

**MAJAPIDAMIS- JA MUUD TAOLISED ELEKTRISEADMED.  
OHUTUS. OSA 2-4: ERINÕUDED TSENTRIFUUGIDELE**

**Household and similar electrical appliances - Safety -  
Part 2-4: Particular requirements for spin extractors**

**EESTI STANDARDI EESSÕNA****NATIONAL FOREWORD**

See Eesti standard EVS-EN 60335-2-4:2010 sisaldab Euroopa standardi EN 60335-2-4:2010 ingliskeelset teksti.	This Estonian standard EVS-EN 60335-2-4:2010 consists of the English text of the European standard EN 60335-2-4:2010.
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English version

**Household and similar electrical appliances -  
Safety -  
Part 2-4: Particular requirements for spin extractors  
(IEC 60335-2-4:2008, modified)**

Appareils électrodomestiques  
et analogues -  
Sécurité -  
Partie 2-4: Règles particulières  
pour lesessoreuses centrifuges  
(CEI 60335-2-4:2008, modifiée)

Sicherheit elektrischer Geräte  
für den Hausgebrauch  
und ähnliche Zwecke -  
Teil 2-4: Besondere Anforderungen  
für Wäscheschleudern  
(IEC 60335-2-4:2008, modifiziert)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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**CENELEC**

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 61/3677/FDIS, future edition 6 of IEC 60335-2-4, prepared by IEC Technical Committee 61, Safety of household and similar electrical appliances, was submitted to the IEC-CENELEC parallel vote.

A draft amendment was prepared by the Technical Committee CENELEC TC 61, Safety of household and similar electrical appliances. It was discussed during the meetings of CENELEC TC 61 in Malaga in June 2007, in Berlin in November 2007, in Kista in June 2008 and in London in December 2008, when it was decided to submit a draft for an amendment to the Unique Acceptance Procedure.

The combined texts were approved by CENELEC as EN 60335-2-4 on 2009-11-01.

This European Standard supersedes EN 60335-2-4:2002 + corr. June 2006 + A1:2004 + A2:2006.

The principal changes compared to EN 60335-2-4:2002 and its amendments are as follows (minor changes are not listed):

- aligns the text with EN 60335-1:2002 and its amendments,
- clarifies criteria for the protection against mechanical hazards for double lid appliances,
- some notes have been converted to normative text.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates are applicable:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2010-11-01
- date on which national standards conflicting with the EN have to be withdrawn (dow) 2014-11-01

This part 2 has to be used in conjunction with EN 60335-1, Household and similar electrical appliances – Safety – Part 1: General requirements. It was established on the basis of the 2002 edition of that standard. Amendments and revisions of Part 1 have also to be taken into account and the dates when such changes become applicable will be stated in the relevant amendment or revision of Part 1.

This part 2 supplements or modifies the corresponding clauses of EN 60335-1, so as to convert it into the European Standard: Safety requirements for electric spin extractors.

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 of Part 1 is to be adapted accordingly.

NOTE 1 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.;
- subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letter Z.

NOTE 2 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.

There are no special national conditions causing a deviation from this European Standard, other than those listed in Annex ZA to EN 60335-1.

There are no national deviations from this European Standard, other than those listed in Annex ZB to EN 60335-1.

p NOTE In this document, p is used in the margin to indicate instructions for preparing the printed version.

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## Endorsement notice

The text of the International Standard IEC 60335-2-4:2008 was approved by CENELEC as a European Standard with agreed common modifications as given below.

### COMMON MODIFICATIONS

#### 1 Scope

p **Replace by:**

This clause of Part 1 is replaced by the following.

This European Standard deals with the safety of

- stand alone electric **spin extractors**
- **spin extractors** incorporated in washing machines that have separate containers for washing and spin extraction

for household and similar purposes that have a capacity not exceeding 10 kg of dry cloth and a drum peripheral speed not exceeding 50 m/s, their **rated voltages** being not more than 250 V for single-phase appliances and 480 V for other appliances.

Appliances not intended for normal household use but which nevertheless may be a source of danger to the public, such as **spin extractors** intended to be used by laymen in shops, on farms, and for communal use in blocks of flats are within the scope of this standard.

This standard deals with the common hazards presented by **spin extractors** that are encountered by all persons in and around the home. However, it does not take into account

- persons (including children) whose
  - physical, sensory or mental capabilities, or
  - lack of experience and knowledge
 prevents them from using the appliance safely without supervision or instruction,
- children playing with the appliance.

This standard does not apply to

- **spin extractors** intended to be used in laundrettes,
- **spin extractors** intended exclusively for industrial purposes,
- **spin extractors** intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas).

NOTE 101 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.

#### 3 Definitions

p **Add:**

##### 3.Z101

##### **spin extractor**

appliance having a water-extracting function by which water is removed from textiles by centrifugal force

## 7 Marking and instructions

p 7.12.1 **Replace** "lid" by "lid or door".

p 7.101 **Replace** "lid" by "lid or door" (two times).

## 15 Moisture resistance

p 15.2 **Add** before the last paragraph:

*For appliances having a working surface, the test is repeated with the appliance tilted at an angle of 2° in relation to the position of normal use in the direction which is likely to be the most unfavourable.*

*The lid of top loading appliances is considered as a working surface if it is flat enough to put something on.*

## 18 Endurance

p **Replace** by:

This clause of Part 1 is replaced by the following.

Lid and door interlocks of **spin extractors** shall withstand the stresses to which they are subjected in normal use.

