

AEROSPACE MATERIAL SPECIFICATION

SAE

AMS 5603E

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Superseding	AMS 5603D

Steel Sheet and Strip, Corrosion and Moderate Heat Resistant
15Cr - 8.4Ni - 2.2Mo - 1.1Al
Vacuum Induction Melted, Solution Heat Treated

CANCELLATION NOTICE

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Documents

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1. SCOPE:

1.1 Form:

This specification covers a corrosion-resistant, precipitation-hardenable steel in the form of sheet and strip.

1.2 Application:

Primarily for parts requiring corrosion resistance, high strength, high fracture toughness, and oxidation resistance up to 800°F (425°C). Such parts may require welding or brazing during fabrication. Certain processing procedures and service conditions may cause these products to be subject to stress-corrosion cracking; ARP 1110 recommends practices to minimize such conditions.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) and Aerospace Recommended Practices (ARP) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications:

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

2.1.1 Aerospace Material Specifications:

AMS 2242	Tolerances, Corrosion and Heat Resistant Steel, Iron Alloy Titanium, and Titanium Alloy Sheet, Strip, and Plate
AMS 2248	Chemical Check Analysis Limits, Wrought Heat and Corrosion Resistant Steels and Alloys
AMS 2350	Standards and Test Methods
AMS 2371	Quality Assurance Sample of Corrosion and Heat Resistant Steels and Alloys, Wrought Products Except Forgings and Forging Stock

2.1.2 Aerospace Recommended Practices:

ARP 1110	Minimizing Stress Corrosion Cracking in Heat Treatable Wrought Low Alloy and Martensitic Corrosion Resistant Steels
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2.2 ASTM Publications:

Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia PA 19103.

ASTM A370	Mechanical Testing of Steel Products
ASTM E338	Sharp-Notch Tension Testing of High-Strength Sheet Materials
ASTM E353	Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

2.3 U.S. Government Publications:

Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 Metals; Test Methods

2.3.2 Military Standards:

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

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E353, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other analytical methods approved by purchaser:

	min	max
Carbon	--	0.05
Manganese	--	0.10
Silicon	--	0.10
Phosphorus	--	0.010
Sulfur	--	0.008
Chromium	14.75	15.50
Nickel	8.00	8.75
Molybdenum	2.00	2.50
Aluminum	0.90	1.35
Nitrogen	--	0.01 (100 ppm)

3.1.1 Check Analysis: Composition variations shall meet the requirements of AMS 2248.

3.2 Condition:

The product shall be supplied in the following conditions:

3.2.1 Sheet: Cold rolled, solution heat treated, and descaled (No. 2D Finish).

3.2.2 Strip: Cold rolled, solution heat treated, and descaled (No. 1 Strip Finish).