

# AEROSPACE MATERIAL SPECIFICATIONS

## AMS 5744

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

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Revised

### STEEL BARS AND FORGINGS, CORROSION AND MODERATE HEAT RESISTANT

15.5Cr - 4.5Ni - 2.9Mo - 0.10N  
Heat Treated (170,000 psi Tensile)

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** Bars, forgings, and forging stock.
3. **APPLICATION:** Primarily for parts and assemblies requiring high strength and oxidation resistance up to 800 F (427 C), improved mechanical properties and resistance to stress corrosion, where parts can be machined from fully heat treated material to eliminate the need for heat treatment by the user.

4. **COMPOSITION:**

|            | min   | max   |
|------------|-------|-------|
| Carbon     | 0.10  | 0.15  |
| Manganese  | 0.50  | 1.25  |
| Silicon    | --    | 0.50  |
| Phosphorus | --    | 0.040 |
| Sulfur     | --    | 0.030 |
| Chromium   | 15.00 | 16.00 |
| Nickel     | 4.00  | 5.00  |
| Molybdenum | 2.50  | 3.25  |
| Nitrogen   | 0.07  | 0.13  |

- 4.1 **Check Analysis:** Composition variations shall meet the requirements of the latest issue of AMS 2248.

5. **CONDITION:**

- 5.1 **Bars and Forgings:** Solution heat treated, sub-zero cooled, austenite conditioned, sub-zero cooled, tempered, and descaled.
- 5.2 **Forging Stock:** As ordered by the forging manufacturer.

6. **TECHNICAL REQUIREMENTS:**

- 6.1 **Heat Treatment:** The product shall be solution treated by heating to 1900 F  $\pm$  25 (1037.8 C  $\pm$  14), holding at heat for 1 - 3 hr, and quenching in water; cooled to not higher than -100 F (-73 C), held at this temperature for not less than 3 hr, and warmed in air to room temperature; austenite conditioned by heating to 1750 F  $\pm$  25 (954.4 C  $\pm$  14), holding at heat for not less than 10 min. but not more than 1 hr, and quenching in water or otherwise cooling as rapidly as possible to room temperature; cooled to not higher than -100 F (-73 C), held at this temperature for not less than 3 hr, and warmed in air to room temperature; and tempered by heating to 1000 F  $\pm$  25 (537.8 C  $\pm$  14), holding at heat for not less than 3 hr, and cooling in air.

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