Suggested Welding Guide
Apparatus Bushings and Bushing Wells

DANGER

All apparatus must be de-energized during installation or removal of part(s).

All apparatus must be installed and operated in accordance with individual user, local, and national work rules. These instructions do not attempt to provide for every possible contingency.

Do not touch or move energized products.

Excess distortion of the assembled product may result in its failure.

Inspect parts for damage, rating and compatibility with mating parts.

This product should be installed only by competent personnel trained in good safety practices involving high voltage electrical equipment. These instructions are not intended as a substitute for adequate training or experience in such safety practices.

Failure to follow these instructions will result in damage to the product and serious or fatal injury.

If this product is supplied with a protective shipping cover(s), remove this shipping cover(s) and replace with the appropriate HV insulated cap(s) or connector(s) before submerging or energizing the circuit.

FOR MORE INFORMATION ON PARTS, INSTALLATION RATINGS AND COMPATIBILITY, CALL THE NEAREST ELASTIMOLD OFFICE.

IMPORTANT

1. Check contents of package to ensure they are complete and undamaged.
2. Check all components to ensure proper fit with cable and/or mating products.
3. Read entire installation instructions before starting.
4. Have all required tools at hand and maintain cleanliness throughout the procedure.

WELDING

The following data are suggested recommendations for welding ELASTIMOLD apparatus bushings and bushing wells. Because of the many variations in transformer design, and the various welding techniques used, the following is intended as a guide only. The most important factor during welding is that heat must be kept at a minimum. Excessive heating of the epoxy can affect the integrity of the bushing.

WELDING PROCESSES

1. Inert–gas, tungsten–arc welding (TIG).
2. Short–arc welding (metal inert–gas, MIG).

Both of the above processes are fast and, therefore, create minimum heat.

MATERIALS

No. 308 bare stainless steel wire is used with either process.

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HEAT SINKS

To minimize heat flow to the epoxy, the use of copper heat sinks is required. The following suggestions are offered:

a. Water Cooled (helical coil–top and bottom). Suggest setting up three or four work stations in order to allow enough time to utilize heat sink before removing work piece.

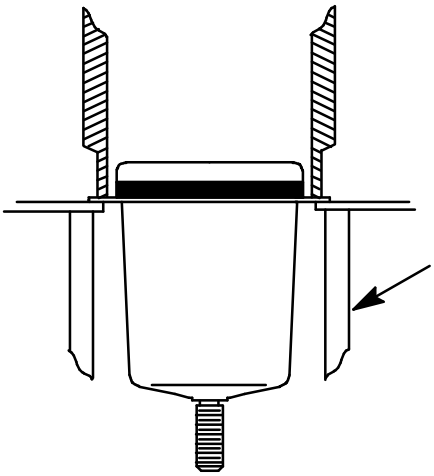
b. Recommended Configuration.

c. Non–water cooled heat sinks must not be left on too long since heat will flow back into bushing. Air cool bushing after removal of heat sink.

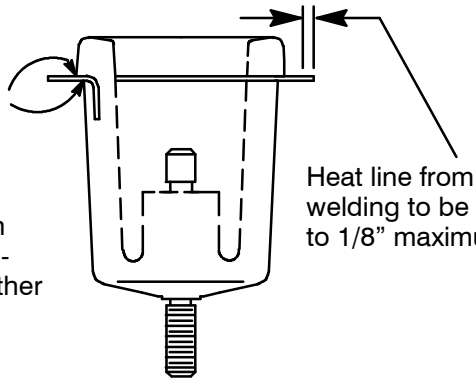
d. Copper heat sinks are required. Use thermally conductive paste at face of heat sinks in contact with flange and cover.

e. Venting of heat sinks must be provided.

f. Do not thread heat sink to bushing or bushing well stud. Expansion due to heat may affect the integrity of these parts.



Bottom heat sink should be of larger diameter than top to allow heat to be absorbed by bottom sink rather than flow into the tank.



RECOMMENDED PROCEDURES

a. Keep heat to a minimum. Visible heat line should not be greater than 1/8" from weld, 3/16" from O.D. of flange.

b. All surfaces (tank, bushing and bushing well) must be kept clean. Contamination such as paint, grease, etc., will extend welding time, thus raising the temperature and will affect the integrity of the bushing.

c. Minimize air currents in welding area which will disturb the gas atmosphere.

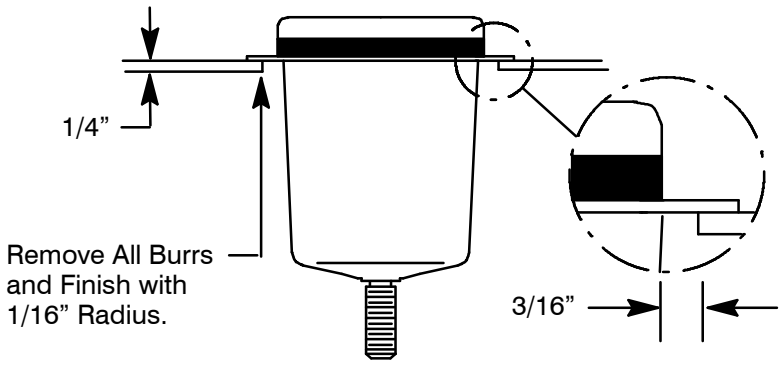
d. Handling techniques before and after welding must minimize forces applied to heated stud and flange.

e. No torque is to be applied to epoxy when making any bus bar connection.

f. Temperatures at points indicated by curved arrows must not exceed 225°F. This must be determined by the use of thermocouple detectors during development of the required heat sink.

INSTALLATION REQUIREMENTS

A. Clearance between epoxy shank and mouting hole must be 3/16" ± 1/16".
B. Enclosure cover thickness to be 1/4" maximum. Consult the factory for enclosures that exceed 1/4" thick.
C. Clearances from the apparatus connection to enclosure stiffeners and adjacent ground planes are critical and must be observed during installation. For more information regarding spacing, please consult the manufacturer.
D. Oil level covering the immersed stud connection must be greater than 2 inches.
E. Certain equipment surface finishes require a thermal baking to cure the finish. In such cases, the bake sequence must not exceed 130° or 8 hours to prevent damage to critical sealing aspects of the bushings. In addition, the bushing metallic contacts should not be mechanically loaded internally or externally during this cure process to prevent epoxy distortion.



ELASTIMOLD BUSHING ARE NOT DESIGNED FOR USE IN AIR EXCEPT FOR THE 600T1 WITH BOOTS AND COLLARS.