Applications

- Aircraft structural parts
- Rivets
- Bolts
- Ordnance

Product Description

7175 aluminium alloy is typically utilised in applications where improved formability and toughness are required. Used extensively in the aerospace industry, the combination of high mechanical strength, fracture toughness and stress corrosion cracking resistance, makes this alloy suitable for structural aircraft applications. The T-73 temper eliminates the development of stress corrosion cracking (SCC).

Key features:

- High mechanical strength
- Heavily utilised by the aerospace industry
- High fracture toughness
- Good resistance to stress corrosion cracking (SCC)

Weldability

Poor

Availability

Bar, sheet, plate

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Si</th>
<th>Fe</th>
<th>Cu</th>
<th>Mn</th>
<th>Mg</th>
<th>Cr</th>
<th>Zn</th>
<th>Ti</th>
<th>Al</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>min.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>max.</td>
<td>0.15</td>
<td>0.20</td>
<td>2.00</td>
<td>0.10</td>
<td>2.90</td>
<td>0.28</td>
<td>6.10</td>
<td>0.10</td>
<td></td>
<td>Rem 0.05</td>
</tr>
</tbody>
</table>

Typical Physical Properties

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>English</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Density (68 °F/20 °C)</td>
<td>0.101 lbs./in.³ 990 °F - 1175 °F 0.207 BTU/lb. - °F</td>
<td>2.80 Mg/m³ 532 °C - 635 °C 865 J/kg - °K</td>
</tr>
<tr>
<td>Melting Range (212 °F/100 °C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Heat (212 °F/100 °C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coefficient of Thermal Expansion</td>
<td>Linear 68 °F-212 °F 20 °C-100 °C</td>
<td>13.0 micro in./in.-°F 23.4 micro m/m -°K</td>
</tr>
<tr>
<td>Volumetric</td>
<td>68 °F/20 °C</td>
<td>3.78 x 10-5 in./in.°F 68 x 10-6 m³/m -°K</td>
</tr>
<tr>
<td>Thermal Conductivity (68 °F/20 °C)</td>
<td>T651 T7351</td>
<td>82 BTU/ft. - hr. - °F 142 W/m - °K</td>
</tr>
<tr>
<td>Equal Volume</td>
<td>T651 T7351</td>
<td>94 BTU/ft. - hr. - °F 163 W/m - °K</td>
</tr>
<tr>
<td>Electrical Conductivity (68 °F/20 °C)</td>
<td>Equal Volume T651 T7351</td>
<td>36% IACS 42% IACS 107% IACS</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.

UK Service Centres:

Smiths Belfast 02895 908 897 Smiths Leeds 0113 307 5167
Smiths Biggleswade 01767 604 704 Smiths London 020 7241 2430
Smiths Birmingham 0121 728 4940 Smiths Manchester 0161 794 8650
Smiths Bristol 0117 971 2800 Smiths Norwich 01603 789 878
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Smiths Gateshead 0191 469 5428 Smiths Redruth 01209 315 512
Smiths Horsham 01403 261 981 Smiths Verwood 01202 824 347

Quality & Testing:

0845 527 3331
www.smithmetal.com
info@smithmetal.com

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