

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS6252c

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STEEL - CARBURIZING Nickel Chromium - (Heavy Section)

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

2. FORM: Bars, billets, forgings, or as ordered. (Heavy Section)

3. COMPOSITION:

Individual Bar
Check Analysis
Over or Under

Carbon	0.08 - 0.13	0.01
Manganese	0.30 - 0.60	0.03
Phosphorus	0.040 max	0.005
Sulphur	0.040 max	0.005
Silicon	0.20 - 0.35	0.02
Nickel	3.25 - 3.75	0.07
Chromium	1.25 - 1.75	0.05

4. GRAIN SIZE: 5 or finer, ASTM E19-39T, method a, unless otherwise ordered. A heat of steel predominately 5 or finer, with grains as large as 3, is permissible.

5. HARDENABILITY: Specimens with sections 5/8 inch and 1-1/4 inches in thickness, and not greater than 2 square inches in area, cut to represent an area half way between the center and outside of the bar or forging, shall be ground and copper plated, placed in a furnace which is at 1500°F and allowed to heat to 1500°F, held 25 minutes and quenched in commercial paraffin oil (100 S.U.V. at 100°F) at room temperature. The specimens shall have a hardness within the limits of Brinell 300-375.

6. CONDITION: (a) Bar stock must be supplied in a machinable condition with a hardness of not more than Brinell 229, unless otherwise ordered.

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

(c) Forgings are to be supplied as ordered.

7. QUALITY: (a) This material must be aircraft quality. It shall be sound, clean, commercially straight and must not reveal injurious defects during forging, heat treating, or machining.

(b) Visual examination of deep acid etched bars in the as furnished condition shall show no evidence of abnormal segregation, pipes, cracks, seams, or abnormal change in structure from the surface to the center.

(c) Unless otherwise stated, finished parts are subject to magnetic inspection.



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8. TOLERANCES: Unless otherwise ordered, the following tolerances shall apply:

(a) Cold-finished round bars and all hexagons shall be in accordance with the following:

<u>Diameter or Thickness, inches</u>	<u>Tolerance, inch</u>	
	<u>plus</u>	<u>minus</u>
Up to 2, incl.	0.000	0.004
Over 2 to 3, incl.	0.000	0.006
Over 3 to 6, incl.	0.000	0.008

(b) Other shapes of cold-finished bars shall be in accordance with ASTM A108-36.

(c) All hot-rolled bars, other than hexagons, shall be in accordance with ASTM A107-40.

9. REPORTS: The manufacturer shall furnish three copies of a notarized report of the chemical composition and grain size of 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.

10. SHIPMENTS: 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.

11. IDENTIFICATION: (a) Bar stock 2 inches or larger must be stamped with the heat number within 2 inches of one end. Smaller bars may either be stamped with the heat number or securely bundled and identified by a metal tag stamped with the purchase order number, AMS 6252, and heat number.

(b) Forgings shall be identified in accordance with AMS 2808.

(c) Material that cannot be identified at destination is subject to rejection.

12. REJECTIONS: Material not conforming to this specification, or modifications specified on the drawing or the purchase order, is subject to rejection. If samples for verification are desired by the vendor, they must be claimed within three weeks. Rejected material or parts will be held a reasonable time, at vendor's risk, awaiting shipping instructions for the return of same for credit or replacement, as specified. Vendor shall pay all transportation charges.

NOTE. SIMILAR SPECIFICATIONS: Army 57-107-22, grade 1; SAE 3310 are listed for information only and shall not be construed as acceptable alternates unless all requirements of this AMS are met.