the WASHINGTON ALLOY CO. difference

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, consistant feeding in all ranges of weldiing parameters and travel speeds.

What is "Electrolyitic 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 continous homogonized 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 proceess 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, microscopicly 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 it's 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 partical 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

	Dia.	Volts	Amps		Dia	Volts	Amps
	.030	15-17	70-150		.030	24-27	170-210
Short Arc	.035	17-21	100-170	Spray Transfer	.035	24-28	190-240
	.045	19-23	150-210		.045	25-28	250-340

Recomended shielding gas is CO_2, Argon/CO_2 (short arc) or Argon/O_2 in spray transfer @ 25-45 CFH

TYPICAL MECHANICAL PROPERTIES

Tensile Strength	90,000 psi
Yield Strength	73,000 psi
Elongation in 2"	25%
Charpy V notch @ -20F (ft lbs)	28

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