AS 3112—1990

Australian Standard®

Approval and test specification—Plugs and socket-outlets

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STANDARDS AUSTRALIA

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Australian Electrical and Electronic Manufacturers Association
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Electrical Contractors Association of Australia
Electricity Supply Association of Australia
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PREFACE

This Standard was prepared by the Standards Australia Committee on Electrical Accessories to supersede AS 3112—1987.

It is one of a series of Approval and Test Specifications issued by the organization. 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 Standard was revised to incorporate Amendment No 1, December 1987 (which effected Clauses 2.8.1, 2.14.2, 2.14.6.1, 3.7, 3.9.1, 3.9.2, 3.16.2 and 3.16.10 and Tables 2.2 and 3.2), Amendment No 2, July 1989 (which effected Clauses 1.1,1.2.2, 1.4.2, 2.2.2, 2.14.4, 2.14.6.2, 2.14.7, 2.14.8.4, 3.3.3, 3.7, 3.8, 3.12, 3.13, 3.16.3 and 3.16.10), and to introduce major technical changes in an attempt to increase the safety of the established 3-pin flat-pin plug/socket system. In particular, to overcome the problems associated with partial engagement or disengagement, the obstruction of switches in socket-outlets by plug-in devices and the side-by-side use, without jamming, of plugs and plug-in devices in adjacent socket-outlets.

A major change is dimensional control of the shape of a plug, for a distance of 8.6 mm from the front face, for 2-pin and 3-pin flat-pin plugs of up to 10 A rating. An accompanying change is being introduced in AS 3120, *Approval and test specification—Cord extension sockets,* which will allow for the plug to be inserted into, and withdrawn from, a full 360° projection of 8.3 mm depth surrounding the socket face of a 10 A rated cord extension socket, with no access to a pin, whilst live, being possible.

To allow for manufacturer retooling and, in particular, to take account of incompatibility with existing plugs and plug-in devices in cord extension sockets with a full 360° projection, the plug changes are being introduced 2 years from date of publication, whereas the cord extension socket changes of AS 3120 **shall not** form part of the Specification until 5 years after publication, but must be applied 7 years from publication.

Other major changes include the introduction of—

(a) requirements for the ergonomic design of plugs, i.e. provision of a functionally adequate finger grip;

(b) dimensional control of the position and angle of entry of the flexible cord for side-entry plugs;

(c) specification of the depth (from the socket-outlet faceplate) required to make the first point of contact with socket-outlet contacts;

(d) requirements to allow for full insertion of plugs and plug-in devices and for the prevention of inadvertent or partial operation of any switch by the plug or plug-in device, during insertion or withdrawal from a socket-outlet; and

(e) specification of a minimum centre-to-centre distance between adjacent socket-outlets.

Other changes include updating of the cross reference to referred Standards and renumbering of Clauses.

The inclusion of recessing/projection requirements for other (than cord extension sockets) types of socket-outlet is under consideration.

This Standard supersedes AS 3112—1987 (including Amendment No 1, December 1987 and Amendment No 2, July 1989) from date of publication, with the exception of—

(i) Clauses 2.5.2, 2.7, 2.8.4 (new), 3.3.4, Figures 2.1 (new) and 3.1 and a dimensional change to the plug diameter in Appendices C and D, which form part of the Specification 2 years from the date of publication.

(ii) Clauses 3.6.2 and 3.6.3 and a change in Table 3.1 to the dimension of the major axis of the live pin aperture for 10 A and 15 A socket-outlets, which form part of the Specification 4 years from the date of publication.

Standards Australia points out that this Specification does not purport to include all the necessary provisions of a contract.

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SECTION 1 SCOPE, APPLICATION, REFERENCED DOCUMENTS AND DEFINITIONS

1.1 SCOPE. This Specification specifies essential safety requirements for plugs and socket-outlets, as defined in Clause 1.4, intended for use at extra-low, low or medium voltages, for household or similar purposes. (For extra-low voltage plugs and socket-outlets, see Appendix E).

This Specification does not apply to the following:

(a) Appliance couplers for household and similar general purposes within the scope of AS 3109.

(b) Plugs and socket-outlets for use in installation wiring systems (see AS 3131).

(c) Plugs, socket-outlets and couplers for general industrial application (see AS 3123).

1.2 APPLICATION.

1.2.1 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 a plug or socket-outlet and the insulation and safeguarding of parts which normally carry current.

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

NOTE: Plugs, socket-outlets and connectors incorporating retaining means of the type, or similar to those, specified in AS 3123, need not comply with all general dimensional requirements of this Specification, 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 documents below are referred to in this Specification.

STANDARDS

AS
1939 Classification of degrees of protection provided by enclosures for electrical equipment

2005 Low voltage fuses—Fuses with enclosed fuse-links
2005.1 Part 1: General requirements
2005.3 Part 3: Fuses for household and similar applications

2420 Fire test methods for solid insulating materials and non-metallic enclosures used in electrical equipment

3000 SAA Wiring Rules

BS
646 Cartridge fuse-links (rated at up to 5 amperes) for A.C. and D.C. service

APPROVAL AND TEST SPECIFICATIONS

AS
3100 Definitions and general requirements for electrical materials and equipment

3109 Appliance couplers for household and similar general purposes
3109.1 Part 1: General requirements

3121 Insulating mouldings

3123 Plugs, socket-outlets and couplers for general industrial application

3131 Plugs and socket-outlets for use in installation wiring systems

3133 Air break switches

3145 Radio interference suppression devices

1.4 DEFINITIONS. For the purpose of this Specification, the definitions of AS 3100 and below apply.

1.4.1 Plug—an accessory having pins designed to engage with the contacts of a socket-outlet and incorporating means for the electrical connection and mechanical retention of flexible cables or cords.