

Submitted for recognition as an American National Standard

Issued 1967-11-01
Revised 1991-01-01
Superseding AMS-5501B

SHEET, STRIP, AND FOIL, CORROSION RESISTANT STEEL
19Cr - 9.5Ni (SAE 30304)
Cold Rolled, 125,000 psi (862 MPa) Tensile Strength

UNS S30400

1. SCOPE:

1.1 Form: This specification covers a corrosion-resistant steel in the form of sheet, strip, and foil.

1.2 Application: Primarily for parts requiring moderate drawing or forming.

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.

2.1.1 Aerospace Material Specifications:

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 of Corrosion and Heat Resistant Steels and Alloys, Wrought Products Except Forgings and Forging Stock

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

SAE Technical Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

2.3 U.S. Government Publications: Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

2.3.1 Military Standards:

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

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASMT E 353, by spectrochemical methods, or by other analytical methods acceptable to purchaser:

	min	max
Carbon	--	0.08
Manganese	--	2.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	18.00 - 20.00	
Nickel	8.00 - 11.00	
Molybdenum	--	0.75
Copper	--	0.75

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

3.2 Condition: Cold rolled, solution heat treated, and, unless solution heat treatment is performed in an atmosphere yielding a bright finish, descaled having a surface appearance comparable to 3.2.1, 3.2.2, or 3.2.3 as applicable. (See 8.2).

3.2.1 Sheet: No. 2D finish.

3.2.2 Strip: No. 1 strip finish.

3.2.3 Foil: No. 2 finish.

3.3 Properties: Product shall conform to the following requirements; tensile and bend testing shall be performed in accordance with ASTM A 370.

- 3.3.1 Tensile Properties: Product 0.005 inch (0.13 mm) and over in nominal thickness shall have the following properties, tensile properties for product under 0.005 inch (0.13 mm) in nominal thickness shall be as agreed upon by purchaser and vendor.

Tensile Strength, minimum	125,000 psi (862 MPa)
Yield Strength at 0.2% Offset, minimum	75,000 psi (517 MPa)
Elongation in 2 Inches (50.8 mm), minimum	15%

- 3.3.2 Bending: Product 0.010 inch (0.25 mm) and under in nominal thickness, tested with specimens nominally 0.750 inch (19.06 mm) in width, shall withstand without cracking, bending through the angle indicated below 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.

Type of Bend	Angle deg, min	Bend Factor
Free Bend	180	1
V-Block	135	2

- 3.3.2.1 Bending requirements for product over 0.010 inch (0.25 mm) in nominal thickness shall be as agreed upon by purchaser and vendor.

- 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: Product 0.005 inch (0.13 mm) and over in nominal thickness shall conform to all applicable requirements of AMS-2242 or MAM-2242; tolerances for product under 0.005 inch (0.13 mm) in nominal thickness shall be as agreed upon by purchaser and vendor.

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 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: 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 and bending properties of each lot. This report shall include the purchase order number, lot number, AMS-5501C, size, and quantity.

4.5 Resampling and Retesting: Shall be in accordance with AMS-2371.

5. PREPARATION FOR DELIVERY:

5.1 Identification: Each sheet, strip, and foil shall be legibly marked on one \emptyset face, in the respective location indicated below, with AMS-5501C, lot number, manufacturer's identification, and nominal thickness. The characters shall be applied using a suitable marking fluid removable in hot alkaline cleaning solution without rubbing. The markings shall have no deleterious effect on the product or its performance and shall be sufficiently stable to withstand normal handling.

5.1.1 Flat Product 6 Inches (152 mm) and Under in Width: Shall be marked in one \emptyset or more lengthwise rows of characters recurring at intervals not greater than 3 feet (914 mm).

5.1.2 Flat Product Over 6 Inches (152 mm) in Width: Shall be marked in \emptyset lengthwise rows of characters recurring at intervals not greater than 3 feet (914 mm), the rows being spaced not more than 6 inches (152 mm) apart and alternately staggered.

5.1.3 Coiled Product: Shall be marked near both the outside and inside ends of \emptyset the coil; the markings shall be applied as in 5.1 or shall appear on a durable tag or label attached to the coil and marked with the information of 5.1. When the product is wound on cores, the tag or label may be attached to the core.

5.2 Packaging:

5.2.1 Product shall be prepared for shipment in accordance with commercial \emptyset practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the product to ensure carrier acceptance and safe delivery.

5.2.2 For direct U.S. Military procurement, packaging shall be in accordance \emptyset with MIL-STD-163, Commercial Level, unless Level A is specified in the request for procurement.

6. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS: Product not conforming to this specification, or to modifications authorized by purchaser, will be subject to rejection.

8. NOTES:

8.1 Marginal Indicia: The phi (\emptyset) symbol is used to indicate technical changes from the previous issue of this specification.

8.2 Commercial corrosion-resistant steel finishes are defined in ASTM A 480/A 480M.