IEC 60335-2-99

Edition 2.0 2021-11
REDLINE VERSION

INTERNATIONAL STANDARD

colour inside

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

IEC 60335-2-99:2021-11 RLV(en)

Documents
Document Sharing Hub

Full document details: 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 Varembé
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 It also gives information on projects, replaced and withdrawn publications.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.

Documents
Document Sharing Hub

Full document details: IEC 60335-2-99 2021 RLV

IEC 60335-2-99

Edition 2.0 2021-11
REDLINE VERSION

INTERNATIONAL STANDARD

colour inside

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.

® Registered trademark of the International Electrotechnical Commission

AVA Documents
Document Sharing Hub

Full document details: IEC 60335-2-99 2021 RLV

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 ..... 22~~
Annex P (informative) Guidance for the application of this standard to appliances used in tropical climates 22
Bibliography 24

AVA Documents
Document Sharing Hub
Full document details: IEC 60335-2-99 2021 RLV

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

Documents
Document Sharing Hub

Full document details: 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.

Documents
Document Sharing Hub

Full document details: IEC 60335-2-99 2021 RLV

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;

Documents
Document Sharing Hub
Full document details: IEC 60335-2-99 2021 RLV

– *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.

Documents
Document Sharing Hub

Full document details: 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.

Documents
Document Sharing Hub
Full document details: IEC 60335-2-99 2021 RLV

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;

AVA Documents Document Sharing Hub

Full document details: IEC 60335-2-99 2021 RLV

– ~~**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/AMD2:2015[1]

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.

AVA Documents Document Sharing Hub
Full document details: IEC 60335-2-99 2021 RLV

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;

Documents
Document Sharing Hub
Full document details: IEC 60335-2-99 2021 RLV

– 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.~~14~~15 *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.

Documents
Document Sharing Hub
Full document details: IEC 60335-2-99 2021 RLV

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/m^2 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.*

Documents
Document Sharing Hub
Full document details: IEC 60335-2-99 2021 RLV

~~***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.*

AVA Documents Document Sharing Hub

Full document details: IEC 60335-2-99 2021 RLV

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.*

Documents
Document Sharing Hub
Full document details: IEC 60335-2-99 2021 RLV

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.

AVA Documents Document Sharing Hub

Full document details: IEC 60335-2-99 2021 RLV

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.~~

AVA Documents Document Sharing Hub

Full document details: IEC 60335-2-99 2021 RLV

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 mm^2 to 6 mm^2. 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.~~

AVA Documents Document Sharing Hub

Full document details: IEC 60335-2-99 2021 RLV

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 mm^2 to 6 mm^2; 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*

AVA Documents Document Sharing Hub

Full document details: IEC 60335-2-99 2021 RLV

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 ~~**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.

Documents
Document Sharing Hub
Full document details: IEC 60335-2-99 2021 RLV

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.

Documents
Document Sharing Hub
Full document details: IEC 60335-2-99 2021 RLV

Annexes

The annexes of Part 1 are applicable except as follows.

Documents
Document Sharing Hub

Full document details: IEC 60335-2-99 2021 RLV