Alloy 625
Technical Datasheet

Nickel Chromium Molybdenum Alloy

Typical Applications
- Wellhead components
- Propellers & shafts
- Reactor core & control rod components
- Sour service applications
- Downhole equipment
- Seawater heat exchangers
- Sour gas pipelines
- Superheater tubing

Product Description
Alloy 625 has proved to be a highly prized construction material because of its value in its ability to solve a wide variety of design and application issues. Alloy 625 has outstanding corrosion resistance and is used extensively in the oil, gas and petrochemical sector, particularly in sour service and sour gas applications. With excellent weldability and high tensile strength, the material also offers resistance to both sulphide and chlorides stress cracking. Normally supplied in the annealed condition.

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>Ni</th>
<th>Cr</th>
<th>Mo</th>
<th>Fe</th>
<th>Nb+Ta</th>
<th>Co</th>
<th>Si</th>
<th>Mn</th>
<th>Ti</th>
<th>Al</th>
<th>C</th>
<th>S</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td>58.0</td>
<td>20.0</td>
<td>8.0</td>
<td>3.15</td>
<td>3.15</td>
<td></td>
<td></td>
<td>0.50</td>
<td>0.50</td>
<td>0.40</td>
<td>0.40</td>
<td>0.10</td>
<td>0.015</td>
</tr>
<tr>
<td>max</td>
<td>23.0</td>
<td>10.0</td>
<td>5.0</td>
<td>4.15</td>
<td>1.0</td>
<td>0.50</td>
<td></td>
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<td></td>
<td>0.40</td>
<td>0.40</td>
<td>0.10</td>
<td>0.015</td>
</tr>
</tbody>
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Mechanical Properties

Bar - Ruling Sections up to and including 101.6mm (4”)

0.2% Proof Stress (N/mm²)|ksi| minimum | 415 [60]
Ultimate Tensile Strength (N/mm²)|ksi| minimum | 830 [120]
Elongation (%)| minimum | 30

Bar - Ruling Sections greater than 101.6mm (4”)

0.2% Proof Stress (N/mm²)|ksi| minimum | 345 [50]
Ultimate Tensile Strength (N/mm²)|ksi| minimum | 760 [110]
Elongation (%)| minimum | 25

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

Bar, tube, strip, plate, sheet

Weldability
Excellent

Corrosion Resistance

Alloy 625 has versatile resistance to corrosion which is outstanding, even in severe corrosive environments. The material also shows superior resistance to high temperature effects such as oxidation and carburization. It is an excellent choice for seawater and sour gas applications.

Key features
- Outstanding corrosion resistance
- High tensile, creep and rupture strength
- High fatigue strength in seawater
- Versatile – can be used to solve numerous design and application problems

Availability

Bar, tube, strip, plate, sheet

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