



AEROSPACE MATERIAL SPECIFICATION	AMS4507™	REV. J
	Issued 1945-07 Reaffirmed 2016-03 Revised 2021-10 Superseding AMS4507H	
Copper Alloy (Brass), Sheet, Strip, and Plate 70Cu - 30Zn Half Hard (H02) (Composition similar to UNS C26000)		

RATIONALE

AMS4507J is the result of a Five-Year Review and update of this specification with changes to prohibit unauthorized exceptions (3.6, 4.4.1, 5.1.3, 8.7), update Applicable Documents (Section 2), Composition (3.1), and to allow the use of the immediate prior specification revision (8.6).

1. SCOPE

1.1 Form

This specification covers a copper-zinc alloy (brass) in the form of sheet, strip, and plate.

1.2 Application

These products have been used typically for stampings, 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.

AMS2222	Tolerances, Copper and Copper Alloy Sheet, Strip, and Plate
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications

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For more information on this standard, visit
<https://www.sae.org/standards/content/AMS4507J/>

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.

ASTM B248 General Requirements for Wrought Copper and Copper-Alloy Plate, Sheet, Strip, and Rolled Bar

ASTM B248M General Requirements for Wrought Copper and Copper-Alloy Plate, Sheet, Strip, and Rolled Bar (Metric)

ASTM B601 Temper Designations for Copper and Copper Alloys – Wrought and Cast

ASTM E8/E8M Tension Testing of Metallic Materials

ASTM E18 Rockwell Hardness of Metallic Materials

ASTM E478 Chemical Analysis of Copper Alloys

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with ASTM E478 or by other analytical methods acceptable to purchaser.

Table 1 - Composition

Element (3.1.1)	Min	Max
Copper	68.5	71.5
Lead	--	0.07
Iron	--	0.05
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 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 rolled, half-hard (H02) temper (see 8.2).

3.3 Properties

The product shall conform to the following requirements:

3.3.1 Tensile Strength

Shall be 57 to 67 ksi (393 to 462 MPa), determined in accordance with ASTM E8/E8M.

3.4 Quality

The product, 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 product.

3.5 Tolerances

Shall conform to AMS2222 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 the product shall supply all samples for producer'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 product 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 B248 or ASTM B248M.

4.4 Reports

The producer of the product shall furnish with each shipment a report showing the results of tests on each lot to determine conformance to all technical requirements. This report shall include the purchase order number, lot number, AMS4507J, 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 AMS4507J(EXC) because of the following exceptions:" and the specific exceptions shall be listed (see 5.1.3).

4.5 Resampling and Retesting

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

5. PREPARATION FOR DELIVERY

5.1 Identification

The product shall be identified as in 5.1.1 unless line marking as in 5.1.2 is specified by purchaser.

5.1.1 Each sheet, strip, and plate shall be legibly marked near one end, coils being marked near the outside end, with AMS4507J, lot number, manufacturer's identification, and nominal thickness, using any suitable marking fluid. As an alternative method, individual pieces or bundles shall have attached a durable tag marked with the above information or shall be boxed and the box marked with the same information.

5.1.2 When specified by purchaser, each sheet, strip, and plate shall be legibly marked on one face, in the respective location indicated below, with AMS4507J, lot number, manufacturer's identification, and nominal thickness. The characters shall be applied using a suitable marking fluid removable in hot alkaline cleaning solution without rubbing. The markings shall have no deleterious effect on the product or its performance and shall be sufficiently stable to withstand normal handling. The specification number, manufacturer's identification, and nominal thickness shall be continuously line marked; the lot number may be included in the line marking or may be marked at one location on each piece.

5.1.2.1 Flat Strip 6 Inches (152 mm) and Under in Width

Shall be marked in one or more lengthwise rows of characters recurring at intervals not greater than 3 feet (914 mm).

5.1.2.2 Flat Sheet, Flat Strip Over 6 Inches (152 mm) in Width, and Plate

Shall be marked in lengthwise rows of characters recurring at intervals not greater than 3 feet (914 mm), the rows being spaced not more than 6 inches (152 mm) apart and alternately staggered.

5.1.2.3 Coiled Sheet and Strip

Shall be legibly marked near both the outside and inside ends of the coil; the markings shall be applied as in 5.1.2 or shall appear on a durable tag or label attached to the coil and marked with the information of 5.1.2. When the product is wound on cores, the tag or label may be attached to the core.

5.1.3 When technical exceptions are taken (see 4.4.1), the material shall be identified with AMS4507J(EXC).

5.2 Packaging

The product 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 product 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

Product not conforming to this specification, or to modifications authorized by 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 Hardness should be 56 to 68 HR30T determined in accordance with ASTM E18. Hardness has been used to verify that product is properly processed, but an "out of range" hardness number is not always indicative of product with "out of specification" tensile strength. Further analysis including material composition verification, heat treat process parameter review, and/or tensile property measurement on product with out-of-range hardness may be necessary.

8.3 Copper temper designations are defined in ASTM B601.

8.4 Terms used in AMS are clarified in ARP1917.