

**MAJAPIDAMIS- JA MUUD TAOLISED ELEKTRISEADMED.  
OHUTUS. OSA 2-35: ERINÕUDED VEE KIIRKEETJATELE**

**Household and similar electrical appliances - Safety -  
Part 2-35: Particular requirements for instantaneous  
water heaters (IEC 60335-2-35:2012 , modified +  
IEC 60335-2-35:2012/A1:2016 +  
IEC 60335-2-35:2012/A2:2020 , modified)**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

|   |  |
|---|--|
| See Eesti standard EVS-EN 60335-2-35:2016+A1+A2:2021 sisaldab Euroopa standardi EN 60335-2-35:2016 ja selle muudatuste A1:2019 ja A2:2021, ingliskeelset teksti.  | This Estonian standard EVS-EN 60335-2-35:2016+A1+A2:2021 consists of the English text of the European standard EN 60335-2-35:2016 and its amendments A1:2019 and A2:2021.  |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.<br><br>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.01.2016, muudatused A1 20.12.2019 ja A2 01.10.2021.  | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.<br><br>Date of Availability of the European standard is 15.01.2016, for A1 20.12.2019 and A2 01.10.2021.  |
| Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega $\boxed{A_1}$ $\langle A_1 \rangle$ .<br><br>Muudatusega A2 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega $\boxed{A_2}$ $\langle A_2 \rangle$ .<br><br>Selles standardis on rahvusvahelise standardi ühismuudatused tähistatud püstkriipsuga teksti vasakul veerisel.<br><br>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest. | The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags $\boxed{A_1}$ $\langle A_1 \rangle$ .<br><br>The start and finish of text introduced or altered by amendment A2 is indicated in the text by tags $\boxed{A_2}$ $\langle A_2 \rangle$ .<br><br>In this document, the common modifications to the International Standard are indicated by a vertical line in the left margin of the text.<br><br>The standard is available from the Estonian Centre for Standardisation and Accreditation. |

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ICS 13.120; 97.040.50

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English Version

**Household and similar electrical appliances - Safety - Part 2-35:  
Particular requirements for instantaneous water heaters  
(IEC 60335-2-35:2012 , modified + IEC 60335-2-  
35:2012/A1:2016 + IEC 60335-2-35:2012/A2:2020 , modified)**

Appareils électrodomestiques et analogues - Sécurité -  
Partie 2-35: Exigences particulières pour les chauffe-eau  
instantanés  
(IEC 60335-2-35:2012 , modifiée + IEC 60335-2-  
35:2012/A1:2016 + IEC 60335-2-35:2012/A2:2020 ,  
modified)

Sicherheit elektrischer Geräte für den Hausgebrauch und  
ähnliche Zwecke - Teil 2-35: Besondere Anforderungen für  
Durchflusserwärmer  
(IEC 60335-2-35:2012 , modifiziert + IEC 60335-2-  
35:2012/A1:2016 + IEC 60335-2-35:2012/A2:2020 ,  
modified)

This European Standard was approved by CENELEC on 2015-10-12. Amendment A1 was approved by CENELEC on 2016-12-13. Amendment A2 was approved by CENELEC on 2021-05-10. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard and its amendments the status of a national standard without any alteration.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## European foreword

The text of document 61/4454/FDIS, future edition 5 of IEC 60335-2-35, prepared by IEC/TC 61 "Safety of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60335-2-35:2016.

A draft amendment, which covers common modifications to IEC 60335-2-35:2012, was prepared by CLC/TC 61 "Safety of household and similar electrical appliances" and approved by CENELEC.

The following dates are fixed:

- latest date by which the amendment has to be implemented (dop) 2016-10-12  
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting (dow) 2018-10-12  
with the amendment have to be withdrawn

EN 60335-2-35:2016 will supersede EN 60335-2-35:2002 and its amendments.

This amendment supplements or modifies the corresponding clauses of EN 60335-1:2012 and EN 60335-2-35:2012.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60335-2-35:2012 are prefixed "Z".

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

## Endorsement notice

The text of the International Standard IEC 60335-2-35:2012 was approved by CENELEC as a European Standard with agreed common modifications.

## **A1** Amendment A1 European foreword

The text of document 61/5282/FDIS, future IEC 60335-2-35:2012/A1, prepared by IEC/TC 61 "Safety of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60335-2-35:2016/A1:2019.

The following dates are fixed:

- latest date by which the document has to be implemented (dop) 2020-06-20  
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2022-12-20  
the document have to be withdrawn

This amendment supplements or modifies the corresponding clauses of the standards below:

- EN 60335-1:2012+A11:2014+ A13:2017+A1:2019+A14:2019+A2:2019 (Part 1)
- EN IEC 60335-2-35:2012(Part 2)

For the relationship with EU Directive(s) see informative Annex(es) ZZ, which is(are) an integral part(s) of this document.

