

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

SAE

AMS 6390D

Issued JUN 1962
Revised APR 1989
Cancelled MAY 1999

Superseding AMS 6390C

Steel Tubing, Mechanical
0.95Cr - 0.20Mo (0.38 - 0.43C) (SAE 4140)

UNS G41400

CANCELLATION NOTICE

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of May 1999, and has been superseded by AMS 6381F. The requirements of the latest issue of AMS 6381 shall be fulfilled whenever reference is made to the cancelled AMS 6390D. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications noting that it is superseded by AMS 6381F.

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1. SCOPE:**1.1 Form:**

This specification covers an aircraft-quality, low-alloy steel in the form of mechanical tubing.

1.2 Application:

Primarily for high strength structural applications where magnetic particle inspection of both machined and unmachined surfaces is required.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications and Aerospace Standards 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 Steel
AMS 2301 Aircraft Quality Steel, Cleanliness, Magnetic Particle Inspection Procedure
AMS 2350 Standards and Test Methods
AMS 2370 Quality Assurance Sampling of Carbon and Low-Alloy Steels, Wrought Products Except Forgings and Forging Stock
AMS 2806 Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels and Corrosion and Heat Resistant Steels and Alloys

2.1.2 Aerospace Standards:

AS1182 Standard Machining Allowance, Aircraft-Quality and Premium Quality Steel Products

2.2 ASTM Publications:

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

ASTM A255	End-Quench Test for Hardenability of Steel
ASTM A370	Mechanical Testing of Steel Products
ASTM E112	Determining Average Grain Size
ASTM E350	Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron
ASTM E381	Macroetch Testing, Inspection, and Rating Steel Products Comprising Bars, Billets, Blooms, and Forgings

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, determined by wet chemical methods in accordance with ASTM E350, by spectrochemical methods, or by other analytical methods acceptable to purchaser:

	min	max
Carbon	0.38	0.43
Manganese	0.75	1.00
Silicon	0.15	0.35
Phosphorus	--	0.025
Sulfur	--	0.025
Chromium	0.80	1.10
Molybdenum	0.15	0.25
Nickel	--	0.25
Copper	--	0.35