

Australian/New Zealand Standard™

**Household and similar electrical
appliances—Safety**

**Part 2.51: Particular requirements for
stationary circulation pumps for heating
and service water installations**



AS/NZS 60335.2.51:2006

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 15 March 2006 and on behalf of the Council of Standards New Zealand on 24 March 2006.

This Standard was published on 23 June 2006.

The following are represented on Committee EL-002:

Australian Industry Group
Australian Retailers Association
Australian Electrical and Electronic Manufacturers Association
Business New Zealand
Consumer Electronic Suppliers Association, Australia
Consumers' Federation of Australia
Electrical regulatory authorities, Australia
Electrical Compliance Testing Association
Electrical consultants
Electricity Supply Association of Australia
Ministry of Consumer Affairs, New Zealand
New Zealand Electric Energizer Manufacturers' Standards Group

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

Australian/New Zealand Standard™

Household and similar electrical appliances—Safety

Part 2.51: Particular requirements for stationary circulation pumps for heating and service water installations

Originated as AS/NZS 3350.2.51:1998.
Jointly revised and redesignated AS/NZS 60335.2.51:2006.
Reissued incorporating Amendment No. 1 (May 2009).

COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope	6
2 Normative references	6
3 Definitions	6
4 General requirement.....	7
5 General conditions for the tests	7
6 Classification.....	7
7 Marking and instructions	8
8 Protection against access to live parts	8
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 Transient overvoltages	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	10
20 Stability and mechanical hazards.....	10
21 Mechanical strength	10
22 Construction.....	10
23 Internal wiring.....	10
24 Components.....	10
25 Supply connection and external flexible cords	11
26 Terminals for external conductors	11
27 Provision for earthing.....	11
28 Screws and connections	11
29 Clearances, creepage distances and solid insulation	11
30 Resistance to heat and fire	11
31 Resistance to rusting	11
32 Radiation, toxicity and similar hazards	11
Table 101 – Temperature classification of circulation pumps.....	7
Annexes	12
Annex ZZ (informative) Variations to IEC 60335-2-51 Ed 3.1 for application in Australia and New Zealand	12
Bibliography	13

AUSTRALIA/NEW ZEALAND STANDARD

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2.51: Particular requirements for stationary circulation pumps for heating and service water installations

FOREWORD

This standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-002- Safety of Household and Similar Electrical Appliances and Small Power Transformers to supersede AS/NZS 3350.2.51:1998, seven years from the date of publication. During this seven year period either AS/NZS 3350.2.51:1998 or AS/NZS 60335.2.51:2006 may be used for regulatory purposes in both Australia and New Zealand.

This Standard incorporates Amendment No. 1 (May 2009). 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.

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with safety requirements designed to give the user protection against hazards that might occur during normal operation and abnormal operation of the appliance and which may be used as the basis for approval for sale or for connection to the electricity supply mains in Australia and New Zealand

A1 | This Standard is an adoption with national modifications and contains the full text of the third edition of IEC 60335-2-51, *Household and similar electrical appliances – Safety - Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations* and its amendment 1 (2008) and has been varied as indicated to take account of Australian and New Zealand conditions. It is to be used in conjunction with the latest edition of AS/NZS 60335.1, *Household and similar electrical appliances – Safety - Part 1: General requirements* and its Amendments. It was established on the basis of AS/NZS 60335.1:2002.

This part 2 supplements or modifies the corresponding clauses of AS/NZS 60335.1 (referred to as part 1 in this part 2) so as to convert it into the Australian/New Zealand Standard: Safety of electric stationary circulation pumps for heating and service water installations.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to AS/NZS 60335.1.

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.

A1 | The numbering of clauses, subclauses, notes, tables, figures and annexes follows that of IEC 60335-2-51 Ed 3.1. To allow for the introduction of additional material by the IEC, the numbers 101 to 200 have been reserved. To allow for 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. The numbers 301 to 400 are used to number further clauses, subclauses, notes, tables and figures in this part 2. Additional 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.

The use of the word VOID indicates that the IEC text is not used in Australia or New Zealand. The use of this word also avoids the need to renumber, clauses, notes, tables and figure if an earlier clause, note, table or figure is not used.

Where relevant the normative references and the bibliography are reformatted to indicate the Australia/New Zealand standard that is equivalent to the IEC standard or ISO standard to which reference is made.

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number does not appear on each page of text and its identity is shown on the cover and title page only.
- (b) In the source text "this International Standard" should read "this Australian/New Zealand Standard".

A full point substitutes for a comma when referring to a decimal marker.

A1 | Variations to IEC 60335-2-51 Ed 3.1 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.

A1 | Variations made to IEC 60335-2-51 Ed 3.1 form the Australian and 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 have been incorporated in the body of the standard. They are listed in Annex ZZ for easy reference.

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 AS/NZS 3000 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 AS/NZS 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.

A1 | 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.

The essential safety requirements in AS/NZS 3820 that could be applicable to stationary circulation pumps for heating and service water installations are covered by this standard.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **stationary circulation pumps** intended for use in heating systems or in service water systems, having a **rated power input** not exceeding 300 W, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

NOTE 101 The hydraulic and electrical parts of the pump may be in the same enclosure, so that the water flows through the motor and serves as a coolant, or they may be separated.

Appliances not intended for normal household use, but that 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.

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

- A1 |
- 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 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.

NOTE 103 This standard does not apply to

- pumps for circulating liquids other than water;
- pumps, other than circulation pumps (IEC 60335-2-41);
- circulation pumps intended exclusively for industrial purposes;
- circulation pumps 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.

3 Definitions

This clause of Part 1 is applicable except as follows.