AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 6312 A

Issued 12-4-39
Revised 3-1-42

S T E E L
Nickel Molybdenum

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, tubing, or as ordered.

3. COMPOSITION:

		Individual Bar Check Analysis Over or Under
Carbon	0.38 - 0.43	0.02
Manganese	0.60 - 0.80	0.03
Phosphorus	0.040 max	0.005
Sulphur	0.040 max	0.005
Silicon	0.20 - 0.35	0.02
Nickel	1.65 - 2.00	0.005
Molybdenum	0.20 - 0.30	0.03

4. GRAIN SIZE: 5 or finer, A.S.T.M. 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 3/4 inch 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 of not less than Rockwell C 47.

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.

(d)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.

7. QUALITY: (a)This material must be aircraft quality. It shall be sound, clean, commercially straight and must not reveal 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.