

INTERNATIONAL STANDARD

IEC
60335-2-37

Fourth edition
2000-02

Safety of household and similar electrical appliances –

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

Sécurité des appareils électrodomestiques et analogues –

*Partie 2-37:
Règles particulières pour les friteuses électriques
à usage collectif*



Reference number
IEC 60335-2-37:2000(E)

Numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series.

Consolidated publications

Consolidated versions of some IEC publications including amendments are available. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Validity of this publication

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology.

Information relating to the date of the reconfirmation of the publication is available in the IEC catalogue.

Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is to be found at the following IEC sources:

- **IEC web site***
- **Catalogue of IEC publications**
Published yearly with regular updates
(On-line catalogue)*
- **IEC Bulletin**
Available both at the IEC web site* and as a printed periodical

Terminology, graphical and letter symbols

For general terminology, readers are referred to IEC 60050: *International Electrotechnical Vocabulary (IEV)*.

For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to publications IEC 60027: *Letter symbols to be used in electrical technology*, IEC 60417: *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets* and IEC 60617: *Graphical symbols for diagrams*.

* See web site address on title page.

INTERNATIONAL STANDARD

IEC 60335-2-37

Fourth edition
2000-02

Safety of household and similar electrical appliances –

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

Sécurité des appareils électrodomestiques et analogues –

*Partie 2-37:
Règles particulières pour les friteuses électriques
à usage collectif*

© IEC 2000 — Copyright - all rights reserved

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission
Telefax: +41 22 919 0300

3, rue de Varembé Geneva, Switzerland
e-mail: inmail@iec.ch

IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE

S

For price, see current catalogue

CONTENTS

	Page
FOREWORD	3
Clause	
1 Scope	5
2 Definitions.....	5
3 General requirement	6
4 General conditions for the tests	6
5 Void.....	7
6 Classification	7
7 Marking and instructions	7
8 Protection against access to live parts	9
9 Starting of motor-operated appliances.....	9
10 Power input and current.....	10
11 Heating.....	10
12 Void.....	11
13 Leakage current and electric strength at operating temperature	11
14 Void.....	11
15 Moisture resistance.....	11
16 Leakage current and electric strength.....	13
17 Overload protection of transformers and associated circuits.....	13
18 Endurance	13
19 Abnormal operation.....	13
20 Stability and mechanical hazards.....	14
21 Mechanical strength.....	14
22 Construction	15
23 Internal wiring.....	18
24 Components	18
25 Supply connection and external flexible cords.....	18
26 Terminals for external conductors	19
27 Provision for earthing.....	19
28 Screws and connections	19
29 Creepage distances, clearances and distances through insulation	19
30 Resistance to heat, fire and tracking	19
31 Resistance to rusting	20
32 Radiation, toxicity and similar hazards	20
Figure 101.....	21
Annexes.....	22

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –**Part 2-37: Particular requirements for commercial electric
deep fat fryers**

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.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 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.

International Standard IEC 60335-2-37 has been prepared by subcommittee 61E: Safety of electrical commercial catering equipment, of IEC technical committee 61: Safety of household and similar electrical appliances.

If forms the fourth edition of IEC 60335-2-37 and cancels and replaces the third edition, published in 1994, its amendment 1 (1996) and amendment 2 (1998).

The text of this standard is based on the third edition, amendments 1 and 2 and the following documents:

FDIS	Report on voting
61E/348/FDIS	61E/362/RVD

Full information on the voting for the approval of this part 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 third edition (1991) of that standard.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert it into the IEC standard: Safety requirements for commercial electric deep fatfryers.

Where a particular subclause of part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. Where this standard states "addition", "modification" or "replacement", the relevant text in part 1 is to be adapted accordingly.

NOTE 1 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 2.

NOTE 2 Subclauses, figures and notes which are additional to those in part 1 are numbered starting from 101.

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



iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –

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

1 Scope

This clause of part 1 is replaced by:

This standard deals with the safety of electrically operated commercial **deep fat fryers** including pressurized types 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;
- in many countries, additional requirements are specified for pressure appliances.

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.

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 there are several such combinations 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:

The appliance is filled with oil 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 which can be expected in normal use taking into account the manufacturer's instructions.

2.2.101

deep fat fryer

an appliance provided with one or more containers in which the food to be cooked is immersed in the frying medium. The container(s) may be fixed, removable, lifting, tilting, etc. The pressure within the container can exceed atmospheric pressure.

2.2.102

indicated level

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

2.2.103

installation wall

a special fixed construction containing supply facilities for appliances installed in conjunction with it

2.2.104

rated pressure

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

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.

4.5 Addition:

Unless otherwise stated, the tests are carried out with the container in the position of normal use for frying.

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 standards.

If a part of the appliance or the whole appliance is intended to be used for different functions covered by different standards, the relevant standard is applied to each function separately, so far as is reasonable.

4.103 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.

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 0I appliances** are allowed (Japan).

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,
- the **rated pressure**, in kilopascals (kPa), on pressurized parts of the appliance.

7.6 Addition:

Add the following symbol:



..... equipotentiality (IEC 60417-5021-a)*

* See IEC 60417-1:1998, *Graphical symbols for use on equipment – Part 1: Overview and application*, and IEC 60417-2:1998, *Graphical symbols for use on equipment – Part 2: Symbol originals*

7.10 Addition:

Devices controlling the tilting process of appliances with tilting parts shall be clearly marked to show the direction of movement.

7.12 Addition:

The instruction sheet shall include a warning that danger of fire exists if the oil level is below the minimum **indicated level**.

The instruction sheet shall include the maximum batch load in kilogrammes.

The instruction sheet shall also include a warning regarding the danger of using old oil, emphasizing that this will have a reduced flash-point and be more prone to surge boiling.

Attention shall also be drawn to the effect on surge boiling of over-wet food and too large a charge.

7.12.1 Replacement:

The appliance shall be accompanied by an instruction sheet detailing any special precautions necessary for installation. For appliances intended for installation in a bank of other appliances and appliances intended to be fixed to an **installation wall**, details of how to ensure appropriate protection against electric shock and harmful ingress of water shall be supplied. If the controls of more than one appliance are combined in a separate enclosure, detailed installation instructions shall be supplied. Instructions for **user maintenance**, for example cleaning, shall also be given.

Appliances which are provided with an appliance inlet, and are intended to be immersed in water for cleaning shall be accompanied by an instruction sheet stating that the connector shall be removed before the appliance is cleaned and that the appliance inlet shall be dried before the appliance is used again.

The instruction sheet of appliances other than **stationary** and appliances with **detachable electrical parts**, which are not intended to be partially or completely immersed in water for cleaning, shall state that the appliance or part must not be immersed.

For appliances which are permanently connected to fixed wiring and for which leakage currents may exceed 10 mA, particularly if disconnected or not used for long periods, or during initial installation, the instruction sheet shall give recommendations regarding the rating of **protective devices**, i.e. earth leakage relays to be installed.

If the appliance is constructed so that it is not protected against water jets, clear and detailed instructions for the user shall be delivered together with the appliance. It shall be stated in the instructions that this appliance shall not be cleaned with a water jet.

Compliance is checked by inspection.

7.12.4 Addition:

The instructions for **built-in appliances** having a separate control panel for several appliances shall state that the control panel is only to be connected to the specified appliances in order to avoid a possible hazard.