INSTALLATION AND OPERATION INSTRUCTIONS FOR OGDEN CIRCULATION HEATERS

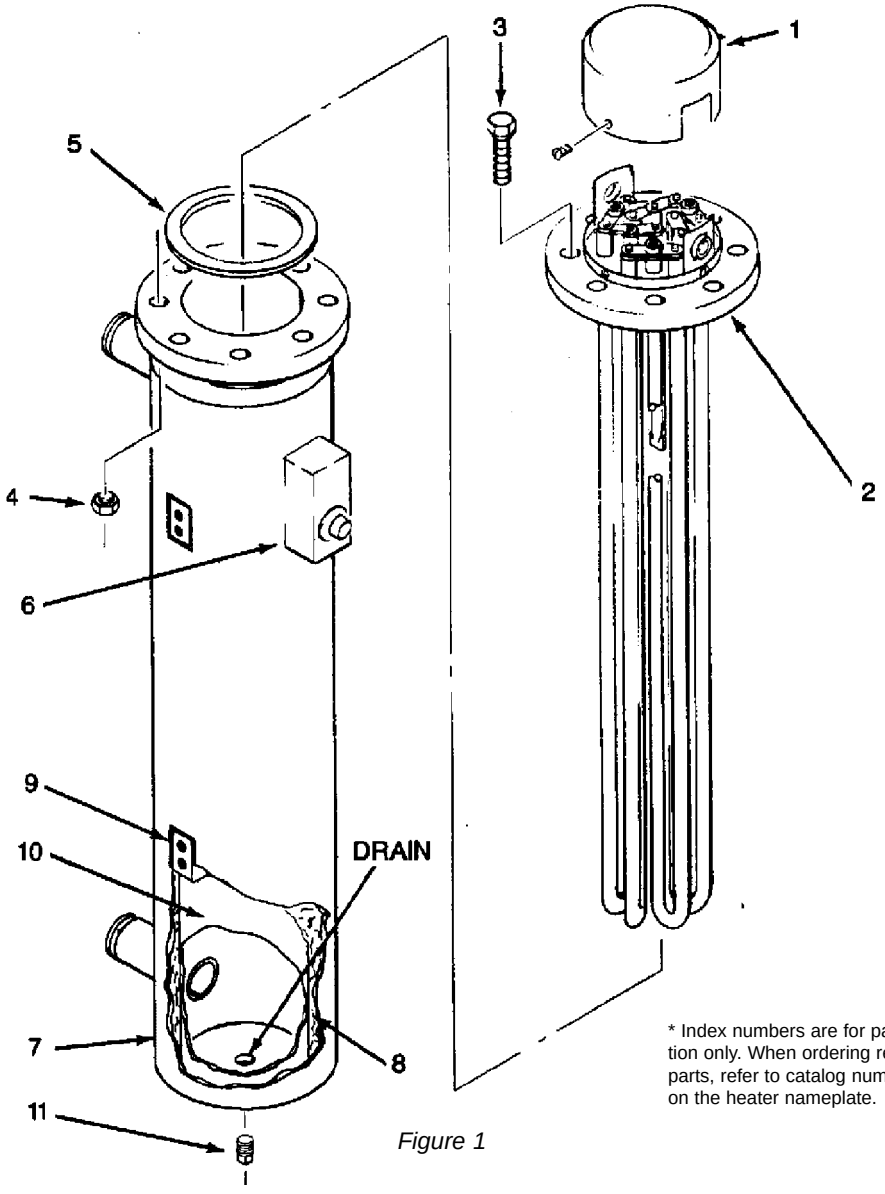

Figure 1

* Index numbers are for part identification only. When ordering replacement parts, refer to catalog number stamped on the heater nameplate.

PARTS LIST*

1. Housing
2. Heater Assembly
3. Hex Bolt
4. Hex Nut
5. Gasket
6. Thermostat
7. Sheet Metal Jacket
8. Insulation
9. Mounting Lug
10. Heating Chamber
11. Drain Plug

READ AND FOLLOW ALL INSTRUCTIONS

BEFORE INSTALLING:

1. Unpackage the heater at the place of installation. Inspect the heater for shipping damages and report any claims to the carrier. **Do not operate damaged equipment.** Consult OGDEN for instructions.

2. Check the nameplate watt and volt rating against your supply voltage and capacity and the requirements of your installation.

INSTALLATION INSTRUCTION

Mounting

1. Mounting lugs with tapped holes are located on the side of the vessel for bolting the heater to structural members or a customer fabricated support system. Heater should not be supported solely by the piping. *(See Figure 2.)*

