



AEROSPACE MATERIAL

Society of Automotive Engineers, Inc.

TWO PENNSYLVANIA PLAZA, NEW YORK, N. Y. 10001

SPECIFICATION

AMS 5674A

Superseding AMS 5674

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STEEL WIRE, CORROSION AND HEAT RESISTANT 18Cr - 11.5Ni - (Cb+Ta) (SAE 30347)

1. SCOPE:

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

1.2 Application: Primarily for screening and stitching requiring good corrosion resistance and which will be subjected to elevated temperatures during fabrication or in service. Material has satisfactory oxidation resistance up to approximately 1500 F (816 C), but is useful at that temperature only when stresses are low.

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 Society of Automotive Engineers, Inc., Two Pennsylvania Plaza, New York, New York 10001.

2.1.1 Aerospace Material Specifications:

AMS 2241 - Tolerances, Corrosion and Heat Resistant Steel Bars and
Wire and Titanium and Titanium Alloy Bars and Wire

AMS 2248 - Chemical Check Analysis Limits, Wrought Heat and Cor-
rosion Resistant Steels and Alloys

AMS 2350 - Standards and Test Methods

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

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

ASTM A370 - Mechanical Testing of Steel Products

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

2.3 Government Publications: Available from Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 - Metals; Test Methods

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 approved analytical methods.

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| | 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 + Tantalum | 10xC - 1.10 | |
| Molybdenum | -- | 0.75 |
| Copper | -- | 0.50 |

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

3.2 Condition: Solution treated free from continuous carbide network and bright finished.

3.3 Properties:

3.3.1 Tensile Properties: Shall be as specified in Table I, determined in accordance with ASTM A370:

TABLE I

| Nominal Diameter Inch | Tensile Strength, psi, max | |
|---------------------------|----------------------------|------------------|
| | Coils | Straight Lengths |
| Up to 0.020, incl | 125,000 | 135,000 |
| Over 0.020 to 0.125, incl | 115,000 | 125,000 |
| Over 0.125 | 105,000 | 115,000 |

TABLE I (SI)

| Nominal Diameter Millimeters | Tensile Strength, MN/m ² , max | |
|---------------------------------|---|------------------|
| | Coils | Straight Lengths |
| Up to 0.508, incl | 862 | 931 |
| Over 0.508 to 3.175, incl | 793 | 862 |
| Over 3.175 | 724 | 793 |

3.3.2 Bending: Wire shall withstand without cracking, bending flat on itself.

3.4 Quality: Wire shall be uniform in quality and condition, cylindrical, clean, and free from kinks, twists, scrapes, splits, cold shuts, and other injurious imperfections detrimental to fabrication or to performance of parts. The surface shall have a bright, smooth finish free from pits, abrasions, and other defects.

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 shall supply all samples 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 perform such confirmatory testing as he deems necessary to assure that material 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 routine control tests.