

**Majapidamis- ja muud taolised elektriseadmed. Ohutus.
Osa 2-25: Erinõuded mikrolaineahjudele, sealhulgas
kombinatsioon- mikrolaineahjudele**

**Household and similar electrical appliances - Safety -
Part 2-25: Particular requirements for microwave ovens,
including combination microwave ovens**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60335-2-25:2012 sisaldab Euroopa standardi EN 60335-2-25:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 60335-2-25:2012 consists of the English text of the European standard EN 60335-2-25:2012.
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English version

**Household and similar electrical appliances -
Safety -
Part 2-25: Particular requirements for microwave ovens, including
combination microwave ovens
(IEC 60335-2-25:2010, modified)**

Appareils électrodomestiques et
analogues -
Sécurité -
Partie 2-25: Règles particulières pour les
fours à micro-ondes, y compris les fours à
micro-ondes combinés
(CEI 60335-2-25:2010, modifiée)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke -
Teil 2-25: Besondere Anforderungen für
Mikrowellenkochgeräte und kombinierte
Mikrowellenkochgeräte
(IEC 60335-2-25:2010, modifiziert)

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

This document (EN 60335-2-25:2012) consists of the text of IEC 60335-2-25:2010 prepared by IEC/SC 61B "Safety of microwave appliances for household and commercial use", together with the common modifications prepared by CLC/TC 61, "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which this document has to be implemented (dop) 2012-11-28
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2014-11-28

This document supersedes EN 60335-2-25:2002 + A1:2005 + A2:2006 + A11:2010.

EN 60335-2-25:2012 includes the following significant technical changes with respect to EN 60335-2-25:2002:

- the scope is extended by microwave ovens on board ships and Annex BB contains requirements and test specifications for microwave ovens on board ships;
- the scope and the requirements for the instructions are modified for better separation between "household and similar use" and "commercial use";
- the scope is modified by so that this International Standard does not take into account persons whose capabilities or lack of experience and knowledge prevents them from using the appliance safely without supervision or instruction and children playing with the appliance;
- the intended use is defined for clarification;
- the door endurance test is rationalised;
- the replacement of 22.103, 22.104 and 22.105 allows interlock systems with at least one concealed door interlock as well as alternative interlock systems without concealed door interlock;
- the tests on electronic door interlock systems and similar are defined for clarification;
- the pollution degree of combination microwave ovens is defined for clarification;
- the thickness requirement for sheaths of visibly glowing heating elements of combination microwave ovens is defined for clarification;
- there is an editorial correction of Clause 19 of Annex AA.

This standard is to be used in conjunction with the latest edition of EN 60335-1 and its amendments. When "Part 1" is mentioned in this standard, it refers to EN 60335-1.

This part 2 supplements or modifies the corresponding clauses in EN 60335-1, so as to convert that publication into the European standard: *Particular requirements for microwave ovens, including combination microwave ovens*.

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 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.

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.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60335-2-25:2010 are prefixed “Z”.

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

Endorsement notice

The text of the International Standard IEC 60335-2-25:2010 was approved by CENELEC as a European Standard with common modifications.

COMMON MODIFICATIONS

1 Scope

Replacement

This European Standard deals with the safety of **microwave ovens** for household and similar use, their **rated voltage** being not more than 250 V.

This European Standard also deals with **combination microwave ovens**, for which Annex AA is applicable.

This standard also deals with **microwave ovens** intended to be used on board ships, for which Annex BB is applicable.

As far as is practicable, this European Standard deals with the common hazards presented by appliances that are encountered by all persons in household and similar environments.

However, in general, it does not take into account:

- **children** playing with the appliance;
- the **use of the appliance** by **very young children**;
- the **use of the appliance** by **young children** without supervision.

It is recognized that **very vulnerable people** may have needs beyond the level addressed in this European Standard.

NOTE Z101 Examples of appliance for household environment are appliances for typical housekeeping functions used in the household environment that may also be used by non expert users for typical housekeeping functions:

- in shops and other similar working environments;
- in farm houses;
- by clients in hotels, motels and other residential type environments;
- in bed and breakfast type environments.

NOTE Z102 Household environments include the dwelling and its associated buildings, the garden, etc.

As far as is practicable, this standard deals with the common hazards presented by appliances 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 knowledge
 prevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

- NOTE Z103 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 and similar authorities.

- NOTE Z104 This standard does not apply to
- commercial **microwave ovens** (EN 60335-2-90)
 - industrial microwave heating equipment (EN 60519-6)
 - appliances for medical purposes (EN 60601)
 - 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).

7 Marking and instructions

In the fifth dashed item after Note 101 replace "if smoke is observed" by "if smoke is emitted". :

11 Heating

11.8 *Replace the first paragraph by the following:*

During the test, the temperature rises are monitored continuously and shall not exceed the values shown in Table 3.

Modification

*Replace in Table 3 the row "External enclosure of **motor-operated appliances**, except handles held in normal use" and the corresponding footnotes by the following Table Z101.*

Add the following Table Z101.

