

AEROSPACE  
MATERIAL  
SPECIFICATION

**AMS 5690H**  
Superseding AMS 5690G

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UNS S31600

STEEL WIRE, CORROSION AND HEAT RESISTANT  
17Cr - 12Ni - 2.5Mo (SAE 30316)  
Solution Heat Treated

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.

1.2.1 The former requirements of this specification for use as welding wire are embodied in AMS 5692. When AMS 5690 is specified for welding wire, use AMS 5692.

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 SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2241 - Tolerances, 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 2350 - Standards and Test Methods

AMS 2371 - Quality Assurance Sampling of Corrosion and Heat Resistant Steels and Alloys, Wrought Products Except Forgings and Forging Stock

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

ASTM E353 - Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

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2.3 U.S. 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 analytical methods approved by purchaser:

	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 heat treated free from continuous carbide network and bright finished.

3.3 Properties: Wire shall conform to the following requirements:

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

3.4 Quality: Wire, as received by purchaser, shall be uniform in quality and condition, cylindrical, smooth, and free from kinks, twists, scrapes, splits, cold shuts, pits, and other imperfections detrimental to usage of the wire.

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 for vendor's tests 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 sample and to perform any confirmatory testing deemed 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 and shall be performed on each heat or lot as applicable.
- 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 stating that the wire conforms to the other technical requirements of this specification. This report shall include the purchase order number, heat number, AMS 5690H, nominal size, and quantity from each heat.
- 4.4.2 The vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, AMS 5690H, contractor or other direct supplier of wire, part number, and quantity. When wire for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of wire to determine conformance to the requirements of this specification and shall include in the report either a statement that the wire conforms or copies of laboratory reports showing the results of tests to determine conformance.
- 4.5 Resampling and Retesting: Shall be in accordance with AMS 2371.

#### 5. PREPARATION FOR DELIVERY:

- 5.1 Wire shall be supplied in coils, on reels, or in straight lengths, as ordered.
- 5.2 Identification: Coils or reels of wire shall be identified by a durable tag marked with the purchase order number, AMS 5690H, heat number, nominal size, quantity, and manufacturer's identification. Straight lengths shall be bundled or boxed and shall have attached to each bundle or box a tag marked as above.
- 5.3 Packaging:
- 5.3.1 Wire shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the wire to ensure carrier