

AS 3172—1990

Amdt. 1 1990.

2. 1991.

3: 1992

4: 1992

ENDORSED BY SANZ

5. 1993

1993 ED.

AS/NZS 3172:1993
Approval and test specification—Electric cooking appliances for household use
(In Professional Package 28A) 28pp GG
Specifies essential safety requirements for approval and test purposes. In Australia this Standard is to be read in conjunction with AS 3100. In New Zealand it is to be read in conjunction with NZS 6233 for the purposes of Clauses 16 and 18. Produced as a Joint Australian/New Zealand Standard.
Committee EL/2: Supersedes AS 3172—1990 in Australia and NZS/AS 3172:1990 in New Zealand. Publication date 1993-10-11; ISBN 0 7262 8454 8.

Australian Standard®

**Approval and test specification—
Electric cooking appliances for
household use**

This Australian Standard was prepared by Committee EL/2, Electrical Approvals Standards. It was approved on behalf of the Council of Standards Australia on 20 March 1990 and published on 16 July 1990.

The following interests are represented on Committee EL/2:

Australian Consumers Association
Australian Electrical and Electronic Manufacturers Association
Confederation of Australian Industry
Consumer Electronics Suppliers Association
Electrical Apparatus Approvals Authorities
Electrical Testing Laboratories
Electricity Supply Association of Australia
Institution of Engineers, Australia

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STANDARDS AUSTRALIA

Amendment No 1
to
AS 3172—1990
Approval and test specification—
Electric cooking appliances for household use

REVISED TEXT

The 1990 edition of AS 3172 is amended as follows; the amendment(s) should be inserted in the appropriate place.

SUMMARY: This Amendment applies to Clauses 1.3, 18.9.2, Table 1 and Appendix A.

Published on 12 November 1990.

AMDT
No 1
NOV
1990

Page 4 Clause 1.

- 1 *Delete* the following from the second paragraph:
 - (a) Saucepan type cookers
 - (b) All text after the word 'grillers' in the 3rd line
2. *Add* as an exemption in the third paragraph the following:
AS 3313—Appliances for heating liquids

This Amendment forms part of the Specification on 30th November 1991.

AMDT
No 1
NOV
1990

Page 4 Clause 3

Add to the list of Approval and Test Specifications the following:
3313 Particular requirements for heating liquids

This Amendment forms part of the Specification on 30th November 1991.

AMDT
No 1
NOV
1990

Page 14 Clause 18.9.2

Insert the following Clause 18.9.2:

†**18.9.2 Test for ranges.** The vessel from which the test solution is discharged shall have a single orifice of such size that 110 mL of water is discharged in approximately 10 s. The vessel shall be 150 mm above the device being tested.

The following procedures shall be carried out:

- (a) 110 mL of the test solution shall be discharged around the edge of each hotplate.
- (b) 110 mL of the test solution shall be discharged around the edge of each hotplate in the vicinity of the termination to the hotplate.
- (c) 110 mL of the test solution shall be discharged separately on each of the sides, back and front edge of any cooking hob (440 mL total), provided that none shall be poured directly over any raised up sections of the hob containing control switches and the like.

Any spillage tray or well shall be emptied after each 110 mL of test solution has been discharged.

† This test ceases to be part of the Specification in July 1991.

This Amendment forms part of the Specification on publication.

AMDT
No 1
NOV
1990

Page 7 Table 1

Delete from Table 1 the following:

- Saucepan type cookers
- Electric urns
- Slow cookers
- Electric kettles
- Coffee percolators
- Drink heaters
- Bottle warmers
- Egg boilers and steamers
- Rice cookers

This Amendment forms part of the Specification on 30th November 1991.

AMDT
No 1
NOV
1990

Page 20 Appendix A

Delete the reference to Saucepan type cookers in Paragraph A5.

Delete Paragraph A10.

Delete Paragraph A12.

This Amendment forms part of the Specification on 30th November 1991.

ISBN 0 7262 6505 5

STANDARDS AUSTRALIA

Amendment No 2
to
AS 3172—1990
Approval and test specification—Electric cooking appliances for household use

REVISED TEXT

The 1990 edition of AS 3172, which was amended in November 1990, is further amended as follows; the amendment(s) should be inserted in the appropriate place.

SUMMARY: This Amendment applies to Clauses 8.1, 15.7 and 16.

Published on 25 January 1991.

