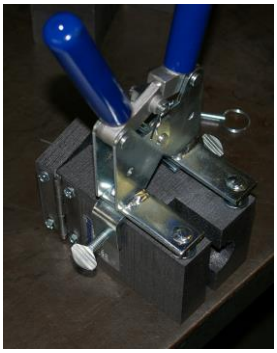
RMBD – Bond Weld Instructions

ULTRAWELD®

INSTRUCTIONS FOR ULTRAWELD® RAIL CONNECTIONS – Cable edge of I-Beam

Step 1: Read all instructions and safety precautions before making weld.

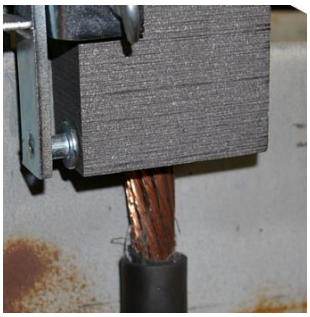


Step 2: Insert proper handle clamp into mold and tighten thumb screw. (Before making first weld of the day, preheat mold with torch.)

Step 3: Remove paint from area of I-beam to be welded. A grinder is the best tool for this. Remove down to bright Steel.

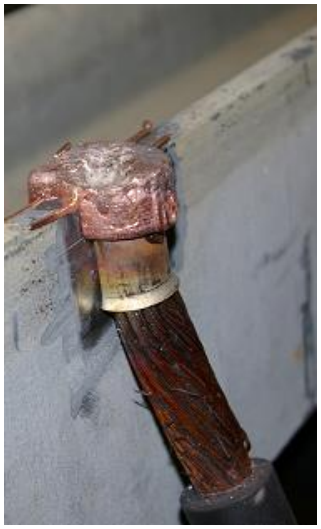
Step 4: Position mold on I-beam as shown to the right.

Step 5: Insert cable into mold until it is stopped by shoulder on sleeve of the cable. Lock mold to I-Beam. It may be necessary to clamp the cable to the I-beam to keep it from slipping out of the mold during welding process.



Step 6: Follow general welding instructions for firing shot.

Step 7: Remove mold from I-Beam and clean the mold.



Step 8: Inspect the weld to make sure the level of weld metal is above the level of the top edge of the I-Beam. Rap weld with hammer at 90 degrees to weld to make sure the weld is stuck to the steel.

<u>Trouble shooting tips:</u>

Weld level too low – To much leakage or cable in wrong position. Make sure cable is pushed all the way into the stop.

Weld not sticking to Steel – Steel not cleaned properly.

GENERAL SAFETY INSTRUCTIONS

1. Always wear proper clothing, safety glasses and gloves when exothermic welding.
2. Only weld items that the mold is designed for.
3. Do not use worn or broken molds which could cause leakage of molten weld metal.
4. Always use proper handle clamps or frame work required for the mold and make sure it is adjusted properly to close the mold completely.
5. Use proper clamp to hold the mold against the steel surface.
6. Make sure that the conductors being welded fit in the mold properly and that the mold will close tightly around them.
7. Do not alter molds or accessories without factory authorization.
8. Avoid breathing concentrations of smoke, as it may be hazardous to your health.
9. Avoid contact with hot materials.
10. Remove or protect fire hazards in the welding area.
11. Avoid moisture and contaminants in the mold and conductors being welded. Contact of molten weld metal with moisture or contaminants may cause weld metal to spew out of mold.
12. When welding to pipe or vessels, you should consider the following:
    A. the effect welding may have on structural members and thin wall pipe or vessels.
    B. pipe or vessels that are pressurized or contain (or have contained) flammable, explosive or hazardous materials should be evaluated in the case of a melt through or hot molten weld metal coming in contact with any flammable, explosive or hazardous materials.
13. Failure to abide by the above and follow welding procedures may result in improper welds, damage to the material being welded or create hazardous situations for the individual.

PREPARATION OF CABLE

1. Cable must be bright, clean and dry.
2. Cable that is saturated with oil or grease must be cleaned. Cable may be cleaned by burning it off with a propane or oxy-acetylene torch. After burning off oil or grease, a wire brush should be used to remove residue. Wet cable must be dried out. Use a hand propane torch.
3. Corroded cable must be cleaned. Use the CCBRSH2 cable cleaning brush or CCBRSH1 card cloth brush. It is important that the ends of the individual strands are clean. This can best be accomplished by making a fresh cut on the end of the cable.
4. Cable should be straightened before clamping mold in place. Bent or out of round cable will hold mold open and cause leaks.
5. Remove insulation from insulated cable before cutting with hack saw. Otherwise, ends of strands will become coated with insulating material which may cause defective welds.
6. FLEXIBLE CABLE: A sleeve must be used when welding flexible cable. WRPSLV wrap sleeves are recommended for 300 MCM and smaller cable or check with factory for premade sleeves.

PREPARATION OF STEEL SURFACE

1. Remove the oxide on the surface of the steel down to bright steel using a non resin base grinding wheel or a metal rasp.
2. Make sure the mold will seal against the steel surface
3. When welding a conductor right on to the surface, a mold sealer may be required.

WELDING PROCEDURE

1. Read all instructions and safety warnings before starting.
2. Check mold tag for conductors to be welded and proper weld metal cartridge size to use.
3. Insert proper handles into the mold and lock mold shut if applicable.
4. Make sure all surfaces and conductors are clean, dry and are the proper sizes for the mold's application per mold tag.
5. Molds can be dried by heating to approximately 250°F. Molds may be dried with a hand operated propane torch or by firing a charge in the mold before making the desired weld.
6. Position conductor(s) into the mold. See front of this sheet for positioning of conductors into mold. Lock mold with handle clamps or frame, which ever is the case. Check to make sure mold is completely closed.
7. Secure the mold to the surface to be welded over the prepared area.
8. **NuwTube**:
    A. Insert steel disk being sure it is directly centered over the tap hole. Failure to insert disk into mold will create improper welds and spewing of weld metal.
    B. Pour cartridge or cartridges into the crucible being careful not to upset the steel disk.
    *C. Remove Orange bottom lid in **NuwTube** to remove starting powder. Close lid and pour starting powder into cup in the top of the lid, allowing some to fall thru the ignition hole in the lid.*
    D. Ignite starting powder with flint gun. Pull flint gun away quickly to prevent fouling flint.
9. **UltraShot**
    A. Insert Ultrashot cup into mold crucible aligning metal igniter with the small grove in the top of the mold. Close lid.
    B. Insert metal igniter into battery ignition cord.
    C. Press both ignition buttons on battery pack while standing clear of exhaust port on mold. Mold should fire right away.
10. Wait approximately 30 seconds before opening mold to permit metal to solidify. Do NOT allow mold to sit on weld anymore than 45 seconds as the weld shrinks as it cools and could lock the mold to the weld.
11. To clean the mold, use a MCBRSH1 natural bristle brush, soft cloth or newspaper before making next weld. **Do NOT use wire or plastic brushes to clean the mold!**
12. On horizontally split molds, use end of mold cleaning spade, a small diameter rod, or screw driver to remove slag from tap hole. Caution should be used when cleaning molds to avoid burns from contact with hot mold.

NOTE:

1. Proper weld metal cartridge size is marked on mold tag and shown on the cap of the cartridge tube.
2. Cartridge size is the approximate weight of the powder in grams. When the cartridge size specified is not available, two or more smaller cartridges or part of a larger cartridge may be used.
3. Handle Clamp adjustments may be made by removing adjusting screw and turning eye bolt 180° clockwise to loosen or 180° counter clockwise to tighten.