AS 3688:2016

Australian STANDARD

Water supply and gas systems—Metallic fittings and end connectors

STANDARDS Australia

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- Building Officials Institute of New Zealand
- CSIRO
- Department of Agriculture and Water Resources (Australian Government)
- Gas Technical Regulators Committee
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- National Association of Testing Authorities, Australia
- Plastics Industry Pipe Association of Australia
- Plastics NZ
- Plumbing Products Industry Group
- Queensland Brassware Association
- The Institute of Plumbing Australia
- Water Services Association of Australia

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Australian Standard®

Water supply and gas systems—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—2005, *Water supply and gas systems—Metallic fittings and end connectors*.

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

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 appendices to which it applies. A ‘normative’ appendix is an integral part of a Standard.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for metallic body pipe fittings and connectors for use with copper tube, stainless steel pipe, stainless steel tube and adaptor fittings for connection to other pipe materials in water supply and gas systems where the continuous working temperature—

(a) does not exceed 95ºC, and where the maximum operating pressure does not exceed 1 400 kPa; or

(b) is the ambient supply temperature, where the maximum operating pressure does not exceed 2 100 kPa. Products designed for a temperature in excess of 95°C are included where tested to the appropriate temperature criteria.

1.2 APPLICATION

Fittings, end connectors, and couplings shall comply with Sections 1 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 and coupling body ..... Section 9.

(f) Mechanical jointing push-on and press-fit end connectors ..... 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, refer to the AS/NZS 5601 series and AS/NZS 4645.1.

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.

Fittings used for gas applications have modified performance requirements relevant to the AS/NZS 5601 series. Fittings used exclusively for gas do not need to comply with the requirements of AS/NZS 4020.

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 or welded section.

1.4.2 Fastening pipe thread

A pipe thread with 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 Gas systems

Gas systems as defined in the AS/NZS 5601 series.

1.4.4 Press end

A plumbing fitting end which incorporates an elastomeric sealing element and to which a pressing tool and jaw are applied to make a mechanical and leaktight joint.

1.4.5 Press tool and jaw

A mechanical device which, by closing jaws, causes radial compression of the plumbing fitting end onto the connecting tube.

1.4.6 Push-on end connectors

A plumbing fitting end which incorporates an elastomeric sealing element and a grab ring which makes a mechanical and leaktight connection when it is pushed onto a tube.

1.4.7 Sealing pipe thread

A pipe thread with 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 ISO 7.1.

1.4.8 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.

1.4.9 Union end connector

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

1.4.10 Working temperature

The operating temperature of pipe work system which is influenced by either the temperature of the water being transported or the environmental conditions in gas installations.

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

Where required, 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 regarding whether or not the mark will be applied to individual components in a fitting that passes the required tests.

1.6.2 Components

Component parts of a fitting that may be sold separately 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, brand or trademark.

(b) For plumbing products used in Australia, the WaterMark. Where used for other applications, the mark of the certifying body.

(c) Number of this Standard.

(d) Maximum service temperature of water fittings (where designated less than 95°C).

(e) DR brass fittings shall be marked as per the requirements of AS 2345.

(f) Press fittings used for gas applications shall be colour identified as specified in Clause 10.5.

NOTE: Compliance with WaterMark is achieved in accordance with the rules of the WaterMark Certification Scheme.

1.7 PRODUCT DOCUMENTATION

Product documentation 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.