



AEROSPACE MATERIAL SPECIFICATION

AMS5862™**REV. M**Issued 1972-12
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Superseding AMS5862L

Steel, Corrosion-Resistant, Sheet, Strip, and Plate
15Cr - 4.5Ni - 0.30Cb (Nb) - 3.5Cu
Consumable Electrode Remelted, Solution Heat Treated
Precipitation-Hardenable
(Composition similar to UNS S15500)

RATIONALE

AMS5862M results from a limited scope ballot to correct an error in Table 3.

1. SCOPE

1.1 Form

This specification covers a corrosion-resistant steel in the form of sheet, strip, and plate 4.0 inches (102 mm) and under in nominal thickness (see 8.5).

1.2 Application

These products have been used typically for parts requiring corrosion resistance and high strength up to 600 °F (316 °C), but usage is not limited to such applications.

1.2.1 Certain design and processing procedures may cause these products to become susceptible to stress-corrosion cracking; ARP1110 recommends practices to minimize such conditions.

1.3 Classification

Product covered by this specification is classified as follows:

Type 1 - Steel multiple melted using vacuum consumable electrode practice during remelting

Type 2 - Steel multiple melted using electroslag process in the final melting cycle

1.3.1 Unless a specific type is ordered, either type may be supplied.

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 cancelled and no superseding document has been specified, the last published issue of that document shall apply.

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2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2242	Tolerances Corrosion and Heat Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Sheet, Strip, and Plate
AMS2248	Chemical Check Analysis Limits Corrosion and Heat-Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS2300	Steel Cleanliness, Premium Aircraft-Quality Magnetic Particle Inspection Procedure
AMS2371	Quality Assurance Sampling and Testing Corrosion and Heat-Resistant Steels and Alloys Wrought Products and Forging Stock
AMS2750	Pyrometry
AMS2807	Identification Carbon and Low-Alloy Steels, Corrosion and Heat-Resistant Steels and Alloys Sheet, Strip, Plate, and Aircraft Tubing
ARP1110	Minimizing Stress Corrosion Cracking in Wrought Forms of Steels and Corrosion Resistant Steels and Alloys
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications
AS4194	Sheet and Strip Surface Finish Nomenclature
AS6279	Standard Practice for Production, Distribution, and Procurement of Metal Stock

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM A370	Mechanical Testing of Steel Products
ASTM A480/A480M	Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip
ASTM E140	Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness
ASTM E290	Bend Testing of Material For Ductility
ASTM E353	Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E353, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

Table 1 - Composition

Element	Min	Max
Carbon	--	0.07
Manganese	--	1.00
Silicon	--	1.00
Phosphorus	--	0.030
Sulfur	--	0.015
Chromium	14.00	15.50
Nickel	3.50	5.50
Columbium (Niobium)	5xC	0.45
Copper	2.50	4.50
Molybdenum	--	0.50

3.1.1 Check Analysis

Composition variations shall meet the applicable requirements of AMS2248.

3.2 Melting Practice

Steel shall be multiple melted using vacuum consumable electrode practice during remelting for Type 1 or using electrosag practice in the final melting cycle for Type 2.

3.3 Condition

The product shall be supplied in the following condition:

3.3.1 Sheet and Strip

Cold rolled, solution heat treated, and, unless solution heat treatment is performed in an atmosphere yielding a bright finish, descaled having a surface appearance comparable to the commercial corrosion-resistant finishes described in ASTM A480/A480M and AS4194 and 3.3.1.1 or 3.3.1.2 as applicable.

3.3.1.1 Sheet

No. 2D finish.

3.3.1.2 Strip

No. 1 strip finish.

3.3.2 Plate

Hot rolled, solution heat treated, and descaled.

3.4 Solution Heat Treatment

Except as specified in 3.4.1, the product shall be solution heat treated by heating to 1900 °F ± 25 °F (1038 °C ± 14 °C), holding at heat for a time commensurate with the thickness and the heating equipment and procedure used, and cooling to below 90 °F (32 °C). Pyrometry shall be in accordance with AMS2750.