

BSI Standards Publication

Household and similar electrical appliances — Safety

Part 2-37: Particular requirements for commercial electric doughnut fryers and deep fat fryers

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Full document details: BS EN IEC 60335-2-37:2024+A11:2024

National foreword

This British Standard is the UK implementation of EN IEC 60335-2-37:2024+A11:2024. It is derived from IEC 60335-2-37:2017. It supersedes BS EN 60335-2-37:2002+A12:2016, which will be withdrawn on 7 August 2027.

The start and finish of text introduced or altered by amendment A11 is indicated in the text by tags. Tags indicating changes to text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A11 is indicated by [A11⟩ ⟨A11].

The UK participation in its preparation was entrusted to Technical Committee CPL/61, Safety of household and similar electrical appliances.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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EUROPEAN STANDARD

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EN IEC 60335-2-37:2024+A11

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English Version

Household and similar electrical appliances - Safety - Part 2-37: Particular requirements for commercial electric doughnut fryers and deep fat fryers (IEC 60335-2-37:2017)

Appareils électrodomestiques et analogues - Sécurité - Partie 2-37: Exigences particulières pour les friteuses et les friteuses à beignets électriques à usage collectif (IEC 60335-2-37:2017)

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Teil 2-37: Besondere Anforderungen für elektrische Fettbackgeräte und Fritteusen für den gewerblichen Gebrauch (IEC 60335-2-37:2017)

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

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European foreword

The text of document 61/5328/FDIS, future edition 6 of IEC 60335-2-37, prepared by IEC/TC 61 "Safety of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60335-2-37:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2025-08-07
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-08-07

This document supersedes EN 60335-2-37:2002 and all of its amendments and corrigenda (if any).

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This document is read in conjunction with EN IEC 60335-2-37:2024/A11:2024.

This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60335-2-37:2017 was approved by CENELEC as a European Standard without any modification.

European foreword to amendment A11

This document (EN IEC 60335-2-37:2024/A11:2024) has been prepared by CLC/TC 61 "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2025-08-07
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2027-08-07

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This document is read in conjunction with EN IEC 60335-2-37:2024.

The numbering system for European clauses, subclauses, notes, tables, figures and annexes that are additional to those in the IEC standard are prefixed with the letter "Z".

This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-37: Particular requirements for commercial electric doughnut fryers and deep fat fryers

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. 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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This part of International Standard IEC 60335 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This bilingual version (2019-02) corresponds to the monolingual English version, published in 2017-03.

This sixth edition cancels and replaces the fifth edition published in 2002 including its Amendment 1 (2008) and its Amendment 2 (2011). It constitutes a technical revision.

The principle changes in this edition as compared with the fifth edition of IEC 60335-2-37 are as follows (minor changes are not listed):

- stating some wording in the scope more precisely;
- addition of a measurement method for pans in the definition for **normal operation**;
- new definitions on the topic surface temperature;

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- deletion of the paragraph with the warning for dangerous voltages (already covered by Part 1);
- addition of hot surface symbol IEC 60417-5041;
- addition of instructions and markings on hot surfaces and other topics;
- addition of requirements, measuring methods and thresholds for different materials on hot surfaces;
- modification on leakage current defining the value for appliances with a power consumption less than 1 kW;
- modification on the criteria for the stability test;
- addition of a requirement for the construction of **stationary appliances** with rollers or castors;
- modification on some points concerning permanent connection to fixed wiring;
- addition of specific requirements concerning types of screws to be used for electrical connections and connections for earth continuity;
- addition of a figure showing the surfaces to be measured;
- addition of a figure showing the probe for measuring surface temperatures;
- addition of informative Annex P dealing with leakage currents for appliances used in tropical climates.

The text of this Standard is based on the following documents:

FDIS	Report on voting
61/5328/FDIS	61/5384/RVD

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

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

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

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 fifth edition (2010) 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 commercial electric doughnut fryers and deep fat fryers.

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

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- 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 of Part 1 concerns an adjective, the adjective and the associated noun are also in bold.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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

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 publication be adopted for implementation nationally not earlier than 12 months from the date of publication.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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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.

