

Australian/New Zealand Standard™

**Safety of household and similar
electrical appliances**

**Part 2.35: Particular requirements—
Instantaneous water heaters
(IEC 60335-2-35:1997, MOD)**



AS/NZS 3350.2.35:1999

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-002, Safety of Household and Similar Electrical Appliances and Small Power Transformers. It was approved on behalf of the Council of Standards Australia on 6 November 1998 and on behalf of the Council of Standards New Zealand on 12 November 1998.

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The following are represented on Committee EL-002:

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Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Canterbury Manufacturers Association New Zealand
Consumer Electronic Suppliers Association, Australia
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Australian/New Zealand Standard™

Safety of household and similar electrical appliances

Part 2.35: Particular requirements— Instantaneous water heaters (IEC 60335-2-35:1997, MOD)

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL/2, Electrical Approvals Standards, to supersede in Australia AS 3142—1994, *Approval and test specification—Electric water heaters* (in part) and in New Zealand NZS 6335:1990, *Approval and test specification—Particular requirements for instantaneous water heaters*, two years from publication. During this period it is anticipated that regulatory authorities will approve appliances to this Standard or to either of the foregoing superseded Standards.

This Standard incorporates Amendment No. 1 (March 2001) and Amendment No. 2 (May 2007). The changes required by the amendments are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected. Where an application date other than immediate is applicable to an amendment the date of application (DOA) is indicated by the marginal bar against the part affected or by a footnote relating to the part affected.

The objective of this Standard is to provide designers, manufacturers, testing organizations and regulatory authorities with safety requirements for the design, manufacture and testing of electric irons which can form a basis for approval by regulatory authorities. The objective of this edition is to provide a product Standard aligned to the greatest extent with the IEC safety Standard for electric irons.

In January 1997, the IEC commenced numbering its Standards from 60000 by adding 60000 to the number of each existing Standard. This coordinates IEC numbering with ISO numbering. During the transition period an IEC Standard might be identified by its new number or its old number (for example, IEC 60050 or IEC 50).

This Standard forms the first edition of AS/NZS 3350.2.35, *Safety of household and similar electrical appliances, Part 2.35: Particular requirements—Instantaneous water heaters*.

This Standard is an adoption with national modifications and contains the full text of the third edition of IEC 60335-2-35:1997, *Safety of household and similar electrical appliances, Part 2-35: Particular requirements for instantaneous water heaters*, including its Amendment 1. It is to be used in conjunction with the latest edition of AS/NZS 3350.1, *Safety of household and similar electrical appliances, Part 1: General requirements* and its Amendments. It was established on the basis of AS/NZS 3350.1:2002.

This Standard (Part 2) supplements or modifies the corresponding clauses in AS/NZS 3350.1 (referred to as Part 1 in this Part 2) so as to convert it into the Australian/New Zealand Standard for the safety of instantaneous water heaters.

Where a particular Clause of Part 1 is not mentioned in this Part 2, that Clause applies as far as is reasonable. Where this Standard states 'addition' or 'modification' or 'replacement', the relevant text of Part 1 is to be adapted accordingly.

In this Standard the following print types are used:

- Requirements: in arial type
- Test specifications: in *italic* type
- Notes: in small arial type

Words in **bold** are defined in Clause 2. Where a definition of Part 1 contains an adjective, the adjective and associated noun are **bold** in this Part 2.

Clauses, Subclauses, Notes, 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 and so on.

Variations to IEC 60335-2-35:1997 are indicated at the appropriate places throughout this Standard. Strikethrough (~~example~~) identifies IEC tables, figures and passages of text which, for the purposes of this Australian/New Zealand Standard, are deleted. Where Australian/New Zealand tables, figures or passages of text are added, each is set in its proper place and identified by shading (~~example~~). Added figures are not themselves shaded, but are identified by a shaded border.

Variations made to IEC 60335-2-35:1997 form the Australian/New Zealand variations for the purposes of the IECEE scheme for recognition of testing to standards for safety of electrical equipment (the CB Scheme). These variations, already incorporated in the body of the Standard, are listed in Annex ZZ for easy reference.

The term 'normative' has been used in this Standard to define the application of the annex to which it applies. A 'normative' annex is an integral part of a Standard.

