

## **ALUMINUM WELDED CONNECTORS INSTALLATION INSTRUCTIONS**

Aluminum welded connections are typically made between sand castings, extruded aluminum shapes or aluminum cable and welded using 4043 alloy filler rod.

### ALUMINUM CONNECTOR TO ALUMINUM CABLE

- Step 1: Remove all oil, grease and moisture in the vicinity of the surfaces to be welded. Completely clean the conductor and power connector welding areas with a clean stainless steel wire brush.
- Step 2: Slide the cable into the weldment cavity until it is within 1/8" to 3/16" of the rear of the welding barrel.
- Step 3: Before welding, the welding machine settings should be tested by making a test bead on an aluminum casting.
- Step 4: Puddle weld the end of the connector barrel adjacent to the contact pad to the end of the cable, insuring that all aluminum strands are thoroughly fused together. If welding ACSR you must bridge over the steel strands to cover them completely.
- Step 5: For EHV applications especially, grind and clean the weld as needed to leave a smooth corona free finish.

### ALUMINUM CONNECTOR TO ALUMINUM TUBING

- Step 1: Thoroughly clean the conductor and power connector in the areas to be welded. Insure that all oil, grease, and moisture is removed in the vicinity of the surfaces to be welded
- Step 2: Align the tubular bus and the power connector groove. Begin the weld by "burning into" the casting and proceeding into the tubing. Try a test bead prior to welding the connection to test the welding machine settings.
- Step 3: Due to the manufacturing tolerances of aluminum tubing, the tubing should be positioned in the weldment cavity and tack welded before starting the final weld.
- Step 4: When multiple weld passes are required, wire brush the original weld before proceeding to the next pass.
- Step 5: For EHV applications especially, grind and clean the weld as needed to leave a smooth corona free finish.

(continued on next page)

## **ALUMINUM WELDED CONNECTORS INSTALLATION INSTRUCTIONS (continued)**

### SPLICING ALUMINUM TUBING TO ALUMINUM TUBING

- Step 1: Remove all oil, grease and moisture in the vicinity of the surfaces to be welded. Completely clean the conductor and power connector welding areas with a clean stainless steel wire brush. The external edge of the aluminum tubing should be chamfered to 45 degrees.
- Step 2: Try a test bead prior to welding the connection to test the welding machine settings.
- Step 3: Align the splice inside the tubular bus so that center drive pin or marking is at the splice point. Due to the manufacturing tolerances of aluminum tubing, the tubing should be tack welded before starting the final weld.
- Step 4: Begin the weld by "burning into" the splice connector and proceeding into both aluminum tubes. Make a weld pass around the entire splice point. Continue with weld passes until the entire thickness of the tubing has been welded. When multiple weld passes are required, wire brush the original weld before proceeding to the next pass.
- Step 5: For EHV applications especially, grind and clean the weld as needed to leave a smooth corona free finish.

### WELDED CONNECTIONS WITH COPPER LINED CONTACT SURFACE

- Step 1: Care must be taken with these connectors to avoid damage to the copper lining. Bolt the copper lined contact section to the mating contact surface or to another suitable heat sink prior to welding.
- Step 2: Weld the connection in accordance with steps above, as applicable. If a heat sink is utilized, allow the connector to cool before removing. Water may be used to cool the connector.