

AEROSPACE MATERIAL SPECIFICATION



AMS 5507F

Issued JAN 1963
Revised MAR 2002
Reaffirmed OCT 2006

Superseding AMS 5507E

Steel, Corrosion and Heat-Resistant, Sheet, Strip, and Plate
17Cr - 13Ni - 2.5Mo (SAE 30316L)
Solution Heat Treated

(Composition similar to UNS S31603)

RATIONALE

This document has been reaffirmed to comply with the SAE 5-year Review policy.

1. SCOPE:

1.1 Form:

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

1.2 Application:

These products have been used typically for parts requiring both corrosion and heat resistance up to 1600 °F (871 °C) and for welding, but usage is not limited to such applications. At elevated temperatures, the strength of this steel is slightly higher than, and the oxidation resistance is similar to, that of 18-8 type steels.

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 2242	Tolerances, Corrosion and Heat-Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Sheet, Strip, and Plate
MAM 2242	Tolerances, Metric, Corrosion and Heat-Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Sheet, Strip, and Plate

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2.1 (Continued):

AMS 2248	Chemical Check Analysis Limits, Corrosion and Heat-Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS 2371	Quality Assurance Sampling and Testing Corrosion and Heat-Resistant Steels and Alloys, 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
AS4194	Sheet and Strip Surface Finish Nomenclature

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM A 480/A 480M	Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip
ASTM E 8	Tension Testing of Metallic Materials
ASTM E 8M	Tension Testing of Metallic Materials (Metric)
ASTM E 353	Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

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 353, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition

Element	min	max
Carbon	--	0.030
Manganese	--	2.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	16.00	18.00
Nickel	10.00	14.00
Molybdenum	2.00	3.00
Copper	--	0.75

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

3.2 Condition:

The product shall be supplied in the following condition:

3.2.1 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 in accordance with ASTM A 480/A 480M and AS4194 comparable to 3.2.1.1 or 3.2.1.2 as applicable.

3.2.1.1 Sheet: No. 2D finish.

3.2.1.2 Strip: No. 1 strip finish.

3.2.2 Plate: Hot or cold rolled, solution heat treated, and descaled.

3.3 Properties:

The product shall conform to the following requirements; tensile testing shall be performed in accordance with ASTM E 8 and ASTM E 8M.

3.3.1 Tensile Properties: Shall be as shown in Table 2 for product over 0.005 inch (0.13 mm) in nominal thickness.

TABLE 2 - Tensile Properties

Property	Value
Tensile Strength, maximum	100 ksi (689 MPa)
Elongation in 2 Inches (50.8 mm) or 4D, minimum	
Nominal Thickness	
Up to 0.025 inch (0.64 mm), excel	40%
0.025 inch (0.64 mm) and over	45%

3.4 Quality:

The product, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfection detrimental; to usage of the product.

3.5 Tolerances:

Shall conform to all applicable requirements of AMS 2242 or MAM 2242.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of the product shall supply all samples for vendor's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

4.2 Classification of Tests:

All technical requirements are acceptance tests and shall be performed on each heat or lot as applicable.

4.3 Sampling and Testing:

Shall be in accordance with AMS 2371.

4.4 Reports:

The vendor of the product shall furnish with each shipment a report showing the following results of tests and relevant information:

4.4.1 For each heat:

Composition

4.4.2 For each lot:

Tensile properties.

4.4.3 The report shall include statement that the product conforms to the other technical requirements.

4.4.4 Purchase order number

Heat and lot numbers

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Size

Quantity.

4.5 Resampling and Retesting:

Shall be in accordance with AMS 2371.