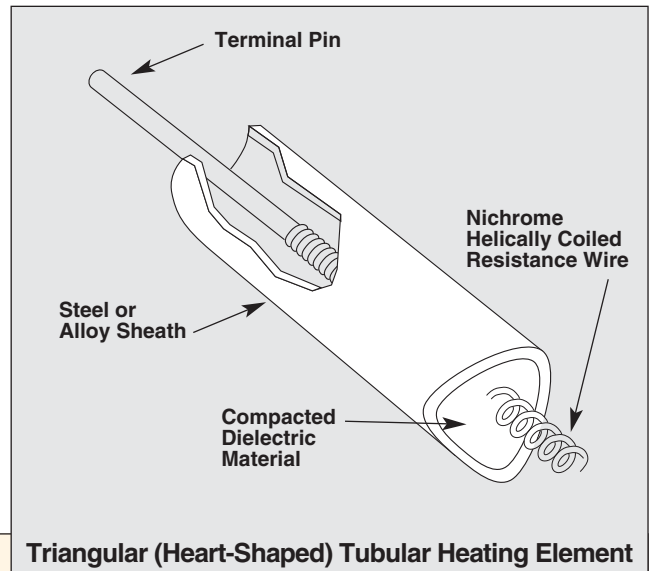


# INTRODUCTION TO OMEGALUX® BAND HEATERS

OMEGALUX band heaters fall into two classifications; barrel and nozzle. The barrel and nozzle heaters contained in this section are specifically designed to apply heat by conduction to cylindrical surfaces. Typical applications for barrel type band heaters include heating of barrels of plastic injection molders and extruders, heat treating large diameter pipe sections, heating kettles and fluidized beds. Nozzle heaters are smaller in diameter than band heaters and are used to heat smooth steel nozzles.

Some OMEGALUX band heaters are made from formed strips heaters (see Section C). The famous OMEGALUX strip heater is rugged, dependable and heavy duty. The OMEGALUX strip heater utilizes premium grade refractory insulation that provides long service life at high temperatures where uninterrupted time-temperature relationships are essential.



**Refractory**

**Resistor Wire**

**Sheath**

**Strip Heating Element**

**High Quality. Coiled alloy resistor wire** is uniformly spaced over the width and length of the strip heater to assure even heat distribution.

**Refractory is then compressed to rock-hardness** and highest density under tremendous hydraulic pressure to maximize heat transfer from coil to sheath. Elements are oven cured at high temperatures to semi-vitrify and mature the refractory.

**Resistor wire is embedded** in specially formulated, high-grade refractory material which both insulates the resistor and transfers heat rapidly to the sheath.

**Maximum heat transfer**, from the instant the element is first energized, is provided by the high emissivity black oxide finish. Elements with shiny surfaces do not transfer heat as well.

Other OMEGALUX band heaters are made from formed triangular tubular heating elements (see Section E). OMEGALUX's triangular tubular heating element has the dual advantage of maximum heater-to-barrel contact and long life at high temperatures.

The high quality strip and tubular heating elements that are used in making OMEGALUX band heaters are secured to the cylindrical surface being heated by a heavy duty non-slipping clamping band. This assures positive and constant pressure to the heating elements, thereby maximizing heat transfer to the work area.

**CAUTION AND WARNING!**  
Fire and electrical shock may result if products are used improperly or installed or used by non-qualified personnel. See inside back cover for additional warnings.

# APPLICATION OF BAND HEATERS



The barrel and nozzle heaters contained in this section of the handbook are designed and manufactured to replace original equipment on plastic injection molding machines, extruders, autoclaves and for heating pipe sections up to 20" outside diameter. Some of our band heaters are shown at left.

Heaters can be selected easily to replace original equipment already operating in your plant. To select the right heater for the best job, follow the selection guide below.

1. Determine the outside diameter of the barrel to be heated in inches. Match this to the inside diameter of the heater.
2. Measure the heater width.
3. Refer to the maximum barrel and sheath temperature guidelines, columns 5 and 6.
4. Match these specifications with any of the OMEGALUX® heaters listed on the following pages.

