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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 5519K

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Superseding AMS 5519J

Submitted for recognition as an American National Standard

STEEL, CORROSION RESISTANT, SHEET AND STRIP
18Cr - 8Ni (SAE 30301)
Cold Rolled, 185 ksi (1276 MPa) Tensile Strength

UNS S30100

1. SCOPE:

1.1 Form:

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

1.2 Application:

These products have been used typically for parts requiring moderate drawing or forming, but usage is not limited to such applications.

1.2.1 Mechanical properties specified herein are obtained by cold working (strain hardening) and not by heat treatment. Therefore, the cold-worked product should not be heated to a temperature which adversely affects the mechanical properties or corrosion resistance before, during, or after fabrication.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

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
AMS 2248 Chemical Check Analysis Limits, Wrought 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

2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM A 370 Mechanical Testing of Steel Products
ASTM E 353 Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

2.3 U.S. Government Publications:

Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage

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	--	0.15
Manganese	--	2.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	16.00	18.00
Nickel	6.00	8.00
Molybdenum	--	0.75
Copper	--	0.75

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

3.2 Condition:

(R)

Solution heat treated, descaled unless solution heat treatment is performed in an atmosphere yielding a bright finish, and cold rolled having a surface appearance comparable to a TR finish (See 8.2).

3.3 Properties:

The product shall conform to the following requirements, determined in accordance with ASTM A 370:

3.3.1 Tensile Properties: Shall be as shown in Table 2 for product over 0.005 inch (0.13 mm) in nominal thickness; tensile property requirements for product 0.005 inch (0.13 mm) and under in nominal thickness shall be as agreed upon by purchaser and vendor.

TABLE 2 - Minimum Tensile Properties

Property	Value
Tensile Strength	185 ksi (1276 MPa)
Yield Strength at 0.2% Offset	140 ksi (965 MPa)
Elongation in 2 Inches (50.8 mm) or 4D	
Nominal Thickness:	
Up to 0.015 inch (0.38 mm), incl	8%
Over 0.015 inch (0.38 mm)	9%

3.3.2 Hardness: Shall be not lower than 41 HRC or 379 HB, or equivalent, but
(R) the product shall not be rejected on the basis of hardness if the tensile property requirements are met (See 8.3).

3.3.3 Bending: Product shall withstand, without cracking, bending through the angle indicated in Table 3 around a diameter equal to the bend factor times the nominal thickness of the product with axis of bend parallel to the direction of rolling. Only one type of test will be required in routine inspection; in case of dispute, results of tests using the V-block procedure shall govern.

TABLE 3 - Bending

Nominal Thickness Inch	Nominal Thickness Millimeter	Type of Bend	Angle deg, min	Bend Factor
Up to 0.030, incl	Up to 0.76, incl	Free Bend	180	4
Up to 0.030, incl	Up to 0.76, incl	V-Block	135	6
Over 0.030	Over 0.76	Free Bend	90	3
Over 0.030	Over 0.76	V-Block	135	6

3.4 Quality:

The product, as received by 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:

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

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:
(R)

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

4.2 Classification of Tests:

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

4.3 Sampling and Testing:
(R)

Shall be in accordance with AMS 2371.