

Australian Standard[®]

**Water supply—Metallic fittings and end
connectors**



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 - Australian Industry Group
 - Australian Valve Manufacturers Association
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Australian Standard[®]

Water supply—Metallic fittings and end connectors

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PREFACE

This Standard was prepared by the Joint Standards Australia and Standards New Zealand Committee WS-001, Water Fittings, to supersede AS 3688—1994, *Water supply—Copper and copper alloy compression and capillary fittings and threaded-end connectors*.

This Standard incorporates Amendment No. 1 (October 2006). 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.

The objective of this Standard is to provide for innovation and for a range of fittings that allows for a mixture of pipe materials to be used.

This edition includes amendments and various industrial and editorial revisions according to Standards Australia requirements.

It has been expanded to include fittings of other materials and end connectors used to connect pipes and fittings of dissimilar materials.

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.

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STANDARDS AUSTRALIA

Australian Standard

Water supply—Metallic fittings and end connectors

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for metallic body pipe fittings and connectors for use with copper tube and stainless steel pipes, and tubes and adaptor fittings for connection to other pipe materials in water supply and gas systems where the normal working temperature does not exceed—

- (a) 95°C, and where the maximum operating pressure does not exceed 1.4 MPa; or
- (b) the ambient supply temperature, where the maximum operating pressure does not exceed 2.1 MPa. Products designed for a temperature in excess of 95°C are included where tested to the appropriate temperature criteria.

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

1.2 APPLICATION

Fittings, end connectors, and couplings shall comply with Sections 1 to 4 and with Sections 5 to 11 as follows:

- (a) Capillary fittings—copper and copper alloy.....Section 5.
- (b) Compression fittings.....Section 6.
- (c) Threaded-end connectors Section 7.
- (d) Union end connectors and couplings Section 8.
- (e) Roll-grooved jointing end connectors Section 9.
- (f) Mechanical.....Section 10.
- (g) Other copper alloy fittings Section 11.

Fittings such as end connectors intended to join alternative pipe systems made from other materials (e.g., plastics) shall also comply with the relevant dimensional and performance requirements of the appropriate Australian, New Zealand or Joint Australian/New Zealand Standard for the alternative pipe system.

For limitations on use of fittings in gas applications, see AS 5601.

Metallic systems, fittings, end connectors and couplings joined to alternative systems may be certified to this Standard (AS 3688).

Means for demonstrating compliance with this Standard are given in Appendix A.

1.3 REFERENCED DOCUMENTS

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

1.4 DEFINITIONS

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

1.4.1 Fabricated joint or fitting

A joint or fitting that includes a brazed section.

1.4.2 Fastening pipe thread

A pipe thread with a geometry suitable for screw fastening as detailed in AS 1722.2 or ISO 228.1.

NOTE: Where these threads are used on pipes or fittings for conveying fluids, pressure-tight joints are not made on the threads; a pressure-tight seal is effected by means other than thread interference (e.g., union couplings, compression connections and other sealing mechanisms).

1.4.3 Sealing pipe thread

A pipe thread with a geometry suitable for sealing by interference on the thread, utilizing a thread taper, intended for connecting pipes and fittings with a pressure-tight joint used for conveying fluids as detailed in AS 1722.1 or ISO 7.1.

1.4.4 Threaded-end connector

A connecting end on a pipe or fitting that is threaded either on an internal surface or external surface so that it can be used to make a threaded joint.

1.4.5 Union end connector

A connector end for a pipe or fitting that allows a union joint to be made.

1.5 DESIGNATION OF SIZE

The size by which a fitting is designated shall be the nominal size of the pipes or tubes with which it is to be jointed.

The method of specifying the sizes of fittings shall be in accordance with Appendix C.

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

1.6 MARKING

1.6.1 Space for mark of certifying body

Provision shall be made on every fitting for the inclusion of the certification mark. 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.

NOTE: 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.

1.6.2 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 marking requirements nominated.

1.6.3 Marking requirements

All fittings shall be legibly marked with the following:

- (a) Manufacturer's name or brand, trademark or licence number.

- (b) For plumbing products used in Australia, the WaterMark. Where used for other applications, the mark of the certifying body.
- (c) Licence number.
- (d) Number of this Standard.
- (e) Maximum service temperature (where designated less than 95°C).

1.7 PRODUCT DOCUMENTATION

1.7.1 Product data

Product data shall be available that identifies critical product characteristics such as—

- (a) application;
- (b) maximum operating pressure;
- (c) dimensions;
- (d) pressure/temperature or other limitations; and
- (e) UV degradation due to weathering.

