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# AERONAUTICAL MATERIAL SPECIFICATION

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

AMS  
6294

## STEEL - CARBURIZING Nickel Molybdenum

1. **ACKNOWLEDGMENT:** A vendor must mention this specification number and its last revision in all quotations and when acknowledging purchase orders.
2. **FORM:** Bars, billets, forgings or as ordered.
3. **COMPOSITION:**

Carbon	0.18 - 0.23
Manganese	0.40 - 0.70
Phosphorus	0.040 max
Sulphur	0.050 max
Nickel	1.65 - 2.00
Molybdenum	0.20 - 0.30
4. **GRAIN SIZE:** 5 or finer, A.S.T.M. E19-39T, Method a.
5. **HARDENABILITY:** Specimens with sections 1/8" and 3/8" in thickness, cut from a bar or forging, shall be ground and copper plated, placed in an electric furnace which is at 1500°F, and allowed to heat to 1500°F, held 25 minutes, and quenched in quenching oil. The specimens shall then have a Rockwell hardness within the limits of C 34 - C 48.
6. **CONDITION:** (a) Bar stock must be supplied in a machinable condition with a Brinell hardness of not more than 229 unless otherwise ordered. Forgings are to be supplied as ordered.  
  
(b) Stock ordered for forgings must be supplied in the condition and finish ordered by the forging manufacturer.
7. **QUALITY:** (a) This material must be aircraft quality. It shall be sound, clean, commercially straight and must not develop defects during forging, heat treating, or machining.  
  
(b) Unless otherwise stated, finished parts are subject to magnetic inspection.
8. **REPORTS:** The manufacturer shall furnish three copies of a certified report of the results of chemical analysis and grain size on each heat and size on each shipment. This report shall include the purchase order number, heat number, material specification number, size, and quantity in each heat. If forgings are supplied the part number and size of steel used to make the forgings shall also be included.
9. **SHIPMENTS:** A shipment of material shall not contain more than one heat of steel, for each forging part number or each bar size. More than one heat of steel shall not be supplied on a purchase order without permission, unless the order is for more than 5 tons.