



AEROSPACE MATERIAL SPECIFICATION

AMS 5672

Society of Automotive Engineers, Inc.
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Revised

STEEL WIRE, CORROSION RESISTANT
12Cr - 8.5Ni - 0.30 (Cb+Ta) - 1.1 Ti - 2.0Cu
Spring Temper

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. APPLICATION: Primarily for springs requiring corrosion resistance and high strength at service temperatures up to 600 F (316 C).
3. COMPOSITION:

	min	max
Carbon	--	0.05
Manganese	--	0.50
Silicon	--	0.50
Phosphorus	--	0.025
Sulfur	--	0.025
Chromium	11.00 - 12.50	
Nickel	7.50 - 9.50	
Columbium + Tantalum	0.10 - 0.50	
Titanium	0.80 - 1.40	
Copper	1.50 - 2.50	
Molybdenum	--	0.50

- 3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2248.
4. CONDITION: Spring temper, cold drawn to required size.
 - 4.1 Coating: Wire furnished for coiling on automatic spring winding machines shall be supplied with a suitable lubricating coating.
5. TECHNICAL REQUIREMENTS:
 - 5.1 Properties As Supplied:
 - 5.1.1 Tensile Properties:

Nominal Diameter Inch	Tensile Strength psi, min
0.010 to 0.040, incl	245,000
Over 0.040 to 0.050, incl	235,000
Over 0.050 to 0.060, incl	225,000
Over 0.060 to 0.075, incl	220,000
Over 0.075 to 0.085, incl	215,000
Over 0.085 to 0.095, incl	210,000
Over 0.095 to 0.110, incl	200,000
Over 0.110 to 0.125, incl	195,000
Over 0.125 to 0.150, incl	190,000
Over 0.150 to 0.500, incl	180,000

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- 5.1.2 Wrapping: Wire 0.162 in. and under in diameter shall be capable of being wound on itself as a mandrel without breaking. Wire over 0.162 in. in diameter shall be capable of being wound, without breaking, on a mandrel having a diameter equal to twice the nominal wire diameter.
- 5.2 Properties After Precipitation Heat Treatment: Specimens shall conform to the following requirements after being heated to 850 F \pm 10 (454.4 C \pm 5.6) held at heat for 1/2 hr, and air cooled.

Nominal Diameter Inch	Tensile Strength, psi	
	min	max
0.010 to 0.040, incl	310,000	340,000
Over 0.040 to 0.050, incl	300,000	335,000
Over 0.050 to 0.060, incl	305,000	335,000
Over 0.060 to 0.075, incl	295,000	325,000
Over 0.075 to 0.085, incl	290,000	320,000
Over 0.085 to 0.095, incl	285,000	315,000
Over 0.095 to 0.110, incl	278,000	308,000
Over 0.110 to 0.125, incl	272,000	302,000
Over 0.125 to 0.150, incl	265,000	295,000
Over 0.150 to 0.500, incl	260,000	290,000

6. QUALITY:

- 6.1 Form: Wire shall be uniform in structure and properties and free from kinks and twists.
- 6.2 Surface Finish: The surface of the wire shall be smooth, uniform, and free from scratches, pits, abrasions, and other imperfections detrimental to fabrication or to performance of parts.

7. TOLERANCES:

7.1 Diameter:

Nominal Diameter Inch	Tolerance, Inch Plus and Minus
0.010 to 0.015, incl	0.0003
Over 0.015 to 0.041, incl	0.0005
Over 0.041 to 0.312, incl	0.001
Over 0.312 to 0.500, incl	0.002

- 7.2 Out of Roundness: Wire shall not be out-of-round by more than one-half the total permissible tolerance in 7.1.

8. REPORTS:

- 8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report of the results of tests for chemical composition of each heat in the shipment, and the results of tests on each size from each heat to determine conformance to the technical requirements of this specification. This report shall include the purchase order number, material specification number, size, and quantity from each heat.
- 8.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.