

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Household and similar electrical appliances – Safety –  
Part 2-9: Particular requirements for grills, toasters and similar portable cooking  
appliances**

**Appareils électrodomestiques et analogues – Sécurité –  
Partie 2-9: Règles particulières pour les grils, les grille-pain et les appareils de  
cuisson mobiles analogues**

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**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –  
SAFETY –****Part 2-9: Particular requirements for grills, toasters and  
similar portable cooking appliances**

## FOREWORD

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

**IEC 60335-2-9 edition 6.2 contains the sixth edition (2008-07) [documents 61/3651/FDIS and 61/3691/RVD], its amendment 1 (2012-11) [documents 61/4448/FDIS and 61/4501/RVD] and its amendment 2 (2016-04) [documents 61/5107/FDIS and 61/5138/RVD].**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.**



International Standard IEC 60335-2-9 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 60335-2-9 are as follows (minor changes are not listed):

- aligns the text with IEC 60335-1, Ed 4, and its Amendments 1 and 2;
- introduces requirements for pop-corn makers (3, 11.7, 19.106);
- clarifies the term household and similar purposes (1, 7.12).

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 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 grills, toasters and similar portable cooking appliances.

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.

- 3.1.9: Different loads and test methods are used (Canada and USA).
- 5.101: If the appliance incorporates a motor, the motor is tested at rated voltage (USA).
- 7.12: Identification of the connector is to be marked on the appliance (Canada and USA).
- 11.2: 9,5 mm thick plywood is used for the test corner (USA).
- 11.7: The test duration is based on the quantity of food (USA).
- 11.8: The modification does not apply (Norway).
- 11.8: A temperature rise of 100 K is allowed for the wall of the test corner (USA).
- 11.101: There are no surface temperature limits on toasters having a metallic enclosure unless they are under cabinet or wall mounted, in which case it is allowed that the temperatures may reach 100 °C if a proper marking is provided (USA).
- 15.2: A different solution is used and the test is not carried out on ovens, hotplates or cookers (USA).
- 15.101: Appliances are immersed to the marked level only (USA).
- 19.2: A 300 mm deep simulated cabinet is located 400 mm above the countertop (Canada and USA).
- 19.2: The test is different. Additional tests are carried out on hotplates and cookers (USA):
- 19.101: Different test methods and numbers of cycles are used (Canada and USA).
- 19.102: A combustible cloth is placed above the toaster and the residual bread is left in place (Canada and USA).

- 19.104: Disks having different sizes are used (USA).
- 20.101: The test is not carried out (USA).
- 21.101: The test is different (USA).
- 22.105: The requirement is not applicable (USA).
- 22.108: The test is not carried out (USA).
- 22.109: The test is not carried out (USA).
- 22.110: The test is not carried out (USA).
- 24.1.3: The test is not carried out (USA).
- 24.101: The test is not carried out (USA).
- 25.7: The free length of the supply cord is specified; in some cases, it is 1,8 m to 2,1 m for appliances intended to be connected to fixed socket-outlets, while in others it is 0,6 m to 2,1 m for appliances normally used on a table or similar surface (Canada and USA).

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 standard be adopted for implementation nationally not earlier than 12 months nor later than 36 months from the date of its publication.

The committee has decided that the contents of the base publication and its amendments 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.

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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.

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 which 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 2-9: Particular requirements for grills, toasters and similar portable cooking appliances

#### 1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **portable appliances** for household and similar purposes that have a cooking function such as baking, roasting and grilling, their **rated voltage** being not more than 250 V.

NOTE 101 Examples of appliances that are within the scope of this standard are

- barbecues for indoor use;
- breadmakers;
- **candy floss appliances;**
- contact grills (griddles);
- cookers;
- food dehydrators;
- hotplates;
- **induction wok hotplates;**
- pop-corn makers;
- portable ovens;
- raclette grills;
- radiant grills;
- roasters;
- rotary grills;
- rotisseries;
- toasters;
- waffle irons;

Examples are illustrated in Figure 101.

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.

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 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 and similar authorities.

NOTE 103 This standard does not apply to

- **stationary ovens** and **stationary grills** (IEC 60335-2-6);
- warming plates (IEC 60335-2-12);
- frying pans and deep fat fryers (IEC 60335-2-13);
- microwave ovens (IEC 60335-2-25);
- barbecues for outdoor use (IEC 60335-2-78);
- appliances intended to burn charcoal or similar combustible fuels;
- appliances intended for commercial catering;
- 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 except as follows.

*Addition:*

IEC 60068-2-52, *Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)*

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

ISO 3864-1, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs in workplaces and public areas*

## 3 Terms and definitions

This clause of Part 1 is applicable except as follows.

