Society of Automotive Engineers, Inc.
TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 10000

AEROSPACE MATERIAL SPECIFICATION

AMS5637B
Superseding AMS 5637A
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STEEL BARS CORROSION RESISTANT
18Cr - 8.5Ni (SAE 30302)
Cold Drawn, 125,000 psi (862 MN/m2)

1. SCOPE:

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

1.2 Application: Primarily 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 and roll threading.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply; the applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., Two Pennsylvania Plaza, New York, New York 10001.

2.1.1 Aerospace Material Specifications:

AMS 2241 - Tolerances, Corrosion and Heat Resistant Steel Bars and Wire and Titanium and Titanium Alloy Bars and Wire
AMS 2248 - Chemical Check Analysis Limits, Wrought Heat and Corrosion Resistant Steels and Alloys
AMS 2350 - Standards and Test Methods
AMS 2371 - Quality Assurance Sampling of Corrosion and Heat Resistant Alloys, Wrought Products Except Forgings

2.2 ASTM Publications: Available from American Society for Testing and Materials. 1916 Race Street, Philadelphia, Pennsylvania 19103.

ASTM A370 - Mechanical Testing of Steel Products
ASTM E353 - Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

2.3 Government Publications: Available from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 - Metals; Test Methods.

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E353, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other approved analytical methods.

	min	max
Carbon	--	0.15
Manganese	--	2.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	17.00	19.00
Nickel	7.00	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 free from continuous carbide network, cold drawn, heated to approximately 700 F (371 C), and descaled.

3.3 Properties:

3.3.1 Tensile Properties: Shall be as follows, determined in accordance with ASTM A370:

Tensile Strength, min	125,000 psi (862 MN/m^2)
Yield Strength at 0.2% Offset, min	100,000 psi (690 MN/m^2)
Elongation in 2 in. (50.8 mm) or 4D, min	17%
Reduction of Area (round specimens), min	45%

3.4 Quality: The product shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

3.5 Sizes: Except when exact lengths or multiples of exact lengths are ordered, bars and straight wire will be acceptable in mill lengths of 6 - 20 ft (1.8 - 6.1 m) but not more than 10% of any shipment shall be supplied in lengths shorter than 10 ft (3 m).

3.6 Tolerances: Unless otherwise specified, tolerances shall conform to all applicable requirements of AMS 2241.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor shall supply all samples and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to assure that material conforms to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as routine control tests.

4.3 Sampling: Shall be in accordance with AMS 2371.

4.4 Reports:

4.4.1 The vendor of the product shall furnish with each shipment three copies of a report of the results of tests for chemical composition of each heat in the shipment and the results of tests on each size from each heat to determine conformance to the tensile property, and hardness requirements. This report shall include the purchase order number, heat number, material specification number and its revision letter, size, and quantity from each heat.