

Specification for

Safety of household and similar electrical appliances

Part 2. Particular requirements

Section 2.36 Commercial electric cooking ranges, ovens, hobs and hob elements

The European Standard EN 60335-2-36 : 1995 with the incorporation of amendments A1 : 1996 and A2 : 1999 has the status of a British Standard

ICS 97.040.20

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee CPL/61, Safety of electrical appliances, to Subcommittee CPL/61/5, Commercial catering equipment, upon which the following bodies were represented:

Association of Manufacturers of Domestic Electrical Appliances
British Electrotechnical Approvals Board
Catering Equipment Users' Association
Department of the Environment (the Buying Agency)
Department of Trade and Industry (Consumer Safety Unit, CA Division)
Electricity Association
Health and Safety Executive
Institution of Incorporated Executive Engineers
Lighting Industry Federation Ltd.
The Association of Catering Equipment Manufacturers and Importers

This British Standard, having been prepared under the direction of the Electrotechnical Sector Board, was published under the authority of the Standards Board and comes into effect on
15 December 1995

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The following BSI references relate to the work on this standard:
Committee reference CPL/61/5
Draft for comment 94/205533 DC

ISBN 0 580 24782 1

Amendments issued since publication

Amd. No.	Date	Comments
9359	February 1997	Indicated by a double sideline
10522	October 1999	Indicated by a double sideline

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National foreword

This British Standard has been prepared by Subcommittee CPL/61/5 and is the English language version of EN 60335-2-36 : 1995 *Safety of household and similar electrical appliances Part 2: Particular requirements for commercial electric cooking ranges, ovens, hobs, and hob elements* including amendments A1 : 1996 and A2 : 1999 published by the European Committee for Electrotechnical Standardization (CENELEC). It was derived by CENELEC from IEC 60335-2-36 : 1993 and amendments 1 : 1996 and 2 : 1998 which has the same title as the European Standard, and is published by the International Electrotechnical Commission (IEC).

The CENELEC common modifications have been implemented at the appropriate places in the text and are indicated by a side line in the margin. Parts of the original IEC text that have been modified by CENELEC have been quoted in national annex NA. Double sideling, where it appears in this document, indicates the most recent changes by amendment on the page concerned.

The foreword of EN 60335-2-36 makes reference to the date of withdrawal, *dow*, of the relevant national standard. In this case the relevant national standard is BS 3456 : Part 202 : Section 202.36 : 1990 which will cease to be applicable to commercial electric cooking ranges, ovens, hobs and hob elements within the scope of BS EN 60335-2-36 on 1 January 1998. Certification and marks will not be awarded after this date with respect to BS 3456 : Part 202 : Section 202.36 : 1990. However, such certification and marks, already awarded, may continue to apply to production until 1 January 2003.

The foreword of Amendment A1 to EN 60335-2-36 makes reference to 'date of withdrawal' (*dow*) of conflicting national standards as 1999-04-01. In this case the relevant national standard is BS EN 60335-2-36 but the date of withdrawal relates only to those parts of the British Standard subject to Amendment A1. Certificates and marks will not be awarded after this date with respect to the British Standard not incorporating Amendment A1. They will be awarded only to the amended British Standard. However, such certificates and marks already awarded with respect to the British Standard not incorporating Amendment A1 may continue to apply for production until 2004-04-01.

This British Standard is to be read in conjunction with BS EN 60335-1 : 1995, *Safety of household and similar electrical appliances Part 1 General requirements*. The many references to Part 1 should be read as references to BS EN 60335-1, which is the English language version of EN 60335-1 : 1994 which was derived from the second impression, 1993, of IEC publication 335-1 (third edition 1991). 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.

Cross-references

International standard	Corresponding British Standard
HD 243 S10 : 1993 (IEC 417 : 1973)	BS 6217 : 1981 : <i>Guide to graphical symbols for use on electrical equipment</i>
EN 60127 (series) (IEC 127)	BS EN 60127 (series) <i>Miniature fuses</i>

Product approval. Attention is drawn to the fact that products conforming to this British Standard may be approved by the British Electrotechnical Approvals Board for the purposes of participation in the CENELEC Certification Agreement and in the CB Scheme of the IECEE. (Details of the BEAB Approval Marks Scheme are given on the inside back cover.)

