



IEC 60335-2-99

Edition 2.0 2021-11
REDLINE VERSION

INTERNATIONAL STANDARD



**Household and similar electrical appliances – Safety –
Part 2-99: Particular requirements for commercial electric hoods**

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2021 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC online collection - oc.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IECNORM.COM : Click to view the full PDF of IEC 60152-99:2021 RLV



IEC 60335-2-99

Edition 2.0 2021-11
REDLINE VERSION

INTERNATIONAL STANDARD



Household and similar electrical appliances – Safety –
Part 2-99: Particular requirements for commercial electric hoods

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 97.040.20

ISBN 978-2-8322-1051-8

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

CONTENTS

| | |
|---|------------------|
| FOREWORD | 4 |
| INTRODUCTION | 2 |
| 1 Scope | 8 |
| 2 Normative references | 9 |
| 3 Terms and definitions | 9 |
| 4 General requirement | 10 |
| 5 General conditions for the tests | 10 |
| 6 Classification | 10 |
| 7 Marking and instructions | 10 |
| 8 Protection against access to live parts | 12 |
| 9 Starting of motor-operated appliances | 12 |
| 10 Power input and current | 12 |
| 11 Heating | 12 |
| 12 Void Charging of metal-ion batteries | 13 |
| 13 Leakage current and electric strength at operating temperature | 13 |
| 14 Transient overvoltages | 14 |
| 15 Moisture resistance | 14 |
| 16 Leakage current and electric strength | 14 |
| 17 Overload protection of transformers and associated circuits | 14 |
| 18 Endurance | 14 |
| 19 Abnormal operation | 14 |
| 20 Stability and mechanical hazards | 15 |
| 21 Mechanical strength | 15 |
| 22 Construction | 15 |
| 23 Internal wiring | 16 |
| 24 Components | 16 |
| 25 Supply connection and external flexible cords | 16 |
| 26 Terminals for external conductors | 17 |
| 27 Provision for earthing | 17 |
| 28 Screws and connections | 17 |
| 29 Clearances, creeping distances and solid insulation | 19 |
| 30 Resistance to heat and fire | 19 |
| 31 Resistance to rusting | 19 |
| 32 Radiation, toxicity and similar hazards | 20 |
| Annexes | 21 |
| Annex B (normative) Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances | 22 |
| Annex N (normative) Proof tracking test | |
| Annex P (informative) Guidance for the application of this standard to appliances used in tropical climates | 22 |
| Bibliography | 24 |

Table ~~102~~ 101 – Assembling torques for screwed connections providing earthing continuity 18

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-99: Particular requirements for commercial electric hoods

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) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60335-2-99:2003+AMD1:2017 CSV. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 60335-2-99 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This second edition cancels and replaces the first edition published in 2003 and Amendment 1:2017. This edition constitutes a technical revision.

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

- a) the text has been aligned with IEC 60335-1:2020;
- b) some notes have been converted to normative text (Clause 1, 11.7, 22.102, 22.104, 27.2, 30.101);
- c) exclusion of battery-operated appliances and appliances used in areas open to the public (Clause 1);
- d) addition of requirement for appliances incorporating means for ionizing air (32.101);
- e) conciliation of the text of IEC 60335-2-99 with other standards under IEC/TC61/MT32.

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

| Draft | Report on voting |
|--------------|------------------|
| 61/6371/FDIS | 61/6421/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/standardsdev/publications.

A list of all parts in the IEC 60335 series, published 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: Particular requirements for commercial electric hoods.

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,
- replaced by a revised edition, or
- amended.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may 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.

The following differences exist in the countries indicated below.

- 6.1: Class 01 hoods are allowed (Japan).
- 13.2: Leakage current limits are different (Japan).
- 16.2: Leakage current limits are different (Japan).

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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.

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 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 for 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 2-99: Particular requirements for commercial electric hoods

1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of electrically operated commercial **hoods** intended for installation above commercial cooking appliances such as ranges, griddles, griddle grills and deep fat fryers, ~~and not intended for household and similar use~~, their **rated voltage** being not more than 250 V for single phase **hoods** connected between one phase and neutral, and 480 V for other **hoods**. Only single complete units and **hoods** supplied as separate parts which when assembled form a complete working **hood**, incorporating a fan, are within the scope of the standard.

~~NOTE 101 – Hoods are used, for example in kitchens of restaurants, canteens, hospitals and in commercial enterprises such as bakeries, butcheries, etc.~~

The hood may be used above one or more appliance ~~of the same or different~~ types of appliances.

The following extraction systems are within the scope of this standard:

- back-draft ventilation systems;
- down-draft ventilation systems;
- fume extraction modules.

These appliances are not intended for household and similar purposes. They are used in areas not open to the public, for example in kitchens of restaurants, canteens, hospitals and in commercial enterprises such as bakeries and butcheries.

As far as is practicable, this standard deals with the common hazards presented by these types of appliances.

~~NOTE 102 – Attention is drawn to the fact that:~~

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

~~— for hoods incorporating a filter system with means for ionizing the air, IEC 60335-2-65 also applies.~~

~~NOTE 103 – This standard does not apply to:~~

- domestic range hoods (IEC 60335-2-31);
- purpose-built hoods, although this standard can be used as a guide (a purpose-built hood is either constructed on-site or specially constructed in the factory and is not mass produced);
- **hoods** appliances not incorporating a fan;

- **hoods** appliances designed exclusively for industrial purposes;
- **hoods** appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
- **battery-operated appliances**.

~~NOTE 104 – Requirements for hoods with externally mounted fans are under consideration.~~

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-65:2002, *Household and similar electrical appliances – Safety – Part 2-65: Particular requirements for air-cleaning appliances*
IEC 60335-2-65:2002/AMD1:2008
IEC 60335-2-65:2002/AMD2:2015¹

ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel – Part 1: Bolts, screws and studs with specified property classes – Coarse thread and fine pitch thread*

ISO 3506-1, *Fasteners – Mechanical properties of corrosion-resistant stainless steel fasteners – Part 1: Bolts, screws and studs with specified grades and property classes*

ISO 3506-2, *Fasteners – Mechanical properties of corrosion-resistant stainless steel fasteners – Part 2: Nuts with specified grades and property classes*

ISO 3506-3, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 3: Set screws and similar fasteners not under tensile stress*

ISO 3506-4, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 4: Tapping screws*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1 Definitions relating to physical characteristics

3.1.4 *Addition:*

Note 101 to entry The **rated power input** is the sum of the power inputs of all the individual elements in the **hood** appliance that can be on at one time; where several of such combinations are possible, ~~that~~ the one giving the highest power input is used in determining the **rated power input**.

3.1.9 *Replacement:*

normal operation

operation of the appliance under the following conditions:

The **hood** appliance is operated after installation in accordance with the instructions, except that it is not connected to a duct.

Appliances intended to be used in combination with other appliances are tested in combination with the other appliances in operation. Appliances that are not interlocked with other appliances are also tested with the other appliances in operation and the fan switched off.

¹ There exists a consolidated edition 2.2:2015 that includes edition 2 and its Amendment 1 and Amendment 2.

3.5 Definitions relating to types of appliances

3.5.101

hood

motor-operated appliance intended to collect and remove contaminated air from catering appliances

Note 1 to entry: The contaminated air may pass through filter systems and be discharged back into the room or removed from the room.

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable.

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 Replacement:

Hoods Appliances shall be **class I** with respect to protection against electric shock.

