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INTERNATIONAL STANDARD

Household and similar electrical appliances – Safety –
Part 2-50: Particular requirements for commercial electric bains-marie

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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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9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

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 consolidated version of IEC 60335-2-50 consists of the fourth edition (2002) [documents 61E/405/FDIS and 61E/417/RVD] and its amendment 1 (2007) [documents 61E/588/FDIS and 61E/593/RVD].

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience.

It bears the edition number 4.1.

A vertical line in the margin shows where the base publication has been modified by amendment 1.

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 bains-marie.

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).
– 16.2: 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 maintenance result 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.

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.

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.

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 2-50: Particular requirements for commercial electric bains-marie

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electrically operated commercial **bains-marie** 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 101 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.

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);

– continuous process appliances for the mass production of food.

2 Normative references

This clause of Part 1 is applicable.

3 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

Open-well and **wet-heat-type bains-marie** are filled with water to the **indicated level** and topped up during the test in accordance with the manufacturer's instructions. The appliance is operated with any control intended to be operated by the user set at maximum. If the water boils, the control is then adjusted to the lowest setting that maintains simmering. No covers or containers are fitted.

Dry-heat-type bains-marie are operated with any controls set at the maximum. Empty food containers are placed in the well but with the container covers removed.

Combined-type appliances are operated under the most unfavourable conditions.

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
bain-marie
an appliance with a well that is used for the storage of hot food in containers prior to serving. The containers are indirectly heated by hot air, steam or water in the well

3.102
open-well-type bain-marie
an appliance where the food containers rest in water in a heated well

3.103
wet-heat-type bain-marie
an appliance where the fitted food containers are heated by steam generated within the appliance. The pressure in the well or steam generator does not differ significantly from atmospheric pressure

3.104
dry-heat-type bain-marie
an appliance where the fitted food containers are heated by warm air generated within the appliance

3.105
indicated level
a mark on the appliance to indicate the maximum liquid level for correct operation

3.106
installation wall
a special fixed construction containing supply facilities for appliances installed in conjunction with it

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.

5.10 *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.*

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*:

Appliances normally used on a table shall be at least IPX3. Other appliances shall be at least IPX4.

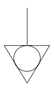
7 Marking and instructions

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:*

 [symbol 5021 of IEC 60417-1] equipotentiality

7.12 *Addition:*

If symbol 5021 of IEC 60417-1 is marked on the appliance its meaning shall be explained.