Approval and test specification—Plugs and socket-outlets

Amendment No. 1

Revised text amendment

Publishing and Approval Dates

Council of Standards Australia Approval: 6 September 2021

New Zealand Standards Approval Board Approval: 1 September 2021

Published: 17 September 2021

Summary

This Amendment applies to the following elements:

- Preface
- Clauses 1.1, 1.2.2, 1.2.3, 1.4.15, 3.1.2, 3.8.2, 3.9, 3.9.1, 3.9.2, 3.14.2, 3.14.10.2, 3.14.12.1
- Appendices H and J

Amendment Details

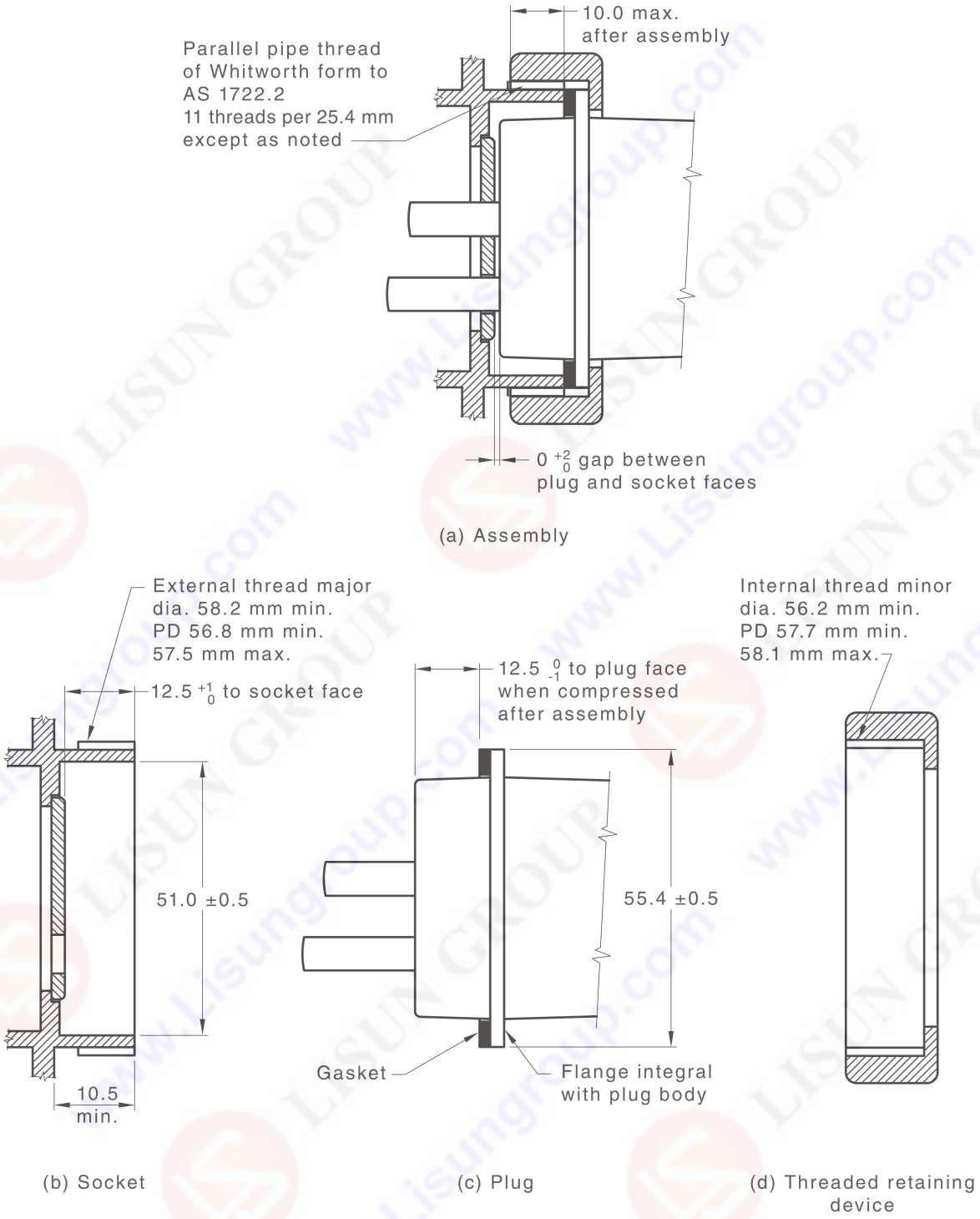
AS/NZS 3112:2017 is amended as follows. The amendments should be inserted in the locations as instructed.

