

**Majapidamis- ja muud taolised elektriseadmed. Ohutus.
Osa 2-7: Erinõuded pesumasinatetele**

Household and similar electrical appliances - Safety - Part 2-7: Particular requirements for washing machines

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60335-2-7:2010 sisaldab Euroopa standardi EN 60335-2-7:2010 ingliskeelset teksti.

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English version

**Household and similar electrical appliances -
Safety -
Part 2-7: Particular requirements for washing machines
(IEC 60335-2-7:2008, modified)**

Appareils électrodomestiques et
analogues -
Sécurité -
Partie 2-7: Règles particulières pour les
machines à laver le linge
(CEI 60335-2-7:2008, modifiée)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke -
Teil 2-7: Besondere Anforderungen
für Waschmaschinen
(IEC 60335-2-7:2008, modifiziert)

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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 61/3564/FDIS, future edition 7 of IEC 60335-2-7, 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 60335-2-7 on 2009-11-01.

This European Standard supersedes EN 60335-2-7:2003 + corr. July 2003 + A1:2004 + A2:2006.

The principal changes compared to EN 60335-2-7:2003 are as follows (minor changes are not listed):

- the text of some notes has been converted to normative text;
- the spillage test has been made applicable to all washing machines (15.2);
- additional requirements concerning the accessibility of mechanical release mechanisms have been added (22.105);
- requirements for washing machines employing an electrolyte, instead of detergent, have been introduced in Annex CC.

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 washing machines.

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.

Endorsement notice

The text of the International Standard IEC 60335-2-7:2008 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 electric washing machines for household and similar use, that are intended for washing clothes and textiles, their **rated voltage** being not more than 250 V for single-phase washing machines and 480 V for other washing machines, in this standard generally referred to as appliances.

This standard also deals with the safety of electric washing machines for household and similar use employing an electrolyte instead of detergent. Additional requirements for these appliances are given in Annex CC.

Appliances not designed for normal household use but which nevertheless may be a source of danger to the public, such as appliances 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 appliances 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

- appliances intended to be used in laundrettes,
- appliances intended exclusively for industrial purposes (EN ISO 10472-2),
- 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).

NOTE 101 Attention is drawn to the fact that

- for washing machines 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 washing machines having a separate spin container for water extraction, EN 60335-2-4 is also applicable,
- for washing machines having a drying function, EN 60335-2-11 is also applicable,
- if an appliance within the scope of this standard also incorporates functions that are covered by another Part 2 of EN 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.

2 Normative references

- p **Delete** the reference to IEC 60456.

3 Definitions

- p **Add:**

3.Z101

washing machine

appliance for cleaning and rinsing of textiles using water which may also have a means of extracting excess water from the textiles

3.Z102

agitator washing machine

washing machine in which the textiles are substantially immersed in the washing water, the mechanical action being produced by a device moving about or along its vertical axis with a reciprocating motion (an agitator). This device usually extends above the maximum water level

3.Z103

horizontal drum washing machine

washing machine in which the textiles are placed in a horizontal or inclined drum and partially immersed in the washing water, the mechanical action being produced by rotation of the drum about its axis, the movement being either continuous or periodically reversed

3.Z104

impeller washing machine

washing machine in which the textiles are substantially immersed in the washing water, the mechanical action being produced by a device rotating about its axis continuously or reversing after a number of revolutions (an impeller). The uppermost point of this device is substantially below the minimum water level

3.Z105

washer-dryer

washing machine which includes also a means for drying the textiles, usually by heating and tumbling

3.Z106

spin extraction

water-extracting function by which water is removed from textiles by centrifugal force. This is usually included as a function of a **washing machine**

11 Heating

- p 11.7 In the paragraph starting with "The rest period", delete the words "including any braking time,".

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 18.101 In the last paragraph, **replace** "20.103 to 20.105" by "20.103 and 20.104".

19 Abnormal operation

- p **19.13** In the last paragraph, **replace** “20.103 to 20.105” by “20.103 and 20.104”.

20 Stability and mechanical hazards

- p **20.101** **Replace by:**

20.101 For appliances of the drum type, the drum drive motor shall be de-energized before the opening of the lid or door exceeds 50 mm.

If a removable or sliding lid is provided, the motor shall be de-energized as soon as the lid is removed or displaced and it shall not be possible to start the motor unless the lid is in the closed position.

Compliance is checked by measurement and inspection.

- p **20.103** **Replace by:**

20.103 For appliances of the drum type, it shall only be possible to energize the drum drive motor when the lid or door is in the closed position.

Compliance is checked by inspection and by manual test using test probe B of IEC 61032 in an attempt to override the locking function.

- p **20.104** **Replace by:**

20.104 It shall not be possible to open the lid or door of an appliance while the drum speed exceeds 60 r/min.

Compliance is checked by the following test.

*The appliance is supplied at **rated voltage** and operated empty or filled as specified for **normal operation**, whichever is more unfavourable. The force determined during the test of 22.104 with the lid or door locked 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 speed exceeds 60 r/min.

- p **20.105** **Delete.**

21 Mechanical strength

- p **21.101.2** In the last paragraph, **replace** “20.103 to 20.105” by “20.103 and 20.104”.

- p **21.102** In the last paragraph, **replace** “20.103 to 20.105” by “20.103 and 20.104”.

- p **Annex DD** **Delete.**

Bibliography

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

IEC 60335-2-4 NOTE Harmonized as EN 60335-2-4.

IEC 60335-2-11 NOTE Harmonized as EN 60335-2-11.

IEC 60436 NOTE Harmonized as EN 50242/EN 60436.

IEC 60456 NOTE Harmonized as EN 60456:1994 + A11:1995 + A12:1997 (modified).

ISO 10472-2 NOTE Harmonized as EN ISO 10472-2.

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
ISO 1817	2005	Rubber, vulcanized – Determination of the effect of liquids	–	–

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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.

NOTE 1 For example, if appliances within the scope of this Part 2

- have a separate spin container for water extraction, IEC 60335-2-4 is also applicable as far as is reasonable;
- have a drying function, IEC 60335-2-11 is also applicable as far as is reasonable.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 2 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 3 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 2-7: Particular requirements for washing machines

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric washing machines for household and similar use, that are intended for washing clothes and textiles, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

This standard also deals with the safety of electric washing machines for household and similar use employing an electrolyte instead of detergent. Additional requirements for these appliances are given in Annex CC.

NOTE 101 Guidance is given in Annex DD for requirements that may be used to ensure an acceptable level of protection against electrical and thermal hazards for washing machines fitted with a power driven wringer.

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

NOTE 102 Examples of such appliances are washing machines for communal use in blocks of flats or in launderettes.

As far as is practicable, this standard deals with the common hazards presented by washing machines that 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 103 Attention is drawn to the fact that

- for washing machines 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 104 This standard does not apply to

- washing machines intended exclusively for industrial purposes (ISO 10472-2);
- 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 60456, *Clothes washing machines for household use – Methods for measuring the performance*

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

ISO 1817:2005, *Rubber, vulcanized – Determination of the effect of liquids*

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 appliance is filled with dry textile material having a mass equal to the maximum mass stated in the instructions, and with the maximum quantity of water for which it is constructed. However, if the power input or current is higher when only 50 % of the textile material is used, the appliance is operated with this load instead if this gives more unfavourable conditions than the full load during the test of Clause 11.

NOTE 101 For some appliances incorporating a programmer, using the 50 % reduced load may result in automatic selection of a reduced wash programme.

The temperature of the water is

- 65 °C \pm 5 °C for appliances without heating elements;
- 15 °C \pm 5 °C for appliances without heating elements and intended for connection to the cold water supply only;
- 15 °C \pm 5 °C for other appliances.

If the appliance does not incorporate a programmer, the water is heated to 90 °C \pm 5 °C or as high as the construction will allow if lower, before starting the first washing period.

The textile material consists of pre-washed double-hemmed cotton sheets having dimensions approximately 700 mm \times 700 mm and a specific mass between 140 g/m² and 175 g/m² in the dry condition.

For impeller type washing machines, if the textile material does not move properly during operation,

- the quantity of textile material may be reduced until the maximum power input of the motor is attained, or
- a textile material comprising pre-washed double-hemmed cotton sheets, having dimensions of approximately 900 mm \times 900 mm and a mass between 90 g/m² and 110 g/m² in the dry condition, may be used.

However, for impeller type washing machines, in case of doubt, the test is carried out using the reduced quantity of textile material.