

Australian/New Zealand Standard™

**Approval and test specification—Plugs
and socket-outlets for stationary
appliances**



AS/NZS 3131:2015

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-004, Electrical Accessories. It was approved on behalf of the Council of Standards Australia on 7 May 2015 and on behalf of the Council of Standards New Zealand on 25 June 2015.

This Standard was published on 10 July 2015.

The following are represented on Committee EL-004:

Australian Chamber of Commerce and Industry
Australian Industry Group
Consumer Electronics Suppliers Association
Consumers Federation of Australia
Electrical Compliance Testing Association
Electrical Regulatory Authorities Council
Engineers Australia
International Accreditation New Zealand
Ministry of Business, Innovation and Employment, New Zealand
New Zealand Manufacturers and Exporters Association
Office of Fair Trading, NSW
Plastics Industry Pipe Association of Australia

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 Standards may also be withdrawn.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.saiglobal.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

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.

This Standard was issued in draft form for comment as DR AS/NZS 3131:2015.

Australian/New Zealand Standard™

Approval and test specification—Plugs and socket-outlets for stationary appliances

Originated in Australia as AS 3131—1990.
Originated in New Zealand as AS/NZS 3131:1995.
Previous edition 2001.
Fourth edition 2015.

COPYRIGHT

© Standards Australia Limited/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, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140.

ISBN 978 1 76035 156 4

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-004 on Electrical Accessories, to supersede AS/NZS 3131:2001.

The objective of this Standard is to provide requirements for plugs and socket-outlets having current ratings not exceeding 32 A, intended for indoor use, and at voltages not exceeding 500 V a.c., for the purpose of enabling connection and disconnection of fixed stationary appliances (such as stoves) to the installation wiring.

While this Standard depicts only one standardized configuration (in Appendix A), it may be applied to configurations and contact types other than that depicted herein, providing all appropriate requirements of this Standard are complied with.

This Standard is one of a series of approval and test specifications issued jointly by Standards Australia and Standards New Zealand. These specifications are to be read in conjunction with AS/NZS 3100, *Approval and test specification—General requirements for electrical equipment*.

The essential safety requirements in AS/NZS 3820, *Essential safety requirements for electrical equipment*, that could be applicable to switches are covered by this Standard.

This edition of AS/NZS 3131 contains the following changes from the 2001 edition:

- (a) Referenced documents updated.
- (b) The first temperature rise test for socket-outlets is no longer required.
- (c) Changes to location of marking requirements.
- (d) Change to high voltage test.
- (e) Addition of the child's test finger of IEC 61032 Probe 19.

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

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE.....	4
1.2 APPLICATION	4
1.3 REFERENCED DOCUMENTS.....	4
1.4 DEFINITIONS.....	5
SECTION 2 PLUGS	
2.1 TERMINALS AND INTERNAL CONNECTIONS	6
2.2 PLUG PINS	6
2.3 INSULATING MATERIALS	7
2.4 NON-REWIREABLE PLUGS	7
2.5 METHOD OF ENTRY AND ANCHORAGE FOR CABLE, FLEXIBLE CABLE OR FLEXIBLE CORD.....	7
2.6 STRENGTH OF SCREW THREADS AND FIXINGS.....	7
2.7 RATING AND DIMENSIONS.....	7
2.8 INTERNAL CONNECTIONS	8
2.9 FUSES	8
2.10 MARKING	8
2.11 TESTS ON PLUGS	9
SECTION 3 SOCKET OUTLETS	
3.1 TERMINALS AND INTERNAL CONNECTIONS	11
3.2 SOCKET-OUTLET CONTACTS.....	11
3.3 INSULATING MATERIALS	11
3.4 STRENGTH OF SCREW THREADS AND FIXINGS.....	11
3.5 RATING AND DIMENSIONS.....	12
3.6 ARRANGEMENT OF EARTHING CONNECTIONS	12
3.7 PREVENTION OF CONTACT WITH LIVE PINS.....	12
3.8 PROHIBITED ARRANGEMENTS	12
3.9 SWITCHES	12
3.10 MARKING	13
3.11 TESTS FOR SOCKET-OUTLETS	13
APPENDIX A RATINGS, DIMENSIONS AND KEYWAY LOCATIONS	17

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Approval and test specification—Plugs and socket-outlets for stationary appliances**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies the requirements for plugs and socket-outlets having current ratings not exceeding 32 A, intended for indoor use, and at voltages not exceeding 500 V a.c., for the purpose of enabling connection and disconnection of stationary appliances such as cooking ranges, hobs and ovens. A standardized configuration is given in Appendix A.

This Standard may be applied to configurations and contact types other than those depicted herein providing all appropriate (to that type) requirements of this Standard are complied with.

