INCONEL® alloy 718 (UNS N07718/W.Nr. 2.4668) is a high-strength, corrosion-resistant nickel chromium material used at -423° to 1300°F. Typical composition limits are shown in Table 1.

The ease and economy with which INCONEL alloy 718 can be fabricated, combined with good tensile, fatigue, creep, and rupture strength, have resulted in its use in a wide range of applications. Examples of these are components for liquid fueled rockets, rings, casings and various formed sheet metal parts for aircraft and land-based gas turbine engines, and cryogenic tankage. It is also used for fasteners and instrumentation parts.

### Table 1 - Limiting Chemical Composition*, %

<table>
<thead>
<tr>
<th>Element</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel (plus Cobalt)</td>
<td>50.00</td>
<td>55.00</td>
</tr>
<tr>
<td>Chromium</td>
<td>17.00</td>
<td>21.00</td>
</tr>
<tr>
<td>Iron</td>
<td>Balance*</td>
<td></td>
</tr>
<tr>
<td>Niobium (plus Tantalum)</td>
<td>4.75-5.50</td>
<td></td>
</tr>
<tr>
<td>Molybdenum</td>
<td>2.80-3.30</td>
<td></td>
</tr>
<tr>
<td>Titanium</td>
<td>0.65-1.15</td>
<td></td>
</tr>
<tr>
<td>Aluminum</td>
<td>0.20-0.80</td>
<td></td>
</tr>
<tr>
<td>Cobalt</td>
<td>1.00 max.</td>
<td></td>
</tr>
<tr>
<td>Carbon</td>
<td>0.08 max.</td>
<td></td>
</tr>
<tr>
<td>Manganese</td>
<td>0.35 max.</td>
<td></td>
</tr>
<tr>
<td>Silicon</td>
<td>0.35 max.</td>
<td></td>
</tr>
<tr>
<td>Phosphorus</td>
<td>0.015 max.</td>
<td></td>
</tr>
<tr>
<td>Sulfur</td>
<td>0.015 max.</td>
<td></td>
</tr>
<tr>
<td>Boron</td>
<td>0.006 max.</td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td>0.30 max.</td>
<td></td>
</tr>
</tbody>
</table>

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### Table 2 - Physical Constants

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density, lb/in³</td>
<td>0.296</td>
</tr>
<tr>
<td>Annealed</td>
<td></td>
</tr>
<tr>
<td>Annealed and Aged</td>
<td>0.297</td>
</tr>
<tr>
<td>Melting Range, °F</td>
<td>2300-2437</td>
</tr>
<tr>
<td>Melting Range, °C</td>
<td>1260-1336</td>
</tr>
<tr>
<td>Specific Heat at 70°F, Btu/lb °F (at 21°C, J/kg °C)</td>
<td>0.104 (435)</td>
</tr>
<tr>
<td>Curie Temperature, °F (°C)</td>
<td></td>
</tr>
<tr>
<td>Annealed Material</td>
<td>&lt;320 (&lt;-196)</td>
</tr>
<tr>
<td>Annealed and Aged Material</td>
<td>-170 (-112)</td>
</tr>
<tr>
<td>Permeability at 200 oersted and 70°F</td>
<td></td>
</tr>
<tr>
<td>Annealed Material</td>
<td>1.0013</td>
</tr>
<tr>
<td>Annealed and Aged Material</td>
<td>1.0011</td>
</tr>
</tbody>
</table>