PB102 Technical Datasheet

Bronze Alloy

Typical Applications
- Fasteners
- Springs
- Pump & Valve spindles
- Shafts
- Electrical and electronic components
- Flanges
- Bushes & Bearings
- Connectors & Switches

Product Description
PB102 is the most common grade of wrought phosphor bronze used in the UK due to its ability to be used across an extensive range of general purpose applications. Due to its tin content PB102 offers superb spring qualities as well as high corrosion resistance that is close to that of aluminium bronzes in a range of atmospheric conditions. It combines good mechanical properties with excellent cold forming properties and has a fair machinability rating.

Key features
- Excellent cold forming properties
- Good spring properties
- High mechanical properties
- Very good corrosion resistance
- High wear resistance
- Low magnetic permeability

Availability
Round bar, hexagon.

Cut to size capability
There are thirty power saws within the Smiths group including a fully automated magazine feed CNC rod blanking line. We can economically cut from one off blanks to the largest production run for immediate or just in time deliveries.

Weldability
Good.

Corrosion Resistance
Excellent

Machinability
Good.

Related material specifications
- CW451K
- CuSn5
- Def Stan 02-838

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>Cu</th>
<th>Sn</th>
<th>P</th>
<th>Zn</th>
<th>Ni</th>
<th>Fe</th>
<th>Pb</th>
<th>Total Imps</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td>Bal</td>
<td>4.5</td>
<td>0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>max</td>
<td>Bal</td>
<td>5.5</td>
<td>0.4</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>0.02</td>
<td>0.2</td>
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</table>

Mechanical Properties *

<table>
<thead>
<tr>
<th></th>
<th>Proof Stress</th>
<th>Tensile Strength</th>
<th>Elongation A50 mm</th>
<th>Hardness Vickers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>560 MPa</td>
<td>650 MPa</td>
<td>3 to 40%</td>
<td>75 to 230 HV</td>
</tr>
</tbody>
</table>

Physical Properties

<table>
<thead>
<tr>
<th></th>
<th>Density</th>
<th>Melting Point</th>
<th>Modulus of Elasticity</th>
<th>Thermal Conductivity</th>
<th>Electrical Resistivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.85 g/cm³</td>
<td>930 °C</td>
<td>121 GPa</td>
<td>63 W/m.K</td>
<td>0.096 x10⁻⁶ Ω .m</td>
</tr>
</tbody>
</table>

* Mechanical values are variable depending on the condition of the material i.e. 1/2 hard, 1/4 hard etc. Mechanical values for bar are a typical average.

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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