AERONAUTICAL MATERIAL SPECIFICATION

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

1. ACKNOWLEDGMENT: A vendor shall 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	1.00 max
Zinc	0.25 max
Titanium	0.05 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 specimens, machined after heat treatment from separately forged coupons representing the forgings and heat treated with the forgings, or machined after heat treatment from prolongations on the forgings, shall conform to the following minimum physical properties:

Tensile Strength, psi	52,000
Yield Strength (Offset 0.2%), psi	40,000
Equivalent Extension Under Load, inch in 2 in.	0.0118
Elongation, % in 4D	5

(c) When tensile test specimens are machined from heat treated forgings with the axis approximately parallel to the forging flow lines, the minimum physical properties shall conform to the minimum physical properties specified in 4(b), except that elongation may be as low as 3.5% unless otherwise agreed between purchaser and vendor.

(d) Heat treated forgings and tensile test specimens shall have a hardness of not less than Brinell 115, using 500 kg load and 10 mm ball or the equivalent, or not less than Brinell 120, using 1000 kg and 10 mm ball.