AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 5333

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STEEL CASTINGS, PRECISION INVESTMENT
0.5Cr - 0.55Ni - 0.2Mo (0.11-0.17C)

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

2. APPLICATION: Primarily for small parts of intricate design which have carburized surfaces.

3. COMPOSITION: Castings shall conform to the following:

Carbon	0.11 - 0.17
Manganese	0.65 - 1.0
Silicon	1.0 max
Phosphorus	0.04 max
Sulfur	0.04 max
Chromium	0.35 - 0.65
Nickel	0.35 - 0.75
Molybdenum	0.15 - 0.30

4. CONDITION: Normalized, having hardness not higher than Rockwell B 95 or equivalent, unless otherwise specified.

5. TECHNICAL REQUIREMENTS:

5.1 Casting: Castings shall be poured either from remelted master heat metal or directly from a master heat. A master heat is refined metal of a single furnace charge. Gates, sprues, risers, and rejected castings shall be used only in preparation of master heats; they shall not be remelted directly, without refining, for pouring of castings. When permitted by purchaser, metal in the form of shot from more than one master heat may be uniformly blended together to form a master heat lot; the total weight of metal in a master heat lot shall not exceed 7000 pounds.

5.2 Heat Treatment: Castings shall be normalized by heating to 1700 F ± 25, holding at heat for not less than 1 hr, and air cooling.

5.3 Hardenability: Specimens with a section 0.125 in. in thickness and not more than 2 sq in. in area shall be cut from castings or from cast specimens representing at least one remelt furnace charge from each master heat or master heat lot, after normalizing as in 5.2. The specimens shall be ground and then protected by suitable means, or treated in an atmosphere, to minimize scaling and eliminate either carburization or decarburization during heat treatment. The specimens shall be placed in a furnace which is at 1500 F ± 10, allowed to heat to 1500 F ± 10, held 25 min., and quenched in commercial paraffin oil (100 SUS at 100 F) at room temperature. Each specimen, when tested, shall have hardness of Rockwell C 22-38.