Electric Heater Installation and Maintenance

1. Inspect for and report all shipping damage to the delivering carrier.

2. ALWAYS properly install the thermal overload protection device that comes with your immersion heater.

3. Quartz tubes are very fragile and require care when handling and assembling.
   a. Remove the quartz tube junction box cover by carefully unscrewing in a counterclockwise direction.
   b. Tilt the quartz tube slightly toward you and slowly insert the heating element assembly until seated.
   c. Route the wires through conduit opening in the head.
   d. Secure quartz heater head cover by screwing in a clockwise direction until tight.
   e. When installing flexible conduit, connector ferrule must be properly placed to ensure liquid-tight operation.

4. Verify that the line voltage agrees with the name plate heater voltage and that the heater is wired and fused in accordance with the nameplate current (amps).

5. All wiring must be done in accordance with the National Electrical Code and applicable State and Local codes.

   AN EARTH GROUND MUST BE PROVIDED FOR ALL ELECTRIC HEATERS. FAILURE TO DO SO WILL RESULT IN A SIGNIFICANT SHOCK HAZARD TO PERSONNEL.

   In addition to Code wiring requirements, we recommend the use of a properly sized Ground Fault Circuit Interrupter (GFCI) to interrupt power in the event of line imbalance (ground leakage).

6. Verify that the heater sheath material is compatible with the solution to be heated.

7. Locate the heater so that a minimum of one inch clearance exists between the heater sheath and the tank at all points.

8. At no time should the heater contact anodes, cathodes or any electrified portion of the tank. Isolate or insulate heater from any electrified source.

9. Fumes can enter the open end of the electrical conduit and damage the heater. Always route the conduit on a downward angle so that any condensing vapors drain away from the heater. The open end of the conduit must never be in an area where fumes and/or vapors are being evolved. Never seal the open end of the conduit.

10. The level of solution must be kept above the hot zone at all times. ALLOWING SOLUTION TO FALL BELOW THIS LEVEL WILL CAUSE EXCESSIVE TEMPERATURE WHICH WILL POSE A SIGNIFICANT FIRE HAZARD. In noncombustible installations this high temperature will significantly reduce heater life.

11. Quartz and fluoropolymer heaters can become damaged if removed from solutions while hot. Allow 15-20 minutes of cooling time.

12. Every heater must be equipped with a quality, accurate temperature controller (bath thermostat).

13. Tank sludges will reduce heater life substantially if allowed to build-up around the heaters. Inspect for and remove all sediments and sludges BEFORE they contact the heater surfaces.

14. Inspect heater surfaces regularly and chemically remove any materials that build-up on the surfaces. Scraping heater surfaces can shorten the life of metal heaters and destroy fluoropolymer or quartz heaters. Consult your process supplier for a suitable chemical cleaner. HEATERS MUST NEVER BE HAMMERED TO REMOVE BUILT-UP DEPOSITS.

15. Should the electric heating element beneath the sheath come in contact with the tank solution, the possibility of having the full line voltage in the tank is greatly increased. Proper installation of the electrical ground will minimize this probability. If outer sheath failure is suspected:
   a. Turn power off, and
   b. Wear protective clothing before coming in contact with the heater, tank or tank contents.

16. When replacing thermal protection fuses, ensure that the fuse has “bottomed-out” (touches the end of the protective thermowell). FAILURE TO DO SO WILL RESULT IN HIGH TEMPERATURES IN THE EVENT OF LOW LIQUID LEVEL AND WILL POSE A FIRE HAZARD.

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WARRANTY

All Process Technology equipment, heaters and controls have been carefully inspected before shipping and are warranted to be free from defects in workmanship and material for a period of one year from date of purchase on a prorated basis. At its option, Process Technology will repair or replace any defects which are exhibited under proper and normal use. Process Technology disclaims any responsibility for misuse, misapplication, negligence or improper installation of equipment. Process Technology makes no warranty or representation regarding the fitness for use or the application of its products by the purchaser.

Please ensure applicability of heater before installation. Process Technology cannot guarantee heaters against premature failure due to corrosion caused by unusual conditions over which we have no control, such as:

- **Excessively high solution temperatures**
- **The concentration of a solution**
- **The presence of inhibitors**
- **The presence of other chemicals causing a secondary reaction**
- **Stray electrical currents**
- **Flux floating on the surface**
- **The presence of dissolved gases**
- **Excessive sludge build-up**
- **Stagnant or turbulent flow of the solution**
- **Aeration**
- **Presence of oxygen or an oxidizing agent in the solution**
- **Erosion**

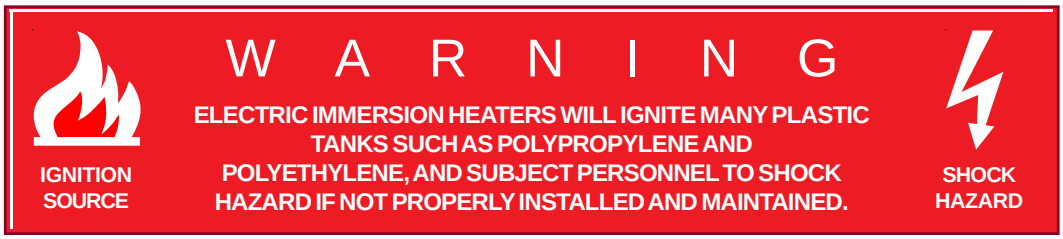
Process Technology is not liable for costs incurred in removal, reinstallation, or unauthorized repair of the product, or for damage of any type whatsoever including incidental or consequential damage.

Items returned to Process Technology for any reason shall be via freight prepaid, unless prior arrangements have been made.

RETURN/REPAIR INQUIRIES

Please direct all warranty and out-of-warranty repairs to Process Technology, Attention: Customer Service Department. Before returning any equipment, you MUST contact the Customer Service Department first to obtain a Return Material Authorization (RMA) number and form. The designated RMA number must be marked on the outside of the return package and the completed forms returned with the product. To avoid processing delays, be sure to include:

- **Completed RMA form and Material Safety Data Sheet (MSDS)**
- **Purchase order number and invoice number**
- **Returnee's name, address and phone number**
- **Model and serial number**
- **Description of the nature of the problem experienced.**
- **Repair instructions**



PROCESS TECHNOLOGY

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