

## Installation Instructions

# TEH Tubular Enclosure Heater



PB407  
161-305399-026  
May 2017

# TEH Tubular Enclosure Heater

## Safety Guidelines

The safety and performance of this heater is dependent upon proper handling, installation, control and maintenance. Since we cannot anticipate all conditions under which this information and heater, or this heater in combination with other manufacturer's products may be used, it is advised that you conduct your own tests to determine the safety and suitability of this heater in combination with other products in your application. The Safety Alert Symbol is found throughout these installation instructions to identify potential hazards that can result in personal injury. The seriousness of the potential risk is identified by one of these three words:

**DANGER** - will result in serious injury or death.

**WARNING** - could result in serious injury or death.

**CAUTION** - may result in minor or moderate injury

Read and follow these instructions to minimize risks of electric shock or fire. Save these instructions for future reference. The electric heating element(s) supplied herein are of rugged construction and if properly installed, operated and maintained, are designed for long life and dependable, trouble-free service.

### **⚠ WARNING**

***The system designer is responsible for the safety of this equipment and should install adequate back-up controls and safety devices with their electric heating equipment. Where the consequences of failure could result in personal injury or property damage, back-up controls are essential.***

## Installation

### Mounting

Model TEH enclosure heaters are provided with multiple mounting configurations. Standard models feature a perforated cage that has evenly spaced 3/8" diameter that both can be used for mounting. Models are also offered with mounting brackets equipped with holes designed for use with #8 sheet metal screws. Refer to specification data sheet for mounting dimensions. For heaters featuring custom mounting, contact Chromalox for a dimensional drawing.

Standard model TEH heaters are designed to be mounted in an enclosure or panel so that air can easily pass over the heating element. To ensure that personnel or

equipment does not come into direct contact with the heating element, model TEH heaters must be installed so that the perforated cover is facing out. Avoid mounting heater with terminals above the heating element as this may cause the terminals to overheat.

It is recommended that heater be placed near the bottom of the enclosure or panel. This will provide the most even heating by allowing natural convection to circulate the air. If several heaters are to be used, ensure that they are spaced evenly. Models starting with TEH-C (Base) and TEH-D (Top) may be stacked. Base and top heaters can be fixed to one another using 1/2" long #8 sheet metal screws.

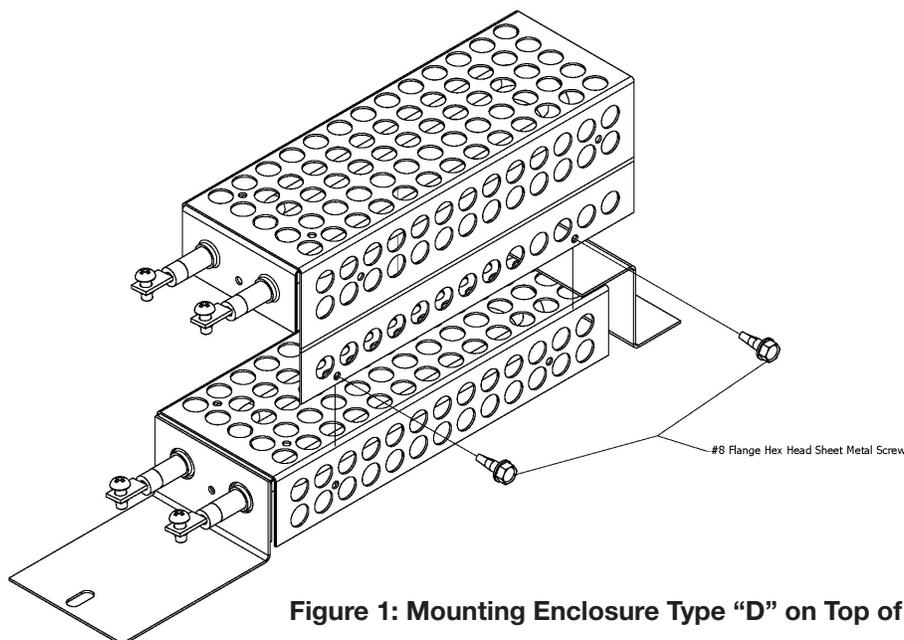


Figure 1: Mounting Enclosure Type "D" on Top of Other Enclosures

## Electrical Installation

### **⚠ WARNING**

**Model TEH heaters are designed for freeze protection and condensation removal and not for high temperature applications. They must be installed with adequate controls to ensure that they are not operated above a recommended ambient temperature of 40°C (104°F). For ease of installation, Chromalox also offers models with optional integral fixed or adjustable thermostat controls on.**