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This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2014/35/EU).

### **Endorsement notice**

The text of the International Standard IEC 60335-2-35:2012/A1:2016 was approved by CENELEC as a European Standard without any modification. **A1**

## **A<sub>2</sub>** Amendment A2 European foreword

This document EN 60335-2-35:2016/A2:2021 consists of the text of IEC 60335-2-35:2012/A2:2020 prepared by IEC/TC 61 "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which this document has to be (dop) 2021-11-27  
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For the relationship with EU Directive(s) see informative Annex ZZA, which is an integral part of this document.

### **Endorsement notice**

The text of the IEC 60335-2-35:2012/A2:2020 was approved by CENELEC as a European Standard with agreed common modifications. **A<sub>2</sub>**

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**Household and similar electrical appliances – Safety –  
Part 2-35: Particular requirements for instantaneous water heaters**

**Appareils électrodomestiques et analogues – Sécurité –  
Partie 2-35: Exigences particulières pour les chauffe-eau instantanés**



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IEC 60335-2-35

Edition 5.2 2020-06  
CONSOLIDATED VERSION

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Household and similar electrical appliances – Safety –  
Part 2-35: Particular requirements for instantaneous water heaters**

**Appareils électrodomestiques et analogues – Sécurité –  
Partie 2-35: Exigences particulières pour les chauffe-eau instantanés**

INTERNATIONAL  
ELECTROTECHNICAL  
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## CONTENTS

|  |    |
|--|----|
| FOREWORD.....  | 4  |
| AMENDMENT A1 FOREWORD A1.....  | 7  |
| AMENDMENT A2 FOREWORD A2.....  | 8  |
| INTRODUCTION.....  | 9  |
| 1 Scope.....   | 10 |
| 2 Normative references.....  | 11 |
| 3 Terms and definitions.....   | 11 |
| 4 General requirement.....   | 11 |
| 5 General conditions for the tests.....                                | 12 |
| 6 Classification.....  | 12 |
| 7 Marking and instructions.....  | 12 |
| 8 Protection against access to live parts.....                         | 14 |
| 9 Starting of motor-operated appliances.....                           | 15 |
| 10 Power input and current.....  | 15 |
| 11 Heating.....  | 15 |
| 12 Void.....   | 16 |
| 13 Leakage current and electric strength at operating temperature..... | 16 |
| 14 Transient overvoltages.....   | 17 |
| 15 Moisture resistance.....  | 17 |
| 16 Leakage current and electric strength.....                          | 17 |
| 17 Overload protection of transformers and associated circuits.....    | 17 |
| 18 Endurance.....  | 18 |
| 19 Abnormal operation.....   | 18 |
| 20 Stability and mechanical hazards.....                               | 18 |
| 21 Mechanical strength.....  | 18 |
| 22 Construction.....   | 18 |
| 23 Internal wiring.....  | 23 |
| 24 Components.....   | 23 |
| 25 Supply connection and external flexible cords.....                  | 24 |
| 26 Terminals for external conductors.....                              | 24 |
| 27 Provision for earthing.....   | 24 |
| 28 Screws and connections.....   | 24 |
| 29 Clearances, creepage distances and solid insulation.....            | 24 |
| 30 Resistance to heat and fire.....                                    | 24 |
| 31 Resistance to rusting.....  | 25 |
| 32 Radiation, toxicity and similar hazards.....                        | 25 |
| Annexes.....   | 29 |
| Annex A (informative) Routine tests.....                               | 29 |
| Annex R (normative) Software evaluation.....                           | 30 |
| Annex ZA (normative) Special national conditions.....                  | 31 |

|   |    |
|---|----|
| Annex ZB (informative) A-deviations .....   | 32 |
| Annex ZC (normative) Normative references to international publications with their corresponding European publications .....  | 33 |
| Annex ZZA (informative) Relationship between this European Standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered <sup>A2</sup> ..... | 34 |
| Annex ZZB (informative) <sup>A1</sup> .....   | 35 |
| Bibliography.....   | 36 |
| <br>  |    |
| Figure 101 – Diagram for the leakage current measurement for single-phase bare-element water heaters .....  | 26 |
| Figure 102 – Diagram for the leakage current measurement for three-phase bare-element water heaters .....   | 27 |
| Figure 103 – Diagram for the leakage current measurement for single-phase bare-element water heaters supplied by a supply cord fitted with a plug.....                      | 28 |
| Figure 104 – Probe for measuring surface temperatures <sup>A2</sup> .....   | 28 |
| <br>  |    |
| Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions .....  | 16 |
| Table ZZA.1 – Correspondence between this European Standard and Annex I of Directive 2014/35/EU [2014 OJ L96] .....   | 34 |

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –  
SAFETY –**

**Part 2-35: Particular requirements for instantaneous water heaters**

FOREWORD

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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. 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 2002 including its Amendment 1 (2006) and its Amendment 2 (2009). It constitutes a technical revision.