H

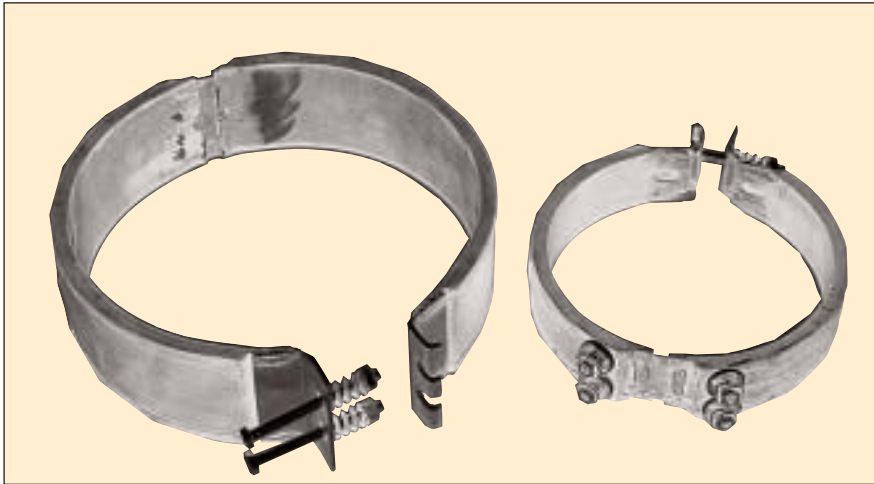
### CAUTION AND WARNING!

Fire and electrical shock may result if products are used improperly or installed or used by non-qualified personnel. See inside back cover of The Electric Heaters Handbook™ for additional warnings.

## Band Heater Selection Guide

Heater ID mm (")	Heater Width mm (")	Heater Type & Construction	Max. Barrel Temp. °C(°F)	Max. Sheath Temp. °C(°F)	Nominal W/in²
<b>Barrel Type</b>					
23.8 to 156 (1 <sup>1</sup> / <sub>6</sub> to 6 <sup>1</sup> / <sub>6</sub> )	15.9 to 51 (5/8 to 2)	<b>MB Mica Insulated 1 Piece</b>	399 (750)	482 (900)	19-48
76 to 305 (3 to 12)	51 (2)	<b>HBT Tubular Barrel</b>	482 (900)	649 (1200)	24-44
89 to 254 (3 <sup>1</sup> / <sub>2</sub> to 10)	38 to 51 (1 <sup>1</sup> / <sub>2</sub> to 2)	<b>MB Mica Insulated 2 Pieces</b>	399 (750)	482 (900)	20-40
23.8 to 406 (5 to 16)	63.5 (2 <sup>1</sup> / <sub>2</sub> )	<b>DBW Flexible Band</b>	427 (800)	649 (1200)	29-36
127 to 508 (5 to 20)	38 (1 <sup>1</sup> / <sub>2</sub> )	<b>HB Strip Type</b>	427 (800)	649 (1200)	20-82
127 to 737 (5 to 29)	38 (1 <sup>1</sup> / <sub>2</sub> )	<b>DB Flexible Band</b>	427 (800)	649 (1200)	24-42
<b>Nozzle Type</b>					
23.8 to 156 (1 <sup>1</sup> / <sub>6</sub> to 6 <sup>1</sup> / <sub>6</sub> )	15.9 to 51 (5/8 to 2)	<b>MB Mica Insulated 1 Piece</b>	399 (750)	482 (900)	19-48
25 to 102 (1 to 4)	22 to 152 (7/8 to 6)	<b>HBA Nozzle</b>	538 (1000)	816 (1500)	12-53
31.8 to 89 (1 <sup>1</sup> / <sub>4</sub> to 3 <sup>1</sup> / <sub>2</sub> )	25 to 191 (1 to 7 <sup>1</sup> / <sub>2</sub> )	<b>HBZ Nozzle</b>	538 (1000)	871 (1600)	12-41

# ALLOWABLE WATT DENSITIES FOR OMEGALUX BAND HEATERS



Then Watt Density =  $\frac{\text{watts}}{A}$

A

Check the watt density on Figure H-1 to make sure it does not exceed the maximum allowable.

