

# SLOVENSKI STANDARD

## SIST EN 60335-2-21:2003

01-september-2003

### Nadomešča:

SIST EN 60335-2-21:2000

SIST EN 60335-2-21:2000/A1:2001

SIST EN 60335-2-21:2000/A11:2002

SIST EN 60335-2-21:2000/A12:2003

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**Gospodinjski in podobni električni aparati - Varnost - 2-21. del: Posebne zahteve za akumulacijske grelnike vode (IEC 60335-2-21:2002, spremenjen) (vsebuje popravka AC:2007 in AC:2010)**

### iTeh STANDARD PREVIEW

Household and similar electrical appliances - Safety -- Part 2-21: Particular requirements for storage water heaters

[SIST EN 60335-2-21:2003](https://standards.iteh.ai/SIST/EN/60335-2-21:2003)

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke -- Teil 2-21: Besondere Anforderungen für Wassererwärmer (Warmwasserspeicher und Warmwasserboiler)

Appareils électrodomestiques et analogues - Sécurité -- Partie 2-21: Règles particulières pour les chauffe-eau à accumulation

**Ta slovenski standard je istoveten z: EN 60335-2-21:2003**

### ICS:

13.120	Varnost na domu	Domestic safety
91.140.65	Oprema za ogrevanje vode	Water heating equipment

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EUROPEAN STANDARD

**EN 60335-2-21**

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2003

ICS 91.140.65; 13.120

Supersedes EN 60335-2-21:1999 + A1:2000 + A11:2002 + A12:2002  
Incorporates Corrigenda October 2007 and October 2010

English version

**Household and similar electrical appliances -  
Safety  
Part 2-21: Particular requirements for storage water heaters  
(IEC 60335-2-21:2002, modified)**

Appareils électrodomestiques  
et analogues -  
Sécurité  
Partie 2-21: Règles particulières  
pour les chauffe-eau à accumulation  
(CEI 60335-2-21:2002, modifiée)

Sicherheit elektrischer Geräte für den  
Hausgebrauch und ähnliche Zwecke  
Teil 2-21: Besondere Anforderungen für  
Wassererwärmer (Warmwasserspeicher  
und Warmwasserboiler)  
(IEC 60335-2-21:2002, modifiziert)

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[e7b05e5d5d57/sist-en-60335-2-21-2003](https://standards.iteh.ai/catalog/standards/sist/ea317c7d-1e53-43ab-904e-e7b05e5d5d57/sist-en-60335-2-21-2003)

This European Standard was approved by CENELEC on 2003-03-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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 61/2135/FDIS, future fifth edition of IEC 60335-2-21, prepared by the IEC Technical Committee 61, was submitted to the IEC-CENELEC parallel vote.

As a result of the Kista meeting of CENELEC TC 61 in May 2002, a draft amendment prAA containing the relevant existing common modifications was submitted to the formal vote.

The texts of the FDIS and the prAA were approved by CENELEC as a new edition of EN 60335-2-21 on 2003-03-01.

This European Standard replaces EN 60335-2-21:1999 + A1:2000 + A11:2002 + A12:2002.

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) 2004-03-01
- date on which national standards  
conflicting with the EN have to be withdrawn (dow) 2006-03-01

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 storage water heaters.

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.

Special national conditions causing a deviation from this European Standard are listed in Annex ZA and are in addition to those in EN 60335-1.

National deviations from this European Standard are listed in Annex ZB and are in addition to those in EN 60335-1.

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

The contents of the corrigenda of October 2007 and October 2010 have been included in this copy.

## Introduction

p Add:

An investigation by CENELEC TC 61 has shown that all risks from products within the scope of this standard are fully covered by the Low Voltage Directive, 73/23/EEC. For products having mechanical moving parts, a risk assessment in accordance with the Machinery Directive, 98/37/EC, has shown that the risks are mainly of electrical origin and consequently this directive is not applicable. However, the relevant essential safety requirements of the Machinery Directive are covered by this standard together with the principal objectives of the Low Voltage Directive.

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## Endorsement notice

The text of the International Standard IEC 60335-2-21:2002 was approved by CENELEC as a European Standard with agreed common modifications as given below.

### COMMON MODIFICATIONS

#### 24 Components

p **24.102** Replace the text by:

The operating temperature of the **thermal cut-out** of a closed water heater shall ensure that the water temperature cannot exceed 99 °C or the **thermal cut-out** operates before its temperature exceeds 110 °C.

*Compliance is checked by the test of 24.102.1 for water temperatures not exceeding 99 °C or by the test of 24.102.2 for **thermal cut-outs** having an operating temperature up to 110 °C.*

p **24.102.2** Replace the text by:

*The operating temperature of the **thermal cut-out** is measured by means of a thermocouple positioned on its sensing element or as close as possible to it.*

*The appliance is operated under **normal operation** at **rated power input** with the outlet valve closed and **thermostats** short-circuited until the **thermal cut-out** operates.*

*The **thermal cut-out** shall operate before its temperature exceeds 110 °C.*

*During the test, compliance with 19.13 shall not be impaired.*

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p Add:

## Annex ZA (normative)

### Special national conditions

*Addition:*

Clause                      Special national condition

**22.101**                      **Denmark, Finland, Norway and Sweden**

For closed water heaters, the minimum rated pressure is 1,0 MPa.

