

Australian/New Zealand Standard™

Safety of household and similar electrical appliances

Part 2.14: Particular requirements for kitchen machines (IEC 60335-2-14:1996, MOD)



AS/NZS 3350.2.14:1995

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 7 July 1995 and on behalf of the Council of Standards New Zealand on 11 August 1995.

This Standard was published on 5 October 1995.

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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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This Standard was issued in draft form for comment as DR 94373.

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Originated in Australia as AS C162—1960.
Originated in New Zealand as NZS/AS 3162—1990.
Previous Australian edition AS 3162—1990.
Jointly revised and redesignated AS/NZS 3162:1995.
Jointly revised and redesignated AS/NZS 3350.2.14:1995
Reissued incorporating Amendment No. 1 (December 1998).
Reissued incorporating Amendment No. 2 (April 2001).
Reissued incorporating Amendment No. 3 (April 2001).
Reissued incorporating Amendment No. 4 (August 2008).

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

ISBN 0 7262 9983 9

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AUSTRALIA/NEW ZEALAND STANDARD

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SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – Part 2.14: Particular requirements for kitchen machines

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 3162:1995 *Approval and test specification – Electric kitchen machines for household use*, two years from publication. During this period it is anticipated that regulatory authorities will approve appliances to either Standard.

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

This Standard forms the third edition of AS/NZS 3350.2.14, *Safety of household and similar electrical appliances*, Part 2.14: *Particular requirements for kitchen machines*.

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This Standard is technically equivalent to and has been reproduced from the third edition of IEC 60335-2-14:1994, *Safety of Household and Similar Electrical Appliances – Part 2-14: Particular requirements for kitchen machines* including its amendments 1 and 2 and has been varied as indicated to take account of Australian and New Zealand conditions. It is to be used in conjunction with 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 3350.1:1994.

This part 2 supplements or modifies the corresponding clauses of AS/NZS 3350.1 (referred to as part 1 in this part 2) so as to convert it into the Australian/New Zealand Standard: Safety of drives for rolling shutters, awnings, blinds and similar equipment.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to AS/NZS 3350.1.

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.

The numbering of clauses, subclauses, notes, tables, figures and annexes follows that of IEC 60335-2-14:1994. 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.

Annex A has been reformatted to indicate the Australia/New Zealand standard that is equivalent to the IEC standard or ISO standard to which normative 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.

Variations to IEC 60335-2-14:1994 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 60335-2-14:1994 form the Australian 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 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.

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.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of AS/NZS 3350, 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.

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.

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 kitchen machines are covered by this standard.

A1 SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –

Part 2.14: Particular requirements for kitchen machines

1 Scope

This clause of part 1 is replaced by:

This standard deals with the safety of electric kitchen machines for household and similar purposes, their **rated voltage** being not more than 250 V.

NOTE 1 Examples of appliances which are within the scope of this standard are

- **food mixers**;
- cream whippers;
- egg beaters;
- blenders;
- sieving machines;
- churns;
- ice-cream machines, including those for use in refrigerators and freezers;
- citrus fruit squeezers;
- centrifugal juicers;
- **mincers**;
- noodle makers;
- berry juice extractors;
- slicing machines;
- bean slicers;
- potato peelers;
- graters and shredders;
- knife sharpeners;
- can openers;
- knives;
- **food processors**;
- coffee mills not exceeding 500 g hopper capacity;
- grain grinders not exceeding 3 litres hopper capacity.

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 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.

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 purposes 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.

NOTE 3 This standard does not apply to:

- slicing machines provided with a circular knife the blade of which is inclined at an angle exceeding 45° to the vertical;
- kitchen machines intended for commercial purposes (IEC 335-2-64);
- kitchen machines intended exclusively for industrial purposes;
- kitchen machines intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
- food waste disposers (IEC 335-2-16);
- ice-cream appliances with incorporated motor compressors (IEC 335-2-57).

2 Definitions

This clause of part 1 is applicable except as follows:

2.2.9 Replacement: normal operation

The appliance is operated under the conditions specified or at **rated power input** if this is more unfavourable.

NOTE 1 If the conditions are not specified, the appliance is operated with the most unfavourable load indicated in the instructions for use.

NOTE 2 **Rated power input** is obtained by applying a constant torque to the appliance placed in its normal position of use without subjecting it to imbalance forces greater than those occurring in normal use.

NOTE 3 Operation at **rated power input** is considered as being more unfavourable if the power input determined during the test of 10.1 differs from the **rated power input** by more than

- –20 % for appliances having a **rated power input** not exceeding 300 W;
- –15 % (or -60 W if greater) for appliances having a **rated power input** exceeding 300 W.

2.2.9.1

Food mixers

with beaters for mixing cake batter are operated with the beater blades as close as possible to the bottom of a bowl containing dry sand, having a grain size between 170 µm and 250 µm. The height of the sand in the bowl is approximately 80 % of the length of the effective part of the beater.

Food mixers with kneaders for mixing yeast dough are operated with the kneaders in a bowl filled with a mixture of flour and water.

NOTE 1 The flour has a protein content of $(10 \pm 1) \%$, based on a negligible water content of the flour and without chemical additives.

NOTE 2 In case of doubt, the flour is to be more than two weeks but less than four months old. It is to be stored in plastic bags with as little air as possible.

The bowl is filled with a mass of flour in grams equal to 35 % of its capacity in cm^3 , 72 g of water at a temperature of $25^\circ\text{C} \pm 1^\circ\text{C}$ being added for each 100 g of flour.

