



AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AMS 4558C

Superseding AMS 4558B

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BRASS TUBING, SEAMLESS
66.5Cu - 32Zn - 1.6Pb
Drawn Temper

UNS C33200

1. SCOPE:

1.1 Form: This specification covers one type of brass in the form of seamless tubing.

1.2 Application: Primarily for screw machine parts.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2223 - Tolerances, Copper and Copper Alloy Seamless Tubing

AMS 2350 - Standards and Test Methods

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM B154 - Mercurous Nitrate Test for Copper and Copper Alloys

ASTM B251 - General Requirements for Wrought Seamless Copper and Copper-Alloy Tube

ASTM E8 - Tension Testing of Metallic Materials

ASTM E18 - Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

ASTM E36 - Chemical Analysis of Brasses

2.3 Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 - Metals; Test Methods

2.3.2 Military Specifications:

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

3. TECHNICAL REQUIREMENTS:

SAE Technical Board rules provide that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

- 3.1 Composition: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E36, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other approved analytical methods:

Ø	min	max
Copper	65.00 - 68.00	
Lead	1.30 - 2.00	
Iron	--	0.07
Other Elements, total	--	0.50
Zinc	remainder	

- 3.2 Condition: Drawn temper, general purpose.

- 3.3 Fabrication: Tubing shall be produced by a seamless process. The external and internal surface finishes may be produced by any method which will provide the required surface condition and which will not affect limits of wall thickness or corrosion resistance.

- 3.4 Properties: Tubing shall conform to the following requirements:

- 3.4.1 Tensile Properties: Shall be as follows, determined in accordance with ASTM E8:

Tensile Strength, min 54,000 psi (372 MPa)

- 3.4.2 Hardness: Should be as follows, or equivalent, determined in accordance with ASTM E18, but tubing shall not be rejected on the basis of hardness if the tensile strength requirement is met:

Nominal Wall Thickness		Hardness
Inch	Millimetres	min
0.012 to 0.020, incl	(0.30 to 0.51, incl)	78 HR15T
Over 0.020 to 0.045, incl	(Over 0.51 to 1.14, incl)	53 HR30T
Over 0.045	(Over 1.14)	55 HRB

- 3.4.3 Embrittlement: Specimens of tubing, approximately 6 in. or 150 mm in length, shall withstand without cracking, immersion in mercurous nitrate in accordance with ASTM B154, Procedure A.

- 3.5 Quality: The product, as-received by the purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from internal and external imperfections detrimental to usage of the product.

- 3.6 Tolerances: Unless otherwise specified, tolerances shall conform to AMS 2223 as applicable to non-refractory alloys.

4. QUALITY ASSURANCE PROVISIONS

- 4.1 Responsibility for Inspection: The vendor to tubing shall supply all samples and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to ensure that the tubing conforms to the requirements of this specification.

- 4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as acceptance tests.

- 4.3 Sampling: Shall be in accordance with ASTM B251.

- 4.4 Reports: