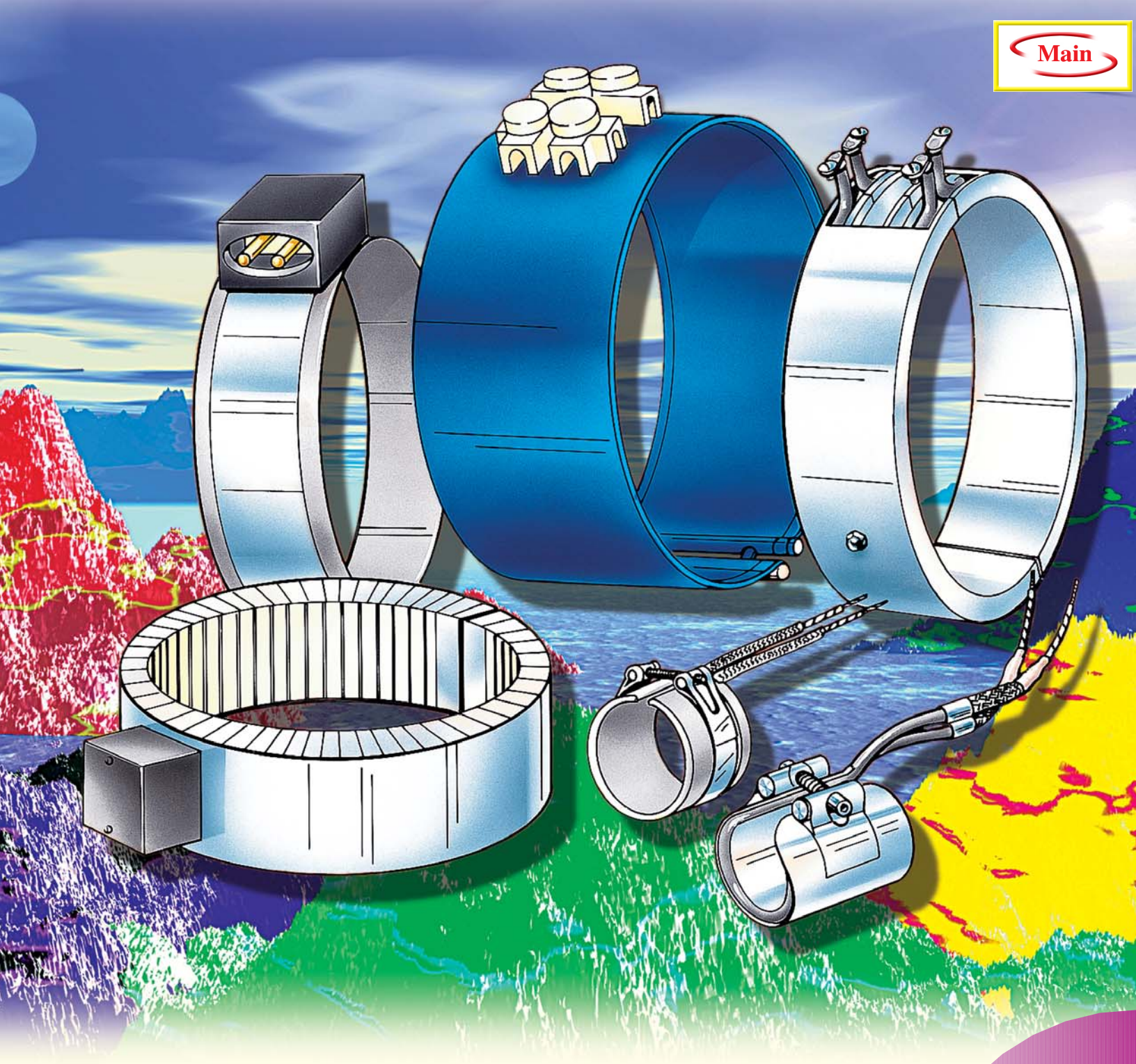

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section 1

Band Heaters

Mi-Plus®

Mineral Insulated Band Heater

A High Performance Band Heater With Outstanding Design Features (Temperature Capabilities To 1400°F/760°C)

Mi-Plus Construction Characteristics

The *Mi-Plus*® is the solution for applications that require high watt densities (W/in²) and/or high operating temperatures. *Mi-Plus*® band heaters are capable of temperatures up to 1400°F (760°C) and watt densities up to 150W/in² (23.25W/cm²) for Nozzle Band Heaters and 80W/in² (12.4W/cm²) for Barrel Band Heaters.

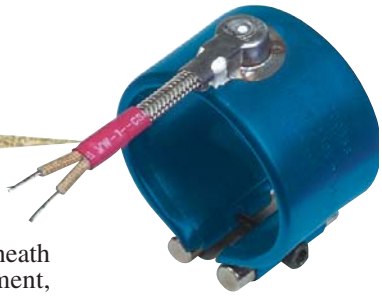
Specially formulated mineral insulated tape providing excellent thermal conductivity and dielectric strength is used to insulate the nickel chrome resistance wire from the stainless steel sheath. The heater assembly is formed under pressure to a precise diameter with a thin low-mass cross section, assuring fast heat-up rates and reduced cycle times.

UNBREAKABLE Power Screw Terminals

Only Mi-Plus® offers this unique screw terminal design…
The stainless steel power screw terminals are resistant to over-torquing.
For complete selection of screw terminal arrangements, see pages 1-14 and 1-15.

SUPERIOR Clamping Mechanism

The clamping brackets are formed from the outer sheath of the heater, providing a unique one-piece built-in construction strap. The clamping power is generated through barrel nuts and socket head screws, which as an integral part of the built-in strap, provide superior clamping force for maximum performance and optimal heater life.
For details, see pages 1-12 and 1-13.



INNOVATIVE Lead Terminations

Smaller size *Mi-Plus*® band heaters are powered-up by means of lead wire terminations. To insure a resilient connection that will withstand abrasion, mechanical abuse and keep contaminants out of the transition area, a specially designed stainless steel transition cap with a built-in strain relief was developed. The cap is welded to the sheath and the cavity is filled with insulating cement, sealing the band heater from contaminants.
For details, see pages 1-16 through 1-21.

UNIQUE Igloo™ Ceramic Covers

To eliminate exposed wiring/screw terminals on band heater installations, a 90° double port ceramic cap was designed. This unique and exclusive Igloo™ ceramic terminal insulator fits over the entire terminal and lug, leaving no exposed wiring. *For additional details on*

Mi-Plus Standard Specifications and Tolerances

PERFORMANCE RATINGS

Maximum Temperature: 1400°F (760°C)

Nominal Watt Density: Nozzle Bands—under 3" diameter: 30-100 W/in² (4.7-15.5 W/cm²)
Barrel bands—3" and greater in diameter: 20-70 W/in² (3.1-10.9 W/cm²)

Maximum Watt Density: 150 W/in² (23 W/cm²)
Dependent on heater size, operating temperature and termination.

ELECTRICAL RATINGS

Maximum Voltage: 480VAC when applicable

Maximum Recommended Voltage w/Leads: 240VAC

Maximum Amperage: lead wire termination: 10 amp
screw terminations: 8-32UNF—20 amp
10-32UNF—25 amp

Resistance Tolerance: +10%, –5%

Wattage Tolerance: +5%, –10%

PHYSICAL SIZE CONSTRUCTION LIMITATIONS

Standard Gap—Built-In Bracket:

less than 1-3/4" dia. . . . . 1/4"
1-3/4" to 2" dia. . . . . 5/16"
2" to 5" dia. . . . . 3/8"
5" to 18" dia. . . . . 1/2"
greater than 18" dia. . . . . 3/4"
If a larger gap is required for probes or thermocouples, specify when ordering.

Maximum Inside Diameters

One-Piece . . . . . 14" (355.6 mm)
Expandable . . . . . 14" (355.6 mm)
Two-Piece . . . . . 28" (711.2 mm)
Over 28" . . . . . Consult TEMPCO

Standard Widths: 1" to 8" in 1/2" increments (25.4 mm to 203.2 mm in 12.7 mm increments)

Width Tolerance: ±3/32" (2.4 mm)

If tighter tolerances are required consult Tempco.

Diameter/Width Limitations

Width		One-Piece Construction Inside Diameter		Expandable Construction Inside Diameter		Two-Piece Construction Inside Diameter	
in	mm	in	mm	in	mm	in	mm
1	25.4	1 to 14	25.4 to 355.6	N/A	N/A	3 to 28	76.2 to 711.2
1½	38.1	1 to 14	25.4 to 355.6	3 to 14	76.2 to 355.6	3 to 28	76.2 to 711.2
2	50.8	1½ to 14	38.1 to 355.6	3 to 14	76.2 to 355.6	3 to 28	76.2 to 711.2
2½	63.5	1½ to 14	38.1 to 355.6	3 to 14	76.2 to 355.6	3 to 28	76.2 to 711.2
3	76.2	1½ to 14	38.1 to 355.6	3 to 14	76.2 to 355.6	3 to 28	76.2 to 711.2
3½	88.9	1¾ to 14	44.5 to 355.6	3 to 14	76.2 to 355.6	3 to 28	76.2 to 711.2
4	101.6	2 to 14	50.8 to 355.6	3 to 14	76.2 to 355.6	3 to 28	76.2 to 711.2
4½	114.3	2¼ to 14	57.2 to 355.6	3 to 14	76.2 to 355.6	3 to 28	76.2 to 711.2
5	127.0	2½ to 14	63.5 to 355.6	3 to 14	76.2 to 355.6	3 to 28	76.2 to 711.2
5½	139.7	2¾ to 14	69.9 to 355.6	3 to 14	76.2 to 355.6	3 to 28	76.2 to 711.2
6	152.4	3 to 14	76.2 to 355.6	3 to 14	76.2 to 355.6	3 to 28	76.2 to 711.2
6½	165.1	3¼ to 14	82.6 to 355.6	3¼ to 14	82.6 to 355.6	3¼ to 28	82.6 to 711.2
7	177.8	3½ to 14	88.9 to 355.6	3½ to 14	88.9 to 355.6	3½ to 28	88.9 to 711.2
7½	190.5	3¾ to 14	95.3 to 355.6	3¾ to 14	95.3 to 355.6	3¾ to 28	95.3 to 711.2
8	203.2	4 to 14	101.6 to 355.6	4 to 14	101.6 to 355.6	4 to 28	101.6 to 711.2

Additional Limitations

- For heaters less than 4" in diameter the maximum width is twice the diameter.
- Heaters with standard brackets are available in 1/2" increments from 1" to 8" wide, while heaters with low profile brackets are available in 1/2" increments from 1" to 6" wide.
- 1" diameter heaters are only available in 1" and 1-1/2" widths.
- For heaters greater than 12" diameter Tempco recommends using 2-piece construction for superior clamping.
- Combinations of some minimum and maximum variations may not be available. Consult Tempco with your special requirements.
- Post terminals are only available on heaters greater than 2-1/2" in diameter and 1-1/2" in width.

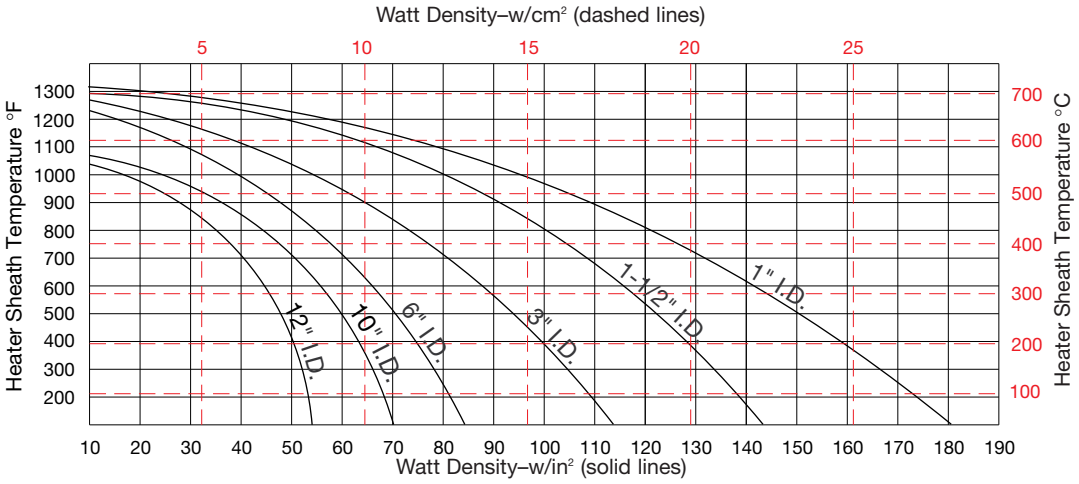
Mi-Plus Maximum Watt Densities

MAXIMUM ALLOWABLE WATT DENSITY

The chart displays the maximum Watt Density curves for various diameter heaters. Use this chart when determining the appropriate wattage value for your chosen heater.

Be aware that certain factors will require you to derate the watt density (W/in²) of your heater selection.

CAUTION Failure to adhere to the maximum allowable watt density per heater size will result in poor operating life.



CALCULATING MAXIMUM WATT DENSITY

Factors to be taken into consideration:

A. Type of controls

B. Voltage variations

C. Machine cycling rate

D. Type of resin being processed

E. Coefficient of thermal expansion and conductivity of the cylinder.

F. Designing a heater that closely matches the wattage requirement will decrease the frequency of cycling and temperature overshoot, thereby increasing the life of the heater.

Once these factors have been established, proceed with the following steps:

1. Determine the maximum operating temperature.
2. Calculate the total wattage required to obtain the maximum operating temperature.
3. Determine the quantity and size of the heater bands to be used. Due to clamping concerns 2" through 3" wide band heaters have long proven to be the most efficient and reliable in most cylindrical heating applications.
4. Determine individual band heater wattage by dividing the total required wattage by the quantity of band heaters selected.
5. Determine the band heater heated area by subtracting unheated (cold) areas created by screw terminals, gaps, holes, and cutouts.

Nominal Unheated Areas

Construction Style	Cold Area to Subtract
One-piece band	1" × width
One-piece expandable band	1½" × width
Two-piece band	2" × width

For each hole or cutout add to the cold area from the Table the (Hole size + ½") x heater width. This is total cold area to use in the following formula to calculate the heater watt density.

Watt Density Formula

$$\text{Watt Density } (W/in^2) = \frac{\text{Wattage}}{(3.14 \times \text{Band ID} \times \text{Band Width}) - (\text{Cold Area})}$$

6. Check in the above graph that the calculated watt density does not exceed the maximum recommended watt density. Locate the maximum cylinder temperature required on the left-hand side of the graph, follow the horizontal line until it intersects with the line of the band heater being used, and read directly down to obtain the maximum recommended watt density (watts/in²).
7. If the calculated watt density is higher than the recommended value, it must be corrected or it will cause poor heater life. This can be accomplished by using more band heaters or lowering the heater wattage.
8. Should you have a problem in selecting the proper band heater or establishing watt density for your application, consult Tempco.

CORRECTION FACTORS

For heaters wider than 3" (76.2 mm), reduce maximum allowable watt density from chart by 20%.

For applications using insulating shroud, reduce maximum allowable watt density from chart by 25%.

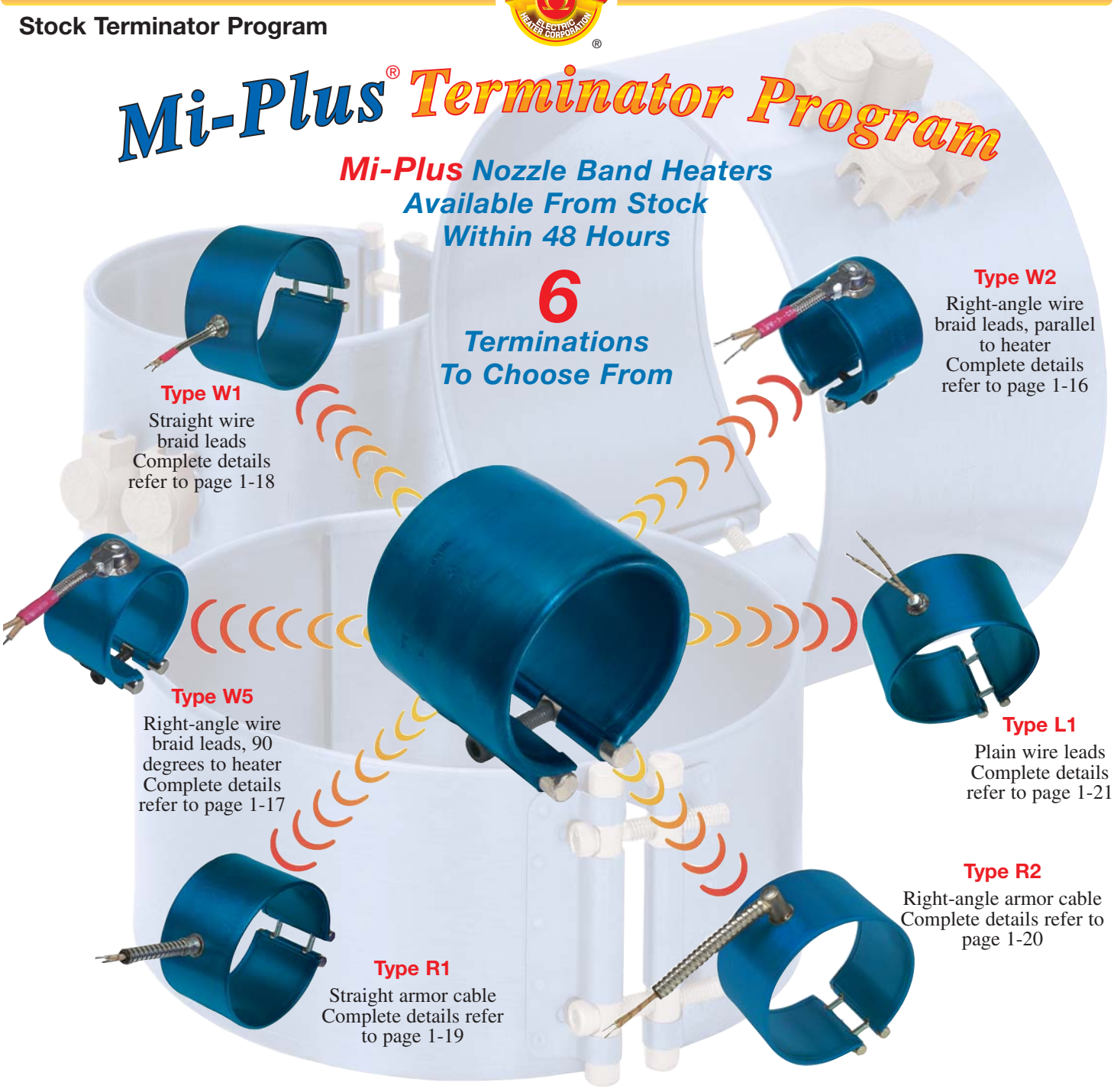
CAUTION Do not use insulating blankets if heater temperatures are above 1200°F (649°C). Failure to adhere will result in premature heater failure.

Mi-Plus® Terminator Program

Mi-Plus Nozzle Band Heaters Available From Stock Within 48 Hours

6

Terminations To Choose From



Type W1
Straight wire braid leads
Complete details refer to page 1-18

Type W2
Right-angle wire braid leads, parallel to heater
Complete details refer to page 1-16

Type W5
Right-angle wire braid leads, 90 degrees to heater
Complete details refer to page 1-17

Type L1
Plain wire leads
Complete details refer to page 1-21

Type R1
Straight armor cable
Complete details refer to page 1-19

Type R2
Right-angle armor cable
Complete details refer to page 1-20

Ordering Information

The Tempco Terminator Lead Conversion Program guarantees 48-hour shipping on custom terminated heaters.

The Terminator Lead Conversion Program

- ❑ Select a Stock Mi-Plus Nozzle Heater from page 1-7.
- ❑ Identify the best suited lead termination for your application.

  Note: The Part Numbers listed are for Mi-Plus Nozzle Heaters with termination Type "W2", 12" long leads with 10" stainless steel braid.
- ❑ Specify: Diameter, Width, Watts, Volts, Termination Type, Lead and Braid/Cable Lengths.

Stock and Standard (Non-Stock) Mi-Plus Nozzle Band Heaters

Design Features:

- ✳ *Termination:* ***Type W2*** *(part numbers for heaters with other terminations will be assigned at the time of order)*
- ✳ *12" leads*
- ✳ *10" Stainless Steel braid*

ID		Width			Watt Density		Part Number	
in	mm	in	mm	Wattage	W/in²	W/cm²	120V	240V
1	25.4	1	25.4	100	47	7.2	MPP50001	—
1	25.4	1	25.4	150	70	10.9	MPP50101	—
1	25.4	1	25.4	225	105	16.3	—	✳MPP50201
1	25.4	1½	38.1	200	62	9.7	MPP50301	✳MPP50401
1	25.4	1½	38.1	250	78	12.1	—	MPP50601
1	25.4	1½	38.1	300	93	14.5	MPP50701	✳MPP50801
1¼	31.8	1	25.4	250	85	13.2	✳MPP51101	MPP51202
1¼	31.8	1	25.4	275	94	14.6	—	MPP51401
1¼	31.8	1½	38.1	350	80	12.4	MPP51701	✳MPP51801
1½	38.1	1	25.4	200	54	8.4	MPP51901	MPP52001
1½	38.1	1	25.4	300	81	12.5	MPP52301	✳MPP52402
1½	38.1	1½	38.1	300	54	8.4	✳MPP52501	✳MPP52602
1½	38.1	1½	38.1	450	81	12.5	—	✳MPP52903
1½	38.1	2	50.8	300	40	6.3	—	MPP53001
1½	38.1	2	50.8	450	61	9.4	—	✳MPP53202
1½	38.1	3	76.2	350	31	4.9	—	MPP53401
1½	38.1	3	76.2	500	45	7.0		✳MPP53501
1¾	44.5	1½	38.1	300	44	6.9	MPP53801	MPP53901
1¾	44.5	2	50.8	750	83	12.9	—	✳MPP54301
1¾	44.5	2½	63.5	550	49	7.6	—	MPP54401
1¾	44.5	3	76.2	1000	74	11.5	—	MPP54601
2	50.8	1	25.4	350	66	10.3	✳MPP54701	✳MPP54801
2	50.8	1½	38.1	400	50	7.8	—	MPP54901
2	50.8	2	50.8	750	71	11.0	MPP55051	MPP55101
2¼	57.2	1	25.4	350	58	8.9	—	MPP55401
2¼	57.2	2½	63.5	1000	66	10.2	—	✳MPP55801
2½	63.5	1	25.4	400	58	9.0	—	✳MPP56001
2½	63.5	1½	38.1	500	49	7.5	—	✳MPP56101

Stock Mi-Plus Nozzle Band Heaters are inventoried semi-finished and can be completed for shipment within 48 hours with any of the following terminations: W1, W2, W5, R1, R2 and L1.
Complete termination details are on pages 1-16 through 1-21.

An asterisk (✳) next to the Part Number guarantees in-stock availability for same-day shipping when ORDERED BY 2 PM CST

Ordering Information

Stock Heaters

Select a Mi-Plus Nozzle Band Heater from the list above and identify the best suited lead termination (W1, W2, W5, R1, R2 or L1) for your application.

Note: The Part Numbers in the list are for Mi-Plus Nozzle Heaters with termination Type "W2", 12" long leads with 10" stainless steel braid.

Other than Type "W2" Terminations: Specify listed ID, Width, Watts, Voltage, Termination Type (W1, W5, R1, R2 or L1) and Lengths if applicable for Leads, Wire Braid and Armor Cable. A Part Number will be assigned at time of order.

Custom Engineered/Manufactured Heaters

Understanding that an electric heater can be very application specific, for sizes not listed **TEMPCO** will design and manufacture a Mi-Plus Nozzle Heater to meet your requirements. ***Standard lead time is 4 weeks.***

Please Specify the following:

- ❑ Inside Diameter
- ❑ Width
- ❑ Wattage
- ❑ Voltage
- ❑ Quantity
- ❑ Termination (see pages 1-14 through 1-24)
- ❑ Lead Cable/Braid Length
- ❑ Construction Style (see pages 1-10 and 1-11)
- ❑ Clamping Variation (see pages 1-12 and 1-13)
- ❑ Special Features (see page 1-26)

To assist you in custom engineering a heater for your application, specifications, watt density formulas and installation recommendations are given on pages 1-4 and 1-5.

Standard Sizes and Ratings

Stock and Standard (Non-Stock) Mi-Plus Barrel Band Heaters

ID in	ID mm	Width in	Width mm	Wattage	Voltage	Watt Density W/in²	Watt Density W/cm²	Style	Terminal	Part Number
3	76.2	1½	38.1	500	240	41	6.3	1 pc	T2	MPP00230
3	76.2	1½	38.1	525	240	43	6.6	1 pc	T2	MPP00231
3¼	82.6	2½	63.5	1100	120	48	7.4	1 pc	T3X	MPP00232
3¼	82.6	2½	63.5	1400	240	61	9.4	1 pc	T3X	MPP00233
3½	88.9	2	50.8	800	240	40	6.2	1 pc	T3X	*MPP00234
3⅜	92.1	1½	38.1	650	240/480	52	8.0	Exp	T2	MPP00235
4	101.6	1½	38.1	625	240/480	44	6.8	Exp	T2	MPP00236
4	101.6	1½	38.1	725	240/480	51	7.8	Exp	T2	MPP00237
4	101.6	1½	38.1	800	240	47	7.3	1 pc	T2	*MPP00238
4½	114.3	2½	63.5	1250	240	38	5.9	1 pc	T3X	*MPP00186
5	127.0	1½	38.1	1000	240/480	52	8.1	Exp	T2	*MPP00239
5¼	133.4	1½	38.1	600	240/480	30	4.6	Exp	T2	MPP00240
5¼	133.4	1½	38.1	1000	240/480	49	7.7	Exp	T2	MPP00241
5¼	133.4	3	76.2	1700	240/480	39	6.1	Exp	T3X	MPP00187
5¼	133.4	4½	114.3	2400	240/480	37	5.7	Exp	T3X	MPP00242
5¼	133.4	4½	114.3	2700	240/480	41	6.4	Exp	T3X	MPP00243
5½	139.7	1½	38.1	1000	240/480	47	7.2	Exp	T2	MPP00244
5½	139.7	1½	38.1	1300	240/480	61	9.4	Exp	T2	MPP00245
6	152.4	1½	38.1	1000	240/480	42	6.5	Exp	T2	*MPP00246
6	152.4	1½	38.1	1400	240/480	59	9.1	Exp	T2	*MPP00247
6½	165.1	1½	38.1	1250	240/480	48	7.4	Exp	T2	*MPP00248
6¾	171.5	1½	38.1	815	240/480	30	4.6	Exp	T2	MPP00249
6¾	171.5	1½	38.1	1000	240/480	37	5.7	Exp	T2	MPP00250
6¾	171.5	4	101.6	2600	240/480	34	5.2	Exp	T3X	MPP00188
6¾	171.5	5	127.0	3700	240/480	39	6.0	Exp	T3X	MPP00251
6¾	171.5	6	152.4	3750	240/480	33	5.0	Exp	T3X	MPP00189
7	177.8	1½	38.1	1250	240/480	44	6.8	Exp	T2	MPP00252
7	177.8	1½	38.1	1500	240/480	53	8.2	Exp	T2	MPP00253
7½	190.5	1½	38.1	1500	240/480	49	7.5	Exp	T2	MPP00254
7⅞	193.7	3	76.2	1800	240/480	27	4.2	Exp	T3X	MPP00255
7⅞	193.7	4½	114.3	3150	240/480	32	4.9	Exp	T3X	MPP00190
8	203.2	1½	38.1	1250	240/480	38	5.8	Exp	T2	MPP00256
8	203.2	1½	38.1	1600	240/480	48	7.5	Exp	T2	MPP00257
9	228.6	1½	38.1	1500	240/480	40	6.1	Exp	T2	MPP00258
9	228.6	1½	38.1	1750	240/480	46	7.2	Exp	T2	MPP00259
9½	241.3	3	76.2	3000	240/480	36	5.6	Exp	T3X	MPP00191
11¼	285.8	3	76.2	2400	240/480	24	3.7	Exp	T3X	MPP00260
11¼	285.8	5	127.0	5100	240/480	31	4.7	Exp	T3X	MPP00261

Stock Mi-Plus Barrel Band Heaters are ready for immediate shipment with Screw Terminals.

Complete termination details are on pages 1-14 and 1-15.

Design Features:

✳ *Screw Terminal Termination (part numbers for heaters with other terminations will be assigned at the time of order)*

An asterisk (✳) next to the Part Number guarantees in-stock availability for same-day shipping when ORDERED BY 2 PM CST

Ordering Information

Stock Heaters

Select a Mi-Plus Barrel Band Heater from the list above.

Stock heaters can be modified to the following terminations:

- Type C—Outlet terminal box.
- Type P2—Low profile high temperature quick disconnect.
- Type C6, C7 and C8—Igloo™ ceramic terminal covers.

Custom Engineered/Manufactured Heaters

Understanding that an electric heater can be very application specific, for sizes not listed **TEMPCO** will design and manufacture a Mi-Plus Barrel Heater to meet your requirements. ***Standard lead time is 5 weeks.***

Please Specify the following:

- ❑ Inside Diameter
- ❑ Width
- ❑ Wattage
- ❑ Voltage
- ❑ Quantity
- ❑ Termination (see pages 1-14 through 1-24)
- ❑ Lead Cable/Braid Length
- ❑ Construction Style (see pages 1-10 and 1-11)
- ❑ Clamping Variation (see pages 1-12 and 1-13)
- ❑ Special Features (see page 1-26)

Product Inventory Available for Viewing and Selection @ www.tempco.com

Special and Unique Mi-Plus Band Heater Designs

Throughout our catalog we show Tempco's standard specifications and most popular designs. However, as a custom heating element manufacturer, we recognize that many applications require non-standard and unique designs.

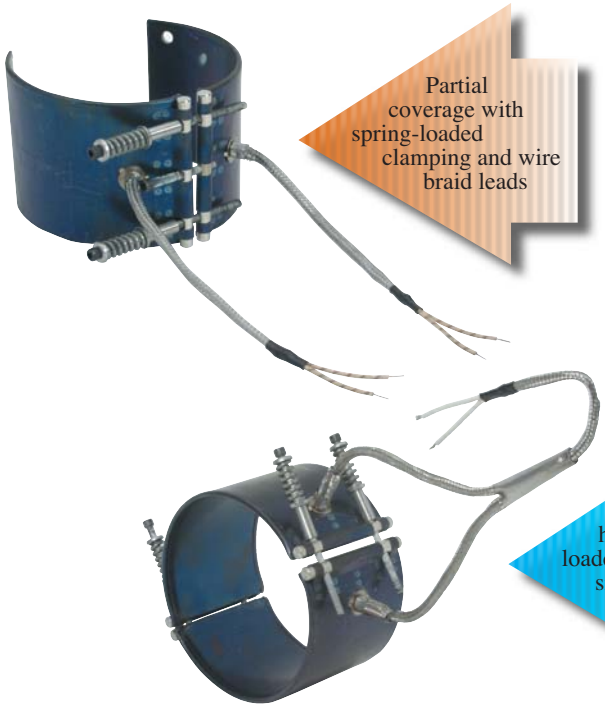
At Tempco, we are constantly challenged by our customers to solve their heating applications. We have the experience, technical knowledge and manufacturing capability to solve all your heating problems with unique heater designs. Use Tempco's talent and capabilities to your benefit to solve your specific heating problem in an expeditious and cost-effective manner.

The following pictures show some of the heater designs that we have developed for special applications. Next time, when you have a special application and you want someone to work with you and "think outside the box" to solve your specific heating application, call Tempco.

We haven't seen all heating applications, but most likely our experienced staff has seen and solved more heating problems than you have seen.

Use our knowledge and experience to work for you. Challenge us! You will be glad you did.

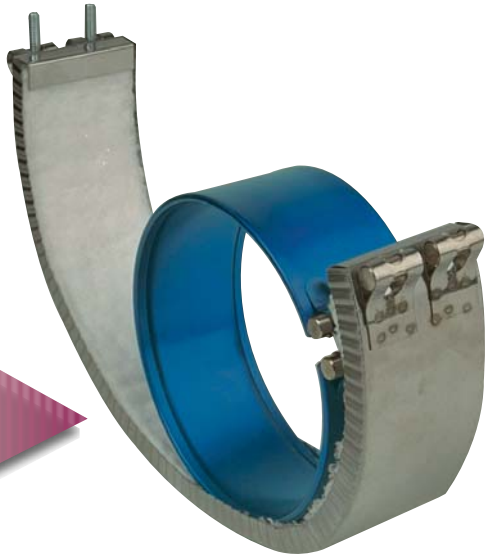
We Welcome Your Inquiries.



Partial coverage with spring-loaded clamping and wire braid leads

Two independent electrical circuits in a single heater with dual wattage and dual voltage option and thermocouple clearance hole

Two-piece heater with spring-loaded clamping and single leads for easy wiring



Heater with separate strap designed for three-phase operation, with ground terminal and thermocouple clearance hole

Heater with insulating shroud to minimize energy losses

Nozzle heater for magnesium machine

Four-piece heater with spring loaded clamping and independent electrical circuits on each segment

Mi-Plus Construction Styles

CAUTION Do not open Non-Expandable One-Piece Mi-Plus Band Heaters during installation. Opening this construction style will cause internal damage.

Non-Expandable One-Piece Band Construction

One-piece heaters are the most efficient construction, as they provide the most heated surface area. This style can only be used where the entire heater can be slipped over the end of the barrel. One-piece heaters have built-in, full-width clamping bars.

Available with all termination styles.

Mi-Plus Band Heaters...

Note: Refer to page 1-4 for complete Limitations on Physical Size Construction.

Two-Piece Band Construction

Two-piece construction satisfies the need for a heater that can be placed anywhere along the machine barrel with a minimum of time and labor. Two-piece construction is recommended for larger diameter heaters because two-piece construction employs two sets of built-in clamps that deliver maximum clamping force.

The two-piece construction style also provides dual voltage capability. The heater halves may be wired together either in series or parallel, providing two voltage options. Two-piece heaters are rated at full voltage and 1/2 the total wattage for each half. On very large custom applications, Tempco may suggest going to multiple Mi-Plus heater segments with spring-loaded clamping.

Available with all termination styles.

Expandable One-Piece Band Construction

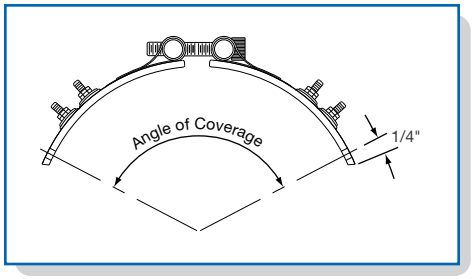
The expandable construction style allows the heater to be opened up and placed anywhere along the machine barrel as well as minimizing the unheated area as compared to a two-piece heater.

With two heater circuits in a common case this heater naturally lends itself to a dual voltage system, a 240/480 volt package being the most common. When wired in parallel these heaters can run at 240 volts, and when wired in series, at 480 volts.

Expandable heaters are rated for each circuit at full voltage and one half of the wattage.

Available with all termination styles.

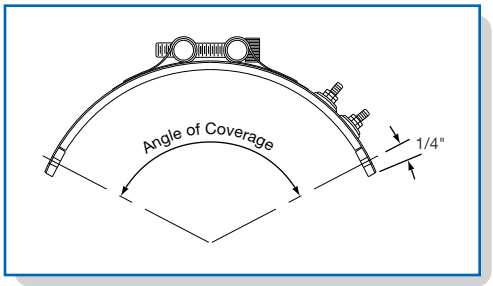
Mi-Plus Construction Styles — Special Variations



Partial Coverage Band
2-Piece with Built-In Brackets

Partial coverage band heaters are required when a normal hole or cutout in the heater, used to clear an obstruction, would be too large.

The preferred method of construction is the 2-piece Band Heater with Built-In Brackets as illustrated above. The heater is bolted down to the cylinder at the ends and the built-in low thermal expansion strap pulls the heater tightly against the cylinder being heated. ***When ordering, specify the angle of coverage from center to center of the mounting screw holes as shown.***



Partial Coverage Band
1-Piece with Separate Strap

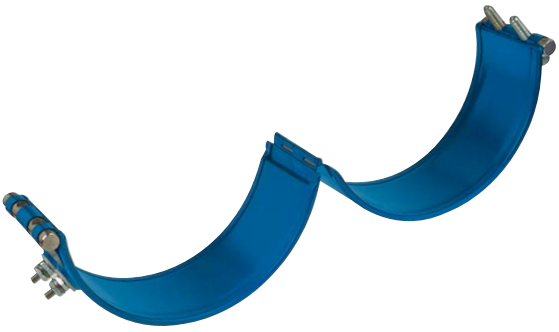
The alternate method of partial coverage construction is the 1-piece Band Heater with a separate 2-piece strap.

The 2-piece strap itself is bolted at the padded ends, allowing the heater to float between the pads as illustrated above. When tightening the strap, it will pull the heater against the cylinder being heated. ***When ordering, specify the angle of coverage from center to center of the mounting screw holes as shown.***

Hinged Band

The 2-piece Hinged Band Heater is connected with a full-width hinge for easy installation and removal. This heater can be opened and closed as often as is necessary. The preferred method of clamping is latch and trunion. It is available with any screw terminal or lead wire variation.

