

# AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
29 West 39th Street  
New York City

## AMS5022C

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### STEEL - FREE CUTTING Manganese

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. **FORM:** Bars, billets, forgings, tubing, or as ordered.

3. **COMPOSITION:**

		Individual Bar Check Analysis Over or Under
Carbon	0.14 - 0.20	0.01
Manganese	1.00 - 1.30*	0.06
Phosphorus	0.045 max	0.008
Sulphur	0.08 - 0.13	--

⊕ \*When tubing is supplied, manganese up to 1.50 is permitted.

4. **CONDITION:** (a) Bars and tubing in the following sizes shall be cold-finished and suitable for high-speed automatic screw machines and shall have a surface hardness within the limits specified:

<u>Diameter or Thickness, inches</u>	<u>Brinell Hardness</u>
Up to 1.0	156-207
1.0 to 2.5, incl.	143-197

(b) Forgings, and bars and tubing in sizes larger than 2.5 inches, shall be normalized or otherwise heat treated to produce best machining qualities and shall have a surface hardness within the limits of Brinell 130-179.

(c) Stock ordered for forging shall be supplied in the condition and finish ordered by the forging manufacturer.

(d) Forgings shall not be supplied, except when specified on the drawing or purchase order.

⊕ 5. **QUALITY:** Steel shall be uniform in quality and condition, sound, and free from foreign materials and from internal and external defects, consistent with the type of steel involved, which adversely affect its strength, use or machinability. Steel in which defects are revealed during fabrication will be subject to rejection.

⊕ 6. **TOLERANCES:** Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2231 for bars and AMS 2253 for tubing (MECHANICAL TYPE) as applicable. Diameter or thickness and width tolerances for bars shall be as specified below:

⊕ (a) Diameter or thickness tolerances for all hexagons, and other bars 2.5 inches or less in diameter or thickness, shall conform to AMS 2231, Table I, column headed "Mean of Carbon .30% and less".