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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 5905A

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Superseding AMS 5905

Steel, Corrosion Resistant, Sheet and Strip
18Cr - 9.0Ni (SAE 30302)
Cold Rolled, 3/4 Hard, 175 ksi (1207 MPa) Tensile Strength

UNS S30200

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 in aircraft structural components requiring moderate forming and bending during fabrication and where corrosion resistance up to 800 °F (427 °C) is required, 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 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

QUESTIONS REGARDING THIS DOCUMENT: (724) 772-7161 FAX: (724) 776-0243
TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790
SAE WEB ADDRESS: http://www.sae.org

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

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

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
ASTM E 384	Microhardness of Materials

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	17.00	19.00
Nickel	8.00	10.00
Molybdenum	--	0.75
Copper	--	0.75

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

3.2 Condition:

Solution heat treated, descaled unless solution heat treatment is performed in an atmosphere yielding a bright finish, and cold rolled.

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.

TABLE 2 - Minimum Tensile Properties

Property	Value
Tensile Strength	175 ksi (1207 MPa)
Yield Strength at 0.2% Offset	135 ksi (931 MPa)
Elongation in 2 Inches (50.8 mm) or 4D	
Nominal Thickness	
Over 0.005 to 0.015 Inch	
(Over 0.13 to 0.38 mm), incl	5%
Over 0.015 inch (Over 0.38 mm)	6%

3.3.2 Hardness: Shall be not higher than 37 HRC or 342 HB, or equivalent (See 8.2). Product shall not be rejected on the basis of hardness if the tensile properties of 3.3.1 are acceptable, determined on specimens taken from the same sample as that with nonconforming hardness or from another sample with similar nonconforming hardness.

3.3.2.1 Microhardness testing in accordance with ASTM E 384 may be used for thin gages where superficial hardness testing is impractical.

3.3.3 Bending: Product 0.050 inch (1.27 mm) and under in nominal thickness 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 Millimeters	Type of Bend	Angle deg, min	Bend Factor
Up to 0.050, incl	Up to 1.27, incl	Free Bend	180	3
Up to 0.050, incl	Up to 1.27, incl	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:

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 results of tests for chemical composition of each heat and for tensile, hardness, and bending properties of each lot and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, heat and lot numbers, AMS 5905A, size, and quantity.