Standard model TEH heaters are equipped with either 8-32 screw terminals or 1/4" male quick disconnect terminals for connection wiring. Proper electrical installation is dictated by requirements of the end use application and local code enforcement rules. It is recommended that hook-up wire be UL and or CSA listed. Wire must have adequate insulation and ampacity ratings. It is recommended that a minimum 18 gauge, 90°C hook-up wire be used. For larger installation requiring multiple heater wired in series or parallel, ampacity may exceed maximum recommended for 18 gauge wire. In these instances, codes adopted by the governing jurisdiction must be followed.

## Operation

### Operating Temperatures

Model TEH enclosure heaters are provided with sheath watt densities between 5 and 15 wpsi and depending on the ambient temperature, sheath temperatures can vary from 500-1000°F (260°C-540°C). When used in proximity to painted sheet metal surfaces or non-metallic surfaces, it is important to ensure that proper precautions are taken so that heat damage does not occur.

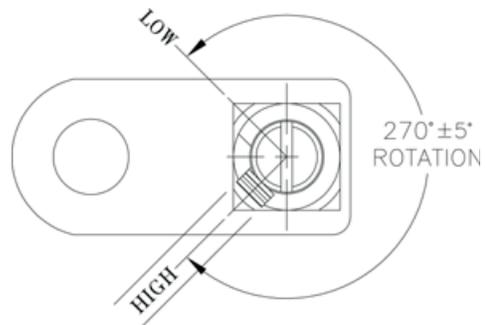
### Startup

Prior to startup, check for element continuity and resistance and if possible perform an insulation resistant testing using a MegOhm tester. MegOhm values will vary, but should be at least 5MegOhm. If values are lower, then moisture contamination may have occurred. See Maintenance section for instructions on drying out heating elements.

### Models With Integral Adjustable Thermostat

When equipped with an adjustable thermostat, heaters will turn on when the ambient temperature goes below the setpoint. Standard thermostats are 0-107°F (-18 to 42°C) non-indicating, with 270° rotation.

If heater is equipped with a custom temperature range, the range can be divided by 270° to determine increments.



## Maintenance, Storage, Repair, & Troubleshooting

### Read this First

Disconnect power before performing any maintenance or repair. Allow element to cool below 140°F (60°C) before performing maintenance or repair. Maintenance and repair should be performed only by qualified personnel.

### Preventative Maintenance

Dust and moisture contamination are typically the largest contributors to a heating elements premature failure. To avoid failure from overheating, it is recommend that a regular maintenance routine include cleaning the element and element cover with compressed air. Routinely check wiring for signs of overheating or damage. Ensure that all electrical spacings are intact.

### Storage

It is also important to ensure that while in storage, the heating element is kept in a dry area. If this cannot be accomplished, it is recommended that the elements be sealed in a moisture resistant bag or wrapped with plastic. A desiccant should also be placed near the element terminals during storage.

### Repair

It is recommended that model TEH heaters be fully replaced if damaged. Do not replace lead wires or thermostat unless specifically authorized to do so by a Chromalox representative.

### Dryout Procedure for Low Megohm Readings

Moisture contamination can be removed from heating elements in the field using several methods. For un-installed heaters, simply place the heater in an 200°F (94°C) oven for 1 hour. Heaters equipped with built in thermostats should not be exposed to temperatures above 90°C (194°F), so as not to damage the lead wire insulation or thermostat.

### Troubleshooting

If after properly following startup procedure, recheck all wire connections. If heaters still do not operate it is most likely due to failure of the internal heating coil and the element must be replaced.

For models with adjustable thermostats, adjust dial to ensure proper operation. You will hear a audible clicking sound when the thermostat reaches the current ambient temperature. A continuity test can be performed to determine if contacts have been damaged.

### Limited Warranty:

Please refer to the Chromalox limited warranty applicable to this product at <http://www.chromalox.com/customer-service/policies/termsofsale.aspx>.

**Chromalox, Inc.**  
**1347 Heil Quaker Boulevard**  
**Lavergne, TN 37086**  
**(615) 793-3900**  
**[www.chromalox.com](http://www.chromalox.com)**