**ALUMINUM FILLER METAL SELECTION CHART**

### METAL GROUPS

<table>
<thead>
<tr>
<th>BASE METAL</th>
<th>Aluminum - Copper</th>
<th>Aluminum Magnesium</th>
<th>Aluminum - Magnesium</th>
<th>Aluminum - Copper</th>
<th>Al-Mg-Si</th>
<th>Al-Cu</th>
<th>Al-Cu-Fe</th>
<th>Al-Mg</th>
<th>Al-Cu-Mg</th>
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<tbody>
<tr>
<td>5052</td>
<td>6061</td>
<td>7075</td>
<td>6063</td>
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<td>5086</td>
<td>5183</td>
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### WELD METAL PROPERTIES

- **Welding 5454 base material that will be used as a support bracket for an industrial heater – This material will be used as a support bracket for an industrial heater.**
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**How to use the Chart**

1. **Determine which base metal** the weldment will be made from. Identify if the weldment will be made from a single base metal or a combination of base metals.
2. **Determine the welding process** to be used for the weldment. Identify whether the welding process will be fusion welding or cold welding.
3. **Determine the welding equipment** to be used for the weldment. Identify whether the welding equipment will be arc welding, gas metal arc welding, or plasma arc welding.
4. **Determine the filler metal** to be used for the weldment. Identify whether the filler metal will be a solid wire, a solid rod, a wire for submerged arc welding, or a wire for gas tungsten arc welding.
5. **Determine the shielding gas** to be used for the weldment. Identify whether the shielding gas will be argon, helium, or a gas mixture.
6. **Determine the shielding gas composition** to be used for the weldment. Identify whether the shielding gas composition will be a single gas or a gas mixture.
7. **Determine the welding wire diameter** to be used for the weldment. Identify whether the welding wire diameter will be 0.035 inches or 0.045 inches.
8. **Determine the welding current** to be used for the weldment. Identify whether the welding current will be direct current or alternating current.
9. **Determine the welding voltage** to be used for the weldment. Identify whether the welding voltage will be 30 volts or 40 volts.
10. **Determine the welding time** to be used for the weldment. Identify whether the welding time will be 1 minute or 2 minutes.

**Specific Filler Metal Considerations**

- **Filler Metal 4403** will provide some resistance to stress cracking due to its higher strength and ductility. It is also recommended for use in applications where high strength and ductility are required.
- **Filler Metal 4404** is a higher strength alloy that provides resistance to stress cracking due to its higher strength and ductility. It is also recommended for use in applications where high strength and ductility are required.
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- **Filler Metal 4406** is a higher strength alloy that provides resistance to stress cracking due to its higher strength and ductility. It is also recommended for use in applications where high strength and ductility are required.

**Corrosion Resistance**

This variable may be a consideration for some environmental applications requiring post weld heat treatment as it may result in an improvement in weld metal properties. All ratings listed are in the as welded condition. For post weld heat treatment (PWHT) refer to the table on the right.

**Compressive Meanings**

- An “A” rating indicates that the filler metal is not heat treatable and will therefore respond to post weld heat treatment.
- A “B” rating indicates that the filler metal is heat treatable and will therefore respond to post weld heat treatment.
- A “C” rating indicates that the filler metal is not suitable for use in applications requiring post weld heat treatment as it may result in a reduction in weld metal properties.
- A “D” rating indicates that the filler metal is heat treatable and will therefore respond to post weld heat treatment.

**Specifications**

- **Welding** 5454 base material that will be used as a support bracket for an industrial heater – This material will be used as a support bracket for an industrial heater.
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