This Standard does not apply to the following:

- (a) Appliance couplers for household and similar general purposes within the scope of AS/NZS 60320.1
- (b) Plugs and socket-outlets within the scope of AS/NZS 3112.
- (c) Cord extension sockets and inlet plugs within the scope of AS/NZS 3120.
- (d) Socket-outlet adaptors within the scope of AS/NZS 3122.
- (e) Plugs, socket-outlets and couplers for general industrial application within the scope of AS/NZS 3123.
- (f) Installation couplers within the scope of AS/NZS 61535.

1.2 APPLICATION**1.2.1 General requirements of AS/NZS 3100**

This Standard shall be read in conjunction with AS/NZS 3100. The appropriate provisions of AS/NZS 3100 shall apply to the construction of a plug or socket-outlet and the insulation and safeguarding of parts that normally carry current.

1.2.2 Specific requirements of this Standard

A plug or socket-outlet shall be deemed to comply with this Standard only if it complies with all the appropriate requirements of this Standard and passes the relevant tests specified herein.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard.

NOTE: For New Zealand, where no relevant New Zealand Standard is listed, the referenced Australian Standard is deemed to be appropriate for the purpose of this Standard.

AS
60529 Degrees of protection provided by enclosures (IP Code)

AS/NZS

60695 Fire hazard testing—Glowing/hot wire based test methods

60695.2.10 Part 2.10: Glow-wire apparatus and common test procedure

61535 Installation couplers intended for permanent connection in fixed installations
(IEC 61535, Ed.1.0 (2009) MOD)**APPROVAL AND TEST SPECIFICATION STANDARDS**

AS/NZS

3100 Approval and test specification—General requirements for electrical equipment

3112 Approval and test specification—Plugs and socket-outlets

3120 Approval and test specification—Cord extension sockets

3121 Approval and test specification—Insulating mouldings

3122 Approval and test specification—Socket-outlet adaptors

3123 Approval and test specification—Plugs, socket-outlets and couplers for general
industrial application

3127 Approval and test specification—Cord-line switches

3133 Approval and test specification—Air-break switches

60320 Appliance couplers for household and similar general purposes

60320.1 Part 1: General requirements (IEC 60320-1, Ed. 2.1 (2007) MOD)

IEC

60112 Method for the determination of the proof and the comparative tracking indices
of solid insulating materials**1.4 DEFINITIONS**

For the purpose of this Standard, the definitions below apply.

1.4.1 Non-rewireable plug

A plug constructed so that it forms an integral unit with its cable, flexible cable or flexible cord such that the cable, flexible cable or flexible cord cannot be detached from the plug without making it permanently unusable.

1.4.2 Plug

An accessory having pins designed to engage with the contacts of a socket-outlet, also incorporating means for the electrical connection and mechanical retention of cables, flexible cables or flexible cords.

1.4.3 Rewireable plug

A plug constructed so that the cable, flexible cable or flexible cord can be replaced.

1.4.4 Socket-outlet

An accessory having socket-contacts designed to engage with the pins of a plug and having terminals for the connection of cables, flexible cables or flexible cords.

S E C T I O N 2 P L U G S

2.1 TERMINALS AND INTERNAL CONNECTIONS

2.1.1 Materials

Terminals and internal connections shall be of suitable corrosion-resisting metal of sufficient hardness and rigidity for the intended application.

2.1.2 Construction of terminals

The terminals shall be of suitable size and form to accommodate the conductors of a cable, flexible cable or flexible cord of current-carrying capacity corresponding to the marked current rating of the plug.

Facilities shall be provided to prevent slipping or spreading of the conductors or conductor strands. Where the facilities are such that the conductor is to be located around the shank of the terminal screw and clamped under the screw head, the following requirements shall apply:

- (a) When the terminal screw is screwed in to the limit of its thread, the clearance between the head of the screw and the washer or means of retention of the conductor shall not exceed 0.4 mm.
- (b) The terminal screw shall be of sufficient length to enable it to be backed off sufficiently from the washer or means of retention of the conductor so that the conductor may be located around the shank without difficulty.
- (c) Where the means of retention of the conductor is not continuous, e.g. prongs, there shall be at least three points of retention and the maximum angle between any two points shall not exceed 150°.
- (d) Where the means of retention of the conductor is continuous, e.g. portion of the insulating moulding, the angle subtended by the arc of the means of retention shall be not less than 180°.

2.2 PLUG PINS

2.2.1 Materials

Pins shall be of corrosion-resisting metal of sufficient rigidity and durability for the intended application.

2.2.2 Assembly of pins

If, during assembly, pins can become readily detached from the body of a plug while remaining attached to the conductors of a cable, flexible cable or flexible cord, or have to be detached from the body in order that connection may be effected, it shall not be possible for a plug to be assembled with any pin in an incorrect position.

NOTE: See Clause 2.7 for dimensions of pins.

2.2.3 Form of pin

Plug pins shall be adequately proportioned throughout and shall be designed so as not to introduce a stress concentration which may lead to fracture of the pin. They shall be suitably shaped to prevent abrasion or cutting of conductor strands due to flexure in normal use.