AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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New York City

AMS 4420 A

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CAST MAGNESIUM ALLOY
As Cast

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

2. COMPOSITION:

Aluminum	5.3. - 6.7
Zinc	2.5 - 3.5
Manganese	0.15 min
Silicon	0.30 Max
Copper	0.05 Max
Nickel	0.01 Max
Iron	0.03 Max
Total Other Impurities	0.30 Max
Magnesium	remainder

3. CASTING: (a) The metal which is poured into castings shall be given the same superheating or grain refining treatment as that which is given to the metal which is poured into test bars.

(b) The molten metal for making tensile test bars of the standard size for testing shall be taken from the same melt as the castings immediately before or after the metal for the castings is taken. The mold shall be made with the regular foundry mix of green sand without using chills.

4. HARDNESS: Castings shall have a minimum hardness of Brinell 48, but the impression is not to be taken at a sprue or riser. If the hardness of the castings is below this limit, one casting may be rejected and examined as in paragraph 6(c); if all requirements of that paragraph are fulfilled, the lot may be accepted.

5. TEST BARS: (a) Tensile test bars shall be cast with each melt of castings, unless otherwise specified. A melt shall mean one pot (2000 pounds or less) of metal without additions of magnesium or magnesium alloys as melted for superheating and/or casting. Test bars are to be supplied with the castings when requested.

(b) The test bars, poured as specified in section 3, shall conform to the following minimum physical properties:

Tensile strength, lb per sq in.	24,000
Elongation, % in 2 in.	4
Brinell Hardness	48

6. QUALITY: (a) Castings must be homogeneous and free from shrinkage defects, cracks, blowholes, sand holes, hard spots, foreign matter, and other injurious defects, and must not disclose defects in machining. The castings shall be smooth and well cleaned.

(b) Castings when broken for fracture test must show a uniform color and be substantially free from oxides and other defects, particularly in locations subject to stresses in service.