

# Household and similar electrical appliances — Safety —

**Part 2-36: Particular requirements for  
commercial electric cooking ranges,  
ovens, hobs and hob elements**

ICS 97.040.20

## National foreword

This British Standard is the UK implementation of EN 60335-2-36:2002+A11:2012, incorporating corrigendum August 2007. It is derived from IEC 60335-2-36:2002, incorporating amendment 2:2008. It supersedes BS EN 60335-2-36:2002+A2:2008 which will be withdrawn on 21 December 2014.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by **A1** **A1**.

Where a common modification has been introduced by amendment, the tags carry the number of the amendment. For example, the common modifications introduced by CENELEC amendment A11:2012 are indicated by **C11** **C11**.

The UK participation in its preparation was entrusted by Technical Committee CPL/61, Safety of household and similar electrical appliances, to Subcommittee CPL/61/5, Commercial catering equipment.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

### Amendments/corrigenda issued since publication

| Amd. No.                   | Date              | Comments                                                                                                                |
|----------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------|
| 15430                      | 11 November 2004  | Implementation of IEC amendment 1:2004 with CENELEC endorsement A1:2004                                                 |
| 17465<br>Corrigendum No. 1 | 30 November 2007  | Implementation of CENELEC corrigendum August 2007. Last paragraph of EN foreword replaced. Addition to Annex ZB deleted |
|                            | 30 September 2008 | Implementation of IEC amendment 2:2008 with CENELEC endorsement A2:2008                                                 |
|                            | 31 May 2012       | Implementation of CENELEC amendment A11:2012                                                                            |

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English version

# Household and similar electrical appliances — Safety Part 2-36: Particular requirements for commercial electric cooking ranges, ovens, hobs and hob elements (IEC 60335-2-36:2002)

Appareils électrodomestiques et  
analogues — Sécurité  
Partie 2-36: Règles particulières pour les  
cuisinières, les fours, les tables de cuisson et les  
foyers de cuisson électriques à usage collectif  
(CEI 60335-2-36:2002)

Sicherheit elektrischer Geräte für den  
Hausgebrauch und ähnliche Zwecke  
Teil 2-36: Besondere Anforderungen für  
elektrische Herde, Brat- und Backöfen und  
Kochplatten für den gewerblichen Gebrauch  
(IEC 60335-2-36:2002)

This European Standard was approved by CENELEC on 2002-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B-1050 Brussels**

## Foreword

The text of document 61E/398/FDIS, future fifth edition of IEC 60335-2-36, prepared by SC 61E of the IEC Technical Committee 61, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60335-2-36 on 2002-12-01.

This European Standard replaces EN 60335-2-36:2000.

The following dates are applicable:

- latest date by which the EN has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2003-09-01
- date on which national standards  
conflicting with the EN have to be withdrawn (dow) 2005-12-01

This part 2 has to be used in conjunction with EN 60335-1, Household and similar electrical appliances – Safety – Part 1: General requirements. It was established on the basis of the 2002 edition of that standard. Amendments and revisions of Part 1 have also to be taken into account and the dates when such changes become applicable will be stated in the relevant amendment or revision of Part 1.

This part 2 supplements or modifies the corresponding clauses of EN 60335-1, so as to convert it into the European Standard: Safety requirements for commercial electric cooking ranges, ovens, hobs and hob elements.

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 of Part 1 is to be adapted accordingly.

NOTE 1 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.;
- subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letter Z.

NOTE 2 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.

There are no special national conditions causing a deviation from this European Standard, other than those listed in Annex ZA to EN 60335-1.

There are no national deviations from this European Standard, other than those listed in Annex ZB to EN 60335-1.

## Introduction

- Ⓒ11 The principle objectives of Low Voltage Directive, 2006/95/EC, are covered in this standard. The essential safety requirements of the Machinery Directive 2006/42/EC have also been taken into account for appliances covered by this part. Ⓒ11

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## Endorsement notice

The text of the International Standard IEC 60335-2-36:2002 was approved by CENELEC as a European Standard without any modification.

