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# Australian Standard 2737—1984

# COPPER DRAWING STOCK

STANDARDS ASSOCIATION OF AUSTRALIA
*Incorporated by Royal Charter*



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This Australian standard was prepared by Committee MT/2, Copper and Copper Alloys. It was approved on behalf of the Council of the Standards Association of Australia on 28 August 1984 and published on 9 November 1984.

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The following interests are represented on Committee MT/2:

Australian Foundry Institute

Australian Welding Institute

Confederation of Australian Industry

Copper Development Association of Australia Limited

Coppermetals Extruders Council of Australia

Department of Defence

Metropolitan Water Sewerage and Drainage Board, N.S.W.

Telecom Australia

Universities

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AUSTRALIAN STANDARD

# COPPER DRAWING STOCK

## AS 2737—1984

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# PREFACE

This standard was prepared under the direction of the Association's Committee on Copper and Copper Alloys by its subcommittee on cast copper rod, as the result of a request from the Australian copper industry to provide an Australian standard paralleling ASTM B49, Hot-rolled Copper Redraw Rod for Electrical Purposes. The standard applies to continuously cast and hot-rolled copper drawing stock intended for further fabrication into electrical conductors.

In preparing this standard, the subcommittee reviewed the following draft International Standard of the International Organization for Standardization (ISO):

ISO/DIS 4738 Copper Drawing Stock (Wire Rod)

This standard differs from ISO/DIS 4738 in tolerances which are slightly tighter above 6.33 mm.

The term 'drawing stock' has been used in preference to 'wire rod', because 'wire' and 'rod' are terms for two different products. In addition, 'drawing stock' is analogous to 'forging stock', whereby an intermediate product is indicated implicitly.

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STANDARDS ASSOCIATION OF AUSTRALIA

# Australian Standard for COPPER DRAWING STOCK

**1 SCOPE.** This standard specifies requirements for continuously cast, hot-rolled and cleaned electrolytic tough pitch copper (110) drawing stock of approximately round cross-section in diameters from 6 mm up to and including 35 mm, intended for further fabrication into electrical conductors.

NOTES:

1. Continuously cast and rolled copper drawing stock may be further processed by shaving, whereby a mechanical operation is undertaken to remove the surface of the drawing stock to provide a superior surface finish to hot-rolled drawing stock.
2. Guidelines to purchasers on requirements that must be specified by the purchaser and those that must be agreed at the time of enquiry and/or order are given in Appendix A.

**2 REFERENCED DOCUMENTS.** The following standards are referred to in this standard:

| | |
|---|---|
| AS 1391 | Methods for Tensile Testing of Metals |
| AS 2614 | Copper and Copper Alloys — Sampling for Chemical Analysis and Resistivity |
| AS 2738.2 | Copper and Copper Alloys — Compositions and Designations, Part 2 — Wrought Products |
| AS K208 | Methods for the Analysis of Unalloyed Copper |
| ASTM B193 | Resistivity of Electrical Conductor Materials |

**3 QUALITY REQUIREMENTS.**

**3.1 Chemical composition.** The chemical composition of the drawing stock shall be in accordance with Table 1.

**TABLE 1**
**CHEMICAL COMPOSITION**
**(From AS 2738.2)**

| Designation | Chemical composition, percent | | |
|---|---|---|---|
| | Copper (incl. silver) | Silver | Oxygen |
| | min. | min. | |
| 110 | 99.90 | — | (see Note) |

NOTE: Oxygen by agreement (see Paragraph A2 of Appendix A).

**3.2 Tensile elongation.** When tested in accordance with AS 1391, the drawing stock shall have a minimum tensile elongation of 30 per cent in 250 mm.

NOTE: Not applicable to drawing stock after shaving.

**3.3 Electrical resistivity.** When tested in accordance with ASTM B193 the copper shall have a volume resistivity not greater than 17.241 nΩm at 20°C measured in the annealed condition.

**4 DIAMETER.** The diameter of the drawing stock shall not vary from that specified by more than the amounts specified in Table 2.

**TABLE 2**
**PERMISSIBLE VARIATION IN DIAMETER**

millimetres

| Nominal diameter | | Permissible variation |
|---|---|---|
| Over | Up to and incl. | |
| — | 6.35 | +0.50<br>−0.25 |
| 6.35 | 19 | ±0.38 |
| 19 | 25 | ±0.50 |
| 25 | 35 | ±0.76 |

**5 PHYSICAL CONDITION.**

**5.1 Form.** Each coil of hot-rolled drawing stock shall be furnished in one continuous length.

NOTE: Hot-rolled drawing stock may be joined before any shaving operation.

**5.2 Surface quality.** The surface of the hot-rolled drawing stock shall be as free of oxide and other imperfections as is consistent with good commercial practice.

**6 PACKAGING.** The drawing stock shall be packaged and protected against damage from normal handling and shipping.

NOTE: Package size is subject to negotiation.

**7 MARKING.** Each package shall be marked with the following information:

(a) Manufacturer's coil identification.
(b) Nett mass.
(c) Manufacturer's name, brand or trademark.

NOTE: Manufacturers who place the number of this Australian standard on copper drawing stock, on packaging or on literature related thereto should ensure that the products are manufactured to comply with the standard.