

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

SAE

AMS 4712E

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Superseding AMS 4712D

COPPER ALLOY, WIRE
65Cu - 35Zn
Annealed (061)

UNS C27000

1. SCOPE:

1.1 Form:

This specification covers a copper-zinc alloy (brass) in the form of wire.

1.2 Application:

This wire has been used typically for woven wire screening, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2224 Tolerances, Copper and Copper Alloy Wire
MAM 2224 Tolerances, Metric, Copper and Copper Alloy Wire

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM B 250 General Requirements for Wrought Copper-Alloy Wire
ASTM B 250M General Requirements for Wrought Copper-Alloy Wire (Metric)
ASTM E 112 Determining the Average Grain Size
ASTM E 478 Chemical Analysis of Copper Alloys

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2.3 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-C-3993 Copper and Copper-Base Alloy Mill Products, Packaging of

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

(R)

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E 478, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition

Element	min	max
Copper (3.1.1)	63.0	68.5
Lead	--	0.10
Iron	--	0.07
Copper + Sum of Named Elements (3.1.2)	99.7	--
Zinc	remainder	

3.1.1 Applicable only when copper is determined by direct analysis.

(R)

3.1.2 Applicable when copper is determined by analysis. The reported (certified) value is the difference between the sum of all other specified elements and 100% and will, therefore, include unnamed elements. Limits for unnamed elements may be established by agreement between purchaser and manufacturer or supplier.

3.2 Condition:

Cold-drawn or cold-rolled, and annealed (061) (See 8.2).

3.3 Properties:

Wire shall conform to the following requirements:

3.3.1 Average Grain Size: Shall be 0.035 to 0.070 mm, determined in accordance with ASTM E 112 on a longitudinal section.

3.3.2 Twisting: Wire under 0.050 inch (1.27 mm) in diameter shall show no evidence of breaking after two strands of wire are twisted around each other ten times per inch (25 mm) of length.

3.4 Quality:

Wire, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the wire.

3.5 Tolerances:

Shall conform to AMS 2224 or MAM 2224 as applicable to nonrefractory alloys.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of wire shall supply all samples for vendor's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the wire conforms to specified requirements.

4.2 Classification of Tests:

All technical requirements are acceptance tests and shall be performed on each lot. A lot shall consist of all wire from the same heat or melt, drawn at the same time, and presented for acceptance at the same time.

4.3 Sampling and Testing:

(R)

Shall be in accordance with ASTM B 250 or ASTM B 250M.

4.4 Reports:

(R)

The vendor of wire shall furnish with each shipment a report showing the results of tests for chemical composition, average grain size, and twisting on each lot and stating that the wire conforms to the other technical requirements. This report shall include the purchase order number, lot number, AMS 4712E, nominal size, and quantity.

4.5 Resampling and Retesting:

If any specimen used in the above tests fails to meet specified requirements, disposition of the wire may be based on the results of testing three additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet specified requirements shall be cause for rejection of the wire represented. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Wire shall be supplied on spools or in coils except when straight lengths are ordered.

5.2 Identification:

5.2.1 Spools and Coils:

Shall be legibly marked with a durable tag or label showing not less than the manufacturers identification, purchase order number, AMS 4712E, nominal size, and quantity; boxes or drums shall be marked with the same information.

5.2.2 Straight Lengths: Shall have attached to each bundle or enclosed in each box a durable tag or label legibly marked with the information of 5.2.1; when boxed, the box shall be marked with the same information.

5.3 Packaging:

5.3.1 Spools and Coils: Coils shall be individually wrapped with waterproof paper or packed in waterproof drums. Spools, when ordered, shall be boxed.

5.3.2 Straight Lengths: Shall be bundled or boxed.

5.3.3 Wire shall be prepared for shipment in accordance with commercial practice and in compliance (R) with applicable rules and regulations pertaining to the handling, packaging, and transportation of the wire to ensure carrier acceptance and safe delivery.

5.3.4 For direct U.S. Military procurement, packaging shall be in accordance with MIL-C-3993, Level C, unless Level A is specified in the request for procurement.

6. ACKNOWLEDGMENT:

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS:

Wire not conforming to this specification, or to modifications authorized by purchaser, will be subject to rejection.

8. NOTES:

8.1 The (R) symbol is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this specification. If the symbol is next to the specification title, it indicates a complete revision of the specification.

8.2 Copper temper designations are defined in ASTM B 601.

8.3 Clarification of terms used in AMS are presented in ARP1917.