Element	Instruction/New text
Preface	1 *Delete* the second paragraph and *replace* with the following: AS/NZS 3112:2017 in its unamended form will also remain current for 9 months from the date of publication of this document. After this time, it will be superseded by AS/NZS 3112:2017 incorporating Amendment 1. Regulatory authorities that reference this Standard in regulation may apply these requirements at a different time. Users of this Standard should consult with these authorities to confirm their requirements. 2 Third paragraph, third line, *delete* 'plugs and socket-outlets' and *replace* with 'plugs, socket outlets or plug portions.' 3 Fifth paragraph, second line, *delete* 'plugs and socket-outlets' and *replace* with 'plugs, socket outlets or plug portions,'.
Cl 1.1	*Delete* the first paragraph and *replace* with the following: This Standard specifies essential safety requirements for plugs and socket-outlets, as defined in Clause 1.4, plug portions, as defined in Paragraph J2, and equipment incorporating plug portions, intended for use at a rated voltage not exceeding 500 V and a rated current not exceeding 32 A for household or similar purposes.
Cl 1.2.2	1 *Add* the following after the second paragraph: For extra low voltage plugs and socket-outlets, refer to Appendix E. 2 *Delete* the last paragraph and *replace* with the following: For plug portions and equipment incorporating plug portions, refer to Appendix J.
Cl 1.2.3	*Delete* clause.
Cl 1.4.15 (new)	*Add* the following:

ISBN 978 1 76113 508 8

Element	Instruction/New text
	1.4.15 Pitch diameter (PD)
	The simple effective diameter of screw thread, approximately halfway between the major and minor diameters.
Cl 2.8.5	*Delete* the second sentence and *replace* with the following:
	The pitch diameter (PD) on the threaded retaining device shall be as shown in Figure H1 (d).
Cl 2.13.1	*Delete* the second paragraph and *replace* with the following:
	The general test conditions described in AS/NZS 3100 shall be observed when carrying out the tests specified by this standard.
Cl 3.1.2	*Delete* side bar and DOA text next to fourth, fifth and sixth paragraphs.
Cl 3.6.5	*Delete* the clause and replace with the following:
	Where an IP-rated socket-outlet has an external thread, the dimensions of the thread shall comply with Appendix H. The pitch diameter (PD) on the socket shall be as shown in Figure H1 (b).
Cl 3.8.2	*Delete* the last paragraph and *replace* with the following:
	For socket-outlets with covers that are to be—
	(a) removed (with or without the use of a tool) for adjustment of control settings as stated in manufacturer's instructions; or
	(b) removed for mounting of the socket-outlet, and that do not have visible indications of cover securing screws,
	this test shall be conducted with and without the cover in position.
Cl 3.9	*Delete* the title and *replace* with the following:
	SOCKET-OUTLETS FOR WORKTOP INSTALLATION
Cl 3.9.1	*Delete* the clause and *replace* with the following:
	Socket-outlets intended to be fixed in a worktop shall be arranged to prevent dust and water from accumulating in the socket-outlet.
	Conformance shall be checked by inspection.
Cl 3.9.2	*Delete* paragraph (excluding Note) and *replace* with the following:
	Socket-outlets, intended to be fixed in location, in, on, under or behind a surface, that incorporate a supply flexible cord or an inlet plug shall comply with the requirements of AS/NZS 3105 notwithstanding the scope.
Cl 3.14.1	*Delete* the second paragraph and replace with the following:
	The general test conditions described in AS/NZS 3100 shall be observed when carrying out the tests specified by this standard.
Cl 3.14.2	*Delete* the third paragraph and *replace* with the following:
	For socket-outlets with covers that are to be—
	(a) removed (with or without the use of a tool) for adjustment of control settings as stated in manufacturer's instructions; or
	(b) removed for mounting of the socket-outlet, and that do not have visible indications of cover securing screws,
	this test shall be conducted with and without the cover in position.
Cl 3.14.10.2	*Delete* the fourth paragraph and *replace* with the following:
	For socket-outlets with covers that are to be—
	(a) removed (with or without the use of a tool) for adjustment of control settings as stated in manufacturer's instructions; or
	(b) removed for mounting of the socket-outlet, and that do not have visible indications of cover securing screws,
	this test shall be conducted with and without the cover in position.
Cl 3.14.12.1	*Add* the following after the existing paragraph:

