

INTERNATIONAL  
STANDARD

IEC  
60335-2-78

Second edition  
2002-11

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**Household and similar electrical appliances –  
Safety –**

**Part 2-78:  
Particular requirements for outdoor barbecues**

*Appareils électrodomestiques et analogues –  
Sécurité –*

*Partie 2-78:  
Règles particulières pour les barbecues pour extérieur*



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –  
SAFETY –**
**Part 2-78: Particular requirements for outdoor barbecues**

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

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

This second edition cancels and replaces the first edition published in 1995. It constitutes a technical revision.

The text of this part of IEC 60335 is based on the following documents:

FDIS	Report on voting
61/2225/FDIS	61/2300/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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 electric outdoor barbecues.

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 this publication will remain unchanged until 2004. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

The following differences exist in the countries indicated below.

- Clause 31: The test is not carried out (USA).

A bilingual version of this publication may be issued at a later date.

## 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.

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.

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.

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 2-78: Particular requirements for outdoor barbecues

### 1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of outdoor **barbecues** for household and similar use, their **rated voltage** being not more than 250 V.

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.

NOTE 101 Examples of such appliances are those used by restaurants and hotels.

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

- the use of appliances by young children or infirm persons without supervision;
- playing with the appliance by young children.

NOTE 102 Attention is drawn to the fact that

- for appliances intended to be used on board ships, 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

- barbecues for indoor use (IEC 60335-2-9);
- appliances intended to burn charcoal or similar combustible fuels;
- 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).

### 2 Normative references

This clause of Part 1 is applicable except as follows.

*Addition:*

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

### 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



**Barbecues** are operated with the food support in the lowest position, any cover or shield being placed in accordance with the instructions.

NOTE 101 **Barbecues** are operated without water even if the use of water is recommended in the instructions.

### 3.101

#### **barbecue**

appliance having a radiant heating element located under the food support

## 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.

## 6 Classification

This clause of Part 1 is applicable except as follows.

### 6.2 Addition:

Appliances shall be at least IPX4.

## 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 the substance of the following:

Do not immerse beyond this level.

### 7.12 Addition:

The instructions shall state the substance of the following:

- **WARNING:** Charcoal or similar combustible fuels must not be used with this appliance;
- the appliance should be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA;
- the appliance is to be connected to a socket-outlet having an earthing contact (for **class I appliances**);
- the supply cord should be regularly examined for signs of damage and the appliance is not to be used if the cord is damaged.

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 the appliance inlet must be dried before the appliance is used again.

The instructions for appliances intended to be used with water shall state the maximum quantity of water to be poured into the appliance.

## **8 Protection against access to live parts**

This clause of Part 1 is applicable.

## **9 Starting of motor-operated appliances**

This clause of Part 1 is 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 Modification:**

*Appliances are placed on the floor of the test corner and away from the walls.*

### **11.7 Replacement:**

*Appliances are operated until steady conditions are established.*

## **12 Void**

## **13 Leakage current and electric strength at operating temperature**

This clause of Part 1 is applicable.

## **14 Transient overvoltages**

This clause of Part 1 is applicable.

## **15 Moisture resistance**

This clause of Part 1 is applicable except as follows.

**15.101** Appliances intended to be partially or completely immersed in water for cleaning shall have adequate protection against the effects of immersion.

Compliance is checked by the following tests, which are carried out on three additional appliances.

The appliances are operated under **normal operation** at 1,15 times **rated power input**, until the **thermostat** operates for the first time. Appliances without a **thermostat** are operated until steady conditions are established. The appliances are disconnected from the supply, any appliance connector being withdrawn. They are then completely immersed in water containing approximately 1 % NaCl and having a temperature between 10 °C and 25 °C, unless they are marked with the maximum level of immersion, in which case they are immersed 50 mm deeper than this level.

After 1 h, the appliances are removed from the saline solution, dried and subjected to the leakage current test of 16.2.

NOTE Care should be taken to ensure that all moisture is removed from the insulation around the pins of appliance inlets.

