Nickel Aluminum Bronze

INTRODUCTION

Aufhauser Nickel Aluminum Bronze is a very popular filler metal used in offshore technology such as seawater desalting, shipbuilding and repair. It is also used in the power plant and chemical industry for pumps and tube systems.

APPLICATIONS

- MIG and TIG welding of cast and wrought nickel-aluminum bronze parts where high resistance to corrosion, erosion, and cavitation in salt or brackish water is required.
- Joining and repairing of cast or wrought nickel-aluminum bronze base metals.

CHEMICAL COMPOSITION

<table>
<thead>
<tr>
<th></th>
<th>Copper</th>
<th>Zinc</th>
<th>Manganese</th>
<th>Iron</th>
<th>Silicon</th>
<th>Nickel</th>
<th>Aluminum</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remainder</td>
<td>0.10</td>
<td>0.60-3.50</td>
<td>3.0-5.0</td>
<td>0.10</td>
<td>4.0-5.50</td>
<td>8.50-9.50</td>
<td>0.50</td>
<td></td>
</tr>
</tbody>
</table>

Note: Copper contains Silver; Nickel includes Cobalt. All values are maximum percentage, unless shown in range.

PHYSICAL and MECHANICAL PROPERTIES

- Tensile Strength: 104,000 psi
- Yield Strength: 59,000 psi
- Elongation, in 2 in.: 23%
- Brinell Hardness: 160-200
- Liquidus: 1940°F (1060°C)
- Solidus: 1905°F (1040°C)

SPECIFICATIONS MEET or EXCEED

- AWS A5.7 Class ERCuNiAl
- ASME SFA5.7 Class ERCuNiAl
- MIL-E-23765/3A Type MIL-CuNiAl

STANDARD SIZES AND DIAMETERS

<table>
<thead>
<tr>
<th>Size</th>
<th>Cast (12” spool)</th>
<th>Helix (12” spool)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/32 or 1/8 x 36” rod</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>0.035” dia. x 30 lb. spl</td>
<td>15-40”</td>
<td>&lt; 1”</td>
</tr>
<tr>
<td>0.045” dia. x 30 lb. spl</td>
<td>15-40”</td>
<td>&lt; 1”</td>
</tr>
<tr>
<td>0.062” dia. x 30 lb. spl</td>
<td>15-40”</td>
<td>&lt; 1”</td>
</tr>
</tbody>
</table>

Copper and its alloys require a relatively high heat input with shortened welding time. Higher preheat temperatures and faster welding rates than for steel are necessary.

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