Element	Instruction/New text
	Faceplates that are assembled without the use of screws or rivets and are— (a) to be removed (with or without the use of a tool) for adjustment of control settings as stated in manufacturer's instructions; or (b) to be removed for mounting of the socket-outlet, and that do not have visible indications of cover securing screws, the faceplate shall be removed and reinstalled 10 times prior to the tests of Clauses 3.14.12.2 to 3.14.12.6.
Appendix H Figure H1	*Delete* figure and *replace* with the following [Illustrations (b), (d) amended]:



Appendix J *Delete* 'NOTE: See Preface and Clause 1.2.3, Transitional arrangements, for information relating to the pre-existing and new requirements in this Appendix.'

Appendix J
J1 Scope *Delete* title and text *replace* with the following:

J1 General

This Appendix specifies additional dimensional and constructional requirements for detachable plug portions, or equipment incorporating integral supply pins or equipment incorporating detachable plug portions.

This Appendix shall be read in conjunction with Section 2 of this Standard.

For the purposes of this Appendix, where the term 'plug' is used in Section 2 it shall be taken to mean the plug portion of equipment or the detachable plug portion.

The equipment shall comply with the relevant product Standard. The tests and requirements specified in this Appendix are in addition to any test and requirements of the relevant product Standard for the equipment.

Appendix J J2.3

1 *Delete* side bar and DOA text next to first paragraph.

2 *Delete* the second paragraph in box, including side bar and DOW text.

Appendix J J4.1

1 *Delete* 'Table 2.2' and *replace* with 'Table J1'.

2 *Delete* the second paragraph and *replace* with the following:

For equipment with a detachable plug portion, the assessment(s) of Table J1 tests 2, 3, 5, 10 and 11 shall be conducted on the—

(a) assembled equipment with the detachable plug portion connected; and

(b) the detachable plug portion after it has been separated from the equipment.

Appendix J Table J1 (new)

Add Table J1 at the end of Paragraph J4.1.

Table J1 — Integral or detachable plug portions—Tests to be applied and order of application

1	2	3	4
Test No.	**Description of test**	**Reference for test procedure and criteria***	**Sample identification**
	General and dimensions	J3	A
1	High voltage test	J4.2	A
2	Tumbling barrel test	J4.3.1	BCD†
3	Impact test	J4.3.2	BCD†
4	Pin bending test	J4.3.4	EFG
5	Plug portion detachment requirements	J4.8.3	H†
6	Temperature rise test	J4.4	H
7	Securement of pins	J4.5	H
8	Tests for plugs with insulated pins	J4.6	H
9	Equipment with a plug portion intended to be supported by the contacts of a socket-outlet	J4.7	H
10	Access to live parts	J4.8.1	I†
11	Construction of detachable contacts	J4.8.2	I†
12	Resistance to heat	J4.8.4.1	any or J‡
13	Determination of ignitability and combustion propagation	J4.8.4.2	any or J‡

NOTE Total number of samples required: 10 samples (A, B, C, D, E, F, G, H, I, J).

