



# SLOVENSKI STANDARD SIST EN 60335-2-25:2000

01-september-2000

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SIST EN 60335-2-25:1997

## Safety of household and similar electrical appliances - Part 2-25: Particular requirements for microwave ovens (IEC 60335-2-25:1996)

Safety of household and similar electrical appliances -- Part 2-25: Particular requirements for microwave ovens

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke -- Teil 2-25: Besondere Anforderungen für Mikrowellengeräte

Sécurité des appareils électrodomestiques et analogues -- Partie 2-25: Règles particulières pour les fours à micro-ondes

Ta slovenski standard je istoveten z: EN 60335-2-25:1996

### ICS:

13.120	Varnost na domu	Domestic safety
97.040.20	<p>☃^åå)ããå^[[ç}ã~ çÉ</p> <p>]^ã^ÁÁ[å[à]ãçæã</p>	Cooking ranges, working tables, ovens and similar appliances

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60335-2-25**

August 1996

ICS 97.040.20

Supersedes EN 60335-2-25:1995

Descriptors: Household electrical appliances, microwave ovens, safety requirements, protection against electric shock, fire protection, protection against mechanical hazard

English version

**Safety of household and similar electrical appliances  
Part 2: Particular requirements for microwave ovens  
(IEC 335-2-25:1996)**

Sécurité des appareils  
électrodomestiques et analogues  
Partie 2: Règles particulières pour  
les fours à micro-ondes  
(CEI 335-2-25:1996)

Sicherheit elektrischer Geräte für den  
Hausgebrauch und ähnliche Zwecke  
Teil 2: Besondere Anforderungen für  
Mikrowellengeräte  
(IEC 335-2-25:1996)

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This European Standard was approved by CENELEC on 1996-07-02. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CENELEC**

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

### Foreword

The text of document 61/97/FDIS, future fourth edition of IEC 335-2-25, prepared by the IEC Technical Committee 61 was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60335-2-25 on 1996-07-02.

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) 1997-06-01
- date on which national standards conflicting with the EN have to be withdrawn (dow) 1999-06-01

For products which have complied with EN 60335-2-25:1995 before 1999-06-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2004-06-01.

This standard has to be used in conjunction with EN 60335-1, Safety of household and similar electrical appliances, Part 1: General requirements. It was established on the basis of the 1994 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 microwave ovens.

Where a particular subclause of part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. Where this standard states "addition", "modification" or "replacement", the relevant text of part 1 is to be adapted accordingly.

SIST EN 60335-2-25:2000

Subclauses, tables and figures which are additional to those in part 1 are numbered starting with 101. Annexes which are additional to those in part 1 are lettered AA, BB, etc.

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.

NOTE - 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 2. When a definition of part 1 concerns an adjective, the adjective and the associated noun are also in bold.

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### Endorsement notice

The text of the International Standard IEC 335-2-25:1996 was approved by CENELEC as a European Standard without any modification.



**NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD**

**CEI  
IEC**

**335-2-25**

Quatrième édition  
Fourth edition  
1996-07

**Sécurité des appareils électrodomestiques  
et analogues**

**Partie 2:  
Règles particulières pour les fours  
à micro-ondes**

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**Safety of household and similar  
electrical appliances**

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**Part 2:  
Particular requirements for microwave ovens**

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International Electrotechnical Commission  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY OF HOUSEHOLD AND SIMILAR  
ELECTRICAL APPLIANCES

## Part 2: Particular requirements for microwave ovens

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, express as nearly as possible an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 335-2-25 has been prepared by sub-committee 61B: Safety of microwave ovens, of IEC technical committee 61: Safety of household and similar electrical appliances.

This fourth edition replaces the third edition published in 1993.

The text of this standard is based on the following documents:

FDIS	Report on voting
61B/97/FDIS	61B/102/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This part 2 is to be used in conjunction with the latest edition of IEC 335-1 and its amendments. It was established on the basis of the third edition (1991) of that standard.

