

Australian Standard™

**Copper tubes for plumbing, gasfitting
and drainage applications**



This Australian Standard was prepared by Committee WS-018, Copper and Copper Alloy Tubes for Plumbing and Gasfitting. It was approved on behalf of the Council of Standards Australia on 14 April 2004 and published on 7 July 2004.

The following are represented on Committee WS-018:

Australian Industry Group
Copper Development Centre Australia
CSIRO Manufacturing & Infrastructure Technology
Certification Bodies (Australia)
Department of Land and Water Conservation
Master Plumbers Australia
WSAA Water Services Association of Australia

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STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 1432—2004

Copper tubes for plumbing, gasfitting and drainage applications

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Technical Committee WS-018 has 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

Australian Standard™

Copper tubes for plumbing, gasfitting and drainage applications

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PREFACE

This Standard was prepared by the Standards Australia Committee WS-018, Copper and Copper Alloy Tubes for Plumbing and Gasfitting to supersede AS 1432—1996 *Copper tubes for plumbing, gasfitting and drainage applications*.

The objective of this Standard is to provide manufacturers with requirements for copper tubes for use in plumbing, gasfitting and drainage applications.

The principal changes from the previous edition are as follows:

- (a) Alignment of the Standard for compliance with AS/NZS 4020:2002, *Testing of products for use in contact with drinking water*.
- (b) Inclusion of internal surface quality requirements.
- (c) Pneumatic test incorporated as an option for watertightness.
- (d) Inclusion of layer wound packs (LWP).
- (e) Inclusion of a comprehensive test plan to demonstrate manufacturing compliance with this Standard.

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.

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

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	4
1.2 APPLICATION	4
1.3 REFERENCED DOCUMENTS	4
1.4 DEFINITIONS	5
SECTION 2 MATERIALS	6
SECTION 3 MARKING	
3.1 GENERAL	7
3.2 INCISING	7
3.3 COLOUR CODING.....	7
SECTION 4 DESIGN	
4.1 FREEDOM FROM DEFECTS	9
4.2 TEMPER AND FORM OF MATERIAL	9
4.3 DIMENSIONS AND TOLERANCES	9
SECTION 5 PERFORMANCE AND TEST METHODS	
5.1 CONTAMINATION OF WATER.....	13
5.2 HARDNESS TEST	13
5.3 INTERNAL SURFACE QUALITY	13
5.4 WATERTIGHTNESS.....	13
APPENDICES	
A MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS STANDARD	15
B PURCHASING GUIDELINES.....	18
C SAFE WORKING PRESSURE AND TESTING PRESSURE FOR COPPER TUBES.....	19
D TEST METHODS FOR DETERMINING SURFACE CARBON LEVELS	21
E HYDROSTATIC TEST	22

STANDARDS AUSTRALIA

Australian Standard

Copper tubes for plumbing, gasfitting and drainage applications

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for round seamless copper tubes intended for use in pressure and non-pressure plumbing, gasfitting and drainage applications.

1.2 APPLICATION

1.2.1 General

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

NOTES:

- 1 Guidelines to purchasers on information that should be supplied at the time of enquiry or order are detailed in Appendix B.
- 2 Safe working pressures and testing pressures for copper tubes are given in Appendix C
- 3 Installation, commissioning and testing procedures for installed copper tubes are given in AS 4809.

1.2.2 Classification

Tubes are classified into four types specified by wall thickness:

- (a) Type A as given in Table 4.1.
- (b) Type B as given in Table 4.2.
- (c) Type C as given in Table 4.3.
- (d) Type D as given in Table 4.4.

1.2.3 Designation

Tubes shall be designated by—

- (a) the number of this Standard (AS 1432);
- (b) the nominal size (see Tables 4.1 to 4.4 inclusive); and
- (c) the classification (Types A, B, C or D).

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

- | | |
|--------|---|
| 1349 | Bourdon tube pressure and vacuum gauges |
| 1817 | Metallic materials—Vickers hardness test |
| 1817.1 | Part 1: Test methods (ISO 6507-1:1997, MOD) |
| 2084 | Non-destructive testing—Eddy current testing of metal tubes |
| 2738 | Copper and copper alloys—Compositions and designations of refinery products, wrought products, ingots and castings. |

AS

- 4041 Pressure piping
- 4809 Copper pipe and fittings—Installation and commissioning
- 5601 Gas installations

AS/NZS

- 3500 Plumbing and drainage
- 3500.0 Part 0: Glossary of terms
- 4020 Testing of products for use in contact with drinking water

ISO

- 6507 Metallic materials—Vickers hardness test
- 6507-1 Part 1: Test method

EN

- 723 Copper and copper alloys—Combustion method for determination of carbon on the inner surface of copper pipes or fittings

1.4 DEFINITIONS

For the purpose of this Standard, the definitions given in AS/NZS 3500.0, AS 5601 and those below apply.

1.4.1 Bendable temper

A temper of adequate strength, to facilitate the handling of tube in straight lengths, with sufficient ductility to enable a minimum 90° bend with minimum centre-line radii of 45 mm, 60 mm, and 85 mm for nominal sizes DN 15, DN 18, and DN 20, respectively, and made without local annealing.

1.4.2 Layer wound packs (LWP)

Tube produced in long, continuous lengths and wound into pack form for further fabrication or processing into components by a purchaser.

1.4.3 Mean outside diameter

Half the sum of two outside diameters measured at right angles to each other on one cross-section of the tube.

1.4.4 Ovality

The difference between the maximum outside diameter and the minimum outside diameter measured on one cross-section of the tube.

SECTION 2 MATERIALS

Tubes shall be manufactured from phosphorus deoxidized copper complying with the chemical composition requirements of alloy designation C12200 of AS 2738 as specified in Table 2.1.

Chemical composition shall be determined by recognized chemical analysis methods of sufficient accuracy and reproducibility to identify an alloy that does not comply with this Standard.

TABLE 2.1
CHEMICAL COMPOSITION

Element	Composition %	
	Min.	Max.
Copper (including silver)	99.90	—
Phosphorus	0.015	0.040