A1

SECTION 2 MATERIALS

2.1 SCOPE OF SECTION

This Section specifies the material requirements for fittings and connectors.

2.2 MATERIALS IN CONTACT WITH DRINKING WATER

Materials in contact with drinking water shall comply with AS/NZS 4020 with a scaling factor of 0.01.

Metallic components made from a single material may be pre-qualified by use of simulated samples for certification in accordance with Appendix M.

2.3 METALLIC MATERIALS

2.3.1 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 2.3.2.
- (b) Copper alloy, as specified in Clause 2.3.3 and 2.3.4
- (c) Stainless steel, as specified in Clause 2.3.5.
- (d) Material for springs, as specified in Clause 2.5 (b).
- (e) Other materials, as specified in Clause 2.5.

2.3.2 COPPER

Copper shall comply with the following:

- (a) *Tubular components*—Copper shall be alloy designation C10200 or C12200 of AS 2738.
- (b) *Hot pressings*—AS 2738.

2.3.3 COPPER ALLOY

Copper alloy shall comply with the following:

- (a) *Castings*—AS 1565 or NZS/BS 1400 and a lead content of less than 4.5%
- (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 is tested before any coating or plating operation.

2.3.4 DEZINCIFICATION-RESISTANT (DR) COPPER ALLOY

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

2.3.5 STAINLESS STEEL

Stainless steel components shall comply with ASTM A269, series 300, grade 304 and 316.

2.4 PLASTIC COMPONENT MATERIALS

2.4.1 General

Plastic materials used for components in fittings and connectors shall be of a type recommended by the polymer manufacturer as suitable and appropriate for use. Characteristics to be taken into account shall include, but not restricted to, aging, compatibility and resistance to variations in water quality and elevated temperatures.

2.4.2 Acetal

Acetal plastics used for structural components that are in contact with the water supply shall be copolymer.

2.4.3 'Not applicable'

2.5 OTHER COMPONENT MATERIALS

The following applies:

- (a) *Filler metals* Filler metal shall be one of the following:
 - (i) Silver brazing alloy containing not more than 0.05% cadmium, complying with AS 1167.1.
 - (ii) Copper-phosphorous brazing alloys complying with AS 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) Materials for springs shall comply with one of the following:
 - (i) Stainless steel to ASTM A313.
 - (ii) Phosphor bronze to AS 2738, C51000 and C51800.

NOTE: Other materials may be used, provided that they meet the performance criteria of this Standard and of the relevant materials Standard.
- (c) *Washers and sealing rings* Washers and sealing rings shall comply with Clause 2.2. Sealing materials used for components in fittings and connectors shall be of a type recommended by the manufacturer as suitable and appropriate for use.
- (d) *Lubricants* Lubricants shall comply with Clause 2.2.

SECTION 3 DESIGN AND DIMENSIONS

3.1 SCOPE OF SECTION

This Section specifies design requirements that are common to all fittings including components, unless otherwise specified in this Standard.

3.2 TUBE STOPS

Unless specified otherwise in this Standard, each socket shall be provided with an internal shoulder or stop to register the limits of the tube engagement.

The height of the shoulder or stop shall be not less than the value given in Table 3.2 and shall extend for not less than 25% of the internal circumference of the socket.

The thickness of the shoulder or stop, measured axially, shall be not less than 1.5 mm.

TABLE 3.2
MINIMUM MEAN DIAMETER OF WATERWAY AND HEIGHT
OF SHOULDER OR STOP FOR COPPER AND COPPER ALLOY FITTINGS

Nominal size	Minimum mean waterway diameter	Minimum sphere diameter	Minimum overall height of shoulder or stop
DN	mm	mm	mm
6	4.0	3.0	0.2
8	5.5	4.5	0.2
10	7.0	5.7	0.2
15	9.9	8.6	0.2
18	13.0	11.7	0.2
20	15.6	14.3	0.2
25	21.4	20.1	0.2
32	27.5	26.2	0.2
40	33.7	32.4	0.2
50	46.0	44.7	0.2
65	58.3	57.0	0.5
80	69.8	68.5	0.5
90	82.2	80.9	0.5
100	94.5	93.2	0.5
125	119.1	117.8	0.7
150	142.5	141.2	0.7
200	191.8	190.5	0.7

3.3 SLIP FITTINGS

Fittings supplied without an internal tube stop shall comply in all other respects with this Standard. The bore of the fitting shall be sized to allow the fitting to slide over the appropriate nominal size of specified tube.

3.4 SPIGOTS

Where ends are provided as plain spigots for copper and copper alloy fittings, the outside diameter of the spigot shall comply with the outside diameter of the specified tube of hard-drawn copper tubes complying with AS 1432 and the length shall comply with Column 3 of Figure 5.1 (long engagement) or Column 3 of Figure 5.2 (short engagement).

3.5 FIXING DEVICE

To assist with installation, fittings may be provided with lugs or similar fixing devices.

3.6 WATERWAYS

3.6.1 Copper and copper alloy

The minimum mean diameter of the waterway through a fitting shall be as specified in Table 3.2. The diameter may be established by measurement or by means of a sphere of diameter specified in Table 3.2.

For double-ended fittings, the minimum mean waterway diameter shall be based on the requirement for the nominal size of the smaller end of the fitting.

For branch fittings, the waterway in each portion of the fitting shall be based on the nominal size of the end connector on each portion of the fitting.

Dedicated fittings for specific applications may have a reduced waterway subject to negotiations between the manufacturer and the user.

3.6.2 Stainless steel

The maximum deformation of a circular section waterway shall not exceed 2% of the minimum mean waterway diameter, excluding any roll-grooved section.

3.7 THICKNESS OF METAL PARTS OF FITTINGS SPECIFIED BY DIMENSION

3.7.1 General

Unless otherwise specified in this Standard, the minimum thickness at any point of a fitting shall be not less than that specified in this Clause. The measured thickness shall exclude the depth of any screw thread and the thickness of any coating or plating material.

3.7.2 Minimum thickness of unspecified metal parts

Unless specified elsewhere in this Standard, the minimum wall thickness at any point shall be as given in Table 3.7.2 (A) or 3.7.2 (B), as appropriate.

TABLE 3.7.2 (A)
MINIMUM WALL THICKNESS OF UNSPECIFIED METAL PARTS—COPPER
AND COPPER ALLOY FITTINGS SPECIFIED BY DIMENSION

A1

Nominal size	Sections subject to hydrostatic pressure	Sections not subject to hydrostatic pressure	Formed from tube
DN	mm	mm	mm
6	1.8	1.1	0.6
8	1.8	1.1	0.6
10	1.8	1.1	0.77
15	1.8	1.1	0.77
18	1.8	1.1	0.88
20	1.8	1.1	0.88
25	2.2	1.4	1.04
32	2.2	1.4	1.04
40	2.8	1.7	1.04
50	2.8	1.7	1.04
65	3.2	1.9	1.04
80	3.2	1.9	1.39
90	3.2	1.9	1.39
100	3.4	2.1	1.47
125	3.4	2.1	1.47
150	3.4	2.1	1.78
200	3.4	2.1	1.83

TABLE 3.7.2 (B)
MINIMUM WALL THICKNESS OF UNSPECIFIED METAL PARTS—STAINLESS
STEEL FITTINGS SPECIFIED BY DIMENSION

Nominal size	Formed from pipe	
	10S mm	40S mm
15	2.11	2.77
20	2.11	2.87
25	2.77	3.38
32	2.77	3.56
40	2.77	3.68
50	2.77	3.91
65	3.05	5.16
80	3.05	5.49
90	3.05	5.74
100	3.05	6.02
125	3.40	6.55
150	3.40	7.11
200	3.76	8.18
250	4.19	9.27
300	4.57	9.53

3.8 SCREW THREADS

All screw threads shall comply with the relevant requirements of Clauses 3.8.1 and 3.8.2, after manufacture is completed, including any plating operation. All threads shall be chamfered at the face to an included angle of not less than 60° and not greater than 90° for not less than half the thread depth or more than one thread depth.

NOTE: For normal plumbing applications in Australia and New Zealand, threads are right-hand. In certain applications, left-hand threads may be specified, e.g., gas and recycled water.

3.8.1 Screw-threaded sealing connections

Connections intended to be pressure-tight joint by way of a 'sealing pipe thread', shall comply with the relevant requirements of AS 1722.1 or ISO 7.1.

Threads for sealing connections shall comply with the following:

- (a) External threads..... Series R or RL.
- (b) Internal threads..... Series RP or RC.

3.8.2 Screw-threaded fastening connections

Connections intended to be compression joints, such as union couplings and compression connections utilizing a 'fastening pipe thread' to effect the connection, shall comply with the relevant requirements of AS 1722.2 or ISO 228.1.