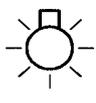
Compliance is checked by inspection and by the relevant tests.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 Addition:

Hoods Appliances shall be marked on or near the lampholder with the maximum power input of replaceable illumination lamps as follows:

~~«lamp max..... W» or «~~  ~~max.....W»~~

lamp max..... W

The word "lamp" may be replaced by symbol IEC 60417-5012 (2002-10).

7.12 Addition:

The instructions for use shall state the substance of the following:

- there shall be adequate air intake into the room when the **hood** appliance is used at the same time ~~as~~ with appliances burning gas or other fuels;
- ~~the details concerning the method and frequency of cleaning and~~
- that filters must be cleaned regularly;

- there is a fire risk if cleaning is not carried out in accordance with the instructions;
- do not flambé under the **hood** appliance.

Instructions for **user maintenance**, for example the method and frequency of cleaning, shall also be given. They shall include a statement that the appliance is not to be cleaned with a water jet or a steam cleaner.

The instructions shall include the substance of the following:

These appliances are intended to be used for commercial applications, for example in kitchens of restaurants, canteens, hospitals and in commercial enterprises such as bakeries, butcheries, etc., but not for continuous mass production of food.

If the manufacturer wants to limit the use of the appliance to less than the above, this has to be clearly stated in the instructions.

Modification:

The instruction concerning persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge and children playing with the appliance is not applicable.

7.12.1 Replacement:

The **hood** appliance shall be accompanied by instructions detailing any special precautions necessary for installation. The instructions for installation shall state:

- the minimum distance between the appliance and the lowest part of the **hood** appliance;
- that regulations concerning the air intake and discharge of exhaust air have to be fulfilled;
- that ventilation requirements specified for the cooking equipment shall be observed;
- that special consideration is needed when there are other open flued appliances in the same room to prevent back-suction of flue gasses;
- that if the **hood** appliance is used above a gas appliance, a non-self-resetting device that turns off the gas supply to the appliance if the **hood** appliance stops operating must be installed in accordance with national gas regulations;
- that the installation of the **hood** appliance must not infringe gas regulations.

~~Instructions for **user maintenance**, for example cleaning, shall also be given. They shall include a statement that the **hood** is not to be cleaned with a water jet or a steam cleaner.~~

Compliance is checked by inspection.

7.12.9 Not applicable.

7.1415 Addition:

The marking for maximum ~~power input~~ **rated wattage** of a replaceable illumination lamp shall be visible during replacement of the lamp.

7.101 Equipotential bonding terminals shall be marked with symbol IEC 60417-1-5021 (2002-10).

The marking shall not be placed on screws, removable washers or other parts which can be removed when conductors are being connected.

Compliance is checked by inspection.

8 Protection against access to live parts

This clause of Part 1 is applicable.

9 Starting of motor-operated appliances

This clause of Part 1 is applicable except as follows.

9.101 Fan motors providing a cooling effect in order to comply with the requirements of Clause 11 shall start under all voltage conditions which ~~may~~ can occur in use. ~~The supply source is such that during the test the drop in voltage does not exceed 1 %.~~

~~Compliance is checked by starting the motor three times at a voltage equal to 0,85 times rated voltage, the motor being at room temperature at the beginning of the test.~~

Compliance is checked by the following tests using a supply source such that its drop in voltage does not exceed 1 % during the tests, the appliance being returned to **room temperature** after each test.

The ~~motor~~ appliance is started ~~each time~~ under the conditions occurring at the beginning of **normal operation** or, for automatic appliances, at the beginning of the normal cycle of operation, ~~the motor being allowed to come to rest between successive starts~~ a voltage equal to 0,85 times **rated voltage** being applied to the input terminals of the appliance. For appliances provided with motors having other than centrifugal starting switches, this test is repeated at a voltage equal to 1,06 times **rated voltage** being applied to the input terminals of the appliance.

The test is carried out three times.

In all cases, the motor shall start and it shall function in such a way that safety is not affected, and the overload ~~protection~~ **protective** devices of the motor shall not operate.

10 Power input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows.

11.2 Replacement:

~~Hoods are operated in accordance with the manufacturer's instructions.~~

Hoods Appliances intended to be placed above a hob are installed so that the distance between their lowest point and the hob surface is the minimum distance specified in the instructions for installation. The hob selected for the test shall have uniformly arranged gas burners with a total heat input equal to 30 kW/m² of the gross area (width times depth) of the ~~hood~~ **appliance**. Vessels containing water are placed without lids on the gas burners, which are operated to maintain boiling. The diameters or sizes of the vessels are approximately equal to that of the cooking zones.

Other ~~hoods~~ **appliances** are ~~operated in the most severe conditions~~ installed according to the manufacturer's instructions.

~~Hoods intended to be used in combination with other appliances are tested in combination with the other appliance in normal operation. Hoods that are not interlocked with the appliance are also tested with the appliance in operation and the fan switched off.~~

Hoods Appliances are placed in a test corner as follows:

- **hoods** appliances normally fixed to a wall are fixed to one of the walls, as near to the other wall and floor or ceiling as is likely to occur, taking into account the instructions;
- **hoods** appliances normally fixed to a ceiling are fixed to the ceiling as near to the walls as is likely to occur, taking into account the instructions;
- other **hoods** appliances are placed as near to the walls as possible.

Dull black-painted plywood approximately 20 mm thick is used for the test corner.

Hoods Appliances intended to be used in combination with other appliances are placed as required for the other appliances.

11.7 Replacement:

Hoods Appliances are operated until steady conditions are established.

~~NOTE 101~~—The duration of the test may consist of more than one cycle of operation.

11.8 Modification:

The temperature rise limit for external enclosures is not applicable.

12 ~~Void~~ Charging of metal-ion batteries

This clause of Part 1 is not applicable.

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable except as follows.

13.2 Modification:

Instead of the permissible leakage current for **stationary class I appliances**, the following applies:

- for cord and plug connected appliances 0,75 mA or 1 mA per kW **rated power input** of the appliance with a maximum of 10 mA, whichever is higher;
- for other appliances 0,75 mA or 1 mA per kW **rated power input** of the appliance with no maximum, whichever is higher.

For **portable class I appliances**, instead of the permissible leakage current, the following applies:

- for cord and plug connected appliances 0,75 mA or 1 mA per kW **rated power input** of the appliance with a maximum of 10 mA, whichever is higher.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable.

16 Leakage current and electric strength

This clause of Part 1 is applicable except as follows.

16.2 Modification:

*Instead of the permissible leakage current for **stationary class I appliances**, the following applies:*

- *for cord and plug connected appliances* 0,75 mA or 1 mA per kW **rated power input** of the appliance with a maximum of 10 mA, whichever is higher;
- *for other appliances* 0,75 mA or 1 mA per kW **rated power input** of the appliance with no maximum, whichever is higher.

*For **portable class I appliances**, instead of the permissible leakage current, the following applies:*

- *for cord and plug connected appliances* 0,75 mA or 1 mA per kW **rated power input** of the appliance with a maximum of 10 mA, whichever is higher.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.1 Addition:

Compliance is also checked by the test of 19.101.

19.13 Addition:

During the test of 19.101, the temperature of the motor windings shall not exceed the values shown in Table 8 of 19.7.

The ~~hood~~ appliance shall not deform to such an extent that parts fall from it.

19.101 Hoods Appliances intended to be placed above a hob are operated as specified in 11.2, but without vessels and with all gas burners switched on.

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.1 Addition:

Portable-hoods appliances provided with wheels are placed in the most unfavourable position against an edge with a height equal to the radius of the wheels plus 10 mm. If the wheels differ in size, that edge height that is the most unfavourable is chosen.