## Foreword to amendment A1

The text of document 61E/435/FDIS, future amendment 1 to IEC 60335-2-36:2002, prepared by SC 61E of the IEC Technical Committee 61, Safety of household and similar electrical appliances, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60335-2-36:2002 on 2004-07-01.

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- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2005-04-01
- date on which national standards conflicting with the amendment have to be withdrawn (dow) 2007-07-01

This amendment supplements or modifies the corresponding clauses of EN 60335-2-36:2002.

There are no special national conditions causing a deviation from this amendment.

There are no national deviations from this amendment.

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## Endorsement notice

The text of amendment 1:2004 to the International Standard IEC 60335-2-36:2002 was approved by CENELEC as an amendment to the European Standard without any modification.

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## Foreword to amendment A2

The text of document 61E/594/FDIS, future amendment 2 to IEC 60335-2-36:2002, prepared by SC 61E, Safety of electrical commercial catering equipment, of IEC Technical Committee 61, Safety of household and similar electrical appliances, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60335-2-36:2002 on 2008-03-01.

The following dates are applicable:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2008-12-01
- date on which national standards conflicting with the amendment have to be withdrawn (dow) 2011-03-01

This amendment supplements or modifies the corresponding clauses of EN 60335-2-36:2002.

There are no special national conditions causing a deviation from this amendment.

There are no national deviations from this amendment.

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## Endorsement notice

The text of amendment 2:2008 to the International Standard IEC 60335-2-36:2002 was approved by CENELEC as an amendment to the European Standard without any modification.

In the Bibliography, add the following note to the standard mentioned:

ISO 13732-1                      NOTE   Harmonized as EN ISO 13732-1:2006 (not modified).

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## Foreword to amendment A11

This document (EN 60335-2-36:2002/A11:2012) has been prepared by CLC/TC61, "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2012-12-21
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2014-12-21

This amendment supplements or modifies the corresponding clauses of EN 60335-1:2012, EN 60335-2-36:2002, EN 60335-2-36:2002/A1:2004 and EN 60335-2-36:2002/A2:2008.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

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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 the 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 2-36: Particular requirements for commercial electric cooking ranges, ovens, hobs and hob elements

#### 1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electrically operated commercial **cooking and baking ranges**, ovens, **hobs**, **hob elements** and similar appliances not intended for household use, their **rated voltage** being not more than 250 V for single-phase appliances connected between one phase and neutral and 480 V for other appliances.

Ⓒ11 Additional requirements for appliances with power driven moving parts are given in Annex ZE. Ⓒ11

NOTE 101 These appliances are used for example in restaurants, canteens, hospitals and commercial enterprises such as bakeries, butcheries, etc.

The electrical part of appliances making use of other forms of energy is also within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by these types of appliances.

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, the national water supply authorities and similar authorities.

NOTE 103 Ⓒ11 This standard does not apply to

- machines designed exclusively for industrial purposes,
- machines intended to be used in locations where a corrosive or an explosive atmosphere is present (dust, vapour or gas),
- continuous process machines for the mass production of food,
- machinery for processing cosmetics, chemicals and pharmaceutical products,
- steam cookers, forced and steam convection ovens (IEC 60335-2-42),
- hot cupboards (IEC 60335-2-49),
- microwave ovens (IEC 60335-2-90). Ⓒ11

#### 2 Normative references

This clause of Part 1 is applicable.

#### 3 Definitions

This clause of Part 1 is applicable except as follows.

##### 3.1.4 Addition:

NOTE 101 The **rated power input** is the sum of the power inputs of all the individual elements in the appliance that can be on at one time; where several such combinations are possible, that giving the highest power input is used in determining the **rated power input**.

### 3.1.9 Replacement:

#### normal operation

operation of the appliance under the following conditions

Solid **hob elements** are operated with no load and sheathed **hob elements** are operated with a load made of dull black, cold or hot rolled steel, 9 mm to 10 mm thick, that covers not less than 90 % and not more than 100 % of the element surface. The **hob elements** are operated with the controls set to give the temperatures as set out below, the temperature being measured at the geometrical centre or the hottest point of the solid element or load, if the element is unevenly heated.

Stepped controls are set to the first position that gives a temperature equal to or greater than 275 °C. Cycling controls are set so that the mean value of the temperature over the cycle is 275 °C ± 5 °C. If this temperature cannot be reached, the control is set at the maximum.

