerciales, cet appareil n'est pas considéré comme étant uniquement à usage domestique et analogue.

Dans la mesure du possible, la présente norme traite des dangers ordinaires présentés par les appareils, encourus par tous les individus à l'intérieur et autour de leur habitation. Cependant, elle ne tient en général pas compte :

– des personnes (y compris des enfants) dont
  - les capacités physiques, sensorielles ou mentales; ou
  - le manque d'expérience et de connaissance

  les empêchent d'utiliser l'appareil en toute sécurité sans surveillance ou instruction;
– des enfants qui jouent avec l'appareil.

Elle ne tient pas compte de l'utilisation des appareils suivants par des enfants:

– machines à couper les haricots;
– **mélangeurs**, y compris les **mélangeurs portatifs**;
– extracteurs de jus autres que les presse-agrumes;
– **batteurs**;
– **préparateurs culinaires**;
– couteaux;
– **hachoirs**;
– **appareils pour faire des nouilles**;
– **éplucheuses de pommes de terre portatives** ou du type à tour;
– râpes à légumes/coupe-légumes;
– machines à trancher.

L'attention est attirée sur le fait que:

– pour les appareils destinés à être utilisés dans des véhicules ou à bord de navires ou d'avions, des exigences supplémentaires peuvent être nécessaires;
– dans de nombreux pays, des exigences supplémentaires sont spécifiées par les organismes nationaux de la santé, par les organismes nationaux responsables de la protection des travailleurs et par des organismes similaires.

La présente norme ne s'applique pas

– aux machines à trancher équipées d'un couteau circulaire dont la lame est inclinée à un angle supérieur à 45° par rapport à la verticale;
– aux machines à pain (IEC 60335-2-9);
– aux préparateurs de lait de soja (IEC 60335-2-15);
– aux broyeurs de déchets (IEC 60335-2-16);
– aux sorbetières avec motocompresseur incorporé (IEC 60335-2-24);
– aux machines de cuisine à usage commercial (IEC 60335-2-64);
– aux machines de cuisine à usage industriel;
– aux machines de cuisine destinées à être utilisées dans des locaux qui présentent des conditions particulières, comme la présence d'une atmosphère corrosive ou explosive (poussières, vapeurs ou gaz).

2 Références normatives

L'article de la Partie 1 s'applique, avec l'exception suivante.

Addition:

IEC 60584-1, *Couples thermoélectriques – Partie 1: Spécifications et tolérances en matière de FEM*

IEC 60811-504:2012, *Câbles électriques et à fibres optiques – Méthodes d'essai pour les matériaux non-métalliques – Partie 504: Essais mécaniques – Essai d'enroulement à basse température pour les enveloppes isolantes et les gaines*

IEC 60811-505:2012, *Câbles électriques et à fibres optiques – Méthodes d'essai pour les matériaux non-métalliques – Partie 505: Essais mécaniques – Essai d'allongement à basse température pour les enveloppes isolantes et les gaines*