

# 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: Règles particulières pour les appareils de chauffage des liquides**

IEC 60335-2-15:2002

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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

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

#### FOREWORD

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

This consolidated version of IEC 60335-2-15 consists of the fifth edition (2002) [documents 61/2134/FDIS and 61/2159/RVD], its amendment 1 (2005) [documents 61/2887/FDIS and 61/2903/RVD], its amendment 2 (2008) [documents 61/3640/FDIS and 61/3680/RVD] and its corrigendum of November 2003.

The technical content is therefore identical to the base edition and its amendments and has been prepared for user convenience.

It bears the edition number 5.2.

A vertical line in the margin shows where the base publication has been modified by amendments 1 and 2.

The French version of this standard has not been voted upon.

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 fourth edition (2001) 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 electrical 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 following differences exist in the countries indicated below.

- 7.12: Appliances that are not intended to be immersed in water for cleaning are nevertheless required to be marked with a warning unless the test of 15.101 is withstood (USA).
- 7.12: The instruction that appliances intended to be used with a connector incorporating a thermostat must only be used with the appropriate connector, is required to be marked on the appliance (USA).
- 7.12: The instruction that cordless kettles are only to be used with the stand provided, is required to be marked on the appliance (USA).
- 11.2: Appliances are generally positioned against one wall and 100 mm away from the other wall of the test corner (USA).
- 11.7: The test durations are different (USA).
- 15.102: The test is not applicable (USA).
- 19.13: The criteria are different (USA).
- 19.101: The test is not applicable (Japan).
- 19.101: The test is not carried out if the thermal cut-out has been tested and found to be reliable (USA).
- 22.7: The test for pressure cookers is carried out at five times the maximum normal operating pressure or 2,5 times the release pressure of the safety device, whichever is greater (USA).
- 22.103: The test is different (USA).
- 22.104: The test is different (USA).
- 22.108: The force is different (USA).
- 22.109: The requirement is not applicable (USA).
- 24.1.3: A different number of cycles is specified (USA).
- 25.8: A supply cord having a cross-sectional area of 0,75 mm<sup>2</sup> is not allowed for appliances having a rated current exceeding 6 A (Japan and USA).
- 25.8: Longer supply cords are allowed (Japan).

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result 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.

2 | 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 the amendment 2 be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

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## INTRODUCTION

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

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.

- 2 | 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 may 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;
- 2 | – **rice cookers**.
- slow cookers;
- **steam cookers**;
- wash boilers;
- yoghurt makers.

- 2 | 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. However, 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.

NOTE 103 Examples of such appliances are

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

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

- 2 | – 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 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 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**.

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.

2 | **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.

### **3.101**

#### **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 **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

2 | **3.109**

#### **rice cooker**

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

The appliance may have a keep warm function.

NOTE **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 The eddy currents are induced in the rice container or lid or rice container and lid by the electromagnetic field of a coil.

#### 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:

NOTE 101 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.*

2 | 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:

Wash boilers and livestock feed boilers shall be at least IPX3.

#### 7 Marking and instructions

This clause of Part 1 is applicable except as follows.

##### 7.1 Addition:

Appliances intended to be partially immersed in water for cleaning shall be marked with the maximum level of immersion and with the substance of the following:

Do not immerse beyond this level.

Kettles shall have a level mark or other means to indicate when they are filled to **rated capacity**, unless they cannot be filled beyond their **rated capacity**. This indication shall be visible when the kettle is in the filling position. If the level mark is not self-evident, there shall be a reference to this mark on the outside of the kettle which shall be visible when the kettle is in its normal position of use.

If the closed position of the lid of a pressure cooker is not obvious, this position shall be marked on the appliance.

Stands provided with **cordless kettles** shall be marked with

- the name, trademark or identification mark of the manufacturer or responsible vendor;
- the model or type reference.

### 7.12 Addition:

The instructions for appliances incorporating an appliance inlet, and intended to be partially or fully immersed in water for cleaning, shall state that the connector must be removed before the appliance is cleaned and that the appliance inlet must be dried before the appliance is used again.

The instructions for appliances intended to be used with a connector incorporating a **thermostat** shall state that only the appropriate connector must be used.

Unless kettles are constructed so that a hazard cannot arise from boiling water being ejected, the instructions shall state that if the kettle is overfilled, boiling water may be ejected.

The instructions for kettles filled through a lid aperture situated below the handle shall include the substance of the following:

- **WARNING:** Position the lid so that steam is directed away from the handle.

NOTE 101 The warning is not required if the lid can only be closed so that steam is directed away from the handle.

- **WARNING:** Do not remove the lid while the water is boiling.

The instructions for **cordless kettles** shall state that the kettle is only to be used with the stand provided.

If the kettle and stand of **cordless kettles** can be lifted together by gripping the handle of the kettle, the instructions shall include the substance of the following:

**CAUTION:** Insure that the kettle is switched off before removing it from its stand.

The instructions for **feeding-bottle heaters** shall state

- that the food should not be heated for too long;
- how to check that the correct food temperature has not been exceeded.

The instructions for appliances normally cleaned after use, and not intended to be immersed in water for cleaning, shall state that the appliance must not be immersed.

NOTE 102 This requirement normally applies to coffee-makers, cooking pans, milk heaters, pressure cookers, **steam cookers**, slow cookers and yoghurt makers.

The instructions for pressure cookers shall state that the ducts in the **pressure regulator** allowing the escape of steam should be checked regularly to ensure that they are not blocked. They shall also give details of how to open the container safely and state that the container must not be opened until the pressure has decreased sufficiently.

The instructions for egg boilers provided with a pricking device shall contain the substance of the following:

**CAUTION:** Avoid injuries from the egg pricker.

For **espresso coffee-makers** incorporating a pressurized reservoir filled by the user, the instructions shall contain information for the safe refilling of the water reservoir and the substance of the following:

**WARNING:** The filling aperture must not be opened during use.

2 | The instructions shall include the substance of the following:

This appliance is intended to be used in household and similar applications such as:

- staff kitchen areas in shops, offices and other working environments;
- farm houses;
- by clients in hotels, motels and other residential type environments;
- bed and breakfast type environments.

NOTE 103 If the manufacturer wants to limit the use of the appliance to less than the above, this must be clearly stated in the instructions.

## 8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

### 8.1.2 Addition:

NOTE 101 Connecting devices in stands of **cordless kettles** are not considered to be socket outlets.

## 9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

## 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 Addition:

**Portable appliances** are tested away from the walls of the test corner.

2 | **11.3 Addition:**

NOTE 101 If the magnetic field of an **induction rice cooker** unduly influences the results, the temperature rises can be determined using platinum resistances with twisted connecting wires or any equivalent means.

### 11.4 Addition:

*If the temperature rise limits are exceeded in appliances incorporating motors, transformers or **electronic circuits**, and if the power input is lower than the **rated power input**, the test is repeated with the appliance supplied at 1,06 times the **rated voltage**.*

### 11.6 Addition:

**Combined appliances** are operated as **heating appliances**.

### 11.7 Replacement:

*Appliances are operated for the duration specified in 11.7.101 to 11.7.105.*