SAE Aerospace
An SAE International Group

AEROSPACE MATERIAL SPECIFICATION

SAE AMS5674 | REV. E

Issued 1969-05
Revised 2001-11
Reaffirmed 2012-04

Superseding AMS5674D

Steel, Corrosion and Heat Resistant, Wire
18Cr - 11.5Ni - 0.70Cb (SAE 30347)
Solution Heat Treated

(Composition similar to UNS S34700)

RATIONALE

AMS5674E has been reaffirmed to comply with the SAE five-year review policy.

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) but is useful at that temperature only 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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS 2241	Tolerances, Corrosion and Heat Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Bars and Wire
MAM 2241	Tolerances, Metric, Corrosion and Heat Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Bars and Wire

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

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AMS5674E

2.1 (Continued):

AMS 2248 Chemical Check Analysis Limits, Corrosion and Heat Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS 2371 Quality Assurance Sampling and Testing, Corrosion and Heat Resistant Steels and Alloys, Wrought Products and Forging Stock
AMS 2806 Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels and Corrosion and Heat Resistant Steels and Alloys

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM A 262 Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels
ASTM A 370 Mechanical Testing of Steel Products
ASTM E 353 Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E 353, 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	17.00	19.00
Nickel	9.00	12.00
Columbium	10xC	1.10
Tantalum	--	0.05
Molybdenum	--	0.75
Copper	--	0.50

3.1.1 Check Analysis: Composition variations shall meet the applicable requirements of AMS 2248.

3.2 Condition:

Solution heat treated and bright finished.

3.3 Properties:

Wire shall conform to the following requirements:

3.3.1 Tensile Properties: Shall be as specified in Table 2, determined in accordance with ASTM A 370:

TABLE 2A - Maximum Tensile Properties, Inch/Pound Units

Nominal Diameter Inch	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 A 262, Practice E.

3.4 Quality:

Wire, as received by 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:

Shall conform to all applicable requirements of AMS 2241 or MAM 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 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:

4.2.1 Acceptance Tests: Composition (3.1), tensile properties (3.3.1), bending (3.3.2) and tolerances (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 (3.3.3) is a periodic test and shall be performed at a frequency selected by the vendor unless frequency of testing is specified by purchaser.

4.3 Sampling and Testing:

Shall be in accordance with AMS 2371.

4.4 Reports:

The vendor of wire shall furnish with each shipment a report showing 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, AMS 5674E, size, and quantity.

4.5 Resampling and Retesting:

Shall be in accordance with AMS 2371.

5. PREPARATION FOR DELIVERY:

5.1 Identification:

Shall be in accordance with AMS 2806.

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.