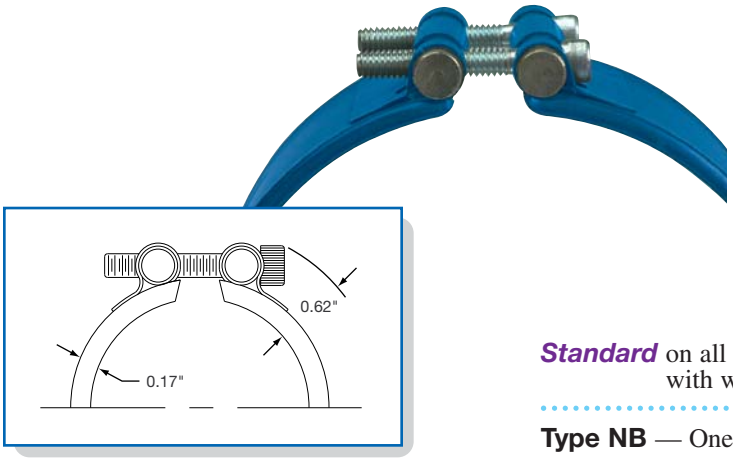
When ordering, specify watts and volts per each half.



Mi-Plus Standard Built-In Clamping Strap

The clamping brackets of the Mi-Plus Heater are formed from its outer sheath, producing a unique Built-In Strap. Clamping power is generated through barrel nuts and socket head cap screws, which are an integral part of the Built-In Strap.

High operating temperatures require superior clamping force to maintain ultimate contact between the inside diameter of the band heater and the barrel, which is essential for maximum heater operating life. Only Tempco's Mi-Plus offers you this unique Built-In Strap feature.



TOUGH IN EXTREME CONDITIONS

Even under the most extreme conditions, the Built-In Strap Clamping will remain functional for the life of your Mi-Plus band heater. The steel clamping bars are the full width of the heater to distribute the forces evenly for superior heater contact. Tempco uses 1/4-20 alloy steel socket head cap screws to maximize the clamping power.

Standard on all Mi-Plus heaters 3" in diameter and larger with widths greater than 1"

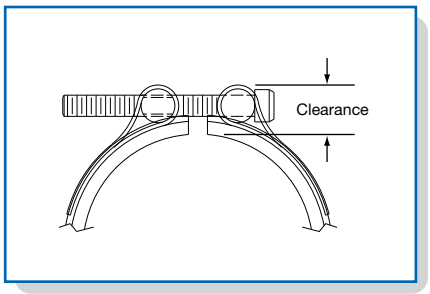
Type NB — One-Piece Band
Type NS — Two-Piece Band
Type NE — One-Piece Expandable Band

Mi-Plus Separate Clamping Straps

The Mi-Plus is available without built-in brackets. This option uses a separate strap to properly clamp the heater. A separate strap is useful when clearance is limited or there is an obstruction. Separate straps are made strictly to customer specifications. Consult Tempco with your requirements.

Bolt Size	Clearance	Suggested Diameter Range
6-32	.46"	1" – 2"
8-32	.50"	1" – 3"
10-32	.56"	2" – 6"
1/4-20	.62"	> 3"

The number of straps is dependent on heater width. Tempco recommends the use of the largest bolt size that clearance allows.



Type SB — One-Piece Band
Type SS — Two-Piece Band
Type SE — One-Piece Expandable Band

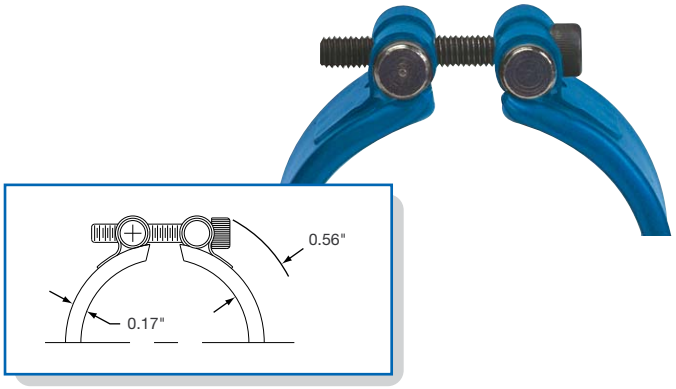
Mi-Plus Standard Built-In Clamping Strap

Mi-Plus Low Profile Built-In Clamping Strap

When space is limited use Tempco's low profile clamping, a design that doesn't sacrifice strength for size. This compact design uses 10-32 alloy socket head cap screws.

Standard on all Mi-Plus heaters less than 3" in diameter; Optional on Mi-Plus heaters with 3" and larger diameters up to 6" in width.

Type LB — One-Piece Band
Type LS — Two-Piece Band
Type LE — One-Piece Expandable Band

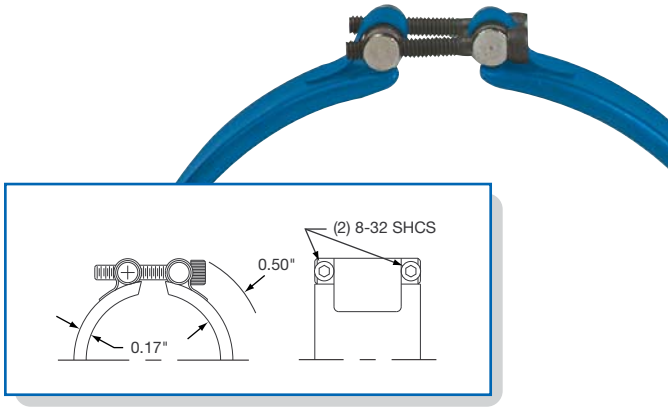


Mi-Plus Outrigger Built-In Clamping Strap

This design is unique to 1" wide heaters 1-3/8" diameter and greater. Two 8-32 alloy socket head cap screws are used to give 1" wide heaters the required clamping power.

Standard on Mi-Plus heaters 1" wide and 1-3/8" in diameter and greater.

Type OB — One-Piece Band
Type OS — Two-Piece Band



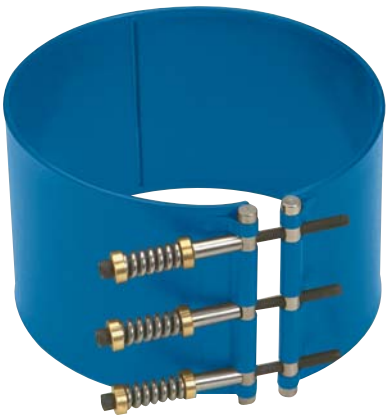
Mi-Plus Spring Loaded Built-In Clamping Strap

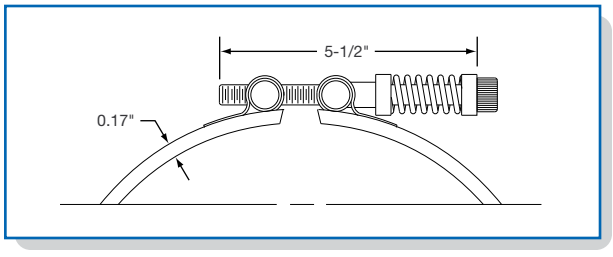
Spring loaded clamping with alloy steel socket head cap screws is standard on heaters over 8" in diameter and offered as an option on any heater with standard brackets. The extra heavy duty compression springs serve to combat thermal expansion of the heater by self adjustment, thereby ensuring excellent contact of the heater surface with the machine barrel or die. This type of clamping is also useful on heaters that are mounted vertically.

Requirements

***Minimum Width*: 1-1/2" (38.1 mm)**
***Minimum Diameter*: 3-1/2" (88.9 mm)**

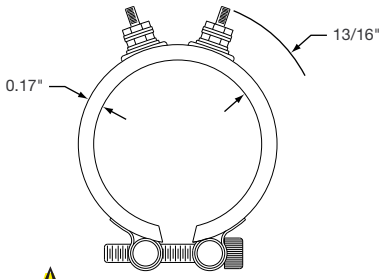
Type SL — One-Piece Band
Type NSL — Two-Piece Band
Type NEL — One-Piece Expandable Band





Mi-Plus Type T2 — Screw Terminals

The specially designed stainless steel power terminals are internally connected to the heater and are resistant to over-torquing. The screw terminals are virtually unbreakable. Secure tightening of the electrical connections is essential for safety and long heater life.

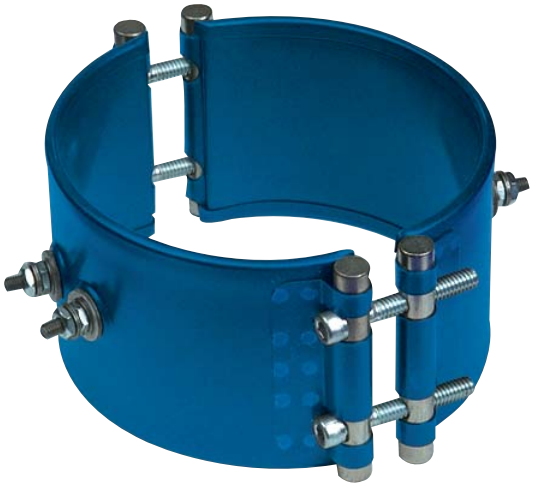


Only Tempco's Mi-Plus has these unique Torque-Resistant Power Terminals.

One-Piece Band

- Terminals located opposite of the gap, at the center of the width
- Minimum Inside Diameter: 2-1/2" (63.5 mm)
- Minimum Width: 1-1/2" (38.1 mm)
- Post Terminals: 10-32

Selection TERMINATION Guide



Two-Piece Band

- Terminals located at the center of each half
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1-1/2" (38.1 mm)
- Post Terminals: 10-32

One-Piece Expandable Band

- 2 sets of terminals located opposite the gap
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1-1/2" (38.1 mm)
- Post Terminals: 10-32

Mi-Plus Type T3X — Screw Terminals

One-Piece Band

- Terminals located opposite of the gap, across the width
- Minimum Inside Diameter: 2-1/2" (63.5 mm)
- Minimum Width:
  w/8-32 Post Terminals — 2" (50.8 mm)
  w/10-32 Post Terminals — 2-1/2" (63.5 mm)

Two-Piece Band

- Terminals located at the center of each half
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width:
  w/8-32 Post Terminals — 2" (50.8 mm)
  w/10-32 Post Terminals — 2-1/2" (63.5 mm)

Selection
TERMINATION
Guide

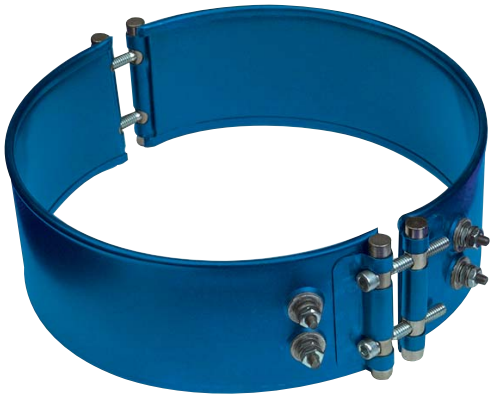
One-Piece Expandable Band

- 2 sets of terminals located opposite the gap
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width:
  w/8-32 Post Terminals — 2" (50.8 mm)
  w/10-32 Post Terminals — 2-1/2" (63.5 mm)

Type T3Y — Screw Terminals, Next To Gap

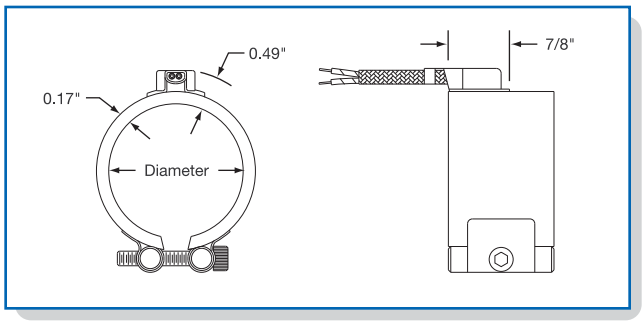
Two-Piece Band Construction Only

- Terminals located next to gap
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 4"(101.6 mm)



Mi-Plus Type W2 — Right-Angle Wire Braid Leads, 90 Degrees to Heater Diameter

- Low Profile
- Abrasion Resistant
- Lead Terminations



This style of wiring is the most prevalent for nozzle band heaters, as it contributes to the most flexible and space saving installation.

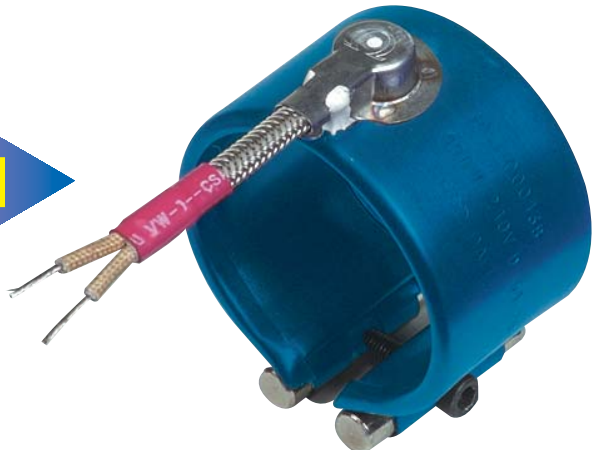
Mica insulated lead wires rated for 842°F (450°C) with tightly wrapped stainless steel overbraid are used, providing protection in abrasive environments. The stainless steel braid exits parallel to the heater centerline through a low profile stainless steel cap. This cap also acts as a strain relief, guarding against excessive flexing or pulling of the lead wire.

This termination style is located 180° from the gap for one-piece heaters and 90° from the gap for two-piece heaters and exits the heater near the edge. By keeping the lead wires away from the heater, less damage from high temperature contact is likely to occur.

The standard leads are 10" of stainless steel wire braid over 12" of flexible leads.

If longer leads are required, specify when ordering.

Selection TERMINATION Guide



One-Piece Band

- Leads located opposite the gap
- Minimum Inside Diameter: 1" (25.4 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10

Two-Piece Band

- Leads located at the center of each half
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10 each half

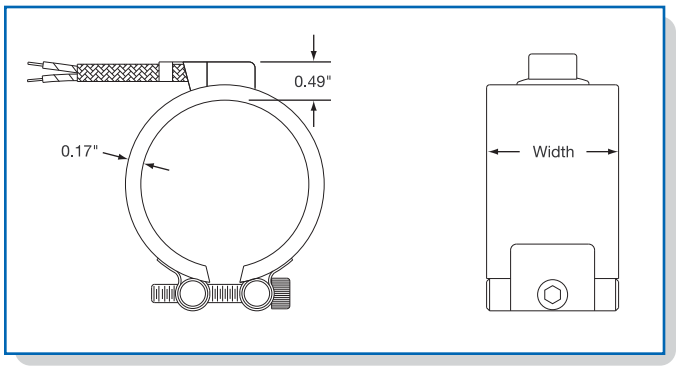
Mi-Plus Type W5 — Right-Angle Wire Braid Leads, 90 Degrees to Heater Width

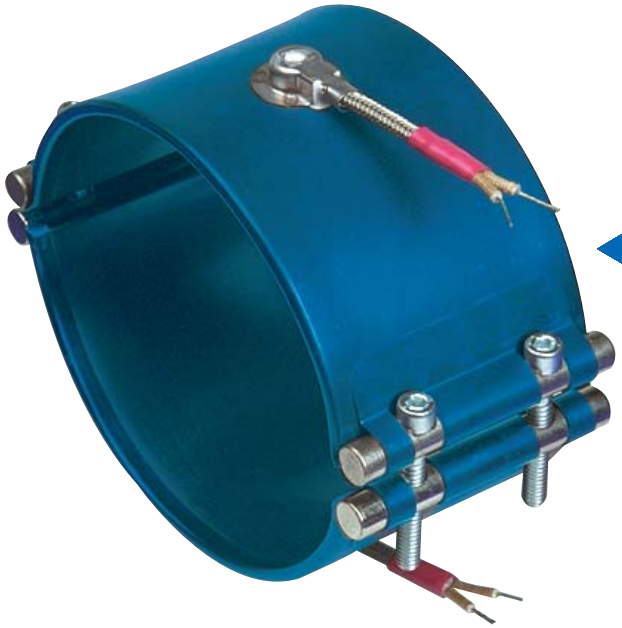
The stainless steel braid exits parallel to the heater surface through a low profile strainless steel cap, which also acts as a strain relief guarding against excessive flexing or pulling of the lead wire. Mica insulated lead wires rated for 842°F (450°C) with tightly wrapped stainless steel overbraid are used, providing protection in abrasive environments.

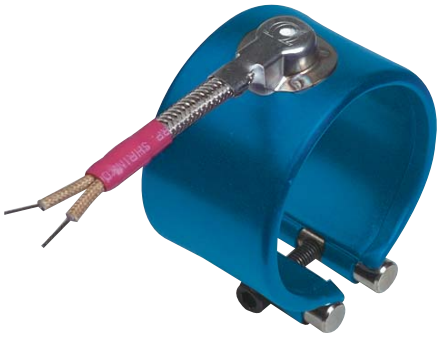
This low profile termination is convenient where space limitations are a concern.

The standard leads are 10" of stainless steel wire braid over 12" of flexible leads.

If longer leads are required, specify when ordering.







Selection TERMINATION Guide

One-Piece Band

- Leads located opposite the gap
- Minimum Inside Diameter: 1" (25.4 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10

Two-Piece Band

- Leads located at the center of each half
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10 each half

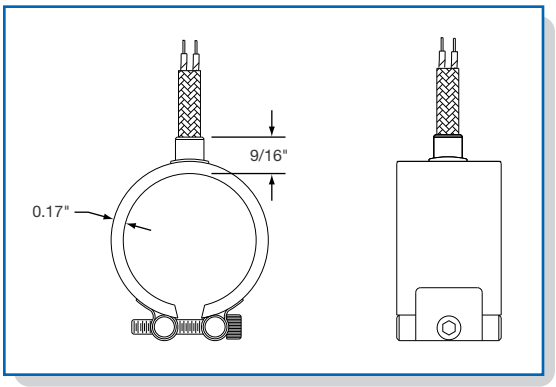
Mi-Plus Type W1 — Abrasion Resistant Straight Wire Braid Leads

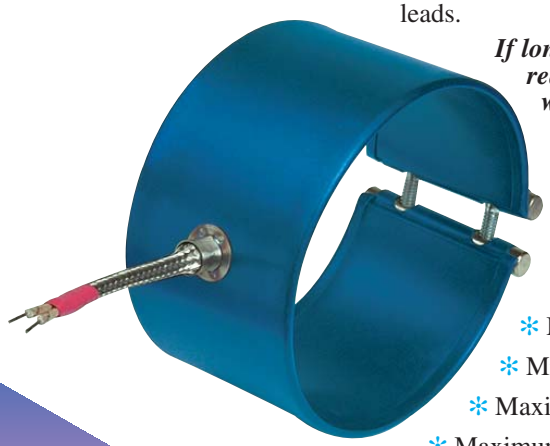
The lead wires exit straight out through a stainless steel eyelet. Flexible stainless steel wire braid leads are highly recommended for improved abrasion resistance. Wire braid leads offer sharp bending not possible with armor cable.

This stainless steel braid is loosely wrapped around two Mica insulated lead wires rated for 842°F (450°C).

The standard leads are 10" of stainless steel loose wire braid over 12" of flexible leads.

If longer leads are required, specify when ordering.

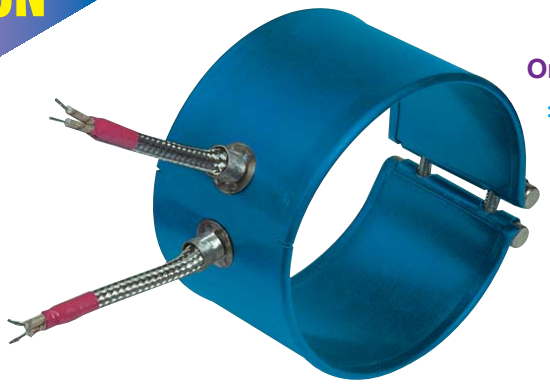




One-Piece Band

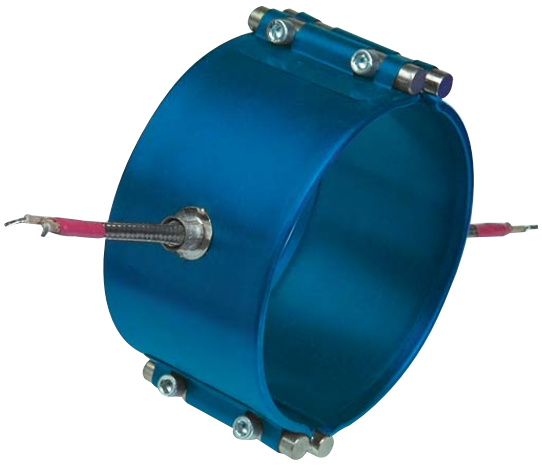
- Leads located opposite the gap
- Minimum Inside Diameter: 1" (25.4 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10

Selection **TERMINATION** Guide



One-Piece Expandable Band

- 2 sets of leads located opposite the gap
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1-1/2" (38.1 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10 each half



Two-Piece Band

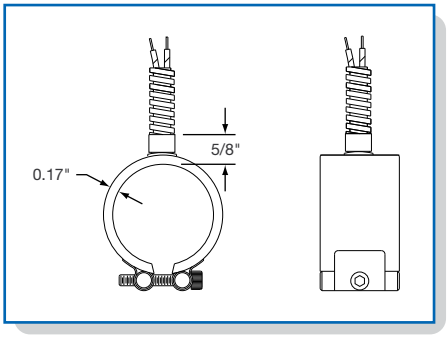
- Leads located at the center of each half
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10 each half

Mi-Plus Type R1 — Abrasion Resistant Straight Armor Cable

Stainless steel armor cable provides vastly superior lead wire protection in cases where abrasion is a constant problem. The lead wires are mica insulated and rated for 842°F (450°C).

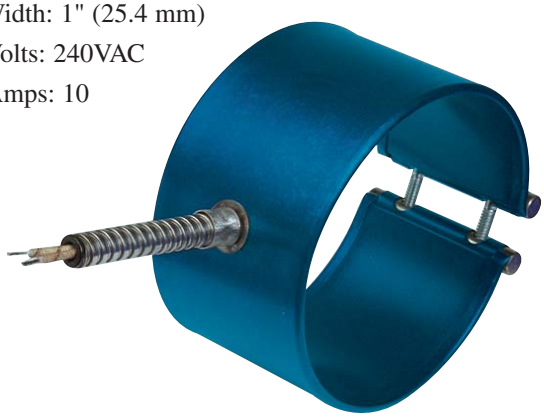
The standard leads are 10" of stainless steel armor cable over 12" lead wire.

If longer leads are required, specify when ordering.



One-Piece Band

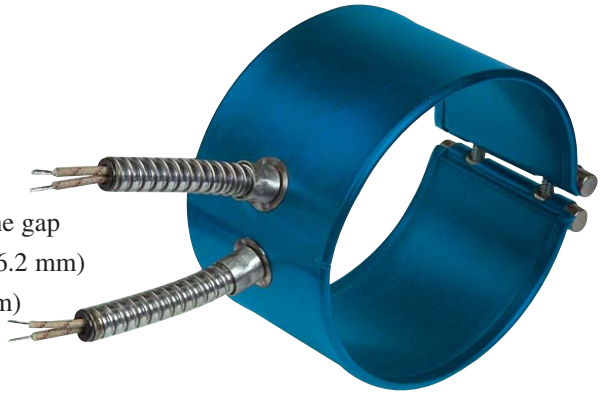
- Leads located opposite the gap
- Minimum Inside Diameter: 1" (25.4 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10



Selection
TERMINATION
Guide

One-Piece Expandable Band

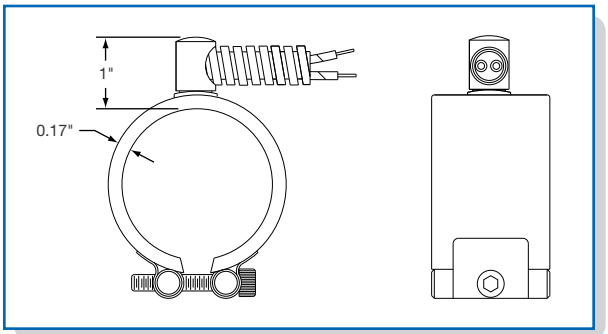
- 2 sets of leads located opposite the gap
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1-1/2" (38.1 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10 each half



Two-Piece Band

- Leads located at the center of each half
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10 each half

Mi-Plus Type R2 — Abrasion Resistant Right-Angle Armor Cable



Stainless Steel Right-Angle Armor Cable will provide excellent lead wire protection. This space saving termination will give long-term abrasion protection. The lead wires are mica insulated and rated for 842°F (450°C).

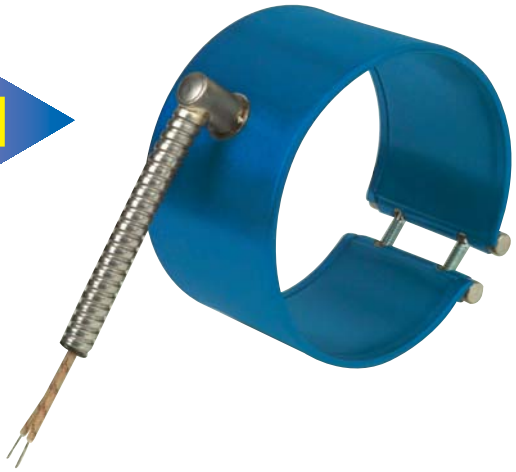
The standard leads are 10" of stainless steel armor cable over 12" of lead wire.

If longer leads are required, specify when ordering.

Selection TERMINATION Guide

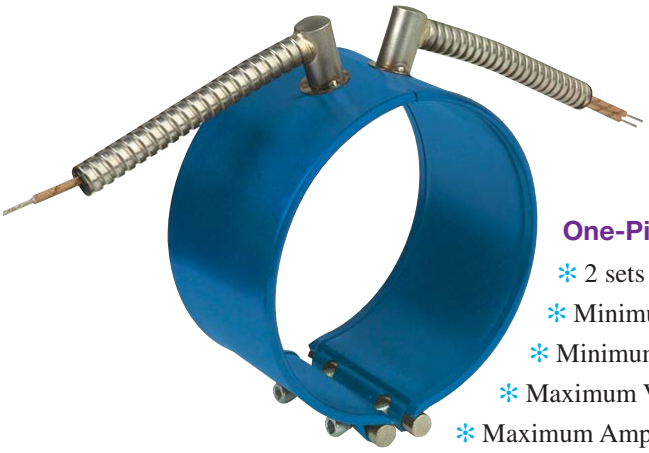
One-Piece Band

- Leads located opposite the gap
- Minimum Inside Diameter: 1" (25.4 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10



Two-Piece Band

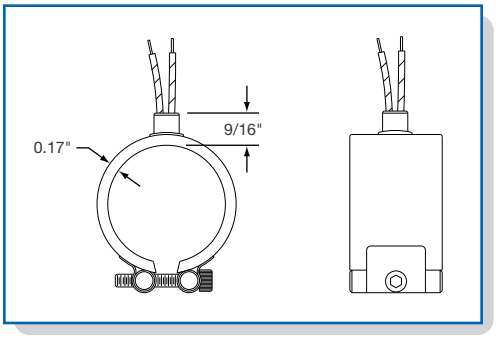
- Leads located at the center of each half
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10 each half



One-Piece Expandable Band

- 2 sets of leads located opposite the gap
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1-1/2" (38.1 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10 each half

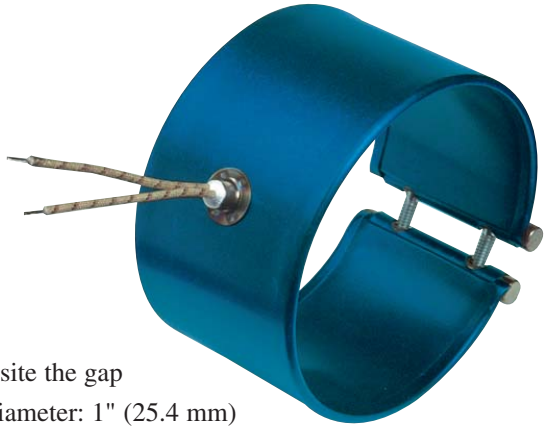
Mi-Plus Type L1 — Plain Wire Leads



Plain wire leads are available on all construction styles. The lead wires exit straight out through a stainless steel eyelet. High-temperature 842°F (450°C) mica insulated lead wire is standard.

The standard lead length is 10" long.
If longer leads are required, specify when ordering.

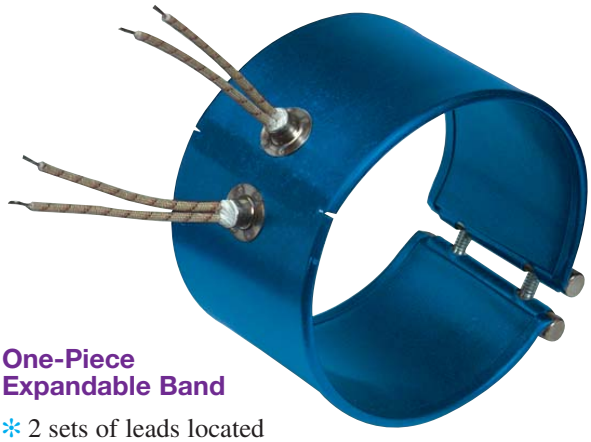
Note: Plain wire leads do not offer protection against contamination or abrasion.



One-Piece Band

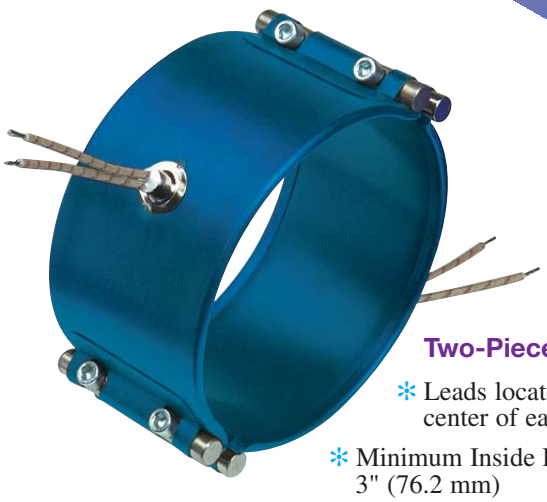
- Leads located opposite the gap
- Minimum Inside Diameter: 1" (25.4 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10

Selection TERMINATION Guide



One-Piece Expandable Band

- 2 sets of leads located opposite the gap
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1-1/2" (38.1 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10 each half



Two-Piece Band

- Leads located in the center of each half
- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 1" (25.4 mm)
- Maximum Volts: 240VAC
- Maximum Amps: 10 each half

Type CA
One-Piece Band

Type CA
Two-Piece Band

Mi-Plus Type C — General Purpose Terminal Box

General purpose terminal boxes are 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 Stainless Steel Terminal Box has a 1/2" trade-size knockout (actual diameter 7/8") that will accept standard armor cable connectors. To simplify installation, Mi-Plus band heaters with terminal boxes can be pre-wired with stainless steel armor, stainless steel wire braid, or plain leads.

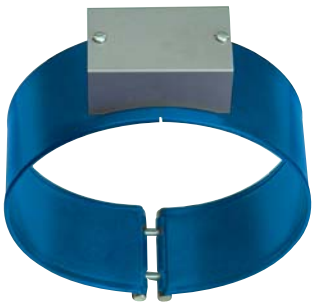
Type CA — Box only
Type CC — Box with prewired SS armor cable
Type CD — Box with prewired SS wire braid
Type CE — Box with prewired plain leads

The standard abrasive protection leads are 10" of protection over 12" of flexible leads. The standard lead length for plain leads is 10" long.

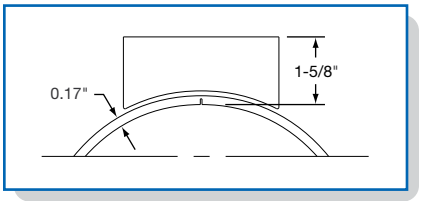
If longer leads are required, specify when ordering.

✻ Minimum Inside Diameter: 3" (76.2 mm)
✻ Minimum Width: 2" (50.8 mm)

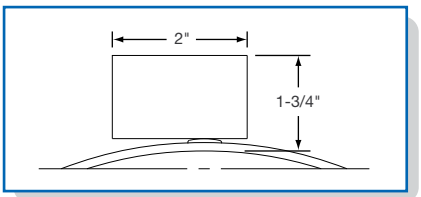
Available with all construction/clamping styles.



Type CA
Expandable Band



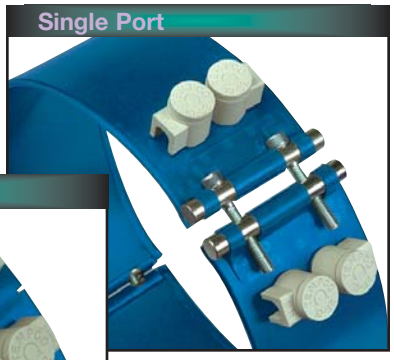
Box Expandable Construction



Box One-Piece and Two-Piece Construction

Selection
TERMINATION
Guide

Igloo™ Ceramic Covers



Igloo™ ceramic terminal covers consist of two individual ceramic parts. With a tight-fitting cap and a solid base, an Igloo™ will fully insulate any standard #8 or #10 terminal lug used for electrical wiring hookups. Igloos™ can be assembled onto any standard Mi-Plus Band with 10-32 screw terminals. Igloo™ Double Port 90° are recommended on expandable heaters with Type T3X Termination. Igloo™ Double Port In-Line will not fit on expandable heaters with Type T3X termination.

Three types of Igloo™ bases are available:

Type C6 — Double Port In-Line P/N CER-101-104
Type C7 — Double Port 90° P/N CER-101-106
Type C8 — Single Port P/N CER-101-107

Igloo™ caps are available in the following three screw terminal sizes:

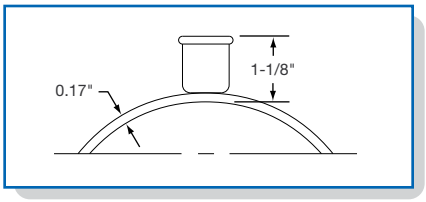
10-32 — P/N CER-102-101
10-24 — P/N CER-102-104
8-32 — P/N CER-102-105

When ordering, specify the type of Igloo™ and the screw terminal size.

Exposed electrical wiring on band heater installations is a violation of Electrical Safety Codes including O.S.H.A.

Mi-Plus Type P1 — High Temperature Quick Disconnect Plugs

Type P1A
One-Piece Band



Type P1A
Two-Piece Band

High Temperature Quick Disconnects are a simple, safe and quick way to apply power to a band heater installation. The combination of plug and cup assembly along with stainless steel armor cable or stainless steel wire braid eliminates all live exposed terminals or wiring that can be a potential hazard.

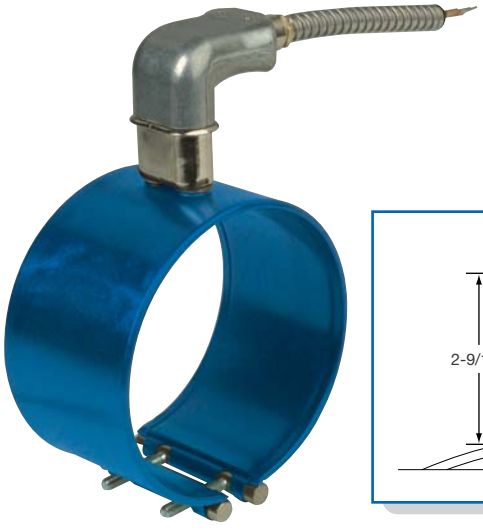
The assembly is available with a straight or right-angle plug. To simplify installation Mi-Plus band heaters with Quick Disconnects can be pre-wired with stainless steel armor or stainless steel wire braid.

P1A — Cup Assembly only
P1B — Cup Assembly with straight plug
P1C — Cup Assembly with 90° plug
P1E — Cup Assembly with straight plug and stainless steel armor cable
P1F — Cup Assembly with straight plug and stainless steel wire braid
P1H — Cup Assembly with 90° plug and stainless steel armor cable
P1J — Cup Assembly with 90° plug and stainless steel wire braid

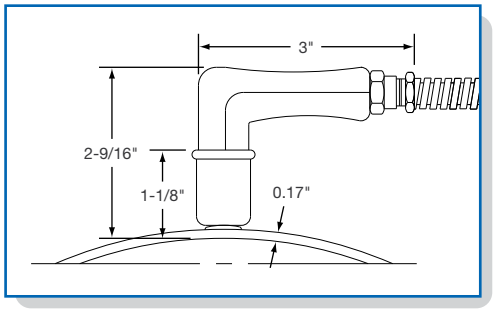
The standard abrasive protection leads are 10" of protection over 12" of flexible leads.
If longer leads, armor cable or braid are required, specify when ordering.

