

AEROSPACE MATERIALS SPECIFICATION

Submitted for recognition as an American National Standard



AMS 4713E

Issued
Revised

JUL 1945
JUN 1997

Superseding AMS 4713D

Brass, Wire
65Cu - 35Zn
Eighth-Hard (H00)

UNS C27000

1. SCOPE:

1.1 Form:

This specification covers one type of brass in the form of wire.

1.2 Application:

This brass wire has been used typically for cold-headed parts such as pins and rivets, 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 8 Tension Testing of Metallic Materials

ASTM E 8M Tension Testing of Metallic Materials (Metric)

ASTM E 478 Chemical Analysis of Copper Alloys

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

Copyright 1997 Society of Automotive Engineers, Inc.
All rights reserved.

Printed in U.S.A.

QUESTIONS REGARDING THIS DOCUMENT:
TO PLACE A DOCUMENT ORDER:

(412) 772-7154
(412) 776-4970

FAX: (412) 776-0243
FAX: (412) 776-0790

3. TECHNICAL REQUIREMENTS:

3.1 Wire Composition:

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 (3.1.1) | min | max |
|-------------------------------|-----------|------|
| Copper | 63.0 | 68.5 |
| Lead | -- | 0.10 |
| Iron | -- | 0.07 |
| Zinc (3.1.2) | remainder | |
| Sum of Named Elements (3.1.3) | 99.7 | -- |

3.1.1 These composition limits do not preclude the presence of other elements. Limits may be established and analysis required for unnamed elements by agreement between the manufacturer or supplier and purchaser.

3.1.2 Zinc may be reported as "remainder", or as the difference between the sum of results for all elements and 100%, or as the result of direct analysis.

3.1.3 When all the elements in the table are analyzed, the sum shall be 99.7% minimum, but such determination is not required for routine acceptance of each lot.

3.2 Condition:

Cold-drawn or cold-rolled, eighth-hard (H00) temper (See 8.2).

3.3 Properties:

Wire shall conform to the following requirements:

3.3.1 Tensile Strength: Shall be 50.0 to 65.0 ksi (345 to 448 MPa), determined in accordance with ASTM E 8 or ASTM E 8M.

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.

4.3 Sampling and Testing:

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

4.4 Reports:

The vendor of wire shall furnish with each shipment a report showing the results of tests on each lot for composition and tensile strength and stating that the wire conforms to the other technical requirements. This report shall include the purchase order number, lot number, AMS 4713E, 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 manufacturer's identification, purchase order number, lot number, AMS 4713E, 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 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 supplied in bundles or shall be boxed.
- 5.3.3 Packages of wire shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the wire to ensure carrier acceptance and safe delivery.

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 change bar (I) located in the left margin 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 document. An (R) symbol to the left of the document title indicates a complete revision of the document.
- 8.2 Copper temper designations are defined in ASTM B 601.
- 8.3 Terms used in AMS are clarified in ARP1917.
- 8.4 Properties in inch/pound units are primary; properties in SI units are shown as the approximate equivalents of the primary units and are presented only for information.
- 8.5 Procurement documents should specify not less than the following:
Title, number, and date of this specification
Size and form (spools, coils, or straight lengths) of wire desired
Quantity of wire desired.
- 8.6 Similar Specifications:
SAE J463, Alloy C27000, Eighth-hard and ASTM B 134, Alloy 270, Eighth-hard are listed for information only and shall not be construed as acceptable alternates unless all requirements of this AMS are met.