

# CONSOLIDATED VERSION

# VERSION CONSOLIDÉE



Household and similar electrical appliances – Safety –  
Part 2-49: Particular requirements for commercial electric **hot cupboards**  
**appliances for keeping food and crockery warm**

Appareils électrodomestiques et analogues – Sécurité –  
Partie 2-49: Règles particulières pour les **armoires chauffantes** appareils  
électriques à usage **domestique collectif** destinés à maintenir au chaud  
**les aliments et la vaisselle**



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# CONTENTS

FOREWORD.....	4
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references .....	9
3 Terms and definitions .....	9
4 General requirement.....	11
5 General conditions for the tests .....	11
6 Classification.....	11
7 Marking and instructions.....	11
8 Protection against access to live parts.....	14
9 Starting of motor-operated appliances .....	15
10 Power input and current .....	15
11 Heating .....	16
12 Void.....	18
13 Leakage current and electric strength at operating temperature.....	18
14 Transient overvoltages .....	18
15 Moisture resistance .....	18
16 Leakage current and electric strength.....	20
17 Overload protection of transformers and associated circuits .....	20
18 Endurance.....	20
19 Abnormal operation.....	20
20 Stability and mechanical hazards .....	22
21 Mechanical strength .....	23
22 Construction.....	23
23 Internal wiring.....	24
24 Components.....	24
25 Supply connection and external flexible cords .....	25
26 Terminals for external conductors.....	25
27 Provision for earthing .....	25
28 Screws and connections.....	26
29 Clearances, creepage distances and solid insulation .....	27
30 Resistance to heat and fire.....	27
31 Resistance to rusting.....	27
32 Radiation, toxicity and similar hazards.....	27
Annexes .....	31
Annex N (normative) Proof tracking test.....	31
Annex P (informative) Guidance for the application of this standard to appliances used in tropical climates .....	32
Bibliography.....	33
Figure 101 – Splash apparatus .....	28

Figure 102 – Identification of surfaces for temperature measurement .....	29
Figure 103 – Probe for measuring surface temperatures .....	30
Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions .....	17
Table 102 – Assembling torques for screwed connections providing earthing continuity .....	26

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**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –  
SAFETY –****Part 2-49: Particular requirements  
for commercial electric ~~hot cupboards~~ appliances  
for keeping food and crockery warm**

## FOREWORD

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This Consolidated version of IEC 60335-2-49 bears the edition number 4.2. It consists of the fourth edition (2002-11) [documents 61E/404/FDIS and 61E/416/RVD], its amendment 1 (2008-04) [documents 61E/617/FDIS and 61E/620/RVD] and its amendment 2 (2017-07) [documents 61/5363/FDIS and 61/5391/RVD]. The technical content is identical to the base edition and its amendments.



**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.**

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

This fourth edition constitutes a technical revision.

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

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 fourth edition (2001) 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 hot cupboards.

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 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 following differences exist in the countries indicated below.

- 6.1: Class 01 appliances are allowed (Japan).
- 6.2: 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).
- 13.2: Leakage current limits are different (Japan).
- Clause 21: For appliances intended to be installed in a kitchen, different values of impact energy are applicable according to the height of the impact point (France).

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

NOTE 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 or later than 36 months from the date of publication.

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WITHDRAWN

## 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.

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 2-49: Particular requirements for commercial electric ~~hot cupboards~~ appliances for keeping food and crockery warm

### 1 Scope

This clause of Part 1 is replaced by the following:

This International Standard deals with the safety of electrically operated commercial ~~hot cupboards~~ appliances for keeping food and crockery warm 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.

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

Examples of appliances that are within the scope of this standard are:

- **hot cupboards**, with or without **heated tops**;
- **heated tops**;
- **heated display cases**;
- **heated crockery dispensers**;
- **heated tables**;
- **radiant heaters**.

NOTE 101 These appliances are used for processing food and/or rethermalising it, for example in kitchens of restaurants, canteens, hospitals and ~~similar~~ 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.

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

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 ~~process~~ appliances for the mass production of food;
- bains-marie (IEC 60335-2-50).

## 2 Normative references

This clause of Part 1 is applicable except as follows.

*Addition:*

~~IEC 60436, *Methods for measuring the performance of electric dishwashers*~~

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*

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 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 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

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 that can be expected in normal use taking into account the manufacturer's instructions.

Appliances incorporating **induction heating sources** are operated with the **induction crockery** placed on **induction trays**. All tray supports are loaded, but partial up to full load shall be possible.

All controls are set to maximum, and the **induction crockery** is half-filled with initially cold water. Covers (cloches) are in their position.

The appliances consist of several units, which can form up to three separated modules; they are connected together during operation. These units are the heating module with the **induction heating source**, the rack with the **coil carriers** and the enclosure with the supports for the **induction trays** including the **induction crockery**.

**3.101****hot cupboard**

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

**3.102****heated top**

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

**3.103****heated display case**

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

**3.104****heated crockery dispenser**

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

**3.105****installation wall**

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

**3.106****heated table**

appliance designed for warm-holding on the surface

**3.107****radiant heater**

**stationary appliance** for keeping food and crockery warm by means of radiant heat

NOTE A part of the appliance can be swivelling.

**3.108****heating unit**

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

**3.109****induction heating source**

heating source that operates by inducing eddy currents in **induction crockery**

**3.110****coil carrier**

insulation device containing the induction winding

**3.111****induction crockery**

crockery suitable to be heated by induction for heating up or keeping food warm

**3.112****induction tray**

tray adapted to **induction crockery**, as recommended by the manufacturer