

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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STEEL CASTINGS, SAND AND CENTRIFUGAL, CORROSION AND HEAT RESISTANT
18Cr - 13Ni - 2.1Mo

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. **APPLICATION:** Primarily for parts and assemblies requiring both corrosion and heat resistance up to 1600 F. At high temperatures, strength of this steel is slightly lower than, and oxidation resistance is similar to that of 18-8 types.
3. **COMPOSITION:**

Carbon	0.15 - 0.25
Manganese	2.0 max
Silicon	1.0 max
Phosphorus	0.04 max
Sulfur	0.04 max
Chromium	17.0 - 20.0
Nickel	12.0 - 15.0
Molybdenum	1.75 - 2.5

4. **CONDITION:** Solution heat treated, unless otherwise specified.
5. **TECHNICAL REQUIREMENTS:**
 - 5.1 **Solution Heat Treatment:** Castings shall be solution heat treated by heating to $1950\text{ F} \pm 50$, holding at that temperature for at least one hour, and cooling in air.
 - 5.2 **Hardness:** Castings shall have hardness not higher than Brinell 187 or equivalent.
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. Unless otherwise specified, metallic shot or grit shall not be used for final cleaning.
 - 6.2 When castings are broken for fracture test, the fracture shall have uniform color and be substantially free from oxides and other defects.
 - 6.3 Unless otherwise specified, castings shall be produced under radiographic control.
 - 6.4 Inspection standards and procedures shall be as agreed upon by purchaser and vendor.

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