



# AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York, N. Y. 10017

## AMS 5020

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Revised

### STEEL BARS, FORGINGS, AND TUBING, FREE CUTTING (0.32 - 0.39C) 11L37

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** Bars, forgings, mechanical tubing, and forging stock.
3. **COMPOSITION:**

	min	max
Carbon	0.32 - 0.39	
Manganese	1.35 - 1.65	
Phosphorus	--	0.040
Sulfur	0.08 - 0.13	
Lead	0.15 - 0.35	

- 3.1 **Check Analysis:** Composition variations shall meet the requirements of the latest issue of AMS 2259, paragraph titled "Carbon Steels".
4. **CONDITION:** Unless otherwise ordered, the product shall be supplied in the following condition:
  - 4.1 **Bars and Mechanical Tubing 2.50 In. and Under in OD or Distance Between Parallel Sides:** Cold finished, suitable for machining on high speed automatic screw machines.
  - 4.2 **Bars and Mechanical Tubing Over 2.50 In. in OD or Distance Between Parallel Sides, and Forgings:** Hot finished, and normalized or otherwise heat treated to produce best machining qualities.
  - 4.3 **Forging Stock:** As ordered by the forging manufacturer.

#### 5. **TECHNICAL REQUIREMENTS:**

- 5.1 **Hardness:** The product shall have hardness as follows or equivalent, when taken on the surface except on rounds, where a flat as necessary for Brinell accuracy may be made:
  - 5.1.1 **Bars and Tubing:**

Nominal OD or Distance Between Parallel Sides Inches	Hardness, Brinell
Up to 0.625, incl	207 - 255
Over 0.625 to 1.0, incl	187 - 255
Over 1.0 to 3.0, incl	170 - 241
Over 3.0	149 - 217

- 5.1.2 **Forgings:** Brinell 163 - 229.

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