AMDT
No 2
JAN
1991

Page 8 Clause 8.1

Delete the opening line of the second Paragraph and *substitute* the following:

Where an oven shelf is withdrawable, unless the shelf is so designed to contain liquids such as roasting trays or the like, it shall be—

This Amendment forms part of the Specification on publication.

AMDT
No 2
JAN
1991

Page 12 Clause 15.7

Add the following new Clause 15.7:

15.7 Forms of protection other than fuses Forms of protection other than fuses complying with AS 3135 or AS 2005: Part 3 or, circuit-breakers complying with AS 3111 shall be acceptable if they meet the following requirements:

- (a) The protective device shall be non self-resetting.
- (b) If it provides protection equivalent to a fuse it shall comply with tests number 5 and 6 for Category of duty A1, in Table 2 of AS 3135.
- (c) If it provides protection equivalent to a miniature circuit-breaker, it shall comply with tests number 8 and 9 for a breaking capacity of 1.5 kA, in Table 2 of AS 3111.
- (d) If the protective device can be reset without replacement of a part, it shall withstand without damage 200 cycles of operation under the conditions in which it is intended to operate at 6 times its rated current. The test shall be carried out at the rated voltage of the appliance.
- (e) If the protective device requires replacement of a part to reset the device, it shall be caused to operate 6 times under the conditions in which it is intended to operate at 2.1 times its rated current, a new part being fitted each time. The test shall be carried out at the rated voltage of the appliance.

This Amendment forms part of the Specification on publication.

AMDT
No 2
JAN
1991

Page 12 Clause 16

Add the following Clause:

16.4 Cooking appliances with glasstops and halogen-lamp heating units—Warning instruction An instruction shall be included with cooking appliances incorporating glass tops and halogen-lamp heating units to warn users to avoid staring at the units when in operation e.g. Warning—do not stare at the heating units when in operation!

This Amendment forms part of the Specification 12 months from publication.



STANDARDS AUSTRALIA

 Amendment No. 3
 to
 AS 3172—1990

Approval and test specification—Electric cooking appliances for household use

 REVISED TEXT

The 1990 edition of AS 3172 is amended as follows; the amendments should be inserted in the appropriate place.

SUMMARY: This Amendment applies to the Preface and Clauses 3, 5.2, 5.3, 9.1, 15, 15.2, 15.3, 15.5, 16.1, 18.1 and 18.11.2.

Published on 16 March 1992.

Approved for publication in New Zealand on behalf of the Standards Council of New Zealand on 13 March 1992.

AMDT
No. 3
MAR.
1992

Page 2 Preface

At the end of the Preface, *add* the following new paragraphs:

The Standards Association of New Zealand wishes to advise that this Specification will supersede NZS 1055:1953, NZS 1303:1965, and NZS 1910:1965 12 months from the date of publication of this Amendment.

Standards Australia and the Standards Association of New Zealand advise that this Specification will be published as a Joint Australian/New Zealand Standard at the next printing.

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 4 Clause 3

1 *Add* the following referenced Standard:

NZS

6200 Specification for general requirements for electrical apparatus and material

2 *Insert* the following Approval and test specification:

3190 Residual current devices (current-operated earth-leakage devices)

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 5 Clause 5.2

Add the following new Item (d):

(d) In New Zealand a single-phase freestanding electric range shall be provided with a set of terminals allowing the connection of a power supply cord using a Type X attachment.

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 5 Clause 5.3

1 Second paragraph, line 1, *insert* the following between the words 'cables' and 'shall':
other than power supply cords

2 *Add* the following to the Note as a second sentence:

For power supply cords refer to Footnote (h) to Table 5.7 of AS 3100.

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 8 Clause 9.1

Add the following new Note:

NOTE: In New Zealand, open elements are not allowed.

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 11 Clause 15

Delete the title of Clause 15 and *substitute* the following:

15 FUSES AND RESIDUAL CURRENT DEVICES

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 11 Clause 15.2

At the beginning of the first sentence, *delete* the word 'Fuses' and *insert* the following words, 'In Australia, fuses'.

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 11 Clause 15.3

1 At the beginning of the first sentence, *delete* the word 'A' and *insert* the following words, 'In Australia, a'.

2 Item (a), at the beginning of the sentence, *delete* the word 'Up' and *insert* the following words, 'In Australia, up'.