A force equal to 8 % of the mass of the fully equipped appliance is applied horizontally to the middle of the top edge of the appliance but not higher than 900 mm, in the most unfavourable direction.

The appliance shall not tilt.

Modification:

The test with the angle of inclination increased to 15° is not carried out.

20.2 Addition:

Filters are considered to be **detachable parts**.

21 Mechanical strength

This clause of Part 1 is applicable.

22 Construction

This clause of Part 1 is applicable except as follows.

22.8 Replacement:

For ~~hoods~~ appliances having compartments to which access is gained during **user maintenance**, the electrical connections shall be arranged so that they are not subjected to pulling during cleaning or other **user maintenance**.

Compliance is checked by inspection and by manual test.

Detachable parts are removed. It shall not be possible to grasp wiring in such a way that the connections are subjected to undue stress.

In case of doubt, the wiring is subjected to a pull of 10 N, applied without jerks three times in succession, in the most unfavourable direction likely to occur during **user maintenance**. There shall be no appreciable displacement of the connections.

22.101 Hoods Appliances shall be protected in such a manner that moisture and grease will not collect in such a way as to affect **creepage distance** and **clearance** values. Electrical insulation for which **creepage distances** and **clearances** are specified shall not be located in air ducts.

Compliance is checked by inspection.

22.102 For ~~three~~ multi-phase appliances, **thermal cut-outs** protecting motors the unexpected starting of which ~~may~~ can cause a hazard shall be of the non-self-resetting and trip-free type, and shall provide **all-pole disconnection** from related supply circuits.

For single-phase appliances, **thermal cut-outs** protecting motors the unexpected starting of which ~~may~~ can cause a hazard shall be of the non-self-resetting and trip-free type, and shall provide at least one-pole disconnection.

If the **non-self-resetting thermal cut-out** is only accessible after removing parts with the aid of a **tool**, the trip-free type is not required.

NOTE ~~Thermal cut-outs of the Trip-free type have an automatic action, with a reset actuating member, so constructed that the automatic action is independent of manipulation or position of the reset mechanism. Trip-free is an automatic action that is independent of manipulation or position of the actuating member.~~

Compliance is checked by inspection and by manual test.

22.103 Lights, switches or push-buttons ~~shall only be coloured red~~ for the indication of danger, alarm or similar situations shall be coloured red.

Compliance is checked by inspection.

22.104 **Hoods** Appliances shall be constructed so that they can be fixed securely to a wall or other support. Key-hole slots, hooks and similar means, without any further means to prevent the appliance from being inadvertently lifted off the wall or other support shall not be used. Brackets and similar means shall be of metal which shall not be liable to creep or deform.

Compliance is checked by inspection.

NOTE ~~Key-hole slots, hooks and similar means, without any further means to prevent the hood from being inadvertently lifted off the support, are not considered to be adequate means for fixing the hood securely.~~

22.105 **Hoods** Appliances shall be constructed so that parts liable to accumulate deposits of grease, including parts located behind a filter, can be cleaned.

Compliance is checked by inspection.

23 Internal wiring

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

25.3 Addition:

~~Fixed hoods shall be constructed so that the supply cord can be connected after the hood has been installed in accordance with the instructions for installation.~~

Appliances with a mass greater than 40 kg, intended for permanent connection to fixed wiring and not provided with rollers, castors or similar means shall be constructed so that the connection can be done after the appliance has been installed in accordance with the manufacturer's instructions.

The connection to the fixed wiring of **built-in appliances** may be made before the appliance is installed.

Terminals for permanent connection of cables to fixed wiring may also be suitable for the **type X attachment** of a **supply cord**. In this case, a cord anchorage complying with 25.16 shall be fitted to the appliance.

~~If the hood is provided with a set of terminals allowing the connection of a flexible cord, they shall be suitable for the **type X attachment** of the cord.~~

~~In both cases the instructions shall give full particulars of the power **supply cord**.~~

~~Compliance is checked by inspection.~~

25.7 Addition:

~~Supply cords shall be oil-resistant, sheathed cords. Their properties shall be at least those of ordinary polychloroprene sheathed cords (code designation 60245 IEC 57).~~

Modification:

Instead of the types of supply cords specified, the following applies:

Supply cords shall be oil-resistant, sheathed flexible cable not lighter than ordinary polychloroprene or other equivalent synthetic elastomer sheathed cord (code designation 60245 IEC 57).

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable except as follows.

27.1 Addition:

Metal parts which become accessible during **user maintenance** are considered to be **accessible-metal parts**.

27.2 Addition:

~~**Hoods** shall be provided with a terminal for the connection of an external equipotential conductor. This terminal shall be in effective electrical contact with all fixed exposed metal parts of the **hood**, and shall allow the connection of a conductor having a nominal cross-sectional area of 2,5 mm² to 6 mm². It shall be located in a position convenient for the connection of the bonding conductor after installation of the **hood**.~~

~~NOTE 101—Small fixed exposed metal parts, for example name-plates and the like, are not required to be in electrical contact with the terminal.~~

Appliances shall be provided with a terminal for the connection of an external equipotential conductor. This terminal shall

- be in effective electrical contact with all fixed exposed metal parts of the appliance, except small fixed exposed metal parts such as nameplates and similar parts;
- allow the connection of a conductor having a nominal cross-sectional area of 2,5 mm² to 6 mm²; and
- be located in a position convenient for the connection of the bonding conductor after installation of the appliance.

28 Screws and connections

This clause of Part 1 is applicable except as follows.

28.1 Addition:

Screws made of carbon steel and alloy steel shall be made in accordance with ISO 898-1.

Screws made of corrosion-resistant stainless-steel shall be made in accordance with ISO 3506-1, or ISO 3506-2, or ISO 3506-3, or ISO 3506-4.

28.4 Addition:

Screws that make mechanical connections and electrical connections shall be so designed that the contact pressure does not change appreciably through loosening of the screwed assembly parts during operational stress and contact corrosion.

Screws that make mechanical connections and provide earthing continuity shall be so designed that the contact pressure does not change appreciably through loosening of the screwed assembly parts due to operational stress and contact corrosion. They shall be designed so that a minimum contact pressure remains.

Compliance is checked by inspection and by measuring the assembling torques for screwed connections providing earthing continuity by applying a torque as specified in ~~Table 102~~ Table 101 to turn the screw in the fastening direction. The screw shall not turn.

The screw shall not have been unfastened prior to performing this test.

Table ~~102~~ 101 – Assembling torques for screwed connections providing earthing continuity

| Outer thread diameter of the screw mm | Assembling torque Nm | |
|--|---|--|
| | Screwed connections for the mechanical strength of the screws A2-70 according to ISO 3506-1, or ISO 3506-2, or ISO 3506-3, or ISO 3506-4 and 5.8 according to ISO 898-1 | Screwed connections for the mechanical strength of the screws > 8.8 according to ISO 898-1 |
| > 2,8 and ≤ 3,6 | 0,8 | 1,3 |
| > 3,6 and ≤ 4,2 | 1,9 | 3,0 |
| > 4,2 and ≤ 5,3 | 3,7 | 6,0 |
| > 5,3 and ≤ 6,3 | 6,5 | 10,0 |
| M 8 | 15,0 | 25,0 |
| M 10 | 31,0 | 50,0 |

29 Clearances, creeping distances and solid insulation

This clause of Part 1 is applicable except as follows.

