

AEROSPACE MATERIAL SPECIFICATIONS

AMS 4130G

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ALUMINUM ALLOY FORGINGS 4.5Cu - 0.85Si - 0.80Mn (2025-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. APPLICATION: Primarily for complex shaped parts requiring moderate strength and good forgeability of the material. Certain design and processing procedures may cause this material to be susceptible to stress corrosion cracking; ARP 823 recommends practices to minimize such conditions.

4. COMPOSITION:

	min	max
Copper	3.9	- 5.0
Silicon	0.50	- 1.2
Manganese	0.40	- 1.2
Iron	--	1.0
Zinc	--	0.25
Titanium	--	0.15
Chromium	--	0.10
Magnesium	--	0.05
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

5. CONDITION:

- 5.1 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.
- 5.2 Forging Stock: As fabricated.

6. TECHNICAL REQUIREMENTS:

6.1 Die Forgings:

6.1.1 Tensile Properties:

- 6.1.1.1 Test Specimens: Test specimens, machined from separately forged coupons or from forging stock representing the forgings 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 2 in. or 4D	16 min

- 6.1.1.2 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 6.1.1.1, except that elongation may be as low as 11%, unless otherwise agreed upon by purchaser and vendor.

- 6.1.1.3 Forgings, Across Grain Flow: When test specimens are machined from forgings whose length is not greater than 4 times the thickness so that the axis of specimen is other than approximately parallel to the forging flow lines, the tensile properties shall conform to the following requirements:

Tensile Strength, psi	52,000 min
Yield Strength at 0.2% Offset or at 0.0102 in. in 2 in. Extension Under Load (E = 10,300,000), psi	32,000 min
Elongation, % in 2 in. or 4D	8 min

- 6.1.2 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.

6.2 Forging Stock:

- 6.2.1 When a sample of stock is forged to a test coupon and heat treated in the same manner as forgings, a tensile test specimen taken from the heat treated coupon shall have properties not lower than those specified in 6.1.1.1 and 6.1.2. If a test specimen taken from the stock after heat treatment in the same manner as forgings has properties not lower than those specified in 6.1.1.1 and 6.1.2, the test shall be accepted as equivalent to the test of a forged coupon. Neither of these tests is required in routine inspection.

- 6.2.2 Unless otherwise specified, tolerances shall be in accordance with all applicable requirements of the latest issue of AMS 2201.

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.