This part 2 supplements or modifies the corresponding clauses in IEC 335-1, so as to convert it into the IEC standard: *Safety requirements for microwave ovens*.

Where a particular subclause of part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. Where this standard states "addition", "modification" or "replacement", the relevant text in part 1 is to be adapted accordingly.

## NOTES

1 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

Words in **bold type** in the text are defined in clause 2. When a definition of part 1 concerns an adjective, the adjective and the associated noun are also in bold.

2 Subclauses, tables and figures which are additional to those in part 1 are numbered starting from 101. Annexes which are additional to those in part 1 are lettered AA, BB, etc.

The following additional differences exist in some countries:

- 4.3: Microwave leakage is not to exceed 10 W/m<sup>2</sup> during the initial test (Japan and USA).
- 6.1: Microwave ovens may be class 0I if the rated voltage does not exceed more than 150 V (Japan).
- 7.12.1: Some warnings have to be marked on the appliance and be visible to the user (New Zealand).
- Clause 18: The test is carried out on two appliances (USA).
- 19.11.2: The input voltage variation is not applied (USA).
- 19.13: Microwave leakage is measured only at the end of each test (USA).
- 21.102: The applied force is 222 N (USA).
- 21.105: Microwave leakage is not to exceed 50 W/m<sup>2</sup> (Japan and USA).
- 22.111: Microwave leakage is measured only at the end of the test (USA).
- 22.112: Microwave leakage is not to exceed 50 W/m<sup>2</sup> (Japan and USA).
- 22.115: All access to the cavity has to be prevented (USA).



## SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES

### Part 2: Particular requirements for microwave ovens

#### 1 Scope

This clause of part 1 is replaced by:

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

So 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.

This standard does not in general take into account

- the use of appliances by young children or infirm persons without supervision;
- playing with the appliance by young children.

#### NOTES

1 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;
- for appliances intended to be used in tropical countries, special 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.

2 This standard does not apply to

- commercial **microwave ovens** (IEC 335-2-90, under consideration);
- industrial microwave heating equipment (IEC 519-6)<sup>1)</sup>;
- appliances for medical purposes (IEC 601)<sup>2)</sup>;
- 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).

3 This standard together with annex BB is applicable to **combination microwave ovens** and **microwave ovens** incorporating a **browning function** until IEC 335-2-100 is published.

#### 2 Definitions

This clause of part 1 is applicable except as follows:

##### 2.2.7 Addition:

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

<sup>1)</sup> IEC 519-6: Specifications for safety in industrial microwave heating equipment.

<sup>2)</sup> IEC 601: Medical electrical equipment.

### 2.2.9 Replacement:

**normal operation:** The appliance is operated with  $1000 \text{ g} \pm 50 \text{ g}$  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**.

2.101 **microwave oven:** Appliance using electromagnetic energy in one or several of the ISM frequency bands<sup>1)</sup> between 300 MHz and 30 GHz, for heating food and beverages in a **cavity**.

2.102 **rated microwave power output:** Microwave power output assigned to the appliance by the manufacturer.

2.103 **cavity:** Space enclosed by the inner walls and the door, and in which the load is placed.

2.104 **shelf:** Horizontal support in the **cavity** on which the load is placed.

2.105 **door interlock:** Device or system which prevents the operation of the magnetron unless the oven door is closed.

2.106 **monitored door interlock:** Door interlock system which incorporates a supervision device.

2.107 **temperature sensing probe:** Device which is inserted into the food to measure its temperature and which is a part of an oven control.

## 3 General requirement

This clause of part 1 is applicable. [SIST EN 60335-2-25:2000](https://standards.iteh.ai/catalog/standards/sist/f8988350-f7b4-4d30-b641-d93fe35cb641/sist-en-60335-2-25-2000)  
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## 4 General conditions for the tests

This clause of part 1 is applicable except as follows:

### 4.2 Addition:

NOTE – An additional sample may be required for the test of 19.104. Six samples of the interlocks are required for the test of 24.101.