This test is carried out four more times, after which the appliances shall withstand the electric strength test of 16.3, the voltage being as specified in Table 4.

The appliance having the highest leakage current after the fifth immersion is dismantled and inspection shall show that there is no trace of liquid on insulation that could result in a reduction of **clearances** and **creepage distances** below the values specified in Clause 29.

The remaining two appliances are operated under **normal operation** for 240 h at 1,15 times **rated power input**. After this period, the appliances are disconnected from the supply and immersed again for 1 h. They are then dried and subjected to the electric strength test of 16.3, the voltage being as specified in Table 4.

Inspection shall show that there is no trace of liquid on insulation that could result in a reduction of **clearances** and **creepage distances** below the values specified in Clause 29.

## 16 Leakage current and electric strength

This clause of Part 1 is applicable.

## 17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

## 18 Endurance

This clause of Part 1 is not applicable.

## 19 Abnormal operation

This clause of Part 1 is applicable except as follows.

### 19.2 Addition:

Lids and hoods are open or closed, whichever is more unfavourable. **Detachable parts** are in position or removed, whichever is the more unfavourable.

## **20 Stability and mechanical hazards**

This clause of Part 1 is applicable.

## **21 Mechanical strength**

This clause of Part 1 is applicable except as follows.

### **21.1 Modification:**

*The impact energy is increased to 0,70 J.*

## **22 Construction**

This clause of Part 1 is applicable except as follows.

**22.101** Appliances shall not have bare-heating elements.

*Compliance is checked by inspection.*

**22.102** Appliances shall be constructed so that their heating elements are fixed in position or prevented from operating when they are not in their normal position of use.

*Compliance is checked by inspection.*

NOTE This requirement does not apply if the appliance complies with the standard with the element placed in any position.

## **23 Internal wiring**

This clause of Part 1 is applicable.

## **24 Components**

This clause of Part 1 is applicable.

## **25 Supply connection and external flexible cords**

This clause of Part 1 is applicable except as follows.

### **25.7 Replacement:**

The **supply cord** shall be polychloroprene sheathed and shall not be lighter than ordinary polychloroprene sheathed flexible cord (code designation 60245 IEC 57).

*Compliance is checked by inspection.*

## **26 Terminals for external conductors**

This clause of Part 1 is applicable.

## **27 Provision for earthing**

This clause of Part 1 is applicable.

## **28 Screws and connections**

This clause of Part 1 is applicable.

## **29 Clearances, creepage distances and solid insulation**

This clause of Part 1 is applicable except as follows.

### **29.2 Addition:**

The microenvironment is pollution degree 3 unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance.

## **30 Resistance to heat and fire**

This clause of Part 1 is applicable except as follows.

### **30.2.2** Not applicable.

## **31 Resistance to rusting**

This clause of Part 1 is applicable except as follows.

### *Addition:*

*Compliance is checked by the salt mist test, Kb of IEC 60068-2-52, severity 2 being applicable.*

*Before the test, coatings are scratched by means of a hardened steel pin, the end of which has the form of a cone with an angle of 40°. Its tip is rounded with a radius of 0,25 mm ± 0,02 mm. The pin is loaded so that the force exerted along its axis is 10 N ± 0,5 N. The scratches are made by drawing the pin along the surface of the coating at a speed of approximately 20 mm/s. Five scratches are made at least 5 mm apart and at least 5 mm from the edges.*

*After the test, the appliance shall not have deteriorated to such an extent that compliance with this standard, in particular with Clauses 8 and 27 is impaired. The coating shall not be broken and shall not have loosened from the metal surface.*

## **32 Radiation, toxicity and similar hazards**

This clause of Part 1 is applicable.

## **Annexes**

The annexes of Part 1 are applicable.

## **Bibliography**

The bibliography of Part 1 is applicable except as follows.

*Addition:*

IEC 60335-2-9, *Household and similar electrical appliances – Safety – Part 2-9: Particular requirements for grills, toasters and similar portable cooking appliances*

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