Alloy 600 Technical Datasheet

Nickel Chromium Alloy

Typical Applications

- Heat exchangers
- Furnaces
- Exhaust liners for aircraft
- Nuclear reactor components
- Production of caustic alkanes
- Chemical and food processing equipment
- Condensers
- Evaporator tubes

Product Description

Alloy 600 is a popular engineering material for applications where resistance to both heat and corrosion is required. The excellent mechanical properties of the alloy give this material high strength and good workability. Corrosion resistance is good, especially in alkaline environments, and can be used in both cryogenic and elevated temperature service.

Material Specifications

- For use in applications from cryogenic to elevated temperatures in the range of 1093 °C
- Good corrosion resistance
- Excellent toughness at sub-zero temperatures
- Good workability combined with high strength

Corrosion Resistance

Alloy 600 is resistant to a wide range of corrosives. The alloy provides excellent resistance to alkaline solutions and fair resistance to strongly oxidised acid solutions. It is particularly resistant to attack by dry chlorine or hydrogen chloride, even at temperatures up to 650°C.

Weldability

Can be joined by standard resistance and fusion welding processes used for stainless steels.

Availability

Bar, tube, strip, plate, sheet

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>Ni</th>
<th>Cr</th>
<th>Fe</th>
<th>C</th>
<th>Mn</th>
<th>Si</th>
<th>Cu</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>72.0</td>
<td>14.0</td>
<td>6.0</td>
<td>0.15</td>
<td>1.0</td>
<td>0.50</td>
<td>0.50</td>
<td>0.015</td>
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<tr>
<td>Max</td>
<td>-</td>
<td>17.0</td>
<td>10.0</td>
<td>1.0</td>
<td>1.0</td>
<td>0.50</td>
<td>0.50</td>
<td>0.015</td>
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</tbody>
</table>

Mechanical Properties

<table>
<thead>
<tr>
<th>Alloy and Condition</th>
<th>Tensile Strength N/mm² &amp; ksi</th>
<th>0.2% Yield Strength N/mm² &amp; ksi</th>
<th>Elongation A5 %</th>
<th>Brinell Hardness HB ≤195</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alloy 600 annealed</td>
<td>550 &amp; 80</td>
<td>240 &amp; 35</td>
<td>30</td>
<td>≤195</td>
</tr>
</tbody>
</table>

Technical Assistance

Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.

www.smithmetal.com sales@smithmetal.com

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