HH 440 AL ALUMINUM ELECTRODE

DC REVERSE OR WITH OXY-ACETYLENE

General Characteristics

HH 440 AL is a unique "Dual Coat" flux coated aluminum electrode that allows the welder to use it as a welding electrode or a torch brazing alloy. It has a special extruded smooth-coated double coated flux that helps give it moisture resistance. This electrode can be used in all positions, has good-corrosion resistance, and gives a dense, porosity free deposit, without excessive spatter and fuming. It has good color match to aluminum, but it is not recommended for anodizing. The pure white flux coating outlasts conventional products in moisture resistance.

Procedure

Clean the weld zone of all contaminants. Maintain a short arc with electrode tilted slightly in direction of travel. Weave beads are not usually recommended. On heavy sections over 3/8 of an inch, it is recommended that you bevel to form a 60-75^0 included angle and preheat to 240^0 C (400^0 F). Due to the faster burn off of the aluminum electrode, a faster travel speed is necessary. Remove all slag by chipping hammer and stainless steel wire brush before making additional passes. Let the deposit cool first before removing slag for best results.

Application

For arc and torch welding aluminum alloyed with copper, silicon, and magnesium. HH 440 AL is also excellent for joining dissimilar grades of aluminum. Use this electrode to repair cracks on aluminum castings, maintenance work or aluminum plate and extrusions. Also excellent on foundry patterns, automotive parts, aluminum tanks, railings and stairways, and aluminum tire molds.

Tensile Strength	34,000 PSI
Yield Strength	20,000 PSI
Elongation	18%
Hardness (HB)	40-55

Diameter				
	(Inch)	3/32	1/8	5/32
	(mm)	2.5	3.25	4.0
Amps (approx)		50-80	70-120	110-150

HH 469 ALUMINUM SOLDER

FOR USE WITH TORCH OR SOLDERING IRON

General Characteristics

HH 469 is a specially formulated aluminum solder for soldering aluminum to aluminum or aluminum to other metals such as copper, brass or steel. The joint is very strong and applies with a very low temperature of 400°.

Procedure

Clean the weld zone of all contaminants. For best results, maintain a joint clearance of no more than .006 of an inch. Completely cover joint area with Aluminum flux. Heat the part with a soft flame, using indirect heat. Do not aim the flame directly at the flux as it will turn black and will not be effective. One the flux begins to bubble, dip the solder into the flux at the joint area and continue to heat until the solder flows through the entire joint. Allow the part to cool slowly, and then remove the flux residue with a stiff brush and warm water.

Application

Use on aluminum radiators, aluminum tube to copper tube in refrigeration and air conditioning units, sheet metal work, manufacturing and repair of instruments, zinc base die castings and joining of dissimilar metals such as aluminum, copper, brass and bronze. Also for use on anodized aluminum.

Tensile Strength	**22,000 PSI**
Melting Point	**400° F**
Color Match	**Excellent on Aluminum**
Electrical Conductivity	**Good**
Corrosion Resistance	**Good**

Diameter	**(Inch)**	**1/16**
	(mm)	**1.5**

HH 435 FC FLUX CORED ALUMINUM

FOR USE WITH OXY-ACETYLENE TORCH

General Characteristics

HH 435 FC aluminum torch rod is a unique product that contains a highly active flux core, sealed inside the alloy, which allows for easy application and very economical use. The melting range of this flux is controlled to ensure that the alloy yields dense, non-porous deposits with minimum flux residue. Its fluidity at higher temperatures enables it to have free flowing characteristics when used on lap joints or around tubing. Likewise, its high viscosity at lower temperatures allows it to fill gaps or build up sections. Color match is good on most aluminum.

Procedure

Clean the weld zone of all contaminants. Bevel parts thicker than 3/16 inch to form a 60^0 Vee. With oxy/fuel torch adjusted to a slightly carburizing flame, heat workpiece broadly to about 1000^0 F. Melt 1/4 inch of the rod off onto the workpiece, and watch the flux turn to a liquid, then continue to heat until the alloy flows out. Lower the angle of the torch and continue to add the alloy a drop at a time until weld is complete. Allow the part to cool slowly, and remove the flux residue with a stiff brush and warm water. When finished with project, crimp the end of the rod to seal in the flux.

Application

For all weldable grades of aluminum, sheet, cast and pipe. "Thin Flowing" for tight fitting joints or "Bead Formin" for fitting applications. Excellent for fabrication and repair of aluminum furniture, fans, window frames, truck and trailer bodies, and appliances. Also does an excellent job on aluminum pipe.

Tensile Strength	**34,000 PSI**
Compressive Strength	**20,000 PSI**
Elongation	**15-25%**
Hardness (HB)	**40-55**
Melting Point	**1100^0 F (598^0 C)**

Diameter	**(Inch)**	**1/8 x 28 inch lengths**
	(mm)	**3.25**

HH AS 406 ALUMINUM SOLDER

FOR USE WITH OXY-ACETYLENE TORCH

General Characteristics

HH AS 406 is an economical low melting, self fluxing alloy for brazing aluminum and zinc based metals (white metal, zinc die cast, pewter, pot metal). It produces a sound joint, that is stronger than the parent metal, and is porosity free, clean and free from slag. Used to braze aluminum without flux, and can be used on galvanized steel to replace the galvanizing if it has been worn or burned off.

Procedure

Clean the weld zone of all contaminants. Brush the surface to be joined with a stainless steel brush while heating the part, to break down any oxides present. Using a small tip, heat the metal hot enough to allow the alloy to flow by rubbing the rod back and forth across the heated part, thoroughly tinning the surface. With both parts tinned, heat and flow the alloy as required to complete the joint, ensuring that the filler alloy fuses with the tinned surface without melting the base metal. For welding zinc based metals, Vee parts to 45º and make sure surfaces are clean. Make sure when using the alloy that you push the rod back and forth through the flame to contact with the base metal to break down any oxide film, to guarantee a sound joint.

Application

For the repair of aluminum boat hulls, aluminum propellers, aluminum castings, lawn mower housings, chain saw housings, die castings and pot metal parts.

Tensile Strength	**47,000 PSI**
Compressive Strength	**93,100 PSI**
Impact Strength	**15 (Charpy)**
Elongation	**8.4%**
Hardness (HB)	**83**
Modulus of Rupture	**116,000 PSI**
Melting Point	**732º F**

Diameter	**(Inch)**	**1/8**
	(mm)	**3.25**