

Ceramic Band Heaters Are Designed To Conserve Energy and Improve Operation Efficiency

Thermal Solutions of Texas' ceramic insulated band heaters are designed and engineered to meet the ever increasing demand for energy conservation and to improve operation efficiency. Ceramic band heaters are capable of generating the high temperatures essential to process today's high temperature resins.

Design Features

- Built-In thermal insulation
- Conserves electrical energy
- Minimum heat loss
- Fully flexible for easy installation
- Good temperature uniformity
- Longer heater life
- Various constructions and terminations
- Heats through conduction and radiation
- Designed to your specifications

Performance Ratings

- Maximum Temperature: 1400°F (760°C)
- Nominal Watt Density: 20-45 W/in² (3-7 W/cm²)
- Maximum Watt Density: 45 W/in²

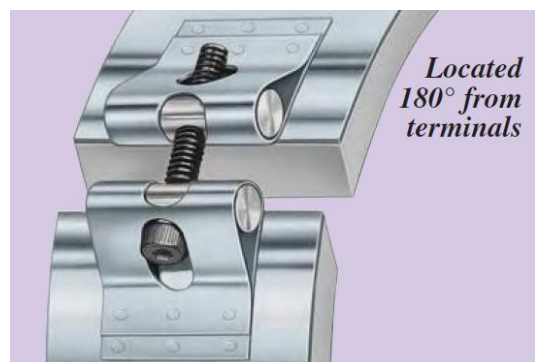
Physical Size Construction Limitations

- Sheath material: stainless steel
- Insulation material: Ceramic fiber blanket
 - Standard thickness: 1/4"
 - Double thickness – 1/2"
- Overall thickness:
 - Standard insulation: 5/8"
 - Double insulation: 3/4"
- Minimum width: 1"
- Standard width increments: 1/2"
- Maximum width: Dependent upon the ratio of diameter to width
- Width tolerance: 1" to 3-1/2": ±1/16"
4" to 6-1/2": ±1/8"
Over 6-1/2": ±1/4"
- Minimum diameter: 2"
- Maximum diameter—One-Piece: 21"
Two-Piece: 44"
- Nominal Gap: 3/8", ±1/8"—If a larger gap is required for probes or thermocouples, specify when ordering.



Electrical Ratings

- Maximum voltage with screw terminals: 480 VAC
- Maximum recommended voltage with leads: 240 VAC
- Maximum Amperage: lead wire termination – 10A (per circuit), screw terminals – 25A
- Resistance Tolerance: +10%, -5%
- Wattage Tolerance: +5%, -10%

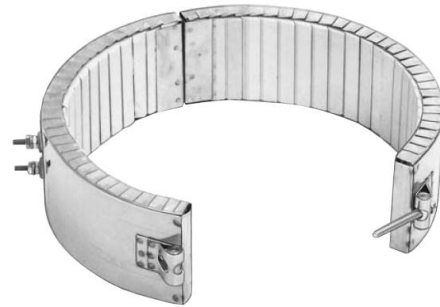


Construction Styles:



One-Piece Band

The One-Piece is available with all types of insulation, construction styles, clamping or termination variations.
Min. ID: 2" Min. Width: 1" Max. ID: 21"



Two-Piece Band

The Two-Piece is available with all types of insulation, construction styles, clamping or termination variations.
Min. ID: 4" Min. Width: 1" Max. ID: 44"

Clamping Variations:



Built-in Bracket

The Built-In Bracket is the most basic design, with a 1/4-20 standard screw. It can be supplied with a spring loaded screw, which aids in absorbing thermal expansion.



Latch and Trunion

The spring loaded Latch and Trunion clamping system is ideal for bands over 12" in diameter to absorb thermal expansion and facilitate installation on large bands.



Bent Up Flange

The Bent-Up Flange (Ears) is available with all types of insulation, construction styles, and termination variations.



Shell Overlap

The Shell Overlap design is the preferred method of providing a thermocouple mounting hole in a ceramic band heater.

Ceramic Band Terminations:



T3 Screw Terminals

Type T3 Screw Terminals are available with all styles and variations. They are considered to be standard on most band heaters unless otherwise specified.



T2 Screw Terminals

Type T2 terminals are available with all styles and variations. Considered standard on most band heaters under 2" in width. Includes high temperature washers and nuts.



Straight Lead Wires

Straight lead wires are available with all styles and variations. They are used primarily on small diameter bands where clearance is limited.

Abrasive Resistant Lead Terminations:



Straight Braided Leads

Wire braided leads offer sharp bending not possible with armor cable.



Straight Armor Cable

Armor cable provides far superior protection to lead wires where abrasion is a constant problem. Available in galvanized or stainless.



Right Angle Armor Cable

Right angle cable leads are used where space is limited and abrasion is a constant problem. Available in galvanized or stainless.

