Aluminum-alloy Al-WQ68

Aluminum alloy Al-WQ68 is a very high strength 7000 series (Al-Zn based) Aluminum alloy. It is the highest strength 7000 series alloy made via conventional processing routes. The strength exceeds 700 MPa. This is about 20% higher than for A7075 alloy. Al-WQ68 shows also good properties at elevated temperatures up to 200°C.

General properties

• Very high strength
• Good ductility
• High fatigue strength

Comparison with Standard alloys A7075, A2017

Advantages: - higher strength
- Good ductility
- high temp. prop.

Disadvantages: - None

Chemical Composition: Al-8.1Zn-2.8Mg-2.2Cu-0.1Zr

Mechanical properties

Properties of Al-WQ68

<table>
<thead>
<tr>
<th>Alloy</th>
<th>Condition</th>
<th>UTS (20°C)</th>
<th>YS (20°C)</th>
<th>Elongation</th>
<th>Elastic Modulus</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>MPa</td>
<td>MPa</td>
<td>%</td>
<td>GPa</td>
</tr>
<tr>
<td>Al-WQ68</td>
<td>T6</td>
<td>712</td>
<td>683</td>
<td>9.5</td>
<td>76</td>
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<td>Forged+T6</td>
<td>632</td>
<td>530</td>
<td>10</td>
<td>76</td>
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<tr>
<td>Al-WQ68</td>
<td>T76</td>
<td>604</td>
<td>560</td>
<td>8</td>
<td>76</td>
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</tbody>
</table>

Physical data

Density: 2.88 g/cm³
CTE: 22x10⁻⁶
Thermal conductivity: 120 W/mK

Applications

- Airframe parts
- Structural parts
- Automotive parts

Delivery form

- Bars, Extrusions
- Billets
- Plates

Applications

Automotive Gears made of Al-WQ68
Forged Automotive Al-WQ68 Conrod