* Clause numbers refer to this Standard.

† For detachable plug portions, additional samples are required to repeat the tests in both methods as described in Clause 4.1 (at least 3 additional samples). Should the product utilize multiple plug portions, then the test is repeated with each plug portion fitted (number of additional samples is determined by the number of plug portions).

‡ Resistance to fire test may require a further sample in new and clean condition.

Appendix J J4.3

Delete the title and *replace* with the following:

Mechanical strength

Appendix J J4.3.1

1 *Delete* the first paragraph and *replace* with the following:

The tumbling barrel test is applied to determine the mechanical strength of the plug portions and equipment having integral or detachable plug portions.

For equipment with a detachable plug portion, the detachable plug portion may become detached during the test. If this occurs the detachable plug portion shall be reassembled with the equipment when the pins are straightened as per (a) and (b) below.

2 *Delete* side bar and DOA text next to second last paragraph.

3 *Delete* second last paragraph.

4 *Delete* last paragraph in box, including side bar and DOW text.

5 *Add* the following at the end of the paragraph:

Compliance shall be checked in accordance with Paragraph J4.3.3.

Appendix J J4.3.2

Delete paragraph, including title, and *replace* with the following:

Impact test

Plug portions and equipment having integral plug portions or detachable plug portions shall withstand lateral impact forces.

All samples that were subjected to the tests in Paragraph J4.3.1 shall be tested as follows:

(a) The sample shall be positioned at the centre of a steel plate with a thickness of at least 6 mm. Apertures in the steel plate for the plug pins to pass through shall conform to the corresponding socket Standard. The sample shall be held against the steel plate by clamping all the pins.

(b) Samples shall be subjected to blows, with an impact energy of 1.0 ± 0.05 J by any means having the same performance as the spring-operated impact-test apparatus of AS/NZS 3100.

(c) Three blows shall be applied to every point that is most likely to directly or indirectly stress the enclosure joints of the sample.

Compliance shall be checked by Paragraph J4.3.3.

Appendix J J4.3.3 (new)

Add new paragraph, as follows:

J4.3.3 *Specific compliance criteria*

This Paragraph provides the common compliance assessment criteria for tests specified in Paragraphs J4.3.1 and J4.3.2.

For equipment with an integral plug portion, the assessment(s) shall be made on the complete equipment.

For equipment with a detachable plug portion, the assessment(s) shall be conducted on the—

(a) assembled equipment with the detachable plug portion connected; and

(b) the detachable plug portion after it has been separated from the equipment.

Following each test the samples shall comply with Clause 2.13.7.1.

The sample shall conform to the 'Guarding of live parts' requirements of AS/NZS 3100.

Following each test, no internal conductive material or conductive part shall have become detached or loosened, to the extent that it creates a hazardous situation. The sample shall conform to the 'Separation of live parts from non-current-carrying conductive parts' requirements of AS/NZS 3100.

NOTE: Specific attention is drawn to the separation of any live parts to exposed metal parts or low voltage to extra low voltage parts.

Appendix J J4.3.4 (new)

Add Paragraph J4.3.4 as follows:

J4.3.4 *Pin bending test*

The pins of the plug portion of three samples not subjected to any previous tests shall be tested for compliance with the pin bending test of Clause 2.13.7.2.

Appendix J J4.8.2

Delete the second paragraph and *replace* with the following:

For connections intended to accommodate pins, contact shall be made on two surfaces diametrically opposite, except if a single spring-assisted contact is used. Contacts shall not rely exclusively on the resilience of the contact material and shall have an opposite face of material other than thermoplastic or resilient insulating material. The alignment and contact-making properties of contacts shall be independent of terminal screws. The effectiveness of the contacts shall be independent of pressure from any thermoplastic or resilient moulding.

Appendix J J4.8.2, J4.8.3 and J4.8.4

Delete side bar and DOA text next to paragraphs.

Appendix J J4.8.4.2

Delete paragraph in box, the side bar and DOW text.