DEF STAN 02-835 (NES835) Technical Datasheet

Cupronickel - Copper Nickel Alloy

Typical Applications
- Oil & Gas, Marine and Naval applications
- Production of high integrity components
- Stampings
- Fasteners
- Machined items
- Above sea and subsea components
- Critical marine fasteners

Product Description
DEF STAN 02-835 (NES835) is an advanced precipitation-hardenable copper-nickel. The alloy is an improved version of 90/10 and 70/30 with excellent corrosion resistance and high mechanical strength. Designed specifically for the Oil & Gas, Marine and Naval market, DEF STAN 02-835 (NES835) also offers a good resistance to impingement, very good anti-galling properties, and a freedom from hydrogen embrittlement and high impact strength. With high ductility, the alloy is easily welded, machined and fabricated.

Key features:
- Advanced precipitation-hardenable copper-nickel
- Improved mechanical properties over 90/30 and 70/30
- Excellent corrosion resistance
- Resistance to hydrogen embrittlement.
- Designed specifically for use in Oil & Gas, Marine and Naval applications

Related material specifications
- NES 835
- DEF STAN 02-835
- UNS C72420
- DGS 357

Corrosion Resistance
Excellent. Developed specifically for Oil & Gas, Marine and Naval applications. Resistant to hydrogen embrittlement.

Weldability
Good.

Availability
Bar and forgings

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>Cu</th>
<th>Ni</th>
<th>Mn</th>
<th>Al</th>
<th>Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>14.50</td>
<td>4.50</td>
<td>1.70</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mechanical Properties

<table>
<thead>
<tr>
<th></th>
<th>≤ 15mm dia</th>
<th>15 ≤ 125mm dia</th>
<th>&gt;125mm dia</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultimate Tensile Strength</td>
<td>725 N/mm²</td>
<td>725 N/mm²</td>
<td>710 N/mm²</td>
<td>N/mm²</td>
</tr>
<tr>
<td>0.2% Proof Strength</td>
<td>430 N/mm²</td>
<td>430 N/mm²</td>
<td>400 N/mm²</td>
<td>N/mm²</td>
</tr>
<tr>
<td>Elongation</td>
<td>18 %</td>
<td>18 %</td>
<td>18 %</td>
<td>%</td>
</tr>
</tbody>
</table>

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>8.53 g/cm³</td>
</tr>
<tr>
<td>Melting Range</td>
<td>1030 - 1085 °C</td>
</tr>
<tr>
<td>Modulus of elasticity</td>
<td>152,000 N/mm²</td>
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<tr>
<td>Thermal conductivity</td>
<td>25 W/m°C</td>
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<tr>
<td>Electrical resistivity</td>
<td>0.35 microhm/m</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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