29.2 Addition:

The microenvironment is pollution degree 3 and the insulation shall have a comparative tracking index (CTI) not less than 250, unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.1 Addition:

The ball pressure test is carried out on the exposed parts of the appliance at a temperature of at least $105\text{ °C} \pm 2\text{ °C}$.

30.2.1 Modification:

The glow-wire test is carried out at 650 °C . The glow-wire flammability index (GWFI) according to IEC 60695-2-12 shall be at least 650 °C .

30.2.2 Not applicable.

30.101 Hoods Appliances shall not incorporate combustible material liable to extend a fire originating underneath it from a cooking surface.

Compliance is checked as follows.

Filters of non-metallic material or metallic filters coated with non-metallic material intended for the absorption of fumes and/or grease are subjected to the burning test specified in ISO 9772 for category HBF material, if relevant, or shall be classified at least HB40 according to IEC 60695-11-10, except that the thickness of the specimen is that of the filter.

NOTE 1—For the burning test specified in ISO 9772, it may be necessary to support the specimen.

External parts having a total mass not exceeding 0,25 kg are subjected to the glow-wire test at a temperature of 650 °C .

Other **accessible parts** of the enclosure are subjected to the needle-flame test of *normative Annex E*.

Internal air-ducts and parts within them such as fans, are subjected to the needle-flame test of *normative Annex E*, droplets of material being ignored.

NOTE 2—Grease filters are not subjected to the test of *normative Annex E*.

31 Resistance to rusting

This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable except as follows.

32.101 For appliances incorporating a filter system with means for ionizing the air, the ozone concentration produced shall not be excessive.

Compliance is checked by the test specified in IEC 60335-2-65:2002 and IEC 60335-2-65:2002/AMD2:2015, 32.101.

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

Annexes

The annexes of Part 1 are applicable except as follows.

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

Annex B
(normative)

**Battery-operated appliances, separable batteries and detachable
batteries for battery-operated appliances**

This annex of Part 1 is not applicable.

Annex N
(normative)

Proof tracking test

Addition:

Add 250 V to the list of specified voltages.

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

Annex P (informative)

Guidance for the application of this standard to appliances used in tropical climates

This annex of Part 1 is applicable except as follows.

13 Leakage current and electric strength at operating temperature

13.2 Modification:

Instead of the permissible leakage current for **stationary class I appliances**, the following applies:

- for cord and plug connected appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with a maximum of 5 mA, whichever is higher;
- for other appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with no maximum, whichever is higher.

For **portable class I appliances**, instead of the permissible leakage current, the following applies:

- for cord and plug connected appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with a maximum of 5 mA, whichever is higher.

16 Leakage current and electric strength

16.2 Modification:

Instead of the permissible leakage current for **stationary class I appliances**, the following applies:

- for cord and plug connected appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with a maximum of 5 mA, whichever is higher;
- for other appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with no maximum, whichever is higher.

For **portable class I appliances**, instead of the permissible leakage current, the following applies:

- for cord and plug connected appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with a maximum of 5 mA, whichever is higher.

Bibliography

The bibliography of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-31, *Household and similar electrical appliances – Safety – Part 2-31: Particular requirements for range hoods and other cooking fume extractors*

~~IEC 60335-2-65, Household and similar electrical appliances – Safety – Part 2-65: Particular requirements for air-cleaning appliances~~

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Household and similar electrical appliances – Safety –
Part 2-99: Particular requirements for commercial electric hoods**

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-99: Exigences particulières pour les hottes de cuisine électriques
à usage commercial**

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

CONTENTS

| | |
|---|----|
| FOREWORD | 3 |
| INTRODUCTION | 6 |
| 1 Scope | 7 |
| 2 Normative references | 8 |
| 3 Terms and definitions | 8 |
| 4 General requirement..... | 9 |
| 5 General conditions for the tests | 9 |
| 6 Classification | 9 |
| 7 Marking and instructions..... | 9 |
| 8 Protection against access to live parts | 10 |
| 9 Starting of motor-operated appliances | 11 |
| 10 Power input and current..... | 11 |
| 11 Heating..... | 11 |
| 12 Charging of metal-ion batteries | 12 |
| 13 Leakage current and electric strength at operating temperature..... | 12 |
| 14 Transient overvoltages | 12 |
| 15 Moisture resistance | 12 |
| 16 Leakage current and electric strength..... | 13 |
| 17 Overload protection of transformers and associated circuits | 13 |
| 18 Endurance | 13 |
| 19 Abnormal operation | 13 |
| 20 Stability and mechanical hazards..... | 14 |
| 21 Mechanical strength | 14 |
| 22 Construction | 14 |
| 23 Internal wiring..... | 15 |
| 24 Components | 15 |
| 25 Supply connection and external flexible cords | 15 |
| 26 Terminals for external conductors | 16 |
| 27 Provision for earthing | 16 |
| 28 Screws and connections | 16 |
| 29 Clearances, creeping distances and solid insulation | 17 |
| 30 Resistance to heat and fire | 17 |
| 31 Resistance to rusting | 18 |
| 32 Radiation, toxicity and similar hazards..... | 18 |
| Annexes | 19 |
| Annex B (normative) Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances | 20 |
| Annex P (informative) Guidance for the application of this standard to appliances used in tropical climates | 21 |
| Bibliography..... | 22 |
| Table 101 – Assembling torques for screwed connections providing earthing continuity..... | 17 |

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2-99: Particular requirements for commercial electric hoods**

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) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60335-2-99 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This second edition cancels and replaces the first edition published in 2003 and Amendment 1:2017. This edition constitutes a technical revision.

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

- a) the text has been aligned with IEC 60335-1:2020;
- b) some notes have been converted to normative text (Clause 1, 11.7, 22.102, 22.104, 27.2, 30.101);
- c) exclusion of battery-operated appliances and appliances used in areas open to the public (Clause 1);
- d) addition of requirement for appliances incorporating means for ionizing air (32.101);
- e) conciliation of the text of IEC 60335-2-99 with other standards under IEC/TC61/MT32.

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

| Draft | Report on voting |
|--------------|------------------|
| 61/6371/FDIS | 61/6421/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/standardsdev/publications.

A list of all parts in the IEC 60335 series, published 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: Particular requirements for commercial electric hoods.

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,
- replaced by a revised edition, or
- amended.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may 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.

The following differences exist in the countries indicated below.

- 6.1: Class 01 hoods are allowed (Japan).
- 13.2: Leakage current limits are different (Japan).
- 16.2: Leakage current limits are different (Japan).

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

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.

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 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 for 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 2-99: Particular requirements for commercial electric hoods

1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of electrically operated commercial **hoods** intended for installation above commercial cooking appliances such as ranges, griddles, griddle grills and deep fat fryers, their **rated voltage** being not more than 250 V for single phase **hoods** connected between one phase and neutral, and 480 V for other **hoods**. Only single complete units and **hoods** supplied as separate parts which when assembled form a complete working **hood**, incorporating a fan, are within the scope of the standard.

The **hood** may be used above one or more appliance or types of appliances.

The following extraction systems are within the scope of this standard:

- back-draft ventilation systems;
- down-draft ventilation systems;
- fume extraction modules.

These appliances are not intended for household and similar purposes. They are used in areas not open to the public, for example in kitchens of restaurants, canteens, hospitals and in commercial enterprises such as bakeries and butcheries.

As far as is practicable, this standard deals with the common hazards presented by these types of appliances.

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 including ventilation 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:

- domestic range hoods (IEC 60335-2-31);
- purpose-built hoods, although this standard can be used as a guide (a purpose-built hood is either constructed on-site or specially constructed in the factory and is not mass produced);
- appliances not incorporating a fan;
- appliances designed exclusively for industrial purposes;
- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
- **battery-operated appliances.**

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-65:2002, *Household and similar electrical appliances – Safety – Part 2-65: Particular requirements for air-cleaning appliances*

IEC 60335-2-65:2002/AMD1:2008

IEC 60335-2-65:2002/AMD2:2015¹

ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel – Part 1: Bolts, screws and studs with specified property classes – Coarse thread and fine pitch thread*

ISO 3506-1, *Fasteners – Mechanical properties of corrosion-resistant stainless steel fasteners – Part 1: Bolts, screws and studs with specified grades and property classes*

ISO 3506-2, *Fasteners – Mechanical properties of corrosion-resistant stainless steel fasteners – Part 2: Nuts with specified grades and property classes*

ISO 3506-3, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 3: Set screws and similar fasteners not under tensile stress*

ISO 3506-4, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 4: Tapping screws*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1 Definitions relating to physical characteristics

3.1.4 *Addition:*

Note 101 to entry The **rated power input** is the sum of the power inputs of all the individual elements in the appliance that can be on at one time; where several of such combinations are possible, the one giving the highest power input is used in determining the **rated power input**.

3.1.9 *Replacement:*

normal operation

operation of the appliance under the following conditions:

The appliance is operated after installation in accordance with the instructions, except that it is not connected to a duct.

Appliances intended to be used in combination with other appliances are tested in combination with the other appliances in operation. Appliances that are not interlocked with other appliances are also tested with the other appliances in operation and the fan switched off.

¹ There exists a consolidated edition 2.2:2015 that includes edition 2 and its Amendment 1 and Amendment 2.

3.5 Definitions relating to types of appliances

3.5.101

hood

motor-operated appliance intended to collect and remove contaminated air from catering appliances

Note 1 to entry: The contaminated air may pass through filter systems and be discharged back into the room or removed from the room.

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable.

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 Replacement:

Appliances shall be **class I** with respect to protection against electric shock.

Compliance is checked by inspection and by the relevant tests.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 Addition:

Appliances shall be marked on or near the lampholder with the maximum power input of replaceable illumination lamps as follows:

lamp max.....W

The word "lamp" may be replaced by symbol IEC 60417-5012 (2002-10).

7.12 Addition:

The instructions for use shall state the substance of the following:

- there shall be adequate air intake into the room when the appliance is used at the same time with appliances burning gas or other fuels;
- that filters must be cleaned regularly;
- there is a fire risk if cleaning is not carried out in accordance with the instructions;
- do not flambé under the appliance.

Instructions for **user maintenance**, for example the method and frequency of cleaning, shall also be given. They shall include a statement that the appliance is not to be cleaned with a water jet or a steam cleaner.

The instructions shall include the substance of the following:

These appliances are intended to be used for commercial applications, for example in kitchens of restaurants, canteens, hospitals and in commercial enterprises such as bakeries, butcheries, etc., but not for continuous mass production of food.

If the manufacturer wants to limit the use of the appliance to less than the above, this has to be clearly stated in the instructions.

Modification:

The instruction concerning persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge and children playing with the appliance is not applicable.

7.12.1 Replacement:

The appliance shall be accompanied by instructions detailing any special precautions necessary for installation. The instructions for installation shall state:

- the minimum distance between the appliance and the lowest part of the appliance;
- that regulations concerning the air intake and discharge of exhaust air have to be fulfilled;
- that ventilation requirements specified for the cooking equipment shall be observed;
- that special consideration is needed when there are other open flued appliances in the same room to prevent back-suction of flue gasses;
- that if the appliance is used above a gas appliance, a non-self-resetting device that turns off the gas supply to the appliance if the appliance stops operating must be installed in accordance with national gas regulations;
- that the installation of the appliance must not infringe gas regulations.

Compliance is checked by inspection.

7.12.9 Not applicable.

7.15 Addition:

The marking for maximum rated wattage of a replaceable illumination lamp shall be visible during replacement of the lamp.

7.101 Equipotential bonding terminals shall be marked with symbol IEC 60417-1-5021 (2002-10).

The marking shall not be placed on screws, removable washers or other parts which can be removed when conductors are being connected.

Compliance is checked by inspection.

8 Protection against access to live parts

This clause of Part 1 is applicable.

9 Starting of motor-operated appliances

This clause of Part 1 is applicable except as follows.

9.101 Fan motors providing a cooling effect in order to comply with the requirements of Clause 11 shall start under all voltage conditions which can occur in use.

*Compliance is checked by the following tests using a supply source such that its drop in voltage does not exceed 1 % during the tests, the appliance being returned to **room temperature** after each test.*

*The appliance is started under the conditions occurring at the beginning of **normal operation** or, for automatic appliances, at the beginning of the normal cycle of operation, a voltage equal to 0,85 times **rated voltage** being applied to the input terminals of the appliance. For appliances provided with motors having other than centrifugal starting switches, this test is repeated at a voltage equal to 1,06 times **rated voltage** being applied to the input terminals of the appliance.*

The test is carried out three times.

*In all cases, the motor shall start and it shall function in such a way that safety is not affected, and the overload **protective devices** of the motor shall not operate.*

10 Power input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows.

11.2 Replacement:

Appliances intended to be placed above a hob are installed so that the distance between their lowest point and the hob surface is the minimum distance specified in the instructions for installation. The hob selected for the test shall have uniformly arranged gas burners with a total heat input equal to 30 kW/m² of the gross area (width times depth) of the appliance. Vessels containing water are placed without lids on the gas burners, which are operated to maintain boiling. The diameters or sizes of the vessels are approximately equal to that of the cooking zones.

Other appliances are installed according to the manufacturer's instructions.

Appliances are placed in a test corner as follows:

- *appliances normally fixed to a wall are fixed to one of the walls, as near to the other wall and floor or ceiling as is likely to occur, taking into account the instructions;*
- *appliances normally fixed to a ceiling are fixed to the ceiling as near to the walls as is likely to occur, taking into account the instructions;*
- *other appliances are placed as near to the walls as possible.*

Dull black-painted plywood approximately 20 mm thick is used for the test corner.

Appliances intended to be used in combination with other appliances are placed as required for the other appliances.

11.7 Replacement:

Appliances are operated until steady conditions are established.

The duration of the test may consist of more than one cycle of operation.

11.8 Modification:

The temperature rise limit for external enclosures is not applicable.

12 Charging of metal-ion batteries

This clause of Part 1 is not applicable.

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable except as follows.

13.2 Modification:

*Instead of the permissible leakage current for **stationary class I appliances**, the following applies:*

- *for cord and plug connected appliances* 0,75 mA or 1 mA per kW **rated power input** of the appliance with a maximum of 10 mA, whichever is higher;
- *for other appliances* 0,75 mA or 1 mA per kW **rated power input** of the appliance with no maximum, whichever is higher.

*For **portable class I appliances**, instead of the permissible leakage current, the following applies:*

- *for cord and plug connected appliances* 0,75 mA or 1 mA per kW **rated power input** of the appliance with a maximum of 10 mA, whichever is higher.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable.

16 Leakage current and electric strength

This clause of Part 1 is applicable except as follows.

16.2 Modification:

*Instead of the permissible leakage current for **stationary class I appliances**, the following applies:*

- *for cord and plug connected appliances* 0,75 mA or 1 mA per kW **rated power input** of the appliance with a maximum of 10 mA, whichever is higher;
- *for other appliances* 0,75 mA or 1 mA per kW **rated power input** of the appliance with no maximum, whichever is higher.