*Compliance is checked by the following test.*

*The lid or door is opened as in normal use and the force applied to the handle or actuating means of the release mechanism is measured. The force required to close the lid or door is also measured.*

*The lid or door is then subjected to 6 000 cycles of opening and closing. For the first 3 000 cycles, the **spin extractor** is supplied at **rated voltage** and operated so that the interlock mechanism is energized and de-energized each cycle. For the remaining 3 000 cycles, the **spin extractor** is not connected to the supply mains.*

*If the interlock complies with EN 60730-2-12, the **spin extractor** is not connected to the supply mains during this test. If the interlock operates more than once during **normal operation**, it is operated for this number of times during each cycle.*

*Lids are opened each time by approximately 45° and doors by approximately 90°, the speed of opening being approximately 1,5 m/s. The force applied to open the lid or door is twice the measured opening force, with a minimum of 50 N and a maximum of 200 N.*

*Doors are closed at a speed of approximately 1,5 m/s, the force applied being five times the measured closing force, with a minimum of 50 N and a maximum of 200 N. Lids are allowed to close under their own weight but if they fail to latch, a force of five times the measured closing force is applied, with a minimum of 50 N and a maximum of 200 N.*

*After the tests, the interlock shall be fit for further use and compliance with the relevant requirements of 20.103 shall not be impaired.*

## 20 Stability and mechanical hazards

p 20.102 **Replace** the first paragraph by:

It shall only be possible to energize the drum drive motor when the lid or door is in the closed position and locked.

p **20.103** *Replace by:*

**20.103** For appliances having a drum it shall not be possible to open the lid or door while the drum is in motion.

*Compliance is checked by inspection and by the following test.*

*The appliance is supplied at **rated voltage** and operated empty. The force determined during the test of 22.101 with the lid or door interlocked is applied to the lid or door in an attempt to open it.*

*It shall not be possible to open the lid or door while the drum is in motion.*

p **20.104** *Delete*

## **21 Mechanical strength**

p **21.101** *Replace by:*

Lids or doors of appliances shall have adequate mechanical strength.

*Compliance is checked by the following test.*

*Appliances with doors are positioned so that the door is in a horizontal plane.*

*A rubber hemisphere having a diameter of 70 mm and a hardness between 40 IRHD and 50 IRHD is fixed to a cylinder having a mass of 20 kg and dropped from a height of 100 mm onto the centre of the lid or door.*

*The test is carried out three times, after which the lid or door shall not be damaged to the extent that moving parts become accessible.*

p **21.102** *Replace "lid" by "lid or door" (two times).*

*In the last paragraph, **replace** "to 20.104" by "to 20.103".*

## **24 Components**

p **24.1.4** *Replace "lid" by "lid or door".*

### **Bibliography**

p **Add the following notes to the standards mentioned:**

IEC 60436           NOTE   Harmonized as EN 50242/EN 60436

ISO 13732-1       NOTE   Harmonized as EN ISO 13732-1

p Add:

**Annex ZC**  
(normative)

**Normative references to international publications  
with their corresponding European publications**

*Addition:*

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60730-2-12 (mod)	2005	Automatic electrical controls for household and similar use – Part 2-12: Particular requirements for electrically operated door locks	EN 60730-2-12 + A11	2006 2008

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## 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 which 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 2-4: Particular requirements for spin extractors

#### 1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of

- stand alone electric spin extractors, and
- spin extractors incorporated in washing machines that have separate containers for washing and spin extraction

for household and similar purposes that have a capacity not exceeding 10 kg of dry cloth and a drum peripheral speed not exceeding 50 m/s, their **rated voltages** being not more than 250 V for single-phase appliances and 480 V for other appliances.

Appliances not intended for normal household use but which nevertheless may be a source of danger to the public, such as spin extractors intended to be used by laymen in shops, in light industry and on farms, and spin extractors for communal use in blocks of flats or in launderettes are within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by appliances which are encountered by all persons in and around the home. However, in general, it does not take into account

- persons (including children) whose
  - physical, sensory or mental capabilities; or
  - lack of experience and knowledgeprevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

NOTE 101 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.

NOTE 102 This standard does not apply to

- appliances intended 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).

## 2 Normative references

This clause of Part 1 is applicable except as follows.

*Addition:*

IEC 60730-2-12:2005, *Automatic electrical controls for household and similar use – Part 2: Particular requirements for electrically operated door locks*

## 3 Definitions

This clause of Part 1 is applicable except as follows.

**3.1.9 Replacement:**

### **normal operation**

operation of the appliance under the following conditions

The drum is filled with textile material having a mass in the dry condition equal to the maximum mass specified in the instructions. The textile material consists of pre-washed double hemmed cotton sheets having dimensions of approximately 700 mm × 700 mm and a specific mass between 140 g/m<sup>2</sup> and 175 g/m<sup>2</sup> in the dry condition. It is saturated with water before being evenly distributed in the drum.

## 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.

**5.2 Addition:**

*The tests of 21.101, 21.102 and 22.101 shall be carried out on the same appliance as that used for the test of Clause 18.*

**5.3 Addition:**

*The tests of 21.101 and 21.102 are carried out before the test of Clause 18. The test of 22.101 is carried out after the test of Clause 18.*

## 6 Classification

This clause of Part 1 is applicable except as follows.

**6.1 Modification:**

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

**6.2 Addition:**

Appliances shall be at least IPX4.