

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



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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.
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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).

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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.

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

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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*

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3 Terms and definitions

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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: iTeh STANDARD PREVIEW

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

Compliance is checked by inspection and by the relevant tests.

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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

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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.*