

SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE

AMS 6417F

Issued NOV 1968
Revised JAN 2002
Reaffirmed JUL 2006

Superseding AMS 6417E

Steel, Bars, Forgings, and Tubing
1.6Si - 0.82Cr - 1.8Ni - 0.40Mo - 0.08V (0.38 - 0.43C)
Consumable Electrode Vacuum Remelted

RATIONALE

This document has been reaffirmed to comply with the SAE 5-year Review policy.

1. SCOPE:

1.1 Form:

This specification covers a premium aircraft-quality, low-alloy steel in the form of bars, forgings, mechanical tubing, and forging stock.

1.2 Application:

These products have been used typically for parts 3.5-inches (89-mm) and under in nominal cross-sectional thickness, requiring a through-hardening steel capable of developing a minimum hardness of 52 HRC, the parts being subject to rigid magnetic particle inspection standards, but usage is not limited to such applications. Except for carbon content and tensile properties this material is similar to AMS 6419.

1.2.1 Certain design and processing procedures may cause these products to become susceptible to stress-corrosion cracking after heat treatment; ARP1110 recommends practices to minimize such conditions.

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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

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AMS 6417F**SAE****AMS 6417F****2.1 SAE Publications:**

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS 2251	Tolerances, Low-Alloy Steel Bars
MAM 2251	Tolerances, Metric, Low-Alloy Steel Bars
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 2300	Steel Cleanliness, Premium Aircraft-Quality, Magnetic Particle Inspection Procedure
MAM 2300	Steel Cleanliness, Premium Aircraft-Quality, Magnetic Particle Inspection Procedure, Metric (SI) Measurement
AMS 2310	Qualification Sampling of Steels, Transverse Tensile Properties
AMS 2370	Quality Assurance Sampling and Testing, Carbon and Low-Alloy Steel Wrought Products and Forging Stock
AMS 2372	Quality Assurance Sampling and Testing, Carbon and Low-Alloy Steel Forgings
AMS 2806	Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels and Corrosion and Heat Resistant Steels and Alloys
AMS 2808	Identification, Forgings
AMS-H-6875	Heat Treatment of Steel Raw Materials
AS1182	Standard Machining Allowance, Aircraft-Quality and Premium Aircraft-Quality Steel Bars and Mechanical Tubing
ARP1110	Minimizing Stress Corrosion Cracking in Wrought Forms of Steels and Corrosion Resistant Steels and Alloys

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM A 370	Mechanical Testing of Steel Products
ASTM A 604	Macroetch Testing of Consumable Electrode Remelted Steel Bars and Billets
ASTM E 112	Determining Average Grain Size
ASTM E 350	Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron
ASTM E 384	Microindentation Hardness of Materials

3. TECHNICAL REQUIREMENTS:**3.1 Composition:**

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E 350, by spectrochemical methods, or by other analytical methods acceptable to purchaser.