

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Household and similar electrical appliances – Safety –
Part 2-116: Particular requirements for furniture with electrically motorised parts
(standards.iteh.ai)

Appareils électrodomestiques et analogues – Sécurité –
Partie 2-116: Exigences particulières pour les meubles avec des parties
électriquement motorisées





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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –**
**Part 2-116: Particular requirements for furniture
with electrically motorised parts**

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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International Standard IEC 60335-2-116 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

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

FDIS	Report on voting
61/5929/FDIS	61/5945/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.

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 furniture with electrically motorised parts.

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 concerns an adjective, the adjective and the associated noun are also in bold.

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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 or later than 36 months from the date of publication.

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 only covers the risks associated with electrically motorized parts 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 such appliances. It does not cover risks associated with furniture containing heating elements.

Other safety aspects of furniture with and without electrically motorised parts are covered by the standards developed by ISO TC 136.

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.

<https://standards.iteh.ai/catalog/standards/sist/9df82a99-fl52-4eab-bf66-38d38bc43636/iec-60335-2-116-2019>

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.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-116: Particular requirements for furniture with electrically motorised parts

1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of **furniture** with electrically motorized parts intended for household and similar purposes, their **rated voltage** being not more than 250 V.

Furniture incorporating electrically motorised parts not intended for normal household use but which nevertheless may be a source of danger to the public, such as **furniture** intended to be used by laymen in shops, offices, hotels, restaurants, cinemas, hospitals, schools, in light industry and on farms, are within the scope of this standard.

NOTE 101 Examples of **furniture** incorporating electrically motorised parts, are

- electrically operated/height adjustable tables and desks;
- electrically operated/adjustable stands and wall attachment for e.g. TV-sets and monitors;
- electrically operated/adjustable seating;
- beds with incorporated ventilators and filters;
- electrically operated/adjustable beds;
- electrically operated/adjustable storage units, including kitchen units;
- electrically operated/adjustable **furniture** intended to be secured to the wall or ceiling;
- electrically operated extension elements (drawers and doors);
- electric check-out **furniture** in hotels and shops;
- **furniture** delivered in parts (ready to assemble or knock-down furniture).

This standard deals with the reasonably foreseeable hazards presented by **furniture** incorporating electrically motorised parts that are encountered by all persons. However, in general, it does not take into account

- persons whose physical, sensory or mental capabilities; or lack of experience and knowledge prevents them from using the **furniture** incorporating electric appliances, parts or components safely without supervision or instruction;
- children playing with **furniture** incorporating electrically motorised parts.

NOTE 102 Attention is drawn to the fact that

- for **furniture** incorporating electrically motorised parts intended to be used in vehicles or on board ships or aircraft, additional requirements can 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 authorities for fire protection and similar authorities.

NOTE 103 This standard does not apply to

- **furniture** containing heating elements;
- electrically operated hospital beds (IEC 60601-2-52);
- electrical wheel chairs;
- special **furniture** incorporating electric appliances, parts or components, which are part of industrial production equipment;
- cupboards for building in appliances like a dishwasher;

- electric child care articles except electrical height adjustable changing (nursing) tables;
- **furniture** especially for use by children;
- **furniture** for outdoor use.

2 Normative references

This clause of Part 1 is applicable.

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1 Definitions relating to physical characteristics

Replacement:

3.1.9

normal operation

operation with the appliance operating with its **rated load** and under the most unfavourable conditions specified in the instructions

Where applicable, the **rated load** is distributed as follows.

For adjustable beds with a non-articulating frame, the **rated load** is evenly distributed over the bed surface.

For adjustable articulating beds, the **rated load** is evenly distributed over the three separate bed surface areas with 45 % for the head part, 25 % for the middle part and 30 % for the foot part.

For adjustable articulating chairs without a leg rest, the **rated load** is evenly distributed over the two separate chair surface areas with 35 % for the back-rest part and 65 % the seating surface part.

For adjustable articulating chairs with a leg rest, the **rated load** is evenly distributed over the three separate chair surface areas with 35 % for the back-rest part, 55 % for the seating surface part and 10 % for the leg rest part.

For other **furniture** or parts of the **furniture** with electrically motorized parts the **rated load** is evenly distributed over the load bearing surface.

3.1.101

rated duty cycle

maximum activation time (x seconds ON) followed by a minimum deactivation time (y seconds OFF) necessary for the safe operation of the **furniture** assigned by the manufacturer

3.1.102

rated load

load assigned to the appliance by the manufacturer

Note 1 to entry: For beds, the mattress is considered a part of the bed construction.

3.5 Definitions relating to types of appliances

3.5.101

furniture

article intended to support human activities such as seating, eating, sleeping, working or storing things

Note 1 to entry: Examples are chairs, desks, tables, work benches, cupboards, shelves and beds.