*For **portable class I appliances**, instead of the permissible leakage current, the following applies:*

- *for cord and plug connected appliances* 0,75 mA or 1 mA per kW **rated power input** of the appliance with a maximum of 10 mA, whichever is higher.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.1 Addition:

Compliance is also checked by the test of 19.101.

19.13 Addition:

During the test of 19.101, the temperature of the motor windings shall not exceed the values shown in Table 8 of 19.7.

The appliance shall not deform to such an extent that parts fall from it.

19.101 *Appliances intended to be placed above a hob are operated as specified in 11.2, but without vessels and with all gas burners switched on.*

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.1 Addition:

Portable appliances provided with wheels are placed in the most unfavourable position against an edge with a height equal to the radius of the wheels plus 10 mm. If the wheels differ in size, that edge height that is the most unfavourable is chosen.

A force equal to 8 % of the mass of the fully equipped appliance is applied horizontally to the middle of the top edge of the appliance but not higher than 900 mm, in the most unfavourable direction.

The appliance shall not tilt.

Modification:

The test with the angle of inclination increased to 15° is not carried out.

20.2 Addition:

Filters are considered to be **detachable parts**.

21 Mechanical strength

This clause of Part 1 is applicable.

22 Construction

This clause of Part 1 is applicable except as follows.

22.8 Replacement:

For appliances having compartments to which access is gained during **user maintenance**, the electrical connections shall be arranged so that they are not subjected to pulling during cleaning or other **user maintenance**.

Compliance is checked by inspection and by manual test.

Detachable parts are removed. It shall not be possible to grasp wiring in such a way that the connections are subjected to undue stress.

In case of doubt, the wiring is subjected to a pull of 10 N, applied without jerks three times in succession, in the most unfavourable direction likely to occur during **user maintenance**. There shall be no appreciable displacement of the connections.

22.101 Appliances shall be protected in such a manner that moisture and grease will not collect in such a way as to affect **creepage distance** and **clearance** values. Electrical insulation for which **creepage distances** and **clearances** are specified shall not be located in air ducts.

Compliance is checked by inspection.

22.102 For multi-phase appliances, **thermal cut-outs** protecting motors the unexpected starting of which can cause a hazard shall be of the non-self-resetting and trip-free type, and shall provide **all-pole disconnection** from related supply circuits.

For single-phase appliances, **thermal cut-outs** protecting motors the unexpected starting of which can cause a hazard shall be of the non-self-resetting and trip-free type, and shall provide at least one-pole disconnection.

If the **non-self-resetting thermal cut-out** is only accessible after removing parts with the aid of a **tool**, the trip-free type is not required.

NOTE Trip-free is an automatic action that is independent of manipulation or position of the actuating member.

Compliance is checked by inspection and by manual test.

22.103 Lights, switches or push-buttons for the indication of danger, alarm or similar situations shall be coloured red.

Compliance is checked by inspection.

22.104 Appliances shall be constructed so that they can be fixed securely to a wall or other support. Key-hole slots, hooks and similar means, without any further means to prevent the appliance from being inadvertently lifted off the wall or other support shall not be used. Brackets and similar means shall be of metal which shall not be liable to creep or deform.

Compliance is checked by inspection.

22.105 Appliances shall be constructed so that parts liable to accumulate deposits of grease, including parts located behind a filter, can be cleaned.

Compliance is checked by inspection.

23 Internal wiring

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

25.3 Addition:

Appliances with a mass greater than 40 kg, intended for permanent connection to fixed wiring and not provided with rollers, castors or similar means shall be constructed so that the connection can be done after the appliance has been installed in accordance with the manufacturer's instructions.

The connection to the fixed wiring of **built-in appliances** may be made before the appliance is installed.

Terminals for permanent connection of cables to fixed wiring may also be suitable for the **type X attachment** of a **supply cord**. In this case, a cord anchorage complying with 25.16 shall be fitted to the appliance.

25.7 Modification:

Instead of the types of supply cords specified, the following applies:

Supply cords shall be oil-resistant, sheathed flexible cable not lighter than ordinary polychloroprene or other equivalent synthetic elastomer sheathed cord (code designation 60245 IEC 57).

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable except as follows.

27.1 Addition:

Metal parts which become accessible during **user maintenance** are considered to be **accessible parts**.

27.2 Addition:

Appliances shall be provided with a terminal for the connection of an external equipotential conductor. This terminal shall

- be in effective electrical contact with all fixed exposed metal parts of the appliance, except small fixed exposed metal parts such as nameplates and similar parts;
- allow the connection of a conductor having a nominal cross-sectional area of 2,5 mm² to 6 mm²; and
- be located in a position convenient for the connection of the bonding conductor after installation of the appliance.

28 Screws and connections

This clause of Part 1 is applicable except as follows.

28.1 Addition:

Screws made of carbon steel and alloy steel shall be made in accordance with ISO 898-1.

Screws made of corrosion-resistant stainless-steel shall be made in accordance with ISO 3506-1, or ISO 3506-2, or ISO 3506-3, or ISO 3506-4.

28.4 Addition:

Screws that make mechanical connections and electrical connections shall be so designed that the contact pressure does not change appreciably through loosening of the screwed assembly parts during operational stress and contact corrosion.

Screws that make mechanical connections and provide earthing continuity shall be so designed that the contact pressure does not change appreciably through loosening of the screwed assembly parts due to operational stress and contact corrosion. They shall be designed so that a minimum contact pressure remains.

Compliance is checked by inspection and by measuring the assembling torques for screwed connections providing earthing continuity by applying a torque as specified in Table 101 to turn the screw in the fastening direction. The screw shall not turn.

The screw shall not have been unfastened prior to performing this test.

Table 101 – Assembling torques for screwed connections providing earthing continuity

| Outer thread diameter of the screw mm | Assembling torque Nm | |
|--|---|--|
| | Screwed connections for the mechanical strength of the screws A2-70 according to ISO 3506-1, or ISO 3506-2, or ISO 3506-3, or ISO 3506-4 and 5.8 according to ISO 898-1 | Screwed connections for the mechanical strength of the screws > 8.8 according to ISO 898-1 |
| > 2,8 and ≤ 3,6 | 0,8 | 1,3 |
| > 3,6 and ≤ 4,2 | 1,9 | 3,0 |
| > 4,2 and ≤ 5,3 | 3,7 | 6,0 |
| > 5,3 and ≤ 6,3 | 6,5 | 10,0 |
| M 8 | 15,0 | 25,0 |
| M 10 | 31,0 | 50,0 |

29 Clearances, creeping distances and solid insulation

This clause of Part 1 is applicable except as follows.

29.2 Addition:

The microenvironment is pollution degree 3 and the insulation shall have a comparative tracking index (CTI) not less than 250, unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.1 Addition:

The ball pressure test is carried out on the exposed parts of the appliance at a temperature of at least 105 °C ± 2 °C.

30.2.1 Modification:

The glow-wire test is carried out at 650 °C. The glow-wire flammability index (GWFI) according to IEC 60695-2-12 shall be at least 650 °C.

30.2.2 Not applicable.

30.101 Appliances shall not incorporate combustible material liable to extend a fire originating from a cooking surface.

Compliance is checked as follows.

Filters of non-metallic material or metallic filters coated with non-metallic material intended for the absorption of fumes and/or grease are subjected to the burning test specified in ISO 9772 for category HBF material, if relevant, or shall be classified at least HB40 according to IEC 60695-11-10, except that the thickness of the specimen is that of the filter. For the burning test specified in ISO 9772, it may be necessary to support the specimen.