The principal changes in this edition as compared with the fourth edition of IEC 60335-2-35 are as follows (minor changes are not listed):

- converted notes to normative text (7.12, 7.102, 8.1.5, 22.104, and 22.109.3);
- deleted notes in 19.13, 22.109, and A.101;
- added Annex R and 22.108 for appliances with programmable electronic circuits;
- added requirements for water heaters (22.50, 22.51).

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

| FDIS         | Report on voting |
|--------------|------------------|
| 61/4454/FDIS | 61/4507/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 publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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 fifth edition (2010) 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 instantaneous 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 in Part 1 is to be adapted accordingly.

NOTE 2 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 3 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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

The following differences exist in the countries indicated below.

- 6.1: Bare-element water heaters are not allowed (India).
- 6.1: Class 0I appliances are allowed (Japan).
- 7.1: Marking of rated pressure is different and marking of water resistivity is not required (USA).
- 19.4: Flow switches tested for reliability are not short-circuited (USA).
- 19.13: The water temperatures are different (USA).
- 22.101: For closed water heaters, the minimum rated pressure is 1,0 MPa (Norway, Sweden).
- 22.103: Closed water heaters have to incorporate a temperature relief valve or a combined temperature and pressure relief valve that has to operate before the water temperature reaches 100 °C (United Kingdom).
- 22.103: The pressure relief valve is not required to be provided with the heater (USA).

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## **A1** AMENDMENT A1 FOREWORD

This amendment has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

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

| FDIS         | Report on voting |
|--------------|------------------|
| 61/5282/FDIS | 61/5299/RVD      |

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

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It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication. **A1**

**A<sub>2</sub>** AMENDMENT A2 FOREWORD

This amendment has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

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

| CDV         | Report on voting |
|-------------|------------------|
| 61/5932/CDV | 61/6005/RVC      |

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

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NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication. **A<sub>2</sub>**

## 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 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.

**A2** This European amendment A2 supplements or modifies the corresponding clauses of the standards below:

- EN 60335-1:2012+A11:2014+ A13:2017+A1:2019+A14:2019+A2:2019 (Part 1)
- EN 60335-2-35:2012+A1:2019 (Part 2) **A2**

## HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

### Part 2-35: Particular requirements for instantaneous water heaters

#### 1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **instantaneous water heaters** for household and similar purposes and intended for heating water below boiling temperature, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

NOTE 101 **Instantaneous water heaters** incorporating bare heating elements are within the scope of this standard.

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

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** without supervision,
- **user maintenance** by **children**, including the cleaning of the appliance.

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

NOTE 102 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;
- in many countries regulations exist for the installation of equipment connected to the water mains.

NOTE 103 This standard does not apply to

- appliances for heating liquids (IEC 60335-2-15);
- storage water heaters (IEC 60335-2-21);
- 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);
- commercial dispensing appliances and vending machines (IEC 60335-2-75).

## 2 Normative references

This clause of Part 1 is applicable.

EN 60335-2-5:2003 + A1:2005 + A2:2008 + A11:2009+ A12:2012, *Household and similar electrical appliances – Safety – Part 2-5: Particular requirements for dishwashers (IEC 60335-2-5:2002, mod. + corrigendum May 2003 + A1:2005 + A2:2008)*

## 3 Terms and definitions

This clause of Part 1 is applicable except as follows.

### 3.1.9 Replacement: normal operation

operation of the appliance while supplied with water, the flow being adjusted to attain the highest outlet water temperature without operation of the **thermal cut-out**

### 3.101

#### instantaneous water heater

**stationary appliance** for heating water while it flows through the appliance

Note 1 to entry: **Instantaneous water heaters** are referred to as water heaters.

### 3.102

#### closed water heater

**instantaneous water heater** intended to operate at the pressure of the water system, the flow of water being controlled by one or more valves in the outlet system

Note 1 to entry: The operating pressure can be the output pressure of a reducing or boosting device.

### 3.103

#### open-outlet water heater

**instantaneous water heater** in which the flow of water is controlled by a valve in the inlet pipe, there being no valve in the outlet pipe

### 3.104

#### bare-element water heater

**instantaneous water heater** in which uninsulated heating elements are immersed in the water

### 3.105

#### rated pressure

water pressure assigned to the appliance by the manufacturer

### 3.106

#### flow switch

device that operates in response to a flow of water

### 3.107

#### pressure switch

device that operates in response to a change in pressure

## 4 General requirement

This clause of Part 1 is applicable.