Table Z101 — Maximum temperature rises for external surfaces under normal operating conditions

Surface ^c	Temperature rise of external surfaces ^a K	
	Surfaces of appliances situated up to 850 mm above the floor after installation	Surfaces of appliances situated more than 850 mm above the floor after installation and portable appliances
Bare metal	40	45
Coated metal ^d	45	55
Glass and ceramic	55	60
Plastic and plastic coating > 0,3 mm ^b	60	65

^a When, for appliance covered by Annex AA, due to their construction or dimensional limitations, the required values cannot be met, the maximum temperature rise shall not be higher than twice the values indicated. In such cases, a warning shall be marked on the appliance.

^b The temperature rise limit applies also for plastic material having a metal finish of thickness less than 0,1 mm.

^c When the thickness of the plastic coating does not exceed 0,3 mm, the temperature rise limits of the coated metal or of glass and ceramic material apply.

^d Metal is considered coated when a coating having a minimum thickness of 80 µm made by enamel or non substantially plastic coating is used.

22 Construction

Add:

22.105 In the 3rd paragraph replace “test probe B of IEC 61032” with “test probe B and test probe 18 of IEC 61032 in turn to all openings.”

Annex AA

Add:

AA.7.1 When the provisions of footnote a to Table Z101 apply, the appliance shall be marked with:

- the substance of “CAUTION: Hot surface”; or
- symbol IEC 60417-5041.

The warning shall be put on the surface of the appliance having the highest temperature and shall be visible during normal operation.

AA.7.6 Addition:



[symbol IEC 60417-5041]

Caution, hot surface

AA.7.12 Delete.

Add:

AA.7.14 Addition:

The height of the warning “CAUTION. Hot surface” shall be at least 4 mm (measured on the capital letters).

NOTE Z101 For the evaluation of legibility and clarity of safety warnings guidance can be found on IEC 62079.

The height of the symbol IEC 60417-5041 shall be at least 12 mm.

In the Bibliography, **add** the following notes for the standards indicated:

IEC 60335-2-90	NOTE Harmonized as EN 60335-2-90.
IEC 60519-6	NOTE Harmonized as EN 60519-6.
ISO 13732-1	NOTE Harmonized as EN ISO 13732-1.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Addition to the Annex ZA of EN 60335-1:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-27	-	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-52	-	Environmental testing - Part 2: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)	EN 60068-2-52	-
IEC 60335-2-6	-	Household and similar electrical appliances - Safety - Part 2-6: Particular requirements for stationary cooking ranges, hobs, ovens and similar appliances	EN 60335-2-6	-
IEC 60335-2-9	-	Household and similar electrical appliances - Safety - Part 2-9: Particular requirements for grills, toasters and similar portable cooking appliances	-	-

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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 2-25: Particular requirements for microwave ovens, including combination microwave ovens

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of **microwave ovens** for household and similar use, their **rated voltage** being not more than 250 V.

This standard also deals with **combination microwave ovens**, for which Annex AA is applicable.

This standard also deals with **microwave ovens** intended to be used on board ships, for which Annex BB is applicable.

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. However, if the appliance is intended to be used professionally to process food for commercial purposes, the appliance is not considered to be for household and similar use only.

As far as is practicable, this standard deals with the common hazards presented by appliances 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 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 and similar authorities.

NOTE 102 This standard does not apply to

- commercial **microwave ovens** (IEC 60335-2-90)
- industrial microwave heating equipment (IEC 60519-6)
- appliances for medical purposes (IEC 60601)
- 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 60068-2-6, *Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-52, *Environmental testing – Part 2-52: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)*

IEC 60335-2-6, *Household and similar electrical appliances – Safety – Part 2-6: Particular requirements for stationary cooking ranges, hobs, ovens and similar appliances*

IEC 60335-2-9, *Household and similar electrical appliances – Safety – Part 2-9: Particular requirements for grills, toasters and similar portable cooking appliances*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1.7 *Addition:*

NOTE 101 The **rated frequency** is the input frequency.

3.1.9 *Replacement:*

normal operation

operation of the appliance with $1\,000\text{ g} \pm 50\text{ g}$ of potable water at an initial temperature of $20\text{ °C} \pm 2\text{ °C}$ in a cylindrical borosilicate glass vessel having a maximum thickness of 3 mm and an outside diameter of approximately 190 mm. The vessel is placed on the centre of the **shelf**.

3.101

microwave oven

appliance using electromagnetic energy in one or several of the ISM frequency bands¹⁾ between 300 MHz and 30 GHz, for heating food and beverages in a **cavity**

3.102

combination microwave oven

microwave oven in which heat is also provided in the **cavity** by simultaneous or consecutive operation of resistive heating elements

NOTE The resistive heating elements are used to provide radiant heat, convection heat or steam.

3.103

cavity

space enclosed by the inner walls and the door in which the load is placed

¹⁾ ISM frequency bands are the electromagnetic frequencies established by the ITU and reproduced in CISPR 11.