AS 1396—1990

Australian Standard®

Steel water bore casing

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The following interests are represented on Committee CE/7:

Department of Water Resources

Tubemakers of Australia

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Australian Standard®

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PREFACE

This Standard was prepared by the Standards Australia Committee on Bore Casing, to supersede AS 1396—1979. It sets out the physical and chemical requirements for the materials used in the manufacture of tubes and couplings for water bore casing, together with dimensions of the tubes and couplings. Six tube sizes, specified by outside diameter, are covered in a range from 101.6 mm to 323.8 mm, the joints in the four smaller sizes (to 219.1 mm) being either threaded and coupled or bevelled and welded. Joints in the two larger sizes (273 mm and 323.8 mm) are bevelled and welded. Provision is made for the use of tube thicknesses not specified in the Standard, since it is felt that the specified thicknesses, although selected to fit the end use, may not be the most readily available.

Joint details follow American practice and, except for 127 mm outside diameter, employ threads in accordance with the gauging practice and tolerances of the American national standard for pipe threads (ANSI B2.1). This thread would be interchangeable with line pipe in accordance with Specification 5L of the American Petroleum Institute, with a pitch of 3.175 mm (8 t.p.i.) and a taper of 1 in 16 on diameter, and taper applies to both tube end and coupling.

To provide the desired progression of sizes and clearances on 127 mm OD pipe, use has been made of an obsolete American pipe thread formerly known as 4 1/2 in nominal pipe size. Thread dimensions of this non-standard pipe thread are covered in Appendix C.

Tubes and couplings manufactured in Australia are produced by the electric resistance welding process, but seamless tube and couplings complying with the requirements of this Standard may be used if so desired.

In this second edition amendments have been made to tensile strength now substituted with 430 MPa and Hydrostatic Test substituted with a Leak Tightness Test.

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1 SCOPE This Standard applies to electric resistance welded steel tubing for water bore casing, having threaded and coupled joints in sizes ranging from 101.6 mm OD to 219.1 mm OD, and bevelled and welded joints in sizes ranging from 101.6 mm OD to 323.8 mm OD. It also applies to couplings intended for use with the tubing.

Casing tubes (specified by OD and thickness) are listed in Tables 3 and 4.

NOTE: For purchasing guidelines, see Appendix A.

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

AS
1391 Methods for tensile testing of metals

1450 Steel tubes for mechanical purposes

ANSI/ASME
B1.20.1 Pipe threads, general purposes (inch)

ASTM
A 53 Specification for pipe, steel, black and hot-dipped, zinc-coated welded and seamless

A 589 Specification for seamless and welded carbon steel waterwell pipe

BS
879 Water well casing

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

API Std
5B Specification for threading, gauging and thread inspection of casing, tubing and line pipe threads

3 DEFINITIONS For the purpose of this Standard, the definitions given in AS 1391 and those below apply:

3.1 Tube—where used without qualification, means one length of casing.

3.2 Size—outside diameter (OD) of the casing along the barrel.

4 MATERIAL

4.1 General Tubes and couplings shall be made from steel meeting the requirements for chemical analysis given in Clauses 4.3.

4.2 Manufacturing process Tubes and couplings shall be produced by either the electric resistance welded process or the seamless process.

NOTE: Seamless tubes and couplings are not manufactured in Australia, but their use is permitted provided that their chemical analysis and physical properties comply with the requirements of this Standard.

4.3 Chemical analysis The steel used for the tubes and couplings shall conform to the chemical analysis given in Table 1.

TABLE 1
CHEMICAL ANALYSIS

Analysis	Chemical composition max. percent			
	C	$C + \frac{Mn}{6}$	*P*	*S*
Ladle	0.25	0.42	0.050	0.050
Product	0.29	—	0.060	0.060

4.4 Physical properties When tested in accordance with Clause 5.2, tube, including tube for coupling manufacture, shall show the minimum tensile properties given in Table 2.

When tested in accordance with Clause 5.3, the material shall show no sign of failure.