MACHINING DATA COMPARISON

Machining data for Alloy 6033 conclusively demonstrates (compared to Alloy 6061) that resulting machine chip size is noticeably smaller. Therefore, this may allow machine speeds and feeds to be increased, resulting in shorter cycle times and lower costs per machined part.

<table>
<thead>
<tr>
<th>Alloy 6061</th>
<th>Form Chip</th>
<th>Turning Chip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drill Chip</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alloy 6262</th>
<th>Form Chip</th>
<th>Turning Chip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drill Chip</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alloy 6033</th>
<th>Form Chip</th>
<th>Turning Chip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drill Chip</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A technology-driven replacement for Alloys 6061 and 6262 with good machinability, corrosion resistance, and anodize response

For more information or technical assistance on Alloy 6033, call a Kaiser Aluminum Technical Engineer at 1-800-873-2011 or visit us online.
KAISER ALUMINUM ALLOY 6033:
A TECHNOLOGY-DRIVEN REPLACEMENT FOR ALLOYS 6061 AND 6262

Through extensive machine testing and development, Kaiser Aluminum has created Alloy 6033, which surpasses the Hardness, Ultimate Strength and Yield Strength of Alloys 6061 and 6262.

Over the past several years, it became apparent that the industry required an aluminum alloy that featured greater hardness, higher ultimate strength, increased yield strength and improved machining characteristics. During the developmental phase, Kaiser Aluminum engineers evaluated variations of alloy chemistry to determine the best possible combination for mechanical and machining properties to create a cutting-edge aluminum alloy that delivers what the industry and market expects. The result is Alloy 6033, ideal for recreational, medical and after-market automotive parts used in fly reels, oxygen regulators and small gas powered engines.

Alloy 6033 Major Customer Benefits

- Increased Ultimate and Yield Strengths Compared to Alloys 6061 and 6262
- Corrosion Resistance and Anodize Qualities are Equivalent to Alloy 6061
- Significantly Increased Hardness
- Improved Machining Performance
- Increased Speeds and Feeds
- Reduced Cycle Times
- Lower Overall Part Costs

Alloy 6033 Major Applications

- Fly Reels
- After-Market Automotive Parts
- Oxygen Regulators
- Small Gas Powered Engines

Test data now reveals, conclusively, that Kaiser Aluminum Alloy 6033 can produce a hardness that is substantially higher than 6061 and 6262 by as much as 25 Brinell points. The ultimate strength of Alloy 6033 is as much as 15 ksi higher, with a yield strength as much as 17 ksi higher than 6061 and 6262.

Typical Mechanical Properties

![Typical Mechanical Properties Graph]

- Alloy 6033's UTS as much as 15 ksi and YTS as much as 17 ksi higher than 6061 & 6262

Typical Hardness (Brinell 500kg/10mm)

![Typical Hardness Graph]

- Alloy 6033's Hardness higher by as much as 25 Brinell points compared to 6061 & 6262
Kaiser Aluminum has created Alloy 6033, which surpasses the Hardness, Ultimate Strength and Yield Strength of Alloys 6061 and 6262. Over the past several years, it became apparent that the industry required an aluminum alloy that featured greater hardness, higher ultimate strength, increased yield strength and improved machining characteristics. During the developmental phase, Kaiser Aluminum engineers evaluated variations of alloy chemistry to determine the best possible combination for mechanical and machining properties to create a cutting-edge aluminum alloy that delivers what the industry and market expects. The result is Alloy 6033, ideal for recreational, medical and after-market automotive parts used in fly reels, oxygen regulators and small gas powered engines.

Alloy 6033 Major Customer Benefits

- Increased Ultimate and Yield Strengths Compared to Alloys 6061 and 6262
- Corrosion Resistance and Anodize Qualities are Equivalent to Alloy 6061
- Significantly Increased Hardness
- Improved Machining Performance
- Increased Speeds and Feeds
- Reduced Cycle Times
- Lower Overall Part Costs

Alloy 6033 Major Applications

- Fly Reels
- After-Market Automotive Parts
- Oxygen Regulators
- Small Gas Powered Engines

Test data now reveals, conclusively, that Kaiser Aluminum Alloy 6033 can produce a hardness that is substantially higher than 6061 and 6262 by as much as 25 Brinell points. The ultimate strength of Alloy 6033 is as much as 15 ksi higher, with a yield strength as much as 17 ksi higher than 6061 and 6262.

Typical Mechanical Properties

<table>
<thead>
<tr>
<th></th>
<th>Alloy 6033 T651</th>
<th>Alloy 6061 T651</th>
<th>Alloy 6262 T651</th>
</tr>
</thead>
<tbody>
<tr>
<td>UTS (ksi)</td>
<td>75</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>YTS (ksi)</td>
<td>65</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>% El</td>
<td>15</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Typical Hardness (Brinell 500kg/10mm)

<table>
<thead>
<tr>
<th></th>
<th>Alloy 6033 T651</th>
<th>Alloy 6061 T651</th>
<th>Alloy 6262 T651</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardness</td>
<td>120</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
MACHINING DATA COMPARISON

Machining data for Alloy 6033 conclusively demonstrates (compared to Alloy 6061) that resulting machine chip size is noticeably smaller. Therefore, this may allow machine speeds and feeds to be increased, resulting in shorter cycle times and lower costs per machined part.

For more information or technical assistance on Alloy 6033, call a Kaiser Aluminum Technical Engineer at 1-800-873-2011 or visit us online.