ALCA5® PRECISION CAST PLATE
AA5083

BENEFITS OF ALCA5® PRECISION CAST PLATE

- Excellent Dimensional Stability
- Reduces the possibility of plate deformation
- Rapid Machinability
- Avoids the need for rough milling, finishing or re-works
- Low levels of internal porosity

TYPICAL APPLICATIONS FOR ALCA5® PRECISION CAST PLATE

- Reference plates
- Tool & Jig
- Mold base plates
- Machine parts and mounting
- Construction equipment

WELDABILITY

- WIG/MIG
  - VERY GOOD
- By Resistance
  - VERY GOOD

CORROSION RESISTANCE

- Inland Atmosphere
  - EXCELLENT
- Marine Atmosphere
  - GOOD

ANODIZING

- Hard Anodizing
  - EXCELLENT
- Decorative
  - NOT SUITABLE

MACHINEABILITY

- EXCELLENT
- POLISHING ABILITY
  - VERY GOOD

MECHANICAL STRENGTH
(TYPICAL VALUES)

- Ultimate Tensile Strength
  - 41000 PSI
- Yield Strength
  - 18000 PSI
- Elongation
  - 16%
- Brinell Harness
  - 70 HB

AVAILABILITY IN 0.250” TO 4.000”

Max. Widths  | Std. Lengths  | Max. Lengths
-------------|--------------|------------
48.5”        | 96.5/120.5/144.5” | 289”
60.5”        | 96.5/120.5/144.5” | 289”
72.5”        | 96.5/120.5/144.5” | 289”
96.5”        | 96.5/120.5/144.5” | 289”

OTHER SIZES MAY BE AVAILABLE UPON REQUEST

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Prolonged exposure to temperatures exceeding 70°C can provoke susceptibility to intercrystalline corrosion. The information in this publication does not imply a guarantee of properties or capability for fabrication, assembly or application in particular cases. Design rules presented must be taken into account by the user. PCP Aluminium reserves the right to modify this data sheet without prior warning.

**PROCESSING CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Weldability</th>
<th>WIG/MIG</th>
<th>Very good</th>
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</thead>
<tbody>
<tr>
<td>Anodizing</td>
<td>Hard anodizing</td>
<td>Excellent</td>
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<tr>
<td></td>
<td>Decorative</td>
<td>Not suitable</td>
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<td>Polishing ability</td>
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<td>Corrosion resistance</td>
<td>Marine atmosphere</td>
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</tr>
<tr>
<td>Machinability</td>
<td></td>
<td>Excellent</td>
</tr>
</tbody>
</table>

To obtain a smooth surface on ALCA5®, high cutting speeds and sintered carbide cutting tools are recommended.

**CHEMICAL COMPOSITION (Weight-%)**

<table>
<thead>
<tr>
<th>Si</th>
<th>Fe</th>
<th>Cu</th>
<th>Mn</th>
<th>Mg</th>
<th>Cr</th>
<th>Zn</th>
<th>Ti+Zr</th>
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<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
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<tr>
<td>0.05</td>
<td>max.</td>
<td>max.</td>
<td>0.05</td>
<td>max.</td>
<td>max.</td>
<td>0.25</td>
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**PHYSICAL PROPERTIES (Typical values)**

| Density | 0.0961 lb/in³ |
| Elastic modulus | 10.3 x 10⁶ PSI |
| Coefficient of thermal expansion (68°F-212°F) | 13.2 µin/in·°F |
| Thermal conductivity (68°F) | 69.3 Btu/ft·h·°F |
| Electrical conductivity (68°F) | 27% IACS |

**MECHANICAL STRENGTH (Typical values)**

| Ultimate Tensile Strength | 41000 PSI |
| Yield Strength            | 18000 PSI |
| Elongation                | 16% |
| Brinell Hardness          | 70 HB |

**TOLERANCES**

| Thickness | +/− 0.005" |
| Width and Length | +/− 0.125" / -0.000" |
| Flatness | +/− 0.015" * |
| Roughness | +/− 0.005" * |
| Surface condition | ≤ 16 µin |
| Edge condition | Precision milled |

*Checked on a granite table using a state of the art flatness measuring device. This is measured on several sections of 1 meter.

ALCA5® cast precision plate main advantage is its **dimensional stability**. The low level of internal stress, reduces considerably the possibility of plate deformation during and after machining. This high stability leads to some cost savings by avoiding extra operations such as rough-milling, finishing or re-works. Typical applications are reference plates, molds, jigs, machine parts and construction equipments.

ALCA5® cast precision plate are available in temper O3 (homogenized) aluminum in the following standards size:

- **Thickness**: 0.250” to 4.000”
- **Widths**: 48.5” / 60.5” / 72.5” / 96.5”
- **Lengths**: 96.5”/120.5”/144.5”/289.0”

Different ingots offer milling capabilities up to 42.5” thick, or 98.0” width, and 291” in length. Non-standard thicknesses, widths and lengths are available upon inquiry.

ALCA5® plates are coated with a labelled protective plastic film on both sides.