

Australian/New Zealand Standard™

**Approval and test specification—Plugs  
and socket-outlets**

## **AS/NZS 3112:2000**

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 17 December 1999 and on behalf of the Council of Standards New Zealand on 20 December 1999. It was published on 3 April 2000.

---

The following are represented on Committee EL-004:

Australasian Railway Association  
Australian Chamber of Commerce and Industry  
Australian Electrical and Electronic Manufacturers Association  
Canterbury Manufacturers Association, New Zealand  
Consumer Electronic Suppliers Association of Australia  
Electricity Supply Association of Australia  
International Accreditation New Zealand  
Ministry of Commerce, New Zealand  
National Electrical and Communications Association  
New Zealand Manufacturers' Federation  
Plastics and Chemicals Industries Association  
Regulatory authorities (electrical), Australia  
Testing Interests (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 Standards may also be withdrawn.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 Australia web site at [www.standards.com.au](http://www.standards.com.au) or Standards New Zealand web site at [www.standards.co.nz](http://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 International or Standards New Zealand at the address shown on the back cover.

---

# Australian/New Zealand Standard™

## Approval and test specification—Plugs and socket-outlets

Originated in Australia as AS C112—1937.  
Originated in New Zealand as part of NZSS 198—1939.  
Previous edition AS/NZS 3112:1993.  
Fifth edition 2000.  
Reissued incorporating Amendment No. 1 (December 2001).  
Reissued incorporating Amendment No. 2 (March 2003).

### **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 International Ltd, GPO Box 5420, Sydney, NSW 2001  
and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 3267 4

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL/4, Electrical Accessories to supersede AS/NZS 3112:1993 on publication.

*This Standard incorporates Amendment No. 1 (December 2001) and Amendment No. 2 (March 2003). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.*

This Standard is one of a series of Approval and Test Specifications issued by Standards Australia and Standards New Zealand. In Australia, these specifications are to be read in conjunction with AS/NZS 3100, Approval and test specification—General requirements for electrical 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. Only safety matters and related conditions are covered.

Where there is a published Australian/New Zealand harmonized or Joint Standard referenced in this Standard, the New Zealand Standard number is given in parenthesis following the Australian Standard number.

This Standard was revised to introduce the following technical and editorial changes:

- (a) Amendments 1, 2, 3 and 4 to AS/NZS 3112:1993 have been incorporated into the text.
- (b) The material and design of plug pins
- (c) Requirements for insulated pins
- (d) Requirements for IP-rated plugs and sockets
- (e) Changes to tests.

A1 | Notes to the text in the body of the Standard are not mandatory parts of the Standard.  
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.  
This Standard does not provide all the necessary conditions for a contract.

## CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE .....	5
1.2 APPLICATION .....	5
1.3 REFERENCED DOCUMENTS .....	5
1.4 DEFINITIONS .....	6
SECTION 2 PLUGS	
2.1 TERMINALS AND INTERNAL CONNECTIONS .....	8
2.2 PLUG PINS .....	8
2.3 INSULATING MATERIALS .....	9
2.4 NON-REWIREABLE PLUGS .....	10
2.5 MEANS OF ENTRY AND CORD ANCHORAGE FOR FLEXIBLE CORD .....	10
2.6 RADIO INTERFERENCE SUPPRESSION DEVICES .....	11
2.7 FINGER-GRIP .....	11
2.8 RATINGS AND DIMENSIONS OF LOW VOLTAGE PLUGS .....	11
2.9 INTERNAL CONNECTIONS .....	12
2.10 ARRANGEMENT OF EARTHING CONNECTIONS .....	13
2.11 FUSES .....	13
2.12 MARKING .....	13
2.13 TESTS ON PLUGS .....	14
SECTION 3 SOCKET-OUTLETS	
3.1 TERMINALS AND INTERNAL CONNECTIONS .....	34
3.2 PROHIBITED ARRANGEMENTS .....	34
3.3 SOCKET-OUTLET CONTACTS .....	34
3.4 INSULATING MATERIALS .....	35
3.5 RADIO INTERFERENCE SUPPRESSORS .....	36
3.6 DIMENSIONS .....	36
3.7 ARRANGEMENT OF EARTHING CONNECTIONS .....	37
3.8 PREVENTION OF CONTACT WITH LIVE PINS .....	37
3.9 FUSES .....	38
3.10 FLOOR SOCKET-OUTLETS .....	38
3.11 SWITCHED SOCKET-OUTLETS .....	39
3.12 SHUTTERED SOCKET-OUTLETS .....	39
3.13 MARKING .....	39
3.14 TESTS FOR SOCKET-OUTLETS .....	40
APPENDICES	
A GAUGE FOR THREE-PIN FLAT-PIN PLUGS .....	50
B GAUGE FOR TWO-PIN FLAT-PIN PLUGS WITH PARALLEL PINS .....	51
C THREE-PIN TEST PLUG WITH FLAT PINS FOR FULL-INSERTION TEST AND THE FINGER TEST DURING NORMAL INSERTION TEST .....	52
D THREE-PIN TEST PLUG WITH FLAT PINS FOR ABNORMAL INSERTION TEST .....	53
E PLUGS AND SOCKET-OUTLETS FOR USE IN EXTRA-LOW VOLTAGE CIRCUITS .....	54
F GAUGE FOR FLAT AND ROUND PIN PLUGS .....	55