3 Item (a), *add* the following new paragraph and Note:

General purpose outlets shall be protected by a Type 2 residual current device complying with AS 3190. Any general purpose outlet shall be of a type complying with Figure 2.1(a) of AS 3112 and shall have a rating of 10A.

NOTE: The requirement for residual current devices applies only in Australia.

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 12 Clause 15.5

After the fifth paragraph, *add* the following new paragraph:

In New Zealand, fuses provided in a single-phase freestanding electric range need not be accessible from the front of the electric range.

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 12 Clause 16.1

First paragraph, line 2, after the words 'AS 3100', *add* the following words, '(NZS 6200 in New Zealand)'.

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 12 Clause 16.1

After the second paragraph and Note, *add* the following new paragraph:

Appliances fitted with electronic devices for the control of heating elements shall be provided with an instruction warning against leaving empty utensils and other items on the cooking hob when the appliance is not in use.

This Amendment forms part of the Specification 12 months after publication.

AMDT
No. 3
MAR.
1992

Page 12 Clause 18.1

First paragraph, line 2, after the words 'AS 3100', *add* the following words, '(NZS 6200 in New Zealand)'.

This Amendment forms part of the Specification on publication.

AMDT
No. 3
MAR.
1992

Page 15 Clause 18.11.2

Delete Item (a) and *substitute* the following:

(a) Without contents, with lids, if any, on or off and any vents in the open or closed position, whichever imposes the most severe condition.

This Amendment forms part of the Specification 2 years from publication.

STANDARDS AUSTRALIA

Amendment No. 4
to
AS 3172—1990
Approval and test specification—Electric cooking appliances for household use

REVISED TEXT

The 1990 edition of AS 3172 is amended as follows; the amendments should be inserted in the appropriate place.

SUMMARY: This Amendment applies to Clauses 4, 9.1, 9.2, 9.3, 9.5, 9.8, 9.9, 9.10, 16, 18.1, 18.6, 18.11 and Appendix A.

Published on 12 October 1992.

AMDT
No. 4
OCT.
1992

Page 4 Clause 4

After definition 4.15, *insert* new definition 4.16 as follows:

4.16 Induction hob element—a hob element on which a cooking vessel is heated by means of eddy currents.

This Amendment forms part of the Specification on publication.

AMDT
No. 4
OCT.
1992

Page 8 Clause 9.1

In the title and first line, *delete* the word 'open' and *substitute* the following:
glass sheathed.

Page 8 Clause 9.2

In the title and first line, *delete* the word 'open' and *substitute* the following:
glass sheathed.

Page 8 Clause 9.3

First line, *delete* the word 'open' and *substitute* the following:
glass sheathed.

Page 8 Clause 9.5

Item (a), first line, *delete* the word 'open' and *substitute* the following:
glass sheathed.

This Amendment forms part of the Specification on publication.

AMDT
No. 4
OCT.
1992

Page 8 Clause 9.8

Delete the existing title and *substitute* the following:

Insulated live parts.

Delete the first sentence.

This Amendment forms part of the Specification on publication.

AMDT
No. 4
OCT.
1992

Page 9 Clause 9.9

Delete the title and text of Clause 9.9 but not the clause number, and *substitute* the following:

VOID

Page 9 Clause 9.10

Delete the title and text of Clause 9.10 but not the clause number, and *substitute* the following:

VOID

This Amendment forms part of the Specification on publication.

AMDT
No. 4
OCT.
1992

Page 12 Clause 16

After Clause 16.4, *insert* a new Clause 16.5 as follows:

16.5 Induction hob element—warning notice Cooking appliances fitted with induction hob elements shall be accompanied by an instruction containing the substance of the following:

WARNING Do not place metallic kitchen utensils or lids near to or on the induction hob element while it is operating.

The instruction for use of the cooking appliance shall give advice about the types of cooking vessel to be used.

This Amendment forms part of the Specification on publication.

AMDT
No. 4
OCT.
1992

Page 12 Clause 18.1

Add a new final paragraph as follows:

For induction hob element sources, where working voltages exceed 250 V the following test voltages apply for the high voltage test of Clause 8.4 of AS 3100, where U = the working voltage under normal operation:

- 1 000 V becomes $1.2 U + 700$ V;
- 1 250 V becomes $1.2 U + 950$ V;
- 2 500 V becomes $1.2 U + 2\ 200$ V;
- 2 750 V becomes $1.2 U + 2\ 450$ V; and
- 3 750 V becomes $2.4 U + 3\ 150$ V.

