



AEROSPACE MATERIAL SPECIFICATION	AMS5674™	REV. G
	Issued 1969-05 Reaffirmed 2012-04 Revised 2023-11	
Superseding AMS5674G		
Steel, Corrosion- and Heat-Resistant, Wire 18Cr - 11.5Ni - 0.70Cb (Nb) (347) Solution Heat Treated (Composition similar to UNS S34700)		

RATIONALE

AMS5674G is a result of a Five-Year Review and update of the specification. The revision updates composition reporting requirements (see 3.1.1) and updates the prohibition of exceptions requirements (see 4.4.1 and 8.4).

1. SCOPE

1.1 Form

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

1.2 Application

This product has been used typically for screening and stitching applications requiring good corrosion resistance and which will be subjected to elevated temperatures during fabrication or in service, but usage is not limited to such applications. This wire has satisfactory oxidation resistance up to 1500 °F (816 °C) and is preferred for aqueous & low temperature environments. Use at this temperature range should only be considered when stresses are low.

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

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For more information on this standard, visit
<https://www.sae.org/standards/content/AMS5674G>

AMS2806 Identification Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels, and Corrosion and Heat-Resistant Steels and Alloys

AS7766 Terms used in AMS 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 Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels

ASTM A370 Mechanical Testing of Steel Products

ASTM A751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products

2.3 Definitions

Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Composition

Composition shall conform to the percentages by weight shown in Table 1, determined in accordance with ASTM A751 or by other analytical methods acceptable to the purchaser.

Table 1 - Composition

Element	Min	Max
Carbon	--	0.08
Manganese	--	2.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	17.00	19.00
Nickel	9.00	12.00
Columbium (Niobium)	10xC	1.10
Molybdenum	--	0.75
Copper	--	0.50

3.1.1 The producer may test for any element not listed in Table 1 and include this analysis in the report of 4.4. Reporting of any element not listed in the composition table is not a basis for rejection unless limits of acceptability are specified by the purchaser

3.1.2 Check Analysis

Composition variations shall meet the applicable requirements of AMS2248.

3.2 Condition

Wire shall be solution heat treated and bright finished.

3.3 Properties

3.3.1 Tensile Properties

Wire tensile strength shall be as specified in Table 2, determined in accordance with ASTM A370:

Table 2A - Maximum tensile properties, inch/pound units

Nominal Diameter Inches	Tensile Strength Coils ksi	Tensile Strength Straight Lengths ksi
Up to 0.020, incl	125	135
Over 0.020 to 0.125, incl	115	125
Over 0.125	105	115

Table 2B - Maximum tensile properties, SI units

Nominal Diameter Millimeters	Tensile Strength Coils MPa	Tensile Strength Straight Lengths MPa
Up to 0.51, incl	862	931
Over 0.51 to 3.18, incl	793	862
Over 3.18	724	793

3.3.2 Bending

Wire shall withstand, without cracking, bending flat on itself.

3.3.3 Susceptibility to Intergranular Attack

Specimens from the product, after sensitizing treatment, shall pass the intergranular corrosion test performed in accordance with ASTM A262, Practice E.

3.4 Quality

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

3.5 Tolerances

Tolerances shall conform to all applicable requirements of AMS2241.

3.6 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 the producer's tests and shall be responsible for the performance of all required tests. The 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

4.2.1 Acceptance Tests

Composition (see 3.1), tensile properties (see 3.3.1), bending (see 3.3.2), and tolerances (see 3.5) are acceptance tests and shall be performed on each heat or lot as applicable.

4.2.2 Periodic Tests

Susceptibility to intergranular attack (see 3.3.3) is a periodic test and shall be performed at a frequency selected by the producer unless frequency of testing is specified by the purchaser.

4.3 Sampling and Testing

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 tensile and bending properties of each lot, and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, heat and lot numbers, AMS5674G, size, and quantity.

4.4.1 When material produced to this specification has exceptions authorized by the purchaser taken to the technical requirements listed in Section 3, the report shall contain a statement "This material is certified as AMS5674G (EXC) because of the following exceptions:" and the specific exceptions shall be listed (see 5.1.1).

4.5 Resampling and Retesting

Resampling and retesting shall be in accordance with AMS2371.

5. PREPARATION FOR DELIVERY

5.1 Identification

Identification shall be in accordance with AMS2806.

5.1.1 When technical exceptions are taken (see 4.4.1), the material shall be marked with AMS5674G (EXC).

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.

6. ACKNOWLEDGMENT

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

7. REJECTIONS

Wire not conforming to this specification, or to modifications authorized by the purchaser, will be subject to rejection.