

AERONAUTICAL MATERIAL SPECIFICATION

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ALUMINUM ALLOY FORGINGS 4.5Cu - 0.8Si - 0.8Mn (25S-T6)

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

2. FORM: Die forgings and forging stock.

3. COMPOSITION:

Copper	3.9 - 5.0
Silicon	0.5 - 1.2
Manganese	0.40 - 1.2
Iron	1.0 max
Zinc	0.25 max
Titanium	0.15 max
Chromium	0.10 max
Magnesium	0.05 max
Other Impurities, each	0.05 max
Other Impurities, total	0.15 max
Aluminum	remainder

4. CONDITION:

4.1 Die Forgings: Solution and precipitation heat treated. Quenching from the solution temperature shall be at a rate fast enough for the material to meet the following requirements, but shall be as slow as practicable in order to keep internal stresses at a minimum.

4.2 Forging Stock: As fabricated.

5. TECHNICAL REQUIREMENTS:

5.1 Die Forgings:

5.1.1 Tensile Properties:

5.1.1.1 Test Specimens: Test specimens, machined from separately forged coupons or from forging stock representing the forgings and in either case heat treated with the forgings, or machined from prolongations on heat treated forgings, shall conform to the following requirements:

Tensile Strength, psi	55,000 min
Yield Strength at 0.2% Offset or at 0.0104 in. in 2 in. Extension Under Load (E=10,300,000), psi	33,000 min
Elongation, % in 4D	16 min

5.1.1.2 Forgings, With Grain Flow: When test specimens are machined from forgings with the axis approximately parallel to the forging flow lines, the tensile properties shall conform to those specified in 5.1.1.1, except that elongation may be as low as 11.0%, unless otherwise agreed upon by purchaser and vendor.

5.1.2 Hardness: Forgings shall have hardness not lower than Brinell 100 using 500 kg load and 10 mm ball or 1000 kg load and 9/16 in. ball, or not lower than Brinell 106 using 1000 kg load and 10 mm ball.

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