AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 4145B

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ALUMINUM ALLOY FORGINGS
Silicon Magnesium Copper Nickel (32S-T)

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

2. FORM: Forgings primarily for pistons, or as ordered.

3. COMPOSITION:

Silicon	11.0 - 13.5
Magnesium	0.8 - 1.3
Copper	0.5 - 1.3
Nickel	0.5 - 1.3
Iron	1.0 max
Zinc	0.25 max
Chromium	0.10 max
Other Impurities, each	0.05 max
Other Impurities, total	0.15 max
Aluminum	remainder

4. CONDITION: (a) Quenched and aged.- The quenching rate shall be fast enough for the material to meet the following requirements, but must be as slow as practicable in order to keep the internal stresses at a minimum.

(b) Tensile test bars may be machined from a portion of the purchased material parallel to the direction of metal flow, or from separately forged coupons made from the same lot of material and heat treated with the forgings which they represent. These test bars shall conform to the following minimum physical properties:

Tensile Strength, lb per sq in.	52,000
Yield Strength (Offset 0.2%), lb per sq in.	40,000
Equivalent Extension Under Load, inch in 2 in.	0.0118
Elongation, % in 2 in.	5
Brinell Hardness	115

(c) Forgings shall have a hardness of not less than Brinell 115, or the equivalent.

5. QUALITY: The material shall be uniform in quality and temper, free from blisters, fins, seams, laps, segregations, and other defects which adversely affect its strength, use, or machinability. It is subject to coarse etching and any other tests necessary to insure high quality. If material defects are revealed while machining the parts, the material is subject to rejection.

6. REPORTS: The manufacturer shall furnish three copies of a notarized report stating that the physical properties and chemical composition of the material are within the requirements specified. This report shall include the purchase order number, material specification number, size or part number, and quantity.

7. IDENTIFICATION: Forgings shall be identified in accordance with AMS 2808.