Steel alloys

Category:
Ultra high wear resistance
High modulus
Low density
High damping capacity

Steel alloy XMP-21
Steel alloy XMP-21 is made via a mechanically alloying powder process. This alloy shows excellent wear resistance comparable to Tungsten-Carbide. But it has fair machining characteristics in the annealed condition. XMP-21 has due to its composition a higher elastic modulus and lower density compared to other Steel alloys. Because of the very fine microstructure and homogenous Carbide distribution XMP-21 has very high fatigue strength.

General properties

Ultra high wear resistance
High modulus
Low density

Comparison with Standard Steel M50

Advantages:
- Higher modulus
- Lower density
- Better wear resistance

Disadvantages:
- More expensive

Chemical Composition: Fe-Cr-Mo-Al-Ti-C

Mechanical properties

<table>
<thead>
<tr>
<th>Alloy</th>
<th>Temperature</th>
<th>UTS (MPa)</th>
<th>YS (MPa)</th>
<th>Elong. (%)</th>
<th>Modulus (GPa)</th>
<th>Hardness (HRc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel-XMP-21</td>
<td>Rt</td>
<td>1683</td>
<td>1356</td>
<td>0.6</td>
<td>268</td>
<td>60-68</td>
</tr>
</tbody>
</table>

Fatigue resistance: >1100 MPa, rotating bending, 200°C

Physical data

Density: 6.87 g/cm³
CTE: 11x10^-6
Thermal conductivity: 23 W/mK

Applications

- Piston pins
- Gear selector shafts
- Camshafts
- Gears
- Transmission shafts
- Shims

Delivery form

- Bars, Billets, Rectangular shapes, plates

Max. size, 210x140x1200mm.