



# AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
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## AMS 5027

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Revised

STEEL WIRE, WELDING  
1.05Cr - 0.55Ni - 1.0Mo - 0.07V (0.26 - 0.32C)  
Vacuum Melted, Environment Controlled

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. APPLICATION: Primarily for gas tungsten-arc welding structural assemblies requiring heat treatment response to high strength levels.
3. COMPOSITION:

	min	max
Carbon	0.26	0.32
Manganese	0.60	0.90
Silicon	0.15	0.30
Phosphorus	--	0.010
Sulfur	--	0.010
Chromium	0.90	1.20
Nickel	0.40	0.70
Molybdenum	0.90	1.10
Vanadium	0.05	0.10
Copper	--	0.35
Hydrogen	--	0.0010 (10 ppm)
Oxygen	--	0.0025 (25 ppm)
Nitrogen	--	0.0050 (50 ppm)

- 3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2259, paragraph titled "Low Alloy Steels."
4. CONDITION: Unless otherwise specified, wire shall be formed from bar descaled by a process which does not affect the composition of the material. Surface irregularities inherent with a forming process which does not tear the wire surface are acceptable provided the wire conforms to the tolerances of Section 7 and the irregularities are free from contaminants.
  - 4.1 Temper: Unless otherwise specified, wire shall be in the as-drawn temper.
  - 4.2 Drawing compounds, oxides, and dirt shall be removed from the surface of the wire.
5. TECHNICAL REQUIREMENTS:
  - 5.1 Welding: Melted wire shall flow smoothly and evenly during welding and shall be capable of producing acceptable welds by a method agreed upon by purchaser and vendor.
  - 5.2 Spooled Wire: Shall conform to the following unless otherwise agreed upon by purchaser and vendor.
    - 5.2.1 Cast: Wire shall have imparted to it a curvature such that a specimen sufficient in length to form one loop, when cut from the spool and laid on a flat surface, shall form a circle not less than 15 in. and not greater than 30 in. in diameter.
    - 5.2.2 Helix: The specimen on which cast was determined, when laid on a flat surface and measured between adjacent turns, shall show a vertical separation not greater than 1 inch.

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