

Australian Standard[®]

**Capillary fittings of copper and copper
alloy for non-pressure sanitary
plumbing applications**



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The following are represented on Committee WS-002:

- Australian Industry Group
 - Australian Stainless Steel Development Association
 - Brisbane Water
 - Building Officials Institute of New Zealand
 - Certification Interests (Australia)
 - Master Plumbers, Gasfitters and Drainlayers New Zealand
 - Plastics Industry Pipe Association of Australia
 - Queensland Brassware Industry Advisory Panel
 - South Australian Water Corporation
 - Testing Interests (Australia)
 - Water Corporation Western Australia
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STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 3517–2007

**Capillary fittings of copper and copper alloy for non-pressure
sanitary plumbing applications**

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Major stakeholders of this publication have reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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NOTES

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PREFACE

This Standard was prepared by the Standards Australia Committee WS-002, Sanitary Plumbing Fittings, to supersede AS 3517—1995.

The objective of this Standard is to provide manufacturers basic design requirements for non-pressure fittings used in sanitary plumbing applications.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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STANDARDS AUSTRALIA

Australian Standard

Capillary fittings of copper and copper alloy for non-pressure sanitary plumbing applications

1 SCOPE

This Standard specifies requirements for copper and copper alloy capillary fittings for use in non-pressure sanitary plumbing applications with tubes complying with AS 1432 and AS 3795 in the range of nominal sizes from DN 32 to DN 225. It covers cast, hot-pressed, shell-moulded, and tubular fittings with socket/spigot capillary connection ends.

This Standard does not apply to fittings for use in pressure applications, including pumping mains and flushing systems in sanitary plumbing systems (see AS 3688), nor to waste fittings (see AS 1589).

NOTE: Illustrations used in this Standard are diagrammatic only and have been chosen without prejudice.

2 REFERENCED DOCUMENTS

The documents referred to in this Standard are listed in Appendix A.

3 DEFINITIONS

For the purpose of this Standard, the definitions given in AS/NZS 3500.0 and the one below apply.

3.1 Component

That part, or a sub-assembly of parts, that contributes to the construction of a total assembly by choice or design which will offer variations of fitment for the application of the major element of this product, whether produced by the same manufacturer or not.

4 DESIGNATION OF SIZES

The size by which a fitting is designated shall be the nominal size of the tube with which it is to be used. The method of specifying the sizes of fittings shall be in accordance with Appendix B.

NOTE: Designated sizes do not necessarily indicate exact dimensions as these details are given in the relevant tables herein.

5 MARKING

5.1 Space for WaterMark or mark of certifying body

Provision shall be made on every fitting for the WaterMark or mark of the certifying body. The area shall be of sufficient size to accommodate the mark. Continuously threaded products shall be exempt from this requirement. Indented marks shall be applied in such a way as not to deform or otherwise damage the fitting. Manufacturers may agree with the certifying body whether or not the mark will be applied to individual components in a fitting that passes the required tests.

5.2 Components

Components shall bear the manufacturer's identification mark as a minimum requirement. The only exception is that in the event the component is too small to be marked effectively with the manufacturer's identification mark and the other marking as defined in this Standard, then the item being offered for sale shall be suitably packaged and the packaging marked in accordance with the nominated requirements.

5.3 Marking requirements

All fittings shall be legibly marked with the following:

- (a) Manufacturer's name, or trademark.
- (b) For plumbing products used in Australia, the WaterMark. Where used for other applications, the mark of the certifying body.
- (c) Licence number for plumbing products used in Australia.
- (d) Number of this Standard, i.e., AS 3517.

NOTE: Manufacturers making a statement of compliance with this Australian Standard on a product, packaging, or promotional material related to that product are advised to ensure that such compliance is capable of being verified.

6 DESIGN

A component is deemed a vital part of the total assembly and shall not inhibit the product from complying with this Standard, when submitted for type testing.

Fittings shall comply with the requirements specified in this Standard.

NOTE: A typical range of fittings is illustrated in Appendix C.

7 MATERIALS

7.1 Copper

Copper shall comply with the following:

- (a) *Wrought products*—AS 2738, alloy designation C12200.
- (b) *Tubular components*—AS 1432.

7.2 Copper alloy

Copper alloy shall comply with the following:

- (a) *Castings*—AS 1565
- (b) *Hot pressings*—AS/NZS 1568
- (c) *Rod for machined parts*—AS/NZS 1567
- (d) *Tubular components*—Copper alloy tubes complying with AS 1572 alloy designation C 26130. Where bent or stamped in the fabrication process, the pipe shall be sufficiently stress-relieved, so that it is capable of passing the mercurous nitrate test specified in AS 2136 after all fabrication processes are completed.

NOTE: AS 2136 requires that the entire component be tested before any coating or plating operation.

7.3 Dezincification-resistant (DR) copper alloy

Copper alloys in contact with water shall comply with AS 2345.

7.4 Stainless steel

Stainless steel shall comply with the chemical composition requirements of ASTM A240 and shall have a corrosion resistance at least equal to Grade 304.

7.5 Other materials

The following materials apply:

- (a) *Filler metals* Filler metals shall be classified as follows:
 - (i) Silver brazing alloy containing not more than 0.05% cadmium, complying with AS/NZS 1167.1.
 - (ii) Copper-phosphorus brazing alloy complying with AS/NZS 1167.1 with a minimum of 1.8% silver.
 - (iii) Solder complying with the requirements of AS 1834.1 and having a maximum of 0.1% lead.
- (b) *Plastics* Plastic materials used for components in fittings and connectors shall be of a type recommended by the manufacturer as suitable and appropriate for use.

7.6 Corrosion-resistant metallic materials

For the purpose of this Standard, the following materials are deemed to be corrosion-resistant:

- (a) Copper as specified in Clause 7.1.
- (b) Copper alloy as specified in Clause 7.2.
- (c) Stainless steel as specified in Clause 7.3.

8 DIMENSIONS

8.1 General

Capillary fittings shall have dimensions as specified in Clauses 8.2 to 8.8.

8.2 Connection ends

8.2.1 Capillary socket connections ends

The dimensions of capillary socket connection ends of fittings shall comply with the following requirements:

- (a) The internal diameter of the socket over the length that is designed to make close contact with the tube shall be within the limits given in Figure 1, as appropriate to the size of the fitting.
- (b) The minimum length of that surface of the socket that is designed to make close contact with the tube shall be not less than the dimension given in Figure 1, as appropriate to the size of fitting.

The length shall be the distance from the face of the fitting to that point on the shoulder or stop of the socket against which the inserted tube would abut (Dimension *B*, Figure 1).

- (c) Each socket shall be provided with an internal shoulder or stop against which the inserted tube would abut when cut square with its axis. The overall height of the shoulder or stop in any fitting shall be not less than the minimum value given in Table 1, as appropriate to the size of the fitting. The shoulder or stop shall occupy at least 25% of the internal circumference of the socket.

For all fittings, the thickness of the shoulder or stop measured axially at any point shall be not less than 1.5 mm.

Fittings without an internal shoulder or stop shall be designated 'slip fittings' (see Clause 8.6).

NOTE: The shoulder or stop may be in the form of a square shoulder or general reduction of the bore behind the socket.