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 8, 8a, 8b, 9, 10, 10a, 10b, 11 to 24, 24a, 24b, 25 to 28, 28a, 28b, 29, 30, an inside back cover and a back cover.

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Descriptors: Household electrical appliances, cookers, ovens, hob elements, appliance for commercial use, safety requirements, protection against electric shock, fire protection, protection against mechanical hazard

English version

Safety of household and similar electrical appliances Part 2: Particular requirements for commercial electric cooking ranges, ovens, hobs and hob elements

(includes amendments A1 : 1996 and A2 : 1999)

(IEC 60335-2-36 : 1993 + amendment 1 : 1996, modified + amendment 2 : 1998)

Sécurité des appareils électrodomestiques et
analogues

Partie 2: Règles particulières pour les cuisinières,
les fours, les tables de cuisson et les foyers de
cuisson électriques à usage collectif
(inclut les amendements A1 : 1996 et A2 : 1999)
(CEI 60335-2-36 : 1993 + amendement 1 : 1996,
modifiée + amendement 2 : 1998)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke

Teil 2: Besondere Anforderungen für elektrische
Herde, Brat- und Backöfen und Kochplatten für
den gewerblichen Gebrauch
(enthält Änderungen A1 : 1996 und A2 : 1999)
(IEC 60335-2-36 : 1993 + Änderung 1 : 1996,
modifiziert + Änderung 2 : 1998)

This European Standard was approved by CENELEC on 1995-05-15; amendment A1 was approved by CENELEC on 1996-07-02 and amendment A2 on 1999-01-01. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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 of amendment A1

The text of document 61E/160/FDIS, future amendment 1 to IEC 335-2-36 : 1993, prepared by SC 61E of the IEC Technical Committee 61 was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60335-2-36 : 1995 on 1996-07-02.

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) 1997-04-01
- date on which national standards conflicting with the amendment have to be withdrawn (dow) 1999-04-01

For products which have complied with EN 60335-2-36 : 1995 before 1999-04-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2004-04-01.

This amendment supplements or modifies the corresponding clauses of EN 60335-2-36 : 1995.

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

There are no national deviations from this amendment.

Foreword of amendment A2

The text of document 61E/274/FDIS, future amendment to IEC 60335-2-36:1993 prepared by SC 61E of the IEC Technical Committee 61, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60335-2-36 on 1999-01-01.

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) 1999-10-01
- date on which national standards conflicting with the amendment have to be withdrawn (dow) 2001-10-01

This amendment supplements or modifies the corresponding clauses of EN 60335-2-36:1995.

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

There are no national deviations from this amendment.

Introduction

An investigation by CENELEC TC 61 has concluded that all risks from products within the scope of this standard are fully covered by the Low Voltage Directive, 73/23/EEC. If the product has mechanical moving parts, a risk assessment in accordance with the Machinery Directive, 89/392/EEC, has shown that the risks are mainly of electrical origin and consequently this directive is not applicable. However, the relevant essential safety requirements of the Machinery Directive are covered by this standard together with the principal objectives of the Low Voltage Directive.

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SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES

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

1 Scope

This clause of part 1 is replaced by:

This standard deals with the safety of electrically operated commercial **cooking 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.

NOTE 1 - These appliances are used for example in kitchens such as 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.

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

NOTE 2 - 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;
- for appliances intended to be used in tropical countries, special 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.

This standard does not apply to:

- appliances designed 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);
- continuous process appliances for the mass production of food;
- microwave ovens;
- steam-convection ovens;
- forced convection ovens (IEC 335-2-42);
- steam cookers (IEC 335-2-46);
- hot cupboards (IEC 335-2-49).

2 Definitions

This clause of part 1 is applicable except as follows:

2.2.4 Addition:

NOTE - The **rated power input** is the sum of the power inputs of all the individual elements in the appliance which 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**.

2.2.9 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, which 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 which 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 $60 \text{ mm} \pm 10 \text{ mm}$. 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 $240 \text{ }^{\circ}\text{C} \pm 4 \text{ }^{\circ}\text{C}$. Stepped controls are set so that this temperature is $240 \text{ }^{\circ}\text{C} \pm 15 \text{ }^{\circ}\text{C}$. For ovens which are capable of attaining temperatures in excess of $290 \text{ }^{\circ}\text{C}$, the controls are set so that the temperature is $50 \text{ }^{\circ}\text{C} \pm 4 \text{ }^{\circ}\text{C}$ below the maximum temperature attainable. For ovens which are unable to attain a temperature of $240 \text{ }^{\circ}\text{C}$, 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 which gives a temperature equal to or greater than $275 \text{ }^{\circ}\text{C}$. Cycling controls are set so that the mean value of the temperature over the cycle is $275 \text{ }^{\circ}\text{C} \pm 5 \text{ }^{\circ}\text{C}$. 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 which can be expected in normal use, taking into account the manufacturer's instructions.

