



AEROSPACE MATERIAL SPECIFICATION

AMS5510™

REV. T

Issued 1939-12
Reaffirmed 2014-06
Revised 2022-07

Superseding AMS5510S

Steel, Corrosion- and Heat-Resistant, Sheet, Strip, and Plate
18Cr - 10.5Ni - 0.40Ti (SAE 30321)
Solution Heat Treated
(Composition similar to UNS S32100)

RATIONALE

AMS5510T is the result of a Five-Year Review and update of the specification. The revision updates composition testing and reporting (3.1), adds hot finish provision (3.2.1), revises sheet finish (3.2.1.1), adds strain rate control while tensile testing (3.3.1.1), prohibits unauthorized exceptions (3.6, 4.4.1, 5.1.1, 8.3), clarifies bend testing (3.3.2), adds country of origin (4.4), and allows prior revisions (8.4).

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, especially when such parts require welding during fabrication and for parts requiring oxidation resistance up to 1500 °F (816 °C) but useful at that temperature only when stresses are low, but usage is not limited to such applications.

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 supplied 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.

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

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For more information on this standard, visit
<https://www.sae.org/standards/content/AMS5510T/>

AMS2371	Quality Assurance Sampling and Testing, Corrosion- and Heat-Resistant Steels and Alloys, Wrought Products and Forging Stock
AMS2807	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
AS7766	Terms Used in Aerospace Metals Specifications

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 A262	Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels
ASTM A370	Mechanical Testing of Steel Products
ASTM A480/A480M	Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip
ASTM A751	Chemical Analysis of Steel Products
ASTM E290	Bend Testing of Material for Ductility

2.3 Definitions

Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with ASTM A751, or by other analytical methods acceptable to purchaser.

Table 1 - Composition

Element	Min	Max
Carbon	--	0.08
Manganese	--	2.00
Silicon	0.25	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	17.00	19.00
Nickel	9.00	12.00
Titanium	5x(C+N)	0.70
Molybdenum	--	0.75
Copper	--	0.75
Nitrogen	--	0.10

3.1.1 Producer may test for any element not listed in Table 1 and include this analysis in the report of 4.4. Reporting of any element not listed in the composition table is not a basis for rejection, unless limits of acceptability are specified by the purchaser.

3.1.2 Check Analysis

Composition variations shall meet the applicable requirements of AMS2248.