Alloy 825
Technical Datasheet

Nickel Iron Chromium Alloy

Typical Applications
• Evaporators
• Seawater heat exchangers
• Air cooled heat exchangers
• Sour gas components
• Chemical processing equipment
• Air pollution scrubbers
• Pipe systems
• Ore processing

Product Description
Alloy 825 is a nickel iron chromium alloy which has been developed to provide exceptional resistance to numerous corrosive environments including both oxidizing and reducing. These environments include sulphuric, sulphurous, phosphoric, nitric, hydrofluoric and organic acids and alkalis such as sodium or potassium hydroxide, and acidic chloride solutions. Alloy 825 also offers outstanding performance in subsea applications.

Key features
• Excellent resistance to reducing and oxidizing acids
• Excellent resistance to pitting and crevice corrosion
• Outstanding subsea performance
• Readily formable and weldable
• Superb resistance to chloride stress corrosion cracking

Corrosion resistance
Excellent - Alloy 825 is especially resistant to sulphuric and phosphoric acids.

Availability
Bar, tube, strip, plate, sheet

Weldability
Good.

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>Mn</th>
<th>S</th>
<th>Si</th>
<th>Cr</th>
<th>Ni</th>
<th>Fe</th>
<th>Mo</th>
<th>Cu</th>
<th>Ti</th>
<th>Al</th>
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</thead>
<tbody>
<tr>
<td>min</td>
<td>0.05</td>
<td>1.00</td>
<td>0.03</td>
<td>0.5</td>
<td>19.5</td>
<td>38.0</td>
<td>22.0</td>
<td>2.5</td>
<td>1.5</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>max</td>
<td>0.05</td>
<td>1.00</td>
<td>0.03</td>
<td>0.5</td>
<td>23.5</td>
<td>46.0</td>
<td>3.5</td>
<td>3.0</td>
<td>1.2</td>
<td>0.2</td>
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</tbody>
</table>

Mechanical Properties

<table>
<thead>
<tr>
<th>Tensile Properties</th>
<th>Tensile Strength N/mm²</th>
<th>0.2% Proof Strength N/mm²</th>
<th>Elongation 5.65V50 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annealed Condition</td>
<td>590 min</td>
<td>220 min</td>
<td>30 min</td>
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</tbody>
</table>

Physical Properties

<table>
<thead>
<tr>
<th>Density</th>
<th>Magnetic Permeability</th>
<th>Specific Heat</th>
<th>Specific Gravity</th>
<th>Melting Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.294lb/in³</td>
<td>200 oersted 1.005</td>
<td>0.105 Btu/lb-°F 440 J/kg-°K</td>
<td>8.13</td>
<td>2500-2550°F 1370-1400°C</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.

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