Selection TERMINATION Guide

- ✻ Not available in Expandable Construction
- ✻ Minimum Inside Diameter: 3" (76.2 mm)
- ✻ Minimum Width: 2" (50.8 mm)
- ✻ Maximum Volts: 250VAC
- ✻ Maximum Amps: 16
- ✻ Maximum Temperature: 572°F (300°C)

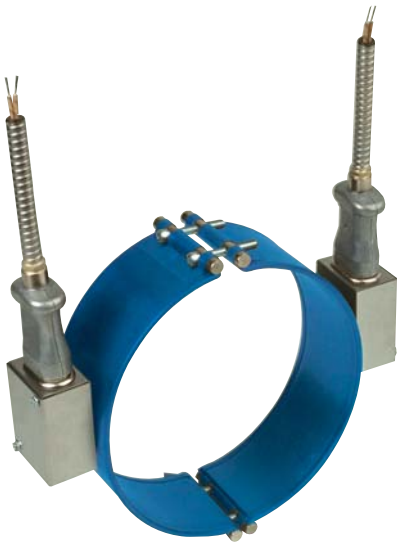


Type P1H
One-Piece Band

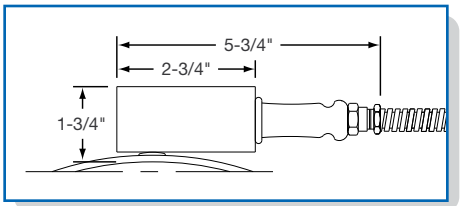


Type P1H
Two-Piece Band

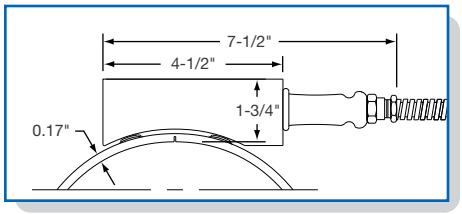
Mi-Plus Type P2 — Terminal Box and High Temperature Quick Disconnect Straight Plug



Type P2D
Two-Piece Construction



Box—One- and Two-Piece Construction



Box—Expandable Construction

Selection TERMINATION Guide

This lower profile terminal box and high temperature quick disconnect plug assembly offers a solution where clearance is a problem. The combination of plug and cup assembly along with stainless steel armor cable or stainless steel wire braid eliminates all live exposed terminals or wiring that can be a potential hazard.

The assembly is available with straight plug only. To simplify installation Mi-Plus band heaters with Quick Disconnects can be pre-wired with stainless steel armor or stainless steel wire braid.

P2A — Box and Cup only

P2B — Box and Cup with straight plug

P2D — Box and Cup with straight plug and stainless steel armor cable

P2E — Box and Cup with straight plug and stainless steel wire braid

The standard abrasive protection leads are 10" of protection over 12" of flexible leads.

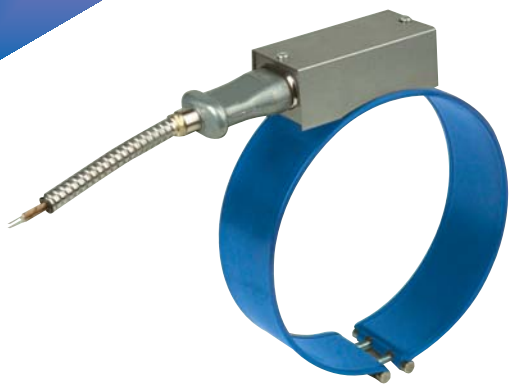
If longer leads, armor cable or braid are required, specify when ordering.

- Minimum Inside Diameter: 3" (76.2 mm)
- Minimum Width: 2" (50.8 mm)
- Maximum Volts: 250VAC
- Maximum Amps: 16
- Maximum Temperature: 572°F (300°C)

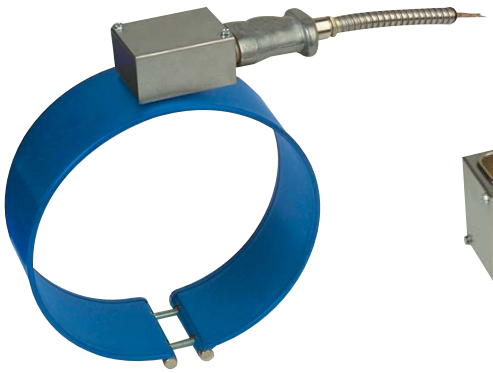
Available with all construction/clamping styles.

Type P2A
One-Piece Construction

Type P2A
Expandable Construction



Type P2D
Expandable Construction



Type P2D
One-Piece Construction

Type P2A
Two-Piece Construction

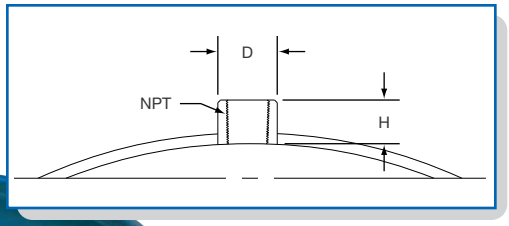
Mi-Plus Optional Features

Holes and Cutouts

The use of holes and cutouts in Mi-Plus Heaters to provide clearance for thermocouple probes and machine obstructions should be kept to a minimum. An oversize gap can in many cases serve the same purpose, at a lower cost.

Holes and cutouts require a sealing insert to prevent the loss of insulation material, which decreases the heated surface area (increases the watt density) of the heater. This loss of heated surface area, as well as a more complicated internal circuitry, creates a less efficient heater.

If holes and cutouts cannot be avoided, please supply a detailed drawing of your requirements.



Thermocouple Coupling

The Thermocouple Coupling facilitates the installation of an external thermocouple with a threaded fitting. The standard location for the coupling is 90° from the gap.

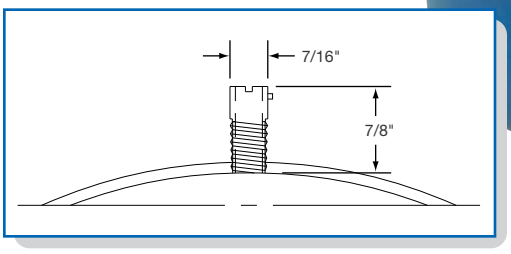
The bushing sizes available are:

NPT Size	D	H
1/8-27	9/16"	5/8"
1/4-20	3/4"	11/16"
3/8-18	7/8"	5/8"

Thermocouple Bayonet Adapter

A standard Bayonet Adapter facilitates the installation of an external thermocouple with a standard bayonet cap. The standard location for the adapter is 90° from the gap.

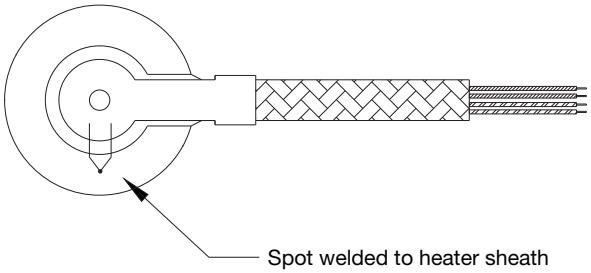
Refer to pages 14-3 and 14-4 for a complete selection of thermocouples available from stock.



Additional Mi-Plus Band Heater Features/Options

Built-In Thermocouple

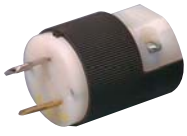
A built-in thermocouple can be factory installed on Mi-Plus band heaters. ANSI type J or K thermocouples are available on Type W2 and W5 lead wire terminations. Thermocouple junction is located inside the exit termination stamping, providing a relative heater temperature.



Stock Heavy Duty Quick Disconnect Plugs and Receptacles

Heaters with pre-wired plugs greatly allow quick and easy installation of the heater. These plugs can be attached to armor cable or stainless steel wire braid.

For other types of plugs, consult Tempco or specify the manufacturer's part number when ordering.


"P1"


"P3"


"P5"


"P2"


"P4"

Reference	NEMA P or R	Amps	Volts	Plug Part No.	Receptacle Part No.
P1 twist lock	L1-15	15A	125V	EHD-102-102	EHD-103-101
P2 twist lock	N/A	10A 15A	250V 125V	EHD-102-107	EHD-103-103
P3 straight	5-15	15A	125V	EHD-102-103	EHD-103-102
P4 twist lock	L5-15	15A	125V	EHD-102-113	EHD-103-104
P5 twist lock	L6-15	15A	250V	EHD-102-121	EHD-103-107

Options — Lead End Connections

Type RT Ring Terminal

Type ST Spade Terminal

Type QTA 1/4" Female Straight Quick Disconnect

Type QTB 1/4" Female Right-Angle Quick Disconnect

Various types of crimp terminals can be attached to the heater leads to make wiring into applications quick and easy. Non-insulated and insulated with nylon (221°F/105°C) or PVC (194°F/90°C) are available.

Note: Specify insulation type and size (#6, #8, or #10) when ordering. For other types of terminals consult Tempco or specify the manufacturer's part number when ordering.

Installation RECOMMENDATIONS

1. Disconnect electric power to the machine and/or heaters prior to installing or replacing heaters.
2. Do not install heaters in areas where combustible gases, vapor or dust is present.
3. Use as many narrow band heaters as the application will permit; 2" through 3" wide heaters are recommended.
4. Using a heater that closely matches the wattage requirements will decrease the frequency of cycling and temperature overshoot, thereby increasing the life of the heater.
5. Make certain that all barrel surfaces are clean and have a smooth finish. Any contaminants or imperfections on the surface can cause premature heater failure.
6. Tempco expandable type Mi-Plus Band Heaters may be opened once at the gap, to fit on the barrel. Do not open these heaters beyond their specified heater diameter.

CAUTION *Do not open Tempco one-piece Non-Expandable Type Mi-Plus Band Heaters. Opening of these heaters can cause internal damage.*

7. Position heater bands on the barrel.
8. Securely tighten heater bands around the barrel. Clamping force must be equally distributed on heaters with more than one set of clamping brackets.

Recommended Clamping Bolt Torque:
10 ft./lbs. (13.6 Newton-meters)

9. For heaters with screw terminals, remove the top nut and flat washers from the power screw terminals. Do not remove or loosen the bottom nut on the power screw terminals. The bottom nut is tightened to 60 inch/lbs. at our factory. A loose bottom nut will create an internal high resistance connection and will result in premature heater failure.

Installation Accessories Available

IMMEDIATE DELIVERY!

- ✳ High Temperature Terminal lugs
- ✳ Igloo Ceramic Insulating Covers
- ✳ UL Listed Plugs
- ✳ High Temperature Lead Wire 842°F (450°C)
- ✳ Armor Cable
- ✳ Stainless Steel Braid
- ✳ High Temperature Sleeving
- ✳ Stainless Steel Barrel Covers
- ✳ High Temperature Mica Insulated Wiring Harnesses 842°F (450°C)
- ✳ Thermocouples
- ✳ Temperature Controllers
- ✳ High Temperature Fiberglass Tape

All Items Available from Stock

10. All electrical wiring of heater bands should be done by a qualified electrician.
    - **a.** Use only Stainless Steel or other high temperature lugs to prevent material degradation when exposed to high temperatures over a prolonged period of time.

      CAUTION *DO NOT USE COPPER OR PLATED COPPER LUGS.*

    - **b.** Heaters must be wired with high temperature lead wire of the proper gauge. UL certified wire with "MGS" (mica-glass-silicone) insulation and "A" nickel conductor is rated for temperatures up to 842°F (450°C). Never allow lead wires to lie directly on the sheath surface. All Mi-Plus Heaters that have lead wires or that are pre-wired use MGS wire.
    - **c.** When connecting power leads to screw terminals make certain that barrels of terminal lugs are not facing down toward the heater case, which will create a short circuit.

      Recommended Screw Terminal Torque:
      30 in./lbs. (3.4 Newton-meters)

    - **d.** Make certain power lead wires do not make contact with hot heater surfaces to avoid degradation of lead wire, as this can cause electrical short circuits.
    - **e.** Make sure the voltage input to the heater bands does not exceed the voltage rating that is stamped on the heater bands.
    - **f.** It is recommended that an amperage reading is taken for each heater to verify proper wiring. (Amps = Watts/Volts)
11. Insulate all live electrical wires per applicable safety standards.
12. Begin heater band re-tightening procedure. Be sure to wear protective gloves.
    - **a.** Energize heater bands and allow the heater sheath to reach 400°F (usually 3–5 minutes).
    - **b.** Turn power off and immediately re-tighten the Mi-Plus Bands to 10 ft-lbs. Turn power on.
13. Install shrouds around the machine to meet applicable safety requirements.
14. Once installed, check surroundings to make sure that contaminants won't get on the heater while the unit is in operation. Accumulation of contaminants on heaters can cause premature heater failure.
15. Insulating blanket installations must have band heater retightening sequence (#12) completed before blanket installation. Lead wires must exit the insulation blanket as soon as possible; do not entrap lead wires between heater sheath and insulation blanket.

CAUTION It is imperative that upon start-up of new machines at customer facilities, all of the aforementioned parameters are double checked by qualified field service personnel.

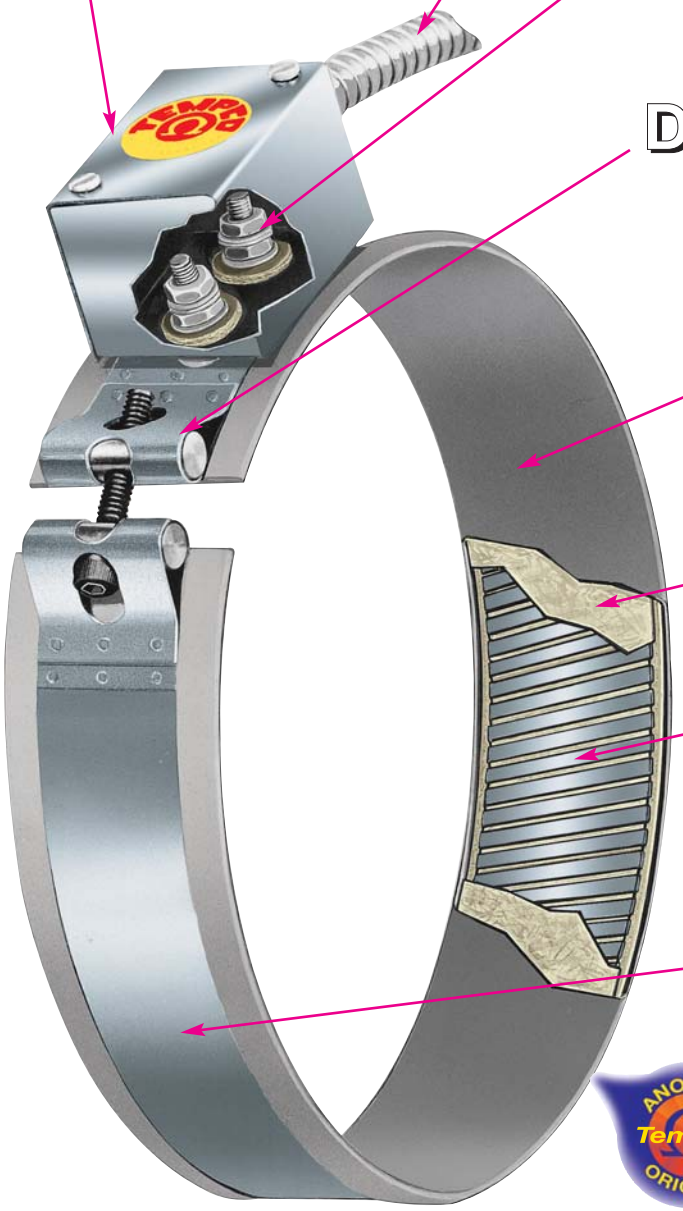
Exposed electrical wiring on band heater installations is a violation of Electrical Safety Codes including O.S.H.A.

DURABAND* with BUILT-IN STRAP

A General purpose terminal box can be attached on Duraband diameters of 2-1/2" or larger. It offers excellent protection to exposed terminals. To simplify wiring, the box has a 1/2" trade size knockout (actual diameter 7/8") that will accept standard conduit or flexible armor cable connectors. It can be field assembled on most band heaters with screw terminals having a center distance of 7/8".

B Flexible armor cable for lead protection is available where abrasion is a problem.

C For maximum surface contact, the torque resistant and unbreakable stainless steel screw terminals are securely fastened to a connecting jumper, assuring positive contact with the windings and providing maximum amperage carrying capacity. For other terminal or lead arrangements, see pages 1-36 through 1-41.



D Specially designed mounting brackets with 1/4"-20 socket cap screws are used to draw the Built-In Strap to a high degree of tension. This tension exerts the great amount of drawing power required to pull the heating element assembly against the cylinder evenly and tightly across its entire width, thus eliminating all air gaps that can cause premature heater failure. The number of bracket assemblies used increases as the width of a Duraband heater increases.

E Specially treated rust-resistant steel sheath casing provides the best combination of physical strength, high emissivity and good thermal conductivity to heated cylindrical parts, good for sheath temperatures up to 900°F (480°C).

F Specially selected grade and thickness of mica sheet is used to insulate the windings, providing excellent thermal conductivity and dielectric strength.

G The gauge of nickel-chrome resistance ribbon wire is selected to achieve the lowest internal element temperatures possible, resulting in maximum heater life. The ribbon wire is wound evenly spaced on a specially selected mica strip, providing even heat distribution and thus eliminating hotspotting that can cause premature heater failure.

H Duraband's Built-In Strap is a unique design feature developed and patented by Tempco. A Low Thermal Expansion alloy sheath is used for the outer sheath, covering the entire width of the band heater.

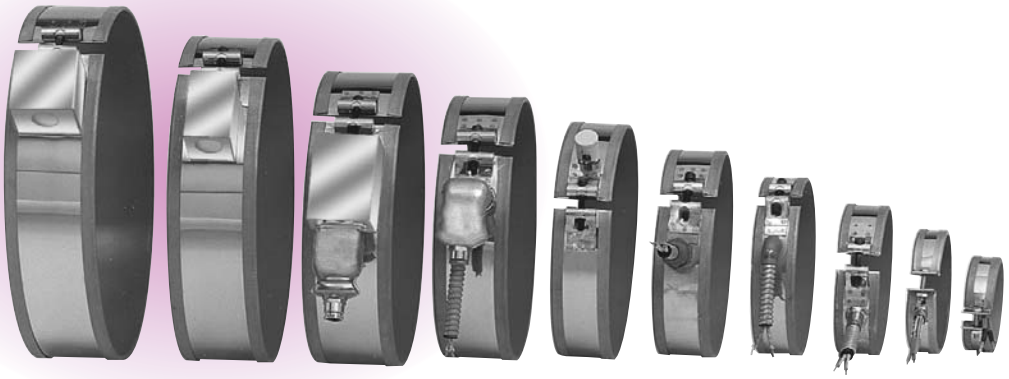
ANOTHER Tempco ORIGINAL

*U.S. Patent #3829657

makes handling and installation easier!

Typical Applications

- *Plastic Injection Molding Machines*
- *Plastic Extruders*
- *Oil Reclamation Equipment*
- *Food and Candy Extruders*
- *Drum Heating*
- *Extrusion Dies*
- *Holding Tanks*
- *Blow Molding Machines*
- *Vending Machines*
- *Barrels & Heads*
- *Food Service Warming*
- *Autoclaves & Sterilizers*
- *Metallurgical Analyzers*
- *Fluidized Beds*
- *Hot Runner Molds*
- *Pulp and Paper Processing Equipment*



Designed For Trouble Free Service

Tempco's Duraband heater design is the result of many years of research, development and testing for a reliable mica insulated band heater that can perform at the higher operating temperatures [up to 900°F (480°C)] essential to process high temperature resins, providing long, efficient service necessary for today's high productivity of plastic extruders, injection and blow molding machines.

Duraband is a proven heater design for good life efficiency and dependability. It assures maintaining the lowest winding temperatures possible, keeping a low-mass heating element assembly for fast heat-up and quick thermal response to controls. It incorporates the Low Thermal Expansion Built-In Strap, a unique design feature originally developed and patented by Tempco.

Advantages and Variations

Duraband mica insulated heaters are widely used on operations involving heating of cylindrical surfaces and are manufactured in a full range of standard construction variations, physical dimensions, electrical ratings, and a complete arrangement of screw terminals and lead terminations. (See pages 1-36 through 1-41).

However, these standard Duraband heater variations and terminations do not represent the extent of our capabilities. Tempco's engineering staff, with many years of experience in heat processing and temperature control applications, can assist you in designing the right Duraband heater for your specific application.

Construction Characteristics & Features

- ***Built-in bracket for superior clamping***
- ***Unbreakable and torque-resistant screw terminals***
- ***Temperatures up to 900°F (480°C)***
- ***Full width stainless steel built-in strap***
- ***Flexibility to incorporate holes and cutouts***
- ***Available two-piece and expandable designs***
- ***Best mica insulated heater on the market***
- ***Faster delivery than any other type of heater band***
- ***Most economical among various heater bands***
- ***Most versatile and commonly used heater band***

Duraband Standard Specifications and Tolerances

PERFORMANCE RATINGS

Maximum Temperature: Standard Sheath: 900°F (482°C)

Nominal Watt Density: 20-45 W/in² (3-7 W/cm²)

Maximum Watt Density: Dependent on heater size and operating temperature.

ELECTRICAL RATINGS

Maximum Voltage: 480 VAC

Maximum Recommended Voltage w/Leads: 240 VAC

Maximum Amperage: lead wire termination: 10 amp
screw terminations: 8-32UNF—20 amp; 10-32UNF—25 amp

Resistance Tolerance: +10%, –5%

Wattage Tolerance: +5%, –10%

PHYSICAL SIZE CONSTRUCTION LIMITATIONS

Minimum Width: 5/8" (15.9 mm)

Width Tolerance: ±1/16" (1.59 mm)

Minimum Inside Diameter: 3/4" (19.0 mm)

Standard Gap: 3/8" (9.5 mm)—If a larger gap is required for probes or thermocouples, specify when ordering.

BUILT-IN BRACKETS

Heater Width	Number of Brackets
1-1/2" to 3-3/4" (38-95 mm)	1
3-7/8 to 5-1/4" (98-133 mm)	2
5-1/2" to 7" (140-178 mm)	3
7-1/2" to 12" (190-305 mm)	4

If tighter tolerances are required consult Tempco.

Minimum ID and Width for Construction/Clamping Styles

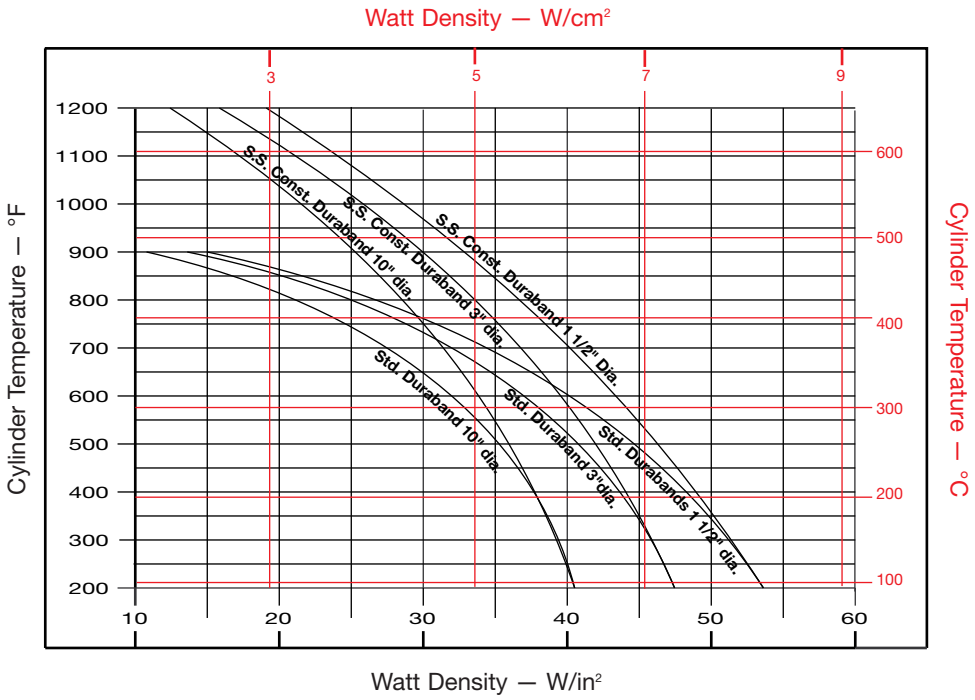
Style	Min. ID in	Min. ID mm	Min. Width in	Min. Width mm
NB	2	50.8	1-1/2	38.1
NS	3	76.2	1-1/2	38.1
NE	2-1/2	63.5	1-1/2	38.1
SB	1-1/2	38.1	5/8	15.9
SS	2	50.8	5/8	15.9
SE	2-1/2	63.5	1	25.4
FB	1	25.4	5/8	15.9
FS	2	50.8	5/8	15.9
FE	2-1/2	63.5	1	25.4
SL	4	101.6	1-1/2	38.1
NSL	4	101.6	1-1/2	38.1
NEL	4	101.6	1-1/2	38.1
LT	7	177.8	1-1/2	38.1
LS	7	177.8	1-1/2	38.1
LE	7	177.8	1-1/2	38.1
TWL	1	25.4	1	25.4

Minimum ID and Width for Terminations

Termination	Min. ID in	Min. ID mm	Min. Width in	Min. Width mm
T1	1-1/2	38.1	7/8	22.2
T2	2-1/2	63.5	7/8	22.2
T3	1-1/2	38.1	2	50.8
B1	2	50.8	1	25.4
B2	2	50.8	1	25.4
B3	2	50.8	2-1/2	63.5
L1	1-1/2	38.1	7/8	22.2
L2	3/4	19.0	5/8	15.9
L4	3/4	19.0	1	25.4
W1	1-1/2	38.1	7/8	22.2
W2	3/4	19.0	1-1/8	28.6
W3	3/4	19.0	3/4	19.1
W4	3/4	19.0	1	25.4
R1	1-1/2	38.1	1	25.4
R2	1-1/2	38.1	1-1/4	31.7
R3	1-1/2	38.1	1-1/4	31.7
C2	3	76.2	1	25.4
C3	2-1/2	63.5	2-1/2	63.5
C5 (T2 Ter)	3	76.2	1	25.4
C5 (T3 Ter)	2-1/2	63.5	2-1/2	63.5
C6, C7, C8	1-1/2	38.1	1-1/4	31.7
P1–	1-1/2	38.1	2	50.8
P2–	3	76.2	2-1/2	63.5
P3–	3	76.2	1-1/2	38.1
P4–	2-1/2	63.5	2-1/2	63.5
S1	1-1/2	38.1	1	25.4

Note: Refer to individual descriptions for further information. Actual heater minimums will be a combination of termination and construction/strap styles.

Duraband Maximum Watt Densities



MAXIMUM ALLOWABLE WATT DENSITY

The chart displays the maximum Watt Density curves for various diameter heaters. Use this chart when determining the appropriate wattage value for your chosen heater.

Be aware that certain factors will require you to derate the watt density (W/in²) of your heater selection.

CAUTION Failure to adhere to the maximum allowable watt density per heater size will result in poor operating life.

CALCULATING MAXIMUM WATT DENSITY

Factors to be taken into consideration:

A. Type of controls
B. Voltage variations
C. Machine cycling rate
D. Type of resin being processed
E. Coefficient of thermal expansion and conductivity of the cylinder
F. Designing a heater that closely matches the wattage requirement will decrease the frequency of cycling and temperature overshoot, thereby increasing the life of the heater.

Once these factors have been established, proceed with the following steps:

1. Determine the maximum operating temperature.
2. Calculate the total wattage required to obtain the maximum operating temperature. (See engineering section.)
3. Determine the quantity and size of the heater bands to be used. 1-1/2" through 3" wide band heaters have long proven to be the most efficient and reliable in most cylindrical heating applications.
4. Determine individual band heater wattage by dividing the total required wattage by the quantity of band heaters selected.
5. Determine the band heater watt density by subtracting unheated areas from the band heater diameter created by screw terminals, gaps, holes, and cutouts. (See formula next column.)

Nominal Unheated Areas

Construction Style	Cold Area to Subtract
One-piece band	1" × width
Two-piece band	2" × width
Holes and cutouts	Size + ½" × width

Watt Density Formula

$$\text{Watt Density} = \frac{\text{Wattage}}{(3.14 \times \text{Band ID} \times \text{Band Width}) - (\text{Cold Area})} \quad (\text{W/in}^2)$$

6. Determine if the required watt density previously calculated exceeds the maximum recommended watt density. Note the maximum cylinder temperature required on the left-hand side of the graph, follow the horizontal line until it intersects with the line of the band heater being used, and read directly down to obtain the maximum recommended watt density. (Watts per square inch.) See below for additional correction factors.
7. If the calculated watt density is higher than the recommended value, it must be corrected or it will cause poor heater life.This can be accomplished by using more band heaters, lowering the heater wattage, or using a different construction type or a different type of band heater.
8. Should you have a problem in selecting the proper band heater or establishing watt density for your application, consult with one of the qualified engineers at Tempco.

CORRECTION FACTORS

For heaters wider than 3" (76.2 mm), reduce maximum recommended watt density from chart by 20%.

For applications using insulating shroud, reduce maximum recommended watt density from chart by 25%.

Duraband Construction Styles

3 CONSTRUCTION TYPES

Shown with Type NB Built-In Strap

One-Piece Band

The one-piece construction is available on any screw or lead termination and clamping variation. It can be used where band heaters can be slipped over the end of the cylinder.

Shown with Type NS Built-In Strap

Two-Piece Band

The Two-Piece construction is available on any screw or lead and clamping variation. The Duraband two-piece design provides a ***built-in hinge,*** making handling and installation easier. It is used on large cylinders or where the heater cannot be slipped over the end of the cylinder. Two-piece band heaters are rated at watts and volts per each half when ordering. Multiple segments like 4-piece design are recommended on larger diameter (typically larger than 15") heaters to improve the clamping force and increase the surface contact between the heater and the barrel for efficient heat transfer.

Shown with Type NE Built-In Strap

One-Piece Expandable Band

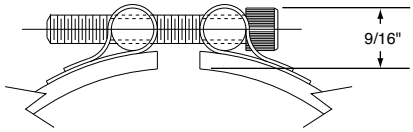
The one-piece expandable construction is available on any screw or lead and clamping variation. It can be used where a one-piece band heater would have to be expanded to fit over the barrel during installation, rather than slid on the end of the barrel.

Note: The One-Piece Expandable Band should not be opened and closed more than twice.

Duraband Construction/Clamping Variations

Standard Built-In Strap Clamping (Low Thermal Expansion)

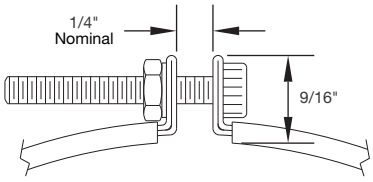
The Built-In Strap is available with any screw or lead termination and construction variation. The Built-In Strap eliminates the use of awkward-to-handle separate straps, providing more drawing power than any other type of clamping system. The Duraband with Built-In Strap is standard on many designs.



Type NE—One-Piece Expandable Band
Min. ID: 2-1/2" (63.5 mm)
Min. Width: 1-1/2" (38.1 mm)

Type NS—Two-Piece Band
Min. ID: 3" (76.2 mm)
Min. Width: 1-1/2" (38.1 mm)

Type NB—One-Piece Band
Min. ID: 2" (50.8 mm)
Min. Width: 1-1/2" (38.1 mm)



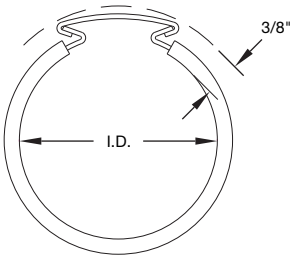
Bent-Up Flange (Ears)

The Bent-Up Flange clamping is available with any screw or lead termination and construction variation. The outer sheath is made from a Low Thermal Expansion alloy. The Bent-Up Flange design is considered a standard design on many narrow band heaters. It is not recommended for larger diameter band heaters because it does not provide sufficient drawing power in the larger sizes and may shorten the life of the heater. Duraband with Built-In Strap design is used wherever possible because it provides more drawing power than any other type of clamping system.

Type FB—One-Piece Band
Min. ID: 1" (25.4 mm)
Min. Width: 5/8" (15.9 mm)

Type FS—Two-Piece Band
Min. ID: 2" (50.8 mm)
Min. Width: 5/8" (15.9 mm)

Type FE—One-Piece Expandable Band
Min. ID: 2-1/2" (63.5 mm)
Min. Width: 1" (25.4 mm)



Wedge Lock

Wedge Lock clamping is designed for applications where mounting space is severely limited. It lends itself mainly to small diameter nozzle heaters.

Type TWL—One-Piece Band
Min. ID: 1" (25.4 mm)
Min. Width: 1" (25.4 mm)

CONTINUED

Duraband Construction/Clamping Variations

Separate Straps

The Separate Strap clamping is available with any screw or lead termination and construction variation. It is strongly recommended that the Duraband with Built-In Strap design be used whenever possible because it provides more drawing power than any other type of clamping system.

Low Profile Barrel Nuts are used on small diameter nozzle bands to alleviate clearance problems.

Type SB—One-Piece Band
Min. ID: 1-1/2" (38.1 mm)
Min. Width: 3/4" (19.0 mm)

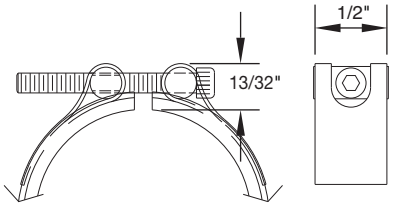
Type SS—Two-Piece Band
Min. ID: 2" (50.8 mm)
Min. Width: 3/4" (19.0 mm)

Type SE—One-Piece Expandable Band
Min. ID: 2-1/2" (63.5 mm)
Min. Width: 1" (25.4 mm)

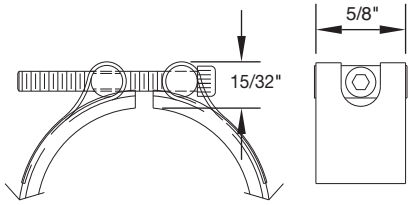
Clearance Dimensions for Separate Strap Clamping

Separate strap clearance dimensions are dependent on heater ID. The dimensions are shown below.

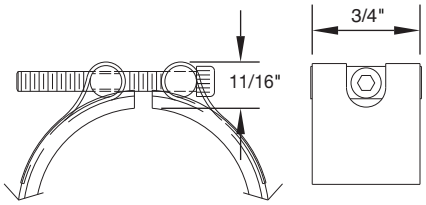
Low profile barrel nuts are used on small diameter nozzle bands to alleviate clearance problems.



< 2" I.D. — 6-32 Screw

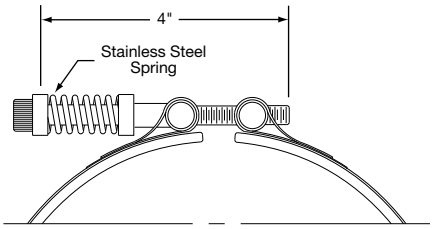


2 to 3-1/2" I.D. — 8-32 Screw



> 3-1/2" I.D. — 1/4-20 Screw

Spring Loaded with Built-In Bracket



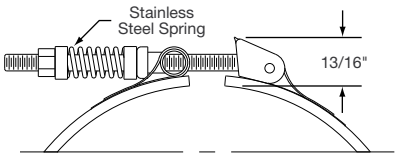
The Heavy Duty Stainless Steel Spring with Built-In Bracket is a variation on the basic Duraband design. It is available with any screw or lead termination and construction variation. It is recommended for heaters over 12" in diameter, and for any diameter heater used in the vertical position, to prevent the heater from slipping off the machine. The springs provide constant tension, maintaining the heater's inside surface tightly up against the cylinder being heated.

Type SL—One-Piece Band
Min. ID: 4" (101.6 mm)
Min. Width: 1-1/2" (38.1 mm)

Type NSL—Two-Piece Band
Min. ID: 4" (101.6 mm)
Min. Width: 1-1/2" (38.1 mm)

Type NEL—One-Piece Expandable Band
Min. ID: 4" (101.6 mm)
Min. Width: 1-1/2" (38.1 mm)

Duraband Construction/Clamping Variations



Latch and Trunion

The Latch and Trunion Clamping System is available with any screw or lead termination and construction variation. It is ideal in absorbing thermal expansion due to the spring loading on the screws. The latch fully opens, facilitating installation on large diameter cylinders. The outer sheath is made from a Low Thermal Expansion alloy.

Type LT—One-Piece Band
Min. ID: 7" (177.8 mm)
Min. Width: 1-1/2" (38.1 mm)

Type LS—Two-Piece Band
Min. ID: 7" (177.8 mm)
Min. Width: 1-1/2" (38.1 mm)

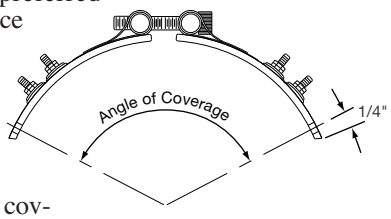
Type LE—One-Piece Expandable Band
Min. ID: 7" (177.8 mm)
Min. Width: 1-1/2" (38.1 mm)

Duraband Partial Coverage

Partial Coverage

2-Piece With Built-In Brackets

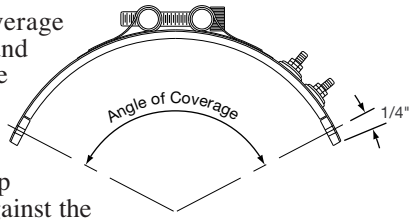
Partial coverage band heaters are normally required when holes and cutouts will not allow the heater to sufficiently clear the machine obstructions. The preferred method of construction is the Two-Piece Band Heater with Built-In Brackets as illustrated. The heater is screwed down to the cylinder at the ends and the built-in Low Thermal Expansion Strap pulls the heater tightly against the cylinder being heated. Provide when ordering the angle of coverage from center to center of the mounting screw holes as shown.



Partial Coverage

One-Piece with Two-Piece Separate Strap with Padded Ends (Type PS)

The alternate method of partial coverage construction is the One-Piece Band Heater with a separate Two-Piece Strap. The two-piece strap itself is screwed down at the padded ends, allowing the heater to float between the pads as illustrated. When the strap is tightened, it will pull the heater against the cylinder being heated. Provide when ordering the angle of coverage from center to center of the mounting screw holes as shown.



Terminations

Duraband Screw Terminal Terminations

Type T1 Terminals

Each Side of Gap

Considered standard on most band heaters unless otherwise specified.

