

NOTICE OF
ADOPTION

ADOPTION NOTICE 1
17 March 1989 for
AMS 5075E
1 October 1988
SUPERSEDING
AMS 5075D
1 October 1982

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Title of Document: STEEL TUBING, SEAMLESS 0.22 - 0.28C (SAE 1025) Cold Drawn and Stress Relieved

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AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 5075E

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Superseding AMS 5075D

STEEL TUBING, SEAMLESS
0.22 - 0.28C (SAE 1025)
Cold Drawn and Stress Relieved

UNS G10250

1. SCOPE:

1.1 Form: This specification covers a carbon steel in the form of seamless tubing.

1.2 Application: Primarily for parts requiring tubing of moderate strength suitable for forming, welding, and brazing.

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

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2253 - Tolerances, Carbon and Alloy Steel Tubing

MAM 2253 - Tolerances, Metric, Carbon and Alloy Steel Tubing

AMS 2259 - Chemical Check Analysis Limits, Wrought Low-Alloy and Carbon Steels

AMS 2350 - Standards and Test Methods

AMS 2370 - Quality Assurance Sampling of Carbon and Low-Alloy Steels, Wrought Products Except Forgings and Forging Stock

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

ASTM E8 - Tension Testing of Metallic Materials
 ASTM E8M - Tension Testing of Metallic Materials (Metric)
 ASTM E350 - Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron

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

2.3.1 Military Standards:

MIL-STD-163 - Steel Mill Products, Preparation for Shipment and Storage

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, \emptyset determined by wet chemical methods in accordance with ASTM E350, by spectrochemical methods, or by other analytical methods acceptable to purchaser:

	min	max
Carbon	0.22	0.28
Manganese	0.30 -	0.60
Silicon	0.10 -	0.30
Phosphorus	--	0.040
Sulfur	--	0.050

3.1.1 Check Analysis: Composition variations shall meet the applicable requirements of AMS 2259.

3.2 Condition: Cold drawn and stress relieved, having a uniform fine grain in all areas of the tubing.

3.3 Properties: Tubing shall conform to the following requirements:

3.3.1 Tensile Properties As Received: Shall be as follows, determined in accordance with ASTM E8 or ASTM E8M:

Tensile Strength, minimum	55,000 psi (379 MPa)
Yield Strength at 0.2% Offset, minimum	36,000 psi (248 MPa)
Elongation in 2 Inches (50.8 mm) or 4D, minimum	22%

3.3.1.1 For each 2000 psi (13.8 MPa) in excess of 55,000 psi (379 MPa) tensile strength, a reduction in elongation of 1% is permissible to a minimum elongation of 10%.

3.3.2 Response to Heat Treatment: Tubing shall develop the tensile properties specified in 3.3.1 after being normalized by heating to 1625°F \pm 10 (885°C \pm 6) and cooling in still air.

3.4 Quality: Tubing, as received by purchaser, shall be uniform in quality and condition and shall have a finish conforming to the best practice for high-quality aircraft tubing. It shall be smooth and free from heavy scale or oxide, burrs, seams, tears, grooves, lamination, slivers, pits, and other imperfections detrimental to usage of the tubing. Surface imperfections such as handling marks, straightening marks, light mandrel and die marks, shallow pits, and scale pattern will not be considered injurious if the imperfections are removable within the tolerances specified for wall thickness but removal of such imperfections is not required.

3.5 Sizes: Except when exact lengths or multiples of exact lengths are ordered, straight tubing will be acceptable in mill lengths of 6 - 20 feet (1.8 - 6.1 m) but not more than 10% of any shipment shall be supplied in lengths shorter than 10 feet (3 m).

3.6 Tolerances: Shall conform to all applicable requirements of AMS 2253 or MAM 2253.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of tubing shall supply all samples for vendor's tests 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 sample and to perform any confirmatory testing deemed 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 and shall be performed on each heat or lot as applicable.

4.3 Sampling: Shall be in accordance with AMS 2370.

4.4 Reports:

4.4.1 The vendor of the tubing shall furnish with each shipment a report showing the results of tests for chemical composition of each heat and for tensile properties of each lot and stating that the tubing conforms to the other technical requirements of this specification. This report shall include the purchase order number, lot number, AMS 5075E, size, and quantity.

4.4.2 The vendor of finished or semi-finished parts shall furnish with each shipment a report showing the purchase order number, AMS 5075E, contractor or other direct supplier of tubing, part number, and quantity. When tubing for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of tubing to determine conformance to the requirements of this specification and shall include in the report either a statement that the tubing conforms or copies of laboratory reports showing the results of tests to determine conformance.

4.5 Resampling and Retesting: Shall be in accordance with AMS 2370.