Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 5686D
Superseding AMS 5686C
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UNS S30500

STEEL RIVET WIRE, CORROSION RESISTANT
18Cr - 11.5Ni (SAE 30305)
Solution Heat Treated

1. SCOPE:

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

1.2 Application: Primarily for fabricating into rivets.

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., 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2241 - Tolerances, Corrosion and Heat Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Bars and Wire
AMS 2248 - Chemical Check Analysis Limits, Wrought Heat and Corrosion Resistant Steels and Alloys
AMS 2350 - Standards and Test Methods
AMS 2371 - Quality Assurance Sampling of Corrosion and Heat Resistant Steels and Alloys, Wrought Products Except Forgings and Forging Stock

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

ASTM E8 - Tension Testing of Metallic Materials
ASTM E353 - Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Standards:

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

2.3.2 Military Standards:

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

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 analytical methods approved by purchaser:

	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, bright pickled, and coated with a lubricant suitable for fabricating rivets.

3.3 Properties: Wire shall conform to the following requirements:

3.3.1 Tensile Strength: Shall be not higher than 110,000 psi (758 MPa), determined in accordance with ø ASTM E8.

3.3.2 Bending: Wire shall withstand, without cracking, bending at room temperature flat on itself. Cracking or spalling of the lubricant coating shall not be cause for rejection.

3.4 Quality:

3.4.1 Wire, prior to coating, shall be uniform in quality and condition, cylindrical, clean, and free from ø kinks, twists, scrapes, splits, cold shuts, and other imperfections detrimental to usage of the wire.

3.4.2 The surface of the wire, prior to application of the lubricant coating, shall have a bright, smooth finish, free from pits, abrasions, and other defects.

3.4.3 The lubricant coating shall be uniform and capable of withstanding rubbing, abrasion, and shock of normal handling during shipment, storage, and use.

3.5 Tolerances: Shall conform to all applicable requirements of AMS 2241 except that wire 9/32 in. ø (7 mm) and under in nominal diameter shall, before lubricant coating, not vary in diameter more than 0.001 in. (0.02 mm) from the size ordered.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of wire shall supply all samples for vendor's tests and ø 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 sample and to perform such confirmatory testing as he deems necessary to ensure that the wire conforms to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this ø specification are classified as acceptance tests and shall be performed on each lot.