### 3.1.9 Replacement:

#### **normal operation**

operation of the appliance as specified in the following subclauses:

NOTE 101 Appliances not mentioned but which nevertheless perform one of the functions are operated as specified for this function as far as possible.

**3.1.9.101 Toasters** are loaded with the maximum number of slices of white bread specified in the instructions and operated in cycles, each cycle consisting of an operating period and a rest period. The bread is approximately 24 h old and the dimensions of the slices are approximately 100 mm × 100 mm × 10 mm. The rest periods have a duration of 30 s or the minimum period needed for the resetting of a control, whichever is longer. The slices of bread are replaced during each rest period. The operating period is established by adjusting controls to give the bread a golden-brown colour. For **toasters** without a control, each operating period is terminated as soon as the colour of the bread turns golden-brown.

**Toasters** incorporating a device for heating rolls are loaded with the maximum number of rolls specified in the instructions. The **toaster** is operated in cycles, each cycle consisting of an operating period followed by a rest period of 30 s when the rolls are turned or replaced. The control is adjusted in accordance with the instructions. If instructions are not given, the control is adjusted for the toasting operation.

**Sandwich-toasting attachments** are loaded with one or more sandwiches that are positioned in accordance with the instructions to produce the most unfavourable result. Each sandwich comprises two slices of white bread filled with a single slice of suitable cheese having an area equal to a slice of bread and a thickness of approximately 5 mm. The toaster is then operated in accordance with the instructions in cycles, each cycle consisting of a toasting operation followed by a rest period of 30 s, or the minimum period needed for the resetting of a control, whichever is longer.

NOTE Processed cheese and other cheeses that readily melt when heated are suitable.

**3.1.9.102 Rotary grills** are operated with the load on the rotating spit shown in Figure 102.

**3.1.9.103 Waffle irons** having a **thermostat** are operated with the **thermostat** adjusted to the highest setting. Other **waffle irons** are operated so that the temperature at the centre of the heated surface is maintained at  $210\text{ °C} \pm 15\text{ °C}$  by switching the supply on and off.

**3.1.9.104 Ovens** are operated with the door closed. **Ovens** having a **thermostat** are operated so that the mean temperature in the centre of the cavity is maintained at  $240\text{ °C} \pm 4\text{ °C}$  or at the value obtained with the **thermostat** adjusted to its highest setting, if this results in a lower temperature. Other **ovens** are operated so that the temperature in the centre of the cavity is maintained at  $240\text{ °C} \pm 15\text{ °C}$  by switching the supply on and off.

**3.1.9.105 Roasters** are operated with the lid closed. The mean temperature in the centre of the container is maintained at  $240\text{ °C} \pm 4\text{ °C}$ , if necessary by switching the supply on and off.

**3.1.9.106 Radiant grills** and **rotary grills** are operated with the controls adjusted in accordance with the instructions or, if instructions are not provided, with the controls adjusted to the highest setting. Doors or lids are open unless otherwise specified in the instructions.

**Contact grills** having a **thermostat** are operated with the **thermostat** adjusted to the highest setting. Other **contact grills** are operated so that the temperature at the centre of the heated surface is maintained at  $275\text{ °C} \pm 15\text{ °C}$  by switching the supply on and off.

**Raclette grills** are operated with doors or lids open, unless otherwise specified in the instructions. Controls are adjusted in accordance with the instructions, pans being in position or removed, whichever is more unfavourable.

**3.1.9.107 Barbecues** are operated with food supports in the lowest position. Controls are adjusted to the highest setting, any covers or shields being positioned in accordance with the instructions.

NOTE **Barbecues** are operated without water even if the use of water is recommended.

**3.1.9.108 Hotplates**, other than **induction hotplates**, are operated with vessels containing water. The vessels are made of unpolished commercial quality aluminium, have a flat bottom and are covered with a lid. A suitable vessel is specified in Figure 103. Controls are adjusted to their highest setting until the water boils and then adjusted so that the water simmers. Water is added to maintain the level during ~~boiling~~ **simmering**.

~~NOTE 1 The lid is positioned so that steam does not affect the test.~~

**Induction hot plates** are operated with vessels, as specified in Figure 104, containing cooking oil. Controls are adjusted to their highest setting until the oil temperature reaches  $180\text{ °C} \pm 4\text{ °C}$ , and are then adjusted so that this temperature is maintained. The oil temperature is measured 1 cm above the centre of the bottom of the vessel. **For appliances which cannot heat the oil to  $180\text{ °C} \pm 4\text{ °C}$ , the control is maintained at its highest setting.**

**Induction wok hotplates** are operated with a wok pan supplied by the manufacturer with the **induction wok hotplate** at the point of sale.