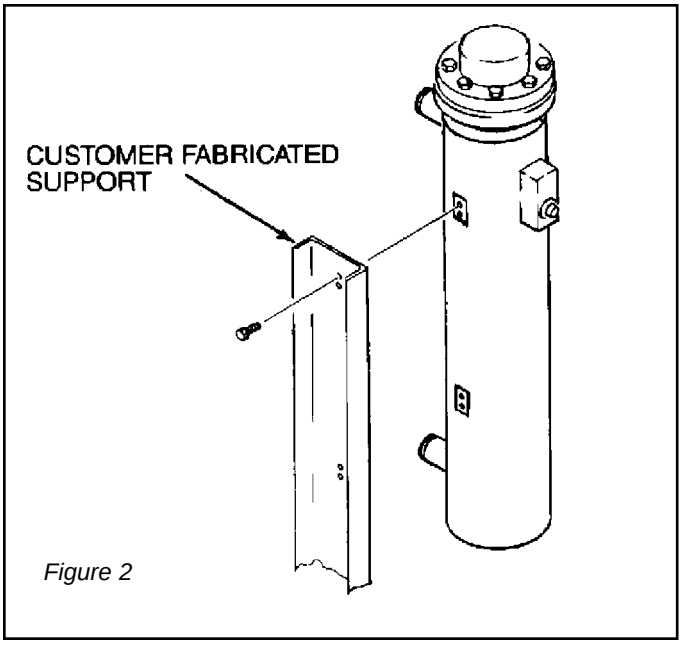

Figure 2

2. Circulation heaters may be mounted either horizontally or vertically. *(See Figure 3.)* (**NOTE:** When mounted in the horizontal position the inlet and outlet pipes must be up. If positioned in any other way, the chamber cannot be purged of air and damage to the elements may result). Allow adequate space for removing the element assembly for cleaning or servicing.

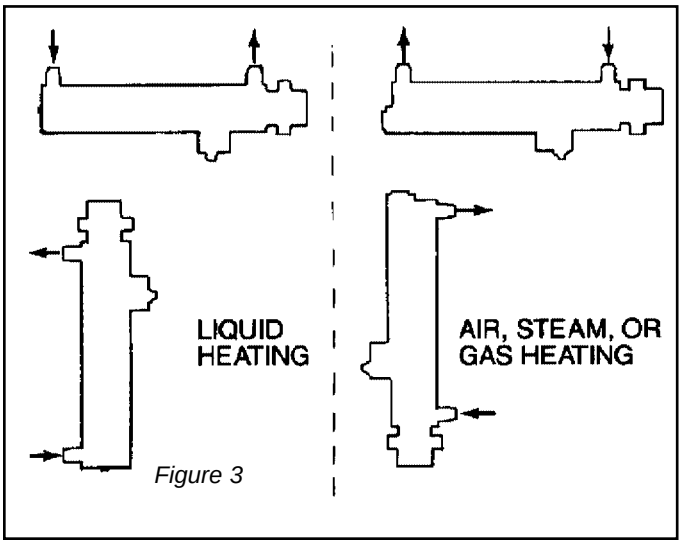

Figure 3

3. When mounted in the vertical position for *liquid heating*, the inlet is at the bottom and the outlet is at the top. A drain plug is provided at the bottom of the heater. Be sure to allow space to drain the heater.
4. When mounted in the vertical position for *air, steam* or *gas heating*, the terminal enclosure should be located at the bottom. The lower pipe is the inlet and the outlet is at the top.

Wiring

1. All wiring should be done in accordance with the National Electric Code and applicable local codes.
2. Refer to the wiring diagram(s) included in the terminal enclosure for the proper method of connecting the heater.
3. The current carrying capacity of the power supply leads should exceed the heater amperage by at lease 20%. Be sure to consider the ambient operating temperature and apply the appropriate correction factor to the ampacity rating of the wire.
4. If the heater amperage exceeds the contact rating of the thermostat, the heater should be controlled by a magnetic contactor, with the thermostat wired for pilot duty.
5. A magnetic contactor must be used if the power source is 480V or when the heater is wired for a 3-phase power source.
6. In addition to the control thermostat, specific installations may require one or more of the following to be included in the control circuitry:
    1. A flow switch: To prevent heater operation when flow rate is insufficient.
    2. Over temperature protection for material being heated: When heating sensitive materials or when material temperature must be limited.
    3. Over temperature protection for the elements: Particularly important in air and gas heating applications where maximum element temperatures can easily be exceeded.

Before Energizing

1. Check tightness of flange bolting and all piping connections.
2. Check that power connections are made according to the wiring diagram. Also check for positive connection of all bus bars and power supply leads.
3. The insulating material used in electric heaters may absorb moisture during shipping, while in storage or when subjected to a humid environment. Because this moisture can lead to eventual failure of the heater, it is recommended that the heater be subjected to a high potential test and/or checked with a megohmeter before energizing. A test voltage of 1000 volts plus twice the rated voltage should be used for the hi-pot test. [ex.: heater voltage = 480V, test voltage = 1000V + (2 x 480V) = 1960V]. A reading of 50 megohms or greater can be considered acceptable if checking insulation resistance.
4. If a moisture condition exists, energize the heater for 15 minutes at half-voltage and repeat test. Heating cycles may be repeated until satisfactory test result are obtained. This drying procedure should be performed with no material in the heating chamber.

Operation and Maintenance

1. Do not use heaters designed for heating liquids to heat air or other gases.
2. If a pump or blower is used, it should be installed on the inlet side of the heater.
3. A suitable filter should be provided at the inlet to trap any foreign material in the fluid or gas stream.
4. Maintain the minimum rated flow of gas or liquid while the heater is energized. **Do not** energize the heater without gas or liquid flow or at reduced flow rate.
5. Protect the terminal end of the heater from spray, condensation, dripping and vapors. Protective enclosures should be used if the heater is to be subjected to these conditions.
6. If the heater is to be operated in the presence of explosive vapors or dust, explosion resistant housings must be provided for the terminals and thermostat.
7. Do not heat materials that are corrosive to the sheath material. Check with the supplier of the material or OGDEN for a recommendation as to a suitable sheath material.
8. The operating conditions should not exceed the "pressure-temperature" rating of the flange.
9. The heater assembly should be removed periodically to inspect any remove any deposits from the element sheath. Sludge in the heating chamber can be removed through the drain.

BE SURE POWER IS DISCONNECTED BEFORE REMOVING ELEMENTS.