

ADOPTION NOTICE

SAE-AMS5637, "STEEL, CORROSION RESISTANT, BARS AND WIRE 18CR - 9.0NI (SAE 30302) SOLUTION HEAT TREATED AND COLD DRAWN 125 KSI (862 MPA) TENSILE STRENGTH", was adopted on 03-OCT-94 for use by the Department of Defense (DoD). Proposed changes by DoD activities must be submitted to the DoD Adopting Activity: Commander, Defense Supply Center Philadelphia, ATTN: DSCP-ILEA, 700 Robbins Avenue, Philadelphia, PA 19111-5096. Copies of this document may be purchased from the Society of Automotive Engineers 400 Commonwealth Drive Warrendale, Pennsylvania, United States, 15096-0001. <http://www.sae.org/>

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AEROSPACE MATERIAL SPECIFICATION



AMS 5637F

Issued MAR 1949
Revised OCT 1993
Reaffirmed AUG 2000

Superseding AMS 5637E

Steel, Corrosion Resistant, Bars and Wire
18Cr - 9.0Ni (SAE 30302)
Solution Heat Treated and Cold Drawn
125 ksi (862 MPa) Tensile Strength

UNS S30200

1. SCOPE:

1.1 Form:

This specification covers a corrosion resistant steel in the form of bars and wire 0.75 inch (19 mm) and under in nominal diameter or distance between parallel sides.

1.2 Application:

These products have been used typically for small parts, such as bolts, screws, and clevis pins, requiring corrosion resistance up to 700 °F (371 °C) and which may be fabricated by heading or by machining from bars or wire and roll threading, 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 the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

| | |
|----------|---|
| AMS 2241 | Tolerances, Corrosion and Heat Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Bars and Wire |
| MAM 2241 | Tolerances, Metric, Corrosion and Heat Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Bars and Wire |
| 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 2806 | Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels and Corrosion and Heat Resistant Steels and Alloys |

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2.2 ASTM Publications:

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

ASTM E 8 Tension Testing of Metallic Materials
 ASTM E 8M Tension Testing of Metallic Materials (Metric)
 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:

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 requirements of AMS 2248.

3.2 Condition:

Solution heat treated, cold drawn, heated to 700 °F ± 25 (371 °C ± 14), and descaled.

3.3 Properties:

Product 0.75 inch (19 mm) and under in nominal diameter or distance between parallel sides shall conform to the following requirements:

- 3.3.1 Tensile Properties: Shall be as shown in Table 2, determined in accordance with ASTM E 8 or ASTM E 8M.

TABLE 2 - Minimum Tensile Strength

| Property | Value |
|-------------------------------|-------------------|
| Tensile Strength | 125 ksi (862 MPa) |
| Yield Strength at 0.2% Offset | 100 ksi (689 MPa) |
| Elongation in 4D | 17% |
| Reduction of Area | 45% |

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 2241 or MAM 2241.

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.