

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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STEEL CASTINGS, SAND, CORROSION AND MODERATE HEAT RESISTANT
12.5Cr (SAE 60410)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. APPLICATION: Parts, such as compressor housings, requiring oxidation resistance up to 1000 F, but useful at the higher temperatures only when stresses are low.
3. COMPOSITION:

Carbon	0.15 max
Manganese	1.0 max
Silicon	1.5 max
Phosphorus	0.04 max
Sulfur	0.04 max
Chromium	11.5 - 14.0
Nickel	1.0 max
Molybdenum	0.5 max
Copper	0.5 max

4. CONDITION: Normalized and tempered, unless otherwise specified.
5. TECHNICAL REQUIREMENTS:

5.1 Heat Treatment: Castings shall be normalized by heating to 1850 F \pm 25, holding at that temperature for not less than 1 hr per inch of maximum section but in no case less than 30 min. followed by air cooling. They shall then be tempered at not lower than 1100 F for the proper time to produce the specified hardness.

5.2 Hardness: Castings shall have hardness of Brinell 217-248 or equivalent.

5.3 Hardenability: Castings shall be capable of meeting the following test:

5.3.1 Specimens 3/8 in. thick, cut from a casting, shall be heated to 1750 F \pm 10, held at heat for 30 min. and cooled in still air. Hardness of such specimens shall be Rockwell C 35-45.

5.4 Fracture Test: When castings are broken for fracture test, the fracture shall have uniform color and be substantially free from oxides and other defects.

6. QUALITY:

- 6.1 Castings shall be uniform in quality and condition, sound, and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts. Castings shall have smooth surfaces and shall be well cleaned.
- 6.2 Unless otherwise specified, castings shall be produced under radiographic control.
- 6.3 Inspection standards and procedures shall be as agreed upon by purchaser and vendor.

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