### 4.3 Modification:

*Instead of carrying out the tests in the order of clauses, the following sequence of clauses and subclauses applies: 32, 22.113, 22.108, 22.115, 7 to 17, 20, 21 (except 21.101 to 21.105), 18, 19 (except 19.104), 22 (except 22.108, 22.113 and 22.115), 23 to 31, 21.101 to 21.105 and 19.104.*

4.101 *Unless otherwise specified, microwave ovens are tested as motor-operated appliances.*

4.102 *Class III temperature sensing probes are only subjected to the tests of 22.112.*

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

## 5 Void

## 6 Classification

This clause of part 1 is applicable except as follows:

### 6.1 Addition:

**Microwave ovens** shall be of **class I** or **class II**.

## 7 Marking and instructions

This clause of part 1 is applicable except as follows:

### 7.1 Addition:

Appliances shall be marked with the nominal frequency in MHz of the ISM band in which they operate.

The appliance shall be marked with the substance of the following warning in lettering at least 3 mm high. The warning shall be visible when removing any cover, if this results in microwave leakage exceeding the value specified in clause 32.

**iTeh STANDARD PREVIEW**

**WARNING**  
**(standard.teh.ai)**  
**MICROWAVE ENERGY**  
**DO NOT REMOVE THIS COVER**

If an appliance incorporates a socket-outlet protected by means of fuses, other than D-type fuses, it shall be marked with the rated current of the relevant fuse. When a miniature fuse-link is provided, this marking shall indicate that the fuse-link is to have a high breaking capacity.

### 7.12 Addition:

The instructions for use shall include the substance of the following:

- utensils should be checked to ensure that they are suitable for use in microwave ovens;
- when heating food in plastic or paper containers, check the oven frequently due to the possibility of ignition;
- if smoke is observed, switch off or unplug the appliance and keep the door closed in order to stifle any flames;
- microwave heating of beverages can result in delayed eruptive boiling, therefore care has to be taken when handling the container;
- the contents of feeding bottles and baby food jars are to be stirred or shaken and the temperature is to be checked before consumption, in order to avoid burns;
- eggs in their shell and whole hard-boiled eggs shall not be heated in microwave ovens since they may explode.

The instructions for use shall include the substance of the following warnings:

- WARNING: If the door or door seals are damaged, the oven must not be operated until it has been repaired by a trained person;
- WARNING: It is hazardous for anyone other than a trained person to carry out any service or repair operation which involves the removal of any cover which gives protection against exposure to microwave energy;
- WARNING: Liquids or other foods must not be heated in sealed containers since they are liable to explode;
- WARNING: Only allow children to use the oven without supervision when adequate instructions have been given so that the child is able to use the oven in a safe way and understands the hazards of improper use.

The instructions for use shall state the **rated microwave power output**.

The instructions for appliances provided with a facility to use a **temperature sensing probe** shall include the substance of the following:

Only use the temperature probe recommended for this microwave oven.

#### 7.12.1 Addition:

Instructions shall be provided which include:

- the minimum height of free space necessary above the top surface of the oven;
- details for cleaning door seals and adjacent parts.

#### 7.12.5 Addition:

The requirement concerning appliances with **type X attachment** is only applicable if the cord can be replaced without removal of a cover marked with the warning stated in 7.1.

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## 8 Protection against access to live parts

This clause of part 1 is applicable except as follows:

#### 8.1.1 Addition:

*The small finger probe of figure 101 is applied in the same manner as the test finger of figure 1. However, it is only applied to parts which are accessible when the oven is operated in normal use.*

## 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:

10.101 The microwave power output shall not deviate from the **rated microwave power output** by more than 15 %.

*Compliance is checked by measuring the microwave power output in accordance with annex AA.*

NOTE – A boost function is not taken into account when making the measurement.