AZ31B Magnesium Alloy
Product Datasheet

Revision: SHP/AZ31B/07/2018

A wrought magnesium alloy offering good room temperature strength

For motorsport applications in medium strength service at temperatures below 150°C

Available in sheet, plate, coil and bar, AZ31B magnesium alloy benefits from increased strength and density due to strain hardening with partial anneal (H24 and H26 tempers). The alloy offers excellent weldability and can be machined faster than any other metal. The material is non-magnetic with high electrical and thermal conductivity.

### Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>Mg</th>
<th>Y</th>
<th>Zr</th>
<th>Nd</th>
<th>Heavy Rare Earths*</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td>Bal</td>
<td>4.75</td>
<td>0.40</td>
<td>1.50</td>
<td>1</td>
</tr>
<tr>
<td>max</td>
<td>Bal</td>
<td>5.50</td>
<td></td>
<td>2.00</td>
<td>2</td>
</tr>
</tbody>
</table>

### Mechanical Properties (minimum tensile properties)

<table>
<thead>
<tr>
<th></th>
<th>AZ31B-O 0.5-1.5mm</th>
<th>AZ31B-O 6.3-75mm</th>
<th>AZ31B-H24 0.5-6.3mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2% Proof Stress</td>
<td>125 MPa</td>
<td>220 MPa</td>
<td>105 MPa</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>220 MPa</td>
<td>220 MPa</td>
<td>220 MPa</td>
</tr>
<tr>
<td>Elongation in 5.65v/A</td>
<td>10%</td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>AZ31B-O 1.5-6.3mm</th>
<th>AZ31B-H24 0.5-6.3mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2% Proof Stress</td>
<td>105 MPa</td>
<td>200 MPa</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>220 MPa</td>
<td>270 MPa</td>
</tr>
<tr>
<td>Elongation in 5.65v/A</td>
<td>10%</td>
<td>5%</td>
</tr>
</tbody>
</table>

### Characteristics

- Good ductility and corrosion resistance
- High electrical and thermal conductivity
- Good strength at room temperature

### Applications

- Production of intricate motorsport parts
- Monocoque construction
- Race chassis, structural engine parts, hydraulics

### About Smiths High Performance

Smiths High Performance is a leading stockholder and supplier of high-performance engineering materials to the global motorsport sector. We are supply partners in a range of specialist motorsport markets including Formula 1, Formula E, NASCAR, MOTO GP, WEC & WRC.