

AEROSPACE MATERIAL SPECIFICATION



AMS-S-5626A

Issued DEC 1998
Cancelled JAN 2002

Superseding AMS-S-5626

Steel: Chrome-Molybdenum (4140) Bars, Rods, and Forging
Stock (For Aircraft Applications)

CANCELLATION NOTICE

This specification has been "CANCELLED" by the Aerospace Materials Division, SAE, as of January 2002 and has been superseded by the following:

For the annealed condition, use AMS 6382. The requirements of the latest issue of AMS 6382 shall apply when AMS-S-5626 condition (C) Annealed is specified.

For the normalized condition, use AMS 6349. The requirements of the latest issue of AMS 6349 shall apply when AMS-S-5626 condition (D) Normalized is specified.

By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications noting that it has been cancelled.

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This document has been taken directly from U.S. Military Specification MIL-S-5626C, Amendment 1 and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards. The initial release of this document is intended to replace MIL-S-5626C, Amendment 1. Any part numbers established by the original specification remain unchanged.

The original Military Specification was adopted as an SAE standard under the provisions of the SAE Technical Standards Board (TSB) Rules and Regulations (TSB 001) pertaining to accelerated adoption of government specifications and standards. TSB rules provide for (a) the publication of portions of unrevised government specifications and standards without consensus voting at the SAE Committee level, and (b) the use of the existing government specification or standard format.

Under Department of Defense policies and procedures, any qualification requirements and associated qualified products lists are mandatory for DOD contracts. Any requirement relating to qualified products lists (QPL's) has not been adopted by SAE and is not part of this SAE technical document.

1. SCOPE:

1.1 Scope:

This specification covers chrome-molybdenum (4140) steel bars, rods, and forging stock of aircraft quality.

1.2 Classification:

1.2.1 Physical conditions: Bars and rods shall be furnished in one of the following physical conditions, as specified (see 6.2):

- (A) As forged
- (B) As rolled
- (C) Annealed
- (D) Normalized
- (E) Normalized and tempered
- (F) Quenched and tempered

1.2.2 Surface conditions: Bars and rods shall be furnished in one of the following surface conditions, as specified (see 6.2):

- (1) Black, as forged or rolled
- (2) Pickled or blast cleaned
- (3) Rough turned
- (4) Cold finished
- (5) Turned, ground, and polished

2. APPLICABLE DOCUMENTS:

The following publications, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

2.1 SAE Publication:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2301 Aircraft Quality Steel Cleanliness - Magnetic Particle Inspection Procedure

2.2 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

FED-STD-48	Tolerances for Steel and Iron Wrought Products
FED-STD-151	Metals, Test Methods
FED-STD-183	Continuous Identification Marking of Iron and Steel Products

MIL-STD-163	Steel Mill Products, Preparation for Shipment and Storage
MIL-STD-430	Macrograph Standards for Steel Bars, Billets, and Blooms

3. REQUIREMENTS:

3.1 Chemical composition:

The material shall conform to the chemical composition and shall be within the check analysis tolerances shown in table I.

3.2 Hardenability:

End-quench-hardenability values for the steel in all specified conditions shall be Rockwell C-50 minimum at 6/16 inch and Rockwell C-44 minimum at 9/16 inch.

3.3 Grain size:

The austenitic grain size shall be predominately No. 5 or finer, with grains as large as No. 3 permissible.

3.4 Quality:

The size and frequency of inclusions shall not exceed the size and frequency limits indicated by the paragraph entitled "Disposition" of AMS 2301 (see 4.11).

3.5 Macrostructure:

Inclusions disclosed by visual examination of deep acid etched bars in sizes to and including 36 square inches, shall not be more severe than S2, R1, and C2 of MIL-STD-430. Bars in sizes over 36 to 100 square inches, inclusive, shall not be more severe than S2, R2, and C3.

3.6 Decarburization:

Unless otherwise specified, the depth of decarburization for bars and rods furnished in surface conditions (1), (2), and (4) shall be not greater than the limits specified in table II.

3.6.1 Bars and rods furnished in surface conditions (3) and (5) shall be free from decarburization.