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Australian Standard®

Wrought steel threaded pipe fittings

STANDARDS AUSTRALIA

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Australian Gas Association

Confederation of Australian Industry

Metal Trades Industry Association of Australia

Public Works Department, New South Wales

Water Resources Commission, Queensland

Additional interests participating in preparation of this Standard:

Water Authority of Western Australia

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PREFACE

This Standard was prepared by Standards Australia's Committee on Steel Pipes and Fittings—Water and Gas in response to a request from Standards Australia's Committee on the National Plumbing and Drainage Code.

In the preparation of this Standard, reference was made to BS 1740.1:1971, *Specification for wrought steel pipe fittings (screwed BS 21R series thread)*, and the assistance gained from this source is acknowledged.

This Standard does not indicate the services for which the threaded pipe fittings are appropriate. Where the use of threaded pipe fittings is not controlled by by-laws or regulations, reference should be made to the appropriate code of practice or application Standard. If the application is for pressure purposes, reference should be made to AS CB18, *SAA Pressure Piping Code—Part 1: Ferrous piping*.

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Australian Standard
Wrought steel threaded pipe fittings

1 SCOPE. This Standard specifies requirements for welded, forged and machined wrought steel threaded pipe fittings of DN 6 to DN 150 inclusive (nominal size), threaded in accordance with AS 1722.1, for use with steel tubes and tubulars as specified in AS 1074.

NOTE: Guidelines on requirements that should be specified by the purchaser or agreed upon at the time of enquiry or order are given in Appendix A.

2 REFERENCED DOCUMENTS. The following documents are referred to in this Standard.

AS
1074 Steel tubes and tubulars for ordinary service
1650 Galvanized coatings
1722 Pipe threads of Whitworth form
1722.1 Part 1: Sealing pipe threads
1722.2 Part 2: Fastening pipe threads

BS
3894 Methods for converting elongation values for steel
Part 1: Carbon and low alloy steels

3 DEFINITIONS. For the purpose of this Standard, the definitions below apply.

3.1 Fitting—a connecting piece, of one or more parts.

3.2 Nominal size (DN)—a numerical designation of size that is common to all components in a piping system other than components designated by outside diameters or by thread size. It is a convenient round number for reference purposes and is only loosely related to manufacturing dimensions.

NOTE: Nominal size is designated by the letters DN followed by a number, e.g. DN 32.

3.3 Fastening thread—a thread for fittings (or parts of a fitting) requiring simple mechanical assembly.

NOTE: Fastening pipe thread is specified in AS 1722.2 and its use in this Standard is covered by G series threads.

3.4 Sealing pipe thread—a thread for fittings requiring pressure tightness through the mating of the threads, with or without the use of thread sealants, at the same time providing mechanical assembly.

NOTE: Sealing pipe thread is specified in AS 1722.1 and its use in this Standard is covered by RP, R and RC series threads.

3.5 Chamfer—machined or cast surface in the form of a cone at the entrance of a thread to assist assembly and prevent damage to the start of the thread.

3.6 Reinforcement—additional material on the outside diameter of an internally threaded fitting in the form of a band or bead.

3.7 Rib—local and axially aligned additional material on the outside or inside of a fitting for assistance in manufacturing or assembly.

3.8 Run—the principal axially aligned outlet of a fitting having two outlets or more.

3.9 Branch—side outlet(s) of a tee, pitcher tee or cross.

3.10 Centre to face dimension—the distance between the central axis and the face of an outlet of an angularly disposed outlet.

4 MATERIALS. The steel from which the fittings are made shall show on test a tensile strength of from 330 MPa to 470 MPa and a percentage elongation on a gauge length of $5.65\sqrt{S_o}$ of not less than 20 percent where S_o is the original cross-sectional area of the test piece.

NOTE: Where other gauge lengths are used the corresponding elongation on $5.65\sqrt{S_o}$ can be obtained as shown in BS 3894: Part 1.

Where fittings are welded during manufacture, the steel shall show on analysis not more than 0.06 percent of sulfur and not more that 0.06 percent of phosphorus.

5 THREADED ENDS OF FITTINGS.

5.1 General dimensions. All dimensions for the threaded ends of fittings shall be in accordance with Figure 1.

5.2 Internal and external threads. Except where noted, internal threads on the ends of fittings shall be parallel (series RP) and external threads shall be taper (series R) and both threads shall comply with the appropriate requirements of AS 1722.1.

NOTE: For pressure duty, fittings complying with the requirements of this Standard are not suitable for use with G series threads as specified in AS 1722.2 since no mechanical face exists upon which a sealing device may act.

5.3 Alignment. The axes of screw threads shall be coincident with the true axes of the fittings within 1 in 200 on the run and 1 in 125 on the branch.

6 METHOD OF SPECIFYING OUTLETS.

6.1 Equal fittings. Where all outlets are of the same nominal size, they shall be specified by that one nominal size irrespective of the number of outlets.

6.2 Unequal fittings. When outlets are of differing nominal sizes they shall be specified as follows:

(a) Fittings having two outlets, the larger outlet shall be specified first.

(b) Tees having two nominal sizes, the first shall apply to both ends of the run, the second to the branch.

7 PRESSURE/TEMPERATURE RATINGS. All threaded pipe fittings shall be suitable for operation at the maximum permissible working pressures within the temperature ranges as given in Table 1. Intermediate pressure ratings at temperatures between 120°C and 300°C shall be obtained by linear interpolation.