This Amendment forms part of the Specification on publication.

AMDT
No. 4
OCT.
1992

Page 13 Clause 18.6

After Item (e), *insert* the following new Note:

NOTE: The temperatures associated with induction hob elements should be determined by use of measuring equipment that is not unduly influenced by magnetic fields generated by the induction hob element. Platinum resistance thermometers or their equivalent are normally required.

This Amendment forms part of the Specification on publication.

AMDT
No. 4
OCT.
1992

Page 16 Clause 18.11.5

Add new Clause 18.11.5 as follows:

18.11.5 Test method for induction hob elements The appliance shall be arranged in accordance with Appendix A and operated at rated voltage under the following conditions in turn—

- (i) With a mild steel disk having a thickness of 1.5 mm and the smallest possible diameter which will allow the induction hob element to operate. The disk shall be placed on the centre of the hob element cooking zone.
- (ii) With a cooking vessel, as specified by the manufacturer, containing oil, and with any temperature regulating device short-circuited or rendered inoperative.
- (iii) With a piece of flat mild steel bar 2 mm thick, 20 mm long and 10 mm wide placed on the induction hob element cooking zone in the most unfavourable position. The actuating means of the induction hob element shall be 'On' and at the maximum setting.

During the tests the temperature of the oil shall not exceed 295°C and the temperature of the mild steel disk and bar shall not exceed 60°C. Additionally the requirements of Clause 18.11.4 shall be complied with.

This Amendment forms part of the Specification on publication.

AMDT
No. 4
OCT.
1992

Page 20 Appendix A, Paragraph A3.2

Add to the title the following words:

and induction hob elements.

This Amendment forms part of the Specification on publication.

AMDT
No. 4
OCT.
1992

Page 21 Appendix A, Paragraph A3.5

Add to the list of components and duration of test the following:

Induction hob element Last period of the test

This Amendment forms part of the Specification on publication.

STANDARDS AUSTRALIA

Amendment No. 5
to
AS 3172—1990
Approval and test specification—
Electric cooking appliances for household use

REVISED TEXT

The 1990 edition of AS 3172 is amended as follows; the amendments should be inserted in the appropriate place.

SUMMARY: This Amendment applies to Clauses 12.2 and 18.9.2.

Published on 14 June 1993.

AMDT
No. 5
JUNE
1993

Page 10 Clause 12.2

Delete the existing first paragraph and *substitute* the following new first paragraph:

12.2 Where required Any switch controlling a heating unit of an appliance intended for permanent connection to fixed wiring shall be a Category 2 switch which shall open all active conductors. This requirement shall not apply to any additional devices performing an auxiliary function (e.g. timers, door switches and the like) provided that the principal switch controlling the individual heating unit is connected in the active conductor(s).

This Amendment forms part of the Specification 1 year after publication.

AMDT
No. 5
JUNE
1993

Page 14 Clause 18.9.2

Add the following new sentence to Item (c):

In addition, a further 110 mL of test solution shall be evenly discharged over the entire surface of any control areas located above a horizontal plane which is 150 mm above the hotplates.

This Amendment forms part of the Specification on publication.

Australian Standard®

**Approval and test specification—
Electric cooking appliances for
household use**

AS 3172 first published in part as AS C102—1937.
Second edition 1940.
Third edition 1949.
AS C105 first published 1937.
Second edition 1940.
Third edition 1952.
AS C146 first published 1949.
Second edition 1954.
AS C102—1949, AS C105—1952 and AS C146—1954
revised, amalgamated and redesignated
AS C172—1963.
AS C172—1963 revised and redesignated AS 3172—1976.
Second edition 1980.
Third edition 1984.
Fourth edition 1986.
Fifth edition 1990.

PREFACE

This Specification was prepared by the Standards Australia Committee on Electrical Approvals Standards to supersede AS 3172—1986, *Electric cooking appliances for household use*.

It is one of a series of Approval and Test Specifications issued by Standards Australia. These Specifications are accompanied by a general Specification AS 3100 containing definitions and general requirements for electrical materials and equipment. The purpose of these Specifications is to outline conditions which must be met to secure approval for the sale and use of electrical equipment in Australia. Only safety matters and related conditions are covered.