	G	THREE-PIN TEST PLUG WITH FLAT- AND ROUND-PINS FOR THE FULL-INSERTION TEST AND THE FINGER TEST DURING NORMAL INSERTION TEST.....	56
	H	DIMENSIONS FOR PLUGS AND SOCKET-OUTLETS, IP RATED, WITH THREADED RETAINING DEVICES.....	57
A2	I	VOID .....	58
	J	EQUIPMENT WITH INTEGRAL PINS FOR INSERTION INTO SOCKET-OUTLETS.....	59

## FIGURES

	2.1	DIMENSIONS OF PLUGS .....	24
	2.2	APPARATUS FOR FLEXING TEST .....	29
	2.3	FORM OF PIN.....	30
	2.4	DIMENSIONS OF INSULATION ON INSULATED LIVE PINS .....	30
	2.5	PRESSURE TEST APPARATUS FOR INSULATION ON INSULATED PLUG PINS AT HIGH TEMPERATURE .....	31
	2.6	IMPACT TEST APPARATUS FOR INSULATION ON INSULATED PLUG PINS AT LOW TEMPERATURE .....	32
	2.7	ABRASION TEST APPARATUS FOR INSULATION ON INSULATED PIN PLUGS .....	33
	3.1	GAUGE FOR DEPTH OF NO-CONTACT TEST .....	46
	3.2	SOCKET-OUTLET FACE PROFILE IN ACCORDANCE WITH CLAUSE 3.6.1 ITEM (a).....	47
	3.3	SOCKET-OUTLET FACE PROFILE IN ACCORDANCE WITH CLAUSE 3.6.1 ITEM (b).....	47
	3.4	AREA OF LIMITED PROJECTION .....	47
	3.5	FULLY RECESSED SOCKET OUTLET .....	48
	3.6	DEVICE FOR CHECKING THE RESISTANCE TO LATERAL STRAIN.....	47
	A1	GAUGE FOR THREE-PIN 250 V MAX FLAT-PIN PLUGS.....	50
	B1	GAUGE FOR TWO-PIN FLAT-PIN 125 V MAX PLUGS (WITH PARALLEL PINS).....	51
	C1	THREE-PIN TEST PLUG FOR CHECKING THREE-PIN FLAT-PIN 250 V MAX SOCKET-OUTLETS AGAINST THE STANDARD TEST FINGER IN ACCORDANCE WITH CLAUSES 3.3.4 AND 3.8.1 .....	52
	D1	THREE-PIN TEST PLUG FOR CHECKING THREE-PIN FLAT-PIN 250 V MAX SOCKET-OUTLETS AGAINST INCORRECT INSERTION OF PLUGS, IN ACCORDANCE WITH CLAUSE 3.8.2 .....	53
	E1	DIMENSIONS OF EXTRA-LOW VOLTAGE FLAT-PIN PLUGS .....	54
	F1	GAUGE FOR FLAT AND ROUND PIN PLUGS.....	55
	G1	THREE-PIN TEST PLUG WITH FLAT AND ROUND PINS FOR TESTS TO CLAUSES 3.3.4 AND 3.8.1 .....	56
	H1	DIMENSIONS FOR IP RATED PLUGS AND IP RATED SOCKETS WITH THREADED RETAINING DEVICE.....	57

## TABLES

	2.1	RANGE OF FLEXIBLE CORDS.....	11
	2.2	PLUGS—TESTS TO BE APPLIED AND ORDER OF APPLICATION.....	15
	2.3	TEST VOLTAGES FOR HIGH VOLTAGE TEST.....	16
	2.4	LOADS FOR CORD ANCHORAGE TEST .....	17
	3.1	MAXIMUM DIMENSIONS OF PIN ENTRY APERTURES.....	36
	3.2	SOCKET-OUTLETS—TESTS TO BE APPLIED  AND ORDER OF APPLICATION.....	41
	3.3	TEST VOLTAGES FOR HIGH VOLTAGE TEST.....	42
	3.4	SIZE OF CABLES FOR TEST OF TEMPERATURE RISE.....	43

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

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

SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE**

This Standard specifies essential safety requirements for plugs and socket-outlets, as defined in Clause 1.4, intended for use at extra-low or low voltages and a rated current not exceeding 32 A for household or similar purposes. (For extra-low voltage plugs and socket-outlets, see Appendix E.)

This Standard does not apply to the following:

- (a) Appliance couplers (see AS/NZS 3109.1).
- A1 | (b) Installation couplers (see AS/NZS 3131:1995 or the Interim Standard AS/NZS 61535).
- (c) Plugs, socket-outlets and couplers for general industrial applications (see AS/NZS 3123).
- A1 | (d) Plugs and socket-outlets for moveable appliances (see AS/NZS 3131).

**1.2 APPLICATION**

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

This Standard shall be read in conjunction with AS/NZS 3100 and 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 which normally carry current.

**1.2.2 Specific requirements of this Standard**

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

NOTE: Plugs, socket-outlets and connectors incorporating retaining means of the type specified in AS/NZS 3123, or similar, need not comply with all general dimensional requirements of this Standard, so long as the safe functioning of accessories in a particular system is not impaired. Where appropriate, dimensions relevant to specified pin configurations are applied.

**1.3 REFERENCED DOCUMENTS**

The following documents are referred to in this Standard.

AS	
1722	Pipe threads of Whitworth form
1722.2	Part 2: Fastening pipe threads
1939	Degrees of protection provided by enclosures for electrical equipment (IP Code)



SAI GLOBAL

This is a free 7 page sample. Access the full version online.

The remainder of this document  
is available for purchase online at

**[www.saiglobal.com/shop](http://www.saiglobal.com/shop)**

SAI Global also carries a wide range of publications from a wide variety of Standards Publishers:



Click on the logos to search the database online.