Limitations:

Min. ID: 1-1/2" (38.1 mm)
Min. Width: 7/8" (22.2 mm)
Standard Screw Size: 10-32
ID less than 3": 8-32 screws
Width 7/8" to 1": 8-32 screws

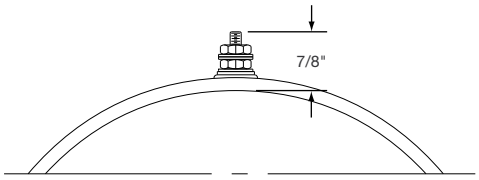
Type T2 Terminals

Next to Gap on One Side

Recommended for narrow band heaters where screw terminals are preferred or the C2 terminal box protection is required.

Limitations:

Min. ID: 2-1/2" (63.5 mm)
Min. Width: 7/8" (22.7 mm)
Standard Screw Size: 10-32
ID less than 3": 8-32 screws
Width 7/8" to 1": 8-32 screws



Type T3 Terminals

Next to Gap on One Side

The preferred design on band heaters over 3" (76.2 mm) wide or when C3 terminal box is required.

Limitations:

Min. ID: 1-1/2" (38.1 mm)
Min. Width: 2" (50.8 mm)
Standard Screw Size: 10-32
ID less than 3": 8-32 screws
Width 2" to 2-1/2": 8-32 screws

Selection TERMINATION Guide

Igloo™ Ceramic Covers

Igloo™ Ceramic Terminal Covers consist of two individual ceramic parts. Unlike conventional ceramic caps, Igloo™ fully insulates any standard #8 or #10 terminal lugs used for electrical hook-ups.

Limitations

To assemble Igloo covers, terminals should be at least 7/8" apart.

Min. ID: 1-1/2" (38.1 mm) Min. Width: 1-1/4" (31.7 mm)

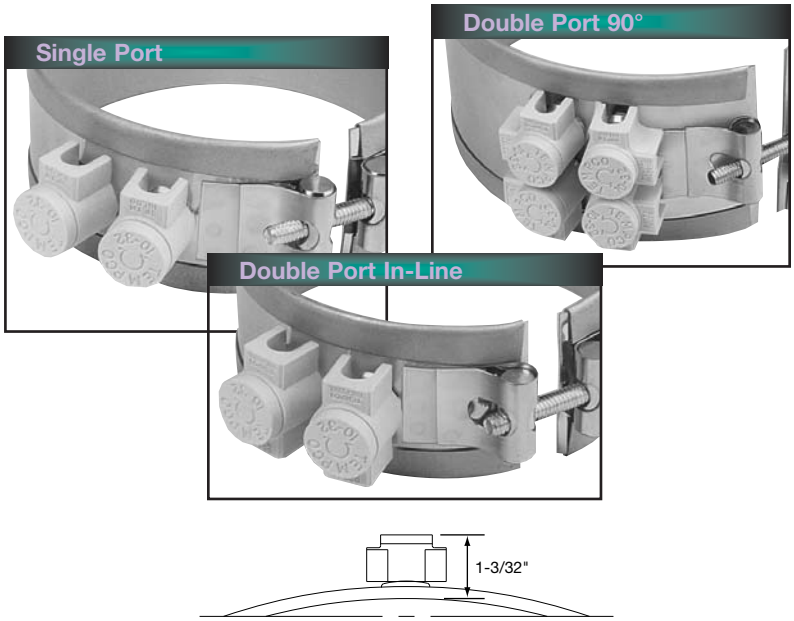
Three types of Igloo™ bases are available:

Type C6 – Double Port In-Line P/N CER-101-104
Type C7 – Double Port 90° P/N CER-101-106
Type C8 – Single Port P/N CER-101-107

Igloo™ caps are available in the following three screw terminal sizes:

10-32 – P/N CER-102-101
10-24 – P/N CER-102-104
8-32 – P/N CER-102-105

When ordering, specify the type of Igloo™ and the screw terminal size.



Exposed electrical wiring on band heater installations is a violation of Electrical Safety Codes including O.S.H.A.

Duraband Button Terminals

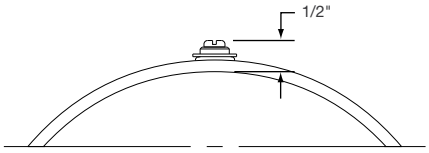
Type B1 Button Terminals
(each side of gap)
Min. ID: 2" (50.8 mm)
Min. Width: 1" (25.4 mm)

Type B2 Button Terminals
(same side of gap)
Min. ID: 2" (50.8 mm)
Min. Width: 1" (25.4 mm)

Type B3 Button Terminals
(same side of gap)
Min. ID: 2" (50.8 mm)
Min. Width: 2-1/2" (63.5 mm)

Low Profile Button Terminals are available on any clamping or construction variation. Button terminal locations are similar to T1, T2, or T3.

ID less than 3" (76.2 mm): 6-32 screws
ID greater than 3": 10-32 screws



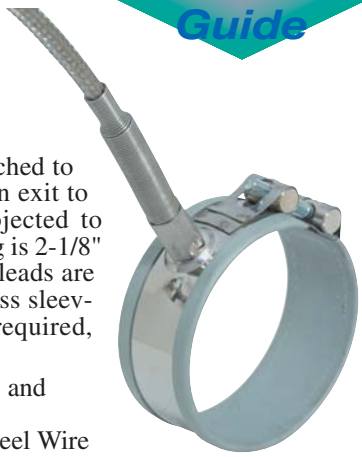
Duraband Plain Lead Wire Terminations

Selection TERMINATION Guide

Type L1 Straight Lead Wires

Straight Lead Wires are available on any clamping or construction variation. The lead wires exit through a brass eyelet. The standard flexible leads are 10" long with 3" of fiberglass sleeving. If longer leads are required, specify when ordering.

Min. ID: 1-1/2" (38.1 mm)
Min. Width: 7/8" (22.2 mm)
Max Volts: 240VAC; **Max Amps:** 10A

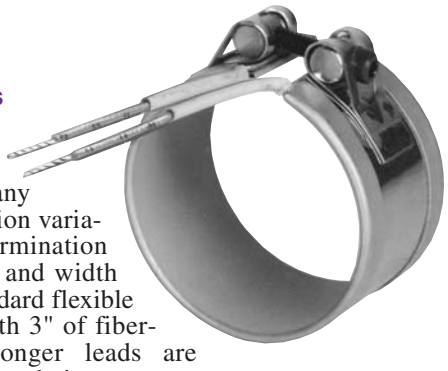


Type S1 ☐ Lead Wire Strain Relief

A strain relief spring is attached to the heater at the termination exit to reduce strain on leads subjected to excessive flexing. The spring is 2-1/8" long. The flexible standard leads are 10" long with 3" of fiberglass sleeving. If longer leads are required, specify when ordering.

Type S1A — Plain Leads and Strain Relief Spring
Type S1B — Stainless Steel Wire Braided Leads and Strain Relief Spring.
10" of braid over 12" of flexible leads is standard. If longer leads are required, specify when ordering.

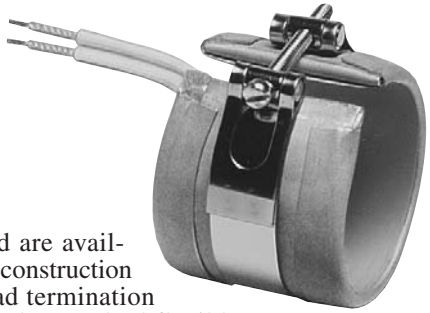
Min. ID: 1-1/2" (38.1 mm)
Min. Width: 1" (25.4 mm)
Max Volts: 240VAC; **Max Amps:** 10A



Type L2 Lead Wires on One Side

Lead Wires on One Side are available on any clamping or construction variation. The preferred termination on all small diameter and width band heaters. The standard flexible leads are 10" long with 3" of fiberglass sleeving. If longer leads are required, specify when ordering.

Min. ID: 3/4" (19.0 mm)
Min. Width: 5/8" (15.9 mm)
Max Volts: 240VAC; **Max Amps:** 10A

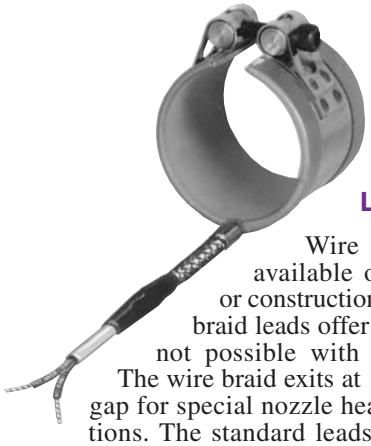


Type L4 Lead Wires on One End

Lead Wires on One End are available on any clamping or construction variation. A suitable lead termination for small band heaters. The standard flexible leads are 10" long with 3" of fiberglass sleeving. If longer leads are required, specify when ordering.

Min. ID: 3/4" (19.0 mm)
Min. Width: 1" (25.4 mm)
Max Volts: 240VAC; **Max Amps:** 10A

Duraband Abrasive Resistant Lead Terminations



Type W2—Wire Braid Leads

Wire Braid Leads are available on any clamping or construction variation. Wire braid leads offer sharp bending not possible with armor cable. The wire braid exits at 180° from the gap for special nozzle heating applications. The standard leads are 10" of wire braid over 12" of flexible leads. If longer leads are required, specify when ordering.

Min. ID: 3/4" (19.0 mm)
Min. Width: 1-1/8" (28.6 mm)
Max Volts: 240VAC; **Max Amps:** 10A

Type W1—Straight Wire Braid Leads

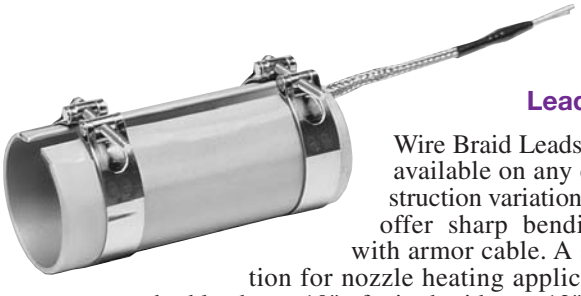
Straight Wire Braid Leads are available on any clamping or construction variation. Wire braid leads offer sharp bending not possible with armor cable. The standard leads are 10" of wire braid over 12" of flexible leads. If longer leads are required, specify when ordering.

Min. ID: 1-1/2" (38.1 mm)
Min. Width: 7/8" (22.2 mm)
Max Volts: 240VAC; **Max Amps:** 10A

Type W3—Single Wire Braid Leads

Single Wire Braid Leads are available on any clamping or construction variation. Wire braid leads offer sharp bending not possible with armor cable. Highly recommended for nozzle heating applications. The standard leads are 10" of wire braid over 12" of flexible leads. If longer leads are required, specify when ordering.

Min. ID: 3/4" (19.0 mm)
Min. Width: 3/4" (19.0 mm)
Max Volts: 240VAC; **Max Amps:** 10A

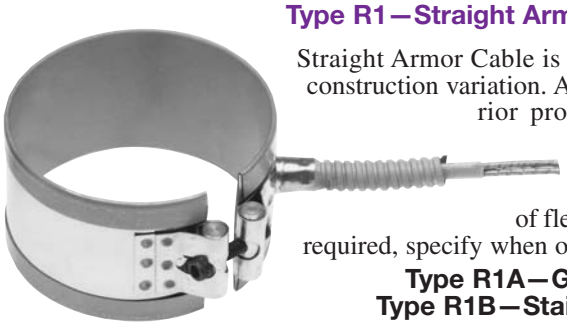


Type W4—Wire Braid Leads on One Side

Wire Braid Leads On One Side are available on any clamping or construction variation. Wire braid leads offer sharp bending not possible with armor cable. A suitable termination for nozzle heating applications. The standard leads are 10" of wire braid over 12" of flexible leads. If longer leads are required, specify when ordering.

Min. ID: 3/4" (19.0 mm)
Min. Width: 1" (25.4 mm)
Max Volts: 240VAC; **Max Amps:** 10A

Selection TERMINATION Guide

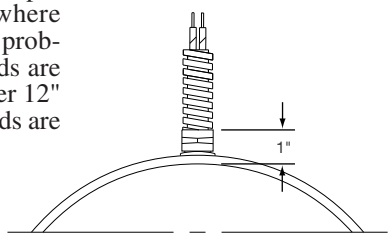


Type R1—Straight Armor Cable

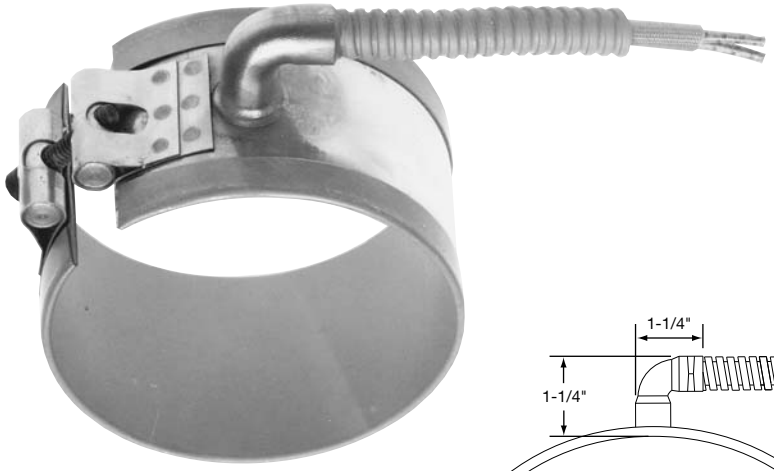
Straight Armor Cable is available on any clamping or construction variation. Armor cable provides far superior protection to lead wires where abrasion is a constant problem. The standard leads are 10" of armor cable over 12" of flexible leads. If longer leads are required, specify when ordering.

Type R1A—Galvanized Armor
Type R1B—Stainless Steel Armor

Min. ID: 1-1/2" (38.1 mm)
Min. Width: 1" (25.4 mm)
Max Volts: 240VAC; **Max Amps:** 10A



Duraband Abrasive Resistant Lead Terminations



Type R2—Right-Angle Armor Cable

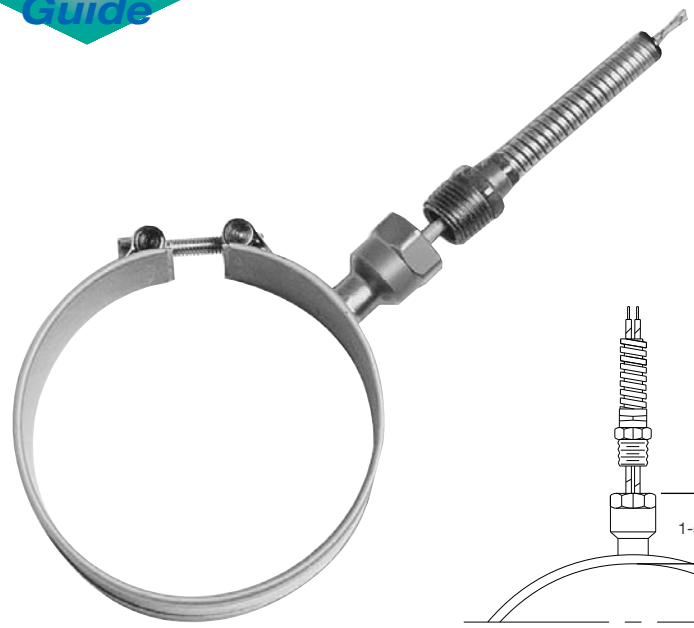
Right-Angle Armor Cable is available on any clamping or construction variation. Armor cable provides far superior protection to lead wires where abrasion is a constant problem. The standard leads are 10" of armor cable over 12" of flexible leads. If longer leads are required, specify when ordering.

Type R2A—Galvanized Armor

Type R2B—Stainless Steel Armor

Min. ID: 1-1/2" (38.1 mm)
Min. Width: 1-1/4" (31.7 mm)
Max Volts: 240VAC; **Max Amps:** 10A

Selection TERMINATION Guide



Type R3—Removable Armor Cable

Removable Armor Cable is available on any clamping or construction variation. It is recommended on applications where removable armor is required. The fitting will accept the standard armor cable connector. The standard flexible leads are 10" long. If longer leads are required, specify when ordering.

Type R3A—Plain Leads and Female Fitting

Type R3B—Leads, Male Adapter, and Galvanized Armor

Type R3C—Leads, Male Adapter, and Stainless Steel Armor

Min. ID: 1-1/2" (38.1 mm)
Min. Width: 1-1/4" (31.7 mm)
Max Volts: 240VAC; **Max Amps:** 10A

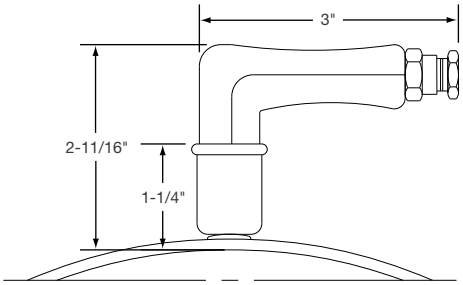
Exposed electrical wiring on band heater installations is a violation of Electrical Safety Codes including O.S.H.A.

Quick Disconnect High Temperature Plug

High Temperature 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.

Type P1 and P3 assemblies are available with a straight or right-angle plug. Type P2 and P4 plug assemblies have a lower profile and are available with a straight plug only.

To simplify installation, band heaters with these assemblies can be supplied pre-wired, using high temperature lead wires. If longer leads are required, specify when ordering.

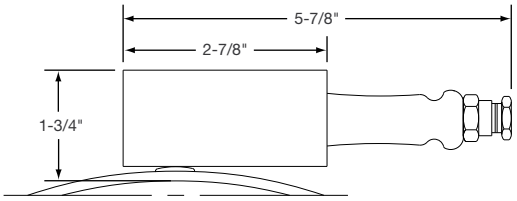


Type P1M

Type P1☐—Standard Cup Assembly

P1K—Cup assembly only
P1L—w/straight plug
P1M—w/90° plug only
P1N—w/str. plug and galvanized cable
P1O—w/str. plug and SS cable
P1P—w/str. plug and wire braid
P1Q—w/90° plug and galvanized cable
P1R—w/90° plug and SS cable
P1S—w/90° plug and wire braid

Min. ID: 1-1/2" (38.1 mm)
Min. Width: 2" (50.8 mm)



Type P2G

Type P2☐—Low Profile Assembly

P2F—Low profile assembly only
P2G—w/straight plug only
P2H—w/str. plug and galvanized cable
P2J—w/str. plug and SS cable
P2K—w/str. plug and wire braid

Min. ID: 3" (76.2 mm)
Min. Width: 2-1/2" (63.5 mm)

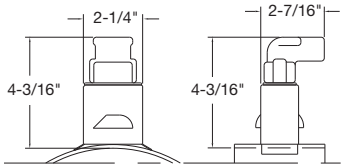
Plug Electrical Ratings
2-Pole 3-Wire Grounding
Max. Amps: 16
Max. Volts: 250 VAC
Max. Temperature: 572°F (300°C)

Quick Disconnect Medium Temperature Plug

Type P3 ☐—Vertical Box Assembly

P3A—Box assembly only
P3B—Box assembly w/straight plug
P3C—Box assembly w/right-angle plug

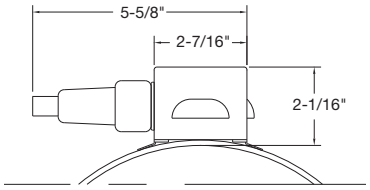
Min. ID: 3" (76.2 mm)
Min. Width: 1-1/2" (38.1 mm)



Type P4 ☐—Horizontal Box Assembly

P4A—Box assembly only
P4B—Box assembly w/straight plug

Min. ID: 2-1/2" (63.5 mm)
Min. Width: 2-1/2" (63.5 mm)



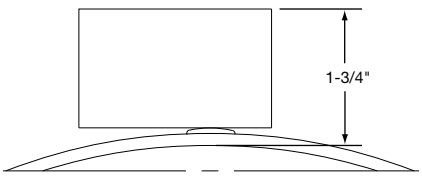
Plug Electrical Ratings
2-Pole 3-Wire Grounding
Max. Amps: 16
Max. Volts: 250 VAC
Max. Temperature: 392°F (200°C)

General Purpose Terminal Boxes

Type C2☐—Standard Box

C2A—Box only
C2B—w/galvanized armor
C2C—w/stainless steel armor
C2D—w/wire braid

Min. ID: 3" (76.2 mm)
Min. Width: 1" (25.4 mm)



Standard Box

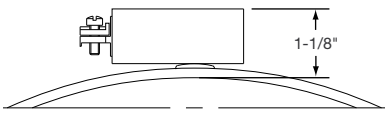
Type C5☐—Low Profile Box

C5A—T2 term. box only
C5B—T2 term. w/galvanized armor
C5C—T2 term. w/SS armor
C5D—T2 term. w/wire braid

Min. ID: 3" (76.2 mm)
Min. Width: 1" (25.4 mm)

C5E—T3 term. box only
C5F—T3 term. w/galvanized armor
C5G—T3 term. w/SS armor
C5H—T3 term. w/wire braid

Min. ID: 2-1/2" (63.5 mm)
Min. Width: 2-1/2" (63.5 mm)



Low Profile Box

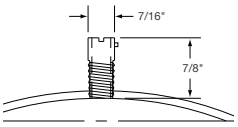
Terminal Boxes are available on any clamping or construction variation. It is a simple and economical way to protect employees from electric shock or prevent electric shorts that can result from exposed wiring on band heater electrical installations.

The Heavy Duty Terminal Boxes have 5/8" knock-outs 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, wire braid or plain leads.

If a Low Profile Box with cable or leads is required, it is strongly recommended to order it pre-wired by the factory.

The standard leads are 10" of cable or wire braid over 12" of flexible leads. If longer leads are required, specify when ordering.

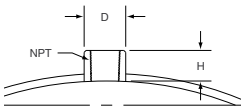
Special Duraband Construction Variations



Thermocouple Bayonet Adaptor

A standard Bayonet Adaptor facilitates the installation of an external thermocouple with a standard bayonet cap. The standard location for the adaptor is 90° from the gap. Specify without through hole for heater sensing or with through hole for load sensing.

Refer to pages 14-5 and 14-6 for a complete selection of thermocouples available from stock.



Available Bushing Sizes:

NPT Size	D	H
1/8-27	9/16"	5/8"
1/4-20	3/4"	11/16"
3/8-18	7/8"	5/8"

Thermocouple Coupling

The Thermocouple Coupling facilitates the installation of an external thermocouple with a threaded fitting to sense the temperature of the band. The standard location for the coupling is 90° from the gap. Specify without through hole for heater sensing or with through hole for load sensing.

Holes and Cutouts

Holes and cutouts are normally required in band heaters for clearance for thermocouple probes or holding bolts. An oversize gap can in many cases serve the same purpose, saving the expense of the hole.

Using the center of the gap as a starting point, specify the location of the centerpoint of the hole or cutout in terms of degrees and the distance from the edge of the heater. In addition, state the size of the hole or cutout. A minimum of 1/2" is required from the hole to the edge of the heater.

For critical hole and cutout locations, a detailed drawing will be required.

Hinged Two-Piece Band

The Hinged Two-Piece Band Heater is connected with a continuous hinge for easy installation and removal. This heater can be opened and closed as often as is necessary. The preferred method of clamping is latch and trunion. It is available with any screw or lead variation. When ordering, specify watts and volts each half.

Internal Reverse Band

This construction style is used to heat cylindrical surfaces from the inside. Large heaters are made with specially designed brackets. Small heaters (less than 5" outside diameter) are made with wedge locks that exert outward pressure for good contact against the inside surface of the part being heated.

Consult Tempco with your requirements.

Wedge Lock Clamping

Special Mica Insulated Heater Construction Variations

Square or Rectangular Hex Bands

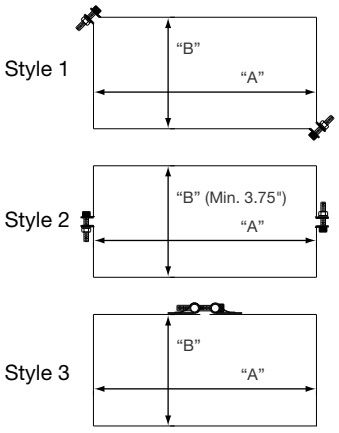
Square or Rectangular heaters are normally used for heating dies on plastic extruders, or the barrels of twin screw extruders. They can be made in either one- or two-piece construction. Hex shaped heaters are used on the hex shaped portion of the nozzle on injection molding machines. These types of heaters are strictly made to customer specifications.

Clamping Styles

Referring to the illustrations, the preferred design is* Style 1 *with bent-up flange clamping due to the uniform applied clamping force at the corners.

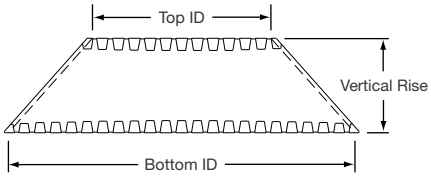
Next is **Style 2**, with bent-up flanges or built-in strapping brackets at the sides. Minimum "B" dimension is 3.75"

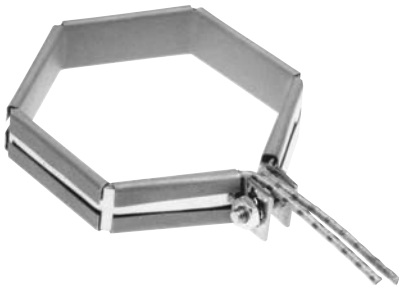
The least preferred design is **Style 3**, one-piece heater, due to the lack of uniform applied clamping force.



Cone Shapes

Cone Shaped Heaters are normally used for special heating applications when heat is required for hoppers or funnels. They are made strictly to customer specifications. The preferred method of attachment is with bent-up flange clamping. When ordering or for quoting purposes, supply a detailed drawing or sample part. Include the top ID, bottom ID, and the vertical rise or heater width.





CAUTION

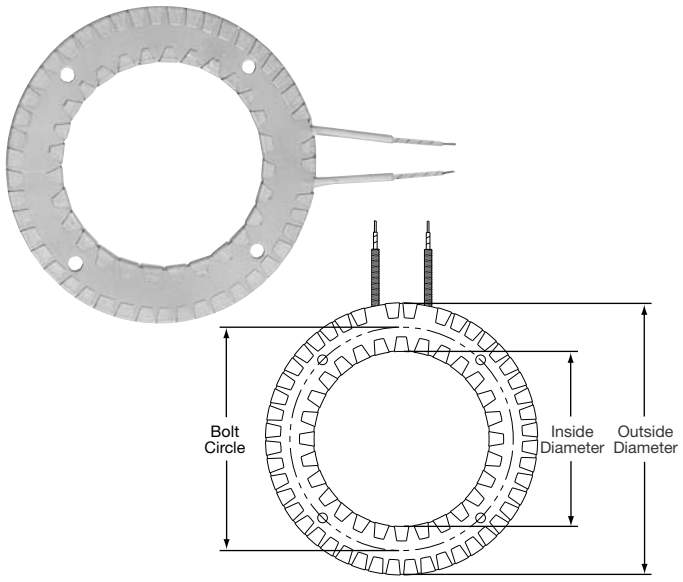
Since these construction styles do not provide as good a clamping force as a standard mica band heater, their watt densities must be limited for good heater life. Following are the maximum recommended watt densities.

Hex Bands: 15 w/in^2

Rectangular Bands: Style 1: 25 w/in^2, Style 2: 20 w/in^2
Style 3: 15 w/in^2

Ordering Information

- ❒ Select Style 1, 2 or 3
- ❒ Specify inside dimensions "A" and "B"
- ❒ Width: Minimum 5/8" (15.9 mm)
- ❒ Wattage: On two-piece per half
- ❒ Voltage: On two-piece per half
- ❒ Termination (see pages 1-36 through 1-41)
- ❒ Lead Cable/Braid Length
- ❒ Special Features (see page 1-45)
- ❒ Hex Heaters: Specify internal dimension across flats
- ❒ Provide drawing or sample part when possible



Ring Heaters

When ordering Ring Heaters, specify inside and outside diameters. If mounting holes are required, specify location and hole size.

Additional Duraband Heater Features

Electrical 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 on any clamping/construction or termination variation.

Dual Voltage Band heaters can be designed using 3-wire series/parallel circuits for dual voltage applications. Whether the heater is run on the higher or lower voltage, the wattage will be the same. Dual Voltage wiring is available on any clamping/construction or termination variation.

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 clamping/construction or termination variation.

Lead Variations

Electrical Plugs Industry standard NEMA Twist-Lock® electrical plugs are available. The plugs can be attached to fiberglass leads, armor cable or wire braid. Electrical Plugs can be added to any clamping/construction or 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.

CONSULT TEMPCO WITH YOUR REQUIREMENTS — WE HAVE THE RIGHT SOLUTIONS

Built-In Thermocouples

Heaters can be manufactured with a Built-In Thermocouple to closely control the temperature.

Type J or K thermocouples are available with fiberglass, wire braid or any other required insulation.

Consult Tempco with your requirements.

Construction Variations

All Stainless Steel Construction Mica band heaters can be constructed with the external sheath made entirely from stainless steel. This allows the Duraband to reach the maximum temperature of 1200°F (650°C). All Stainless Steel Construction is available on any clamping/construction or termination variation.

Other Sheath Materials Other sheath materials, such as rust-resistant steel, Monel®, aluminum, or copper are also available for unique applications.

Ordering Information

Stock Heaters

Order by Part number for stock heaters listed on pages 1-48 through 1-55.

Custom Engineered/Manufactured Heaters

Understanding that an electric heater can be very application specific, for sizes not listed **TEMPCO** will design and manufacture a Duraband Heater to meet your requirements. ***Standard lead time is 2 weeks.***

Please Specify the following:

- ❑ Inside Diameter
- ❑ Width
- ❑ Wattage
- ❑ Voltage
- ❑ Quantity
- ❑ Termination (see pages 1-36 through 1-41)
- ❑ Lead Cable/Braid Length
- ❑ Construction style (see pages 1-32, 1-42 and 1-43)
- ❑ Clamping variation (see pages 1-33 through 1-35)
- ❑ Special Features

Duraband and Mica Insulated Heater Special Custom Designs

Variety and Versatility in Mica Insulated Heaters. No other heater band has the design and manufacturing flexibility of mica insulated heaters. Tempco's flexible CNC sheet metal fabricating machines, custom developed engineering programs with built-in intelligence, and experienced and talented engineering staff allow us to push the limits on band heater designs.

Throughout our catalog we show Tempco's standard specifications and most popular designs. However, as a custom heating element manufacturer, we recognize that many applications require non-standard and unique designs.

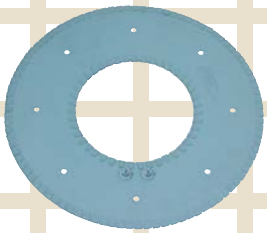
At Tempco, we are constantly challenged by our customers to solve their heating applications. We have the experience, technical knowledge and manufacturing capability to solve all your heating problems with unique heater designs. You should use Tempco's talent and capabilities to your benefit to solve your specific heating problem in an expeditious and cost effective manner.

The following pictures show some of the heater designs that we have developed for special applications. Next time, when you have a special application and you want someone to work with you and "think outside the box" to solve your specific heating application, call Tempco.

We haven't seen all heating applications, but most likely our experienced staff has seen and solved more heating problems than you have seen.

Use our knowledge and experience to work for you.
Challenge us! You will be glad you did.

We Welcome Your Inquiries.



Disc Heater with clearance hole

Heater with large cutout at gap and clearance holes

Boat shaped two-piece heater

Heater with dual circuit — have two heaters in one envelope

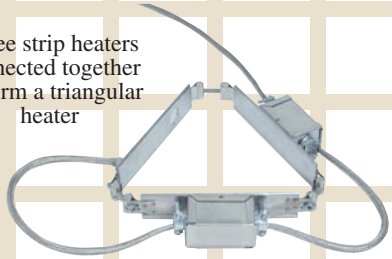
Two-piece rectangular heater with corner radius and cutouts

Fully flexible tapered two-piece heater.

Arch shaped heater for a special die. A two-piece heater will cover an obround die.

Heater with miniature outlet box and clearance hole.

Three strip heaters connected together to form a triangular heater



Long conical two-piece heater

Fully flexible one -piece heater with varying width

Ring Heater

"Sinuated" Element Construction for Commercial OEM Applications

An economical alternative to wound ribbon core heaters is the sinuated heater element. In this type of construction, the heating element resistance wire is sinuated, or "formed" back and forth without a middle core layer of mica insulation. The heating element is then sandwiched between two layers of specially selected mica insulation to provide excellent thermal conductivity and dielectric strength.

The sinuated formed element lends itself to lower temperature and watt density applications where the high watt density construction is not required.

Typical Applications (Cylindrical Surfaces)

- *Food and Candy Extruders*
- *Vending Machines*
- *Commercial Food Equipment*
- *Food Service Warming Items*
- *Laboratory and Scientific Apparatus*
- *Photographic Equipment*
- *Incubators*

ECONOMICAL

The Solution for Low to Medium Temperature Cylindrical and Flat Surfaces Heating Applications

Typical Applications (Flat Surfaces)

- *Laminating*
- *Food Service Warming Items*
- *Radiant Heating*
- *Incubators*

This design is widely used in food service and the farming industry. By careful selection of economical materials used for these low temperature applications, significant cost savings can be realized compared to standard mica heaters.

Installation RECOMMENDATIONS

1. Disconnect electric power to the machine and/or heaters prior to installing or replacing heaters.
2. Do not install heaters in areas where combustible gases, vapor or dust is present.
3. Use as many narrow band heaters as the application will permit. 1-1/2" through 3" wide heaters are recommended.
4. Using a heater that closely matches the wattage requirements will decrease the frequency of cycling and temperature overshoot, thereby increasing the life of the heater.
5. Make certain that all barrel surfaces are clean and have a smooth finish. Any contaminants or imperfections on the surface can cause premature heater failure.
6. Tempco expandable type Mica Band Heaters may be opened once at the gap to fit on the barrel. Do not open these heaters beyond their specified heater diameter.

CAUTION ***Do not open Tempco one-piece Non-Expandable Type Mica Band Heaters. Opening of these heaters can damage Mica Insulation and will create electrical short circuits.***

7. Position heater bands on the barrel.
8. Securely tighten heater bands around the barrel. Clamping force must be equally distributed on heaters with more than one set of clamping brackets.

Recommended clamping bolt torque is 10 ft-lbs.

9. For heaters with screw terminals, remove the top nut and flat washers from the power screw terminals. Do not remove or loosen the bottom nut on the power screw terminals. The bottom nut is tightened to 60 in-lbs. at the factory. A loose bottom nut may cause premature heater failure.
10. All electrical wiring of heater bands should be done by a qualified electrician.
    - **a.** Use only Stainless Steel or other high temperature lugs to prevent material degradation when exposed to high temperatures over a prolonged period of time.

      CAUTION ***DO NOT USE COPPER OR PLATED COPPER LUGS.***

    - **b.** Use only lead wire with high temperature insulation and proper gauge size.
    - **c.** When connecting power leads to screw terminals make certain that barrels of terminal lugs are not facing down toward the heater case, which will create a short circuit.

      Tighten the top nut to 30 in-lbs.

    - **d.** Make certain power lead wires do not make contact with hot heater surface to avoid degradation of lead wire, as this can cause electrical short circuits.
    - **e.** Make sure the voltage input to the heater bands does not exceed the voltage rating that is stamped on the heater band.
    - **f.** It is recommended that an amperage reading is taken for each heater to verify proper wiring. (Amps = Watts/Volts)
11. Insulate all live electrical wires per applicable safety standards.
12. Begin heater band re-tightening procedure. Be sure to wear protective gloves.
    - **a.** Energize heater bands and allow the heater to reach 300°F (149°C). This usually takes between 3 and 5 minutes.
    - **b.** Turn off power and immediately re-tighten the heater bands to 10 ft/lbs. Turn power back on.
13. Install shrouds around the machine to meet applicable safety requirements.
14. Once installed, check surroundings to make sure that contaminants won't get on the heater while the unit is in operation. Accumulation of contaminants on heaters can cause premature heater failure.
15. Insulating blanket installations must have band heater retightening sequence (#12) completed before blanket installation. Lead wires must exit the insulation blanket as soon as possible; do not entrap lead wires between heater sheath and insulation blanket.

CAUTION It is imperative that upon start-up of new machines at customer facilities, all of the aforementioned parameters are double checked by qualified field service personnel.

Installation Accessories Available

IMMEDIATE DELIVERY!

- *High Temperature Terminal lugs*
- *Igloo™ Ceramic Terminal Covers*
- *UL Listed Plugs*
- *High Temperature Lead Wire 842°F (450°C)*
- *Armor Cable*
- *Stainless Steel Braid*
- *High Temperature Sleeving*
- *Stainless Steel Barrel Covers*
- *High Temperature Mica Insulated Wiring Harnesses 842°F (450°C)*
- *Thermocouples*
- *Temperature Controllers*
- *High Temperature Fiberglass Tape*

Available from Stock
For same day shipping when ORDERED BY 2 PM CST

Exposed electrical wiring on band heater installations is a violation of Electrical Safety Codes including O.S.H.A.

