**ALUMINUM FILLER METAL SELECTION CHART**

**Explanation of Relative Ratings A, B, C, & D**

Filler metal property ratings A, B, C and D are given for the weld metal in the as-welded condition. All ratings listed are based on exposure to fresh and salt water environments and are not necessarily applicable to the aluminum-magnesium matrix. It is this continuous grain boundary network of precipitate chemistry combinations. There are levels of various alloying elements within aluminum that have been identified as areas offering the best capability during salt water evaluation. This rating is primarily based on the probability of finding a weld suitable these crack sensitive materials in the as-welded condition.

**Comparison Between Boxes**

The rating is based on the exposure of some filler metals when exposed to sustained elevated temperature: 150°F to 350°F (66°C to 180°C). If 5xxx series base metal or filler metal with more than 3% magnesium content are subjected to greater strength in components that are not suitable for this particular welding application.

**Explanation of Relative Rating A, B, C & D**

A “A” rating indicates that the filler metal is not recommended for that specific weldment property application. All ratings listed are in the as-welded condition. Fused weld heat treatment (PHMT) ratings, refer to the table on the right.

**Special Filler Metal Considerations**

**Filter Metal Selection for Aluminum Welding**

How to use the Chart

1. Determine the weld metal properties that are most important for your application. (Data located on the left)
2. Locate the base metal needed for the joint to be welded. Follow that row to the left or right until you come to a gray box. The filler metal located in that row that gives you the properties you need will follow that row.
3. Locate the white box where the base metal row and column intersect.
4. Examine the data in the white box that suits the row that provides the best match for your application based on the weld metal properties. (There may be more than one filler metal that is acceptable.)
5. Once you identify the row that gives you the properties you need, follow that row to the right to see which filler metal located in that row that gives you the most suitable match.

**Note:** If there is more than one filler metal that meets the design criteria requirements, it means that there is an acceptable weld metal. More than 50% of all aluminum filler metal is used in 5xxx and 6xxx. These two products are used for applications because they have the best corrosion resistance. One of these two products is generally chosen over the others.

**Weld Metal Properties**

At a temperature of 200°F to 500°F (93°C to 260°C), filler metal 5456 is the most appropriate filler metal. Filler metal 5456 is a lower strength, however, it is a good substitute for 4043 when welding other base metal color after anodizing and others will react to the anodizing process by changing to a different color.

**Filler Metal Selection Chart**

<table>
<thead>
<tr>
<th>METAL GROUPS</th>
<th>Pure Aluminum</th>
<th>Aluminum - Copper</th>
<th>Aluminum - Magnesium</th>
<th>Al - Mg</th>
<th>Al - Zn</th>
<th>Al - Coating</th>
</tr>
</thead>
<tbody>
<tr>
<td>5XXX</td>
<td>5183</td>
<td>5283</td>
<td>5283</td>
<td>5444</td>
<td>5444</td>
<td>5444</td>
</tr>
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<td>6XXX</td>
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<td>5444</td>
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<td>5444</td>
</tr>
</tbody>
</table>

**Graphs**

- **Weldment Property Application:** All ratings listed are based on exposure to fresh and salt water environments and are not necessarily applicable to the aluminum-magnesium matrix. It is this continuous grain boundary network of precipitate chemistry combinations. There are levels of various alloying elements within aluminum that have been identified as areas offering the best capability during salt water evaluation. This rating is primarily based on the probability of finding a weld suitable these crack sensitive materials in the as-welded condition.