Non-induction heating sources beneath a glass-ceramic or similar material are operated with a pan or pans containing initially cold water, the pan(s) being filled to a height of 60 mm ± 10 mm. The pan or pans are of aluminium, of ordinary quality, not brightly polished, with a base concavity not exceeding 0,1 mm. The pan or pans shall cover the **cooking zone** to the greatest extent possible.

The pan or pans are covered with a lid. The controls are set at maximum until the water boils and then adjusted to maintain boiling. Water is added to maintain the water level during boiling.

**Induction heating sources** beneath a glass-ceramic or similar material are operated with the pan or pans recommended by the manufacturer.

If one pan is used, it shall cover as closely as possible, but not less than, the full area of the **cooking zone**. The pan is positioned centrally.

For non-circular **cooking zones** a combination of the smallest number of pans is chosen to cover as much as possible the area of the **cooking zone**.

The pan or pans in each case are filled with initially cold frying oil to a height of 30 mm ± 5 mm. The controls are set to maximum until the temperature of the oil attains a value of 180 °C and then adjusted to maintain the oil at a temperature of 180 °C ± 15 °C.

A further test is made using initially cold water, the pan(s) being filled to a height of 60 mm ± 10 mm. The pan or pans are covered with a lid. The controls are set at maximum until the water boils and then adjusted to maintain boiling. Water is added to maintain the water level during boiling.

The condition providing the most unfavourable results (oil or water) is used.

Ovens are operated with no load and with the controls set so that the mean value of the temperature over the thermostat cycle at the geometric centre of the usable space in the interior of the oven is maintained at 240 °C ± 4 °C. Stepped controls are set so that this temperature is 240 °C ± 15 °C. For ovens that are capable of attaining temperatures in excess of 290 °C, the controls are set so that the temperature is 50 °C ± 4 °C below the maximum temperature attainable. For ovens that are unable to attain a temperature of 240 °C, the controls are set to maximum.

**Griddle plates** are operated with no load and with the controls set so as to give the temperatures set out below, the temperature being measured at the hottest point of each controlled cooking surface. Stepped controls are set to the first position that gives a temperature equal to or greater than 275 °C. Cycling controls are set so that the mean value of the temperature over the cycle is 275 °C ± 5 °C. If this temperature cannot be reached, the control is set to maximum.

Motors incorporated in the appliance are operated in the intended manner under the most severe conditions that can be expected in normal use, taking into account the manufacturer's instructions.

**3.101****cooking and baking range**

a single cooking or baking appliance incorporating one or more ovens together with one or more **hob elements** or **griddle plates** or a combination of these

NOTE An appliance incorporating a forced convection oven, steam-convection oven or microwave oven is considered to be an appliance incorporating another appliance (see also 5.102).

**3.102****heating unit**

any part of the appliance that fulfils an independent cooking or heating function

NOTE 1 Examples are **hob elements**, **griddle plates** or ovens.

NOTE 2 If an oven incorporates more than one heating element or groups of elements that are so controlled that one element or group cannot be switched on while another element or group is energized, each of the elements or groups of elements is to be considered as a separate **heating unit** and tested accordingly.

**3.103****hob element**

boiling plate

surface element

**heating unit** designed to accommodate a vessel or vessels on its upper surface

NOTE A **hob element** may consist of an **induction** or non-induction **heating source** beneath a surface of glass-ceramic or similar material.

**3.104****hob surface**

cooking top

horizontal part of the appliance to which the **hob elements** are attached

**3.105****hob**

a **hob surface** and one or more **hob elements**. It may be a separate appliance or part of a **cooking range**

NOTE A **hob** may also incorporate a **griddle plate**.

**3.106****cooking zone**

area marked on a **hob surface** of glass-ceramic or similar material where the vessel is intended to be placed

**3.107****induction heating source**

a heating source that operates by inducing eddy currents in a vessel positioned on the **hob element**

**3.108****griddle plate**

a **heating unit** having a cooking surface on which the food is intended to be placed directly

**3.109****installation wall**

 fixed construction containing supply facilities for wall mounted appliances on one or both sides 