External parts having a total mass not exceeding 0,25 kg are subjected to the glow-wire test at a temperature of 650 °C.

*Other **accessible parts** of the enclosure are subjected to the needle-flame test of normative Annex E.*

Internal air-ducts and parts within them such as fans, are subjected to the needle-flame test of normative Annex E, droplets of material being ignored.

Grease filters are not subjected to the test of normative Annex E.

31 Resistance to rusting

This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable except as follows.

32.101 For appliances incorporating a filter system with means for ionizing the air, the ozone concentration produced shall not be excessive.

Compliance is checked by the test specified in IEC 60335-2-65:2002 and IEC 60335-2-65:2002/AMD2:2015, 32.101.

Annexes

The annexes of Part 1 are applicable except as follows.

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

Annex B
(normative)

**Battery-operated appliances, separable batteries and detachable
batteries for battery-operated appliances**

This annex of Part 1 is not applicable.

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

Annex P (informative)

Guidance for the application of this standard to appliances used in tropical climates

This annex of Part 1 is applicable except as follows.

13 Leakage current and electric strength at operating temperature

13.2 Modification:

Instead of the permissible leakage current for **stationary class I appliances**, the following applies:

- for cord and plug connected appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with a maximum of 5 mA, whichever is higher;
- for other appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with no maximum, whichever is higher.

For **portable class I appliances**, instead of the permissible leakage current, the following applies:

- for cord and plug connected appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with a maximum of 5 mA, whichever is higher.

16 Leakage current and electric strength

16.2 Modification:

Instead of the permissible leakage current for **stationary class I appliances**, the following applies:

- for cord and plug connected appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with a maximum of 5 mA, whichever is higher;
- for other appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with no maximum, whichever is higher.

For **portable class I appliances**, instead of the permissible leakage current, the following applies:

- for cord and plug connected appliances 0,5 mA or 0,5 mA per kW **rated power input** of the appliance with a maximum of 5 mA, whichever is higher.

Bibliography

The bibliography of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-31, *Household and similar electrical appliances – Safety – Part 2-31: Particular requirements for range hoods and other cooking fume extractors*

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

SOMMAIRE

| | |
|--|----|
| AVANT-PROPOS | 26 |
| INTRODUCTION | 29 |
| 1 Domaine d'application | 30 |
| 2 Références normatives | 31 |
| 3 Termes et définitions | 31 |
| 4 Exigences générales | 32 |
| 5 Conditions générales d'essais | 32 |
| 6 Classification | 32 |
| 7 Marquage et instructions | 32 |
| 8 Protection contre l'accès aux parties actives | 34 |
| 9 Démarrage des appareils à moteur | 34 |
| 10 Puissance et courant | 34 |
| 11 Echauffements | 34 |
| 12 Charge des batteries à ions métalliques | 35 |
| 13 Courant de fuite et rigidité diélectrique à la température de régime | 35 |
| 14 Surtensions transitoires | 35 |
| 15 Résistance à l'humidité | 36 |
| 16 Courant de fuite et rigidité diélectrique | 36 |
| 17 Protection contre la surcharge des transformateurs et des circuits associés | 36 |
| 18 Endurance | 36 |
| 19 Fonctionnement anormal | 36 |
| 20 Stabilité et dangers mécaniques | 37 |
| 21 Résistance mécanique | 37 |
| 22 Construction | 37 |
| 23 Conducteurs internes | 38 |
| 24 Composants | 38 |
| 25 Raccordement au réseau et câbles souples extérieurs | 38 |
| 26 Bornes pour conducteurs externes | 39 |
| 27 Dispositions en vue de la mise à la terre | 39 |
| 28 Vis et connexions | 39 |
| 29 Distances dans l'air, lignes de fuite et isolation solide | 40 |
| 30 Résistance à la chaleur et au feu | 41 |
| 31 Protection contre la rouille | 41 |
| 32 Rayonnement, toxicité et dangers analogues | 41 |
| Annexes | 42 |
| Annexe B (normative) Appareils alimentés par batteries, batteries séparables et batteries amovibles pour appareils alimentés par batteries | 43 |
| Annexe P (informative) Lignes directrices pour l'application de la présente norme aux appareils utilisés en climat tropical | 44 |
| Bibliographie | 45 |

Tableau 101 – Couples d'assemblage pour les connexions vissées qui assurent la continuité de la mise à la terre40

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

Partie 2-99: Exigences particulières pour les hottes de cuisine électriques à usage commercial

AVANT-PROPOS

- 1) La Commission Electrotechnique 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. A 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'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets.

L'IEC 60335-2-99 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 deuxième édition annule et remplace la première édition parue en 2003 et son Amendement 1:2017. Cette édition constitue une révision technique.

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

- a) alignement du texte sur l'IEC 60335-1:2020;
- b) conversion en texte normatif de certaines notes (Article 1, 11.7, 22.102, 22.104, 27.2, 30.101);

- c) exclusion des appareils alimentés par batteries et des appareils utilisés dans des lieux ouverts au public (Article 1);
- d) ajout de l'exigence pour les appareils qui incorporent des dispositifs d'ionisation de l'air (32.101);
- e) alignement du texte de l'IEC 60335-2-99 sur d'autres normes sous l'IEC/TC61/MT32.

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

| Projet | Rapport de vote |
|--------------|-----------------|
| 61/6371/FDIS | 61/6421/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.

Le présent 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/standardsdev/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 particulières pour les hottes de cuisine électriques à usage commercial.

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. A cette date, le document sera

- reconduit,
- supprimé,
- remplacé par une édition révisée, ou
- amendé.

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 entériné au niveau national au plus tôt 12 mois et au plus tard 36 mois après la date de publication.

Les différences suivantes existent dans les pays indiqués ci-après.

- 6.1: les hottes de la classe 01 sont autorisées (Japon);
- 13.2: les limites de courant de fuite sont différentes (Japon);
- 16.2: les limites de courant de fuite sont différentes (Japon).

IECNORM.COM : Click to view the full PDF of IEC 60335-2-99:2021 RLV

INTRODUCTION

Il a été considéré en établissant cette 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 pour les appareils peuvent être consultés dans les documents de support du CE 61, accessibles 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 n'a pas pour objet de remplacer le 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.

Cette 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 nationales d'installation 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 est applicable, on tient compte de l'influence d'une fonction sur les autres fonctions.

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.

Cette 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 risque ne sont pas applicables 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 cette norme peut être examiné et essayé 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 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 d'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 2-99: Exigences particulières pour les hottes de cuisine électriques à usage commercial

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 **hottes** électriques à usage commercial destinées à être installées au-dessus des appareils de cuisson à usage commercial, tels que les cuisinières, les plaques à griller et les friteuses électriques, dont la tension assignée est inférieure ou égale à 250 V pour les **hottes** monophasées raccordées entre un conducteur de phase et le conducteur de neutre et à 480 V pour les autres **hottes**. Seules les unités complètes uniques et les **hottes** fournies en tant que parties séparées qui, lorsqu'elles sont assemblées, constituent une **hotte** de travail complète, avec un ventilateur incorporé, relèvent du domaine d'application de la présente norme.

La **hotte** peut être utilisée au-dessus d'un ou de plusieurs appareils ou types d'appareils.

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

- systèmes de ventilation à flux montant;
- systèmes de ventilation à flux descendant;
- modules d'extraction de fumée.

