

AEROSPACE MATERIAL SPECIFICATION



AMS 6546F

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Superseding	AMS 6546E

Steel, Sheet, Strip, and Plate
0.48Cr - 8.0Ni - 4.0Co - 0.48Mo - 0.09V (0.24 - 0.30C)
Consumable Electrode Melted, Annealed

UNS K91122

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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, such as pressure vessels, requiring through hardening to high strength levels, and where such parts may require welding, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

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	Premium Aircraft-Quality Steel Cleanliness, Magnetic Particle Inspection Procedure
MAM 2300	Premium Aircraft-Quality Steel Cleanliness, Magnetic Particle Inspection Procedure, Metric (SI) Measurement
AMS 2370	Quality Assurance Sampling and Testing of Carbon and Low-Alloy Steels, 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, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM A 370	Mechanical Testing of Steel Products
ASTM E 45	Determining the Inclusion Content of Steels
ASTM E 112	Determining Average Grain Size
ASTM E 338	Sharp-Notch Tension Testing of High-Strength Sheet Materials
ASTM E 350	Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron
ASTM E 399	Plane-Strain Fracture Toughness of Metallic Materials

2.3 U.S. Government Publications:

Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage

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	0.24	0.30
Manganese	0.10	0.35
Silicon	--	0.10
Phosphorus	--	0.010
Sulfur	--	0.010
Chromium	0.35	0.60
Nickel	7.00	9.00
Cobalt	3.50	4.50
Molybdenum	0.35	0.60
Vanadium	0.06	0.12
Copper	--	0.35

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

3.2 Condition:

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

3.2.1 Sheet and Strip: Cold finished, bright or atmosphere annealed, and descaled if necessary; or hot rolled, annealed, and descaled; having hardness not higher than 36 HRC, or equivalent.

3.2.2 Plate: Hot rolled, annealed, and descaled, having hardness not higher than 36 HRC, or equivalent.

3.2.3 When the product is ordered normalized and tempered, hardness shall be not higher than 30 HRC, or equivalent.