



# AEROSPACE MATERIAL SPECIFICATION

AMS5690™

REV. M

Issued 1939-12  
Reaffirmed 2010-05  
Revised 2015-08

Superseding AMS5690L

Steel, Corrosion and Heat Resistant, Wire  
17Cr - 12Ni - 2.5Mo (316)  
Solution Heat Treated  
(Composition similar to UNS S31600)

## RATIONALE

AMS5690M revises Reports (4.4) and is a Five Year Review and update of this specification.

### 1. SCOPE

#### 1.1 Form

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

#### 1.2 Application

This wire has been used typically for woven wire screening, but usage is not limited to such application.

1.2.1 The former requirements of this specification for use as welding wire are embodied in AMS5692. When AMS5690 is specified for welding wire, use AMS5692.

### 2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

#### 2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AMS2241 Tolerances, Corrosion and Heat-Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Bars and Wire

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SAE WEB ADDRESS:

AMS2248 Chemical Check Analysis Limits, Corrosion and Heat-Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys

AMS2371 Quality Assurance Sampling and Testing, Corrosion and Heat-Resistant Steels and Alloys, Wrought Products and Forging Stock

## 2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, [www.astm.org](http://www.astm.org).

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

## 3. TECHNICAL REQUIREMENTS

### 3.1 Composition

Wire shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E353, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

**Table 1 - Composition**

Element	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 Chemical analysis of initial ingot, bar, or rod stock before drawing is acceptable provided the processes used for drawing or rolling, annealing, and cleaning, are controlled to ensure continued conformance to chemical composition requirements.

#### 3.1.2 Check Analysis

Composition variations shall meet the applicable requirements of AMS2248.

### 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

Shall conform to AMS2241.

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1 Responsibility for Inspection

The producer of wire shall supply all samples for producer's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the wire conforms to specified requirements.

### 4.2 Classification of Tests

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 AMS2371.

### 4.4 Reports

The producer of wire shall furnish with each shipment a report showing the producer's name and the country where the metal was melted (e.g., final melt in the case of metal processed by multiple melting operations), and the results of tests for chemical composition of each heat, and for bending of each lot, and stating that the wire conforms to the other technical requirements. This report shall include the purchase order number, heat and lot numbers, AMS5690M, nominal size, and quantity.

### 4.5 Resampling and Retesting

Shall be in accordance with AMS2371.

## 5. PREPARATION FOR DELIVERY

### 5.1 Identification

Coils or reels of wire shall be identified by a durable tag legibly marked with the purchase order number, AMS5690M, heat and lot numbers, 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 with the above information.

### 5.2 Packaging

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 acceptance and safe delivery.

5.2.1 Wire shall be supplied in coils, on reels, or in straight lengths, as ordered.

## 6. ACKNOWLEDGMENT

A producer shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.