

# INTERNATIONAL STANDARD

**IEC**  
**60335-2-49**

Third edition  
2000-03

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**Safety of household and  
similar electrical appliances –**

**Part 2-49:  
Particular requirements for  
commercial electric hot cupboards**

*Sécurité des appareils électrodomestiques et analogues –*

*Partie 2-49:  
Règles particulières pour les armoires chauffantes électriques  
à usage collectif*



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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.

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## 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 .....	9
11 Heating .....	9
12 Void .....	10
13 Leakage current and electric strength at operating temperature .....	10
14 Void .....	10
15 Moisture resistance .....	10
16 Leakage current and electric strength .....	12
17 Overload protection of transformers and associated circuits .....	12
18 Endurance .....	12
19 Abnormal operation .....	12
20 Stability and mechanical hazards .....	13
21 Mechanical strength .....	14
22 Construction .....	14
23 Internal wiring .....	15
24 Components .....	15
25 Supply connection and external flexible cords .....	16
26 Terminals for external conductors .....	16
27 Provision for earthing .....	16
28 Screws and connections .....	17
29 Creepage distances, clearances and distances through insulation .....	17
30 Resistance to heat, fire and tracking .....	17
31 Resistance to rusting .....	17
32 Radiation, toxicity and similar hazards .....	17
Annex A (normative) Normative references .....	19
Figure 101 – Splash apparatus .....	18

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –****Part 2-49: Particular requirements for commercial electric hot cupboards**

## 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 60335-2-49 has been prepared by subcommittee 61E: Safety of electrical commercial catering equipment, of IEC technical committee 61: Safety of household and similar electrical appliances.

It forms the third edition of IEC 60335-2-49 and replaces the second edition, published in 1995, its amendment 1 (1996) and amendment 2 (1998).

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

FDIS	Report on voting
61E/350/FDIS	61E/363/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 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 hot cupboards.

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.

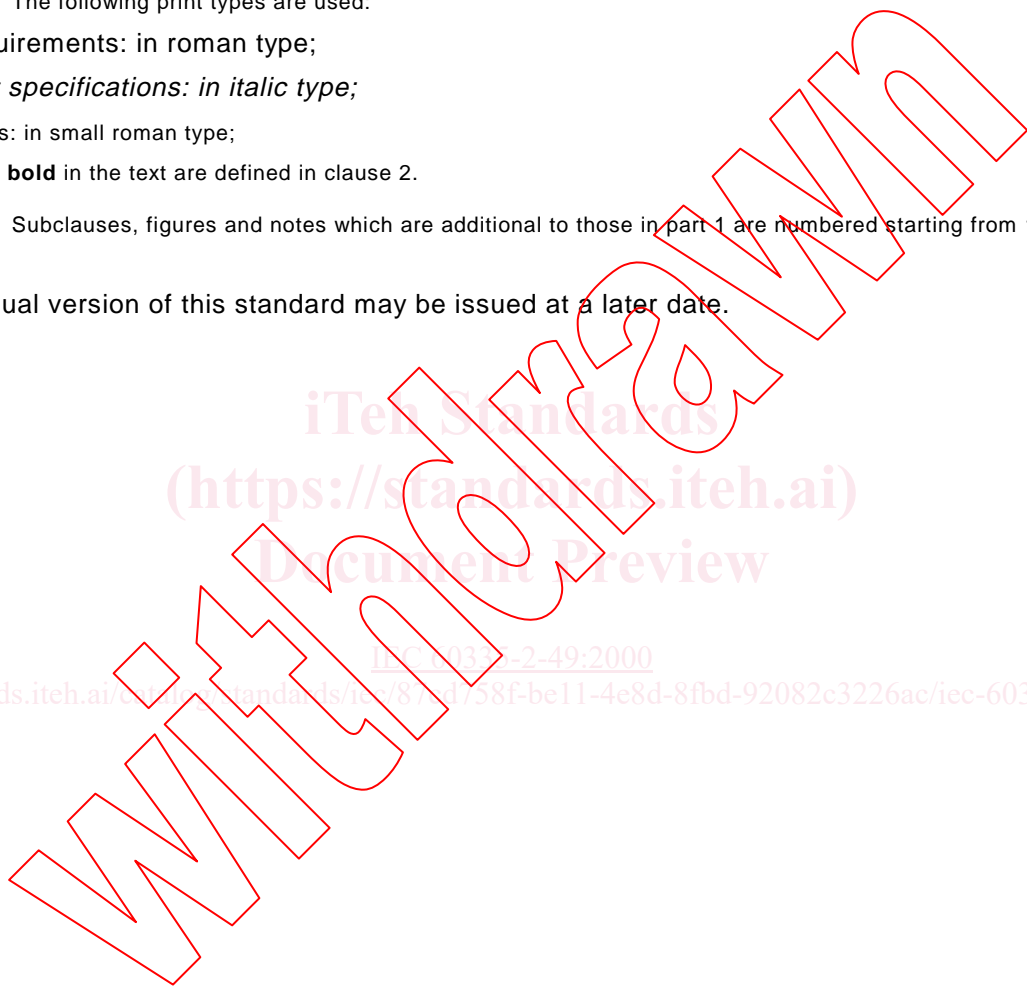
NOTE 1 The following print types are used:

- 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.



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## SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –

### Part 2-49: Particular requirements for commercial electric hot cupboards

#### 1 Scope

This clause of part 1 is replaced by:

This standard deals with the safety of electrically operated **hot cupboards** 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.

**Hot cupboards** with **heated tops, heated display cases, heated crockery dispensers**, and heated shelves and tables are also within the scope of this standard.

NOTE 1 These appliances are used, for example, in restaurants, canteens, hospitals and similar commercial enterprises.

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;
- for appliances intended to be used outdoors, additional requirements may be necessary.

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;
- bains-marie (IEC 60335-2-50).

#### 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:

Appliances are operated empty and with any controls intended to be operated by the user set at the maximum.

If the appliance cannot be operated empty, then the manufacturer's instructions are taken into account.

Doors, covers or lids, if any, are placed in their intended positions.

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

##### **hot cupboard**

an appliance which is used for maintaining the temperature of hot food and for the warming of crockery

#### 2.2.102

##### **heated top**

the top surface of a **hot cupboard**, which is designed to maintain the required temperature. It may be heated indirectly by the **hot cupboard** heating elements or directly by separate heating elements

#### 2.2.103

##### **heated display case**

a **hot cupboard** in which food is displayed, the heated food being served from the display

#### 2.2.104

##### **heated crockery dispenser**

an appliance designed specifically for the storage, warming and dispensing of plates, etc.

#### 2.2.105

##### **installation wall**

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

## 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.



#### 4.10 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, as far as is reasonable.

## 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.

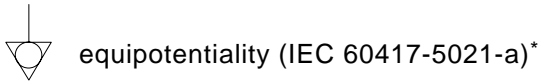
### 7.1 Addition:

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.

**7.6 Addition:**

Add the following symbol:



**7.12 Addition:**

The instruction sheet of appliances provided with wheels or similar means shall also state the maximum load, in kilograms, of the appliance.

**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.

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.

**7.15 Addition:**

When it is not practical to place the marking of **fixed appliances** so that it is visible after the appliance has been installed, the relevant information shall also be included in the instructions for use or on an additional label which can be fixed near the appliance after installation.

NOTE An example of such a **fixed appliance** is a **built-in appliance**.

**7.101** Equipotential bonding terminals shall be indicated by the equipotentiality symbol (see 7.6).

\* 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*.