STOCK Replacement Band Heaters for Plastic Injection Molding Machines

COST EFFECTIVE WITHOUT COMPROMISING QUALITY

NHL Mica Insulated Nozzle Heater

ID in	Width in	Watts	Watt Density W/in²	Part Number 120V	Part Number 240V
⅞	1	85	49	NHL00130	NHL00131
1	1	100	47	NHL00100	NHL00101
1	1	125	58	NHL00132	NHL00133
1	1½	150	47	NHL00102	NHL00103
1	1½	200	62	NHL00104	NHL00105
1	2	250	58	NHL00106	NHL00107
1¼	⅝	100	55	NHL00154	NHL00155
1¼	1	175	60	NHL00108	NHL00109
1¼	1¼	125	34	NHL00156	NHL00157
1¼	1¼	250	68	NHL00158	NHL00159
1¼	1½	250	57	NHL00110	NHL00111
1½	⅞	100	31	NHL00160	NHL00161
1½	1	100	27	NHL00162	NHL00163
1½	1	150	40	NHL00112	NHL00113
1½	1	200	54	NHL00114	NHL00115
1½	1¼	250	54	NHL00164	NHL00165
1½	1½	150	27	NHL00134	NHL00135
1½	1½	200	36	NHL00116	NHL00117
1½	1½	250	45	NHL00136	NHL00137
1½	1½	275	49	NHL00118	NHL00119
1½	1½	300	54	NHL00138	NHL00139
1½	2	300	40	NHL00120	NHL00121
1½	2½	350	38	NHL00122	NHL00123
1½	2½	400	43	NHL00166	NHL00167
1½	3	350	31	NHL00168	NHL00169
1½	3	400	36	NHL00124	NHL00125
1½	3	500	45	NHL00170	NHL00171
1¾	1	175	39	NHL00172	NHL00173
1¾	1½	200	30	NHL00174	NHL00175
1¾	1½	225	33	NHL00140	NHL00141
1¾	1½	250	37	NHL00176	NHL00177
1¾	1½	300	44	NHL00178	NHL00179
1¾	3	500	37	NHL00180	NHL00181
2	1	200	38	NHL00182	NHL00183
2	1½	300	38	NHL00142	NHL00143
2	2	400	38	NHL00144	NHL00145
2⅛	1	100	18	NHL00126	NHL00127
2⅛	2	200	18	NHL00128	NHL00129
2¼	1	225	37	NHL00146	NHL00147
2⅜	1	250	39	NHL00148	NHL00149
2½	1	300	44	NHL00150	NHL00151
2½	1½	200	19	NHL00152	NHL00153
2½	1½	350	34	NHL00186	NHL00187

In Stock!

- Economically Priced
- Type NHL with 12" leads and 2" of protective sleeving
- Supplied with low profile clamping strap

All Items Available from Stock

Note: For normal plastic processing Tempco recommends Watt Densities under 55 W/in².

STOCK Replacement Band Heaters for Plastic Injection Molding Machines

COST EFFECTIVE WITHOUT COMPROMISING QUALITY

NHW Mica Insulated Nozzle Heater

ID in	Width in	Watts	Watt Density W/in²	Part Number 120V	Part Number 240V
⅞	1	85	49	NHW00130	NHW00131
1	1	100	47	NHW00100	NHW00101
1	1	125	58	NHW00132	NHW00133
1	1½	150	47	NHW00102	NHW00103
1	1½	200	62	NHW00104	NHW00105
1	2	250	58	NHW00106	NHW00107
1¼	1	175	60	NHW00108	NHW00109
1¼	1¼	125	34	NHW00156	NHW00157
1¼	1¼	250	68	NHW00158	NHW00159
1¼	1½	250	57	NHW00110	NHW00111
1½	⅞	100	31	NHW00160	NHW00161
1½	1	100	27	NHW00162	NHW00163
1½	1	150	40	NHW00112	NHW00113
1½	1	200	54	NHW00114	NHW00115
1½	1¼	250	54	NHW00164	NHW00165
1½	1½	150	27	NHW00134	NHW00135
1½	1½	200	36	NHW00116	NHW00117
1½	1½	250	45	NHW00136	NHW00137
1½	1½	275	49	NHW00118	NHW00119
1½	1½	300	54	NHW00138	NHW00139
1½	2	300	40	NHW00120	NHW00121
1½	2½	350	38	NHW00122	NHW00123
1½	2½	400	43	NHW00166	NHW00167
1½	3	400	36	NHW00124	NHW00125
1½	3	500	45	NHW00170	NHW00171
1¾	1½	200	30	NHW00174	NHW00175
1¾	1½	225	33	NHW00140	NHW00141
1¾	1½	250	37	NHW00176	NHW00177
1¾	1½	300	44	NHW00178	NHW00179
2	1½	300	38	NHW00142	NHW00143
2	2	400	38	NHW00144	NHW00145
2⅛	1	100	18	NHW00126	NHW00127
2⅛	1	200	35	NHW00184	NHW00185
2⅛	2	200	18	NHW00128	NHW00129
2¼	1	225	37	NHW00146	NHW00147
2⅜	1	250	39	NHW00148	NHW00149
2½	1	300	44	NHW00150	NHW00151
2½	1½	200	19	NHW00152	NHW00153
2½	1½	350	34	NHW00186	NHW00187
2¾	1½	400	35	NHW00188	NHW00189

In Stock!

- Economically Priced
- Type NHW with 12" leads and 10" SS wire braid
- Supplied with low profile clamping strap

Available from Stock
For same day shipping when ORDERED BY 2 PM CST

Note: For normal plastic processing Tempco recommends Watt Densities under 55 W/in².

Ordering Information
See page 1-42

Duraband Nozzle Band Heaters

Stock and Standard (Non-Stock) Replacement Mica Insulated Band Heaters for Plastic Injection Molding Machines

Fig. A

ID in	ID mm	Width in	Width mm	Wattage	Fig.	Tempco Part Number 120V	Tempco Part Number 240V
1¼	31.8	1³⁄₁₆	30.2	125	A	✻MBH00029	✻MBH00032
1¼	31.8	1³⁄₁₆	30.2	125	A	—	✻MBH00033 ①
1½	38.1	1	25.4	150	A	✻MBH00031	MBH00035
1½	38.1	1	25.4	150	A	—	✻MBH00036 ①
2⁵⁄₁₆	58.7	1⁷⁄₁₆	36.5	300	A	—	MBH00038
2⁵⁄₁₆	58.7	1⁷⁄₁₆	36.5	300	A	—	✻MBH00039 ①

① Heaters have built-in Type J Thermocouple

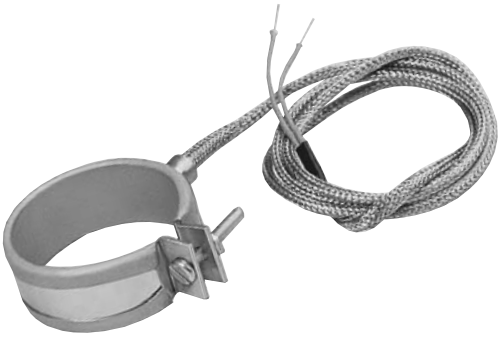


Fig. B

ID in	ID mm	Width in	Width mm	Wattage	Watt Density W/in²	Watt Density W/cm²	Fig.	Part Number 120 Volts	Part Number 240 Volts
1	25.4	1	25.4	110	51	8.0	B	✻MBH00001	✻MBH00010
1⅜	34.9	1	25.4	150	45	7.0	B	✻MBH00002	MBH00011
1½	38.1	1	25.4	150	40	6.3	B	✻MBH00030	✻MBH00034
1¾	44.5	1	25.4	175	39	6.0	B	✻MBH00003	✻MBH00012
2	50.8	1	25.4	200	38	5.9	B	MBH00004	✻MBH00013
2¼	57.2	1	25.4	175	29	4.5	B	✻MBH00005	—
2¼	57.2	1½	38.1	300	33	5.1	B	—	✻MBH00037
2½	63.5	1	25.4	250	36	5.7	B	✻MBH00006	✻MBH00014
3	76.2	1	25.4	200	24	3.7	B	✻MBH00007	✻MBH00015
3½	88.9	1	25.4	300	30	4.7	B	MBH00009	✻MBH00016

Fig. C

ID in	ID mm	Width in	Width mm	Wattage	Watt Density W/in²	Watt Density W/cm²	Fig.	Part Number 240 V
1³⁄₁₆	30.2	1⅛	28.6	140	46	7.1	C	✻MBH00017
1³⁄₁₆	30.2	1³⁄₁₆	30.2	170	52	8.1	C	✻MBH00018
1½	38.1	1½	38.1	275	49	7.7	C	✻MBH00019
1½	38.1	1¾	44.5	250	38	6.0	C	✻MBH00020
1½	38.1	2½	63.5	400	43	6.7	C	✻MBH00021
1½	38.1	3	76.2	450	40	6.3	C	✻MBH00022
1½	38.1	4½	114.3	600	36	5.6	C	✻MBH00023
1¾	44.5	6	152.4	800	30	4.6	C	✻MBH00024
2⅛	54.0	¹⁵⁄₁₆	23.8	215	40	6.3	C	MBH00025
2⁵⁄₁₆	58.7	¹⁵⁄₁₆	23.8	260	44	6.9	C	MBH00026
2⁵⁄₁₆	58.7	1⅜	34.9	240	28	4.3	C	✻MBH00027
2¾	69.9	1½	38.1	260	23	3.5	C	✻MBH00028

Design Features:

✳ *All heaters have 24" high temperature leads with 22" stainless steel overbraid*

An asterisk (✻) next to the Part Number guarantees in-stock availability for same-day shipping when ORDERED BY 2 PM CST

Ordering Information

See page 1-44

Duraband

Stock and Standard (Non-Stock) Mica Insulated Band Heaters for Plastic Injection Molding Machines

Design Features:

- *All heaters have 24" high temperature leads with 22" stainless steel overbraid—* ***Type W3***
- *Heaters less than 1-1/2" wide have separate straps—* ***Type SE***
- *Designed as one-piece expandable type, enables you to open up the heater to the diameter of the barrel for easy installation.*

ID		Width			Watt Density			Part Number		
in	mm	in	mm	Wattage	W/in²	W/cm²	Style	120V	240V	480V
2¾	69.9	3½	88.9	600	22	3.5	NE	*MBH00040	—	—
3	76.2	1	25.4	200	24	3.7	SE	*MBH00041	*MBH00054	—
3	76.2	1	25.4	250	30	4.7	SE	*MBH00042	*MBH00055	—
3	76.2	1	25.4	300	36	5.6	SE	*MBH00043	MBH00056	—
3	76.2	1	25.4	400	48	7.4	SE	*MBH00044	MBH00057	—
3	76.2	1½	38.1	500	40	6.1	NE	MBH00045	*MBH00058	—
3	76.2	2½	63.5	300	14	2.2	NE	—	MBH00059	—
3½	88.9	⅝	15.9	200	32	5.0	SE	*MBH00046	*MBH00060	—
3½	88.9	1	25.4	200	20	3.1	SE	*MBH00047	—	—
3½	88.9	1½	38.1	500	33	5.2	NE	—	MBH00061	—
4	101.6	2	50.8	625	27	4.2	NE	MBH00048	MBH00062	MBH00066
4	101.6	3	76.2	500	14	2.2	NE	*MBH00049	—	—
4	101.6	4	101.6	1250	27	4.2	NE	*MBH00050	MBH00063	*MBH00067
4½	114.3	1	25.4	300	23	3.5	SE	MBH00051	—	—
4½	114.3	2	50.8	700	27	4.1	NE	—	MBH00064	MBH00068
4½	114.3	4	101.6	700	13	2.1	NE	MBH00052	—	—
4½	114.3	4	101.6	1400	27	4.1	NE	*MBH00053	*MBH00065	MBH00069

Design Features:

- *All heaters have 24" high temperature leads —* ***Type L2***
- *Heaters less than 1-1/2" wide have separate straps—* ***Type SE***
- *Designed as one-piece expandable type, enables you to open up the heater to the diameter of the barrel for easy installation.*

ID		Width			Watt Density			Part Number		
in	mm	in	mm	Wattage	W/in²	W/cm²	Style	120V	240V	480V
3	76.2	1	25.4	200	24	3.7	SE	*MBH00070	*MBH00078	—
3	76.2	1	25.4	250	30	4.6	SE	*MBH00071	*MBH00079	—
3	76.2	1	25.4	300	36	5.5	SE	*MBH00072	*MBH00080	—
3	76.2	1	25.4	400	47	7.4	SE	*MBH00073	MBH00081	—
3	76.2	1½	38.1	400	32	4.9	NE	*MBH00074	MBH00082	—
3	76.2	1½	38.1	450	36	5.5	NE	*MBH00075	*MBH00083	—
3	76.2	1½	38.1	500	40	6.1	NE	*MBH00076	*MBH00084	—
3	76.2	2	50.8	500	30	4.6	NE	*MBH00077	*MBH00085	—
3½	88.9	1	25.4	400	40	6.2	SE	—	MBH00086	—
3½	88.9	1½	38.1	250	17	2.6	NE	—	MBH00087	*MBH00093
3½	88.9	2	50.8	650	33	5.0	NE	—	MBH00088	—
4 15/16	125.4	2½	63.5	720	20	3.1	NE	—	*MBH00089	*MBH00094
5½	139.7	2½	63.5	950	23	3.6	NE	—	MBH00090	*MBH00095
5⅞	149.2	1½	38.1	675	26	4.0	NE	—	*MBH00091	*MBH00096
7½	190.5	1½	38.1	1000	30	4.6	NE	—	*MBH00092	*MBH00097

Duraband Barrel Band Heaters

Stock and Standard (Non-Stock) Mica Insulated Band Heaters for Plastic Injection Molding Machines

Design Features:

- *All heaters have 24" high temperature leads with 22" stainless steel overbraid—* ***Type W1***
- *Heaters less than 1-1/2" wide have separate straps—* ***Type SE***
- *Designed as one-piece expandable type, enables you to open up the heater to the diameter of the barrel for easy installation.*

ID		Width			Watt Density			Part Number	
in	mm	in	mm	Wattage	W/in²	W/cm²	Style	120V	240V
2½	63.5	1½	38.1	300	29	4.5	NE	MBH00098	—
3	76.2	1	25.4	300	36	5.6	SE	*MBH00099	*MBH00108
3	76.2	1½	38.1	500	40	6.2	NE	*MBH00100	*MBH00109
3	76.2	2	50.8	500	30	4.6	NE	*MBH00101	*MBH00110
3⅛	79.4	2	50.8	450	26	4.0	NE	—	*MBH00111
3¼	82.6	2	50.8	400	22	3.4	NE	—	*MBH00112
3½	88.9	1½	38.1	550	37	5.7	NE	—	*MBH00113
3½	88.9	2	50.8	600	30	4.7	NE	—	*MBH00114
3½	88.9	3	76.2	300	10	1.6	NE	—	*MBH00115
3½	88.9	3	76.2	625	21	3.2	NE	—	*MBH00116
3¾	95.3	1½	38.1	600	37	5.8	NE	MBH00102	*MBH00117
3¾	95.3	2½	63.5	850	32	4.9	NE	MBH00103	*MBH00118
4	101.6	1	25.4	550	48	7.4	SE	—	MBH00119
4	101.6	1½	38.1	550	32	4.9	NE	—	*MBH00120
4⅛	104.8	1	25.4	400	33	5.2	SE	*MBH00104	—
4½	114.3	1	25.4	550	42	6.5	SE	—	*MBH00121
4½	114.3	2	50.8	800	30	4.7	NE	—	*MBH00122
4¾	120.7	¾	19.1	150	14	2.2	SE	—	MBH00123
4⅞	123.8	1½	38.1	900	42	6.5	NE	—	MBH00124
5	127.0	1½	38.1	700	32	4.9	NE	—	*MBH00125
5	127.0	1¾	44.5	600	23	3.6	NE	—	*MBH00126
5	127.0	2	50.8	950	32	5.0	NE	—	MBH00127
5	127.0	2½	63.5	1000	27	4.2	NE	—	MBH00128
5½	139.7	1	25.4	550	34	5.2	SE	—	*MBH00129
5½	139.7	1½	38.1	500	20	3.2	NE	—	MBH00130
5½	139.7	1½	38.1	900	37	5.7	NE	—	MBH00131
5½	139.7	2	50.8	500	15	2.4	NE	—	MBH00132
5½	139.7	2¾	69.9	620	14	2.1	NE	—	*MBH00133
5½	139.7	3	76.2	1750	36	5.6	NE	—	*MBH00134
6	152.4	1	25.4	300	17	2.6	SE	MBH00105	—
6	152.4	1½	38.1	500	19	2.9	NE	—	*MBH00135
6	152.4	1½	38.1	850	32	4.9	NE	—	*MBH00136
6⅛	155.6	1	25.4	600	33	5.1	SE	*MBH00106	—
6¼	158.8	2	50.8	500	13	2.1	NE	—	*MBH00137
6½	165.1	1½	38.1	750	26	4.0	NE	—	MBH00138
7	177.8	1	25.4	550	26	4.1	SE	—	*MBH00139
7½	190.5	2	50.8	1500	33	5.2	NE	—	MBH00140
8⅛	206.4	2	50.8	1200	24	3.8	NE	MBH00107	—
10	254.0	2	50.8	2000	33	5.1	NE	—	*MBH00141

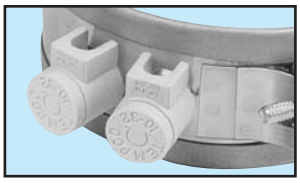
An asterisk (*) next to the Part Number guarantees in-stock availability for same-day shipping when ORDERED BY 2 PM CST

Ordering Information

See page 1-44

Duraband

Stock and Standard (Non-Stock) Mica Insulated Band Heaters for Plastic Injection Molding Machines



Optional Igloo™ ceramic covers can fully insulate any standard #8 or #10 terminal lugs used for electrical hook-ups. See page 1-36.

Design Features:

- *Features **unbreakable** 10-32 screw terminals.*
- *Larger heaters (dia. 2-1/2" or greater) are designed as one-piece expandable type, enabling you to open up the heater to the diameter of the barrel for easy installation.*
- *Heaters less than 1-1/2" wide have separate straps—**Type SE***

ID		Width			Watt Density				Part Number		
in	mm	in	mm	Wattage	W/in²	W/cm²	Style	Term.	120V	240V	480V
1½	38.1	1	25.4	150	40	6.3	SB	T2	—	*MBH00170	—
1½	38.1	1½	38.1	250	45	7.0	NB	T2	—	*MBH00171	—
1½	38.1	2	50.8	300	40	6.3	NB	T2	—	*MBH00172	—
1¾	44.5	1	25.4	175	39	6.0	SB	T2	—	*MBH00173	—
1¾	44.5	1½	38.1	250	37	5.7	NB	T2	—	*MBH00174	—
1¾	44.5	1½	38.1	300	44	6.9	NB	T2	—	*MBH00175	—
1⅞	47.6	1	25.4	200	41	6.3	SB	T2	—	MBH00176	—
2	50.8	1½	38.1	300	38	5.9	NB	T2	*MBH00142	MBH00177	—
2¼	57.2	1	25.4	250	41	6.4	SB	T2	*MBH00143	MBH00178	—
2¼	57.2	2	50.8	525	43	6.7	NB	T2	—	MBH00179	—
2⅜	60.3	1	25.4	100	15	2.4	SB	T2	—	*MBH00180	—
2⅜	60.3	1	25.4	250	39	6.0	SB	T2	—	MBH00181	—
2⅜	60.3	2½	63.5	450	28	4.3	NB	T3	*MBH00144	—	—
2½	63.5	1	25.4	225	33	5.1	SE	T2	—	*MBH00182	—
2½	63.5	1	25.4	250	36	5.7	SE	T2	—	*MBH00183	—
2½	63.5	1	25.4	275	40	6.2	SE	T2	—	*MBH00184	—
2½	63.5	1½	38.1	300	29	4.5	NE	T2	*MBH00145	*MBH00185	—
2½	63.5	1½	38.1	350	34	5.3	NE	T2	*MBH00146	*MBH00186	—
2½	63.5	2⅜	60.3	550	34	5.2	NE	T2	—	*MBH00187	—
2½	63.5	2⅞	73.0	650	33	5.1	NE	T3	—	*MBH00188	—
2½	63.5	4	101.6	850	31	4.8	NE	T3	—	*MBH00189	—
3	76.2	1	25.4	200	24	3.7	SE	T2	*MBH00147	*MBH00190	—
3	76.2	1	25.4	250	30	4.6	SE	T2	*MBH00148	MBH00191	—
3	76.2	1	25.4	300	36	5.5	SE	T2	—	MBH00192	—
3	76.2	1	25.4	350	42	6.4	SE	T2	—	*MBH00193	—
3	76.2	1	25.4	400	47	7.4	SE	T2	*MBH00149	MBH00194	*MBH00348
3	76.2	1½	38.1	400	32	4.9	NE	T2	*MBH00150	*MBH00195	—
3	76.2	1½	38.1	450	36	5.5	NE	T2	—	*MBH00196	—
3	76.2	1½	38.1	500	40	6.1	NE	T2	MBH00151	*MBH00197	—
3	76.2	2	50.8	450	27	4.1	NE	T2	—	*MBH00198	—
3	76.2	2	50.8	500	30	4.6	NE	T2	—	MBH00199	—
3	76.2	2½	63.5	650	31	4.8	NE	T3	—	MBH00200	—
3⅛	79.4	1	25.4	300	34	5.3	SE	T2	—	*MBH00201	—
3⅛	79.4	1	25.4	400	45	7.0	SE	T2	*MBH00152	*MBH00202	—
3⅛	79.4	1½	38.1	400	30	4.7	NE	T2	—	*MBH00203	—
3¼	82.6	1½	38.1	400	29	4.5	NE	T2	*MBH00153	*MBH00204	—
3½	88.9	1	25.4	300	30	4.7	SE	T2	*MBH00154	*MBH00205	—
3½	88.9	1½	38.1	325	22	3.4	NE	T2	—	MBH00206	—
3½	88.9	1½	38.1	400	27	4.1	NE	T2	*MBH00155	—	—
3½	88.9	1½	38.1	500	33	5.2	NE	T2	MBH00156	*MBH00207	—
3½	88.9	2	50.8	325	16	2.5	NE	T2	—	*MBH00208	—
3½	88.9	2	50.8	500	25	3.9	NE	T2	*MBH00157	—	—
3½	88.9	2	50.8	650	33	5.0	NE	T2	—	*MBH00209	—
3½	88.9	2½	63.5	750	30	4.7	NE	T3	—	*MBH00210	—
3½	88.9	3	76.2	1000	33	5.2	NE	T3	—	MBH00211	—
3 9/16	90.5	2⅜	60.3	685	28	4.4	NE	T2	—	*MBH00212	—
3⅝	92.2	1½	38.1	625	40	6.2	NE	T2	—	MBH00213	—
3¾	95.3	1	25.4	350	32	5.0	SE	T2	*MBH00158	*MBH00214	—
3¾	95.3	1½	38.1	500	31	4.8	NE	T2	—	MBH00215	—
3¾	95.3	1½	38.1	700	43	6.7	NE	T2	—	*MBH00216	—
3¾	95.3	2½	63.5	850	32	4.9	NE	T3	MBH00159	*MBH00217	—
3⅞	98.4	1½	38.1	550	33	5.1	NE	T2	—	*MBH00218	—

CONTINUED

Duraband Barrel Band Heaters

Stock and Standard (Non-Stock) Mica Insulated Band Heaters for Plastic Injection Molding Machines

Continued from previous page…

ID		Width			Watt Density				Part Number		
in	mm	in	mm	Wattage	W/in²	W/cm²	Style	Term.	120V	240V	480V
3⅞	98.4	2	50.8	750	34	5.2	NE	T2	—	*MBH00219	—
3 15/16	100.0	2	50.8	600	26	4.1	NE	T2	—	*MBH00220	—
4	101.6	1	25.4	400	35	5.4	SE	T2	*MBH00160	MBH00221	—
4	101.6	1½	38.1	400	23	3.6	NE	T2	—	MBH00222	—
4	101.6	1½	38.1	550	32	4.9	NE	T2	—	*MBH00223	—
4	101.6	1½	38.1	625	36	5.6	NE	T2	—	*MBH00224	MBH00349
4	101.6	1½	38.1	750	43	6.7	NE	T2	—	MBH00225	—
4	101.6	2	50.8	550	24	3.7	NE	T2	*MBH00161	*MBH00226	—
4	101.6	2	50.8	800	35	5.4	NE	T2	—	*MBH00227	—
4	101.6	2¼	57.2	900	35	5.4	NE	T2	—	MBH00228	—
4	101.6	2½	63.5	1000	35	5.4	NE	T3	—	*MBH00229	—
4	101.6	4	101.6	1250	27	4.2	NE	T3	—	*MBH00230	—
4 5/16	109.5	3½	88.9	1210	28	4.3	NE	T3	—	MBH00231	—
4½	114.3	1	25.4	350	27	4.1	SE	T2	*MBH00162	MBH00232	—
4½	114.3	1½	38.1	350	18	2.8	NE	T2	—	*MBH00233	—
4½	114.3	1½	38.1	400	20	3.1	NE	T2	—	MBH00235	—
4½	114.3	1½	38.1	650	33	5.1	NE	T2	—	*MBH00236	—
4½	114.3	2	50.8	500	19	2.9	NE	T2	MBH00163	*MBH00237	—
4½	114.3	2	50.8	700	27	4.1	NE	T2	MBH00164	MBH00238	—
4½	114.3	2½	63.5	1000	30	4.7	NE	T3	*MBH00165	MBH00239	—
4¾	120.7	1½	38.1	600	29	4.5	NE	T2	—	MBH00242	*MBH00350
4¾	120.7	1½	38.1	650	31	4.8	NE	T2	—	*MBH00243	—
4¾	120.7	3	76.2	1100	26	4.1	NE	T3	—	*MBH00244	*MBH00351
4⅞	123.8	1½	38.1	900	42	6.5	NE	T2	—	*MBH00245	—
4⅞	123.8	2	50.8	650	23	3.5	NE	T2	—	*MBH00246	—
4⅞	123.8	2	50.8	760	27	4.1	NE	T2	—	*MBH00247	MBH00352
4⅞	123.8	3	76.2	900	21	3.2	NE	T3	—	*MBH00248	—
4 15/16	125.4	3	76.2	1200	28	4.3	NE	T3	—	*MBH00249	—
5	127.0	1	25.4	400	27	4.2	SE	T2	—	*MBH00250	—
5	127.0	1½	38.1	350	16	2.5	NE	T2	—	—	MBH00353
5	127.0	1½	38.1	700	32	4.9	NE	T2	—	MBH00251	—
5	127.0	1½	38.1	800	36	5.6	NE	T2	—	MBH00252	—
5	127.0	2	50.8	1000	34	5.3	NE	T2	—	*MBH00253	—
5	127.0	2½	63.5	1000	27	4.2	NE	T3	—	*MBH00254	—
5	127.0	3	76.2	1200	27	4.2	NE	T3	—	MBH00255	*MBH00354
5	127.0	3¼	82.6	800	17	2.6	NE	T3	—	—	MBH00355
5	127.0	3¼	82.6	1250	26	4.1	NE	T3	—	MBH00256	—
5	127.0	4	101.6	1500	25	4.0	NE	T3	—	*MBH00257	—
5⅛	130.2	1½	38.1	900	40	6.2	NE	T2	—	MBH00258	—
5⅛	130.3	1½	38.1	600	26	4.1	NE	T2	—	*MBH00259	—
5¼	133.4	1	25.4	500	32	5.0	SE	T2	—	MBH00260	—
5¼	133.4	1	25.4	600	39	6.0	SE	T2	—	*MBH00261	*MBH00356
5¼	133.4	1½	38.1	600	26	4.0	NE	T2	—	MBH00262	*MBH00357
5¼	133.4	1½	38.1	1000	43	6.7	NE	T2	—	MBH00263	—
5¼	133.4	2	50.8	1000	32	5.0	NE	T2	—	*MBH00264	—
5¼	133.4	2¼	57.2	1300	37	5.8	NE	T2	—	—	MBH00358
5¼	133.4	2½	63.5	1300	34	5.2	NE	T3	—	*MBH00265	—
5¼	133.4	3	76.2	1700	37	5.7	NE	T3	—	*MBH00266	—
5½	139.7	1½	38.1	800	33	5.1	NE	T2	—	MBH00267	—
5¾	146.1	1½	38.1	600	23	3.6	NE	T2	—	*MBH00268	—
5⅞	149.2	3	76.2	1000	19	3.0	NE	T3	—	*MBH00269	—
5 15/16	150.8	1½	38.1	1000	38	5.9	NE	T2	—	*MBH00270	—
6	152.4	1	25.4	500	28	4.3	SE	T2	—	*MBH00271	—
6	152.4	1⅜	34.9	950	39	6.0	SE	T2	MBH00166	—	—
6	152.4	1½	38.1	600	22	3.5	NE	T2	—	MBH00272	—
6	152.4	1½	38.1	850	32	4.9	NE	T2	*MBH00167	*MBH00273	—
6	152.4	1½	38.1	900	34	5.2	NE	T2	—	*MBH00274	—
6	152.4	1½	38.1	1000	37	5.8	NE	T2	—	*MBH00275	—
6	152.4	2	50.8	1200	34	5.2	NE	T2	—	MBH00276	—
6	152.4	2½	63.5	1450	32	5.0	NE	T3	—	*MBH00277	—
6	152.4	3	76.2	1400	26	4.1	NE	T3	—	MBH00278	*MBH00359
6⅛	155.6	1½	38.1	1000	37	5.7	NE	T2	—	MBH00279	—
6¼	158.8	3	76.2	1500	27	4.2	NE	T3	—	*MBH00280	MBH00360
6 5/16	160.3	3	76.2	1250	22	3.4	NE	T3	—	*MBH00281	MBH00361
6 15/32	164.3	2	50.8	800	21	3.2	NE	T2	—	*MBH00282	—
6 15/32	164.3	2	50.8	1200	31	4.8	NE	T2	—	*MBH00283	—

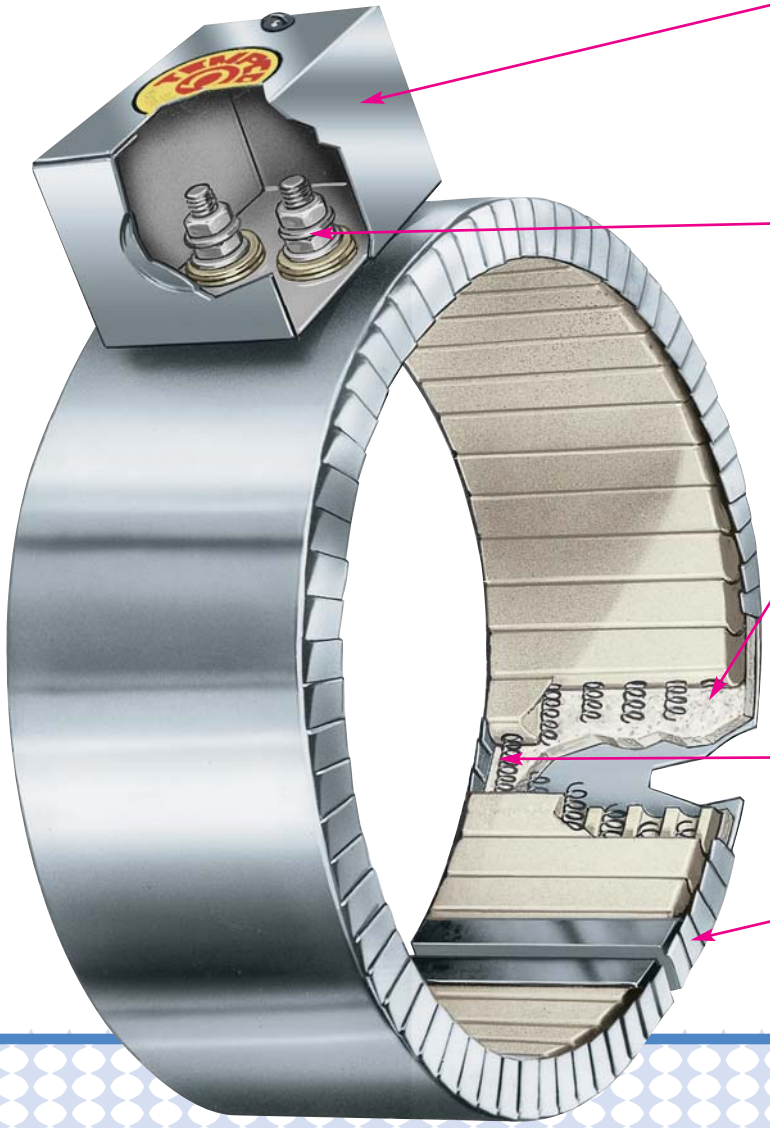
Order Info.
See page 1-44

Stock and Standard (Non-Stock) Mica Insulated Band Heaters for Plastic Injection Molding Machines

ID		Width			Watt Density				Part Number		
in	mm	in	mm	Wattage	W/in²	W/cm²	Style	Term.	120V	240V	480V
6½	165.1	1½	38.1	750	26	4.0	NE	T2	—	MBH00284	—
6½	165.1	1½	38.1	900	31	4.8	NE	T2	—	MBH00285	—
6½	165.1	1½	38.1	1200	41	6.4	NE	T2	—	MBH00286	—
6½	165.1	2	50.8	1000	26	4.0	NE	T2	—	*MBH00287	—
6½	165.1	2½	63.5	1200	25	3.8	NE	T3	—	MBH00288	*MBH00362
6⅝	168.4	1½	38.1	815	27	4.2	NE	T2	—	*MBH00289	—
6⅝	168.4	1½	38.1	1150	39	6.0	NE	T2	—	MBH00290	—
6¾	171.5	1½	38.1	600	20	3.1	NE	T2	—	*MBH00291	—
6¾	171.5	1½	38.1	815	27	4.2	NE	T2	—	*MBH00292	—
6¾	171.5	1½	38.1	1000	33	5.1	NE	T2	—	MBH00293	—
6¾	171.5	1½	38.1	1150	38	5.9	NE	T2	—	MBH00294	—
6¾	171.5	2	50.8	1300	32	5.0	NE	T2	—	MBH00295	—
6¾	171.5	4	101.6	2600	32	5.0	NE	T3	—	*MBH00296	—
7	177.8	1	25.4	750	36	5.5	SE	T2	—	*MBH00297	—
7	177.8	1½	38.1	950	30	4.7	NE	T2	—	MBH00298	—
7	177.8	1½	38.1	1000	32	4.9	NE	T2	—	*MBH00299	—
7	177.8	2½	63.5	1000	19	3.0	NE	T3	—	MBH00300	—
7	177.8	3	76.2	1650	26	4.1	NE	T3	—	MBH00301	*MBH00363
7 3/32	180.2	3½	88.9	1200	16	2.5	NE	T3	—	*MBH00302	*MBH00364
7 3/32	180.2	3½	88.9	1650	22	3.4	NE	T3	—	*MBH00303	*MBH00365
7⅛	181.0	1½	38.1	1200	37	5.8	NE	T2	—	*MBH00304	—
7⅛	181.0	3½	88.9	1650	22	3.4	NE	T3	—	*MBH00305	—
7¼	184.2	2	50.8	900	21	3.2	NE	T2	—	*MBH00306	—
7½	190.5	1	25.4	700	31	4.8	SE	T2	MBH00168	—	—
7½	190.5	1½	38.1	800	24	3.7	NE	T2	—	*MBH00307	—
7½	190.5	1½	38.1	1000	30	4.6	NE	T2	—	*MBH00308	—
7½	190.5	2	50.8	1500	33	5.2	NE	T2	—	*MBH00309	—
7½	190.5	3	76.2	1800	27	4.1	NE	T2	—	*MBH00310	*MBH00366
7⅝	193.7	1½	38.1	1000	29	4.5	NE	T2	—	*MBH00311	—
7⅝	193.7	3	76.2	2000	29	4.5	NE	T2	—	MBH00312	—
7¾	196.9	1½	38.1	1000	29	4.4	NE	T2	—	*MBH00313	—
7⅞	200.0	1½	38.1	750	21	3.3	NE	T2	—	MBH00314	—
7⅞	200.0	1½	38.1	1000	28	4.4	NE	T2	—	*MBH00315	—
7⅞	200.0	3	76.2	2000	28	4.4	NE	T3	—	*MBH00316	—
8	203.2	1	25.4	850	35	5.5	SE	T2	—	*MBH00317	—
8	203.2	1½	38.1	950	26	4.1	NE	T2	—	MBH00318	—
8	203.2	1½	38.1	1200	33	5.1	NE	T2	—	*MBH00319	MBH00367
8	203.2	1½	38.1	1400	39	6.0	NE	T2	—	MBH00320	—
8	203.2	2	50.8	1500	31	4.8	NE	T2	—	*MBH00321	*MBH00368
8	203.2	3	76.2	2250	31	4.8	NE	T3	—	*MBH00322	*MBH00369
8¼	209.6	2	50.8	1800	36	5.6	NE	T2	—	MBH00323	*MBH00370
8¼	209.6	4	101.6	3000	30	4.7	NE	T3	—	MBH00324	*MBH00371
8½	215.9	1½	38.1	1200	31	4.8	NE	T2	—	*MBH00325	—
8½	215.9	2	50.8	1600	31	4.8	NE	T2	—	*MBH00326	—
8¾	222.3	3	76.2	2000	25	3.9	NE	T3	—	*MBH00327	MBH00372
9	228.6	1½	38.1	1300	32	4.9	NE	T2	—	MBH00328	—
9	228.6	1½	38.1	1500	37	5.7	NE	T2	—	MBH00329	MBH00373
9	228.6	2	50.8	1800	33	5.1	NE	T2	—	*MBH00330	—
9½	241.3	1½	38.1	1600	37	5.7	NE	T2	—	*MBH00331	—
9½	241.3	2	50.8	1800	31	4.8	NE	T2	—	MBH00332	—
9½	241.3	3	76.2	2000	23	3.6	NE	T3	—	*MBH00333	*MBH00374
9⅝	244.5	3	76.2	2000	23	3.5	NE	T3	—	MBH00334	*MBH00375
9⅝	244.5	3	76.2	3000	34	5.3	NE	T3	—	MBH00335	*MBH00376
9¾	247.7	2	50.8	2000	34	5.2	NE	T2	—	*MBH00336	—
10	254.0	1½	38.1	1400	31	4.8	NE	T2	—	*MBH00337	—
10¼	260.4	3	76.2	2400	26	4.0	NE	T3	—	*MBH00338	MBH00377
10¼	260.4	4	101.6	3000	24	3.7	NE	T3	—	*MBH00339	*MBH00378
10½	266.7	1½	38.1	1500	31	4.8	NE	T2	—	MBH00340	—
10½	266.7	3	76.2	2400	25	3.9	NE	T3	—	MBH00341	*MBH00379
11	279.4	1½	38.1	1600	32	4.9	NE	T2	—	MBH00342	—
11	279.4	2	50.8	2000	30	4.6	NE	T2	—	*MBH00343	—
11¼	285.8	3	76.2	2400	23	3.6	NE	T3	—	MBH00344	—
11½	292.1	1½	38.1	800	15	2.4	NE	T2	*MBH00169	—	—
11½	292.1	1½	38.1	1800	34	5.3	NE	T2	—	*MBH00345	—
12	304.8	1½	38.1	2000	36	5.6	NE	T2	—	*MBH00346	—
12	304.8	2	50.8	2300	31	4.9	NE	T2	—	MBH00347	MBH00380

Order Info.
See page 1-44

Ceramic Insulated Band Heaters



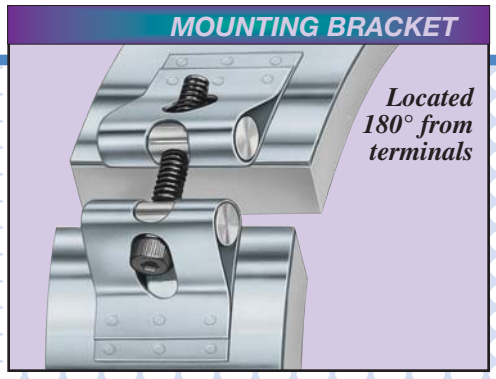
A General purpose terminal box offers excellent protection to exposed terminals. To simplify electrical wiring, the box has a 1/2" trade size knockout (actual dia. 7/8") that will accept standard conduit or flexible armor cable connectors.

B Stainless steel screw terminals connected to solid nickel pins designed to provide maximum amperage carrying capacity.

C Built-In ceramic fiber insulation 1/4" thick standard on all Ceramic Bands will reduce power consumption by 25 to 30 percent. Further reduction can be obtained with optional 1/2" thick insulation. Specially designed mounting brackets with 1/4"-20 socket cap screws are used to securely draw the heating element assembly against the cylinder evenly and tightly across its entire width. Brackets are located 180° from the screw terminals.

D Helically wound nickel-chrome resistance wire strung through specially designed ceramic insulating bricks.

E Stainless steel housing with serrated edges provides maximum flexibility for ease of installation.



REDUCE HEAT LOSS

CONSERVE ENERGY

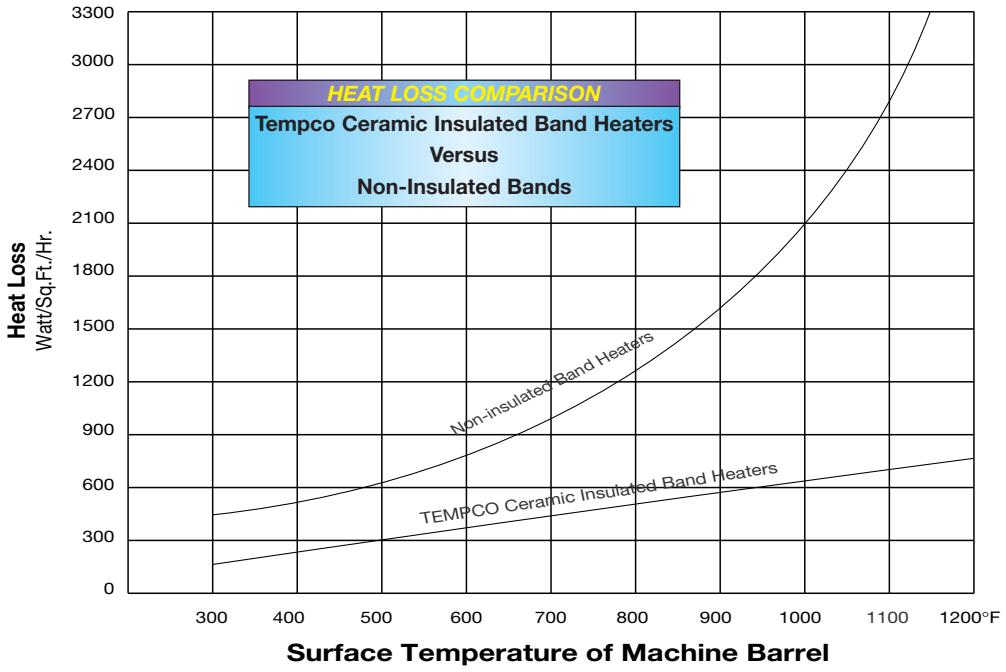
MAXIMIZE OPERATOR COMFORT

REDUCE OVERALL OPERATION COST

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

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*



Tempco Ceramic Insulated Band Heaters are specifically designed and engineered to meet the ever increasing demand for energy conservation and to improve operation efficiency. The Ceramic Band Heaters are capable of generating the higher temperatures essential to process today's high temperature resins. Electrical energy savings are achieved by using a 1/4" thick ceramic fiber insulating blanket, reducing power consumption by 25 to 30 percent. Because of the low thermal conductivity of the ceramic fiber insulation, the external surface temperature of the Ceramic Band Heater is approximately 400°F while running the inside surface temperature at 1200°F.

Ceramic Band Heaters transmit heat through both conduction and radiation. The element winding is designed to run at maximum temperature and heat the ceramic blocks to the point at which they radiate energy into the barrel as well as conduct energy by being in contact with the barrel. Due to this effect, the fit is not as critical as in other types of bands.

Tempco Ceramic Band Heaters have become extremely popular among Original Equipment Manufacturers as the standard heaters for the barrels of Plastic Injection Molding Machines, Extruders, and Blow Molding Equipment.

Variations and Advantages

Ceramic Band Heaters are manufactured in a full range of standard construction variations, physical dimensions, electrical ratings, and a complete arrangement of screw terminals and lead terminations.

However, these standard Ceramic Band Heater variations and terminations do not represent the extent of our capabilities. Tempco's engineering staff, with many years of experience in heat processing and temperature control applications, can assist you in designing the right Ceramic Band Heater for your specific application.

Construction Characteristics

Standard

The basic Tempco Ceramic Band Heater design consists of a helically wound resistance coil made from nickel-chrome wire, evenly stretched and precisely strung through specially designed ceramic insulating bricks, forming a flexible heating mat. The ceramic heating mat along with 1/4" thick ceramic fiber insulation is installed in a stainless steel housing made with serrated edges, providing maximum flexibility for ease of installation. This allows the use of wider band heaters, eliminating the need for numerous narrow width and two-piece band heaters.

Double Insulated

For situations requiring additional insulation for lower external temperatures and increased electrical energy savings, Tempco offers Double Insulated Ceramic Bands with a full 1/2" thick ceramic fiber insulation. This will decrease power consumption by 35 to 37 percent when compared to uninsulated band heaters.

FCC/RCC Style

When Ceramic Band Heaters are used on extruder barrels that require both heating and cooling, Tempco manufactures the FCC/RCC Style Air Cooled Ceramic Band Heater in two watt density styles. See page 1-67.

Ceramic Band Standard Specifications and Tolerances

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

ELECTRICAL RATINGS

Maximum Voltage: with Screw Termination 480 VAC
Maximum Recommended Voltage w/Leads: 240 VAC
Maximum Amperage: lead wire termination: 10 amp (per circuit) screw terminations: 25 amp
Resistance Tolerance: +10%, –5%
Wattage Tolerance: +5%, –10%

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.

If tighter tolerances are required consult Tempco.

Construction Clamp	Min. ID in	 mm	Min. Width in	 mm	Max. ID in	 mm
One-Piece	2	50.8	1	25.4	21	533.4
Two-Piece	4	101.6	1	25.4	44	1117.6
Standard Insulation	2	50.8	1	25.4		N/A
Double Insulation	2	50.8	1½	38.1		N/A
Checkmate—Full Coverage (FCC)	3	76.2	1½	38.1		N/A
Checkmate—Rib Cage (RCC)	3	76.2	4½	114.3		N/A
Built-In Bracket	2	50.8	1	25.4		N/A
Built-In Bracket Spring Loaded	2	50.8	1	25.4		N/A
Latch and Trunion	4	101.6	1	25.4		N/A
Bent-Up Flange	2	50.8	1	25.4		N/A
Shell Overlap	3	76.2	1½	38.1	20	508.0
Inner Liner	2	50.8	1	25.4	21	533.4

Terminations		Min. ID in	 mm	Min. Width in	 mm
Standard Parallel Screw Terminals	T3	2	50.8	2	50.8
Tandem Screw Terminals	T2	2	50.8	1	25.4
Flexible Leads	L1	2	50.8	1	25.4
Wire Braid Leads	W1	2	50.8	1	25.4
Straight Armor Cable	R1	2	50.8	1	25.4
Right-Angle Armor Cable	R2	2	50.8	1	25.4
Standard Box for T2 Terminals	C2	2	50.8	1½	38.1
Standard Box for T3 Terminals	C3	2	50.8	2	50.8
Low Profile Box T2 Terminals	C5A	2	50.8	1½	38.1
Low Profile Box T3 Terminals	C5B	2	50.8	2	54.0
Igloo™ Ceramic Covers	C6, C7, C8	2	50.8	1½	38.1
Right-Angle Hi-Temp Plug	P1__	2	50.8	2	50.8
Straight Hi-Temp Plug	P2__	2	50.8	2	50.8
Vertical Box Med. Temp Plug	P3__	3	76.2	1½	38.1
Horizontal Box Med. Temp Plug	P4__	2½	63.5	2½	63.5

Note: Refer to individual construction and termination descriptions on pages 1-62 through 1-66 for further information.
Actual heater minimums and maximums will depend upon the combination of construction/clamp, termination styles and electrical ratings.

Standard (Non-Stock) Ceramic Bands

ID		Width			Watt Density			Part Number			
in	mm	in	mm	Wattage	W/in²	W/cm²	Terminal	120V	240V	480V	240/480V
2⅜	60.3	1½	38.1	250	26	4.0	T2	—	BCH00017	—	—
2⅜	60.3	6	152.4	1000	26	4.0	T3	—	BCH00018	—	—
2½	63.5	1	25.4	375	55	8.5	R2A	—	BCH00019	—	—
3	76.2	1	25.4	400	47	7.4	T2	—	BCH00020	—	—
3	76.2	1	25.4	500	59	9.2	R2A	—	BCH00021	—	—
3	76.2	1½	38.1	500	40	6.1	T2	BCH00001	BCH00022	—	—
3	76.2	2½	63.5	1000	47	7.4	T3	BCH00002	—	—	—
3	76.2	3	76.2	1100	44	6.7	T3	—	BCH00023	—	—
3	76.2	4	101.6	450	13	2.1	C3A	—	BCH00024	—	—
3	76.2	4	101.6	1500	45	6.9	T3	—	BCH00025	—	—
3	76.2	6	152.4	1500	30	4.6	T3	BCH00003	BCH00026	—	—
3	76.2	6	152.4	1500	30	4.6	C3A	—	BCH00027	—	—
3½	88.9	2	50.8	650	33	5.0	T3	—	—	—	BCH00163
3½	88.9	2	50.8	700	35	5.4	W1	—	BCH00028	—	—
3½	88.9	2	50.8	850	43	6.6	T3	—	BCH00029	—	—
3½	88.9	3	76.2	875	29	4.5	T3	—	BCH00030	—	—
3½	88.9	3	76.2	1000	33	5.2	T3	—	BCH00031	—	—
3½	88.9	4	101.6	1200	30	4.7	T3	BCH00004	BCH00032	—	—
3½	88.9	4½	114.3	1200	27	4.1	C3A	—	BCH00033	—	—
3½	88.9	5	127.0	2300	46	7.1	T3	—	BCH00034	—	—
3½	88.9	6	152.4	2970	50	7.7	T3	—	BCH00035	—	—
3¾	95.3	1½	38.1	460	28	4.4	T2	—	BCH00036	—	—
3 15/16	100.0	4	101.6	1140	25	3.9	T3	—	BCH00037	—	—
4	101.6	2	50.8	460	20	3.1	T3	—	BCH00038	—	—
4	101.6	2	50.8	1000	43	6.7	T2	—	—	BCH00120	—
4	101.6	2½	63.5	600	21	3.2	C3A	—	—	BCH00121	—
4	101.6	3	76.2	950	27	4.2	T3	—	—	—	BCH00164
4	101.6	3	76.2	1200	35	5.4	T3	BCH00005	BCH00039	—	—
4	101.6	4	101.6	1200	26	4.0	C3A	—	BCH00040	—	—
4	101.6	10	254.0	4500	39	6.0	T3	—	BCH00041	—	—
4	101.6	11	279.4	5000	39	6.1	T3	—	BCH00042	—	—
4¼	108.0	2½	63.5	950	31	4.8	C5E	—	—	BCH00122	—
4½	114.3	2	50.8	1100	42	6.5	T3	BCH00006	BCH00043	—	—
4½	114.3	3	76.2	900	23	3.5	T3	BCH00007	BCH00044	—	—
4½	114.3	4	101.6	2300	44	6.8	T3	—	BCH00045	—	—
4½	114.3	4½	114.3	1400	24	3.7	C5E	—	—	—	BCH00165
4½	114.3	6	152.4	2000	25	3.9	T3	BCH00008	BCH00046	—	—
4⅞	123.8	4	101.6	2000	35	5.4	T3	—	BCH00047	—	—
4 15/16	125.4	2	50.8	1000	34	5.3	L1	—	—	BCH00123	—
4 15/16	125.4	2½	63.5	1650	45	7.0	T3	—	—	BCH00124	—
4 15/16	125.4	4	101.6	2000	34	5.3	T3	—	—	BCH00125	—
5	127.0	1½	38.1	800	36	5.6	T2	—	BCH00048	BCH00126	—
5	127.0	2	50.8	1200	41	6.3	T3	—	BCH00049	—	—
5	127.0	3	76.2	1200	27	4.2	T2	—	BCH00050	—	—
5	127.0	3½	88.9	2200	43	6.6	T3	—	BCH00051	—	—
5	127.0	4	101.6	1500	25	4.0	C5E	—	BCH00052	—	—
5	127.0	4	101.6	2200	37	5.8	T3	—	BCH00053	—	—
5	127.0	6	152.4	3000	34	5.3	T3	—	BCH00054	—	—
5¼	133.4	3	76.2	1500	32	5.0	T3	—	BCH00055	—	—
5½	139.7	1½	38.1	770	32	4.9	T3	—	—	BCH00127	—
5½	139.7	2	50.8	1000	31	4.8	T3	—	BCH00056	—	—
5½	139.7	2½	63.5	1800	44	6.9	C3A	—	BCH00057	—	—
5½	139.7	3	76.2	1200	25	3.8	T2	—	BCH00058	—	—
5½	139.7	4	101.6	1500	23	3.6	T3	—	—	—	BCH00166
5½	139.7	4	101.6	2000	31	4.8	T3	—	BCH00059	—	—
5½	139.7	5	127.0	2000	25	3.8	T3	BCH00009	BCH00060	—	—
5⅞	149.2	5	127.0	2350	27	4.2	T3	—	—	BCH00128	—
5 15/16	150.8	5	127.0	2350	27	4.1	T3		BCH00061	—	—

Ordering Information
See page 1-61

CONTINUED

Standard Sizes and Ratings

Continued from previous page…

Standard (Non-Stock) Ceramic Bands

ID		Width			Watt Density			Part Number			
in	mm	in	mm	Wattage	W/in²	W/cm²	Terminal	120V	240V	480V	240/480V
6	152.4	1½	38.1	950	35	5.5	T2	BCH00010	BCH00062	—	—
6	152.4	2	50.8	1900	53	8.2	T3	—	BCH00063	BCH00129	—
6	152.4	2½	63.5	1600	36	5.6	C2A	—	BCH00064	BCH00130	—
6	152.4	3	76.2	1400	26	4.1	T3	—	—	—	BCH00167
6	152.4	4	101.6	1300	18	2.8	T3	BCH00011	BCH00065	—	—
6	152.4	5	127.0	1600	18	2.8	C5E	—	—	—	BCH00168
6	152.4	5½	139.7	2000	20	3.2	T3	—	—	—	BCH00169
6	152.4	6	152.4	2000	19	2.9	T3	—	—	—	BCH00170
6	152.4	6	152.4	3000	28	4.3	T3	—	BCH00066	—	—
6	152.4	6	152.4	4000	37	5.8	T3	—	BCH00067	—	—
6¼	158.8	4	101.6	2430	33	5.1	T3	—	BCH00068	—	—
6¼	158.8	6	152.4	4600	41	6.4	T3	—	—	BCH00131	—
6½	165.1	1½	38.1	1000	34	5.3	T2	—	BCH00069	—	—
6½	165.1	2	50.8	1600	41	6.4	T3	—	BCH00070	—	—
6½	165.1	3½	88.9	1800	26	4.1	T3	BCH00012	BCH00071	—	—
6½	165.1	5	127.0	2500	26	4.0	T3	—	BCH00072	—	—
6½	165.1	5½	139.7	4200	39	6.1	T3	—	—	BCH00132	—
6½	165.1	6	152.4	2000	17	2.7	C5E	—	—	—	BCH00171
6½	165.1	6½	165.1	3700	29	4.5	T3	—	BCH00073	—	—
6⅝	168.3	4½	114.3	3300	37	5.7	T3	—	—	BCH00133	—
6¾	171.5	1½	38.1	1000	33	5.1	T2	BCH00013	BCH00074	—	—
6¾	171.5	5	127.0	2500	25	3.8	C5E	—	BCH00075	—	—
7	177.8	2	50.8	1400	33	5.2	C2A	—	—	BCH00134	—
7	177.8	3	76.2	1650	26	4.1	T3	—	BCH00076	—	—
7	177.8	3½	88.9	1300	18	2.7	T3	BCH00014	BCH00077	—	—
7	177.8	4	101.6	3500	42	6.5	T3	—	BCH00078	BCH00135	—
7	177.8	5½	139.7	2000	17	2.7	C5E	—	BCH00079	—	BCH00172
7	177.8	6	152.4	5400	43	6.6	T3	—	BCH00080	—	—
7½	190.5	2	50.8	1900	42	6.5	T3	—	BCH00081	—	—
7½	190.5	3	76.2	1800	27	4.1	T3	—	BCH00082	BCH00136	—
7½	190.5	4½	114.3	2000	20	3.1	T3	—	—	—	BCH00173
7½	190.5	4½	114.3	2000	20	3.1	T3	BCH00015	BCH00083	—	—
7½	190.5	5	127.0	2500	22	3.4	C3A	—	BCH00084	—	—
7½	190.5	5½	139.7	2500	20	3.1	T3	BCH00016	—	—	BCH00174
7½	190.5	7	177.8	6500	41	6.4	T3	—	—	—	BCH00175
7½	190.5	9	228.6	5710	28	4.4	T3	—	—	BCH00137	—
8	203.2	1½	38.1	770	21	3.3	T2	—	BCH00085	BCH00138	—
8	203.2	1½	38.1	1000	28	4.3	T2	—	—	BCH00139	—
8	203.2	2	50.8	2000	41	6.4	T3	—	BCH00086	—	—
8	203.2	2½	63.5	1000	17	2.6	T2	—	—	BCH00140	—
8	203.2	3	76.2	1900	26	4.1	T3	—	—	—	BCH00176
8	203.2	4	101.6	3000	31	4.8	T3	—	BCH00087	—	—
8	203.2	6	152.4	3500	24	3.7	T3	—	BCH00088	—	—
8	203.2	6	152.4	4500	31	4.8	T3	—	—	BCH00141	—
8	203.2	6½	165.1	2600	17	2.6	C5E	—	—	—	BCH00177
8 1/16	204.8	4	101.6	2100	22	3.3	T3	—	—	BCH00142	—
8 1/16	204.8	4	101.6	2800	29	4.5	T3	—	—	BCH00143	—
8 1/16	204.8	9	228.6	4900	22	3.5	T3	—	—	BCH00144	—
8¼	209.6	3	76.2	2300	31	4.8	C5E	—	BCH00089	—	—
8¼	209.6	7½	190.5	3100	17	2.6	C5E	—	—	—	BCH00178
8 7/16	214.3	3	76.2	3000	39	6.1	T3	—	—	BCH00145	—
8 7/16	214.3	3½	88.9	2800	31	4.9	T3	—	BCH00090	BCH00146	—
8 7/16	214.3	3½	88.9	3255	36	5.7	T3	—	—	BCH00147	—
8 7/16	214.3	4	101.6	3400	33	5.2	T3	—	BCH00091	BCH00148	—
8 7/16	214.3	5½	139.7	3800	27	4.2	T3	—	—	BCH00149	—
8½	215.9	1½	38.1	1250	32	5.0	C2A	—	BCH00092	—	—
8½	215.9	4½	114.3	3890	34	5.2	T3	—	BCH00093	—	—
8¾	222.3	9	228.6	4100	17	2.7	C5E	—	—	—	BCH00179
9	228.6	1½	38.1	1100	27	4.2	T2	—	—	BCH00150	—
9	228.6	2	50.8	2300	42	6.5	T3	—	BCH00094	—	—
9	228.6	2½	63.5	2800	41	6.4	T3	—	BCH00095	—	—
9	228.6	3	76.2	2200	27	4.2	T3	—	—	—	BCH00180
9	228.6	5	127.0	2500	18	2.8	T3	—	—	—	BCH00181
9	228.6	5½	139.7	3000	20	3.1	T3	—	BCH00096	—	BCH00182
9	228.6	8½	215.9	3900	17	2.6	C5E	—	—	—	BCH00183

CONTINUED

Standard (Non-Stock) Ceramic Bands

Continued from previous page…

ID		Width			Watt Density			Part Number			
in	mm	in	mm	Wattage	W/in²	W/cm²	Terminal	120V	240V	480V	240/480V
9 7/16	239.7	3	76.2	2500	29	4.5	T3	—	BCH00097	BCH00151	—
9½	241.3	1½	38.1	1200	28	4.3	T2	—	—	BCH00152	—
9½	241.3	3	76.2	2200	25	3.9	T3	—	—	—	BCH00184
9¾	247.7	10	254.0	5200	18	2.7	C5E	—	—	—	BCH00185
10	254.0	1½	38.1	600	13	2.0	T2	—	BCH00098	—	—
10	254.0	2	50.8	1800	30	4.6	C2A	—	BCH00099	—	—
10	254.0	3	76.2	2400	26	4.1	T3	—	—	—	BCH00186
10	254.0	4	101.6	1500	12	1.9	C3A	—	BCH00100	—	—
10	254.0	5	127.0	2800	18	2.9	C5E	—	—	—	BCH00187
10	254.0	5½	139.7	2500	15	2.3	T3	—	BCH00101	—	—
10	254.0	6	152.4	3000	16	2.5	C3A	—	BCH00102	—	—
10½	266.7	4½	114.3	5000	35	5.4	C2A	—	BCH00103	—	—
11	279.4	3	76.2	2600	26	4.0	T3	—	—	—	BCH00188
11	279.4	5	127.0	4000	24	3.7	T3	—	—	—	BCH00189
11 1/16	281.0	4	101.6	4000	30	4.6	T3	—	—	BCH00153	—
12	304.8	2	50.8	2000	27	4.2	C2A	—	BCH00104	—	—
12	304.8	3	76.2	2000	18	2.8	C3A	—	—	—	BCH00190
12	304.8	6	152.4	4000	18	2.8	T3	—	—	—	BCH00191
12	304.8	12	304.8	2000	5	0.7	T3	—	BCH00105	—	—
12½	317.5	4	101.6	1950	13	2.0	C3A	—	BCH00106	—	—
12½	317.5	4	101.6	2600	17	2.6	T3	—	BCH00107	—	—
13	330.2	2	50.8	2000	25	3.9	C5E	—	BCH00108	—	—
13	330.2	3	76.2	4200	35	5.4	T3	—	—	—	BCH00192
13	330.2	6	152.4	4000	17	2.6	T3	—	BCH00109	—	—
14½	368.3	3	76.2	2300	17	2.7	T3	—	—	BCH00154	—
15¼	387.4	2	50.8	3000	32	5.0	C2A	—	BCH00110	—	—
16	406.4	2	50.8	1500	15	2.4	C3A	—	BCH00111	—	—
16	406.4	3	76.2	5000	34	5.2	C3A	—	BCH00112	—	—
16½	419.1	2	50.8	3000	30	4.6	C3A	—	BCH00113	—	—
16½	419.1	3	76.2	5400	35	5.5	C3A	—	BCH00114	—	—
16½	419.1	3½	88.9	1800	10	1.6	C3A	—		BCH00155	—
16½	419.1	3½	88.9	2500	14	2.2	T3	—	BCH00115	—	—
16½	419.1	4	101.6	3500	17	2.7	C3A	—	BCH00116	—	—
16½	419.1	5	127.0	4350	17	2.7	T3	—	BCH00117	—	—
17½	444.5	1½	38.1	825	10	1.6	C2A	—	BCH00118	—	—
19¼	489.0	2½	63.5	5000	34	5.2	C3A	—	BCH00119	—	—
21	533.4	4½	114.3	5039	17	2.7	C3A	—	—	BCH00156	—
21	533.4	6	152.4	5600	14	2.2	T3	—	—	BCH00157	—
21½	546.1	3½	88.9	3000	13	2.0	T3	—	—	BCH00158	—
26	660.4	5	127.0	6800	17	2.6	C3A	—	—	BCH00159	—
28	711.2	4½	114.3	6600	17	2.6	T3	—	—	BCH00160	—
28	711.2	5	127.0	5750	13	2.0	T3	—	—	BCH00161	—
32½	825.5	3½	88.9	3000	8	1.3	C3A	—	—	BCH00162	—

Ordering Information

Standard Heaters

Select a Ceramic Insulated Band Heater from pages 1-59 through 1-61. Each heater's Termination Type is indicated.

Type L1 has 12" long leads.

Type W1 has 12" long leads with 10" wire braid.

Type R2A has 12" long leads with 10" galvanized steel armor cable.

Custom Engineered/Manufactured Heaters

Understanding that an electric heater can be very application specific, for sizes and ratings not listed **TEMPCO** will design and manufacture a Ceramic Insulated Band Heater to meet your requirements. ***Standard lead time is 3 weeks.***

Please Specify the following:

- ❑ Inside Diameter
- ❑ Width
- ❑ Wattage
- ❑ Voltage
- ❑ Termination (see pages 1-64 through 1-66)
- ❑ Lead Cable/Braid Length
- ❑ Construction style (see page 1-62)
- ❑ Clamping variation (see page 1-63)

Ceramic Band

How To Specify A Ceramic Band Heater

Ceramic band heaters offer several variations in construction, clamping and electrical terminations. For ease of ordering, create a reference code using options listed in the boxes below. When ordering, specify the reference code along with the electrical ratings and lead lengths if applicable.

Ordering Code:

1	2	3	4	5	6	7
			N			

Number of Sections *BOX 1*
See page below
1 = One-piece
2 = Two-piece

Construction *BOX 2*
S = Standard 1/4" insulation
D = Double 1/2" insulation
F = Checkmate™ with full blocks design (See page 1-67)
R = Checkmate™ with rib cage design (See page 1-67)

Clamp *BOX 3*
See page 1-63
B = Built-in bracket
S = Built-in bracket spring loaded
L = Latch and trunion
F = Bent-up flange

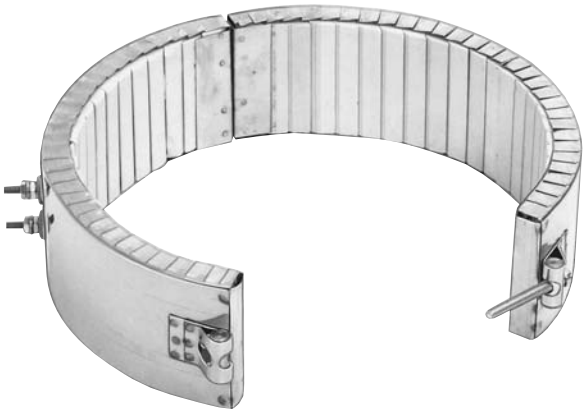
Inner Liner *BOX 4*
N = None
Note: Inner liner is no longer available

Shell Overlap *BOX 5*
See page 1-63
N = No
Y = Yes

Termination *BOX 6*
Select type from pages 1-64 through 1-66

Terminal Protection *BOX 7*
Select ceramic Igloo terminal covers from page 1-65
(for type T2 and T3 termination only)

Ceramic Band Construction Styles



One-Piece Band

The One-Piece Ceramic Band Heater is the basic design most often specified by OEMs and processors. It is available with all types of insulation, construction styles, clamping or termination variations.

Min. ID: 2" (50.8 mm)
Min. Width: 1" (25.4 mm)
Max. ID: 21" (533.4 mm)

Two-Piece Band

The Two-Piece Ceramic Band Heater is commonly used on sizes larger than 21" diameter or when it would be inconvenient to use a one-piece heater. It is available with all types of insulation, construction styles, clamping or termination variations.

Min. ID: 4" (101.6 mm)
Min. Width: 1" (25.4 mm)
Max. ID: 44" (1118 mm)

Larger sizes are manufactured in multiple segments. Watts and volts are specified per each half when ordering.

Ceramic Band Clamping Variations

Built-In Bracket—Standard

The Built-In Bracket is the basic design most often specified by OEMs and processors. The standard screw used is 1/4-20. It is available with all types of insulation, construction styles, and termination variations.

The Built-In Bracket can also be supplied with a spring loaded screw. The spring loaded clamp aids in absorbing thermal expansion.

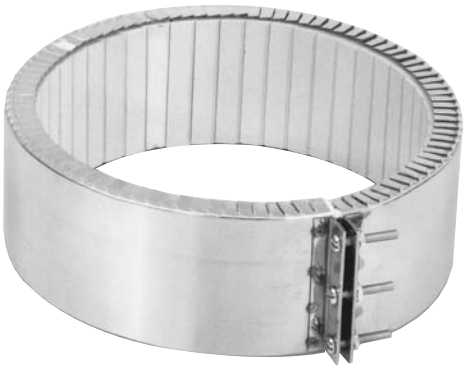
Limitations
Min. ID: 2" (50.8 mm)
Min. Width: 1" (25.4 mm)

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.

The Latch and Trunion clamping system is available with all types of insulation, construction styles, and termination variations.

Limitations
Min. ID: 4" (101.6 mm)
Min. Width: 1" (25.4 mm)



Bent-Up Flange (Ears)

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

Limitations
Min. ID: 2" (50.8 mm)
Min. Width: 1" (25.4 mm)

Shell Overlap

The Shell Overlap design is the preferred method of providing a thermocouple mounting hole in a ceramic band heater. It is available with all types of insulation, construction styles, clamping and termination variations.

Limitations
Min. ID: 3" (76.2 mm)
Min. Width: 1-1/2" (38.1 mm)
Max. ID: 20" (508 mm)
Standard Hole: 3/4"

Ceramic Band Terminations

Screw Terminals

Type T3—Screw Terminals

Type T3 Screw Terminals are available with all types of insulation, construction styles, and clamping variations. They are considered to be standard on most band heaters unless otherwise specified. For use with leads, crimp terminals, or bus bars. Includes high temperature washers and nuts.

Limitations
Min. ID: 2" (50.8 mm)
Min. Width: 2" (50.8 mm)

Type T2—Screw Terminals

Type T2 Screw Terminals are available with all types of insulation, construction styles, and clamping variations. They are considered to be standard on most band heaters under 2" in width unless otherwise specified. Includes high temperature washers and nuts.

Limitations
Min. ID: 2" (50.8 mm)
Min. Width: 1" (25.4 mm)

Plain Lead Wires

Type L1—Straight Lead Wires

Type L1 Straight Lead Wires are available with all types of insulation, construction styles, and clamping variations. They are used primarily on small diameter bands where clearance is limited. If applicable, screw terminals should always be specified due to the high heat generated by ceramic bands. The standard flexible leads are 10" long. If longer leads are required, specify when ordering.

Limitations
Min. ID: 2" (50.8 mm)
Min. Width: 1" (25.4 mm)

Abrasive Resistant Lead Terminations

Type W1— Straight Wire Braid Leads

Straight Wire Braid Leads are available with all types of insulation, construction styles, and clamping variations. Wire braid leads offer sharp bending not possible with armor cable. If applicable, screw terminals should always be specified due to the high heat generated by ceramic bands. The standard leads are 10" of wire braid over 12" of flexible leads. If longer leads are required, specify when ordering.

Limitations
Min. ID: 2" (50.8 mm)
Min. Width: 1" (25.4 mm)
Max Volts: 240VAC; **Max Amps:** 10

Type R1—Straight Armor Cable

Straight Armor Cable is available with all types of insulation, construction styles, and clamping variations. Armor cable provides far superior protection to lead wires where abrasion is a constant problem. If applicable, screw terminals should always be specified due to the high heat generated by ceramic bands. The standard leads are 10" of armor cable over 12" of flexible leads. If longer leads or electrical connectors are required, specify when ordering.

Type R1A—Galvanized Stl. Armor Cable

Type R1B—Stainless Stl. Armor Cable

Limitations
Min. ID: 2" (50.8 mm)
Min. Width: 1" (25.4 mm)
Max Volts: 240VAC; **Max Amps:** 10

Type R2—Right-Angle Armor Cable

Right-Angle Armor Cable is available with all types of insulation, construction styles, and clamping variations. It is used where space is limited and abrasion is a constant problem. If applicable, screw terminals should always be specified due to the high heat generated by ceramic bands. The standard leads are 10" of armor cable over 12" of flexible leads. If longer leads or electrical connectors are required, specify when ordering.

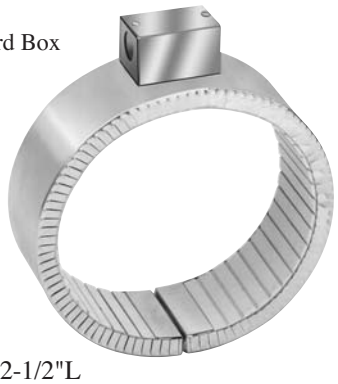
Type R2A—Galvanized Stl. Armor Cable

Type R2B—Stainless Stl. Armor Cable

Limitations
Min. ID: 2" (50.8 mm)
Min. Width: 1" (25.4 mm)
Max Volts: 240VAC; **Max Amps:** 10

Ceramic Band General Purpose Terminal Boxes

Standard Box



Type C2☐ Standard Box

C2A—Box only
C2B—w/galvanized armor
C2C—w/stainless steel armor
C2D—w/wire braid

Box Size: 1-1/2"H × 1-1/2"W × 2-1/2"L with T2 terminal configuration

Box Size: 1-1/2"H × 2-1/8"W × 2-1/8"L with T3 terminal configuration

Note: Heater dimensions will determine terminal configuration.

Min. ID: 2" (50.8 mm)
Min. Width: 1-1/2" (38.1 mm)

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" tradesize 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.

Low Profile Box

Type C5☐ Low Profile Box across T2 or T3 Term.

C5A—T2 term. box only
C5B—T2 term. w/galvanized armor
C5C—T2 term. w/stainless steel armor
C5D—T2 term. w/wire braid
Box Size w/T2 term.: 1"H × 1-1/4"W × 3"L
Min. ID: 2" (50.8 mm)
Min. Width: 1-1/2" (38.1 mm)

C5E—T3 term. box only
C5F—T3 term. w/galvanized armor
C5G—T3 term. w/stainless steel armor
C5H—T3 term. w/wire braid
Box Size w/T3 term.: 1"H × 2-1/4"W × 2"L
Min. ID: 2" (50.8 mm)
Min. Width: 2" (50.8 mm)

Note: If a Low Profile Box with cable or leads is required, it is strongly recommended to order it pre-wired by the factory.

Exposed electrical wiring on band heater installations is a violation of Electrical Safety Codes including O.S.H.A.

Igloo™ Ceramic Terminal Covers

Igloo™ Ceramic Terminal Covers consist of two individual ceramic parts. They are available with all types of insulation, construction styles, and clamping variations. Unlike conventional ceramic caps, Igloo™ fully insulates any standard #8 or #10 terminal lugs used for electrical hook-ups.

Limitations
Min. ID: 2" (50.8 mm); **Min. Width:** 1-1/2" (38.1 mm)

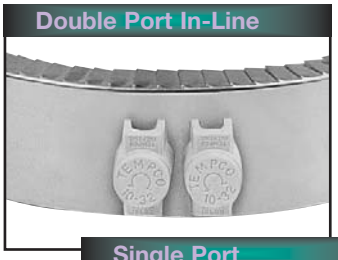
Three types of Igloo™ bases are available:

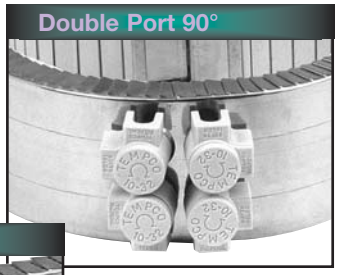
Type C6 — Double Port In-Line P/N CER-101-104
Type C7 — Double Port 90° P/N CER-101-106
Type C8 — Single Port P/N CER-101-107

Igloo™ caps are available in the following three screw terminal sizes:

10-32 — P/N CER-102-101
10-24 — P/N CER-102-104
8-32 — P/N CER-102-105

When ordering, specify the type of Igloo™ and the screw terminal size.





Quick Disconnect High Temperature Plugs

High Temperature 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.

Type P1 and P3 assemblies are available with a straight or right-angle plug. Type P2 and P4 plug assemblies have a lower profile and are available with a straight plug only.

To simplify installation, band heaters with these assemblies can be supplied pre-wired using high temperature lead wire protected with armor cable. If longer leads are required, specify when ordering.

Plug Electrical Ratings
2-Pole 3-Wire Grounding
Max. Amps: 16
Max. Volts: 250 VAC
Max. Temperature: 572°F (300°C)

Type P1☐—Standard Cup Assembly

P1K—Cup Assembly only
P1L—w/straight plug only
P1M—w/90° plug only
P1N—w/straight plug and galvanized armor cable
P1O—w/straight plug and stainless steel armor cable
P1P—w/straight plug and wire braid
P1Q—w/90° plug and galvanized armor cable
P1R—w/90° plug and stainless steel armor cable
P1S—w/90° plug and wire braid

Min. ID: 2" (50.8 mm)
Min. Width: 2" (50.8 mm)

Type P2☐—Low Profile Assembly

P2F—Low profile assembly only
P2G—w/straight plug only
P2H—w/straight plug and galvanized armor cable
P2J—w/straight plug and stainless steel armor cable
P2K—w/straight plug and wire braid

Min. ID: 2" (50.8 mm)
Min. Width: 2" (50.8 mm)

Quick Disconnect Medium Temperature Plugs

Plug Electrical Ratings
3-Pole 2 Power 1 Ground
Max. Amps: 16
Max. Volts: 250 VAC
Max. Temperature: 392°F (200°C)

Type P3☐—Vertical Box Assembly

P3A—Box assembly only
P3B—Box assembly w/straight plug
P3C—Box assembly w/right-angle plug

Min. ID: 3" (76.2 mm)
Min. Width: 1-1/2" (38.1 mm)

Type P4☐—Horizontal Box Assembly

P4A—Box assembly only
P4B—Box assembly w/straight plug

Min. ID: 2-1/2" (63.5 mm)
Min. Width: 2-1/2" (63.5 mm)

Ceramic Band with Air-Cooled Shroud

Design Features

This system was developed to provide another means of heating and cooling high temperature extrusion processes. Typically cast-in bronze or brass units are used in applications in which heater temperatures can be in excess of 700°F (371°C). Cast-in bronze or brass heaters are expensive and since they weight approximately three times their aluminum counterparts they are difficult to install.

In response to this challenge, Tempco's engineers have developed a low mass, non-thermally insulated ceramic band heater to work in tandem with a highly efficient stainless steel sheet metal shroud for high temperature heating and cooling extrusion processes.

Forced air blowers are used for cooling. The ambient airflow enters the shroud, circulates around the ceramic heater and barrel, removes the heat from the heater and the process and exits the shroud opposite the entrance port.

Construction Characteristics

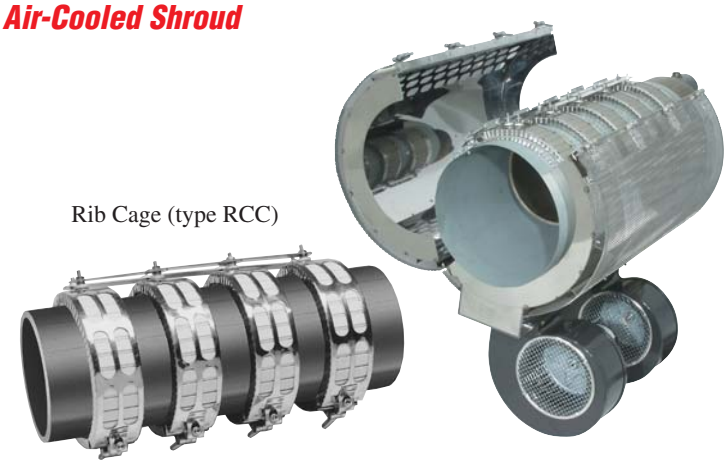
The ceramic band is manufactured in two distinct styles:

1) ***Rib Cage (RCC)*** type, which uses several ceramic band heaters with a gap between them permitting cooling air to come directly in contact with the barrel. A vented outer SS shell supports the ceramic insulators.
2) ***Full Coverage (FCC)*** type, which has higher wattage capabilities but lesser cooling capabilities because the heater completely covers the barrel. A perforated outer SS shell supports the ceramic insulators.

The rib cage design will have less wattage capability than the full coverage type since there is less area to accommodate resistance coils. Neither style incorporates thermal insulation, which would minimize cooling efficiency.

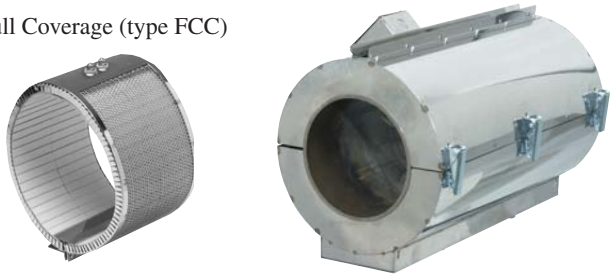
Consult Tempco with your requirements.

Rib Cage (type RCC)



Cool TO-THE Touch™ Style Shroud System
(shown with type RCC ceramic band configuration)
Dual layer shroud with inner Stainless Steel solid layer (thermally isolated from heater) and outer Stainless Steel perforated layer for maximum venting and heat dissipation.
See catalog page 3-23 for shroud assembly details.

Full Coverage (type FCC)



Multi-Versal Style Shroud System
(shown with type FCC ceramic band configuration)
Single layer solid Stainless Steel shroud
See catalog page 3-29 for shroud assembly details.

Complete Information on Shrouds for Ceramic Band Heaters can be found in Section 3, pages 3-20 through 3-35

PERFORMANCE RATINGS FOR HEATER BAND

Maximum Watt Density: 50 W/in²
Maximum Temperature: 900°F (482°C)

MECHANICAL

Standard Width Increments: 1/2"
Maximum Width: depends on ratio of diameter to width
Minimum Width: 1-1/2"
Standard Gap: 1/2" ±1/8"
Maximum Diameter: 18"

ELECTRICAL RATINGS

Resistance tolerance: +10%, –5%
Wattage tolerance: +5%, –10%
Maximum Voltage: 480 single or 3-phase (when applicable)
Maximum Amperage: 25 Amps per circuit

Ordering Information

All RCC and FCC Ceramic Band Heaters are made to customer specifications. Consult Tempco with your requirements.

Additional Features

Electrical 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.

Limitations
Minimum width: 3" (76.2 mm)

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, or clamping variations.

Limitations
Minimum width: 2" (50.8 mm)

Dual Phase — Ceramic Band Heaters can be designed with multiple circuits to operate in single or three-phase circuits.

Other VARIATIONS

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

Lead VARIATIONS

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. See Accessory Section 15 page 15-13.

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. See Accessory Section 15 page 15-14.

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.

Installation Accessories Available for Immediate Delivery

All Items Available from Stock

- *High Temperature Terminal Lugs*
- *Igloo™ Ceramic Insulating Covers*
- *UL Listed Plugs*
- *High Temperature Lead Wire 842°F (450°C)*
- *Armor Cable*
- *Stainless Steel Braid*
- *High Temperature Sleeving*
- *Stainless Steel or Steel Custom Barrel Covers*
- *High Temperature Mica Insulated Wiring Harnesses 842°F (450°C)*
- *Thermocouples*
- *Temperature Controllers*
- *High Temperature Fiberglass Tape*

Installation RECOMMENDATIONS

1. Disconnect electric power to the machine and/or heaters prior to installing or replacing heaters.

2. Do not install heaters in areas where combustible gases, vapor or dust is present.

3. Reduce the number of narrow or two-piece bands used on the barrel. Ceramic bands are very flexible and can be made in large widths and one-piece construction for easy installation. This eliminates heat losses between narrow bands and sharply reduces costly installation labor.

4. Using a heater that closely matches the wattage requirements will decrease the frequency of cycling and temperature overshoot, thereby increasing the life of the heater.

5. When replacing any other type of non-insulated band heater with Tempco ceramic band heaters, you can decrease your total operating wattage by approximately 15 to 20 percent.

6. To prevent overheating and heater failure, adequate temperature controls should be installed. The thermocouples must be kept free of contaminants and checked for good response to temperature changes. A faulty thermocouple can cause the destruction of an entire heating zone due to overheating. Tempco offers a wide variety of temperature controls and thermocouples from stock for immediate delivery. Consult the index of this catalog for appropriate pages.

7. Make certain that all barrel surfaces are clean and free of contaminants. During operation, the band heaters and cylinder surface must be kept free of all contaminants that might liquefy under heat and find their way into the heater windings, carbonizing and becoming conductive. The smallest amount of contamination can cause electrical shorts, resulting in heater failure.

8. Position heater bands on the barrel.

9. Take up all the slack by tightening the low thermal expansion outer housing until the serrated edges come firmly in direct contact with the cylinder. A rawhide mallet can be used to lightly tap the outer edges—only to get uniform contact as you tighten the clamping screws. Do not overtighten to the point where the serrated edges begin to collapse and thrust outward. At this point you are compressing the ceramic insulation and decreasing its insulating value. Unlike all other types of band heaters, ceramic bands heat by radiation as well as conduction and they do not require the same clamping force that is essential with all other types of band heaters.

10. For heaters with screw terminals, remove the top nut and flat washers from the power screw terminals. Do not remove or loosen the bottom nut on the power screw terminals.

11. All electrical wiring of heater bands should be done by a qualified electrician.

12. Use only lead wire with high temperature insulation and proper gauge size. See page 15-2 in the accessories section.

13. When connecting power leads to screw terminals make certain that barrels of terminal lugs are not facing down toward the heater case, which will create a short circuit.

14. Make sure the voltage input to the heater bands does not exceed the voltage rating that is stamped on the heater band.

15. It is recommended that an amperage reading is taken for each heater to verify proper wiring.
(Amps = Watts ÷ Volts)

16. Insulate all live electrical connections per applicable safety standards.

17. Install shrouds around the machine to meet applicable safety requirements.

18. Once installed, check surroundings to make sure that contaminants won't get on the heater while the unit is in operation. Accumulation of contaminants on heaters can cause premature heater failure.

CAUTION

It is imperative that upon start-up of new machines at customer facilities, all of the aforementioned parameters are double checked by qualified field service personnel.

Exposed electrical wiring on band heater installations is a violation of Electrical Safety Codes including O.S.H.A.

Tubular Construction Barrel & Nozzle Band Heaters

Design Features

- *Contamination-Proof*
- *Higher Watt Densities*
- *Temperatures Up to 1000°F (540°C)*
- *Rugged Durable Construction*
- *Greater Reliability*
- *Various Lead Terminations*
- *Optional Monel® Shroud*

Designed to Perform Under Adverse Conditions

Tempco Tubular Band Heater design stands apart from all other similar type band heaters. This band heater is capable of performing under the most adverse conditions. Highly recommended for heating applications where premature nozzle band heater burn-out on plastic injection molding machines is a constant problem due to contamination from plastic overflow or other contaminants. Proven to be very effective for processing Teflon® and high temperature engineering resins, providing long, trouble-free service.

Standard Specifications and Tolerances of Tubular Band Heaters. If tighter tolerances are required consult Tempco.

PERFORMANCE RATINGS

Maximum Temperature: 1000°F (540°C)
Maximum Watt Density: 45 W/in² (7 W/cm²)

ELECTRICAL RATINGS

Resistance Tolerance: +10%, –5%
Wattage Tolerance: +5%, –10%
Maximum Volts: 277 Volts
Maximum Watts: Depends on diameter
Maximum Amps: 30 Amps

MECHANICAL

Minimum Width: 1-1/2" (38.1 mm)
Minimum Inside Dia.: 1-1/2" (38.1 mm)
Standard Gap: 3/8"
Holes: Can be accommodated. Consult Tempco with your requirements.

Construction Characteristics

Incoloy® sheath .315 diameter tubular heating elements are used as heat source. The tubular element is formed to the specified inside diameter to produce a snug slip-on fit.

A low thermal expansion alloy is used to make the strap that houses the tubular heating element. The strap edges are rolled over the element to prevent the strap from separating from the tubular heater. Specially designed mounting brackets are spot welded to the strap, providing the clamping force required to tightly draw the tubular heater against the cylinder.

Advantages and Variations

The straight section of the tubular heater is fully annealed, remaining ductile for field bending. Normally done to guide the leads away from machine obstructions.

If bending is required—

A. Secure the tubular band heater to the cylinder in the position required.

B. Draw the strap as tight as possible.

C. Using a piece of 1/2" water pipe, insert the leads and tubular element into the pipe up to the point where you need the bend.

Proceed to bend with a generous radius.

CAUTION *Don't Make a Sharp Bend As You Will Crack the Heating Element.*

Ordering Information

Standard — Select a Tubular Band heater from the table. All Tubular Band Heaters listed are supplied with Type W3 termination, 24" long.

Custom Engineered/Manufactured — Understanding that an electric heater can be very application specific, for sizes and ratings not listed **TEMPCO** will design and manufacture a Tubular Band Heater to meet your requirements.

Standard lead time is 3 weeks.

Please Specify the following:

- ❑ Inside Diameter
- ❑ Lead Cable/Braid Length
- ❑ Width
- ❑ Voltage and Wattage
- ❑ Termination

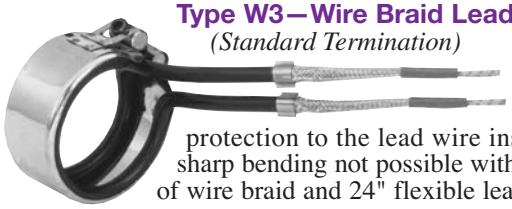
Standard (Non-Stock) Tubular Band Heaters

Tubular band heaters listed have Type W3 termination, 24" long.

ID in	Width in	Wattage	Watt Density	Part Number 120V	240V
1½	1	200	42	TNB01001	—
1½	1½	200	28	TNB01003	—
1½	2	300	31	TNB01005	—
1½	2½	300	25	TNB01007	—
1¾	1	200	36	TNB01009	—
1¾	1½	300	36	TNB01011	TNB01012
1¾	2	400	36	TNB01013	TNB01014
1¾	2½	400	29	TNB01015	TNB01016
2	1	250	39	TNB01017	TNB01018
2	1½	250	26	TNB01019	—
2	2	350	27	TNB01020	—
2	2½	450	28	TNB01021	—
2¼	1	250	35	TNB01022	TNB01023
2¼	1½	350	33	TNB01024	—
2¼	2	350	24	—	TNB01025
2¼	2½	450	25	—	TNB01026
2½	1	300	38	TNB01027	TNB01028
2½	1½	350	29		TNB01029
2½	1½	400	33	TNB01030	—
2½	1½	750	62	—	TNB01031
2½	2	450	28	—	TNB01032
2½	2½	450	22	—	TNB01033
2¾	1	300	34	TNB01034	TNB01035
2¾	1½	350	27	TNB01036	—
2¾	2	450	26	—	TNB01037
2¾	2½	600	27	—	TNB01038
3	1	300	31	TNB01039	TNB01040
3	1½	450	31	—	TNB01041
3	2	600	31	—	TNB01042
3	2½	600	25	—	TNB01043
3¼	1½	450	29	—	TNB01044
3¼	2	600	29	—	TNB01045
3¼	1½	300	18	—	TNB01046
3¼	3	700	21	—	TNB01047
3½	1½	200	38	TNB01048	—
3¾	1⅞	465	21	TNB01049	—
5	1½	600	25	—	TNB01050
5	2	600	19	TNB01051	—
5	2	2000	63	—	TNB01052
5	2¼	1150	32	—	TNB01053
5¼	2¼	900	24	—	TNB01054
5¼	3	300	6	—	TNB01055
5½	2	600	17	TNB01056	TNB01057
6	2	600	15	TNB01058	TNB01059

Type W3—Wire Braid Leads

(Standard Termination)

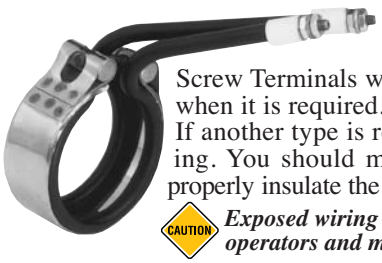


Wire Braid provides strength and protection to the lead wire insulation, offering sharp bending not possible with armor cable. 20" of wire braid and 24" flexible leads are standard.

Options:

- Longer leads or braid
- Male or female plugs attached to leads. For plug selection, see Accessory Section, page 15-13.

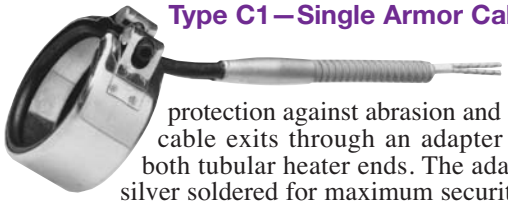
Type T1—Screw Terminals



Screw Terminals will provide a rigid connection when it is required. Standard thread size is 8-32. If another type is required, specify when ordering. You should make special arrangements to properly insulate the electrical connections.

CAUTION ***Exposed wiring is a potential hazard to operators and machine.***

Type C1—Single Armor Cable



Armor Cable provides excellent protection against abrasion and contaminants. The cable exits through an adapter that encapsulates both tubular heater ends. The adapter and cable are silver soldered for maximum security and seal protection. 20" of cable and 24" flexible leads are standard.

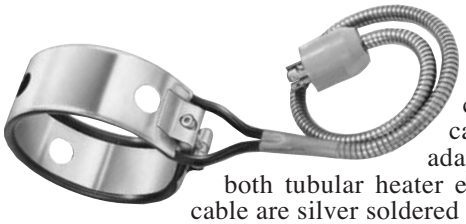
Type C1A—Galvanized Armor Cable

Type C1B—Stainless Steel Armor Cable

Options:

- Male or female plugs attached to leads. For plug selection, see Accessory Section, page 15-13.

Type C3—Single Armor Cable Out Top



Armor Cable provides excellent protection against abrasion and contaminants. The cable exits through an adapter that encapsulates both tubular heater ends. The adapter and cable are silver soldered for maximum security and seal protection. 20" of cable and 24" flexible leads are standard.

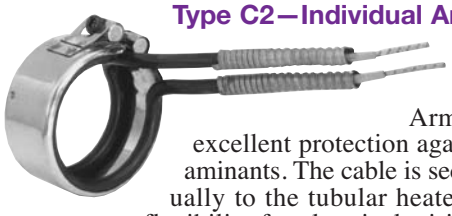
Type C3A—Galvanized Armor Cable

Type C3B—Stainless Steel Armor Cable

Options:

- Male or female plugs attached to leads. For plug selection, see Accessory Section, page 15-13.

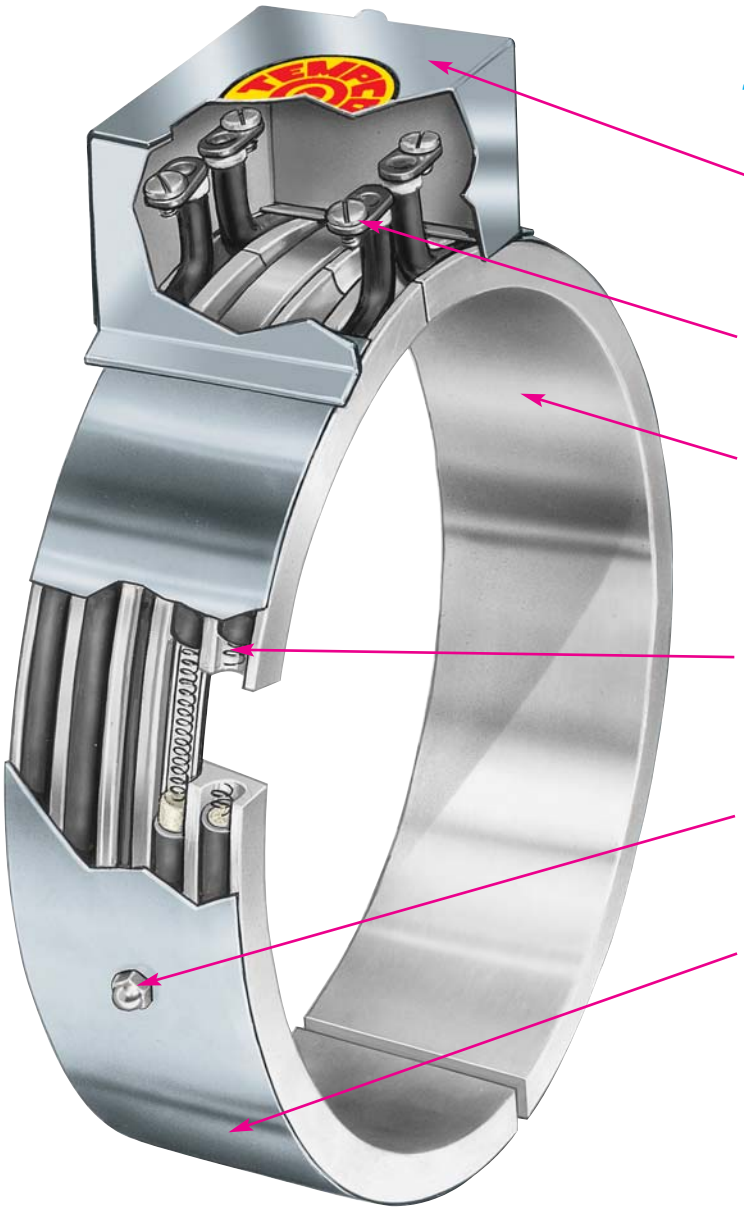
Type C2—Individual Armor Cable



Armor Cable provides excellent protection against abrasion and contaminants. The cable is securely fastened individually to the tubular heater ends, allowing more flexibility for electrical wiring connections. 20" of cable and 24" flexible leads are standard.

Type C2A—Galvanized Armor Cable

Type C2B—Stainless Steel Armor Cable



Maxiband

The Most Sought After Band Heater

A General purpose terminal box offers excellent protection to the exposed terminals. To simplify electrical wiring, the box has two 1/2" trade size knockouts that will accept standard conduit or flexible armor cable connectors.

B Right-angle terminal lugs with 10-32 binding head screws provide ease of electrical wiring.

C The channels in the specially designed extruded aluminum track have been precisely sized to accept a .315 diameter tubular heating element, and provide an excellent heat sink for rapid heat transfer and good temperature uniformity.

D Ruggedly constructed .315 diameter tubular heating elements are the heat source for Maxiband Heaters, providing excellent life and long, trouble-free service.

E Crown nuts are located at 90° from the ends that fasten the clamping strap to the aluminum track, keeping the entire assembly together, providing ease of installation.

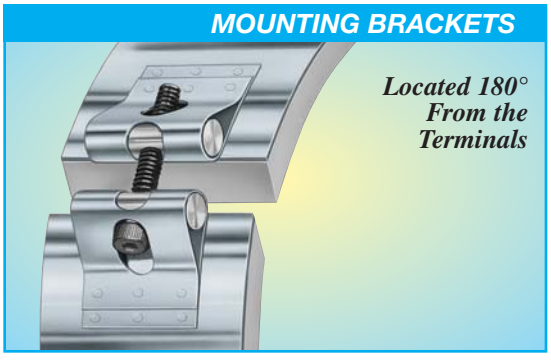
F The strap is made from a Low Thermal Expansion Alloy. It hinges at the terminal end to allow for easy installation. Specially designed mounting brackets with 1/4"-20 socket cap screws, located 180° from the terminal end, provide the clamping force required to tightly draw the heater assembly to the cylinder being heated.

Heat and Liquid Cool Maxibands *(HLC)*

Stainless steel tubing for liquid cooling is placed in the additional channels of the aluminum track next to the tubular heater. The overall low mass construction and high thermal conductivity of the aluminum provides extremely uniform surface temperatures and rapid cooling cycles.

Cool Only Maxibands *(CLC)*

Stainless steel tubing for liquid cooling is placed in the aluminum track.



Maxiband Heaters

Design Features

- *Quick Installation*
- *Rugged, Durable Construction*
- *Contamination Proof*
- *Various Lead Terminations*
- *Exceptionally Long Life*
- *Excellent Heat Transfer*
- *Excellent Temperature Uniformity*

Designed for Durability and Trouble-Free Service

Note: Maxibands, Available Construction: Heat Only, Heat-Cool and Cool Only

Tempco has been manufacturing Maxiband heaters since 1975. The Maxiband is a high quality, durable band heater providing more efficient heating and cooling as well as a longer life compared to other types of band heaters. Due to the rugged construction characteristics of this type of band heater, Maxiband has proven to be extremely valuable and has become the most sought after band heater of its type for plastic injection molding machines, extruders, and blow molding equipment. The initial cost is easily absorbed by the sharp reduction in downtime and labor costs involved in replacing burned-out, less efficient band heaters.

Construction Characteristics

Maxiband heaters are manufactured in five standard widths: 3/4", 1-1/2", 2-1/2", 3", and 4". They are available in a full range of standard diameters; construction variations for heating only, heat and cool, and cooling only; electrical ratings and a complete arrangement of various types of terminations to accommodate your specific application. For standard sizes and ratings, see pages 1-74 through 1-78.

Maxiband HLC heaters, with heat and liquid cooling capabilities, incorporate stainless steel tubing placed in the additional channels of the aluminum track, next to the tubular heater. The overall low mass construction and high thermal conductivity of the aluminum provides extremely uniform surface temperatures and rapid cooling cycles.

The low thermal expansion strap securely fastened to the aluminum track segments provides a built-in hinge, keeping both halves together at all times, making handling and installation easier. Specially designed integral mounting brackets are welded to the strap, providing the clamping force required to draw the heater assembly evenly and tightly to the cylinder.

The straps are equipped with clamping brackets with 1/4"-20 socket head cap screws. On Maxibands exceeding 12" in diameter, spring loaded screws provide the essential clamping force required in large diameter Maxibands to maintain positive contact with the cylinder being heated. On very large diameter Maxibands, the tubular element required becomes excessively long; therefore, two elements per half are used, each tubular element heating a 90° section of a Maxiband heater. In this case, two terminal boxes are required. A typical application for this type of Maxiband construction is heating the die heads of plastic blown film processing machines.

Maxiband heaters are constructed as sets. Each half consists of one tubular heating element and one aluminum track segment. The tubular heaters are always rated at half the total wattage of the set and full rated voltage with the exception of the 3/4" wide Maxiband, which consists of one tubular heating element. For better configuration on larger diameter cylinders, Maxibands exceeding 12" in diameter have the aluminum track segments in quadrants.

PERFORMANCE RATINGS

Maximum Temperature: 650°F (350°C)

Nominal Watt Density: 35 W/in^2 (5.4 W/cm^2)

ELECTRICAL RATINGS

Maximum Voltage: 277VAC per half

Maximum Wattage: Depends on diameter and number of elements used

Maximum Amperage: 30 amps per circuit

Resistance Tolerance: +10%, –5%

Wattage Tolerance: +5%, –10%

STANDARD GAP

Up to 11" ID—1/4" gap. As the diameter increases, the gap will also increase accordingly in order to accommodate the thermal expansion of the aluminum track.

PHYSICAL SIZE CONSTRUCTION LIMITATIONS

Available Heater Widths

Maxiband Type	3/4"	1-1/2"	2-1/2"	3"	4"
Heating Only	•	•	•	•	•
Heat and Cool	N/A	N/A	•	•	•
Cooling Only	•	•	•	•	•

Cooling Tube Specifications

Heater Width	3/4"	1-1/2"	2-1/2"	3"	4"
Cooling Tube Diameter	3/8"	3/8"	3/8"	3/8"	3/8"
Cooling Tube Extension	4"	4"	4"	4"	4"
Cooling Tube Material	Stainless Steel				

Holes

Heater Width	3/4"	1-1/2"	2-1/2"	3"	4"
Maximum Size Hole	N/A	9/16"	9/16"	9/16"	9/16"

Hole is located in center of heater width. For special hole arrangements, supply Tempco with a detailed drawing of your requirements.

Stock and Standard (Non-Stock) Maxibands (Heat Only) — 0.75 in (19.1 mm) Width

ID			Watt Density		Part Number		
in	mm	Wattage	W/in²	W/cm²	60V	120V	240V
3½	88.9	310	41	6.4	MXH00100	—	—
4	101.6	325	37	5.8	MXH00101	—	—
4½	114.3	370	38	5.8	MXH00102	—	—
5½	139.7	455	37	5.8	—	MXH00103	—
6	152.4	500	37	5.8	—	MXH00104	—
6¼	158.8	600	43	6.7	—	*MXH00105	—
7	177.8	600	38	5.9	—	MXH00107	—
8	203.2	660	36	5.7	—	MXH00108	—
10	254.0	850	37	5.8	—	—	MXH00109
10½	266.7	900	38	5.8	—	—	MXH00110
12	304.8	700	25	3.9	—	—	MXH00111
13	330.2	1000	33	5.2	—	—	MXH00112
20	508.0	1570	34	5.2	—	—	MXH00113
22	558.8	1240	24	3.8	—	—	MXH00114
25	635.0	1450	25	3.9	—	—	MXH00115
28	711.2	1100	17	2.6	—	—	MXH00116
28	711.2	2100	32	5.0	—	—	MXH00117

Stock and Standard (Non-Stock) Maxibands (Heat Only) — 1.5 in (38.1 mm) Width

ID			Watt Density		Part Number	
in	mm	Wattage	W/in²	W/cm²	120V	240V
3½	88.9	300	22	3.4	MXH00643	—
3½	88.9	315	23	3.6	MXH01140	—
3½	88.9	475	35	5.5	MXH01141	MXH00121
3½	88.9	500	37	5.7	MXH01142	—
3½	88.9	550	41	6.3	MXH01143	—
3¾	95.3	600	41	6.3	MXH01144	MXH00124
3¾	95.3	700	48	7.4	MXH01145	—
4	101.6	550	35	5.4	—	MXH00126
4	101.6	625	39	6.1	—	MXH00127
4	101.6	700	44	6.8	—	MXH00128
4	101.6	750	47	7.3	—	MXH00129
4	101.6	875	55	8.6	—	*MXH00130
4¼	108.0	675	40	6.1	—	MXH00131
4¼	108.0	780	46	7.1	—	*MXH00132
4⅜	111.1	675	38	5.9	—	MXH00133
4⁷⁄₁₆	112.7	725	40	6.3	—	MXH00134
4½	114.3	500	27	4.3	—	MXH00136
4½	114.3	600	33	5.1	—	MXH00137
4½	114.3	650	36	5.5	—	MXH00138
4½	114.3	725	40	6.2	—	MXH00139
4½	114.3	810	44	6.9	—	MXH00140
4½	114.3	850	47	7.2	—	MXH00141
4¾	120.7	650	34	5.2	—	MXH00142
4¾	120.7	750	39	6.0	—	MXH00143
5	127.0	580	28	4.4	—	MXH00144
5	127.0	800	39	6.0	—	*MXH00145
5	127.0	925	45	7.0	—	MXH00146
5	127.0	1400	68	10.6	—	MXH00147

ID			Watt Density		Part Number
in	mm	Wattage	W/in²	W/cm²	240V
5⅛	130.2	800	38	5.9	MXH00148
5¼	133.4	600	28	4.3	*MXH00149
5¼	133.4	970	45	6.9	MXH00150
5¼	133.4	975	45	7.0	MXH00151
5¼	133.4	1000	46	7.1	MXH00152
5½	139.7	875	38	5.9	MXH00153
5½	139.7	950	41	6.4	MXH00154
5½	139.7	1015	44	6.9	MXH00155
5¾	146.1	900	37	5.8	MXH00156
5¾	146.1	950	39	6.1	MXH00157
6	152.4	710	28	4.4	MXH00159
6	152.4	750	30	4.6	MXH00160
6	152.4	950	38	5.8	MXH00161
6	152.4	1100	44	6.7	MXH00162
6¼	158.8	1000	38	5.9	MXH00163
6½	165.1	500	18	2.8	MXH00164
6½	165.1	750	27	4.2	MXH00165
6½	165.1	900	33	5.0	*MXH00166
6½	165.1	950	34	5.3	MXH00167
6½	165.1	1000	36	5.6	MXH00168
6½	165.1	1050	38	5.9	MXH00169
6½	165.1	1200	43	6.7	MXH00170
6¹¹⁄₁₆	169.8	1000	35	5.4	MXH00171
6¾	171.5	1125	39	6.1	MXH00172
7	177.8	500	17	2.6	MXH00173
7	177.8	850	28	4.4	MXH00174
7	177.8	1000	33	5.2	MXH00175

CONTINUED

Note: Part Numbers shown are for Maxiband Heaters with type "S" termination. For details see page 1-79.

An asterisk (*) next to the Part Number guarantees in-stock availability for same-day shipping when ORDERED BY 2 PM CST

Stock and Standard (Non-Stock) Maxibands (Heat Only) — 1.5 in (38.1 mm) Width

Continued from previous page…

ID in	ID mm	Wattage	Watt Density W/in²	Watt Density W/cm²	Part Number 240V
7	177.8	1100	37	5.7	MXH00176
7	177.8	1300	43	6.7	*MXH00177
7¼	184.2	1175	38	5.8	MXH00178
7½	190.5	900	28	4.3	MXH00179
7½	190.5	1200	37	5.8	MXH00180
7⅜	193.7	1200	36	5.6	MXH00181
7¾	196.9	1250	37	5.8	MXH00182
8	203.2	550	16	2.5	MXH00183
8	203.2	800	23	3.6	MXH00184
8	203.2	1100	32	4.9	MXH00185
8	203.2	1200	35	5.4	MXH00186
8	203.2	1300	37	5.8	MXH00187
8	203.2	1475	43	6.6	MXH00188
8½	215.9	1175	32	4.9	MXH00189
8½	215.9	1200	32	5.0	MXH00190
8½	215.9	1375	37	5.8	*MXH00191
8½	215.9	1400	38	5.9	MXH00192
8½	215.9	1500	40	6.3	MXH00193
8¾	222.3	1000	26	4.1	MXH00194
8¾	222.3	1400	37	5.7	MXH00195
9	228.6	1100	28	4.3	MXH00196
9	228.6	1390	35	5.5	MXH00197
9	228.6	1475	37	5.8	MXH00198
9	228.6	1550	39	6.1	MXH00199
9	228.6	1675	43	6.6	*MXH00200
9¼	235.0	1450	36	5.5	MXH00201
9¼	235.0	1500	37	5.7	MXH00202
9½	241.3	1300	31	4.8	MXH00203
9½	241.3	1325	32	4.9	MXH00204
9½	241.3	1550	37	5.8	MXH00205
9½	241.3	1765	42	6.5	MXH00206
9¾	247.7	1810	42	6.5	MXH00207
10	254.0	1150	26	4.0	MXH00208
10	254.0	1350	31	4.7	MXH00209
10	254.0	1625	37	5.7	MXH00210
10¼	260.4	1425	31	4.9	MXH00211
10½	266.7	1450	31	4.8	MXH00212
10½	266.7	1700	37	5.7	MXH00213
11	279.4	1000	20	3.2	MXH00214
11	279.4	1300	27	4.1	MXH00215
11	279.4	1500	31	4.8	MXH00216
11	279.4	1775	36	5.6	MXH00217
11	279.4	2000	41	6.3	MXH00218
11¼	285.8	1825	36	5.7	MXH00219
11¼	285.8	2075	41	6.4	MXH00220
11½	292.1	1875	37	5.7	MXH00221
11⅝	295.3	1875	36	5.6	MXH00222
11¾	298.5	1000	19	3.0	MXH00223
12	304.8	840	16	2.4	MXH00224
12	304.8	1250	23	3.6	MXH00225
12	304.8	1400	26	4.1	MXH00226
12	304.8	1950	36	5.6	MXH00227

ID in	ID mm	Wattage	Watt Density W/in²	Watt Density W/cm²	Part Number 240V
12	304.8	2000	37	5.8	MXH00228
12	304.8	2500	47	7.2	MXH00229
12½	317.5	2100	38	5.8	MXH00230
12¾	323.9	2100	37	5.7	MXH00231
13	330.2	1400	24	3.7	MXH00232
13	330.2	1500	26	4.0	MXH00233
13	330.2	1525	26	4.1	MXH00234
13	330.2	1800	31	4.8	MXH00235
13	330.2	2150	37	5.7	MXH00236
13¾	349.3	2265	37	5.7	MXH00237
13 15/16	354.0	2125	34	5.3	*MXH00238
14	355.6	1200	19	3.0	MXH00239
14	355.6	1600	25	3.9	MXH00240
14	355.6	2275	36	5.6	MXH00241
14	355.6	2500	40	6.2	MXH00242
14	355.6	2600	41	6.4	MXH00243
14½	368.3	3100	47	7.4	MXH00244
15	381.0	1000	15	2.3	MXH00245
15	381.0	1450	21	3.3	MXH00246
15	381.0	1600	24	3.7	MXH00247
15	381.0	2100	31	4.8	MXH00248
15	381.0	2500	37	5.7	MXH00249
15	381.0	2750	41	6.3	MXH00250
15	381.0	2800	41	6.4	MXH00251
15½	393.7	2200	31	4.9	MXH00252
15½	393.7	3000	43	6.6	MXH00253
15¾	400.1	2500	35	5.4	MXH00254
15¾	400.1	2600	37	5.7	MXH00255
16	406.4	2200	30	4.7	MXH00256
16	406.4	4000	55	8.6	MXH00257
16½	419.1	2700	36	5.6	MXH00258
17	431.8	2400	31	4.8	MXH00259
18	457.2	2960	36	5.6	MXH00260
19	482.6	2200	25	3.9	*MXH00261
20	508.0	2350	26	4.0	*MXH00262
20	508.0	4000	44	6.8	MXH00263
21	533.4	2450	26	4.0	MXH00264
21¼	539.8	3500	36	5.6	MXH00265
21½	546.1	3500	36	5.5	MXH00266
22	558.8	2500	25	3.8	MXH00267
22½	571.5	3600	35	5.4	*MXH00268
23⅜	593.7	3850	36	5.6	MXH00269
24	609.6	3500	32	4.9	MXH00270
24½	622.3	3000	27	4.1	*MXH00271
26	660.4	3000	25	3.9	MXH00272
28	711.2	3300	26	4.0	MXH00273
28	711.2	4220	33	5.1	MXH00274
30	762.0	3500	25	3.9	MXH00275
31	787.4	2900	20	3.1	MXH00276
33	838.2	3600	24	3.7	MXH00277
34	863.6	4800	31	4.7	MXH00278
35	889.0	4500	28	4.3	MXH00279
36	914.4	4200	25	3.9	MXH00280
37	939.8	5000	29	4.5	MXH00281
39	990.6	4400	24	3.8	MXH00282
45	1143.0	9000	43	6.7	MXH00283

Note: Part Numbers shown are for Maxiband Heaters with type "S" termination. For details see page 1-79.

An asterisk (*) next to the Part Number guarantees in-stock availability for same-day shipping when ORDERED BY 2 PM CST

Ordering Information
See page 1-78

Stock and Standard (Non-Stock) Maxibands (Heat Only) — 2.5 in (63.5 mm) Width

ID in	ID mm	Wattage	Watt Density W/in²	Watt Density W/cm²	Part Number 120V
3½	88.9	350	16	2.4	*MXH00286
3½	88.9	650	29	4.5	MXH00287
3½	88.9	775	34	5.3	MXH00288

ID in	ID mm	Wattage	Watt Density W/in²	Watt Density W/cm²	Part Number 240V
3½	88.9	975	43	6.7	MXH00289
3½	88.9	1300	58	9.0	MXH00290
3¾	95.3	975	40	6.2	MXH00291
4	101.6	900	34	5.3	*MXH00292
4	101.6	1050	40	6.2	MXH00293
4¼	108.0	1125	40	6.1	MXH00294
4½	114.3	1025	34	5.2	MXH00295
4½	114.3	1200	40	6.1	*MXH00296
4½	114.3	1500	49	7.7	MXH00297
5	127.0	1150	34	5.2	MXH00298
5	127.0	1325	39	6.0	MXH00299
5	127.0	1500	44	6.8	MXH00300
5¼	133.4	1200	33	5.1	MXH00301
5¼	133.4	1400	39	6.0	MXH00302
5½	139.7	1250	33	5.1	MXH00303
5½	139.7	1475	39	6.0	MXH00304
5½	139.7	2000	52	8.1	MXH00305
5 9/16	141.3	1100	28	4.4	MXH00306
6	152.4	800	19	2.9	*MXH00307
6	152.4	1150	27	4.2	MXH00308
6	152.4	1375	33	5.1	MXH00309
6	152.4	1600	38	5.9	MXH00310
6½	165.1	1750	38	5.9	MXH00311
6½	165.1	1800	39	6.1	MXH00312
6¾	171.5	1300	27	4.2	*MXH00313
6⅞	174.6	1300	27	4.1	*MXH00314
7	177.8	1870	37	5.8	MXH00315
7	177.8	1974	39	6.1	MXH00316
7¼	184.2	2500	48	7.5	MXH00317
7½	190.5	1140	21	3.3	*MXH00318
7½	190.5	1725	32	5.0	MXH00319
7½	190.5	2025	38	5.8	MXH00320
7⅞	193.7	1875	34	5.3	MXH00321
7⅞	200.0	1500	26	4.1	MXH00322
8	203.2	1850	32	5.0	MXH00323
8	203.2	2150	37	5.8	MXH00324
8¼	209.6	1300	22	3.4	MXH00325
8¼	209.6	1900	32	4.9	MXH00326
8½	215.9	1975	32	5.0	MXH00327
8½	215.9	2300	37	5.8	MXH00328
8¾	222.3	2000	31	4.9	MXH00329
8¾	222.3	2025	32	4.9	MXH00330
9	228.6	2425	37	5.7	*MXH00331
9¼	235.0	2150	32	4.9	MXH00332
9 7/16	239.7	2200	32	4.9	MXH00333
9½	241.3	2100	30	4.7	MXH00334
9½	241.3	2375	34	5.3	MXH00335
9½	241.3	2575	37	5.7	MXH00336
9¾	247.7	2250	31	4.9	MXH00337
9¾	247.7	2625	37	5.7	MXH00338
9⅞	250.8	1500	21	3.2	*MXH00339
10	254.0	1350	18	2.8	MXH00340
10	254.0	2325	32	4.9	MXH00341
10	254.0	2700	37	5.7	MXH00342
10¼	260.4	2375	31	4.9	*MXH00343
10½	266.7	2850	37	5.7	MXH00344
11	279.4	2125	26	4.0	*MXH00345
11	279.4	2550	31	4.9	MXH00346
11	279.4	2975	37	5.7	MXH00347
11 1/16	290.5	3050	36	5.6	*MXH00348
11½	292.1	3050	36	5.5	MXH00349
12	304.8	1875	21	3.3	MXH00350
12	304.8	2250	25	3.9	MXH00351
12	304.8	2800	31	4.9	MXH00352
12	304.8	3250	36	5.6	MXH00353
12 3/16	309.5	3370	37	5.8	*MXH00354
12½	317.5	1450	16	2.4	*MXH00355
12½	317.5	3000	32	5.0	MXH00356
12½	317.5	3425	37	5.7	MXH00357
12⅝	319.1	1600	17	2.6	*MXH00358
12⅝	320.7	2375	25	3.9	*MXH00359
12⅝	320.7	3000	32	4.9	*MXH00360
13	330.2	3200	33	5.1	MXH00361
13	330.2	3575	37	5.7	*MXH00362
13	330.2	4300	44	6.9	MXH00363
13 3/16	334.9	3275	33	5.1	*MXH00364
13½	342.9	3710	37	5.7	MXH00365
13¾	349.3	3775	37	5.7	MXH00366
14	355.6	1500	14	2.2	MXH00367
14	355.6	1900	18	2.8	MXH00368
14	355.6	2200	21	3.2	MXH00369
14	355.6	3000	29	4.4	*MXH00370
14	355.6	3500	33	5.2	MXH00371
14	355.6	3850	37	5.7	MXH00372
14	355.6	5000	48	7.4	MXH00373
14 15/16	379.4	2725	24	3.8	*MXH00374
14 15/16	379.4	3725	33	5.1	*MXH00375
15	381.0	3540	31	4.9	MXH00376
15	381.0	4800	43	6.6	MXH00377
15 3/16	385.7	2300	20	3.1	*MXH00378
15 15/16	404.8	3125	26	4.0	MXH00379
16	406.4	4000	33	5.1	MXH00380
16	406.4	5000	41	6.4	MXH00381
18	457.2	4250	31	4.8	MXH00382
18	457.2	4600	34	5.2	MXH00383
18	457.2	5200	38	5.9	MXH00384
19	482.6	5200	36	5.6	MXH00385
20	508.0	5000	33	5.1	MXH00386
20	508.0	5500	36	5.6	MXH00387
21	533.4	4950	31	4.8	MXH00388
21	533.4	7000	44	6.8	MXH00389
36	914.4	7000	25	3.9	MXH00390

Note: Part Numbers shown are for Maxiband Heaters with type "S" termination. For details see page 1-79.

An asterisk (*) next to the Part Number guarantees in-stock availability for same-day shipping when ORDERED BY 2 PM CST

Product Inventory Available for Viewing and Selection @ www.tempco.com

Stock and Standard (Non-Stock) Maxibands (Heat Only) — 3 in (76.2 mm) Width

ID in	ID mm	Wattage	Watt Density W/in²	Watt Density W/cm²	Part Number 240V
3½	88.9	500	19	2.9	MXH00391
3½	88.9	600	22	3.4	MXH00392
4½	114.3	1500	41	6.4	MXH00393
5	127.0	1390	34	5.2	MXH00394
5	127.0	1800	44	6.8	MXH00395
5¼	133.4	1475	34	5.3	MXH00396
5½	139.7	1560	34	5.3	MXH00397
5¾	146.1	1625	34	5.2	MXH00398
6	152.4	1100	22	3.4	MXH00399
6	152.4	1500	30	4.6	MXH00400
6	152.4	1720	34	5.3	MXH00401
6¼	158.8	1770	33	5.2	MXH00402
6½	165.1	1820	33	5.1	MXH00403
6¾	171.5	1900	33	5.1	MXH00404
7	177.8	1200	20	3.1	MXH00405
7	177.8	2000	33	5.2	MXH00406
7¼	184.2	2050	33	5.1	MXH00407
7½	190.5	2120	33	5.1	MXH00408
7¾	196.9	2200	33	5.1	MXH00409
8	203.2	2270	33	5.1	MXH00410
8¼	209.6	1800	25	3.9	MXH00411
8¼	209.6	2325	32	5.0	MXH00412
8½	215.9	2410	33	5.0	MXH00413
8¾	222.3	2475	32	5.0	MXH00414
9	228.6	1800	23	3.5	MXH00415
9	228.6	2200	28	4.3	MXH00416
9	228.6	2300	29	4.5	MXH00417
9	228.6	2600	33	5.1	MXH00418
9	228.6	2700	34	5.3	MXH00419
9¼	235.0	2600	32	5.0	MXH00420
9½	241.3	2675	32	5.0	MXH00421
9¾	247.7	2750	32	5.0	MXH00422
10	254.0	2000	23	3.5	*MXH00423
10	254.0	2820	32	5.0	MXH00424
10¼	260.4	2900	32	5.0	MXH00425
10½	266.7	2975	32	5.0	MXH00426

ID in	ID mm	Wattage	Watt Density W/in²	Watt Density W/cm²	Part Number 240V
10¾	273.1	3025	32	4.9	MXH00427
11	279.4	2000	20	3.2	MXH00428
11	279.4	3100	32	4.9	MXH00429
11¼	285.8	2500	25	3.9	MXH00430
11¼	285.8	3175	32	4.9	MXH00431
11½	292.1	2000	20	3.0	MXH00432
11½	292.1	2710	26	4.1	MXH00433
11½	292.1	3250	32	4.9	*MXH00434
11¾	298.5	3325	32	4.9	MXH00435
12	304.8	2000	19	2.9	MXH00436
12	304.8	2830	26	4.1	MXH00437
12	304.8	3400	32	4.9	MXH00438
12¼	311.2	3475	32	4.9	MXH00439
12½	317.5	2400	21	3.3	MXH00440
12½	317.5	3000	27	4.2	MXH00441
12½	317.5	3525	32	4.9	MXH00442
12¾	323.9	3600	32	4.9	MXH00443
13	330.2	3670	31	4.9	MXH00444
13¼	336.6	3750	32	4.9	MXH00445
13½	342.9	3280	27	4.2	MXH00446
13½	342.9	3800	31	4.9	MXH00447
13¾	349.3	3870	31	4.9	MXH00448
14	355.6	3760	30	4.6	MXH00449
14	355.6	3950	31	4.9	MXH00450
15	381.0	3535	26	4.0	*MXH00451
15½	393.7	4000	29	4.4	MXH00452
19	482.6	5400	31	4.8	*MXH00453
19½	495.3	5500	31	4.8	MXH00454
22	558.8	8000	40	6.2	MXH00455
26	660.4	8000	33	5.2	MXH00456
29	736.6	9000	34	5.2	MXH00457
30	762.0	7500	27	4.2	MXH00458
30	762.0	9500	34	5.3	MXH00459

CONTINUED

Note: Part Numbers shown are for Maxiband Heaters with type "S" termination. For details see page 1-79.

An asterisk (*) next to the Part Number guarantees in-stock availability for same-day shipping when ORDERED BY 2 PM CST

Ordering Information
See page 1-78

Standard Sizes and Ratings

Standard (Non-Stock) Maxibands (Heat Only) — 4 in (101.6 mm) Width

Continued from previous page…

ID in	ID mm	Wattage	Watt Density W/in²	Watt Density W/cm²	Part Number 240V
5	127.0	1870	34	5.3	MXH00460
5¼	133.4	1970	34	5.3	MXH00461
5½	139.7	1025	17	2.6	MXH00462
5½	139.7	1800	29	4.6	MXH00463
5½	139.7	2075	34	5.3	MXH00464
5½	139.7	2500	41	6.3	MXH00465
5¾	146.1	2175	34	5.2	MXH00466
6	152.4	2285	34	5.3	MXH00467
6¼	158.8	2370	34	5.2	MXH00468
6½	165.1	2475	34	5.2	MXH00469
6¾	171.5	2575	34	5.2	MXH00470
7	177.8	2675	33	5.2	MXH00471
7¼	184.2	2750	33	5.1	MXH00472
7½	190.5	2845	33	5.1	MXH00473
7¾	196.9	2950	33	5.1	MXH00474
8	203.2	2250	24	3.8	MXH00475
8	203.2	3050	33	5.1	MXH00476
8¼	209.6	3050	32	4.9	MXH00477
8½	215.9	3545	36	5.6	MXH00478
8¾	222.3	3350	33	5.1	MXH00479
9¼	235.0	3545	33	5.1	MXH00480
11¾	298.5	3000	21	3.3	MXH00481
14	355.6	5500	33	5.1	MXH00482
14¼	362.0	5150	30	4.7	MXH00483
15	381.0	6000	33	5.2	MXH00484
16½	419.1	6500	33	5.1	MXH00485
20	508.0	4000	16	2.5	MXH00486
20	508.0	5500	23	3.5	MXH00487

Note: Part Numbers shown are for Maxiband Heaters with type "S" termination. For details see page 1-79.

Ordering Information

Stock Heaters

Select a Stock Maxiband Heater (identified by an asterisk [*] preceding the part number) from the Standard Sizes and Ratings Lists on Pages 1-74 through 1-78. Part Numbers shown are for Maxiband Heaters with type "S" termination.

Stock heaters can be modified to the following terminations:

Type **C**—Outlet terminal box
Type **P2**—Low profile high temperature quick disconnect
Type **W3**—Wire braid leads
Type **TS**—Contamination seal

A Part Number will be issued at time of order.

Custom Engineered/Manufactured Heaters

Understanding that an electric heater can be very application specific, for sizes and ratings not listed **TEMPCO** will design and manufacture a Maxiband Heater to meet your requirements. ***Standard lead time is 3 weeks.***

Please Specify the following:

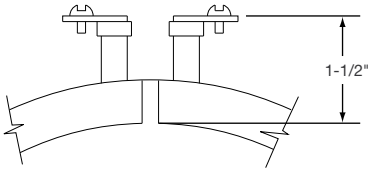
- ❑ Inside Diameter
- ❑ Width
- ❑ Total Wattage
- ❑ Voltage per half
- ❑ Lead Cable/Braid Length
- ❑ Termination
- ❑ Construction
- ❑ Clamping
- ❑ Special Features
- ❑ Quantity

Maxiband Terminal Lug Termination

Type S—Standard Terminal Lugs

Terminal Lugs with 10-32 binding head screws.

Note: Standard on all Maxiband heaters unless otherwise specified.

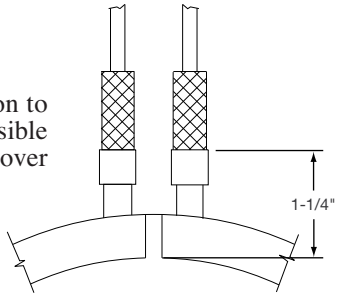


Abrasive Resistant Lead Terminations

Type W3—Wire Braid Leads

Stainless Steel Wire Braid provides strength and protection to the lead wire's insulation and offers sharp bending not possible with armor cable. The standard leads are 20" of wire braid over 24" of flexible leads.

If longer leads are required, specify when ordering.



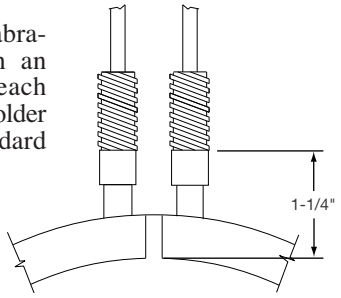
Type R1□—Armor Cable Leads

Armor Cable provides excellent protection against abrasion and contaminants. The cable exits through an adapter that encapsulates both elements' ends on each half. The adapter and cable are attached with silver solder for maximum security and seal protection. The standard leads are 20" of cable over 24" of flexible leads.

If longer leads are required, specify when ordering.

Type **R1A**—Galvanized Armor Cable

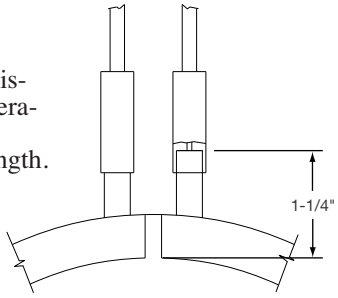
Type **R1B**—Stainless Steel Armor Cable



Type TS—Leads with Contamination Seal

Teflon® shrinkdown sleeving provides a good moisture and contamination seal. The maximum temperature allowed at the Teflon® seal sleeve is 500°F (260°C). The standard flexible leads are 24" in length.

If longer leads are required, specify when ordering.



CONTINUED

Maxiband Terminal Protection Terminations

Continued from previous page...

Type EP—Explosion and Moisture Resistant Box

Maxiband heaters can be made with an explosion/moisture resistant box brazed onto the heater.

CAUTION

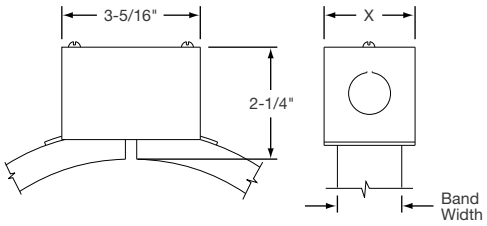
Explosion resistant terminal housings are intended to provide containment of an explosion in the enclosure only. No portion of the heater assembly outside the enclosure is covered under this NEMA rating. Abnormal use of a heater which results in excessive temperature can create hazardous conditions such as a fire. Never perform any type of service nor remove the housing cover prior to disconnecting all electrical power to the heater.

Type C3□—General Purpose Terminal Boxes

Terminal Boxes provide a simple and economical way to eliminate all live exposed terminals and electrical wiring that can be a potential hazard. The boxes have a 1/2" tradesize knockout (actual diameter 7/8") for standard connectors. Heaters can be factory prewired with high temperature lead wire, armor cable or stainless steel wire braid.

Type **C3A**—Standard box only
Type **C3B**—w/galvanized armor
Type **C3C**—w/stainless steel armor
Type **C3D**—w/wire braid

Band Width	"X"
1-1/2"	1-7/8"
2-1/2"	2-7/8"
3"	3-3/8"
4"	4-3/8"



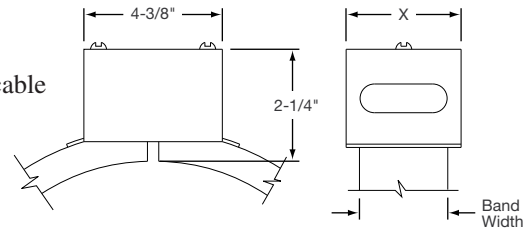
Type P2□—Quick Disconnect High Temperature Plug

Quick Disconnect Plug assemblies are highly recommended to provide the simplest and safest way to apply power to band heater installations.

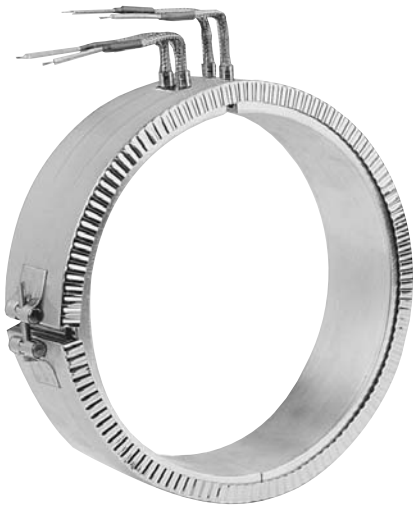
Type **P2A**—Box and cup only
Type **P2B**—w/straight plug
Type **P2C**—w/str. plug and galvanized cable
Type **P2D**—w/str. plug and SS cable
Type **P2E**—w/str. plug and wire braid

Plug Electrical Ratings
2-Pole 3-Wire Grounding
Max. Amps: 16
Max. Volts: 250 VAC
Max. Temperature: 572°F (300°C)

Band Width	"X"
1-1/2"	1-7/8"
2-1/2"	2-7/8"
3"	3-3/8"
4"	4-3/8"



Maxiband Special Construction Variations



Type EC—Insulated Shroud

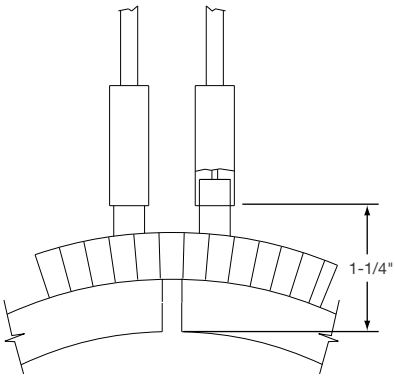
Insulated Shroud provides energy savings.

Available on all Maxiband widths except 3/4".

The shrouds are a separate component part and they fit over the Maxiband heater.

Insulated shrouds to cover entire heat zones are available and are made to customer specifications.

When ordering or for quoting, supply Tempco with a detailed drawing outlining your requirements.

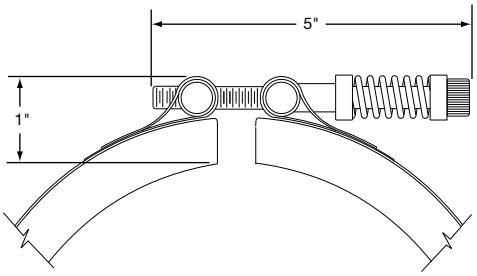


Terminal Protection

Type SL—Spring Loaded Clamping

On Maxiband heaters over 12" in diameter, the aluminum tracks are in segments for better configuration, and the straps are equipped with two or more Spring Loaded Clamping Brackets.

For excessively large diameters, four tubular heaters will be used, each heating a 90° section of the total diameter. When terminal boxes are required, two boxes will be used.



Type RC—Reverse Construction

Reverse Maxibands lend themselves to heating cylindrical surfaces from the inside out.

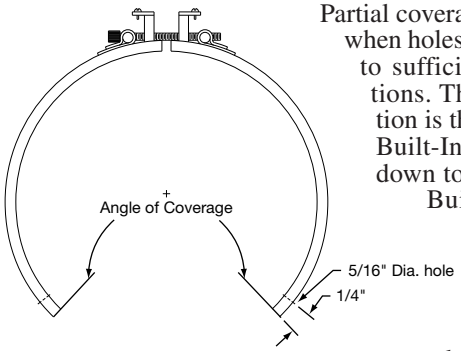
The specially designed internal brackets exert pressure to both heater halves to assure good contact against the inside diameter of the part being heated.

Made strictly to customer specifications.

Consult Tempco with your requirements.

Maxiband Special Construction Variations

Partial Coverage



Partial coverage band heaters are normally required when holes and cutouts will not allow the heater to sufficiently clear the machine obstructions. The preferred method of construction is the 2-Piece Maxiband Heater with Built-In Brackets. The heater is screwed down to the cylinder at the ends and the Built-In Brackets pull the heater tightly against the cylinder being heated. It is available with all types of construction and termination variations. Provide when ordering the angle of coverage from center to center of the mounting screw holes as shown.

Additional Maxiband Heater Optional Features

Electrical Variations

Dual Voltage — Maxiband heaters can be designed using series/parallel circuits for dual voltage applications. Whether the heater is run on the higher or lower voltage, the wattage will be the same. Dual Voltage is available on all Maxiband heater widths except 3/4".

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

Lead Variations

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 clamping/construction or 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.

Extra Cooling Tube Length — The standard cooling tube length is 4". Longer lengths can be provided; please specify when ordering.

Type SC—Square or Rectangular

Square or Rectangular heaters, normally used for heating dies on plastic extruders, are made in a two-piece construction for better clamping and to provide good surface contact. Made strictly to customer specifications. When ordering or for quotation purposes, supply a detailed drawing or sample part.

Consult Tempco with your requirements.

Maxiband "HLC" Heat & Cool *with* Built-In Cooling Tubes

Maxiband HLC heaters have an exceptionally long operating heater life when compared to other types of band heaters. Highly recommended whenever applicable as an economical alternative to more expensive cast-in aluminum heat and cool band heaters. Available in three different widths: 2-1/2", 3", and 4".

For ***complete specifications and terminations*** see pages 1-79 through 1-82.

For ***cooling tube fittings,*** see page 3-54 in the Cast-In Band Heater Section.

Design Features

- ***Rugged Durable Construction***
- ***Withstands Vibration***
- ***Excellent Temperature Uniformity***
- ***Excellent Heat Transfer***
- ***Contamination Resistant***

Standard (Non-Stock) HLC Maxibands (Heat & Cool) — 3 in (76.2 mm) Width with 3/8" Diameter Cooling Tube

ID			Watt Density		Part Number
in	mm	Wattage	W/in²	W/cm²	240V
5	127.0	1050	26	4.0	MXB00001
5	127.0	1390	34	5.2	MXB00002
5	127.0	1800	44	6.8	MXB00003
5¼	133.4	1475	34	5.3	MXB00004
5½	139.7	1175	26	4.0	MXB00005
5½	139.7	1560	34	5.3	MXB00006
5¾	146.1	1625	34	5.2	MXB00007
6	152.4	800	16	2.5	MXB00008
6	152.4	1100	22	3.4	MXB00009
6	152.4	1275	25	3.9	MXB00010
6	152.4	1500	30	4.6	MXB00011
6	152.4	1720	34	5.3	MXB00012
6¼	158.8	1300	25	3.8	MXB00013
6¼	158.8	1770	33	5.2	MXB00014
6¼	158.8	1300	25	3.8	MXB00015
6½	165.1	1375	25	3.9	MXB00016
6½	165.1	1820	33	5.1	MXB00017
6¾	171.5	1900	33	5.1	MXB00018
7	177.8	1200	20	3.1	MXB00019
7	177.8	1500	25	3.9	MXB00020
7	177.8	2000	33	5.2	MXB00021
7¼	184.2	2050	33	5.1	MXB00022
7½	190.5	1600	25	3.8	MXB00023
7½	190.5	2120	33	5.1	MXB00024
7¾	196.9	2200	33	5.1	MXB00025
8	203.2	1700	24	3.8	MXB00026
8	203.2	2270	33	5.1	MXB00027
8¼	209.6	2325	32	5.0	MXB00028
8½	215.9	1800	24	3.8	MXB00029
8½	215.9	2410	33	5.0	MXB00030
8¾	222.3	2475	32	5.0	MXB00031
9	228.6	1800	23	3.5	MXB00032
9	228.6	1900	24	3.7	MXB00033
9	228.6	2300	29	4.5	MXB00034
9	228.6	2600	33	5.1	MXB00035
9¼	235.0	1950	24	3.7	MXB00036

ID			Watt Density		Part Number
in	mm	Wattage	W/in²	W/cm²	240V
9¼	235.0	2600	32	5.0	MXB00037
9½	241.3	2000	24	3.7	MXB00038
9½	241.3	2675	32	5.0	MXB00039
9¾	247.7	2050	24	3.7	MXB00040
9¾	247.7	2750	32	5.0	MXB00041
10	254.0	2000	23	3.5	MXB00042
10	254.0	2820	32	5.0	MXB00043
10¼	260.4	2900	32	5.0	MXB00044
10½	266.7	2250	24	3.8	MXB00045
10½	266.7	2975	32	5.0	MXB00046
10¾	273.1	3025	32	4.9	MXB00047
11	279.4	2000	20	3.2	MXB00048
11	279.4	3100	32	4.9	MXB00049
11¼	285.8	3175	32	4.9	MXB00050
11½	292.1	2000	20	3.0	MXB00051
11½	292.1	2450	24	3.7	MXB00052
11½	292.1	3250	32	4.9	MXB00053
11½	292.1	3500	34	5.3	MXB00054
11¾	298.5	3325	32	4.9	MXB00055
12	304.8	2000	19	2.9	MXB00056
12	304.8	2550	24	3.7	MXB00057
12	304.8	3400	32	4.9	MXB00058
12¼	311.2	3475	32	4.9	MXB00059
12½	317.5	2400	21	3.3	MXB00060
12½	317.5	2900	26	4.0	MXB00061
12½	317.5	3000	27	4.2	MXB00062
12½	317.5	3525	32	4.9	MXB00063
12¾	323.9	3600	32	4.9	MXB00064
13	330.2	3670	31	4.9	MXB00065
13½	342.9	3280	27	4.2	MXB00066
13½	342.9	3800	31	4.9	MXB00067
14	355.6	3950	31	4.9	MXB00068
15½	393.7	4000	29	4.4	MXB00069
19	482.6	5400	31	4.8	MXB00070
26	660.4	8000	33	5.2	MXB00071
29	736.6	9000	34	5.2	MXB00072
30	762.0	9500	34	5.3	MXB00073

CONTINUED

Standard Sizes and Ratings

Standard (Non-Stock) HLC (Heat & Cool) Maxibands — 4 in (101.6 mm) Width with 3/8" Diameter Cooling Tube

Continued from previous page…

ID in	ID mm	Wattage	Watt Density W/in²	Watt Density W/cm²	Part Number 240V
5	127.0	1870	34	5.3	MXB00074
5¼	133.4	1970	34	5.3	MXB00075
5½	139.7	1025	17	2.6	MXB00076
5½	139.7	1500	25	3.8	MXB00077
5½	139.7	1800	29	4.6	MXB00078
5½	139.7	2075	34	5.3	MXB00079
5½	139.7	2500	41	6.3	MXB00080
5¾	146.1	2175	34	5.2	MXB00081
6	152.4	2285	34	5.3	MXB00082
6¼	158.8	2370	34	5.2	MXB00083
6½	165.1	2475	34	5.2	MXB00084
6¾	171.5	2575	34	5.2	MXB00085
7	177.8	2675	33	5.2	MXB00086
7¼	184.2	2750	33	5.1	MXB00087
7½	190.5	2845	33	5.1	MXB00088
7¾	196.9	2950	33	5.1	MXB00089
8	203.2	2250	24	3.8	MXB00090
8	203.2	3050	33	5.1	MXB00091
8½	215.9	3255	33	5.1	MXB00092
8¾	222.3	3350	33	5.1	MXB00093
9	228.6	3450	33	5.1	MXB00094
9¼	235.0	3545	33	5.1	MXB00095
9½	241.3	3620	33	5.0	MXB00096
9¾	247.7	3725	33	5.0	MXB00097
10	254.0	3820	32	5.0	MXB00098
10½	266.7	4030	33	5.0	MXB00099
11	279.4	4230	32	5.0	MXB00100
11¼	285.8	4325	32	5.0	MXB00101
11½	292.1	4420	32	5.0	MXB00102
11¾	298.5	4500	32	5.0	MXB00103
12	304.8	4600	32	5.0	MXB00104
12½	317.5	4800	32	5.0	MXB00105
12¾	323.9	4900	32	5.0	MXB00106
13½	342.9	5250	32	5.0	MXB00107
14	355.6	5500	33	5.1	MXB00108
15	381.0	6000	33	5.2	MXB00109
20	508.0	7700	32	4.9	MXB00110

Ordering Information

Standard Heaters

Select a Maxiband HLC from the Standard Sizes and Ratings List on pages 1-83 and 1-84.

If not otherwise specified, HLC heaters are supplied with type "S" termination and 4" long plain cooling tubes.

Custom Engineered/Manufactured Heaters

Understanding that an electric heater can be very application specific, for sizes and ratings not listed **TEMPCO** will design and manufacture a Maxiband Heater to meet your requirements. ***Standard lead time is 3 weeks.***

Please Specify the following:

- ❑ Inside Diameter
- ❑ Width
- ❑ Total Wattage
- ❑ Voltage per half
- ❑ Lead Cable/Braid Length
- ❑ Termination
- ❑ Construction
- ❑ Clamping
- ❑ Special Features
- ❑ Quantity

Maxiband "CLC" Cool Only *with* Built-In Cooling Tubes

Maxiband CLC Bands are made for cooling only and are available in five standard widths: 3/4", 1-1/2", 2-1/2", 3", and 4". For 3/4" wide CLC bands the ends of the stainless steel cooling tubes exit 180° apart. Complete Maxiband specifications can be found on page 1-73.

For ***optional cooling tube fittings,*** see page 3-54 in the Cast-In Band Heater Section.

Cooling Tube Specifications

Band Width	3/4"	1-1/2"	2-1/2"	3"	4"
Cooling Tube Diameter	3/8"	3/8"	3/8"	3/8"	3/8"
Cooling Tube Extension	4"	4"	4"	4"	4"
Cooling Tube Material	Stainless Steel				

Optional Reverse Construction

Reverse CLC Maxibands lend themselves to cooling cylindrical surfaces from the inside out.

The specially designed internal brackets exert pressure to both heater halves to assure good contact against the inside diameter of the part being cooled. Reverse CLC Maxiband minimum OD is 8".

Made strictly to customer specifications.

Consult Tempco with your requirements.

Standard (Non-Stock) CLC (Cool Only) Maxibands — with 3/8" Diameter Cooling Tube

3/4" (18.92 mm) Width

Width in	Width mm	ID in	ID mm	Part Number
¾	19.1	6	152.4	MXC00001
¾	19.1	6½	165.1	MXC00002
¾	19.1	7	177.8	MXC00003
¾	19.1	7½	190.5	MXC00004
¾	19.1	8	203.2	MXC00005
¾	19.1	8½	215.9	MXC00006
¾	19.1	9	228.6	MXC00007
¾	19.1	9½	241.3	MXC00008
¾	19.1	10	254.0	MXC00009
¾	19.1	10½	266.7	MXC00010
¾	19.1	11	279.4	MXC00011

1-1/2" (38.1 mm) Width

Width in	Width mm	ID in	ID mm	Part Number
1½	38.1	6	152.4	MXC00012
1½	38.1	6½	165.1	MXC00013
1½	38.1	7	177.8	MXC00014
1½	38.1	7½	190.5	MXC00015
1½	38.1	8	203.2	MXC00016
1½	38.1	8½	215.9	MXC00017
1½	38.1	9	228.6	MXC00018
1½	38.1	9½	241.3	MXC00019
1½	38.1	10	254.0	MXC00020
1½	38.1	10½	266.7	MXC00021
1½	38.1	11	279.4	MXC00022

Ordering Information
See page 1-86

CONTINUED

Standard (Non-Stock) CLC (Cool Only) Maxibands — with 3/8" Diameter Cooling Tube

Continued from previous page...

2-1/2" (63.5 mm) Width

Width in	Width mm	ID in	ID mm	Part Number
2½	63.5	6	152.4	MXC00025
2½	63.5	6½	165.1	MXC00026
2½	63.5	7	177.8	MXC00027
2½	63.5	7½	190.5	MXC00028
2½	63.5	8	203.2	MXC00029
2½	63.5	8½	215.9	MXC00030
2½	63.5	9	228.6	MXC00031
2½	63.5	9½	241.3	MXC00032
2½	63.5	10	254.0	MXC00033
2½	63.5	10½	266.7	MXC00034
2½	63.5	11	279.4	MXC00035

3" (76.2 mm) Width

Width in	Width mm	ID in	ID mm	Part Number
3	76.2	6	152.4	MXC00037
3	76.2	6½	165.1	MXC00038
3	76.2	7	177.8	MXC00039
3	76.2	7½	190.5	MXC00040
3	76.2	8	203.2	MXC00041
3	76.2	8½	215.9	MXC00042
3	76.2	9	228.6	MXC00043
3	76.2	9½	241.3	MXC00044
3	76.2	10	254.0	MXC00045
3	76.2	10½	266.7	MXC00046
3	76.2	11	279.4	MXC00047
3	76.2	11½	292.1	MXC00048
3	76.2	12	304.8	MXC00049
3	76.2	12½	317.5	MXC00050
3	76.2	13	330.2	MXC00051
3	76.2	13½	342.9	MXC00052
3	76.2	14	355.6	MXC00053

4" (101.6 mm) Width

Width in	Width mm	ID in	ID mm	Part Number
4	101.6	6	152.4	MXC00055
4	101.6	6½	165.1	MXC00056
4	101.6	7	177.8	MXC00057
4	101.6	7½	190.5	MXC00058
4	101.6	8	203.2	MXC00059
4	101.6	8½	215.9	MXC00060
4	101.6	9	228.6	MXC00061
4	101.6	9½	241.3	MXC00062
4	101.6	10	254.0	MXC00063
4	101.6	10½	266.7	MXC00064
4	101.6	11	279.4	MXC00065
4	101.6	11½	292.1	MXC00066
4	101.6	12	304.8	MXC00067
4	101.6	12½	317.5	MXC00068
4	101.6	13	330.2	MXC00069
4	101.6	13½	342.9	MXC00070
4	101.6	14	355.6	MXC00071

Ordering Information

Standard

Select a Maxiband CLC from the Standard Sizes listed on pages 1-85 and 1-86.

If not otherwise specified, CLC bands are supplied with 4" long plain cooling tubes.

Custom Engineered/Manufactured Bands

Understanding that a cooling band can be very application specific, for sizes not listed **TEMPCO** will design and manufacture a Maxiband Cool Only to meet your requirements. ***Standard lead time is 2 weeks.***

Please Specify the following:

- ❑ Inside Diameter
- ❑ Width
- ❑ Special Features
- ❑ Clamping
- ❑ Construction
- ❑ Quantity