This edition was published to incorporate into the Specification Amendment Nos 1 to 5 to AS 3172—1986 and to effect changes to Clause 18 with regard to new requirements for temperatures of accessible surfaces.

This Specification supersedes AS 3172—1986 from date of publication with the exception of Clause 18.6 Items (c) and (d) which form part of the Specification 2 years after publication, Clause 12.6, Test 22 and Clause 18.16 which form part of the Specification in July 1990 and Clause 18.9.2 which forms part of the Specification in July 1991.

Standards Australia desires to call attention to the fact that this Specification does not purport to include all the necessary provisions of a contract.

The Standards Association of New Zealand wishes to advise that this Specification will supersede NZS 1055:1953, NZS 1303:1965, and NZS 1910:1965 12 months from the date of publication of this Amendment.

Standards Australia and the Standards Association of New Zealand advise that this Specification will be published as a joint Australian/New Zealand standard at the next printing. (AmDT 3)

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STANDARDS AUSTRALIA

Australian Standard

Approval and test specification—Electric cooking appliances for household use

1 SCOPE. This Specification specifies essential safety requirements for electric cooking appliances, as defined in Clause 4.1 below, intended for electrical operation by direct or alternating current at low or medium voltage.

It applies to appliances such as electric ranges, ovens, cooking tables, hotplate hob units, grill boiler units, deep fryers, frypans, rotisserie cookers, ~~saucepan-type cookers, cake makers, contact type griddle and toasting plates, waffle irons, steam pressure cookers, plate and food warmers and grillers; and to electric kettles, coffee percolators, drink heaters, and other appliances intended for the heating of water or drinks, including electric urns and urn-type percolators having a capacity of less than 4.5 litres or intended in normal operation not to contain more than 4.5 litres.~~

It does not apply to appliances within the scope of:-

AS 3101—Electric bread toasters

AS 3103

amdt 1.

AS 3104—Electric portable immersion heaters

AS 3106—Electric jugs (with non-metallic bodies)

NOTE: An appliance in the form of a container incorporating a sheathed element with provision for earthing the sheath is within the scope of this Specification even though it may have a non-metallic body and, in shape, may resemble a conventional jug.

2 APPLICATION.

2.1 General requirements of AS 3100. This Specification shall be read in conjunction with AS 3100 and the appropriate provisions of AS 3100 shall apply to the construction of the appliance and the insulation or safeguarding or both, of parts which normally carry current.

2.2 Specific requirements of this Specification. An appliance shall be deemed to comply with this Specification only if it complies with all the requirements of this Specification and passes the relevant tests specified herein.

2.3 Requirements of other Specifications. Equipment and components incorporated in an appliance which are depended upon for safety shall comply with the appropriate requirements of any relevant Approval and Test Specification unless such requirements are varied herein.

3 REFERENCED DOCUMENTS.

The following documents are referred to in this Standard.

STANDARDS.

AS

2005 Low voltage fuses—Fuses with enclosed links

2005.3 Part 3—Fuses for household and similar applications

3000 SAA Wiring Rules

NZS 6200 - (see amdt 3)

NOTE: Although not referred to or called up by this Specification, attention is drawn to the quality and performance requirements in AS 1549, AS 1550, and AS 1551, Ranges, built-in cooking tops and wall-mounted ovens, hotplates for use in ranges and built-in cooking tops, and manually operated controls for heating units in ranges, built-in cooking tops and wall-mounted ovens, respectively.

APPROVAL AND TEST SPECIFICATIONS.

AS

3100 Definitions and general requirements for electrical materials and equipment

3101 Electric bread toasters

3104 Electric portable immersion heaters

3106 Electric jugs (with non-metallic bodies)

3109 Appliance couplers for household and similar general purposes

3109.1 Part 1: General requirements

3111 Miniature overcurrent circuit-breakers

3112 Plugs and socket-outlets

3135 Semi-enclosed fuses for a.c. circuits

3140 Edison-type screw lampholders

3158 Fibrous insulated electric cables and flexible cables for working voltages of 0.6/1 kV

3161 Thermostats and energy regulators

3191 Electric flexible cords

3196 ~~see amdt 5.~~ Particular Requirements for heating liquids. (amdt 1) *

4 DEFINITIONS.

For the purpose of this Specification, the definitions below apply:

4.1 Electric cooking appliance (hereinafter referred to as an 'appliance')—an electrically operated appliance designed to apply heat to food, or liquids for drinking, and intended primarily for household use.