

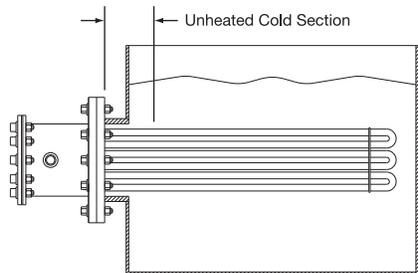
### Flanged Heater Installation and Maintenance

1. Immersion heaters should be positioned to insure they are completely covered with the liquid they are heating. However, do not position the unit too low in structures where sludge buildup could cover it. Either of these conditions could cause overheating and subsequent premature failure of the elements.
2. Heated section should start sufficiently inside tank to assure good heat transfer. On large tanks, use several smaller KW rated heaters rather than one large heater for uniform heat and watt density distribution.
3. Install adequate controls and safety devices to prevent build-up of temperature and/or pressure.
4. Make sure gasket surface is clean and dry before seating the heater.
5. Do not operate heater at a voltage in excess of that stamped on the heater. A heater can be run at a reduced voltage, remembering that this will decrease the heater's output wattage.
6. A wiring diagram is supplied in the electrical enclosure and as required, circuits on the heater are labeled.
7. All heater terminal connections should be wrench or screwdriver tight with maximum torque consistent with terminal strength. To prevent twisting heater terminals when tightening connections, use backup wrench for countertorque. Periodically check that electrical connections are clean and tight.
8. The electrical insulating material used in electric heaters is hygroscopic and may absorb moisture when subjected to a humid environment during shipping, while in storage or during long equipment shutdowns. This moisture may lower the insulation resistance enough to cause heater failure.  
A meg-ohmmeter should be used to check the insulation resistance before applying power to any questionable heater.  
If a moisture condition exists it can be corrected by baking the heater in an oven at approximately 350°F (176.7°C) until the moisture is expelled and the meg-ohms have risen to an acceptable level.
9. For heaters supplied with an integral thermostat, this thermostat functions as a temperature control only and is not a fail-safe device.
10. For TFP flanged heaters used in UL recognized oil heating applications:
  - The heated oil temperature cannot exceed 257°F (125°C)
  - TFP designs with ASA pressure rated flanges are UL rated to a maximum operating pressure of 150 psig
  - Steel sheath elements are limited to 60 watts/in<sup>2</sup>
  - Maximum Wattage/Voltage: 45KW/480V, in 5" and smaller flange sizes with 9 elements maximum

*Contact Tempco for other application specific UL file information.*

#### Quality Assured Through 100% Final Inspection

1. Resistance test — to verify wattage
2. Insulation test — to measure leakage current resistance
3. High voltage test — to “proof-test” the insulation against grounds and short circuits
4. Hydrostatic or air pressure testing — to leakproof test all welding of the elements to the flange



The tubular heating elements used in type TFP Flanged Immersion Heaters are UL component recognized and CSA certified in most design variations for general immersion heater use. The UL File Number is E90771 (CCN UBJY2/8) and the equivalent CSA File Number is 043099. They are also UL recognized under UL standard UL574 File Number MP4154 (CCN MDS2/8) for oil heating.

*If you require UL, CSA, or other NRTL agency approvals, please specify when ordering.*

### Ordering Information

#### Catalog Heaters

Catalog Part Numbers are stocked as sub-assemblies for 2-3 week delivery.

#### Custom Engineered/Manufactured Heaters

An electric heater can be very application specific; for sizes and ratings not listed, **TEMPCO** will design and manufacture a Flanged Immersion Heater to meet your requirements. **Standard lead time is 4 weeks.**

**Please Specify** the following:

- |   |  |
|---|--|
| <input type="checkbox"/> Wattage, Voltage and Phase | <input type="checkbox"/> Element Immersion Length  |
| <input type="checkbox"/> Flange Size and Material   | <input type="checkbox"/> Electrical Enclosure Type |
| <input type="checkbox"/> Element Sheath Material    | <input type="checkbox"/> Thermostat— if required   |
| <input type="checkbox"/> Element Watt Density       | <input type="checkbox"/> Optional Features         |

**⚠ WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).