

AEROSPACE MATERIAL SPECIFICATION



AMS-S-6709A

Issued DEC 1998
Cancelled SEP 2002

Superseding AMS-S-6709

Steel, Chrome-Molybdenum-Aluminum; Bars, Rods, Billets and Forging Stock
(For Nitriding) (Aircraft Quality)

CANCELLATION NOTICE

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has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of September 2002, and has been superseded by the following:

For the annealed condition, use AMS 6470. The requirements of the latest issue of AMS 6470 shall apply when AMS-S-6709 condition (C) is specified.

For the hardened and tempered condition, use AMS 6472. The requirements of the latest issue of AMS 6472 shall apply when AMS-S-6709 condition (F) is specified.

By this action, this document will remain listed in the Index of Aerospace Material Specifications noting that it has been cancelled. Cancelled specifications are available from SAE.

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This document was taken directly from U.S. Military Specification MIL-S-6709A, Amendment 2, Notice 2 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 was intended to replace MIL-S-6709A, Amendment 2, Notice 2. Any part numbers established by the original specification remain unchanged.

1. SCOPE:

1.1 Scope:

This specification covers steel of aircraft quality for use in the manufacture of nitrided parts (see 6.1).

1.2 Classification:

The steel shall be furnished in the following conditions, as specified (see 6.2):

Physical condition:

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

Surface condition:

- (1) Black, as forged or as rolled
- (2) Pickled or blast cleaned
- (3) Rough turned
- (4) Cold finished and stress relieved
- (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 Publications:

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

AMS 2301	Aircraft Quality Steel Cleanliness-Magnetic Particle Inspection Procedure
AMS 2640	Magnetic Particle Inspection

2.2 U.S. Government Publications:

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

MIL-I-6868	Inspection Process, Magnetic Particle
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 Material:

The steel shall be of aircraft quality. The material shall be magnetically inspected in accordance with the procedures of AMS 2301, and shall not exceed the size and frequency rating limits indicated in the paragraph entitled "Disposition" of AMS 2301 (see 4.10).

3.2 Chemical composition:

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

3.3 Hardness limits for conditions (C) and (E) material:

The hardness for materials in physical conditions (C) and (E) shall be not more than Brinell 229 (Rockwell C-21) when furnished in surface conditions (1), (2), (3), or (5), and shall be not more than Brinell 248 (Rockwell C-24) when furnished in surface condition (4).

3.4 Hardenability:

End-quench hardenability values for the steel in all conditions shall be not less than J50 at 8/16 inch and J45 at 12/16 inch.