SupremEX® 620XF

A high quality aerospace grade aluminum alloy (6061B) reinforced with 20 vol.% silicon carbide particles which produces a metal matrix composite (MMC). 620XF is manufactured via a powder metallurgy route using a mechanical alloying process to ensure a homogeneous reinforcement distribution, providing a refined grain structure enhancing mechanical properties. The MMC is heat treatable offering high strength and modulus for structural applications and is available in billet, forged and extruded forms. Designation: – 6061B/SiC/20p (0.7µm).

620XF ADVANTAGES:

- Precision section extrusion using standard dies
- Reduced wall thickness offering weight saving
- High stiffness and strength
- Robust and ductile for damage resistance
- Good corrosion and fatigue performance
- Thermally stable

**Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density g/cm³ (lbs/in³)</td>
<td>2.80 (0.101)</td>
</tr>
<tr>
<td>Thermal Conductivity at 25°C W/m°C (BTU/hr ft°F)</td>
<td>150 (87)</td>
</tr>
<tr>
<td>Elastic Modulus GPa (msi)</td>
<td>103 (14.9)</td>
</tr>
<tr>
<td>Thermal Expansion at 25°C ppm/°C (ppm/°F)</td>
<td>17 (9.4)</td>
</tr>
<tr>
<td>Specific Stiffness GPa/g/cm³</td>
<td>36</td>
</tr>
<tr>
<td>Solidus °C (°F)</td>
<td>570 (1058)</td>
</tr>
<tr>
<td>Poisson’s Ratio</td>
<td>0.3</td>
</tr>
<tr>
<td>Specific Heat Capacity J/g°C (BTU/lb/°F)</td>
<td>0.850 (0.203)</td>
</tr>
</tbody>
</table>

**Typical Mechanical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Billet</th>
<th>Forged</th>
<th>Precision Extrusion</th>
<th>Precision Extrusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Treatment</td>
<td>T6 CWQ</td>
<td>T6 CWQ</td>
<td>T5</td>
<td>T6 CWQ</td>
</tr>
<tr>
<td>(R_{\text{p0.2}}) MPa (ksi)</td>
<td>430 (62.4)</td>
<td>410 (59.4)</td>
<td>240 (34.8)</td>
<td>380 (55.1)</td>
</tr>
<tr>
<td>(R_m) MPa (ksi)</td>
<td>500 (72.5)</td>
<td>490 (71.1)</td>
<td>360 (52.2)</td>
<td>470 (68.2)</td>
</tr>
<tr>
<td>Elongation to Failure %</td>
<td>4</td>
<td>7</td>
<td>8</td>
<td>7</td>
</tr>
</tbody>
</table>

Data is for information purposes only, it does not constitute a guarantee.

CWG refers to Cold Water Quench.