AERONAUTICAL MATERIAL SPECIFICATION

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MAGNESIUM ALLOY FORGINGS
ZK60-T5
Precipitation Treated

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

2. FORM: Die forgings, hand forgings, and forging stock.

3. COMPOSITION:

Zinc	4.8 - 6.2
Zirconium	0.45 min
Total other elements	0.30 max
Magnesium	remainder

4. CONDITION:

4.1 Die and Hand Forgings: Precipitation heat treated, unless otherwise specified.

4.2 Forging Stock: As fabricated.

5. TECHNICAL REQUIREMENTS:

5.1 Die Forgings:

5.1.1 Tensile Properties: Test specimens machined from forgings after heat treatment with axes approximately parallel to forging flow lines or from prolongations on the heat treated forgings shall conform to the following requirements:

Tensile Strength, psi	42,000 min
Yield Strength at 0.2% offset or at 0.0120 in. in 2 in. Extension Under Load (E = 6,500,000), psi	26,000 min
Elongation, % in 4D	7 min

5.2 Hand Forgings:

5.2.1 Tensile Properties:

5.2.1.1 Forgings 6 in. and Under in Thickness: Test specimens taken with axes parallel to the forging flow lines in such a manner as to represent the center of the forgings shall conform to the following requirements:

Tensile Strength, psi	38,000 min
Yield Strength at 0.2% Offset or at 0.0102 in. in 2 in. Extension Under Load (E = 6,500,000), psi	20,000 min
Elongation, % in 4D	7 min

5.2.1.1.1 Tensile properties in directions other than parallel to the forging flow lines shall be as agreed upon by purchaser and vendor.

5.2.1.2 Tensile properties of hand forgings over 6 in. in thickness shall be as agreed upon by purchaser and vendor.

5.3 Forging Stock:

5.3.1 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 5.1.1. 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 5.1.1, the test shall be accepted as equivalent to the test of a forged coupon. This test is not required in routine inspection.

5.3.2 Unless otherwise specified, tolerances shall be in accordance with commercial practice for the class ordered.

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

7. REPORTS:

7.1 Unless otherwise specified, the vendor of forgings shall furnish with each shipment three copies of a report stating that the forgings conform to the chemical composition and technical requirements of this specification. This report shall include the purchase order number, material specification number, size or part number, and quantity.

7.2 Unless otherwise specified, the vendor of forging stock shall furnish with each shipment three copies of a report stating that the chemical composition of the stock conforms to the requirements specified. This report shall include the purchase order number, material specification number, size, and quantity.

7.3 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

8. IDENTIFICATION:

8.1 Die Forgings: Shall be identified in accordance with the latest issue of AMS 2808.