



Designation: **B206/B206M—07 B206/B206M – 12**

## Standard Specification for Copper-Nickel-Zinc (Nickel Silver) Wire and Copper-Nickel Alloy Wire <sup>1</sup>

This standard is issued under the fixed designation B206/B206M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

### 1. Scope\*

1.1 This specification establishes the requirements for wire in round, hexagonal, octagonal, rectangular, and square form of UNS Alloy Nos. C71000, C74500, C75200, C75700, C76400, C77000, and C79200.

1.2 This specification is general in that the product is used in many applications where the requirements are too particular to be specified by standard test results.

1.2.1 For particular or critical applications it is advisable for the purchaser to submit samples or drawings to the manufacturer to secure an adjustment of anneal or temper to suit the application for which the product is intended.

1.3 The following information is intended to assist the purchaser in the application of this specification:

1.3.1 For most general applications—UNS Alloy Nos. C71000, C74500, C75200, and C75700.

1.3.2 For hard or spring tempers—UNS Alloy Nos. C76400 and C77000.

1.3.3 For ease of machining—UNS Alloy No. C79200.

1.4 ~~Units—The values~~ Values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text, SI units are shown in brackets. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

[B250/B250M](#) Specification for General Requirements for Wrought Copper Alloy Wire

[B601](#) Classification for Temper Designations for Copper and Copper Alloys—Wrought and Cast

[B846](#) Terminology for Copper and Copper Alloys

[E8B950](#) ~~Test Methods for Tension Testing of Metallic Materials~~ [Guide for Editorial Procedures and Form of Product Specifications for Copper and Copper Alloys](#)

[E8ME8/E8M](#) ~~Test Methods for Tension Testing of Metallic Materials—Metric~~ (Withdrawn 2008)

[E62](#) Test Methods for Chemical Analysis of Copper and Copper Alloys (Photometric Methods) (Withdrawn 2010)<sup>3</sup>

[E112](#) Test Methods for Determining Average Grain Size

[E478](#) Test Methods for Chemical Analysis of Copper Alloys

### 3. General Requirements

3.1 The following sections of Specification [B250/B250M](#) constitute a part of this specification:

3.1.1 Terminology,

3.1.2 Materials and Manufacture,

3.1.3 Workmanship, Finish and Appearance,

3.1.4 Sampling

3.1.5 Number of Tests and Retests,

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee B05 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.02 on Rod, Bar, Wire, Shapes and Forgings.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

\*A Summary of Changes section appears at the end of this standard



- 3.1.6 Specimen Preparation,
- 3.1.7 Test Methods,
- 3.1.8 Significance of Numerical Limits,
- 3.1.9 Inspection,
- 3.1.10 Rejection and Rehearing,
- 3.1.11 Certification,
- 3.1.12 Test Reports (Mill),
- 3.1.13 Packaging and Package Marking, and
- 3.1.14 Supplemental Requirements.

3.2 In addition, when a section with a title identical to one of those referenced in 3.1 appears in this specification, it contains additional requirements that supplement those which appear in Specification B250/B250M.

4. Terminology

4.1 For the definition of general terms related to copper and copper alloys, refer to Terminology B846.

5. Ordering Information

5.1 Include the following information-specified choices when placing purchase orders or contracts for products to this specification: under this specification, as applicable:

- 5.1.1 ASTM designation and year of issue,
- 5.1.2 Copper Alloy UNS No. (Section 1),
- 5.1.3 Temper designation (Section 8),
- 5.1.4 Quantity—Total weight or length or number of pieces of each temper, form, or alloy.
- 5.1.5 Dimensions—Diameter, distance between parallel faces, surfaces,
- 5.1.6 How furnished—specific lengths, coils, reels, and so forth, and
- 5.1.7 When product is purchased for agencies of the U.S. Government (Intended application. B250/B250M):

5.2 The following options are available to this specification and should be specified in the contract or purchase order but may not be included unless specified at the time of placing of the order, when required:

- 5.2.1 Heat identification or traceability details,
- 5.2.2 Certification (B250/B250M), and
- 5.2.3 Mill Test Reports (B250/B250M).
- 5.2.4 If product is purchased for agencies of the U.S. Government (B250/B250M).

6. Material and Manufacture

6.1 Material—The material shall be made from cast or wrought billets, logs or rods of Copper Alloy UNS Nos. C71000, C74500, C75200, C75700, C76400, C77000, or C79200, and shall be of such soundness and structure as to enable them to be processed into the desired product.

6.1.1 When specified in the contract or purchase order, that heat identification or traceability is required, the purchaser shall specify the details required.

6.2 Manufacture—The product shall be manufactured by such hot-working, cold-working, straightening, coiling or reeling and annealing processing needed to produce a uniform wrought structure and obtain the finish properties specified in the purchase order or contract.

7. Chemical Composition

7.1 The material shall conform to the chemical composition requirements in Table 1 for the Copper Alloy UNS No. specified in the ordering information:

7.1.1 These composition limits do not preclude the presence of other elements. When required, limits may be established and analysis required for unnamed elements by agreement between the supplier and the purchaser.

TABLE 1 Chemical Requirements

Copper Alloy UNS No.	Composition, %						
	Copper	Nickel (incl cobalt)	Lead	Iron, max	Manganese, max	Zinc	
C71000	remainder	19.0-23.0	0.05 max	1.0	1.0	1.0 max	
C74500	63.5-66.5	9.0-11.0	0.05 max	0.25	0.50	remainder	
C75200	63.0-66.5	16.5-19.5	0.05 max	0.25	0.50	remainder	
C75700	63.5-66.5	11.0-13.0	0.05 max	0.25	0.50	remainder	
C76400	58.5-61.5	16.5-19.5	0.05 max	0.25	0.50	remainder	
C77000	53.5-56.5	16.5-19.5	0.05 max	0.25	0.50	remainder	
C79200	59.0-66.5	11.0-13.0	0.8-1.4	0.25	0.50	remainder	