USA 70S-6EC
AWS A5.18 ER70S-6
ELECTROLYTIC COPPER PLATED
WELDING WIRE

USA 70S-6EC is designed for use where high speed welding is being employed, where the wire is traveling down extended conduit assemblies or any other application requiring the smoothest feed possible.

This electrolytic plated wire is especially suited for high IPM wire speeds, but will ensure smooth, consistent feeding in all ranges of welding parameters and travel speeds.

What is "Electrolytic plating"? This process of applying copper to the surface of welding wire involves the use of electrical current to adhere microscopic particles of copper to the surface of the wire as it passes through a solution called an "Electrolyte bath". This bath contains the elements necessary to apply a continuous homogenized coating of copper on the surface of the wire as it passes through the bath. This is all done in a totally inert atmosphere.

Most welding wires in use today are coated with a chemical process due to the lower costs involved in the coating application. The chemical process works fine in the majority of welding parameters and applications in use, but simply does not perform as well at higher wire feed speeds.

(see chart below)

Skin pass
Normal chemical bath
Electrolytic plating

As you can see from the examples shown, The Skin pass and the normal coating, which both involve the chemical process, microscopically have a more coarse appearance on the surface of the wire than the electrolytic coating.

The "Skin pass" application is done for the lowest cost and is aimed at high volume production with the lowest estimated shelf life, due to the reduced copper content in the coating and its high speed copper application.

The "Normal coating" is the most widely used process, since it gives good shelf life and is still cost effective to manufacture. It provides smooth feeding in the short arc and globular transfer at normal to elevated feed speeds.

The "Electrolytic" coating has a more dense, finer particle coating and superior adhesion to the wire surface. Copper flaking is un-heard of with this coating process. The wires' smooth surface causes less drag, allowing it to feed smoothly at extremely high feed speeds in the spray-arc transfer. Electrolytic plating also feeds better at lower feed speeds making it the smoothest feeding copper coating available.

TYPICAL WELDING PARAMETERS

<table>
<thead>
<tr>
<th>Dia.</th>
<th>Volts</th>
<th>Amps</th>
<th>Dia.</th>
<th>Volts</th>
<th>Amps</th>
</tr>
</thead>
<tbody>
<tr>
<td>.030</td>
<td>15-17</td>
<td>70-150</td>
<td>.030</td>
<td>24-27</td>
<td>170-210</td>
</tr>
<tr>
<td>Short Arc</td>
<td>.035</td>
<td>17-21</td>
<td>100-170</td>
<td>Spray Transfer</td>
<td>.036</td>
</tr>
</tbody>
</table>

Recommended shielding gas is CO₂, Argon/CO₂ (short arc) or Argon/O₂ in spray transfer @ 25-45 CFH

TYPICAL MECHANICAL PROPERTIES

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<table>
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<tr>
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<tbody>
<tr>
<td>Tensile Strength</td>
<td>90,000 psi</td>
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<tr>
<td>Yield Strength</td>
<td>73,000 psi</td>
</tr>
<tr>
<td>Elongation in 2”</td>
<td>25%</td>
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<tr>
<td>Charpy V notch @ -20F (ft lbs)</td>
<td>28</td>
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www.weldingwire.com

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