Threads for fastening connections shall comply with the following:

- (a) External threads..... Series GB.
- (b) Internal threads..... Series G.

3.8.3 Thread engagement—Assembled joints

Threaded joints that will be disassembled for any purpose or assembled in a permanent manner shall have the minimum number of full threads engaged as specified in Table 3.8.3. The number of full threads shall be counted when the threaded joint is assembled with washers or seals.

TABLE 3.8.3
NUMBER OF THREADS ENGAGED

Nominal thread size*	Major diameter of other threads mm	Minimum number of full threads engaged
≤G1.0	≤35	3
>G1.0 ≤G2.0	>35 ≤60	4
>G2.0 ≤G3.0	>60 ≤90	5
>G3.0 ≤G4.0	>90 ≤100	6
>G4.0	>100	7

* Fastening pipe thread to AS 1722.2.

3.8.4 Other screw threads

Other screw threads shall comply with a recognized Standard of thread form.

3.9 FABRICATED FITTINGS

Fittings with fabricated joints shall be capable of complying with Clause 4.3. The minimum wall thickness, not including the thread depth, of each part of a joint shall comply with Clause 3.7. The joint shall be mechanically locked after fabrication by methods such as, but not restricted to, burred or peened over, welding, soldering/brazing or use of jointing compounds.

3.10 GEOMETRY OF FITTINGS

The following applies:

- (a) Machined parts, when assembled, shall be coaxial, parallel and cylindrical within the limits required for the particular material and design.
- (b) End connectors shall be in line with the appropriate axis of the fitting.
- (c) Angles of fittings shall be $\pm 1^\circ$ of the manufacturer's nominated designation.

3.11 PLATING AND OTHER SURFACE FINISHES

The following plating and other finishes are optional:

- (a) *Metal finishes* Metal finishes may be applied to surfaces. If applied, threaded-ends of fittings shall comply with Clause 3.8.
- (b) *Other finishes* Other finishes may be applied to surfaces but not to threaded-end connections and mating parts of union ends.

3.12 FINISH AND WORKMANSHIP

Fittings and components shall be—

- (a) sound and free from folds, laps, blisters, laminations, blowholes, and other defects that affect the performance or function of the fitting in service;
- (b) supplied free of sand, grit, and swarf; and
- (c) free of burrs, fins, irregularities and sharp edges that would affect the performance or function of the fittings in service.

Castings may be plugged, stopped, or patched but only by a vacuum impregnation process with a material complying with Clause 2.2, and hydrostatically tested in accordance with Clause 4.2.

SECTION 4 PERFORMANCE REQUIREMENTS

4.1 SCOPE OF SECTION

This Section specifies requirements for testing the performance of particular fittings.

4.2 WATERTIGHTNESS PRESSURE TEST

When tested in accordance with Appendix D, fittings shall show no signs of weeping, cracks, leakage or other failure. For the purpose of type testing, machined cast fittings shall be subjected to both the hydrostatic pressure test and pneumatic pressure test. Other fittings shall be subjected to the hydrostatic pressure test only.

4.3 STRENGTH OF FABRICATED JOINT (TORQUE TEST)

When tested in accordance with Appendix E, the fabricated joint shall show no signs of cracking, splitting, thread damage or other failure.

NOTE: This test is for a fabricated joint, and the twisting of copper tube tails (away from the joint) does not constitute a failure of the test.

4.4 STRENGTH OF JOINT ASSEMBLY (PRESSURE CYCLING TEST)

When tested in accordance with AS 3707 and Appendix F at 95°C or the manufacturer's nominated maximum service temperature, a joint assembly shall withstand not less than 50 000 pressure cycle pulsations.

At the completion of cyclic testing, the joint assembly shall be depressurized and removed from the immersion bath and permitted to stabilize at ambient temperature for not less than 4 h, after which it shall be subjected to a hydrostatic pressure test of not less than 2 MPa for 60 +15, -0 min.

The joint assembly shall show no signs of cracks, leakage or other failure at any stage of testing procedures.

4.5 RESISTANCE TO PULL-OUT OF ASSEMBLED JOINTS

When tested in accordance with Appendix G at 95°C or the manufacturer's nominated maximum service temperature, a pipe shall not pull out of the assembled fitting.

4.6 STRENGTH OF NUT AND ASSEMBLY (TORQUE TEST)

When tested in accordance with Appendix H, the nut and assembly shall show no signs of splitting, cracking or thread damage.