NOTE 3 In case of doubt, the quantity of water is 1,2 times that necessary for the consistency of the mixture to be 500 Brabender units at $29^\circ\text{C} \pm 1^\circ\text{C}$, measured using a farinograph.

For **hand-held food mixers**, the kneaders are moved in a figure-of-eight movement at a rate of 10 to 15 movements a min. The kneaders touch the wall of the bowl at opposite points and are in contact with the bottom of the bowl. If a bowl is not provided, a bowl is used which has a height of approximately 13 cm and an inner diameter of approximately 17 cm at the top, tapering down to approximately 15 cm at the bottom. Its inner surface is smooth and the wall and bottom blend smoothly.

2.2.9.2

Food processors

are operated as specified for **food mixers** with kneaders for mixing yeast dough. However, the quantity of the mixture is the maximum stated in the instructions for use. If an accessory rotating at high speed is used to prepare the dough, only 60 g of water is used for each 100 g of flour.

NOTE 1 In case of doubt when using an accessory rotating at high speed, the quantity of water is that necessary for the consistency of the mixture to be 500 Brabender units at $29\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, measured using a farinograph.

NOTE 2 If instructions for mixing yeast dough are not provided, the **food processor** is operated using the recipe which results in the most unfavourable conditions.

2.2.9.3 Cream whippers and egg beaters are operated in water with 80 % of the length of the effective part immersed in a bowl of water.

2.2.9.4 Coffee mills having a separate container for collecting the ground coffee are operated with the hopper filled with roasted coffee beans.

Other coffee mills are operated with the hopper filled with the maximum quantity of roasted coffee beans stated in the instructions for use.

NOTE If necessary, the coffee beans are conditioned for 24 h at a temperature of $30\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and a relative humidity of $(60 \pm 2)\%$.

Controls are set to the position resulting in the smallest grain size.

2.2.9.5 Grain grinders are operated with the hopper filled with wheat, controls being set to the position resulting in the smallest grain size.

NOTE 1 If necessary, the wheat is conditioned for 24 h at a temperature of $30\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and a relative humidity of $(60 \pm 2)\%$.

NOTE 2 Corn is used instead of wheat when instructions state that it can be ground.

2.2.9.6 Blenders are operated with the bowl filled to its maximum indicated level with a mixture comprising two parts by mass of soaked carrots and three parts water. If this level is not indicated, the bowl is filled to two-thirds of its total capacity. The carrots are soaked in water for 24 h and cut so that the dimensions of the pieces do not exceed 15 mm. If the bowl is not provided, a cylindrical bowl is used which has a capacity of approximately 1 l and an inner diameter of approximately 11 cm.

Blenders for liquid are operated with water instead of the mixture.

2.2.9.7 Sieving machines are operated without load.

2.2.9.8 Churns are filled with a mixture of eight parts by mass of heavy cream and one part of buttermilk. The quantity of the mixture is the maximum that allows the churn to operate without spillage.

2.2.9.9 Slicing machines and bean slicers are operated without load.

2.2.9.10 Ice-cream machines are operated with a mixture of 60 % water, 30 % sugar, 5 % lemon juice and 5 % beaten egg-white by mass. The quantity of the mixture is the maximum stated in the instructions for use.

For appliances with cooling elements, the cooling elements are pre-cooled for 24 h at $-20\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$.

NOTE A cooling element is a removable component that cools the ice-cream mixture after having been stored in a freezer.

For appliances cooled by ice, the cooling container is filled with ice in accordance with the instructions for use, 200 g of salt being added for each kg of ice.

Ice-cream machines for use in refrigerators and freezers are placed on two lengths of thermal insulating material approximately 1 cm thick. They are operated without load at an ambient temperature of $-4\text{ }^{\circ}\text{C} \pm 1^{\circ}\text{C}$.

2.2.9.11 Citrus fruit squeezers are operated with orange halves pressed against the reamer with a force of 50 N.

2.2.9.12 Centrifugal juicers are operated with carrots which have been soaked in water for approximately 24 h. 5 kg of soaked carrots are gradually fed into juicers having separate outlets for the juice and residue. Other juicers are fed with batches of 0,5 kg of carrots, unless otherwise indicated in the instructions for use. Pushers are pressed with a force of 5 N against the carrots.

2.2.9.13 Mincers are fed with sinewless, boneless and fatless beef, cut into pieces approximately 2 cm $\times$ 2 cm $\times$ 6 cm. Pushers are pressed with a force of 5 N against the meat.

NOTE A brake may be used to apply the mean value of the load determined by mincing meat for 2 min.

2.2.9.14 Noodle makers are fed with a dough prepared from 225 g wheat flour, 1 egg (approximately 55 g), 15 ml cooking oil and 45 ml water. Pushers are pressed with a force of 5 N against the dough.

2.2.9.15 Berry juice extractors are fed with 1 kg of berries, such as currants, gooseberries or grapes. Pushers are pressed with a force of 5 N against the berries.

2.2.9.16 Potato peelers of the container type are operated filled with water and potatoes. 5 kg of approximately spherical potatoes are used, each kg containing 12 to 15 potatoes.

Hand-held potato peelers are operated by peeling potatoes.

2.2.9.17 Vegetable graters and shredders are operated with carrots which have been soaked in water for approximately 24 h and cut into suitable pieces. Five batches, each containing 0,5 kg of soaked carrots are used. Pushers are pressed with a force of 5 N against the carrots.

2.2.9.18 Cheese graters are operated with a 250 g piece of hard Parmesan cheese selected from a block of cheese which is about 16 months old and has at least one plain surface. A force of 10 N is applied to the cheese unless the force is applied automatically.