3.6 Definitions relating to parts of an appliance

Replacement:

3.6.3 accessible part

part or surface that can be touched by means of test probe B or test probe 18 of IEC 61032, and if the part or surface is metal, any conductive part connected to it

Note 1 to entry: **Accessible non-metallic parts** with conductive coatings are considered to be **accessible metal parts**.

3.7 Definitions relating to safety components

3.7.101 biased-off switch

hold-to-run device which initiates and maintains the movement only as long as the manual control is actuated

3.7.102 entrapment protection system

part of the appliance that protects against shearing, crushing or being held captive

3.7.103 impulse activation device

device which initiates the movement or terminates the movement or causes a change of the direction of the movement

3.7.104 manual release

handle or the like which initiates manual operation of the moving parts

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3.8 Definitions relating to miscellaneous matters

3.8.101 limited movement

operation where movement of a part of the appliance is made in very small steps in order to inform the user that they have to shift their position for ergonomic reason

Note 1 to entry: This movement can be programmable and can be repeated in several series.

Note 2 to entry: When **limited movement** activates, the first movement and the consecutive movement does not result in a change from the original position.

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.

5.101 Furniture is tested as a motor-operated appliance.

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 Modification:

Appliances shall be of type **class I**, **class II** or **class III**.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 Addition:

Appliances shall be marked with their **rated load** in kg.

If different parts support loads within the same **furniture**, the **rated load** for each part shall be marked.

Appliances shall be marked with symbol IEC 60417-5957 (2004-12) or with the substance of the following:

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Appliances not intended for continuous operation shall be marked with their **rated duty-cycle**.

7.6 Addition:

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[symbol IEC 60417-5957
(2004-12)]

for indoor use only

7.12 Addition:

The instructions shall state the substance of the following:

- disconnect the supply when carrying out maintenance and cleaning;
- examine the appliance frequently for signs of wear or damage. If there are such signs or if the appliance has been misused or does not work, contact the supplier for further information;
- do not allow children to play with fixed controls;
- keep remote controls away from children;
- when operating a switch that initiates and maintains the movement of the furniture or terminates the movement of the furniture or causes a change of the direction of the movement of the furniture, make sure that other persons are kept away.

The instructions shall also include information on the following:

- placement of **furniture** to avoid creating entrapment hazards with other **furniture**;
- details on how to use a **manual release**, if any;
- an explanation of different ways of controlling the movement;

- information relating to cleaning and **user maintenance** including use of chemical cleaning agents.

If symbol IEC 60417-5957 (2004-12) is used, its meaning shall be explained.

8 Protection against access to live parts

This clause of Part 1 is applicable, except as follows.

8.1.1 Modification:

Test probe B and test probe 18 of IEC 61032 are applied with a force not exceeding 1 N, the appliance being in every possible position, except that appliances normally used on the floor and having a mass exceeding 40 kg are not tilted.

Through openings, the test probe is applied to any depth that the probe will permit and is rotated or angled before, during and after insertion to any position. If the opening does not allow the entry of the probe, the force on the probe in the straight position is increased to 20 N when probe B is used or 10 N when probe 18 is used. If the probe then enters the opening, the test is repeated with the probe in the angled position.

During the tests with:

- test probe B, all **detachable parts** are removed;
- test probe 18, the appliance shall be fully assembled as in normal use without any parts removed.

However, test probe 18 is not applied to appliances for commercial use unless they are intended to be installed in an area open to the public.

8.2 Modification:

Compliance is checked by inspection and by applying test probe B and test probe 18 of IEC 61032 in accordance with the conditions specified in 8.1.1.

*Test probe B and test probe 18 of IEC 61032 are applied to **built-in appliances and fixed appliances** only after installation.*

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable except as follows.

10.1 Addition:

The representative period is the time for an intended complete movement cycle of the driven part.

10.2 Addition:

The representative period is the time for an intended complete movement cycle of the driven part.

11 Heating

This clause of Part 1 is applicable except as follows.

11.7 Replacement:

Appliances for continuous operation are operated until steady conditions are established.

*Appliances with a **rated duty-cycle** are operated in repeated cycles until steady conditions are established. Each cycle being the **rated duty-cycle**.*

12 Void

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

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This clause of Part 1 is applicable except as follows.

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15.2 Addition: <https://standards.iteh.ai/catalog/standards/sist/9df82a99-fl52-4eab-bf66-38d38bc43636/iec-60335-2-116-2019>

Appliances having external surfaces on which it is possible to place a vessel, such as a cup or jug, are tested by rapidly pouring 0,5 l of the solution over the surface. If there is more than one surface, they are tested in turn.

16 Leakage current and electric strength

This clause of Part 1 is applicable.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.7 Addition: