

B A N D H E A T E R S



**HEATER**LOGIX



# MINERAL INSULATED BAND HEATERS

## MINERAL INSULATED BAND

Heaterlogix, recognizing the need for a heater with operating temperature capabilities exceeding that of mica-insulated bands, pioneered the development of the mineral insulated band heater and received a patent on this technology.

In both laboratory and factory conditions, the MI Band has performed without fail in temperatures up to 1400° F (760° C) and watt densities of 100 watts per square inch (15.5 w/sq. cm).

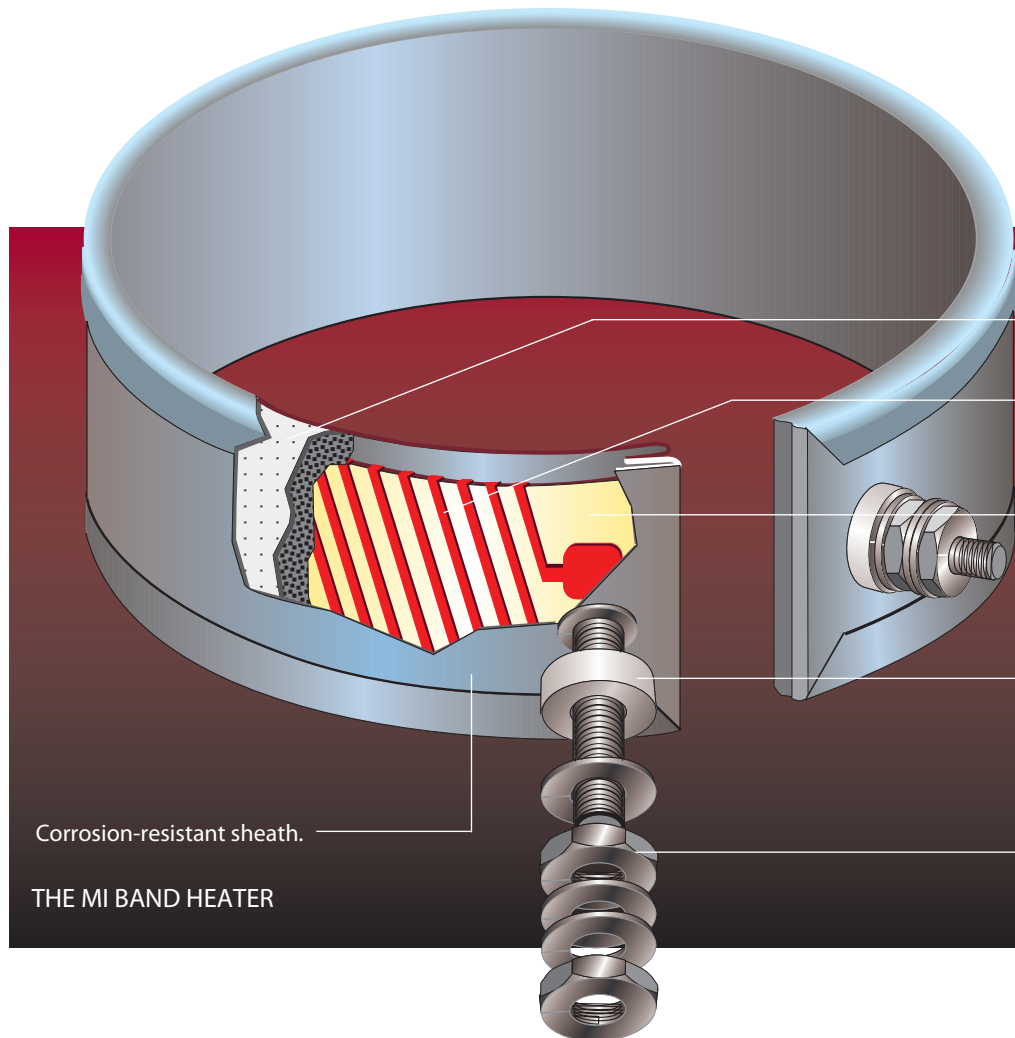
## FEATURES AND BENEFITS

- Maximum watt densities; far in excess of any other type of band.
  - Highest application temperatures available.
  - Best possible clamping and the resulting improved efficiency.
  - Longest life available for any application and reduction of equipment downtime.
  - High heat transfer rates and the resulting fast response.
- Rapid heat-up capabilities and no fear of heater failure.
  - Reduced number and physical size of heaters required per application.
  - Cost-effective performance.
  - Choose a MI Band when the temperature of the heater will exceed 650° F (343° C).
  - Expandable or two-piece construction.

## APPLICATIONS

The MI will consistently out-perform other bands in virtually any application. Its ability to withstand extremely high heat makes it the best choice for the plastics industry, especially when processing engineering-grade resins. Additional uses include heating pipes, chemical processing and drum heating.

In addition, MI Bands can be modified to meet the demands of virtually any special application. Our engineers can utilize a variety of alternative features and options to customize the heater to your specific needs.



# SEALED MI BAND HEATERS



## MATERIAL AND CONSTRUCTION

- Precision engineered with computer-selected wound resistor element.
- Efficient low expansion clamping systems or welded-to-the-sheath clamping ears.
- Optional lead and screw termination styles.
- High temperature patented mineral insulation heat transfer media.
- High temperature oxidation-resistant sheath material commensurate with maximum operating temperature.

- Stainless steel screw terminals welded to an internal stainless steel pad effecting a positive and secure electrical connection. The surrounding area is insulated with a high temperature refractory cement and ceramic insert.
- When lead wires are specified, they are also welded to a stainless steel pad. The U.L./C.S.A. (please specify) high temperature mica tape lead wire, 842° F (450° C), is ideally suited for most applications.

## MI BAND SPECIFICATIONS

Optional features include a sealed low-profile cap and tube termination system for low clearance applications. The tube may be lengthened to accommodate radius bends to clear a nozzle hex or other obstructions.

Braid and armor lead wire protection is available. A 10" (25.4 cm) length is standard.

Flexible leads are 10" (25.4 cm) standard. Other leads are available upon request.

Diameters from 3/4" (19 mm) up to 36" (91.4 cm) typical.

Widths from 3/4" (19 mm) up to 6" (152.4 mm) maximum.

## SEALED MI BAND

The revolutionary Sealed MI Bands offer the longest heater life in the most severe band heater applications. The contamination resistant construction, coupled with the high watt density capabilities, make the Sealed MI Band the obvious choice for the plastics industry.

## SPECIFICATIONS

The Sealed MI Band, with its stainless steel seamless sheath and welded ends, will not allow contamination to enter the heater from points normally experienced in general band heater construction. To be completely contamination proof, this design may have leak proof convoluted armor attached over leads, which prevents contamination through the lead area. Contact Heaterlogix for details.

## FEATURES AND BENEFITS

- Sealed for life.
- Compact mineral insulation.
- Sealed power leads.
- Rugged lead protection.

Diameters from 3/4" (19 mm) up to 36" (91.4 cm) typical.

Widths available in 3/4", 15/16", 1", 1 1/16", 1 1/4", 1 5/16", 1 3/8", 1 1/2", 1 3/4", 2", and 2 1/2". (19 mm, 23.8 mm, 25.4 mm, 27 mm, 31.7 mm, 33.3 mm, 34.9 mm, 38.1 mm, 44.5 mm, 50.8 mm, and 63.5mm).

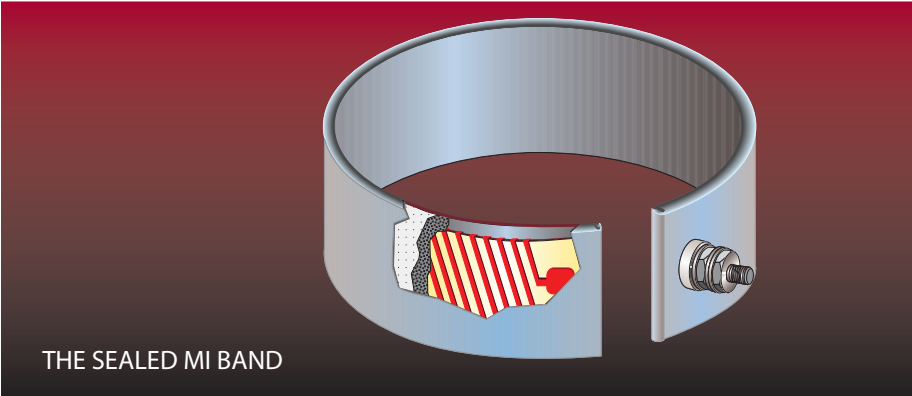
Mineral insulation provides excellent insulating and heat transfer properties.

Precision engineered wound resistance element.

High temperature insulation.

Insulating ceramic.

In addition to screw terminations, several lead wire variations are also available.





# MICA BAND HEATERS

## MICA BAND

Heaterlogix's reliable, inexpensive Mica Band heaters are best suited for uses involving low to moderate temperatures. Mica Bands also offer a wide variety of termination and clamping styles.

Heaterlogix's Mica Bands feature thin construction and high quality insulation for effective heat transfer and excellent dielectric qualities. If C.S.A. approval is required for lead wire, please notify Customer Service when ordering.

## APPLICATIONS

Ideally suited for plastics industry applications, the Mica Band can be used for heating commodity resins in injection molding machines, extruders and blow molding machines. Other applications can be found in the food and pharmaceutical industries or any situation in which efficient band heating is required.

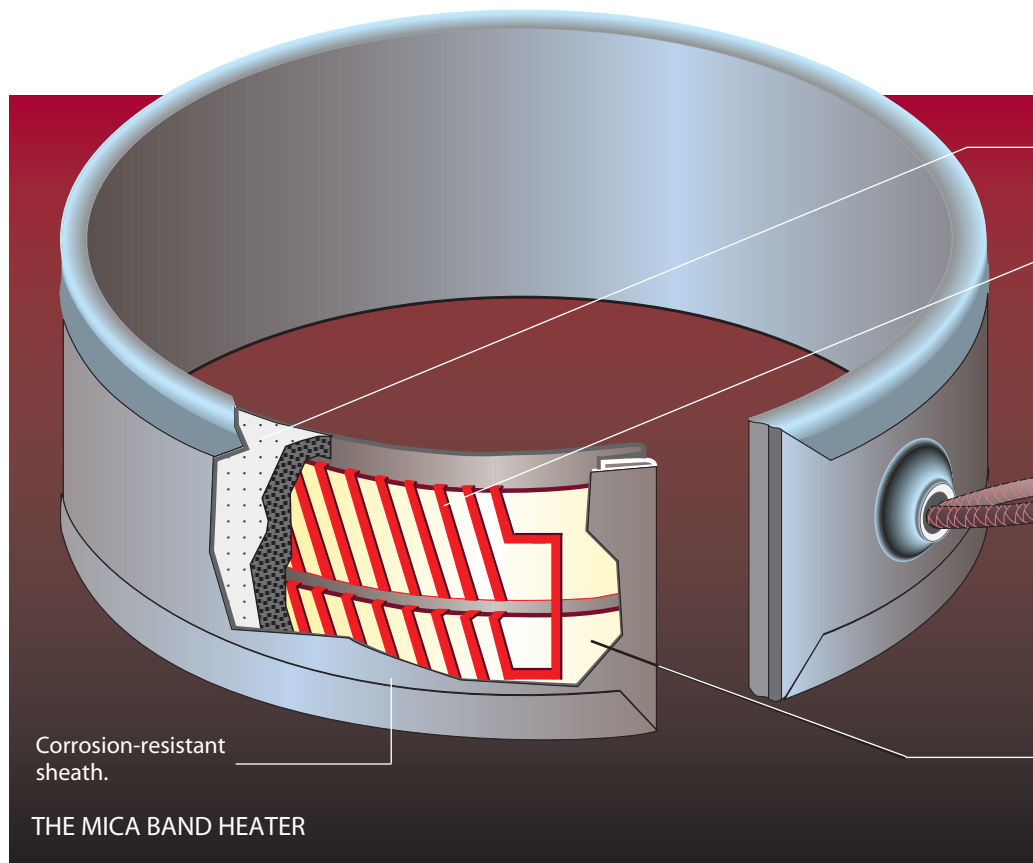
In addition, Mica Bands can be modified to meet the demands of virtually any special application. Our engineers can utilize a variety of alternative features and options to customize the heater to your specific needs.

## FEATURES AND BENEFITS

- Make a Heaterlogix Mica Band your selection when price and quality is a consideration.
- Thin construction for effective heat transfer.
- Available for partial band applications.
- Reverse bands for application into rolls. Heating from the inside out.
- Expandable or two-piece construction.

## MATERIAL AND CONSTRUCTION

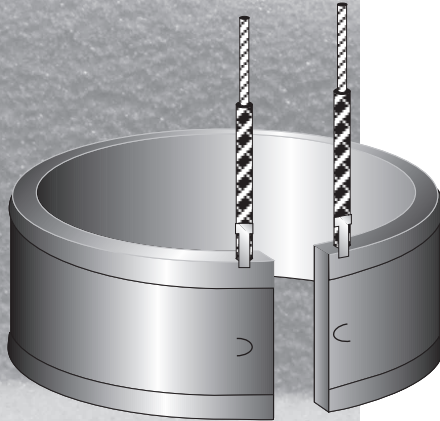
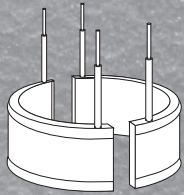
- All heaters are computer designed.
- Designs consistently offer maximum resistor coverage.
- Ends of heaters incorporate folded-in lips to resist contamination.
- All bands are accurately rolled to the specified diameter for optimum contact.
- Reliable welded internal termination junction whether screw or lead terminals are specified.
- A variety of lead protection systems are available to protect against flexing, abrasion and contamination.
- High quality mica used in all designs.
- Oxidation-resistant metal enclosures.
- U.L. and C.S.A. (please specify) approved lead wires.





# MI & MICA BAND HEATERS

## FLEXIBLE LEADS NEAR GAP



MI and Mica Band

w/ Clip Support Plain Leads

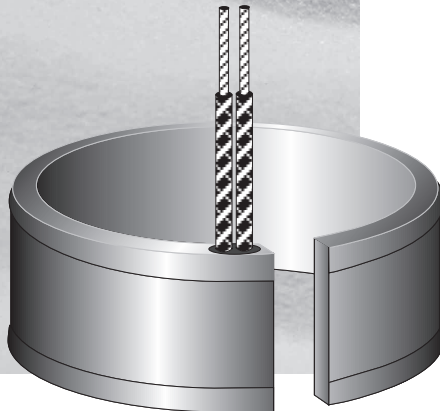
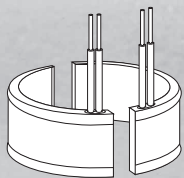
w/ Clip Support St. Braid Over a Pair of Leads

w/ Clip Support St. Braid Over Each Lead

w/ Clip Support St. Armor Over a Pair of Leads

A	•	•		•	•		
B	•	•	•	•			

## FLEXIBLE LEADS NEAR GAP



MI and Mica Band

Bands are available with leads exiting axially on each side of the gap.

Supplied with full contact clamping for longer heater life.

10" (25.4 cm) leads standard, other lengths available.

See chart A.



### TWO-PIECE HEATERS

- Specify for easy installation/removal where projections or tandem positioned heaters are in use.
- When using two-piece heaters, each half is designed with half of the total wattage requirement. This has the capability of being used on either 120 Volts ( $V_1 = V_2 = V_{Total}$ ) when connected in parallel or 240 Volts ( $V_1 + V_2 = V_{Total}$ ) when connected in series.



This heater termination style available.

Leads exiting axially on one side of gap supplied with full contact clamping for longer heater life.

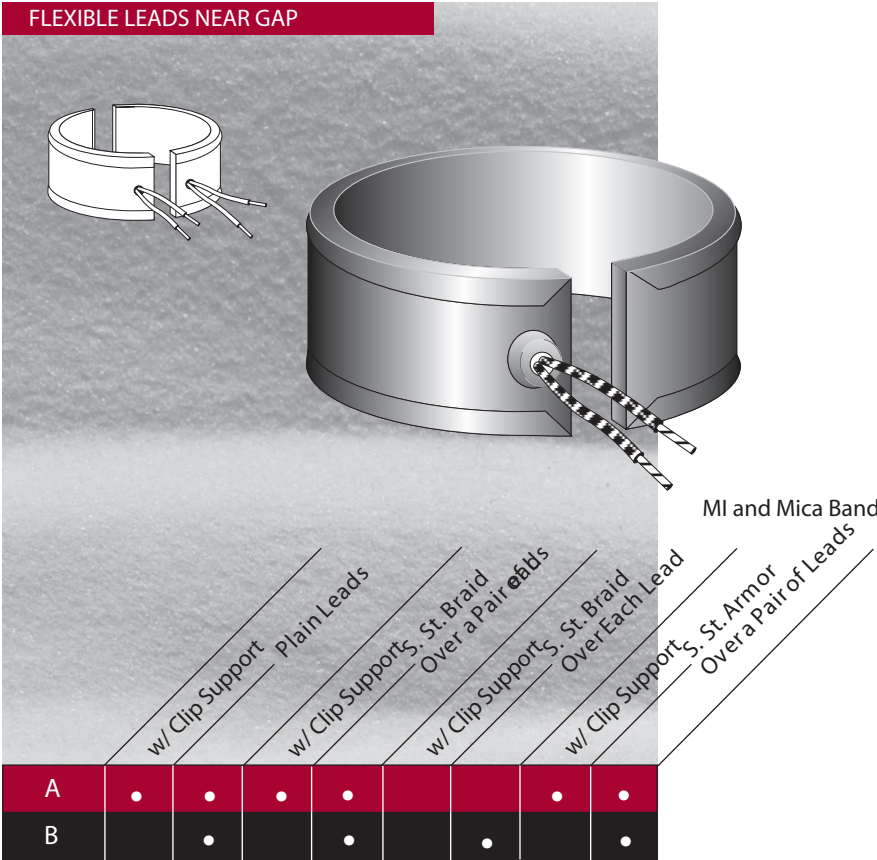
10" (25.4 cm) leads standard, other lengths available.

See chart B.

# MI & MICA BAND HEATERS



## FLEXIBLE LEADS NEAR GAP



Leads exit along the width on one side near the gap.

10" (25.4 cm) leads standard, other lengths available. Standard lead exit.

This style of lead exit can be selected when there is minimum clearance around the heater.

As with all lead type heaters, variations of lead protection and support are available.

See chart A.

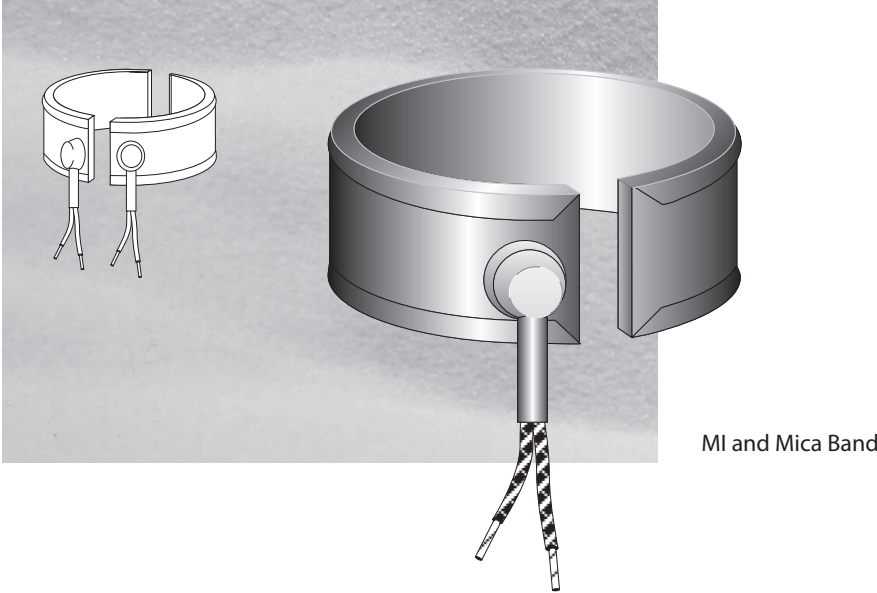


### GROUND WIRE

- A ground wire is available on most heaters where grounding is required.
- Consult Heaterlogix for details.

This heater termination style available.

## FLEXIBLE LEADS W/ CAP NEAR GAP



Low profile cap with leads exiting axially through cap and tube near the gap.

10" (25.4 cm) leads standard, other lengths available.

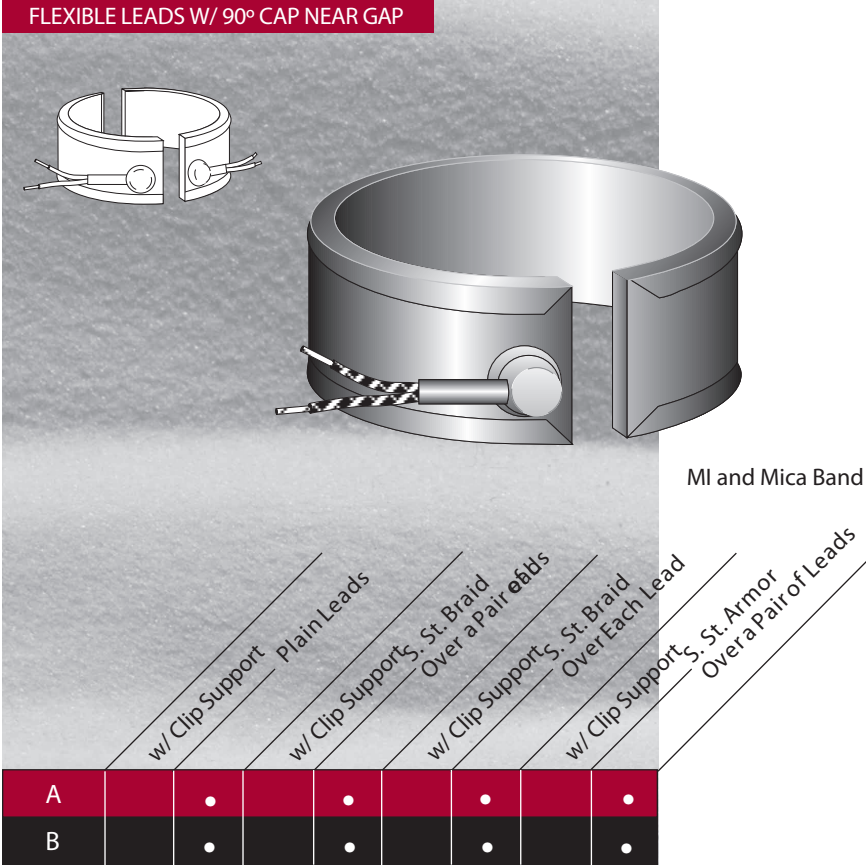
Leads exit in direction of junction/termination. If heaters are in tandem, they can be positioned next to one another.

See chart B.



# MI & MICA BAND HEATERS

## FLEXIBLE LEADS W/ 90° CAP NEAR GAP



Low profile cap with leads exiting 90° to axis through cap and tube along length.

Ideal for installations where access is limited.

10" (25.4 cm) leads standard, other lengths available.

See chart A.



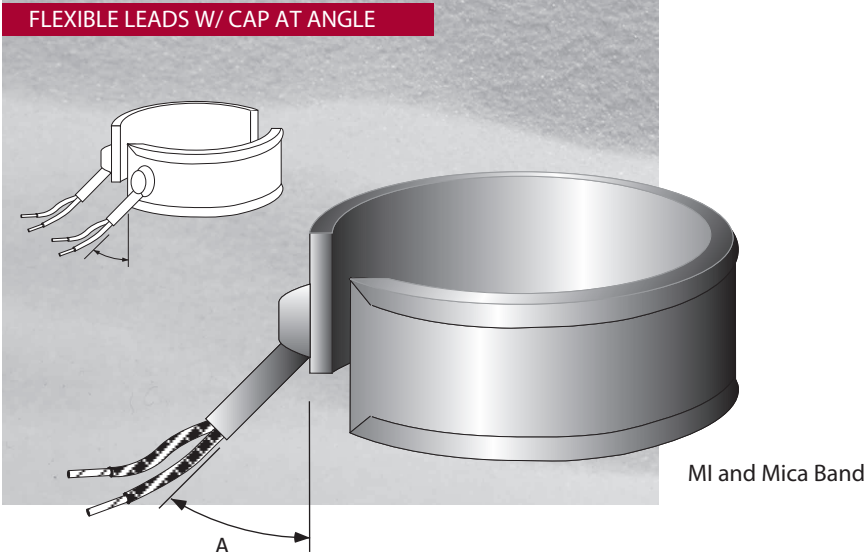
### CAP AND TUBE

- Cap and tube exit of leads provides a substantial and contamination resistant exit from the heater.
- In nozzle or similar applications where heaters are close to one another, the upward angle of the tube directs the leads over the adjacent heater, thus preventing the leads from contacting the hot surface.



This heater termination style available.

## FLEXIBLE LEADS W/ CAP AT ANGLE



Leads exiting through cap and tube near gap. Angle of tube may be specified at 15°, 30° or 45°.

10" (25.4 cm) leads standard. Other lengths available.

Please specify angle (A) of tube.

See chart B.



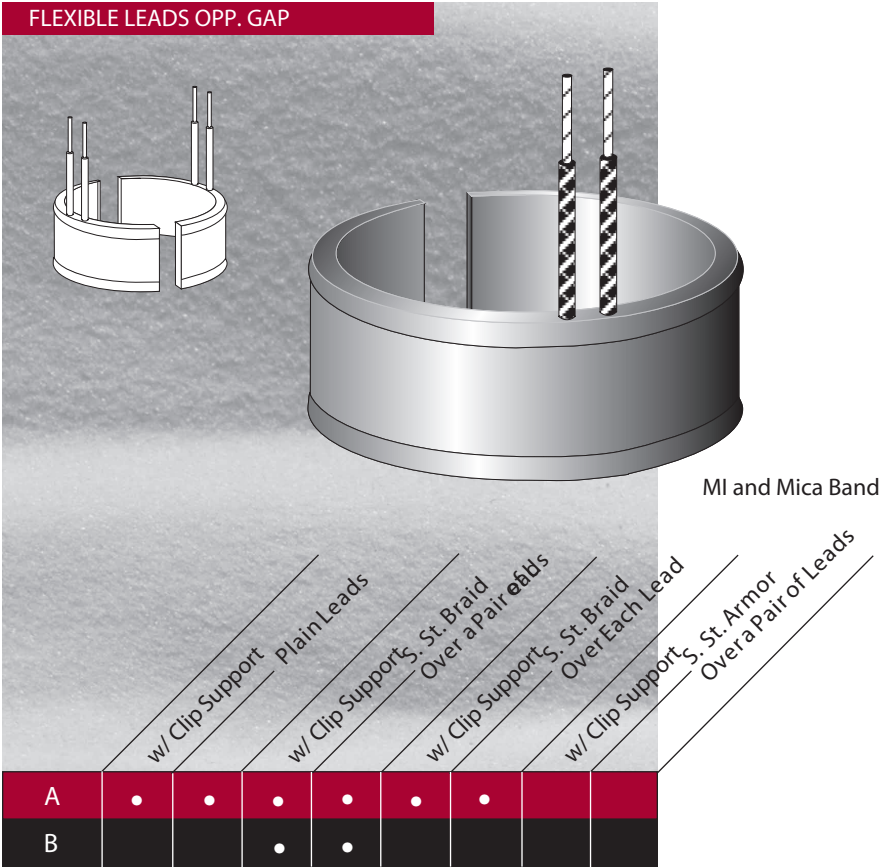
### LEAD PROTECTION

- Armor and braid are accessories that may be added to protect the leads from abrasion and/or some forms of contamination.

# MI & MICA BAND HEATERS



## FLEXIBLE LEADS OPP. GAP



MI and Mica Band

Leads exiting axially from thickness opposite the gap.

10" (25.4 cm) leads standard, other lengths available.

These heaters are generally specified when clearance around the heater is not adequate to allow the lead to exit from the heater pressure plate.

See chart A.



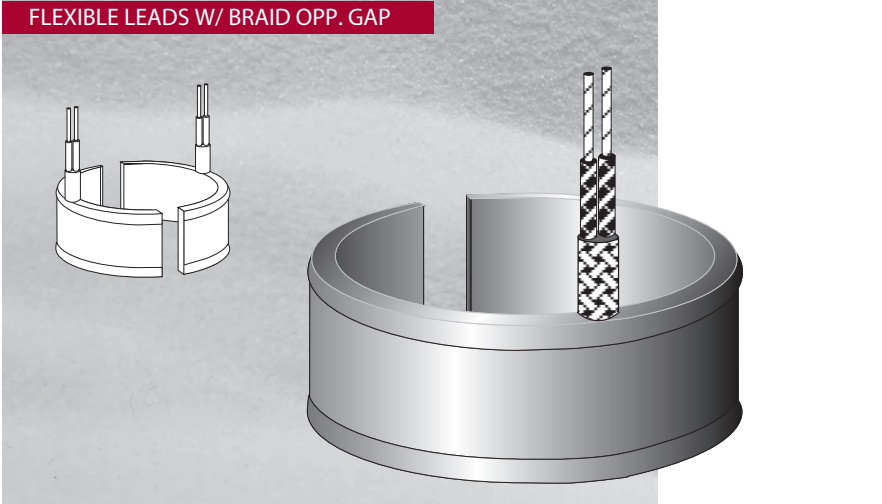
### CLIP SUPPORT

- Clip supports may be specified on many lead wire exits to reduce straining of the lead junction.
- Clip supports are standard on all Better Band heaters.
- Consult Heaterlogix for details.



This heater termination style available.

## FLEXIBLE LEADS W/ BRAID OPP. GAP



MI and Mica Band

Two leads in one braid exiting axially from thickness opposite the gap.

10" (25.4 cm) leads standard, other lengths available.

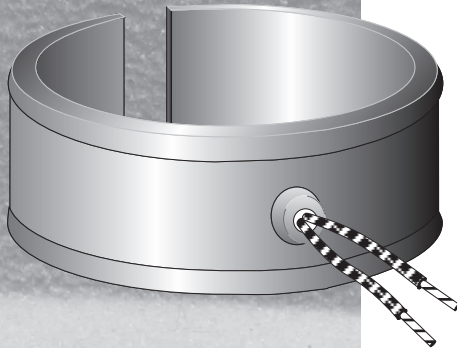
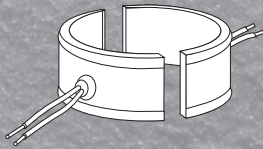
See chart B.





# MI & MICA BAND HEATERS

## FLEXIBLE LEADS OPP. GAP



M and Mica Band

w/ Clip Support

Plain Leads

w/ Clip Support, St. Braid  
Over a Pair of Leads

w/ Clip Support, St. Braid  
Over Each Lead

w/ Clip Support, St. Armor  
Over a Pair of Leads

A



B



Standard lead exit opposite the gap.

10" (25.4 cm) leads standard, other lengths available.

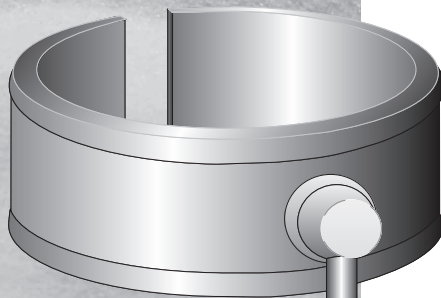
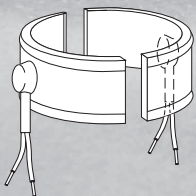
Cap is welded onto sheath. Various lead protection options are available.

See chart A.



This heater termination style available.

## FLEXIBLE LEADS W/ CAP OPP. GAP



MI and Mica Band

Leads exiting axially through cap and tube opposite the gap.

10" (25.4 cm) leads standard, other lengths available.

Cap and tube give protection near the sheath.

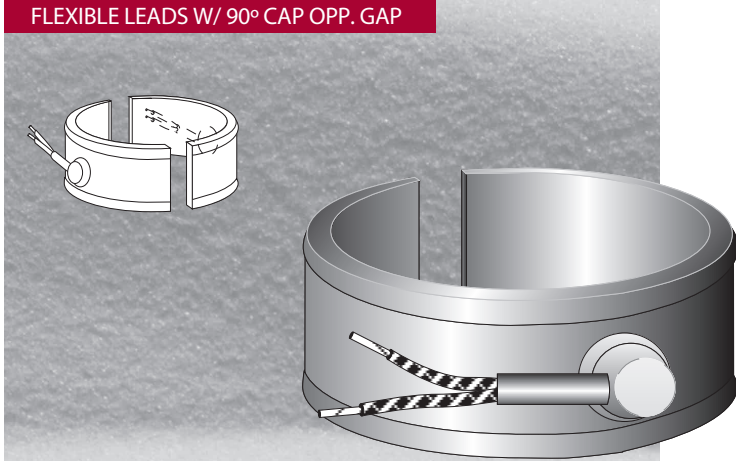
Additional protection is available.

See chart B.

# MI & MICA BAND HEATERS



## FLEXIBLE LEADS W/ 90° CAP OPP. GAP



Leads exiting through cap and tube along length opposite the gap.

10" (25.4 cm) leads standard, other lengths are available.


Cap and tube give protection near the sheath.

Available in both Mica and MI Band constructions.

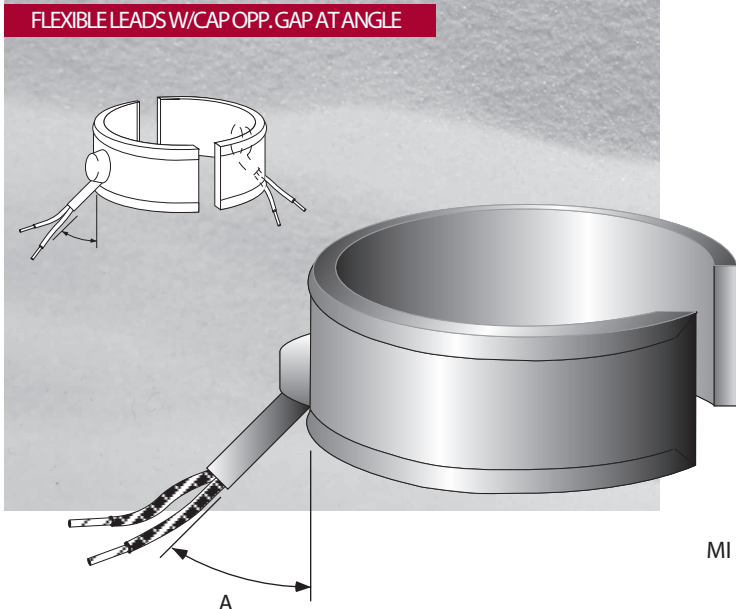
See chart A.

MI and Mica Band

	w/ Clip Support	Plain Leads	w/ Clip Supports, St. Braid Over a Pair of Leads	w/ Clip Supports, St. Braid Over Each Lead	w/ Clip Support, St. Armor Over a Pair of Leads
A	•	•	•	•	•
B	•		•	•	•

 This heater termination style available.

## FLEXIBLE LEADS W/CAP OPP. GAP AT ANGLE



Leads exiting through cap and tube opposite gap.

Having the lead exit/tube raised up at an angle allows heaters to be positioned immediately next to one another without having the leads come in contact with the adjacent heater.

The angle of tube may be specified at 15°, 30° or 45°.

10" (25.4 cm) lead standard. Other lengths available. Please specify angle "A" of tube.

Additional protection is available.

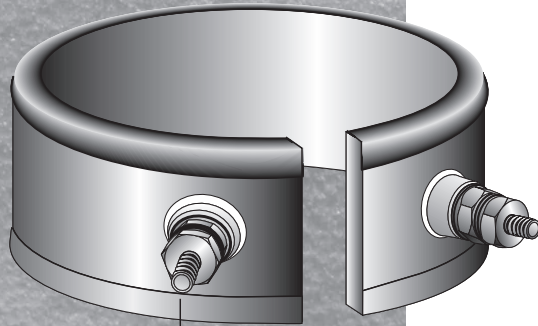
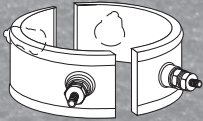
See chart B.

MI and Mica Band



# MI & MICA BAND HEATERS

## SCREW TERMINALS



MI and Mica Band

Width  $7/8"$  -  $13/16"$  (22.2-30.2 mm)  
Under 15 Amps

Width  $7/4"$  (31.8 mm) or More  
Under 20 Amps

Width  $7/4"$  (31.8 mm) or More  
Over 20 Amps

A	8-32 Thread	10-24 Thread	1/4-20 Thread
B	8-32 Thread	10-24 Thread	1/4-20 Thread

Band with screw terminals on top; one on each side of gap.

This permits easy connection to power leads w/lugs.

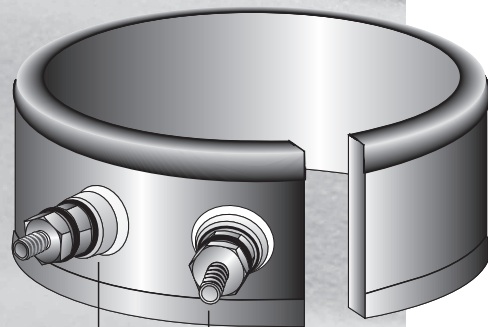
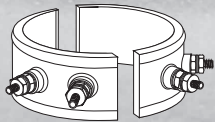
See chart A.



### SCREW TERMINALS

- Screw terminals are specified when user wants to provide their own wiring harness.
- Replacement is easier in case of heater failure.
- Junction boxes can be placed over the terminals for protection.

## SCREW TERMINALS



MI and Mica Band

$7/8"$  Ref. (22.2 mm)     $3/4"$  Ref. (19.05 mm)

Band has two screw terminals on one side, near gap, along the length of the heater.

Simplifies lead wire connections.

Available in MI Band and Mica Band construction.

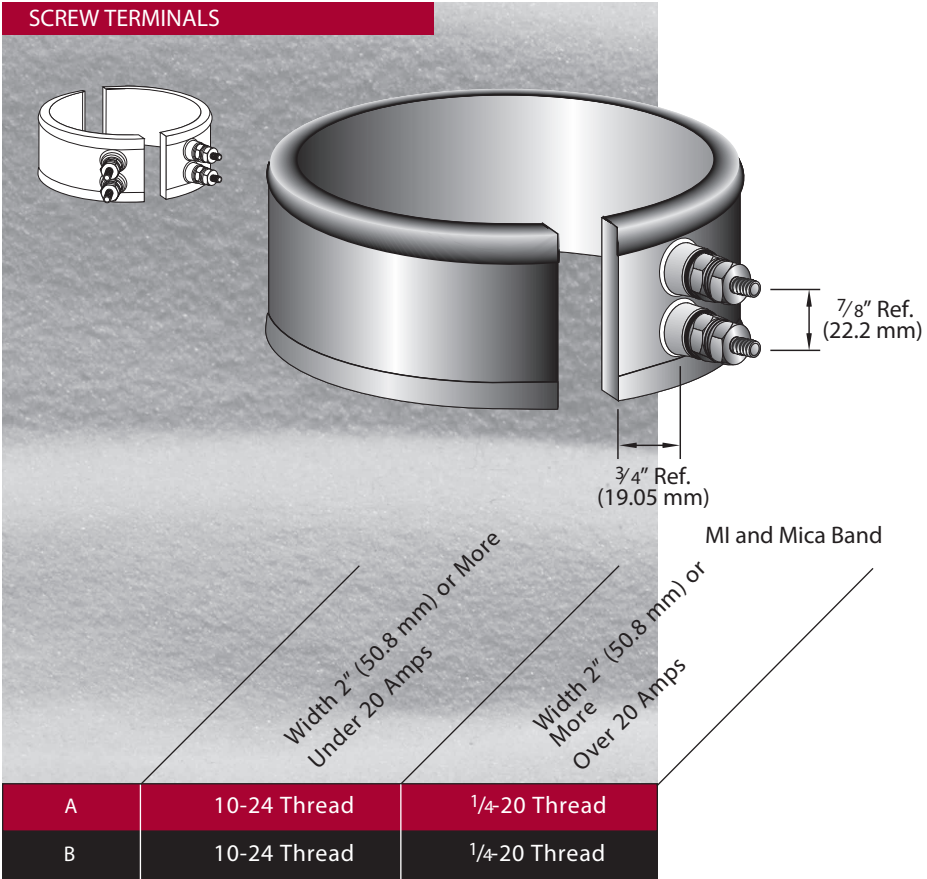
See chart B

European plug is available for bands larger than 4" (101.6mm) I.D.

# MI & MICA BAND HEATERS



## SCREW TERMINALS



Band has pair of screw terminals axially on one side, near gap, along the width of the heater.

Available in both MI Band and Mica Band constructions.

See chart A.

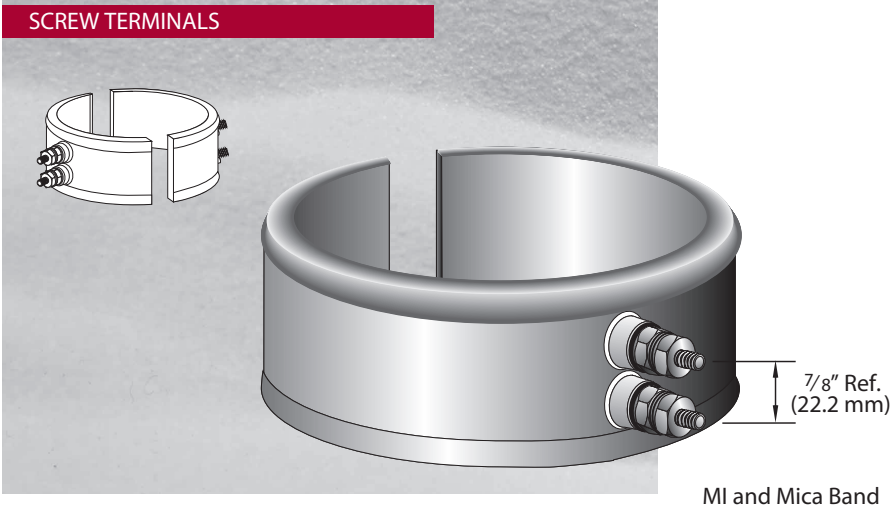
European plug is available on heaters with a minimum width of 2" (50.8mm).



### GROUND STUD

- An optional ground stud is available on most bands to permit grounding wire connection.
- Consult Heaterlogix for details.

## SCREW TERMINALS



Band has pair of screw terminals axially opposite gap, along the width of the heater.

Available in both MI Band and Mica Band construction.

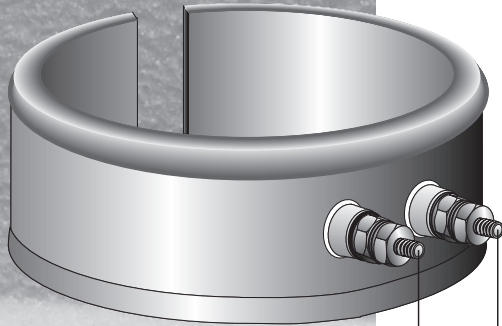
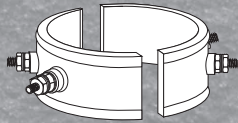
See chart B.

European plug is available on heaters with a minimum width of 2" (50.8mm).



# MI & MICA BAND HEATERS

## SCREW TERMINALS



7/8" Ref.  
(22.2 mm)

MI and Mica Band

Width 7/8" - 1 3/16" (22.2-30.2 mm)  
Under 15 Amps

Width 1/4" (31.8 mm) or More  
Under 20 Amps

Width 1/4" (31.8 mm) or More  
Over 20 Amps

A

8-32 Thread

10-24 Thread

1/4-20 Th

Band has pair of screw terminals along length of heater. This permits easier wire connections.

Available in both MI Band and Mica Band construction.

See chart A.

European plug is available for bands larger than 4" (101.6mm) I.D.



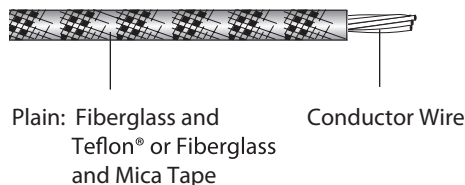
### THERMOCOUPLE

- Thermocouples are available as options for many of the bands shown.
- Typically type "J" thermocouples are used; however, contact Heaterlogix for your special requirement.
- Thermocouples can be positioned on the sheath as required. Depending upon the heater design, the thermocouple can also be positioned within the heater.
- Contact Heaterlogix with your special requirement.

# OPTIONS BAND HEATERS



## PLAIN LEADS

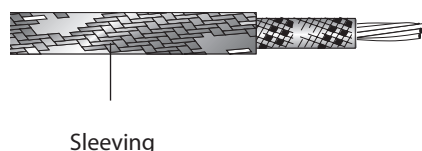


Jacketed for continuous service up to 482° F (250° C) with nickel standard conductors. It is recommended to use Monel® lugs.

High temperature mica tape lead wire is suitable up to 842° F (450° C) max. with nickel stranded conductors. Outer jacket is glass Teflon® finish. The use of Monel® lugs is recommended.

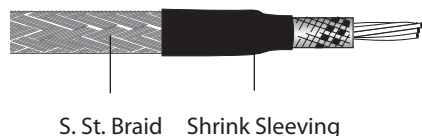
MI Band comes standard with mica tape. Mica Band comes standard with fiberglass.

## SLEEVING



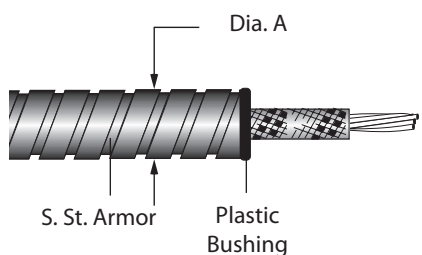
Fiberglass silicone rubber coated sleeving class c -1, 392° F (200° C ) service. Provides extra insulation where wire is exposed to heat, molten plastics or abrasion. Rated 1500 volts at 428° F (220° C), except 1/16" (7.9 mm) size which has no voltage rating. This size used primarily to enclose multiple insulation wires in heat and abrasion resistant covering.

## S. ST. BRAID



Stainless steel over braid is most commonly specified in applications where leads may be subjected to abrasion due to movement of the application. Lead wires may be rubbing together or passing over sharp objects.

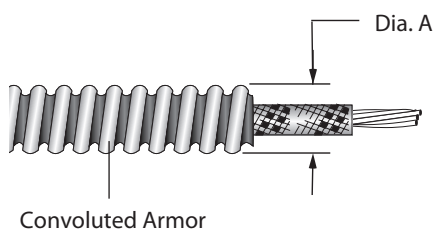
## S. ST. ARMOR



Used over leads in areas where more protection is necessary. Selected for similar applications as the stainless steel braid, in addition to applications where non-fluid contamination may come in contact with the leads. This lead protection is not as flexible as over the braid.

Stainless steel square lock construction.

## CONVOLUTED ARMOR



This is a seamless product and can be attached to the heater so that fluids do not contaminate the leads. This system of lead protection is generally associated with the Heaterlogix "Sealed Band" construction. Not recommended where leads are flexed in the application.

## 300 VOLTS 418° F (250° C) FIBERGLASS LEAD

GAGE	MAX. CURRENT @ 392° F (200° C)
16	6.6 amps
18	5.2 amps
20	3.7 amps
22	2.8 amps

## 600 VOLTS 418° F (250° C) FIBERGLASS LEAD

GAGE	MAX. CURRENT @ 392° F (200° C)
8	22.1 amps
10	16.5 amps
12	12.2 amps
14	9.0 amps
16	6.6 amps
18	5.2 amps
20	3.7 amps
22	2.8 amps

## 600 VOLTS 778° F (450° C) MICA TAPE LEAD

GAGE	MAX. CURRENT @ 392° F (200° C)
12	15.2 amps
14	11.3 amps
16	8.3 amps
18	6.4 amps
20	4.6 amps
22	3.4 amps

## 300 VOLTS 778° F (450° C) MICA TAPE LEAD

GAGE	MAX. CURRENT @ 392° F (200° C)
16	8.3 amps
18	6.4 amps
20	4.6 amps
22	3.4 amps



## TERMINATIONS

- Lead protection may be required where a problem of lead abrasion arises. This protection may be provided by the use of stainless steel wire braid or armor cable, both of which are firmly anchored to the heater and readily available in most sizes of heater bands.

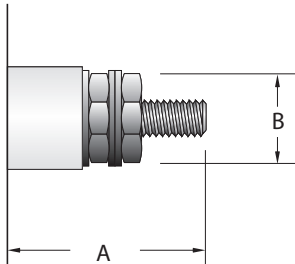
## FIBERGLASS SILICONE RUBBER COATED SLEEVING

SLEEVING SIZES (GA.)	I. D.
12	.085 in / 2.1 mm
10	.106 in / 2.6 mm
8	.133 in / 3.3 mm
6	.166 in / 4.2 mm
5	.190 in / 4.8 mm
3	.234 in / 5.9 mm
1/16	.313 in / 7.9 mm

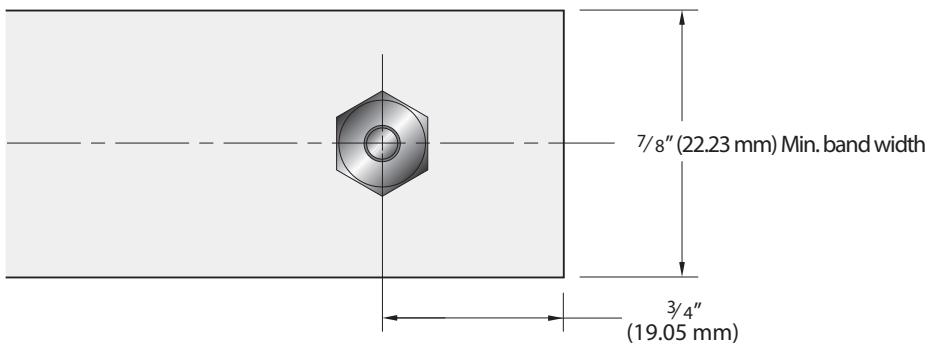


# OPTIONS BAND HEATERS

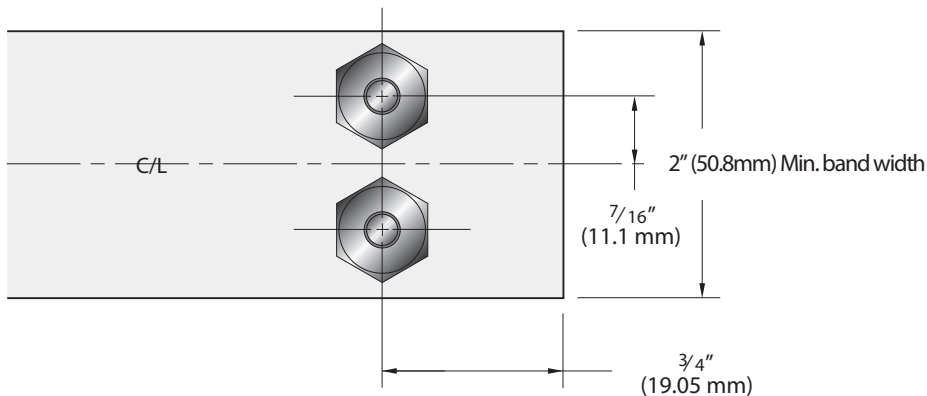
## TYPICAL SCREW TERMINAL



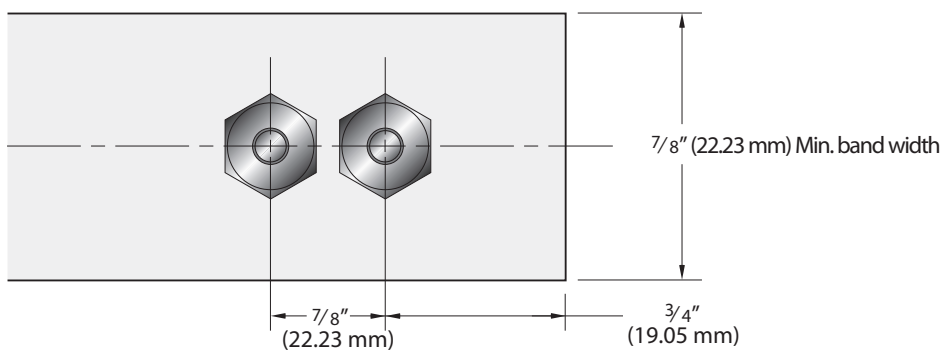
## SCREW TERMINAL (ON TOP)



## SCREW TERMINALS (ALONG THE WIDTH)



## SCREW TERMINALS (ALONG THE LENGTH)



## SCREW TERMINALS

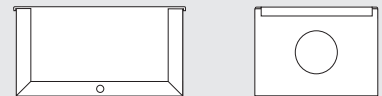
Terminals are a very convenient way of connecting our band heaters to power; typically, Monel® lugs are used to secure wiring.

Supplied when heater width is at a minimum or when, in application, a buss bar is used to connect the terminals of adjoining heaters.

SCREW SIZE	IN	A MM	B IN	B MM	MAX. AM
8-32	3/4	19.0	7/16	11.0	15
8-32	1	25.4	7/16	11.0	15
10-24	3/4	19.0	7/16	12.7	20
10-24	1	25.4	7/16	12.7	20
1/4-20	1	25.4	7/8	22.2	25



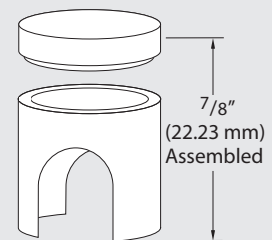
## TERMINAL BOX



- Used when screw terminals are employed in conjunction with box connector.



## CERAMIC COVER



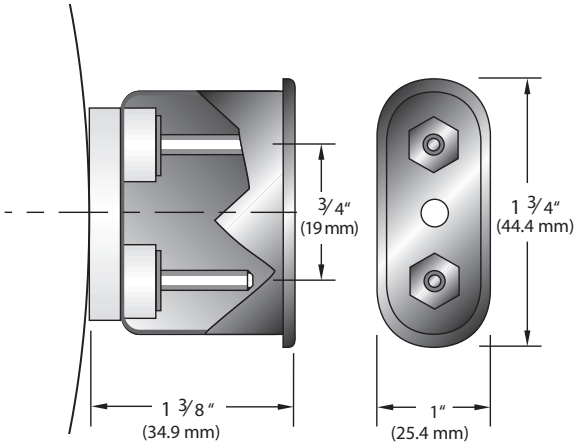
Ceramic terminal cover fits Heaterlogix size 10-24 threaded terminals.

Requires 1" (25.4 mm) screw.

# OPTIONS BAND HEATERS

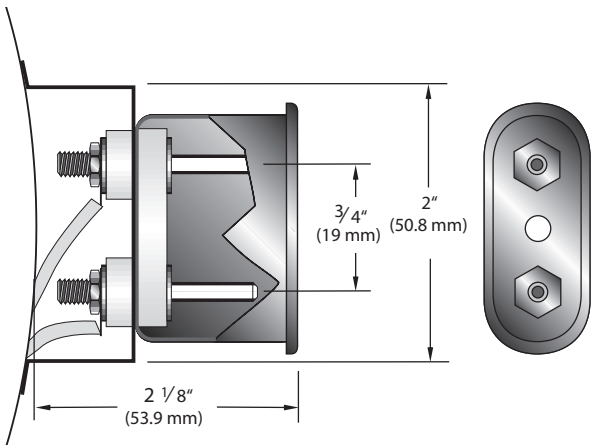


## EUROPEAN PLUG

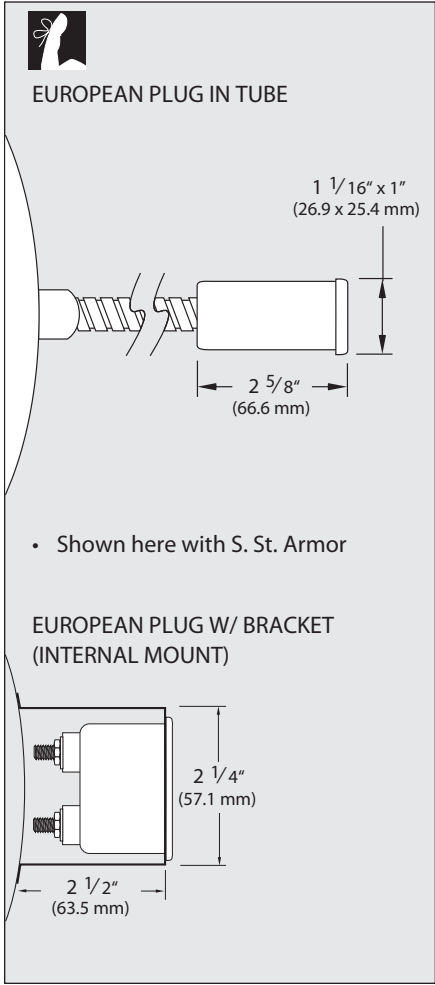
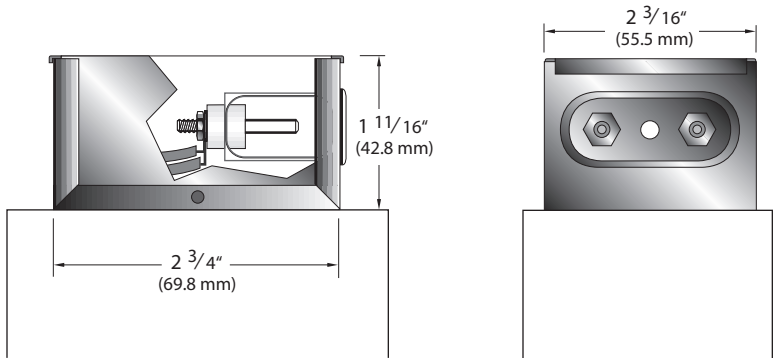


Plug is illustrated in the most common position. There are occasions for special boxes where the plug may be positioned on the top surface of the box.

## EUROPEAN PLUG W/BRACKET



## EUROPEAN PLUG W/BOX

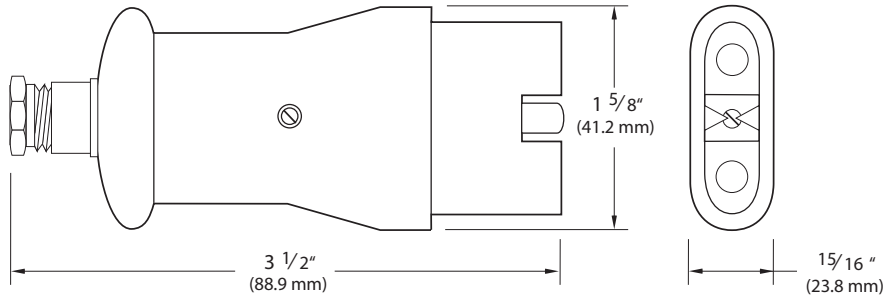






# OPTIONS BAND HEATERS

## QUICK-DISCONNECT PLUG



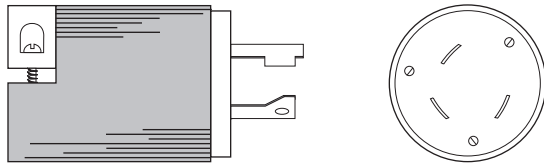
2 pole-25 amp-250V 600° F (315.5° C) service. Ideal for power connection to heaters.

Durable cast aluminum body on female side.

Both sides have ceramic insert insulators.

Ground connection via contact fingers.

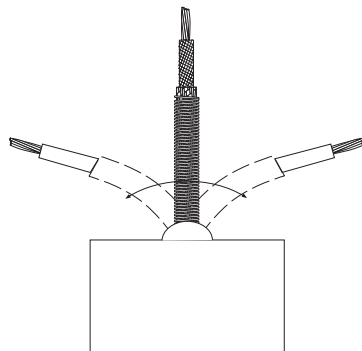
## HUBBELL® PLUG (OR EQUIVALENT)



Customer to specify type, part number and amperage required.

There is a wide variety of Hubbell plugs that can be fitted to our heaters. Please specify Hubbell's part number or call us for suggestions.

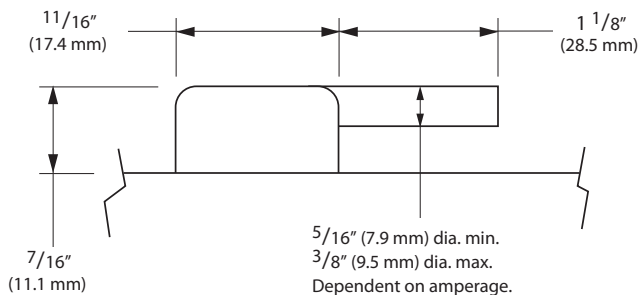
## RELIEF SPRING



This optional relief spring is welded to the terminal cap. It adds protection from abrasion while keeping the leads very flexible.

Specify length. Maximum length: 12" (30 cm)

## CAP AND TUBE



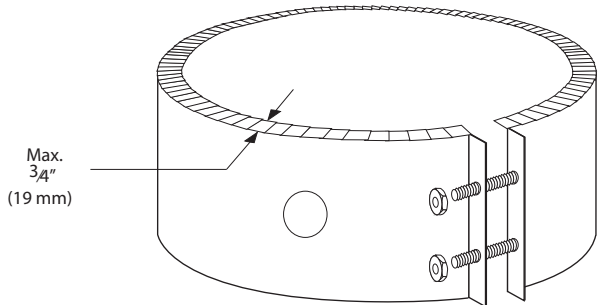
### SILICONE RUBBER QUICK-DISCONNECT PLUG

- This all-silicone rubber disconnect plug is generally selected for applications in which the plug is frequently disconnected, thus submitting the plug to possible damage such as cracking the ceramic.
- When selecting, be aware of the temperature limitation of silicone rubber.
- Available in straight, as in adjoining picture and at right angle exit for low profile.

# OPTIONS BAND HEATERS



## SHROUD (INSULATED/ NON-INSUL.)



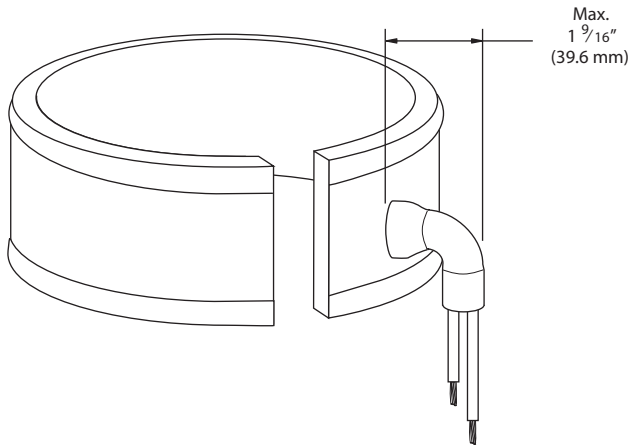
The insulated shroud is available as an accessory or attached to the heater.

Insulated shroud conserves energy and reduces power consumption.

Available with one- or two-piece Mica Band and Better Band construction.

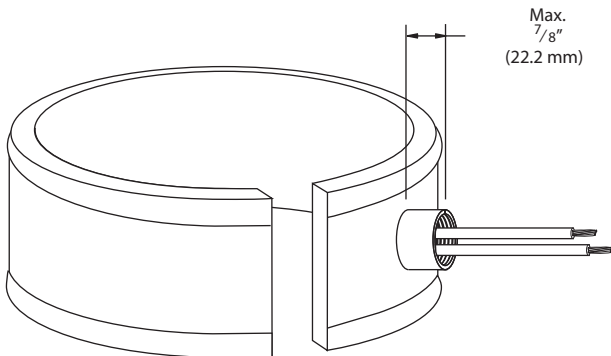
A wide variety of terminations are available. Fiberfrax insulation optional.

## COPPER ELBOW



The copper elbow is selected when the leads are required to exit the heater in a definite direction and away from the heater surface.

## PIPE COUPLING



Available in stainless steel or galvanized steel.

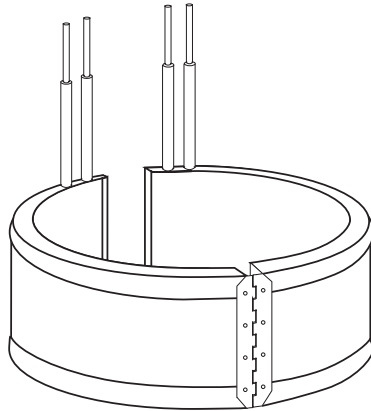
These pipe couplings, welded to the band heater sheath, provide a method of fastening conduit or armor to the heater which can be disconnected from the heater as required.

Typical sizes are  $\frac{3}{8}$ " (9.5 mm) and  $\frac{1}{2}$ " (12.7 mm) NPT.



# OPTIONS BAND HEATERS

## HINGED BAND

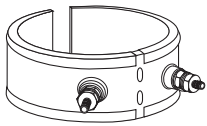


Mica and MI Band

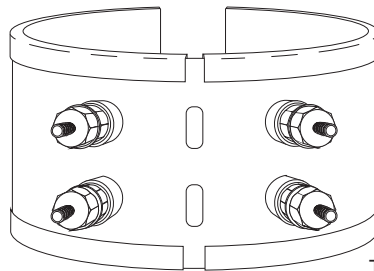
Available in two-piece heaters for applications in which the assembly is frequently required to be opened for easy and registered positioning around the surface.

A variety of termination styles are available.

## EXPANDABLE BAND



One Piece Mica Band

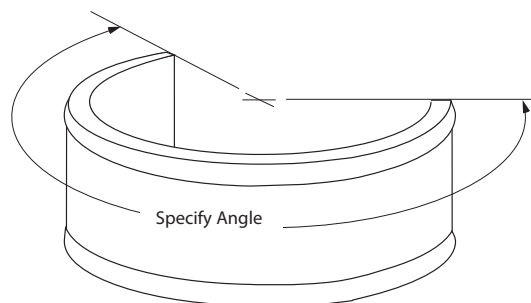


Two Piece MI Band

A heater which can be easily expanded to fit around a surface. Not for applications requiring consistent removal. (2-3 times max.)

Separate full clamping strap provides excellent clamping. Can be expanded 2-3 times without parting.

## PARTIAL BAND



Mica and MI Band

Available in a variety of terminations and clamping styles (please indicate when ordering).

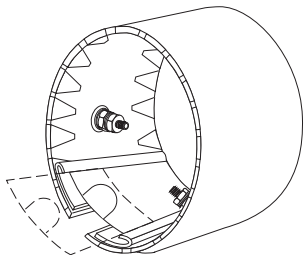
Specially constructed to any angle.

Please specify I.D., width, angle and termination style.

# OPTIONS BAND HEATERS



## REVERSE BAND



Mica Band only

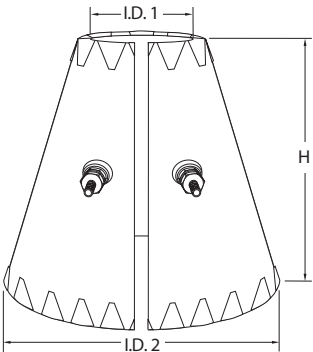
Design allows the heater to be expanded and thus heat from an internal surface.

Available in a variety of clamping styles (please indicate when ordering; shown is the wedge lock low profile clamping).

Available in a variety of termination styles.

Constructed with a fully notched case.

## CONE BAND



Mica Band only

Specified where funnels, chutes, etc. are required to be heated.

Available in a variety of termination styles.

Constructed with a fully notched case.

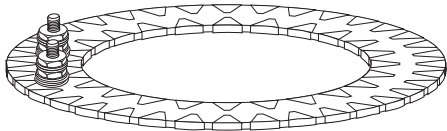
Segmented bands may be required for large sizes or for easy application and removal.

I.D. 1 = minimum I.D.

I.D. 2 = maximum I.D.

H = height

## RING HEATER



Mica Construction only

Constructed with a fully notched case.

Available in a variety of terminations.

Please specify I.D. and O.D.



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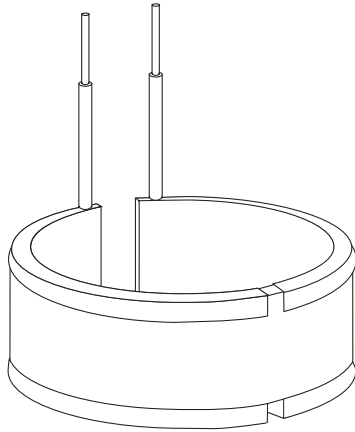
[www.ashequipment.com](http://www.ashequipment.com) | [sales@ashequipment.com](mailto:sales@ashequipment.com)





# OPTIONS BAND HEATERS

## NOTCHED BAND



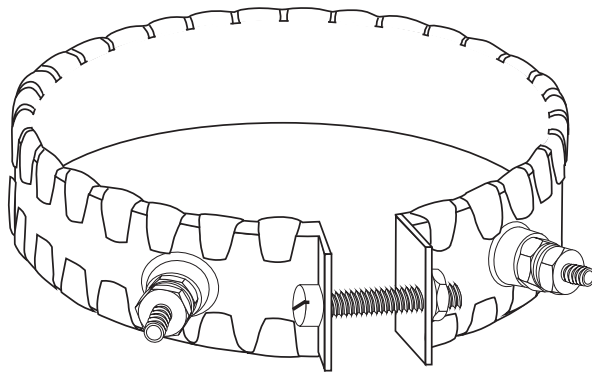
Mica Band only

Available in a wide variety of termination styles.

Standard notch size is  $\frac{1}{8}$ " (3.1 mm).

This Mica Band has a notch on the case to facilitate opening.

## FULLY NOTCHED BAND

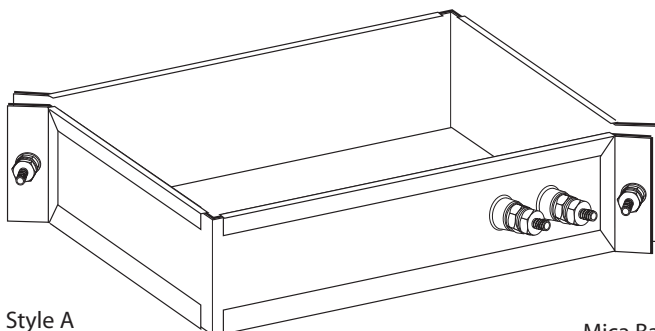


Mica Band only

Used not only in circular applications but can be adapted for irregular surfaces.

Available in a wide variety of termination styles.

## RECTANGULAR BAND

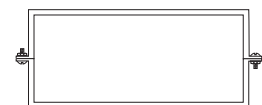


Style A

Mica Band only

Specify inside dimensions, width dimensions and clamping ears.

Available in a variety of termination styles and two location choices for clamping ears.

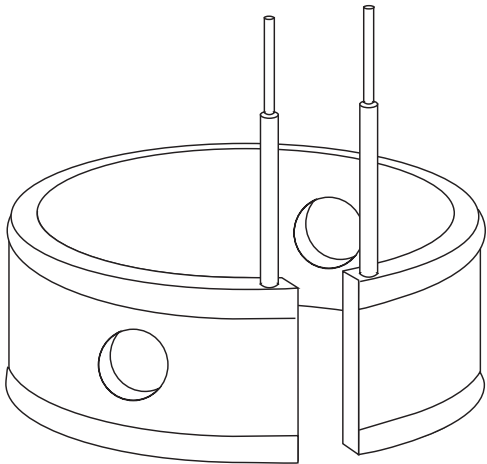


Style B

# OPTIONS BAND HEATERS



## SPECIAL W/HOLES



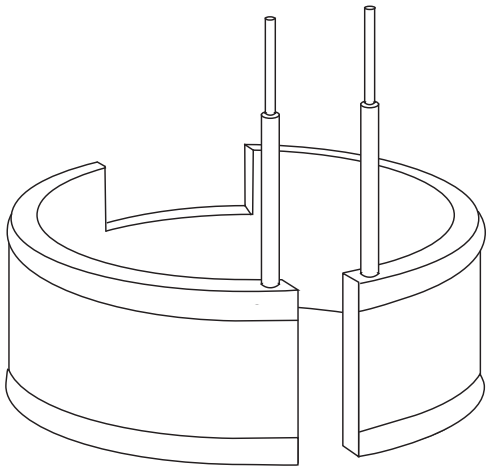
Mica and MI Band

Heaters can be built to satisfy your special requirements. Certain applications require holes for thermocouples to clear tubing, wiring and other obstacles.

These modifications require customer drawings to specify exact diameters and locations of the holes.

Special order only.

## SPECIAL W/NOTCH



Mica and MI Band

When clearance is a problem with band heater installation, consider requesting slot cut-outs. This can greatly facilitate installation.

Drawing is required with exact dimensions and locations.

Special order only.



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# ALUMINUM BAND HEATERS

## PERMAHEAT

Our durable Permaheat Band heater uses a tubular heating element to provide excellent heat transfer and resistance to contamination. Its aluminum body allows for better conformity to slightly irregular diameters.

The tubular elements are placed in a precisely extruded aluminum base. This aluminum base is normally sectioned to ensure a positive contact with the object being heated. The aluminum body also serves as an excellent transfer medium for rapid heat-up while providing a uniform temperature throughout the entire band.

## APPLICATIONS

Permaheats can be used in many different situations, including heating barrels of extrusion and injection molding machines, especially in areas where contamination is possible.

In addition, Permaheats can be modified to meet the demands of special applications. There are a variety of alternative features and options available to customize the heater to your special needs.

## MATERIAL AND CONSTRUCTION

- Aluminum extrusion allows for even heat distribution.
- Durable tubular heating element.
- Precision wound resistance wire.
- 20 Ga. St. Steel strap for added clamping strength.
- Standard high strength 1/4" - 20 clamping bar.
- Cooling tubes are available as an option on Permaheat Bands. Permaheat sizes available are 3" (76.2 mm), 4" (10.1 cm) widths and 5" (12.7 cm) to 20" (50.8 cm) I. D. bands.

## TERMINATIONS

Straight threaded terminals are normally supplied on all Permaheat heaters.

Fig. 1: Terminal box protects employees from possible electric shock. High temperature braid or stainless steel can also be ordered for further protection. (Aluminum terminal box is standard).

Fig. 2: High temperature ceramic insulated quick-disconnect plug mounted in a terminal box allows quick and convenient connection. Female quick-disconnect plugs are also available.

Fig. 3: For applications requiring leads, high temperature mica tape (842° F, 450° C) lead wire is attached.

## SPECIFICATIONS

### MECHANICAL:

- Widths: 1 1/2", 2 1/2", 3", 4" (38.1 mm, 63.5 mm, 76.2 mm, 10.1 cm)
- Min. Dia. for 1 1/2" width: 3.5" (8.9 cm)
- Min. Dia. for all other widths: 5" (12.7 cm)
- Max. Dia.: 106" (269.2 cm)
- Standard Gap: 3/8" (9.5 mm) [on dias. up to 14" (35.5 cm)]
- Max. Operating Temperature: 600° F (315.5° C)

- Dimensions of terminal box: 3 1/4" long x 1 7/8" wide x 2" high

### ELECTRICAL:

- Max. Volts per half: 240 vac
- Standard Watt Density: 30 watts/in<sup>2</sup> (4.65 w/cm<sup>2</sup>)
- Max. Watt Density: 40 watts/in<sup>2</sup> (6.2 w/cm<sup>2</sup>)
- Std. Supply Line Voltage: 240 vac

Permaheat Band heaters are constructed as sets. The tubular heaters are rated as one-half total wattage.

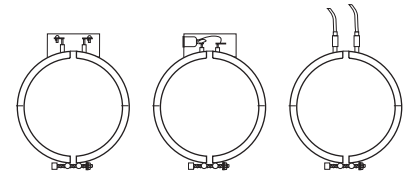
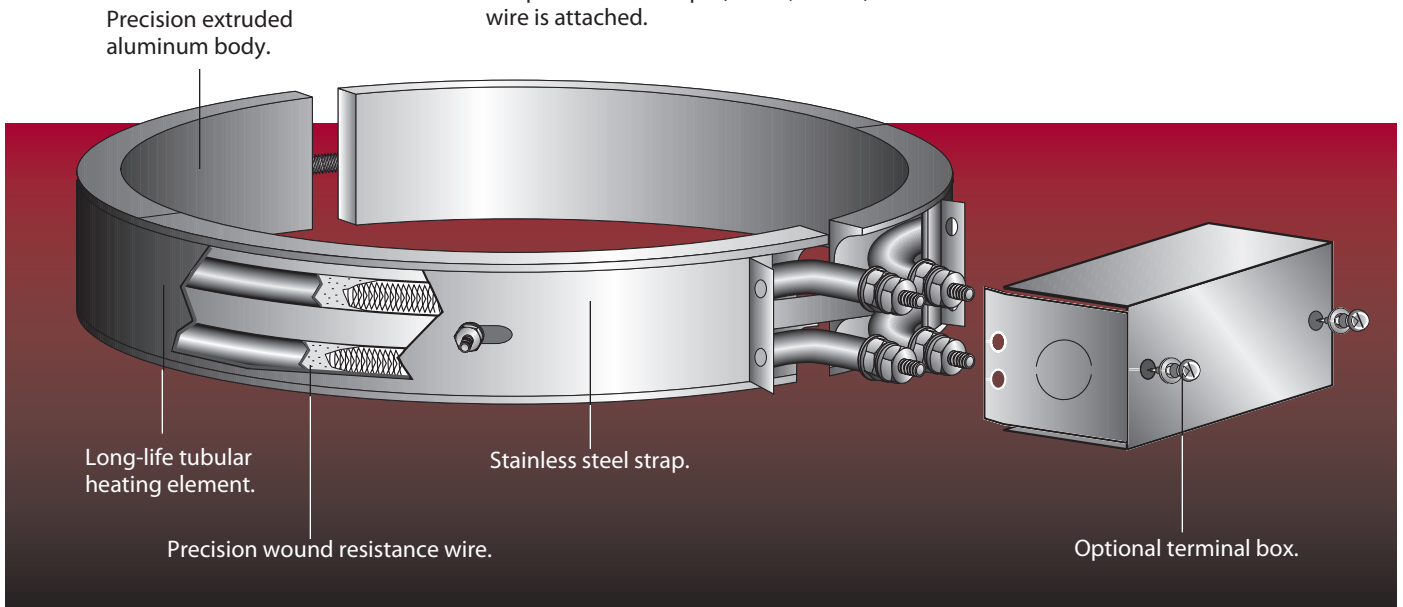


FIG. 1

FIG. 2

FIG. 3



# COIL BAND HEATERS



## FLEXTRACOIL

Our Flextracoil heaters were created to heat flow-through nozzles and sprue bushings in runnerless molding systems. Available in either flat, square or round styles, the Flextracoil can be coiled evenly spaced or with distributed coils. All styles are stocked uncoiled at Fast Heat and are formed to customer specifications before shipping.

If you're in a hurry, Flextracoil heaters are available through QuickShip. For more details on this rapid delivery program, see page 2.

## APPLICATIONS

Although the most common application for the Flextracoil is externally heating flow-through nozzles in hot runner systems, this heater is also versatile enough to be used for hot metal forming punches and dies, sealing bars and dies, instrumentation and medical applications.

Flextracoils can also be modified to meet the demands of virtually any special application. Our engineers can utilize a variety of alternative features and options to customize the heater to your specific needs.

Each Flextracoil heater is warranted against burn-out and defects in materials and workmanship for a period of one year after delivery.

## MATERIAL AND CONSTRUCTION

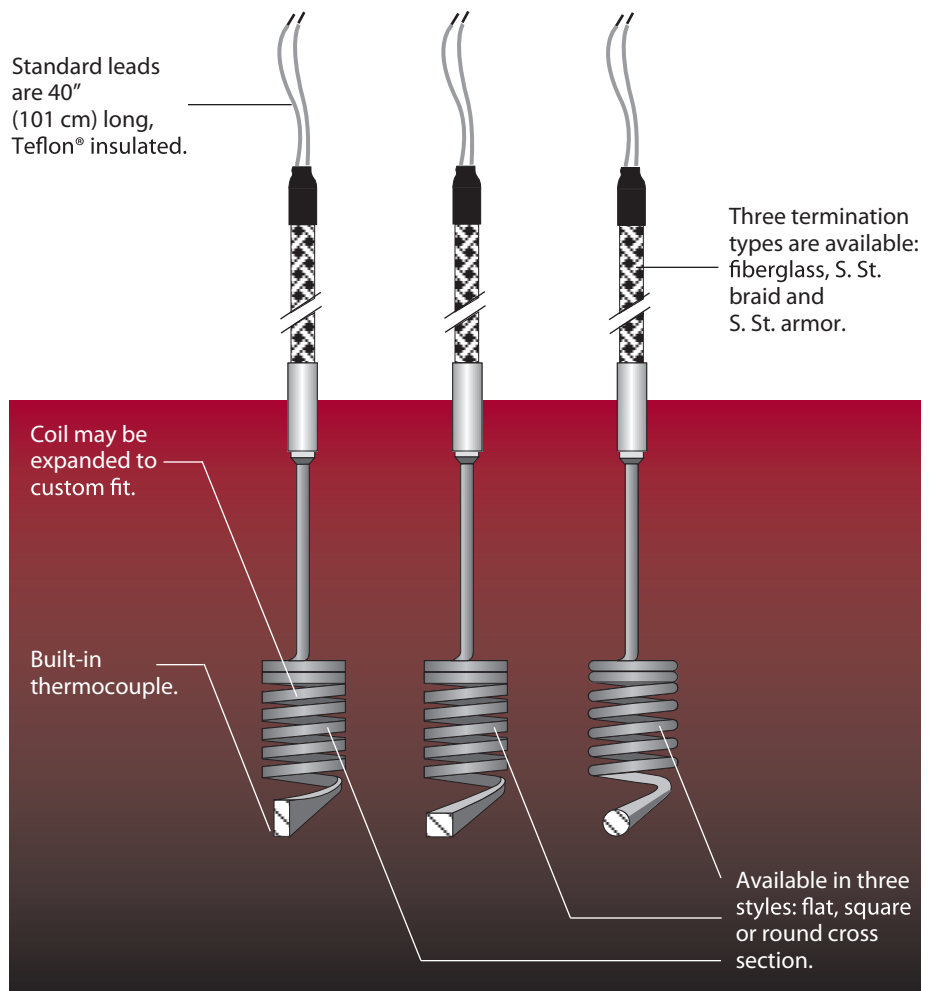
- Corrosion resistant high nickel alloy.
- Annealed element.
- Highly compacted MgO insulation.
- Three cross sections available.
- Standard leads are Teflon® insulated, 40" (101 cm) long.
- Three termination types are available: fiberglass sleeving (standard), stainless steel braid or armor.
- With or without type "J" thermocouple.
- Customization is available.

Following are some things to keep in mind when considering a Flextracoil heater. The square and flat designs have a broader surface contact and are recommended over the round design. For short coil widths, the square element is recommended because of its narrower width, which will allow for more turns per inch.

Because of the many different applications and possible designs, Fast Heat is ready to help with any design questions you may have or further design specifics you may need.

## THERMOCOUPLE

As mentioned before, the thermocouple is type "J". The thermocouple has been located  $\frac{1}{4}$ " (6.3 mm) to  $\frac{3}{8}$ " (9.5 mm) in from the tip of the element. This is due to the fact that when the heater is coiled, the tip does not conform to the coiling diameter. By moving it back, a more accurate reading is achieved.





# CLAMPING BAND HEATERS



## BAND SHAPE VS. AVAILABLE CLAMP TYPE

### HOW TO USE

To facilitate choosing a clamping style, use the chart below. Cross reference the heater style on the left to the desired clamping style across the top.

Please note that some styles are only available in the Mica Band. These clamping styles are more fully illustrated and described on the following pages.

### HEATER INSTALLATION

The heater should be tightly clamped around the cylinder. To ensure that the units are tightly clamped, they should be re-tightened after the unit has reached operating temperature and the electrical power has been disconnected.

### CLAMPING

Straps create uniform pressure over the entire circumference of the band, providing intimate contact of the band with the cylinder. Special material used has a low expansion rate to assure tight fit under most conditions. Where straps cannot be used, we adapt strap ends to heaters.

	Strap	Strap End	Ear	Dual Screw Bar Clamp	Wedge Lock	Extension Pad	Full Width Strap	Disc Spring (Belleville)	Spring Bolt	Turn-Buckle
Standard (Round)	•	•	•	•	•		•	•	•	
Sealed	•	•	•	•			•	•	•	
Hinged (Mica)	•	•	•	•			•	•	•	
Expandable	•	•	•	•			•	•	•	
Rectangular (Mica)	•		•			•	•	•	•	
Partial	•	•	•			•	•	•	•	
Reverse					•					•
Square (Mica)	•		•						•	•
Cone Shaped (Mica)		•	•	•	•					
U-Shaped (Mica)	•	•		•		•	•			



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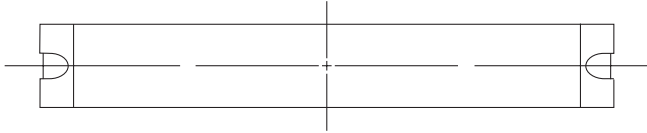
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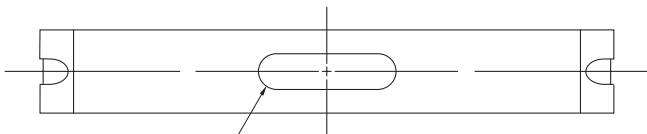


# STRAPS BAND HEATERS

## TYPE 1

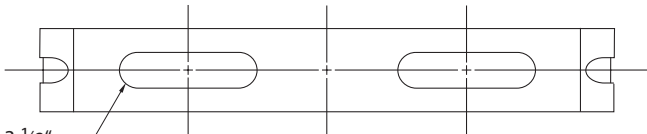


## TYPE 2



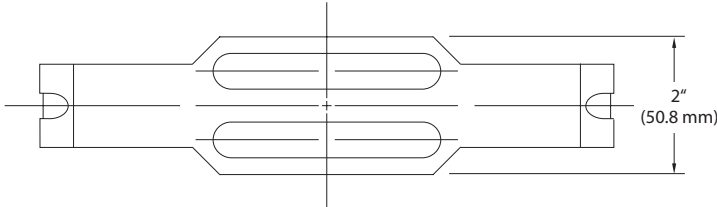
Size dependent on the termination style

## TYPE 3

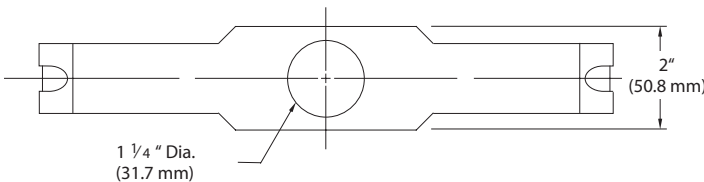


5/8" x 3 1/2"  
(15.8 x 88.9 mm)

## TYPE 4

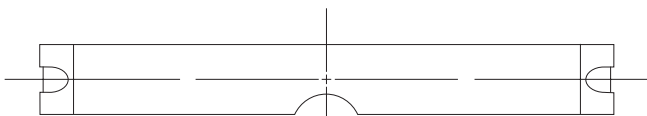


## TYPE 6



1 1/4" Dia.  
(31.7 mm)

## TYPE 7



5/8" x 1/4" DP  
(15.8 x 6.3 mm)

## STRAP STANDARDS

Straps can be vastly modified to fit a wide variety of bands. As wider bands are used, multiple straps will most likely be designed in.

Normally barrel nuts are built into the ends: one threaded, one through hole. Slots shown are to clear termination areas.

Unless otherwise specified, straps are assigned by our engineering staff to best suit each application.

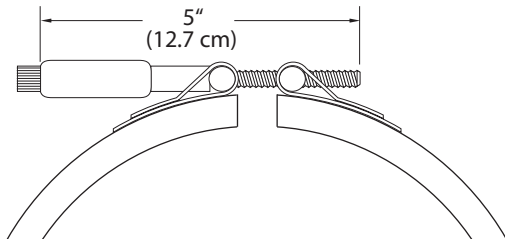
STRAP WIDTH		SCREW
IN	MM	
1/2	12.7	6-32
5/8, 1, 1 1/4	25.4	10-24
1, 1 1/4	31.8	1/4-20 (NOTE 1)

NOTE 1: Standard for 9" (22.9 cm) I.D. or greater band heaters.



# CLAMPING BAND HEATERS

## BELLEVILLE CLAMPING

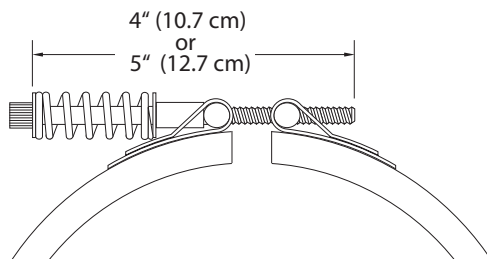


A clamping system is generally selected for use with large diameter heaters where additional compensation of band elongation is required.

Belleville and spring bolt are two styles of available clamping. Selection of style is a matter of the customer's preference.

Belleville clamping comes with a standard 1/4- 20 X 5" (12.7 cm) long screw.

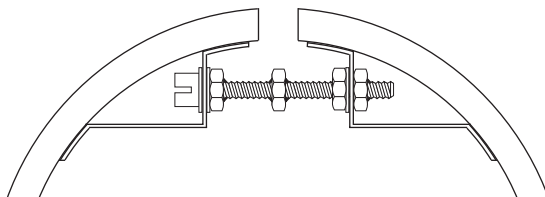
## SPRING BOLT CLAMPING



Spring bolt clamping applies constant tension on the clamping mechanism to compensate for heater elongation once it has been energized.

Spring bolt clamping comes with either a 1/4- 20 X 4" (10.7cm) or 1/4- 20 X 5" (12.7cm) long screw.

## TURNBUCKLE



Specified where a heater is used to heat an I.D. surface. Use of this mechanism is governed by the heater diameter and width. Obstructions such as shafts passing along the center line of the heater may present an interference problem.

Contact Heaterlogix for review of your requirement.

1/4- 20 X 2 1/2" (63.5 mm) long screw.



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