Aluminum alloys

Category:
Very high strength, Elevated temperature

Aluminum-alloy Al-UTN15

Aluminum alloy Al-UTN15 is a very high strength Aluminum alloy with Nickel addition to operate at higher service temperatures compared to standard 7000 series alloys. It is made via spray forming processing route.

General properties

- Very high strength
- Good ductility
- High fatigue strength

Comparison with Standard alloys A7075, A2017

<table>
<thead>
<tr>
<th>Advantages:</th>
<th>Disadvantages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- higher strength</td>
<td>- None</td>
</tr>
<tr>
<td>- Good ductility</td>
<td></td>
</tr>
<tr>
<td>- high temp. prop.</td>
<td></td>
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</tbody>
</table>

Chemical Composition: Al-12Zn-2.4Mg-1.1Cu-0.2Zr-0.3Ni

Mechanical properties

<table>
<thead>
<tr>
<th>Mechanical properties</th>
<th>UTS</th>
<th>YS</th>
<th>Elong.</th>
<th>Modulus</th>
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</thead>
<tbody>
<tr>
<td>Al-UTN15-T6</td>
<td>MPa</td>
<td>MPa</td>
<td>%</td>
<td>GPa</td>
</tr>
<tr>
<td>Room temperature</td>
<td>832</td>
<td>822</td>
<td>8.5</td>
<td>76</td>
</tr>
</tbody>
</table>

Physical data

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

Applications

- Airframe parts
- Structural parts
- Automotive parts
- Fasteners

Delivery form

- Bars
- Billets.
- Plates