

Submitted for recognition as an American National Standard

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STEEL, CORROSION AND HEAT RESISTANT, SHEET, STRIP, AND PLATE  
18.5Cr - 35Ni - 1.15Si  
Solution Heat Treated

UNS N08330

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 heat and oxidation resistance up to 2150 °F (1177 °C), but usage is not limited to such applications.

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 purchase order.

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## 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 3 Preparation of Metallographic Specimens
- 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 DODSSP, Subscription Services 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:

(R)

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	--	0.08
Manganese	--	2.00
Silicon	0.75	1.50
Phosphorus	--	0.030
Sulfur	--	0.030
Chromium	17.00	20.00
Nickel	34.00	37.00
Copper	--	0.75
Tin	--	0.025
Lead	--	0.005

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

### 3.2 Condition:

The product shall be supplied in the following condition:

3.2.1 Sheet and Strip: Hot or 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 3.2.1.1 or 3.2.1.2, as applicable (see 8.2).

3.2.1.1 Sheet: No. 2D finish.

3.2.1.2 Strip: No. 1 strip finish.  
(R)

3.2.2 Plate: Hot rolled, solution heat treated, and descaled.

### 3.3 Properties:

The product shall conform to the following requirements; tensile and hardness testing shall be performed in accordance with ASTM A 370:

3.3.1 Tensile Properties: Shall be as shown in Table 2.

TABLE 2 - Minimum Tensile Properties

Properties	Value
Tensile Strength	70.0 ksi (483 MPa)
Yield Strength at 0.2% Offset	30.0 ksi (207 MPa)
Elongation in 2 Inches (50.8 mm) or 4D	30%

3.3.1.1 Elongation requirement does not apply to sheet or strip under 0.020 inch (0.51 mm) in nominal thickness.

3.3.2 Hardness: Shall be not higher than 95 HRB, or equivalent (see 8.3).  
(R)

3.3.3 Microstructure: Shall be free from continuous carbide network, determined  
(R) by metallographic examination of specimens prepared in accordance with ASTM E 3.

#### 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.

#### 4.4 Reports: (R)

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 properties, hardness, and microstructure of each lot. This report shall include the purchase order number, heat and lot number, AMS 5592C, size, and quantity.

#### 4.5 Resampling and Retesting:

Shall be in accordance with AMS 2371.