4.7 THERMAL CYCLING TEST FOR JOINTS CONTAINING NON-METALLIC COMPONENTS

When tested in accordance with Appendix I, there shall be no leakage through the joint.

4.8 WATERTIGHTNESS UNDER INTERNAL HYDROSTATIC PRESSURE WHILST SUBJECTED TO BENDING

When tested in accordance with Appendix J, the fitting under test shall show no visible signs of leakage or damage.

4.9 METHOD FOR DETERMINING COMPATIBILITY OF FITTINGS WITH PIPE

When tested in accordance with Appendix K, fittings shall withstand internal pressures in the pipe of 1.4 MPa at a temperature of $95 \pm 2^\circ\text{C}$ for $1000 + 50$, -0 h, and 2.0 MPa at a temperature of $20 \pm 5^\circ\text{C}$ for $170 + 24$, -0 h.

4.10 ROLL-GROOVED ASSEMBLY (JOINT PRESSURE RESISTANCE TEST)

When assembled in accordance with the manufacturer's instructions and tested in accordance with Appendix L at 2 MPa or 1.5 times the specified maximum operating pressure, the joint assembly shall not leak.

SECTION 5 CAPILLARY FITTINGS — COPPER AND COPPER ALLOY

5.1 SCOPE OF SECTION

This Section specifies the dimensions, tolerances and performance requirements for capillary fittings designed with either short engagement sockets intended for use with brazing alloys or long engagement sockets intended for use with solder.

NOTE: Long engagement sockets of sizes up to and including DN 25 may be provided with a filler metal insert (in a groove) that allows the capillary joint to be made without externally applied filler metal.

5.2 DESIGN AND DIMENSIONS

5.2.1 General

Capillary fittings shall conform to the dimensions specified in Figures 5.2.1 and 5.2.2.

5.2.2 Internal diameter of socket

The internal diameter at any point of the socket over the length that is designed to make close contact with the tube shall be within the limits given in Column 2 of Figure 5.2.1 and Column 2 of Figure 5.2.2, as appropriate to the size of the fitting and method of jointing.

Where fittings manufactured from the tube are slightly oval, they shall be considered satisfactory provided they can accept a GO gauge of diameter equal to the appropriate minimum diameter specified in Column 2 of either Figure 5.2.1 or Figure 5.2.2 when reasonable hand pressure is exerted. This GO gauge may be profiled at the nose end for a length not exceeding 0.5 mm.

5.2.3 Length of socket

For that surface of the socket that is designed to make close contact with the tube, the minimum length shall be the dimension given in Column 3 of Figure 5.2.1 or Column 3 of Figure 5.2.2, as appropriate to the size of fitting and method of jointing. For plain sockets without grooves, the length shall be the distance from the face of the fitting to that point on the shoulder of the socket against which the inserted tube abuts. For sockets of long engagement fittings up to and including nominal size DN 25, which may be provided with a groove or grooves, the socket length shall be determined as follows:

- (a) Where the groove is located in the middle of the socket ($\pm 15\%$ of the socket length) and the groove does not exceed 3 mm in width, the groove width may be disregarded in determining the socket length. The socket length shall be not less than the dimension specified in Column 3 of Figure 5.2.1, as appropriate to the size of the fitting and method of jointing.
- (b) With grooves in other than middle location or in excess of 3 mm in width, the socket length shall be not less than the dimension specified in Column 3 of Figure 5.2.1 plus the amount of the groove width in excess of 3 mm.

5.2.4 Wall thickness

The minimum wall thickness of the fittings at any point (dimension X) shall be not less than the values given in Column 4 or 6 of Figure 5.2.1 or Column 4 or 5 of Figure 5.2.2, as appropriate.

For long engagement sockets having an internal groove or grooves, the minimum wall thickness at the groove (dimension Y of Figure 5.2.1(b)) shall be not less than the values given in Figure 5.2.1.

