

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-31: Règles particulières pour les hottes de cuisine et autres extracteurs
de fumées de cuisson**

IEC 60335-2-31:2012

<https://standards.iteh.ai/standards/iec/9e2cf0c0-e5de-4209-8b0e-f63f7fe3446e/iec-60335-2-31-2012>



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2016 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.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

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

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
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 corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

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 also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

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: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.



IEC 60335-2-31

Edition 5.1 2016-04
CONSOLIDATED VERSION

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-31: Règles particulières pour les hottes de cuisine et autres extracteurs
de fumées de cuisson**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 13.120; 97.040.20

ISBN 978-2-8322-3333-7

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

Withdrawn

iTech Standards
(<https://standards.iteh.ai>)
Document Preview

[IEC 60335-2-31:2012](#)

<https://standards.iteh.ai/catalog/standards/iec/9e2c10c0-e5de-4209-8b0e-f63f7fe3446e/iec-60335-2-31-2012>

REDLINE VERSION

VERSION REDLINE



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

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-31: Règles particulières pour les hottes de cuisine et autres extracteurs
de fumées de cuisson**

IEC 60335-2-31:2012

<https://standards.iteh.ai/standards/iec/9e2cf0c0-e5de-4209-8b0e-f63f7fe3446e/iec-60335-2-31-2012>

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 General requirement.....	8
5 General conditions for the tests	8
6 Classification.....	8
7 Marking and instructions	8
8 Protection against access to live parts	11
9 Starting of motor-operated appliances.....	11
10 Power input and current.....	11
11 Heating	11
12 Void	12
13 Leakage current and electric strength at operating temperature.....	12
14 Transient overvoltages	12
15 Moisture resistance	13
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	13
21 Mechanical strength	14
22 Construction.....	14
23 Internal wiring.....	16
24 Components.....	16
25 Supply connection and external flexible cords	16
26 Terminals for external conductors	16
27 Provision for earthing.....	16
28 Screws and connections	16
29 Clearances, creepage distances and solid insulation	16
30 Resistance to heat and fire	16
31 Resistance to rusting	17
32 Radiation, toxicity and similar hazards	17
Annexes	19
Bibliography	20
Figure 101 – Hob layout for the heating test	18

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –**

**Part 2-31: Particular requirements for range hoods
and other cooking fume extractors**

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 consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 60335-2-31 edition 5.1 contains the fifth edition (2012-11) [documents 61/4453/FDIS and 61/4506/RVD] and its amendment 1 (2016-04) [documents 61/5110/FDIS and 61/5140/RVD].

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

This part of International Standard IEC 60335 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

The principal changes in this edition as compared with the fourth edition of IEC 60335-2-31 are as follows (minor changes are not listed):

- added requirements to address range hood installation (7.12.1 and 22.103);
- added construction requirement to address risk of entrapment in rangehoods or down-draft system (20.101);
- deleted reference to ISO 13732-1 from Bibliography.

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

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fifth edition (2010) of that standard.

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

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for range hoods and other cooking fume extractors.

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 the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication 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.

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

The following differences exist in the countries indicated below.

- 7.12: Warnings are required to be marked on the range hood (USA).
- 7.12.1: Additional requirements are specified for range hoods intended to be placed above gas hobs (Sweden).
- 8.2: The insulation of internal wiring need not be equivalent to IEC 60227 or IEC 60245 (USA).
- 11.2: The test method is different (USA).
- 19.101: The test method is different (USA).
- 20.2: The addition applies only to disposable filters (USA).
- 22.101: Additional fixing means are not required if screws can be tightened in keyhole slots (USA).
- 22.102: Parts located behind a filter are considered to be parts that have to be cleaned (Sweden).
- 30.101: The method of evaluating filters is different (USA).

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.

iTech Standards
(<https://standards.iteh.ai>)
Document Preview

[IEC 60335-2-31:2012](https://standards.iteh.ai/standards/iec/9e2c10c0-e5de-4209-8b0e-f63f7fe3446e/iec-60335-2-31-2012)

<https://standards.iteh.ai/standards/iec/9e2c10c0-e5de-4209-8b0e-f63f7fe3446e/iec-60335-2-31-2012>

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.

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

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

If 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 and generic standards 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. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 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.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-31: Particular requirements for range hoods and other cooking fume extractors

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **range hoods** and other cooking fume extractors intended for installing above, beside, behind or under household cooking ranges, hobs and similar cooking appliances, their **rated voltage** being not more than 250 V.

NOTE 101 The cooking appliance can be supplied by electricity or other fuels, such as gas.

Appliances not intended for normal household use but that nevertheless may be a source of danger to the public, such as appliances intended to be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

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

- persons (including children) whose
 - physical, sensory or mental capabilities; or
 - lack of experience and knowledgeprevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

NOTE 102 Attention is drawn to the fact that

- for appliances incorporating electrostatic air filters, IEC 60335-2-65 also applies;
- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements could be necessary;
- in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, the national authorities responsible for buildings and similar authorities.

NOTE 103 This standard does not apply to

- appliances intended for commercial purposes (IEC 60335-2-99);
- 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).

2 Normative references

This clause of Part 1 ~~is applicable~~ applies except as follows:

Addition:

IEC 61231, International lamp coding system (ILCOS)

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.101

range hood

motor-operated appliance intended to collect contaminated air from above a hob

Note 1 to entry: The filtered air may be discharged back into the room or ducted away.

3.102

down-draft system

a ventilation system intended for installation adjacent to household cooking ranges, hobs and similar cooking appliances that draws contaminated air down into an internal exhaust duct

Note 1 to entry: The filtered air may be discharged back into the room or ducted away.

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.7 Addition:

*For **down-draft systems**, the tests specified in Clauses 11 and 13 are carried out at an ambient temperature of $40\text{ °C} \pm 2\text{ °C}$.*

5.10 Modification:

Unless otherwise stated, appliances are not connected to a duct.

5.101 Down-draft systems intended to be installed above the cooking surface are tested as specified for **range hoods**.

6 Classification

This clause of Part 1 is applicable.

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 lamps as follows:

lamp max W

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

If the voltage rating of the lamp is less than the **rated voltage** of the appliance, the voltage rating of the lamp shall also be marked on or near the lampholder.

Range hoods intended to be used with self-shielded tungsten halogen lamps or metal halide lamps only shall be marked with symbol “Use only with self-shielded tungsten halogen lamps or self-shielded metal halide lamps” or with the substance of the following:

Use only with self-shielded tungsten halogen lamps or self-shielded metal halide lamps

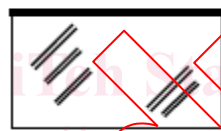
Range hoods incorporating a protective shield shall be marked with symbol “Replace any cracked shield” or with the substance of the following:

Replace any cracked protective shield

7.6 Addition:



Use only with self-shielded tungsten halogen lamps or self-shielded metal halide lamps



Replace any cracked shield

7.12 Addition:

The instructions shall state the substance of the following:

- there shall be adequate ventilation of the room when the range hood is used at the same time as appliances burning gas or other fuels (not applicable to appliances that only discharge the air back into the room);
- the details concerning the method and frequency of cleaning;
- there is a fire risk if cleaning is not carried out in accordance with the instructions;
- do not flambé under the **range hood**;
- CAUTION: Accessible parts may become hot when used with cooking appliances.

The instructions shall state the substance of the following:

- lamp type, shape description and image;
- rated wattage of the intended lamp;
- max wattage of a potential replacement lamp;
- rated voltage or voltage range of lamp or, for pre-heat starting fluorescent lamps starter replacement details;
- the type of lamp cap;
- nominal dimension(s) of lamp.

An ILCOS D code (standard version code specified in IEC 61231) including both the letter and figure sections is considered to provide the required instructions.

NOTE 101 Some examples of the required marking using the ILCOS D code are as follows:

Example 1 (For tungsten filament lamps – incandescent lamps):

Use type lamp (or use in alternative type lamp) IAA/C-40-220/230-E27-60 (ILCOS D code in according to standard IEC 61231).

- Tungsten filament lamp – clear pear-shaped lamp
- Max wattage: 40 W
- Voltage range: 220 V – 240 V
- Dimensions: Nominal diameter 60 mm

Example 2 (For fluorescent lamps):

Use type lamp (or use in alternative type lamp) FBRI-23-230/240-E14-82/127 (ILCOS D code in according to standard IEC 61231).

- Self-ballasted fluorescent reflector lamp – Integral induction type ballast
- Max wattage: 23 W
- Voltage range: 230 V – 240 V
- Dimensions: diameter 82 mm/length 127 mm

If symbol “Use only with self-shielded tungsten halogen lamps or self-shielded metal halide lamps” or symbol “Replace any cracked shield” is used its meaning shall be explained.

7.12.1 Addition:

The installation instructions shall include the substance of the following:

- the air must not be discharged into a flue that is used for exhausting fumes from appliances burning gas or other fuels (not applicable to appliances that only discharge the air back into the room);
- the minimum distance between the supporting surface for the cooking vessels on the hob and the lowest part of the **range hood**. (When the **range hood** is located above a gas appliance, this distance shall be at least 65 cm. If the instructions for installation for the gas hob specify a greater distance, this has to be taken into account. The distance of 65 cm can be reduced for
 - non-combustible parts of **range hoods**, ~~and or~~ <https://standards.globalspec.com/std/60335-2-31-2012>
 - parts operating at **safety extra low voltage**, <https://standards.globalspec.com/std/60335-2-31-2012> provided these parts do not give access to **live parts** if deformed);
- regulations concerning the discharge of air have to be fulfilled.

If the **range hood** is only intended to be installed over a hob with no more than four hob elements this shall be stated.

The installation instructions for **range hoods** with **accessible metallic enclosures** of **class II construction** shall include details that indicate the location and maximum permitted lengths for any fixing or mounting screw or other fixing device that penetrates into the **range hood** to attach an accessory such as a fascia or duct fitting.

Where fixing or mounting screws, or other fixing devices are used, that penetrate into the **range hood** with an **accessible metallic enclosure** of **class II construction**, to attach an accessory, the instructions shall indicate the required location of these screws or fixing devices and include the substance of the following warning.

Warning: Failure to install the screws or fixing device in accordance with these instructions may result in electrical hazards

The warning shall be in the same part of the instructions that include details of how to mount the equipment.

The installation instructions for **down-draft systems** shall also include the substance of the following: