



<b>AEROSPACE MATERIAL SPECIFICATION</b>	<b>AMS4713™</b>	<b>REV. H</b>
	Issued 1945-07 Reaffirmed 2014-04 Revised 2024-09	
Superseding AMS4713G		
Brass, Wire, 65Cu - 35Zn, Eighth-Hard (H00) (Composition similar to UNS C27000)		

### RATIONALE

AMS4713H results from a Five-Year Review and update of this specification with changes to update general agreement language to prohibit unauthorized exceptions (see 4.4.1, 5.2.3, and 8.4), relocate Definitions (see 2.3), and update Applicable Documents (see Section 2), Composition (see 3.1), and Ordering Information (see 8.5).

#### 1. SCOPE

##### 1.1 Form

This specification covers one type of brass in the form of wire (see 8.5).

##### 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 issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

##### 2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

- AMS2224 Tolerances, Copper and Copper Alloy Wire
- AS7766 Terms Used in Aerospace Metals Specifications

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<https://www.sae.org/standards/content/AMS4713H/>

## 2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, [www.astm.org](http://www.astm.org).

ASTM B250/B250M	General Requirements for Wrought Copper-Alloy Wire
ASTM B601	Temper Designations for Copper and Copper Alloys—Wrought and Cast
ASTM E8/E8M	Tension Testing of Metallic Materials
ASTM E478	Chemical Analysis of Copper Alloys

## 2.3 Definitions

Terms used in AMS are defined in AS7766.

2.3.1 Copper temper designations are defined in ASTM B601.

## 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 E478 or by other analytical methods acceptable to the purchaser (see 8.5).

**Table 1 - Composition**

Element (see 3.1.1)	Min	Max
Copper	63.0	68.5
Lead	--	0.09
Iron	--	0.07
Zinc (see 3.1.2)	remainder	
Sum of Named Elements (see 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 (see 8.5).

3.1.2 Zinc may be reported as "remainder," 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 2.3.1).

### 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 E8/E8M.

### 3.4 Quality

Wire, as received by the 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 AMS2224 as applicable to nonrefractory alloys.

### 3.6 Exceptions

Any exceptions shall be authorized by the purchaser and reported as in 4.4.1.

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1 Responsibility for Inspection

The producer of wire shall supply all samples for the producer's tests and shall be responsible for the performance of all required tests. The 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 B250/B250M.

### 4.4 Reports

The producer 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, AMS4713H, nominal size, and quantity.

4.4.1 When material produced to this specification has exceptions taken to the technical requirements listed in Section 3, the report shall contain a statement "This material is certified as AMS4713H(EXC) because of the following exceptions:" and the specific exceptions shall be listed.

### 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 two 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, AMS4713H, 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.

5.2.3 When technical exceptions are taken (see 4.4.1), the material shall be identified with AMS4713H(EXC).

## 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 producer 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 the purchaser, will be subject to rejection.

## 8. NOTES

### 8.1 Revision Indicator

A 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, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.

8.2 Dimensions and properties in inch/pound units and the Fahrenheit temperatures are primary; dimensions and properties in SI units and the Celsius temperatures are shown as the approximate equivalents of the primary units and are presented only for information.

8.3 Unless otherwise specified, the material producer shall work to the revision of this specification (AMS4713) in effect on the date of order placement. Unless otherwise specified, material manufactured and certified to the immediately previous revision of this specification (AMS4713) may be procured and used until inventory is depleted.

8.4 It is the purchaser's obligation to ensure that product they procure or resell as AMS4713 has any exceptions approved by their subsequent purchaser.

8.5 Purchase documents should specify not less than the following:

AMS4713H

Size and form (spools, coils, or straight lengths) of wire desired

Quantity of wire desired

Alternate composition determination methods and limits, as required (see 3.1)