

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Household and similar electrical appliances – Safety –
Part 2-15: Particular requirements for appliances for heating liquids**

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-15: Exigences particulières pour les appareils de chauffage des liquides**

[IEC 60335-2-15:2012](https://standards.iteh.ai/catalog/standards/iec/3c5a50e4-d7bc-471d-9fc6-a92906afcb26/iec-60335-2-15-2012)

<https://standards.iteh.ai/catalog/standards/iec/3c5a50e4-d7bc-471d-9fc6-a92906afcb26/iec-60335-2-15-2012>





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 60335-2-15

Edition 6.1 2016-04
CONSOLIDATED VERSION

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Household and similar electrical appliances – Safety –
Part 2-15: Particular requirements for appliances for heating liquids**

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-15: Exigences particulières pour les appareils de chauffage des liquides**

[IEC 60335-2-15:2012](https://standards.iteh.ai/catalog/standards/iec/3c5a50e4-d7bc-471d-9fc6-a92906afcb26/iec-60335-2-15-2012)

<https://standards.iteh.ai/catalog/standards/iec/3c5a50e4-d7bc-471d-9fc6-a92906afcb26/iec-60335-2-15-2012>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 13.120; 97.040.50

ISBN 978-2-8322-3312-2

**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.**

REDLINE VERSION

VERSION REDLINE



**Household and similar electrical appliances – Safety –
Part 2-15: Particular requirements for appliances for heating liquids**

**Appareils électrodomestiques et analogues – Sécurité –
Partie 2-15: Exigences particulières pour les appareils de chauffage des liquides**

[IEC 60335-2-15:2012](https://standards.iteh.ai/)

<https://standards.iteh.ai/catalog/standards/iec/3c5a50e4-d7bc-471d-9fc6-a92906afcb26/iec-60335-2-15-2012>

CONTENTS

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

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

**Part 2-15: Particular requirements
for appliances for heating liquids**

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 60335-2-15 edition 6.1 contains the sixth edition (2012-11) [documents 61/4451/FDIS and 61/4504/RVD] and its amendment 1 (2016-04) [documents 61/5109/FDIS and 61/5131/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 fifth edition of IEC 60335-2-15 are as follows (minor changes are not listed):

- added requirements for soy milk makers;
- added requirements for dynamic pressure cookers;
- expanded requirements for cordless kettles to cover cordless appliances throughout document;
- reorganized 7.12 so that instructions related to generic types of appliances covered by this part are listed first;
- converted notes to normative (5.2, 7.12, 19.101, 22.7, 22.106, 24.1.5, 24.4, 25.101) text;
- deleted Note in 19.102.

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 appliances for heating liquids.

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.

- 19.101: The test is not applicable (Japan).
- 25.8: A supply cord having a cross-sectional area of 0,75 mm² is not allowed for appliances having a rated current exceeding 6 A (Japan).
- 25.8: Longer supply cords are allowed (Japan).

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

INTRODUCTION

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

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 2-15: Particular requirements for appliances for heating liquids

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electrical appliances for heating liquids for household and similar purposes, their **rated voltage** being not more than 250 V.

NOTE 101 Some appliances can be used for heating food.

NOTE 102 Examples of appliances that are within the scope of this standard are

- coffee-makers;
- cooking pans;
- egg boilers;
- **feeding-bottle heaters**;
- kettles and other appliances for boiling water, having a **rated capacity** not exceeding 10 l;
- milk heaters;
- pressure cookers having a **rated cooking pressure** not exceeding 140 kPa and a **rated capacity** not exceeding 10 l;
- **rice cookers**;
- slow cookers;
- **steam cookers**;
- **soy milk makers**;
- tea maker;
- wash boilers;
- yoghurt makers.

Appliances can have more than one function.

Appliances intended for normal household and similar use and that may also be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

NOTE 103 Examples of such appliances are

- glue pots with a water jacket;
- livestock feed boilers;
- sterilizers.

If the appliance is intended to be used professionally to process food for commercial consumption, the appliance is not considered to be for household and similar use only.

As far as is practicable, this standard deals with the common hazards presented by appliances 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 knowledge

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

- children playing with the appliance.

NOTE 104 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may 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 water supply authorities and similar authorities.

