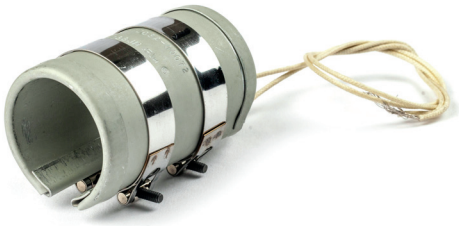
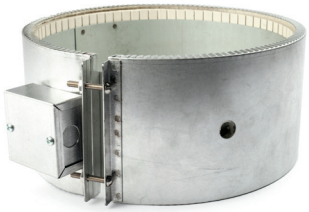
Installation & Operation Instructions

Type Band Heaters



Mica Band



Ceramic Band

Mighty-Tuff Band

AlumaFlex Band

High Density Band

Tubular Band

CHROMALOX

Advanced Thermal Technologies

PM405-1
161-048371-002
April 2020

Type Band Heaters

General

Chromalox Band Heaters are primarily designed for use on barrels and dies of plastic injection molding machines and extruders, autoclaves and heating pipe sections of various diameters and sizes.

1. This guide addresses general installation and maintenance instructions for Chromalox band heaters, including:

   A. Mica Band
   B. Ceramic Band
   C. Mighty Tuff Band (Mineral Insulated)
   D. Aluma Flex Band
   E. High Density Band
   F. Tubular Band

2. Heater consists of a nickel chromium resistor wire wound within either mica strip (Mica Band), ceramic insulators (Ceramic Band), aluminum oxide (Mighty Tuff), or magnesium oxide (Aluma Flex, High Density, and Tubular Band). Each band is encased in metal sheath of either aluminum coated steel, or stainless steel.
3. A variety of termination options are available, including stranded nickel leadwire protected by stainless steel braid, or post terminals as standard.
4. Heavy construction of clamp and bolt allow firm grip on heater and tight heater fit to pipe or barrel.

⚠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

1. Before installation, check the surface that the band heater will be applied to. The surface should be clean and clear of debris. Remove any material or dirt and check surface for irregularities which could cause hot spots.
2. One piece units should be slid on from end. Caution should be given to opening the band too far as this could compromise the joint and cause heater failure. Special expandable or two piece units may be available if the ends are obstructed. Two piece units can be placed around sur-face and attached in place.
3. After making sure that the heater is seated properly, the clamping band should be tightened down as much as pos-sible. If springs are used they should be tightened to half load. Bolts and terminals should be tightened to 20 in-lbs of torque, on initial installation, and then retightened after first heat up cycle.
4. When torqueing, care should be given to hold the bottom nut to prevent breaking of the terminals.

⚠WARNING

Do not exceed 25 inch pounds of torque when tightening the hex nuts on the heater terminals. Excessive torque will result in stripping the terminals from the refractory of the heating element.

5. Thermal insulation may be used to reduce heat losses providing insulation does not come in contact with heaters.

⚠WARNING

HAZARD OF FIRE Since heaters are capable of developing high temperatures, extreme care should be taken to:

A. Avoid mounting heaters in an atmosphere containing combustible gases and vapors.

B. Avoid contact between heaters and combustible materials

C. Keep combustible materials far enough away to be free of the effects of high temperatures.

Wiring

⚠WARNING

ELECTRIC SHOCK HAZARD. Disconnect all power before installing or servicing heater. Failure to do so could result in personal injury or property damage. Heater must be installed or serviced by a qualified person in accordance with the National Electrical Code, NFPA 70.

⚠WARNING

ELECTRIC SHOCK HAZARD. Any installation involving electric heaters must be performed by a qualified person and must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.

1. Power supply voltage should be the voltage specified on the heater. Wiring must be in accordance with local and National Electric Codes.
2. Use high temperature manganese nickel leadwire or alloy busbar for electrical connections at the heater itself.
3. Protection with properly sized fuses and breakers is important to minimize hazards.

Operation

1. Do not operate heaters at voltages in excess of that stamped on the heater since excess voltage will shorten heater life.
2. Electrical terminals should be protected against spillage of plastics, water, oil, and their vapors which can create electrical hazards and/or heater failure.
3. **CAUTION:** Sheath temperatures of heaters should not exceed the following values:

   Mica Band: 800˚F
   Ceramic Band: 1600˚F
   Mighty Tuff Band: 1200˚F
   Aluma Flex Band: 650˚F
   High Density Band: 1200˚F
   Tubular Band: 1200˚F

Maintenance

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.

Dryout Procedure or Low Megohm Readings

Moisture contamination can be removed from heating elements in the field using several methods. For uninstalled heaters, simply place the heater in an 200°F (94°C) oven for 1 hour.

Drying Out an Installed Heater

Energize the heater at approximately 1/2 the rated voltage (1/4 Wattage). Operating the heater under these conditions produces enough heat in the elements to drive the moisture out while reducing the risk of overheating the equipment. However, even at 1/4 wattage it is possible to overheat and damage the equipment or the heated media. The temperatures of the element sheath material, heated media and associated process equipment must still be limited to safe values. Failure to limit sheath temperatures could permanently damage the elements and void the equipment warrantee. If the heater has an over temp control or sensor, use this device to limit the operating temperature (sheath temperature) to safe limits during the dry out process. Continue the process until the heater circuits read 1.0 Megohm or higher.

Note: If the heater has a phase angle SCR control, set the SCR controller manually for 1/2 on. This procedure will produce ¼ wattage while limiting the peak voltage applied to the heater to approximately 1/2 rated voltage.

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.

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