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400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

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AMS 5685J

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Superseding AMS 5685H

Submitted for recognition as an American National Standard

**STEEL, CORROSION RESISTANT, SAFETY WIRE,
18Cr - 11.5Ni (SAE 30305)
Solution Heat Treated, Cold Finished**

UNS S30500

1. SCOPE:

1.1 Form:

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

1.2 Application:

Primarily for safety wire.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

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

AMS 2248 Chemical Check Analysis Limits, Wrought 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

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2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM E 8 Tension Testing of Metallic Materials

ASTM E 8M Tension Testing of Metallic Materials (Metric)

ASTM E 353 Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

2.3 U.S. Government Publications:

Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage

3. TECHNICAL REQUIREMENTS:**3.1 Composition:****(R)**

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	10.00	13.00
Molybdenum	--	0.75
Copper	--	0.75

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

3.2 Condition:

Solution heat treated and cold finished.

3.3 Properties:

Wire shall conform to the following requirements:

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- 3.3.1 Tensile Properties: Shall be as shown in Table 2, determined in accordance with ASTM E 8 or ASTM E 8M.

TABLE 2 - Maximum Tensile Strength

Property	Value
Coiled Wire	110 ksi (758 MPa)
Straight Lengths	120 ksi (827 MPa)

- 3.3.2 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, and free from kinks, twists, scrapes, splits, cold shuts, and other imperfections detrimental to usage of the wire. The surface shall have a bright, smooth finish free from pits, abrasions, and other defects.

3.5 Tolerances:

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

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

(R)

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

4.2 Classification of Tests:

Tests for all technical requirements are acceptance tests and shall be performed on each heat or lot as applicable.

4.3 Sampling and Testing:

(R)

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. This report shall include the purchase order number, heat and lot number, AMS 5685J, nominal size, and quantity.

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4.5 Resampling and Retesting:

Shall be in accordance with AMS 2371.

5. PREPARATION FOR DELIVERY:

5.1 Identification:

Coils or reels of wire shall each be identified by a durable tag marked with not less than the purchase order number, AMS 5685J, lot number, nominal size, quantity, and manufacturer's identification. Straight lengths shall be bundled or boxed and shall have attached to each container a tag marked with the above information.

5.2 Packaging:

5.2.1 Wire shall be furnished in coils. Each coil shall be of one continuous length, properly coiled, and firmly tied.

5.2.2 Wire shall be prepared for shipment in accordance with commercial practice (R) 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.

5.2.3 For direct U.S. Military procurement, packaging shall be in accordance with MIL-STD-163, Commercial Level, unless Level A is specified in the request for procurement.

6. ACKNOWLEDGMENT:

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

7. REJECTIONS:

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

8. NOTES:

8.1 Marginal Indicia:

The (R) symbol is used to indicate technical changes from the previous issue of this specification.

8.2 Properties in inch/pound units are primary; properties in SI units are shown as the approximate equivalents of the primary units and are presented only for information.