NOTE 105 This standard does not apply to

- frying pans and deep fat fryers (IEC 60335-2-13);
- storage water heaters (IEC 60335-2-21);
- instantaneous water heaters (IEC 60335-2-35);
- surface-cleaning appliances employing liquids or steam (IEC 60335-2-54);
- portable immersion heaters (IEC 60335-2-74);
- commercial dispensing appliances and vending machines (IEC 60335-2-75);
- appliances for medical purposes (IEC 60601);
- appliances intended 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);
- appliances for high-frequency heating;
- pressure sterilizers;
- humidifiers for household and similar use (IEC 60335-2-98).

NOTE 106 Attention is drawn to the fact that in many countries requirements for pressure vessels are applied to pressure cookers.

2 Normative references

This clause of Part 1 is applicable.

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1.9 Replacement:

normal operation

operation of the appliance under the following conditions

3.1.9.101 Kettles, thermal pots, urns and other appliances for boiling water, ~~coffee makers~~, cooking pans, glue pots, milk heaters, slow cookers, sterilizers, wash boilers and yoghurt makers are operated with their container filled with the **rated capacity** of water, any lid being closed. The quantity of water in slow cookers is maintained above 50 % of their **rated capacity**.

Coffee makers are operated in accordance with their instructions with the water container filled to its **rated capacity** and bean container, if any, filled with coffee beans. The warming plate and all other energy consuming functions, if any, are switched on.

Appliances with a heated surface intended to keep the liquid warm are operated with or without the container, whichever is the more unfavourable.

3.1.9.102 Egg boilers and **steam cookers** are operated with their containers filled with the maximum quantity of water specified in the instructions.

3.1.9.103 Feeding-bottle heaters are operated with a bottle of heat-resistant glass, round or hexagonal in shape, having a mass between 190 g and 200 g and a capacity of approximately 225 ml, unless a particular bottle is specified, in which case that bottle is used. The bottle is filled to approximately its **rated capacity** of water or 200 ml, whichever is less, and is placed in the **feeding-bottle heater**. The heater is filled with water to the level specified in the instructions or, in the absence of instructions, to the maximum level.

3.1.9.104 Livestock feed boilers are operated with the lid closed, the container being filled with half its **rated capacity** of water.

3.1.9.105 Pressure cookers are operated in accordance with the instructions but with the container filled with water to a depth of 25 mm.

3.1.9.106 Rice cookers are operated with the rice container filled with water to the level of maximum rated capacity. Water is added to maintain the level during boiling.

When operated in the keep-warm mode, the **rice cooker** is operated with the rice container empty.

3.1.9.107 Soy milk makers are operated with the container filled with soy beans in accordance with the instructions and water to the **rated capacity**.

3.101

rated capacity

capacity assigned to the appliance by the manufacturer

3.102

rated cooking pressure

pressure assigned to the appliance by the manufacturer

3.103

espresso coffee-maker

coffee-maker in which water is heated and forced through the ground coffee by steam pressure or by means of a pump

Note 1 to entry: **Espresso coffee-makers** may have an outlet for supplying steam or hot water.

3.104

feeding-bottle heater

appliance for heating prepared baby food in a feeding-bottle to a predetermined temperature, heat being transferred by means of water

3.105

pressure regulator

control that maintains the pressure at a particular value during normal use

3.106

pressure-relief device

control that limits the pressure under abnormal operating conditions

3.107

cordless kettle

kettle incorporating a heating element and which is connected to the supply only when placed on its associated stand

3.108

steam cooker

appliance in which food is heated by steam generated at atmospheric pressure

3.109

rice cooker

appliance for cooking rice that is placed in a detachable container, the container being placed within the appliance when cooking

Note 1 to entry: **Rice cookers** may have a keep warm function.

Note 2 to entry: **Rice cookers** may cook food other than rice.

3.110

induction rice cooker

rice cooker that heats the rice container by means of eddy currents

Note 1 to entry: The eddy currents are induced in the rice container or lid or rice container and lid by the electromagnetic field of a coil.

3.111

cordless appliance

appliance incorporating a heating element and which is connected to the supply only when placed on its associated stand

3.112

dynamic pressure cooker

pressure cooker which reduces the pressure by a dynamic action of an elastic part

3.113

soy milk maker

appliance with heating, pulverising and agitating functions that are intended to make soy milk

3.114

decorative door

part of appliance having the same function as a cabinet door

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.

5.2 Addition:

If the test of 15.101 has to be carried out, three additional samples are required.

5.3 Addition:

The test of 19.101 is carried out after the other tests.

5.101 Induction rice cookers are tested as motor-operated appliances.

6 Classification

This clause of Part 1 is applicable except as follows.

6.2 Addition: