AEROSPACE MATERIAL SPECIFICATION

AMS5690™	REV. N

Issued 1939-12
Reaffirmed 2010-05
Revised 2021-06

Superseding AMS5690M

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

RATIONALE

AMS5690N prohibits unauthorized exceptions (3.6, 4.4.1, 5.1.1, 8.3), updates composition testing (3.1), invokes corrosion testing (3.3.2), allows prior revisions (8.4), clarified size (8.5), and is the result of a Five-Year Review and update of the 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.

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

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

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

For more information on this standard, visit
https://www.sae.org/standards/content/AMS5690N/

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

ARP1917 Clarification of Terms Used in Aerospace Metals Specifications

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.

ASTM A262 Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels

ASTM A751 Chemical Analysis of Steel Products

3. TECHNICAL REQUIREMENTS

3.1 Composition

Wire shall conform to the percentages by weight shown in Table 1, determined in accordance with ASTM A751 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.

3.3.2 Susceptibility to Intergranular Attack

Specimens shall show no evidence of intergranular attack when tested in accordance with ASTM A262, Method E.

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.

3.6 Exceptions

Any exceptions shall be authorized by the purchaser and reported as in 4.4.1.

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, AMS5690N, nominal size, and quantity.

4.4.1 When material produced to this specification has exceptions taken to the technical requirements listed in Section 3, the report shall contain a statement "This material is certified as AMS5690N(EXC) because of the following exceptions:" and the specific exceptions shall be listed (also see 5.1.1).

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, AMS5690N, 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.

5.1.1 When technical exceptions are taken (see 4.4.1), the material shall be identified with AMS5690N(EXC).