The numbering of Clauses, Subclauses, Notes, Tables, Figures and Annexes follows that of IEC 335-2-35:1997. To allow for the introduction of additional material by the IEC, the numbers 101 to 200 have been reserved. To allow additional material to be introduced by Australia and New Zealand, the numbers 201 to 300 are used to number further Clauses, Subclauses, Notes, Tables and Figures in Part 1 and the numbers 301 to 400 are used to number further Clauses, Subclauses, Notes, Tables and Figures in this Part 2. Further Annexes are lettered ZA, ZB and so on. This scheme has been introduced to reduce the likelihood of the IEC and Australia and New Zealand using the same identifier for different purposes.

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- (a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- (b) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.
- (c) A full point substitutes for a comma when referring to a decimal marker.

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CONTENTS

	<i>Page</i>
1 Scope	5
2 Definitions	6
3 General requirement.....	6
4 General conditions for the tests	6
5 Void	6
6 Classification.....	7
7 Marking and instructions.....	7
8 Protection against access to live parts	7
9 Starting of motor-operated appliances.....	8
10 Power input and current.....	8
11 Heating	8
12 Void	9
13 Leakage current and electric strength at operating temperature	9
14 Void	9
15 Moisture resistance	9
16 Leakage current and electric strength	9
17 Overload protection of transformers and associated circuits	9
18 Endurance.....	9
19 Abnormal operation	9
20 Stability and mechanical hazards	10
21 Mechanical strength	10
22 Construction.....	10
23 Internal wiring.....	11
24 Components	14
25 Supply connection and external flexible cords	14
26 Terminals for external conductors	15
27 Provision for earthing.....	15
28 Screws and connections	15
29 Creepage distances, clearances and distances through insulation	15
30 Resistance to heat, fire and tracking	15
31 Resistance to rusting	16
32 Radiation, toxicity and similar hazards	16
Annexes	18
Annex ZZ (normative) Variations to IEC 60335-2-35:1997 for application in Australia and New Zealand.....	19
Figure 101 – Diagram for additional leakage current measurement at operating temperature for single-phase class I bare-element water heaters	17
Figure 102 – Diagram for additional leakage current measurement at operating temperature for three-phase class I bare-element water heaters	17

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Australian/New Zealand Standard

Safety of household and similar electrical appliances Part 2.35: Particular requirements – Instantaneous water heaters

Any IEC table, figure or passage of text that is struck-through is not part of this Standard. Any Australian/New Zealand table, figure or passage of text that is added (and identified by shading) is part of this Standard.

1 Scope

This clause of part 1 is replaced by:

This 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 1 – **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 to be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

So far as practicable, this standard deals with the common hazard 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.

NOTE 2 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;~~
- for the purpose of this Standard, Australia and New Zealand are not considered to be tropical;
- 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 3 – This standard does not apply to

- ~~– appliances for boiling water (IEC 60335-2-15);~~
- appliances for boiling water (AS/NZS 3350.2.15);
- ~~– storage water heaters (IEC 60335-2-21);~~
- storage water heaters (AS/NZS 3350.2.21);
- commercial electric water boilers and liquid heaters (IEC 60335-2-63);
- 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).~~

– commercial dispensing appliances and vending machines (AS/NZS 3350.2.75).

2 Definitions

This clause of part 1 is applicable except as follows:

2.2.9 Replacement:

normal operation: Operation of the appliance under the following conditions:

The appliance is installed in accordance with the instructions and supplied with cold water, the flow being adjusted to obtain the highest outlet water temperature.

NOTE – The water flow is sufficient to prevent the operation of any **thermal cut-out**.

2.101 **instantaneous water heater: Stationary appliance** for heating water while it flows through the appliance.

NOTE – **Instantaneous water heaters** are referred to as water heaters.

2.102 **closed water heater:** 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 – The operating pressure may be the output pressure of a reducing or boosting device.

2.103 **open-outlet water heater:** 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.

2.104 **bare-element water heater:** Water heater in which uninsulated heating elements are immersed in the water.

2.105 **rated pressure:** Water pressure assigned to the appliance by the manufacturer.

2.106 **flow switch:** Switch operated by an effective flow of water.

NOTE – For example, the switch is operated when water is drawn off from a tap.

3 General requirement

This clause of part 1 is applicable.

4 General conditions for the tests

This clause of part 1 is applicable except as follows:

4.2 Addition:

NOTE – Additional samples may be required for the tests of 22.109.

4.3 Addition:

If the tests are carried out on one appliance, the tests of 22.102, 22.107, 22.108 and 24.102 are made before the tests of clause 19.

4.7 Addition:

Water having a temperature of $15^{\circ}\text{C} \pm 5^{\circ}\text{C}$ is used for the tests.

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