

# AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
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## AMS 4145E

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### ALUMINUM ALLOY FORGINGS

12.2Si - 1.1Mg - 0.9Cu - 0.9Ni (32S-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:

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
Titanium	0.05 max
Chromium	0.10 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 Stocks: 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	52,000 min
Yield Strength at 0.2% Offset or at 0.0114 in. in 2 in. Extension Under Load (E=11,400,000), psi	42,000 min
Elongation, % in 4D	5 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 3.5%, unless otherwise agreed upon by purchaser and vendor.

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