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.

〈A11〉 With this European Amendment A11, the standard EN 60335-2-37:2002+A1:2008+A11:2012 +A12:2016 is superseded.

This European Amendment A11 supplements or modifies the corresponding clauses of the standards below:

— EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021+A16:2023 (Part 1)

— EN IEC 60335-2-37:2024 (Part 2) 〈A11〉

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-37: Particular requirements for commercial electric doughnut fryers and deep fat fryers

1 Scope

This clause of Part 1 is replaced by the following.

This international Standard deals with the safety of electrically operated commercial **deep fat fryers** and **doughnut fryers** including pressurized types with a pressure not exceeding 50 kPa and a pressure volume litres product of 200. These appliances are not intended for household and similar 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 101 These appliances are used for the commercial processing of food, for example in kitchens of restaurants, canteens, hospitals and in 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.

〚A11〛 This document deals with the reasonably foreseeable hazards presented by appliances that are encountered by all persons in and around the installation place. However, in general, it does not take into account:

— children playing with the appliance;
— the use of the appliance by children;

It is recognized that very vulnerable people can have needs beyond the level addressed in this document. 〚A11〛

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;
- in many countries, additional requirements are specified for pressure appliances.

NOTE 103 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);
- appliances for continuous mass production of food:
- 〚A11〛 gas, oil or solid fuel burning appliances (EN IEC 60335-2-102) 〚A11〛.

〚A11〛 Additional requirements for appliances with power driven moving parts are given in Annex ZE.

This document does not deal with any specific requirements on noise emitted from these appliances the generated noise is not considered to be a relevant hazard. Thus, the emission sound pressure level L_{pA} is considered to be $L_{pA} \leq 70$ dB(A). 〚A11〛

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

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

ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel – Part 1: Bolts, screws and studs with specified property classes – Coarse thread and fine pitch thread*

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ISO 3506-1, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 1: Bolts, screws and studs*

ISO 3506-2, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 2: Nuts*

ISO 3506-3, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 3: Set screws and similar fasteners not under tensile stress*

ISO 3506-4, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 4: Tapping screws*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1.4 *Addition:*

Note 1 to entry: 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 there are several such combinations 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:

The appliance is filled with oil or fat according to the manufacturer's instructions up to the minimum **indicated level**.

The thermal control is set at the maximum setting. Lids, if provided, are left in the open position or removed unless the manufacturer's instructions indicate that the appliance is designed for operation with the lid closed.

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
deep fat fryer
appliance provided with one or more containers in which the food to be cooked is immersed in the frying medium

Note 1 to entry: The container(s) may be fixed, removable, lifting, tilting, etc.

Note 2 to entry: The pressure within the container can exceed atmospheric pressure.

3.102
indicated level
mark on the appliance to indicate either the minimum or the maximum liquid level for correct operation

3.103
installation wall
special fixed construction containing supply facilities for appliances installed in conjunction with it

3.104
rated pressure
the maximum working pressure assigned by the manufacturer to the pressurized part of the appliance

3.105
doughnut fryer
appliance with large surface area and flat container in which the bakery products e. g. donuts are prepared in fat or oil by floating

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The **doughnut fryer** is generally not equipped with a cold area. The appliance can be delivered with a removable bakery product basket, a lifting or turning device.

3.106
functional surface
surface that is intentionally heated by an internal heat source and has to be hot to carry out the function for which the appliance is intended

Note 1 to entry: An example is the heated sheath of a tubular heating element

3.107
adjacent surface
surface adjacent to a **functional surface** and which can become hot through conduction

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.

5.5 *Addition:*

The tests are carried out with the container in the position of normal use for frying.

5.10 *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 101 Appropriate enclosures or additional appliances may be needed for test purposes.

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

5.102 *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 standards.*

5.103 *Appliances are initially filled with unused vegetable oil. The series of relevant tests are carried out with this oil, unused oil being added as necessary to maintain a constant level.*

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 *Replacement:*

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

Compliance is checked by inspection and by the relevant tests.

6.2 *Addition:*

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