

**AEROSPACE
MATERIAL
SPECIFICATION**



AMS 6521C

Issued	MAY 1969
Revised	APR 1983
Noncurrent	APR 1994
Reaf. Noncur.	OCT 2000
Cancelled	SEP 2005
Superseding	AMS 6521B

Steel Sheet, Strip, and Plate, Maraging
18.5Ni - 9.0Co - 4.9Mo - 0.65Ti - 0.10Al
Consumable Electrode Melted, Solution Heat Treated

UNS K93160

CANCELLATION NOTICE

This specification has been declared "CANCELLED" by the Aerospace materials Division, SAE, as of September, 2005. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications indicating that it has been "CANCELLED".

Cancelled specifications are available from SAE.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2005 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: custsvc@sae.org
SAE WEB ADDRESS: <http://www.sae.org>

1. SCOPE:

1.1 Form:

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

1.2 Application:

Primarily for large booster rocket applications, pressure vessels, and other components requiring through-hardening, without quenching, to a yield strength of 270,000 psi (1860 MPa) and higher and subject to very rigid inspection standards.

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) 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 2248	Chemical Check Analysis Limits, Wrought Corrosion and Heat Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS 2252	Tolerances, Low-Alloy Steel Sheet, Strip, and Plate
AMS 2300	Premium Aircraft-Quality Steel Cleanliness, Magnetic Particle Inspection Procedure
AMS 2350	Standards and Test Methods
AMS 2370	Quality Assurance Sampling of Carbon and Low-Alloy Steels, Wrought Products Except Forgings and Forging Stock

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 A604	Macroetch Testing of Consumable Electrode Remelted Steel Bars and Billets
ASTM E45	Determining the Inclusion Content of Steel
ASTM E112	Estimating the Average Grain Size of Metals
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
ASTM E399	Plane-Strain Fracture Toughness of Metallic Materials

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	--	0.03
Manganese	--	0.10
Silicon	--	0.10
Phosphorus	--	0.010
Sulfur	--	0.010
Nickel	18.00	19.00
Cobalt	8.50	9.50
Molybdenum	4.60	5.20
Titanium	0.50	0.80
Aluminum	0.05	0.15

3.1.1 Prior to pouring, 0.05% calcium, 0.02% zirconium, and 0.003% boron shall be added to the melt but analysis for these elements need not be made.

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

3.2 Condition:

Hot rolled, solution heat treated, and descaled.