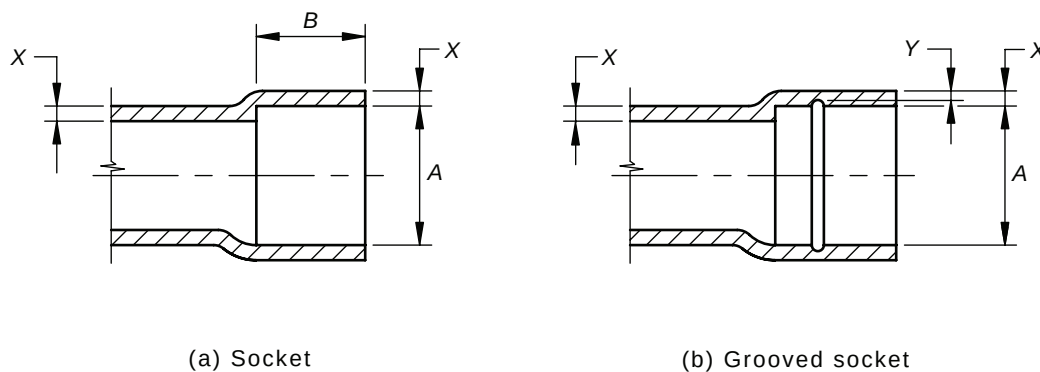
NOTE: The minimum wall thickness of the fitting depends on the type of material used.

5.2.5 Branches of different nominal size

Where a fitting has branches of different nominal sizes then the thickness in any branch shall be as specified for the nominal size of that branch.

5.2.6 Waterway diameter

The waterway diameter shall comply with Clause 3.6.



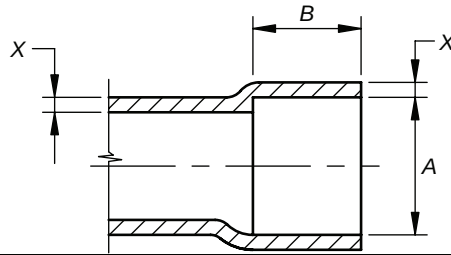
1	2		3	4	5	6	7
Nominal size DN	Internal diameter of socket (dimension A) mm		Length of socket surface in contact with tube (dimension B) mm	Minimum wall thickness			
				Tubular sections*		Forged and other sections†	
	Min.	Max.	Min.	X	Y	X	Y
10	9.55	9.65	7.5	0.77	0.7	1.8	1.1
15	12.72	12.82	9.0	0.77	0.7	1.8	1.1
18	15.90	16.00	11.0	0.88	0.8	1.8	1.1
20	19.07	19.17	13.5	0.88	0.8	1.8	1.1
25	25.42	25.56	17.0	1.04	0.9	2.2	1.4

* For materials complying with Clauses 2.3.2 (a) and 2.3.3 (d).

† For materials complying with Clauses 2.3.3(a), (b) and (c).

NOTE: The top half of each section indicates typical machined sockets and the bottom half of each section indicates typical formed sockets.

FIGURE 5.2.1 DIMENSIONS OF LONG ENGAGEMENT CAPILLARY SOCKETS FOR USE WITH SOLDER



1	2		3	4		5
Nominal size DN	Internal diameter of socket (dimension A) mm		Length of socket surface in contact with tube (dimension B) mm	Wall thickness (dimension X)		
				Tubular section*	Forged and other section†	
	Min.	Max.	Min.	Minimum at any point	Minimum at any point	
10	9.55	9.65	7.5	0.77	1.8	
15	12.72	12.82	7.5	0.77	1.8	
18	15.90	16.00	7.5	0.88	1.8	
20	19.07	19.17	7.5	0.88	1.8	
25	25.42	25.56	7.5	1.04	2.2	
32	31.77	31.91	7.5	1.04	2.2	
40	38.12	38.32	7.5	1.04	2.8	
50	50.82	51.02	7.5	1.04	2.8	
65	63.55	63.95	7.5	1.04	3.1	
80	76.25	76.65	11.1	1.39	3.1	
90	88.95	89.35	11.1	1.39	3.1	
100	101.65	102.05	11.1	1.47	3.4	
125	127.05	127.45	11.1	1.47	3.4	
150	152.45	153.05	14.2	1.78	3.4	
200	203.25	203.85	14.2	1.83	3.4	

* For materials complying with Clauses 2.3.2 (a), 2.3.3 (d) and 2.3.5.

† For forged and other material complying with Clauses 2.3.3 (a), (b), (c) and 2.3.5.

NOTE: The top half of the section indicates a typical machined socket and the bottom half indicates a typical formed socket.

FIGURE 5.2.2 DIMENSIONS OF SHORT ENGAGEMENT CAPILLARY SOCKETS FOR USE WITH BRAZING ALLOY

5.3 PERFORMANCE REQUIREMENTS

Fittings complying with this Section shall be capable of complying with Clause 4.2 and, where applicable, Clause 4.3.

Where the capillary fittings are made out of copper tube, in compliance with AS 1432 sizes greater than DN 80, the test pressure shall be the safe working pressure as specified in AS 1432 Type B.