**22.102**                      **Denmark** (Instruction AT 2.1.2-4, 1994 and AT Instruction B.4.8)

Cold water inlets on the heated storage water heater, the safety valve and the blow out piping shall have a clear flow diameter of at least Ø 20 mm.

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<https://standards.iteh.ai/catalog/standards/sist/60335-2-21-2003/60335-2-21-2003>  
 Annex ZB  
 (informative)

### A-deviations

*Addition:*

Clause                      Deviation

**24.101**                      **United Kingdom** (Building Regulation Part G3)

In addition to a non-self-resetting thermal cut-out, any closed water heater having a storage capacity in excess of 15 l shall be fitted with a temperature relief valve according to BS 6283 Part 2 or a combined temperature and pressure relief valve according to BS 6283 Part 3.

**24.102**                      **United Kingdom** (Building Regulation Part G3)

The water temperature of the stored water shall not at any time exceed 99 °C in closed water heaters having a storage capacity in excess of 15 l.

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# INTERNATIONAL STANDARD

# IEC 60335-2-21

Fifth edition  
2002-07

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## Household and similar electrical appliances – Safety –

### Part 2-21: Particular requirements for storage water heaters

## iTeh STANDARD PREVIEW

*Appareils électrodomestiques et analogues –  
Sécurité –*

SIST EN 60335-2-21:2003

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*Partie 2-21:  
Règles particulières pour les chauffe-eau à accumulation*

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –  
SAFETY –

## Part 2-21: Particular requirements for storage water heaters

## 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 co-operation 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 specifications, 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. The IEC shall not be held responsible for identifying any or all such patent rights.

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

This fifth edition cancels and replaces the fourth edition published in 1997 and its amendment 1 (1999). It constitutes a technical revision.

The text of this part of IEC 60335 is based on the following documents:

FDIS	Report on voting
61/2135/FDIS	61/2160/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 60335-1 and its amendments. It was established on the basis of the fourth edition (2001) 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 electric storage water heaters.

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- notes: in small roman type.

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The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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The following differences exist in the countries indicated below.

- 6.1: Class 0I appliances are allowed (Japan).
- 6.2: IPX0 water heaters are allowed (France, Portugal, United Kingdom and USA).
- 7.1: Additional markings are required (Australia, New Zealand and South Africa).
- 7.1: The rated pressure is to be marked in pounds per square inch (USA).
- 7.1: Open outlet water heaters are not required to be marked with rated pressure (USA).
- 7.12.1: Additional instructions are required (South Africa).
- 11.7: The test is different (USA).
- 19.1: Water heaters that have all four features and are not liable to be emptied in normal use are not subjected to the test of 19.101 (South Africa).
- 19.1: Appliances incorporating sheathed heating elements are not required to have an outer enclosure of metal but their rated power input is limited to 12 kW (USA).
- 19.101: The test is different (USA).
- 22.101: Pressure reducing valves have to be designed for an inlet pressure of 2 MPa (South Africa).
- 22.101: The minimum rated pressure is 1,0 MPa (Denmark, Finland, Norway and Sweden).
- 22.102: The minimum pressure is 2,1 MPa. The test is not carried out on water heaters having a capacity less than 2 l or on appliances having containers open to the atmosphere (USA).
- 22.103: Closed water heaters have to incorporate a pressure-relief device (Norway).
- 22.103: Closed water heaters have to incorporate a pressure-relief device sensitive to both pressure and temperature that operates before the water temperature reaches 99 °C (Australia and New Zealand).
- 22.103: Closed water heaters having a capacity exceeding 50 l or a rated power input exceeding 2 kW have to incorporate a pressure-relief device sensitive to both pressure and temperature that operates before the water temperature reaches 99 °C (South Africa).
- 22.103: Closed water heaters have to incorporate a temperature relief valve or a combined temperature and pressure-relief valve that operates before the water temperature reaches 100 °C (United Kingdom).
- 22.106: All water heaters have to incorporate a thermal cut-out (India).
- 22.106: The thermal cut-out of single-phase closed water heaters need only provide single-pole disconnection (Japan).

- 22.106: For all closed water heaters, the thermal cut-out is to provide all-pole disconnection (France, Netherlands, Norway and Switzerland).
- 22.109: A tool is not required for draining the appliance (Canada and USA).
- 22.110: Additional requirements apply to plastic or resin-based containers (South Africa).
- 22.112: The temperature limit is 95 °C (South Africa).
- 22.112: The temperature limit is 85 °C (USA).
- 24.101: Thermal cut-outs are required to have a trip-free switching mechanism (USA).
- 24.102: The maximum water temperature is 90 °C (Australia and New Zealand).
- 24.102: The maximum water temperature is 99 °C (Japan, Norway, Portugal, United Kingdom and USA)
- 24.102: The temperature limit of 130 °C is only allowed for closed water heaters having a rated pressure of at least 0,4 MPa (South Africa).

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