

GENERAL INSTRUCTIONS FOR THE COMPLETION OF AN EXOTHERMIC WELD

General Information & Safety Instructions

A. The correctly specified mold and weld metal should be used to make all required connections.

1. All parts (conductors) to be welded should match with the corresponding information provided on the mold tag.
2. Damaged or badly worn molds should not be used as they are prone to leaking.
3. Molds should not be modified without prior consent from authorized personnel.
4. The substitution of molds or weld metal is prohibited.

Failure to comply with any of the above may place personnel in a hazardous position, result in unacceptable connections or damage the items being connected.

B. All welding and starting materials are designed to produce a hot molten material which reaches temperatures in excess of 2200 deg Celsius with a localized release of smoke.

Both the weld metal and starting material are not explosive. Ignition temperatures are in excess of 450 deg Celsius for the starting material and 900 deg Celsius for the welding material.

C. All connections should be completed in accordance with the nominated welding procedures, whilst giving careful consideration to the surrounding conditions.

Refer to ANSI Z-49.1 Safety in Welding and cutting. All applicable laws and regulations should be adhered to.

The use of safety glasses, gloves, etc is mandatory.

1. All personnel should be correctly trained in the use of all products prior to completing a weld.
2. Avoid direct eye contact with the "flash" during the ignition of the starting material.
3. Avoid inhaling smoke which is produced during the welding process.
4. Be careful when handling materials after the welding process has being completed as all materials will be hot.
5. Be sure to advise all personnel within the surrounding area that welding operations will be undertaken.
6. Remove or protect all fire hazards in the immediate area.
7. Smoking is prohibited when handling exothermic materials.

D. Following the recommended welding procedures will minimize the risk of burns and fire caused by the spillage of hot molten Material.

1. Make sure the mold fits all conductors correctly and that all assembly equipment such as handle clamps are correctly in position.
2. Be sure that the mold is free from all moisture and contaminants prior to welding. Contact of hot molten metal with moisture or contaminants may result

in the release of hot material.

E. Special safety considerations.

1. Provide adequate ventilation where natural air flow is not sufficient to prevent personnel breathing concentrations of smoke.
2. In the case of fire the use of water or CO2 will aid in the control of the fire. The constant application of water will aid in controlling a fire should the exothermic materials become involved, water should be applied from a distance.

Molds

Standard molds require the use of a handle clamp.

1. EC- M for medium size mold (3" wide molds).
2. EC- L for large size mold (4" wide molds).

Preparation for the Welding Process

A. Cable

1. Use cable cutters to ensure that the cable is not unnecessarily damaged. Bent or frayed cable ends may hold the mold open causing leaks.
2. The conductor ends and the cable length must be clean and dry to ensure a good weld. Wipe excess dirt clear with a rag and if the cable is oily or greasy, wash the conductor with a quick drying safety solvent before brushing. Clean the conductor with cable brush and ensure the conductor is dry before welding.
3. When using an adaptor or wrap sleeve, allow conductor to extend 3 mm beyond the end of the sleeve.
4. For hard drawn conductors or conductors under tension, the use of a cable clamp is recommended.

B. Lugs or Bus Bar.

1. Ensure the lug and length of the bus bar including ends are clean and dry. Wipe excess dirt clear with a rag and if the lug or bar is greasy, wash with a solvent before brushing. Clean conductor with cable brush and ensure the lug or bus bar is dry before welding. Check to ensure solvent has not left any residue.

The Welding Procedure

A. It is important to check the following prior to attempting a weld.

1. The mold is correct for the conductor sizes and application. DO NOT MODIFY MOLDS.
2. Ensure the required weld metal size indicated on the mold tag matches the weld metal to be used. Check that steel disks have been supplied.
3. Ensure the handle clamp / frame is attached securely to the mold and adjusted correctly prior to use.
4. Ensure Flint ignitor is in working order.

B. Carefully check that the mold is clean, dry and in good condition. The mold can be dried by heating to about 120 deg Celsius.

C. Position the conductors into place within the mold. The use of a reference mark on the conductors at entry point into the mold assists in the positioning of the conductor prior to ignition.

D. Close the mold. Lock tightly with handle clamps / frame toggles.

E. All exposed space where the conductors enter the mold should be packed with mold sealer prior to commencing the welding process.

F. Insert steel disk (concave side up) in the crucible to cover the tap hole.

G. The weld metal should now be placed into the crucible whilst being careful not to move the steel disk.

H. Tap the weld metal container to loosen the starting material. Place approximately 1/4 to 1/3 of the starting material on the top lip of the mold at the cover opening. Place the remaining starting material over the weld metal.

I. Close cover.

J. Carefully check that all conductors are correctly in place.

K. Stand to the side of the cover opening and upwind of the mold. Aiming the flint ignitor from the side, ignite the starting material on the mold lip. Withdraw the ignitor quickly once ignition commences.

L. The completion of the welding reaction takes approximately 30 seconds.

M. Carefully open and remove the mold, being sure not to damage the mold in the process.

N. The mold should now be cleaned prior to its next use ensuring that all residue is removed. It is suggested to use a natural bristle brush, soft cloth or newspaper to complete this process. On horizontally split molds, remove the slag from the tap hole with a small diameter rod. Use care to avoid damaging the mold.

USE CARE TO AVOID BURNS FROM HOT MOLD, CONNECTION, CONDUCTORS, OR RESIDUE.