2.2.101 cooking range: A single cooking 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 4.102).

2.2.102 heating unit: Any part of the appliance which fulfils an independent cooking or heating function.

NOTES

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

2 If an oven incorporates more than one heating element or groups of elements which 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.

2.2.103 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.

2.2.104 hob surface (cooking top): Horizontal part of the appliance to which the **hob elements** are attached.

2.2.105 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**.

2.2.106 cooking zone: Area marked on a hob surface of glass-ceramic or similar material where the vessel is intended to be placed.

2.2.107 Induction heating source: A heating source which operates by inducing eddy currents in a vessel positioned on the hob element.

2.2.108 griddle plate: A heating unit having a cooking surface on which the food is intended to be placed directly.

2.2.109 installation wall: A special fixed construction containing supply facilities for appliances installed in conjunction with it.

2.2.110 pan detector: A device incorporated in a hob element, which prevents its operation unless a vessel is placed on the cooking zone.

NOTE — A pan detector is not considered to be a thermostat or protective device.

3 General requirement

This clause of part 1 is applicable except as follows:

Addition:

NOTE 101 - The d.c. component in the appliance neutral is limited (Australia).

4 General conditions for the tests

This clause of part 1 is applicable except as follows:

4.2 Addition:

Hob elements which are submitted separately are tested when installed in an appropriate cooking range.

The test of 18.2 may be made on a separate sample.

4.3 Addition:

The test of 18.2 is made before the test of clause 11 unless it is made on a separate sample.

4.10 Addition:

Appliances intended for installation in a bank of other appliances and appliances intended to be fixed to an installation wall are enclosed to obtain protection against electric shock and harmful ingress of water equivalent to that obtained when installed in accordance with the instructions provided with the appliance.

NOTE — Appropriate enclosures or additional appliances may be needed for test purposes.

4.101 Appliances are tested as heating appliances, even if they incorporate a motor.

4.102 Appliances, when assembled in combination with or incorporating other appliances, are tested in accordance with the requirements of this standard. The other appliances are operated simultaneously in accordance with the requirements of the relevant standard.

5 Void

6 Classification

This clause of part 1 is applicable except as follows:

6.1 Replacement:

Appliances shall be of **class I** with respect to protection against electric shock.

Compliance is checked by inspection and by the relevant tests.

NOTE – **Class OI appliances** are allowed if their **rated voltage** does not exceed 150 V (Japan).

6.101 With respect to protection against temperature rise due to installation conditions, appliances shall be classified as follows:

- appliances intended for installation in isolation;
- appliances intended for installation in a bank of other appliances.

NOTE - There are no additional requirements for appliances intended for installation in a bank of other appliances at present.

6.2 Addition:

NOTE 101 - For appliances intended to be installed in a kitchen, an appropriate degree of protection against harmful ingress of water is required according to their height of installation (France).

7 Marking and Instructions

This clause of part 1 is applicable except as follows:

7.1 Addition:

In addition, appliances shall be marked with:

- the water pressure or range of pressures, in kilopascals (kPa), for appliances intended to be connected to a water supply, unless this is indicated in the instruction sheet.

Appliances incorporating **induction heating sources** shall in addition be marked with:

- operating frequency or operating frequency range in kilohertz;
- the total power input of all the induction heating unit(s) which can operate simultaneously, in watts or kilowatts, unless this is indicated in the instruction sheet.

NOTE 101 - The power input to be marked or declared is the highest power input any switching arrangement will allow.

– the total power input of all the non-induction **heating unit(s)** which can operate simultaneously in watts or kilowatts unless this is indicated in the instruction sheet.

NOTE 102 - The power input to be marked or declared is the highest power input any switching arrangement will allow.

Any cover giving access to live parts at a working voltage exceeding 250 V shall be marked by the following:

"WARNING – DANGEROUS VOLTAGE" or by the symbol for dangerous voltage (see 7.6).

