C250 Technical Datasheet

Maraging Steel

Typical Applications
- Missile casings
- Tooling
- Ordnance mounting blocks
- High performance autosport components
- Couplings
- Jet engine and helicopter drive shafts
- Load cells

Machining & Welding
Maraging steels are usually machined in the annealed condition, however, they can be machined in the maraged condition. Components can be machined close to finished dimensions as the low temperature maraging treatment results in minimal distortion. In addition, the small contraction of approximately 0.05% due to maraging results in good dimensional stability.

C250 can be readily welded.

Product Description
Type C250 cobalt containing grade of maraging steel, produced by vacuum arc re-melting, provides very high strength (nominally 250 ksi tensile) with an above average level of toughness. The alloy retains its strength up to 450°C and good notch impact is maintained down to minus 50°C and below. This material may be nitrided. C250 is usually supplied in the annealed condition where the microstructure consists of fine martensite. This structure is then maraged (precipitation hardened) to achieve final properties employing a relatively low temperature that results in the required combination of high strength and toughness. The alloy has a density of 8.02 g/cc.

Availability
Bar and forgings.

Related Specifications
- UNS K92890
- AMS 6512
- Wr. N 1.6359
- BS S162

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>Si</th>
<th>Mn</th>
<th>Ni</th>
<th>Co</th>
<th>Mo</th>
<th>Al</th>
<th>Ti</th>
<th>Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>17.00</td>
<td>7.00</td>
<td>4.60</td>
<td>0.05</td>
<td>0.30</td>
<td></td>
<td></td>
<td></td>
<td>Bal</td>
</tr>
<tr>
<td>Max</td>
<td>0.3</td>
<td>0.10</td>
<td>0.10</td>
<td>19.00</td>
<td>8.50</td>
<td>5.20</td>
<td>0.15</td>
<td>0.50</td>
<td></td>
</tr>
</tbody>
</table>

Mechanical Properties (annealed and maraged condition)

<table>
<thead>
<tr>
<th>Property</th>
<th>Annealed</th>
<th>Maraged</th>
</tr>
</thead>
<tbody>
<tr>
<td>UTS, MPa</td>
<td>1,860</td>
<td></td>
</tr>
<tr>
<td>0.2% PS, MPa</td>
<td>1,725</td>
<td></td>
</tr>
<tr>
<td>Elongation on 4D, %</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Charpy notch impact, J</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Young’s modulus, GPa</td>
<td>190</td>
<td></td>
</tr>
</tbody>
</table>

Hardness (HRC) in the annealed condition is 34 max. and for the maraged condition 48 min.

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

All information in our data sheet is based on approximate testing and is stated to the best of our knowledge and belief. It is presented apart from contractual obligations and does not constitute any guarantee of properties or of processing or application possibilities in individual cases. Our warranties and liabilities are stated exclusively in our terms of trading. © Smiths Metal Centres 2018