Terminal Boxes:



Standard Box

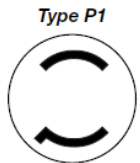


Low Profile Box

Low Profile Box

Terminal Boxes are available with all types of insulation, construction styles, or clamping variations. It is a simple and economical way to protect employees from electric shock or prevent electric shorts that can result from exposed wiring on band heater electrical installations. The Heavy Duty Terminal Boxes have a 1/2" trade size knockout (actual diameter 7/8") that will accept standard armor cable connectors. The boxes can be field assembled on band heaters that have a center distance between screws of 7/8". To simplify installation the boxes can be pre-wired with galvanized armor, stainless steel armor, or wire braid.

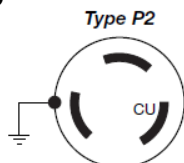
Electrical Plugs



Type P1

NEMA L1-15P

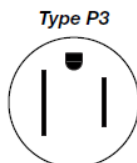
Twist-Lock
15A – 125V



Type P2

NEMA N/A

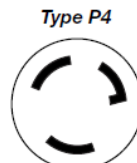
Twist-Lock
10A – 250V
15A – 125V



Type P3

NEMA 5-15P

Straight
15A – 125V



Type P4

NEMA L5-15P

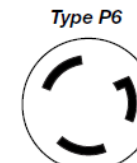
Twist-Lock
15A – 250V



Type P5

NEMA L6-15P

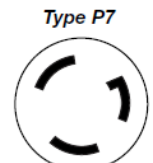
Twist-Lock
15A – 250V



Type P6

NEMA L6-20P

Twist-Lock
20A – 250V



Type P7

NEMA L6-30P

Twist-Lock
30A – 250V

Quick Disconnect Plugs



High Temp Cup Assy



High Temp Low Profile



Vertical Box Assembly



Horizontal Box Assy

Quick Disconnect Plugs are available on any construction or clamping variation. These quick disconnect plug assemblies are highly recommended and should be used whenever possible. The combination of plug and cup assembly along with armor cable covered leads eliminates all live exposed terminals or wiring that can be a potential hazard to employees or machinery.

Optional Features

- **Dual Voltage**

Band heaters can be designed using 3-wire series/parallel circuits for dual voltage applications. Whether the heater is run on the high or low voltage, the wattage will be the same. Dual voltage wiring is available with all types of insulation, construction styles and clamping variations.

- **Three Phase**

On very high wattage band heaters it would be advantageous to set up the wiring three-phase to reduce the current load across a single conductor. Three-Phase wiring is available with all types of insulation, construction styles, and clamping variations.

- **Dual Phase**

Ceramic band heaters can be designed with multiple circuits to operate in single or three-phase circuits.

- **Electrical Plugs**

Industry standard NEMA twist lock electrical connectors are available. The plugs can be attached to fiberglass leads, armor cable or wire braid. Electrical Plugs can be added to any termination variation.

- **Terminal Lugs**

Various types of crimp terminals can be attached to the heater leads to make wiring into applications quick and easy. High temperature [1200°F (649°C)] ring terminals and nylon or PVC insulated terminals are available. Spade, ring, and right-angle or straight quick disconnect type terminals can be attached to the leads.

- **High Temperature Lead Wire**

When required, high temperature lead wire can be used. The wire is insulated with mica tapes over the stranded nickel conductors and then treated fiberglass overbraid. Maximum temperature: 450°C (842°F)

- **Ground Terminal or Lead**

For those applications requiring a separate ground terminal or lead attached to the heater sheath. A Ground Terminal or Lead is available on any construction or termination variation.

- **Oversize Gap**

The nominal gap is 3/8". If a larger gap is required for probes or thermocouples, specify when ordering.

How to Order

SECTIONS: ONE-PIECE TWO-PIECE

CONSTRUCTION STD 1/2" INSULATION DBL 1/2" INSULATION

RATING: VOLTS WATTS

SIZE: INSIDE DIAMETER Inches MM
 WIDTH Inches MM

CLAMPING: BUILT IN BRACKET LATCH & TRUNION BENT-UP FLANGE SHELL OVERLAP

TERMINATION: STD POST TERMINALS Parallel Inline
 BRAIDED WIRE LEADS Length: IN
 ARMOR CABLE LEADS Length: IN Galvanized Stainless Steel Right Angle
 LOW PROFILE TERMINAL BOX Standard Galvanized Stainless Steel Wire Braid
 GENERAL PURPOSE TERMINAL BOX Standard Galvanized Stainless Steel Wire Braid
 QUICK DISCONNECT HIGH TEMP PLUG Cup Assembly Only Straight Plug Right Angle
 Galvanized Armor Stainless Steel Wire Braid
 QUICK DISCONNECT MED TEMP PLUG Vertical Horizontal Straight Plug Right Angle
 Box Assembly Only

OPTIONS: DUAL VOLTAGE
 THREE PHASE
 DUAL PHASE
 GROUND LEAD
 HIGH TEMP LEAD WIRE
 ELECTRICAL PLUG P1 Twist Lock P2 Twist Lock P3 Straight P4 Twist Lock
 P5 Twist Lock P6 Twist Lock P7 Twist Lock
 HIGH TEMP LUGS Ring #12 AWG: 16-14
 #10 AWG: 16-14 22-18 12-10
 #8 AWG: 16-14 22-18 12-10
 Spade #8/10 AWG: 22-18
 #8 AWG: 16-14
 #10 AWG: 22-18