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AERONAUTICAL MATERIAL SPECIFICATION

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

AMS
6412

STEEL Nickel Chromium 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	0.35 - 0.40
Manganese	0.60 - 0.80
Phosphorus	0.040 max
Sulphur	0.050 max
Nickel	1.65 - 2.00
Chromium	0.60 - 0.90
Molybdenum	0.20 - 0.30
4. GRAIN SIZE: 5 or finer, A.S.T.M. E19-39T, Method a.
5. 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.

(c) Material 1" and less in section may be decarburized, but the carbon content 0.012" below the surface must not be under the specified low limit. All sizes ordered ground, turned, polished, etc., must not be decarburized.
6. 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.
7. TOLERANCE: Unless otherwise ordered, hexagon bars and cold drawn bars 2" across and less shall be within plus 0.000" to minus 0.004" of the size ordered.
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.