5083 Aluminium
Technical Datasheet

Commercial Aluminium Alloy

Applications
• Pressure vessels
• Rail cars
• Shipbuilding
• Vehicle bodies
• Tipper truck bodies
• Mine skips & cages

Product Description
5083 aluminium alloy is well known for its exceptional performance in the most extreme environments. The alloy displays high resistance to both seawater and industrial chemical environments and has the highest strength of all the non-heat treatable alloys although it is not recommended for use in temperatures above 65°C.

Key features:
• Highly resistant to seawater and industrial chemical attack
• Exceptional performance in extreme environments
• Highest strength of all non-heat treatable alloys
• Not recommended for use in temperatures which exceed 65°C

Related Material Specifications
• GM41
• AlMg 4.5 Mn

Weldability
5083 retains exceptional strength after welding

Corrosion Resistance
Highly resistant to both seawater and industrial chemical attack.

Availability
Plate, Sheet

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th>Weight (%)</th>
<th>Mn</th>
<th>Fe</th>
<th>Cu</th>
<th>Mg</th>
<th>Si</th>
<th>Zn</th>
<th>Cr</th>
<th>Ti</th>
<th>Al</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td>0.40</td>
<td>4.00</td>
<td></td>
<td>0.15</td>
<td></td>
<td>0.05</td>
<td>0.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>max.</td>
<td>1.00</td>
<td>0.40</td>
<td>0.10</td>
<td>4.90</td>
<td>0.25</td>
<td>0.25</td>
<td>0.15</td>
<td></td>
<td>Bal</td>
</tr>
</tbody>
</table>

Mechanical Properties

<table>
<thead>
<tr>
<th>Tensile Strength</th>
<th>Elongation A50 mm</th>
<th>Shear Strength</th>
<th>Hardness Vickers</th>
<th>Proof Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 MPa</td>
<td>23%</td>
<td>175 MPa</td>
<td>75 HV</td>
<td>145 MPa</td>
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</tbody>
</table>

Physical Properties

<table>
<thead>
<tr>
<th>Density</th>
<th>2.65 g/cm³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Point</td>
<td>570°C</td>
</tr>
<tr>
<td>Thermal Expansion</td>
<td>25 x10⁻⁶ /K</td>
</tr>
<tr>
<td>Modulus of Elasticity</td>
<td>72 GPa</td>
</tr>
<tr>
<td>Thermal Conductivity</td>
<td>121 W/m.K</td>
</tr>
</tbody>
</table>

The properties above are for material in the Soft O/H111 condition

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.

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sales@smithmetal.com

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