Ces appareils ne sont pas destinés à un usage domestique ou analogue. Ils sont utilisés dans des zones non ouvertes au public, par exemple dans les cuisines de restaurants, les cantines, les hôpitaux et les entreprises commerciales, telles que les boulangeries et les boucheries.

Dans la mesure du possible, la présente norme traite des dangers courants que présentent ces types d'appareils.

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, y compris des exigences de ventilation, 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 hottes de cuisine à usage domestique (IEC 60335-2-31);
- aux hottes spécialisées même si la présente norme peut être utilisée comme guide (une hotte spécialisée est soit construite sur site soit spécialement construite en usine et n'est pas produite en série);
- aux hottes qui ne comportent pas de ventilateur;
- aux appareils prévus exclusivement pour des usages industriels;

- aux appareils destinés à être utilisés dans des locaux qui présentent des conditions particulières, telles que la présence d'une atmosphère corrosive ou explosive (poussière, vapeur ou gaz);
- aux **appareils alimentés par batteries**.

2 Références normatives

L'article de la Partie 1 est applicable, avec l'exception suivante.

Addition:

IEC 60335-2-65:2002, *Appareils électrodomestiques et analogues – Sécurité – Partie 2-65: Règles particulières pour les épurateurs d'air*

IEC 60335-2-65:2002/AMD1:2008

IEC 60335-2-65:2002/AMD2:2015¹

ISO 898-1, *Caractéristiques mécaniques des éléments de fixation en acier au carbone et en acier allié – Partie 1: Vis, goujons et tiges filetées de classes de qualité spécifiées – Filetages à pas gros et filetages à pas fin*

ISO 3506-1, *Fixations – Caractéristiques mécaniques des fixations en acier inoxydable résistant à la corrosion – Partie 1: Vis, goujons et tiges filetées de grades et classes de qualité spécifiés*

ISO 3506-2, *Fixations – Caractéristiques mécaniques des fixations en acier inoxydable résistant à la corrosion – Partie 2: Ecrous de grades et classes de qualité spécifiés*

ISO 3506-3, *Caractéristiques mécaniques des éléments de fixation en acier inoxydable résistant à la corrosion – Partie 3: Vis sans tête et éléments de fixation similaires non soumis à des contraintes de traction*

ISO 3506-4, *Caractéristiques mécaniques des éléments de fixation en acier inoxydable résistant à la corrosion – Partie 4: Vis à tôle*

3 Termes et définitions

L'article de la Partie 1 est applicable, avec les exceptions suivantes.

3.1 Définitions relatives aux caractéristiques physiques

3.1.4 *Addition:*

Note 101 à l'article La **puissance assignée** est la somme des puissances de tous les éléments individuels de l'appareil qui peuvent être alimentés simultanément; si plusieurs combinaisons d'éléments sont possibles, celle qui donne la puissance la plus élevée sert à déterminer la **puissance assignée**.

3.1.9 *Remplacement:*

fonctionnement normal

fonctionnement de l'appareil dans les conditions suivantes:

L'appareil est mis en fonctionnement après avoir été installé conformément aux instructions, excepté qu'il n'est pas raccordé à un conduit.

Les appareils destinés à être utilisés en combinaison avec d'autres appareils sont soumis aux essais avec les autres appareils en fonctionnement. Les appareils qui ne sont pas rattachés à

¹ Il existe une édition consolidée 2.2:2015 qui comprend l'édition 2 et ses amendements 1 et 2.

d'autres appareils sont également soumis aux essais en mettant les autres appareils en fonctionnement et le ventilateur hors tension.

3.5 Définitions relatives aux types d'appareils

3.5.101

hotte

appareil à moteur qui a pour fonction de capter et d'éliminer l'air vicié rejeté par les appareils de cuisine

Note 1 à l'article: L'air vicié peut passer au travers de systèmes de filtration et être renvoyé dans la pièce ou être évacué hors de la pièce.

4 Exigences générales

L'article de la Partie 1 est applicable.

5 Conditions générales d'essais

L'article de la Partie 1 est applicable.

6 Classification

L'article de la Partie 1 est applicable, avec l'exception suivante.

6.1 Remplacement:

Les appareils doivent être de la **classe I** en ce qui concerne la protection contre les chocs électriques.

La conformité est vérifiée par un examen et par les essais applicables.

7 Marquage et instructions

L'article de la Partie 1 est applicable, avec les exceptions suivantes.

7.1 Addition:

Les appareils doivent porter, sur la douille ou à proximité de celle-ci, un marquage de la puissance maximale des lampes d'éclairage remplaçables:

lampe max..... W

Le mot "lampe" peut être remplacé par le symbole IEC 60417-5012 (2002-10).

7.12 Addition:

Les instructions d'emploi doivent comporter en substance les indications suivantes:

- la ventilation de la pièce doit être adéquate lorsque l'appareil est utilisé simultanément avec des appareils qui utilisent du gaz ou d'autres combustibles;
- les filtres doivent être nettoyés régulièrement;
- il existe un risque d'incendie si le nettoyage n'est pas effectué conformément aux instructions;

- ne pas flamber d'aliments sous l'appareil.

Des instructions doivent également être fournies concernant l'**entretien par l'utilisateur**, par exemple pour le nettoyage. Elles doivent inclure une indication qui précise que l'appareil ne doit pas être nettoyé au moyen d'un jet d'eau ou d'un appareil de nettoyage à vapeur.

Les instructions doivent comporter en substance les indications suivantes:

Ces appareils sont destinés à un usage commercial, par exemple dans les cuisines de restaurants, les cantines, les hôpitaux et les entreprises commerciales, telles que les boulangeries et les boucheries, mais pas pour la production continue en masse d'aliments.

Si le fabricant souhaite limiter l'utilisation de l'appareil à un domaine plus restreint que celui décrit ci-dessus, cette restriction doit être clairement indiquée dans les instructions.

Modification:

L'instruction concernant les personnes (y compris les enfants) dont les capacités physiques, sensorielles ou mentales sont réduites, les personnes dénuées d'expérience ou de connaissance, et l'utilisation de l'appareil comme jouet par des enfants n'est pas applicable.

7.12.1 Remplacement:

L'appareil doit être accompagné d'instructions qui précisent les précautions spéciales nécessaires à l'installation. Les instructions d'installation doivent indiquer:

- la distance minimale entre l'appareil et la partie la plus basse de l'appareil;
- que les réglementations concernant l'entrée d'air et l'évacuation de l'air vicié doivent être respectées;
- que les exigences de ventilation spécifiées pour l'équipement de cuisson doivent être respectées;
- des considérations particulières sont nécessaires pour éviter un refoulement des gaz d'évacuation lorsque d'autres appareils à feu ouvert sont présents dans la même pièce;
- que si l'appareil est utilisé au-dessus d'un appareil à gaz, un dispositif sans réarmement automatique doit être installé conformément à la réglementation nationale relative au gaz afin de couper l'alimentation en gaz de l'appareil si l'appareil cesse de fonctionner;
- que l'installation de l'appareil ne doit pas enfreindre la réglementation nationale relative au gaz.

La conformité est vérifiée par un examen.

7.12.9 Non applicable.

7.15 *Addition:*

Le marquage de la puissance assignée maximale d'une lampe d'éclairage remplaçable doit être visible lors du remplacement de la lampe.

7.101 Les bornes de liaison équipotentielle doivent être marquées du symbole IEC 60417-1-5021 (2002-10).

Ce marquage ne doit pas être placé sur des vis, des rondelles amovibles ou d'autres éléments qui peuvent être enlevés lors du raccordement des conducteurs.

La conformité est vérifiée par un examen.