**Band & Nozzle Heaters**—Are used on plastic injection molding machines and any cylindrical object such as autoclaves, pressure cookers, flanges, pipes, etc.



Figure H-1 at right shows maximum allowable watt densities for a given work temperature for each type heater band. Check to see that the heater band selected does not exceed the maximum allowable watt density for its intended work temperature.

If a special rated heater\* is required for your application which is the same diameter and width of a standard heater, determine the watt density using the following formula:

$$\frac{\text{Watts (special heater)}}{\text{sq. in. (special heater)}} = \frac{\text{watts (standard heater)}}{\text{sq. in. (standard heater)}}$$

watt density (standard heater)

watts (standard heater)

If the special heater is also a special diameter, substitute the next smaller diameter heater of the same width and use the above formula to roughly determine the watt density of the special heater.

If the heater is not sufficiently close to a standard, calculate the contact surface area and watt density using the following formulas:

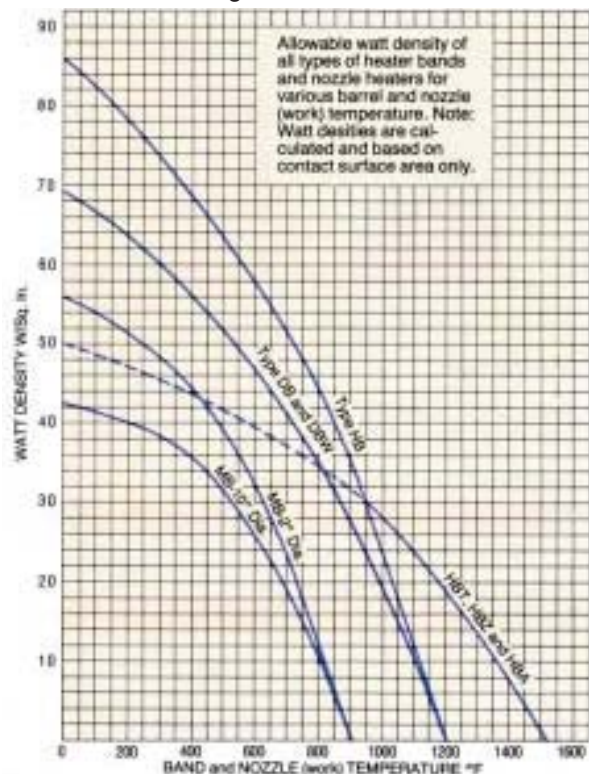
$A = (\pi \times D \times W) - C$  where A is contact surface area, D is inside diameter, W is width, and C is cold section.

Determine cold section from the table below:

Type Heater	Cold Section (C) in Sq. In. (cm)
2 piece MB micaband	2½"(6) x width of band
1 piece MB micaband	1½"(4) x width of band
HB type	4"(10) x width of band
HBT	3"(8) x width of band
HBZ	1"(3) x width of band

\*Contact OMEGALUX for special band heater designs and ratings.

Figure H-1





#### UNITED STATES

[www.omega.com](http://www.omega.com)

1-800-TC-OMEGA

Stamford, CT.

#### CANADA

[www.omega.ca](http://www.omega.ca)

Laval(Quebec)

1-800-TC-OMEGA

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### • Heaters

Band Heaters, Cartridge Heaters, Circulation Heaters, Comfort Heaters, Controllers, Meters and Switching Devices, Flexible Heaters, General Test and Measurement Instruments, Heater Hook-up Wire, Heating Cable Systems, Immersion Heaters, Process Air and Duct, Heaters, Radiant Heaters, Strip Heaters, Tubular Heaters