AEROSPACE MATERIAL SPECIFICATION

AMS5515™	REV. P

Issued 1941-11
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Revised 2025-01

Superseding AMS5515N

Steel, Corrosion Resistant, Sheet, Strip, and Plate
18Cr - 8.5Ni (302)
Solution Heat Treated, High Ductility
(Composition similar to UNS S30200)

RATIONALE

AMS5515P is the result of a Five-Year Review and update of the specification. The revision adds composition reporting (see 3.1.1), updates condition requirements (see 3.2.1), clarifies bend test requirements (see 3.3.2), and updates the exception requirements (see 8.4).

1. SCOPE

1.1 Form

This specification covers a corrosion-resistant steel in the form of sheet, strip, and plate over 0.005 inch (0.13 mm) in nominal thickness.

1.2 Application

These products have been used typically for shallow and deep formed parts operating below 700 °F (371 °C) and requiring corrosion resistance, but usage is not limited to such applications.

1.2.1 This alloy is satisfactory for use up to 1500 °F (816 °C) at low stress levels. However, the corrosion resistance is appreciably reduced when exposed to temperatures in the range 800 to 1100 °F (427 to 593 °C) for an extended time.

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.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

For more information on this standard, visit
https://www.sae.org/standards/content/AMS5515P/

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

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

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 A370 Mechanical Testing of Steel Products

ASTM A751 Test Methods, Practices, and Terminology for 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

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 the purchaser.

Table 1 - Composition

Element	Min	Max
Carbon	0.08	0.15
Manganese	--	2.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	17.00	19.00
Nickel	7.00	10.00
Molybdenum	--	0.75
Copper	--	0.75

3.1.1 The 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.

3.2 Condition

The product shall be supplied in the following condition:

3.2.1 Sheet and Strip

Sheet and strip shall be hot or cold rolled, solution heat treated, and, unless solution heat treatment is performed in an atmosphere yielding a bright finish, descaled. Cold rolling after solution heat treatment for any purpose (flattening, finishing, polishing, etc.) is not permitted.

3.2.2 Plate

Plate shall be hot rolled, solution heat treated, and descaled.

3.3 Properties

The product shall conform to the following requirements; tensile and bend testing shall be performed in accordance with ASTM A370:

3.3.1 Tensile Properties

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	120 ksi (827 MPa)
Elongation in 2 Inches (50 mm) or 4D, minimum	
Nominal Thickness	
Up to 0.025 Inch (0.64 mm), excl	50%
0.025 Inch (0.64 mm) and over	55%

3.3.1.1 Mechanical property requirements for product outside the range covered by 1.1 shall be agreed upon between the purchaser and producer.

3.3.2 Bending

Product shall be transverse bend tested in accordance with ASTM E290. Testing shall be performed at room temperature. Bend requirements shall be in accordance with Table 3. When examined using at least 20X magnification, the specimen shall exhibit no cracking when bending through the angle shown in Table 3 around a diameter equal to the bend factor times the nominal thickness of the product. In case of dispute, results of tests using the guided bend test shall govern.

Table 3 - Bending parameters

Nominal Thickness Inch	Nominal Thickness Millimeters	Type of Bend	Angle Deg	Bend Radius Max[1][2]
Up to 0.1874, incl	Up to 4.760, incl	Free Bend	180	0.5t
Over 0.1874 to 0.749, incl	Over 4.760 to 19.02, incl	Free Bend	90 min	0.5t

[1] Bend radius is defined as a bend factor multiplied by the nominal thickness (t).
[2] Prior versions of this specification may have specified a bend factor and a bend diameter in lieu of bend radius.

3.4 Quality

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

3.5 Tolerances

Tolerances shall conform to all applicable requirements of AMS2242, except flatness tolerances are waived for sheet and strip.

3.6 Exceptions

Any exceptions shall be authorized by the purchaser and reported as in 4.4.1.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The producer of the product shall supply all samples for the producer's tests and shall be responsible for the performance of all required tests. The 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

4.2.1 Acceptance Tests

Composition (see 3.1), tensile properties (see 3.3.1), and tolerances (see 3.5) are acceptance tests and shall be performed on each heat or lot as applicable.

4.2.2 Periodic Tests

Bending (see 3.3.2) is a periodic test and shall be performed at a frequency selected by the producer unless frequency of testing is specified by the purchaser.

4.3 Sampling and Testing

Sampling and testing shall be in accordance with AMS2371.

4.4 Reports

The producer of the product shall furnish with each shipment a report showing: the producer's name, country where the metal was melted (e.g., final melt in the case of metal processed by multiple melting operations), the results of tests for composition of each heat, and the results of tests for tensile properties of each lot. The report shall state that the product conforms to the other technical requirements and shall include the purchase order number, heat and lot numbers, AMS5515P, size, and quantity.

4.4.1 When material produced to this specification is beyond the sizes allowed in the scope or tables, or exceptions authorized by the purchaser are taken to the technical requirements listed in Section 3 (see 5.1.1), the report shall contain a statement "This material is certified as AMS5515P(EXC) because of the following exceptions:" and the specific exceptions shall be listed.

4.5 Resampling and Retesting

Resampling and retesting shall be in accordance with AMS2371.