Society of Automotive Engineers, Inc.
TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 10001

AEROSPACE MATERIAL SPECIFICATION

AMS 5697A
Superseding AMS 5697

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STEEL WIRE, CORROSION RESISTANT
19Cr - 9.5Ni (SAE 30304)

1. SCOPE:

1.1 Form: This specification covers a corrosion resistant steel in the form of wire.

1.2 Application: Primarily for braiding wire.

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	--	0.08
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

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

3.2 Condition: Solution treated free from continuous carbide network and bright finished.

3.3 Properties:

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

Tensile Strength	90,000 - 125,000 psi (621 - 862 MN/m^2)
Elongation in 2 in. (50.8 mm), min	35%

3.3.2 Wrapping: Wire shall withstand, without cracking, wrapping at room temperature five full, closely spaced turns around a diameter equal to the nominal diameter of the wire.

3.4 Quality: Wire shall be uniform in quality and condition, cylindrical, clean, and free from kinks, twists, scrapes, splits, cold shuts, and other injurious imperfections detrimental to fabrication or to performance of parts. The surface shall have a bright, smooth finish, free from pits, abrasions, and other defects.

3.5 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 for tensile and wrapping properties of each size from each heat. This report shall include the purchase order number, heat number, material specification number and its revision letter, size, and quantity from each heat.