



# AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

**AMS 5690G**  
Superseding AMS 5690F

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UNS S31600

STEEL WIRE, CORROSION AND HEAT RESISTANT  
18.5Cr - 13Ni - 2.5Mo (SAE 30316)

1. SCOPE:

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

1.2 Application: Primarily for use in woven wire screening and as bare wire filler metal for welding.

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., 400 Commonwealth Drive, Warrendale, PA 15096.

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, PA 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 Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Standards:

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

2.3.2 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 ASTM E353; by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other approved analytical methods:

Technical Board rules provide that: "All technical reports, including standards, approved practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard, recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

	min	max
∅ Carbon	--	0.08
Manganese	--	2.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	16.00 -	18.00
Nickel	10.00 -	14.00
Molybdenum	2.00 -	3.00
Copper	--	0.75

3.1.1 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 Bending: Wire shall withstand, without cracking, bending at room temperature flat on itself.

3.3.2 Weldability: When used for welding, melted wire shall flow smoothly and evenly and shall produce acceptable welds.

3.4 Quality:

3.4.1 Wire, as received by the purchaser, shall be uniform in quality and condition, cylindrical, and free from kinks, twists, scrapes, splits, and other imperfections detrimental to usage of the wire.

∅ 3.4.2 The surface shall have a smooth finish free from pits, abrasions, and other imperfections.

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 of wire 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 ensure that the wire 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 acceptance tests.

4.3 Sampling: Shall be in accordance with AMS 2371.

4.4 Reports:

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