



AEROSPACE MATERIAL SPECIFICATION

AMS6438™**REV. G**

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Superseding AMS6438F

Steel, Sheet, Strip, and Plate
1.05Cr - 0.55Ni - 1.0Mo - 0.12V (0.45 - 0.50C)
Consumable Electrode Vacuum Melted
(Composition similar to UNS K24728)

RATIONALE

AMS6438G is stabilized as there are not any users of the document.

STABILIZED NOTICE

AMS6438G has been declared "STABILIZED" by AMS E Carbon and Low Alloy Steels Committee. This document will no longer be updated and may no longer represent standard industry practice. This document was stabilized because Committee E could not find any users of the document. Previously this document was reaffirmed non-current. The last technical update of this document occurred in January 2001. Users of this document should refer to the cognizant engineering organization for disposition of any issues with reports/certifications to this specification; including exceptions listed on the certification.

NOTE: In many cases, the purchaser may represent a sub tier supplier and not the cognizant engineering organization.

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1. SCOPE:

1.1 Form:

This specification covers a premium aircraft-quality, low-alloy steel in the form of sheet strip, and plate.

1.2 Application:

This product has been used typically for heat treated parts, which may be welded during fabrication and which require through-hardening to high strength levels, for use up to 600 °F (316 °C), but usage is not limited to such applications.

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.

2.1 SAE Publications:

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

AMS 2252	Tolerances, Low-Alloy Steel Sheet, Strip, and Plate
MAM 2252	Tolerances, Metric, Low-Alloy Steel Sheet, Strip, and Plate
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 2370	Quality Assurance Sampling and Testing, Carbon and Low-Alloy Steel Wrought Products and Forging Stock
AMS 2807	Identification, Carbon and Low-Alloy Steels, Corrosion and Heat Resistant Steels and Alloys, Sheet, Strip, Plate, and Aircraft Tubing

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

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.

TABLE 1 - Composition

Element	min	max
Carbon	0.45	0.50
Manganese	0.60	0.90
Silicon	0.15	0.30
Phosphorus	--	0.015
Sulfur	--	0.015
Chromium	0.90	1.20
Nickel	0.40	0.70
Molybdenum	0.90	1.10
Vanadium	0.08	0.15
Copper	--	0.35

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

3.2 Melting Practice:

Steel shall be multiple melted using consumable electrode vacuum process in the remelt cycle.

3.3 Condition:

The product shall be supplied in the following condition; hardness tests shall be conducted in accordance with ASTM A 370:

- 3.3.1 Sheet and Strip: Cold finished, bright or atmosphere annealed, and descaled if necessary, or hot rolled, annealed or normalized and tempered, and descaled, having hardness not higher than 30 HRC, or equivalent (See 8.2). When spheroidize anneal is specified, hardness shall be not higher than 100 HRB, or equivalent.
- 3.3.2 Plate: Hot rolled, annealed or normalized and tempered, and descaled, having hardness not higher than 30 HRC, or equivalent (See 8.2). When spheroidize anneal is specified, hardness shall be not higher than 100 HRB, or equivalent.