

Strip Heaters

MI Strip

The Watlow MI strip is a thin, responsive heater that sets unmatched standards for performance and durability. It makes use of the most advanced heater construction techniques, including embedding a nickel chromium element wire in Watlow's exclusive mineral insulation. Only 0.042 inches (1.067 mm) thick, this layer of insulation brings the element wire closer to the heater sheath. The result is heat flows easily from the element wire to the sheath, thus allowing the wire to run cooler than conventional heaters.

Performance Capabilities

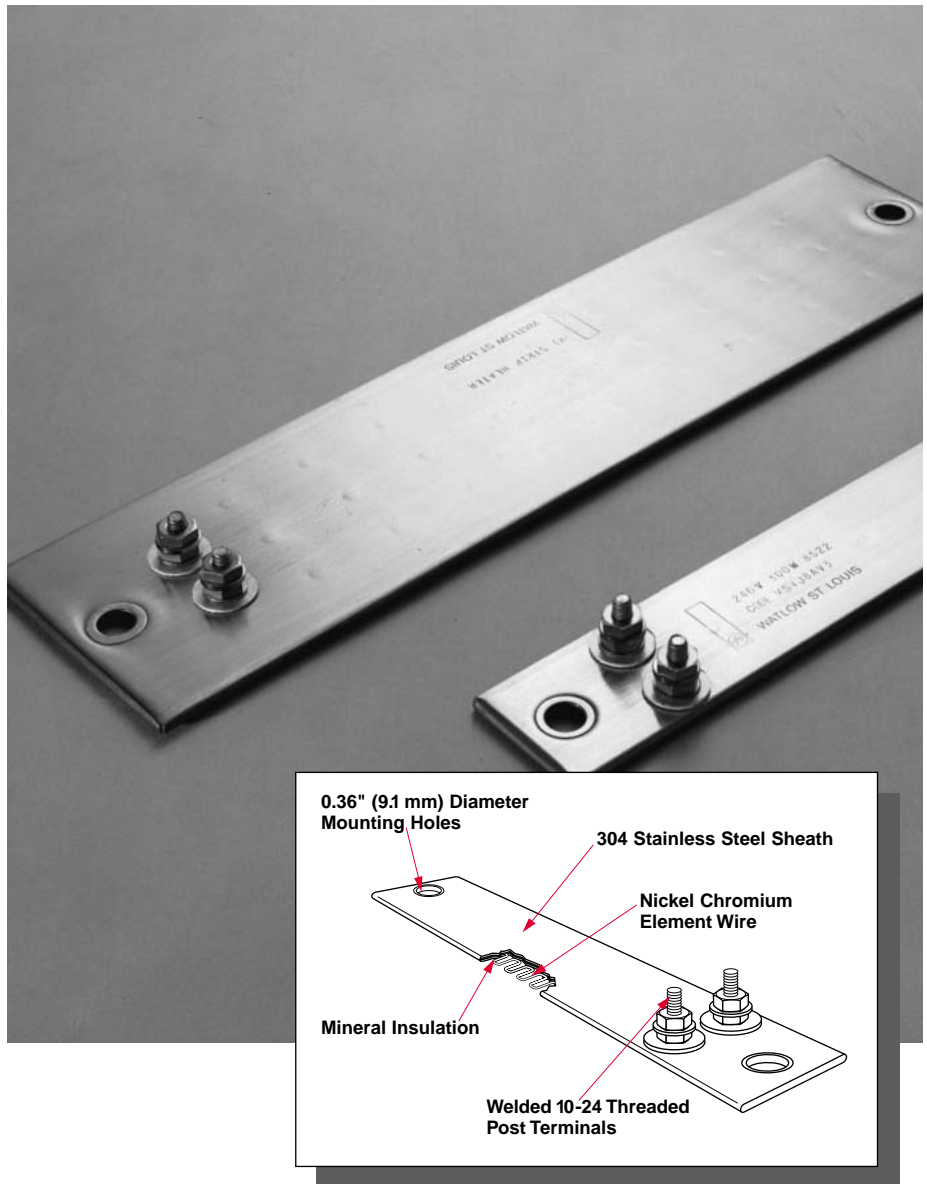
- Sheath temperatures to 1400°F (760°C)
- Watt densities to 100 W/in² (15.5 W/cm²)
- Maximum voltage 480V~(ac)

Features and Benefits

- **Higher watt densities** than any other strip heater contribute to faster heat-up.
- **Exclusive mineral insulation** combines high dielectric strength and superior thermal conductivity which transfers heat rapidly to the sheath.
- **304 stainless steel sheath** is welded together at strategic points to maintain the high compaction of mineral insulation and produce a rigid heater.
- **UL® component recognition** is available in 250V~(ac) or less.

Applications

- Solder pots
- Zinc die-casting equipment
- Dies and mold heating
- High temperature resins
- Tank and platen heating
- Ovens
- Packaging equipment



How to Order

Please specify:

- Watlow code number
- Overall dimensions: length and width
- Wattage: see maximum allowable watt density graph
- Termination type (parallel or one-on-one)
- Mounting holes, if desired
- Quantity

If stock units do not meet specific application needs, Watlow can manufacture MI strip heaters to meet special requirements.

Availability

Stock: Same day shipment

Made-to-Order: Consult a Watlow sales engineer or authorized distributor.

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Applications and Technical Data

Calculating Watt Density

Watt density is the amount of wattage per square inch of heated area. To determine watt density, divide the total wattage by the heated area.

$$\text{Watt Density} = \frac{\text{Total Watts}}{\text{Heated Area}}$$

To apply this equation we must define the term "heated area." Heated area is the total contact surface of the heater less areas of no heat that are found around terminals, mounting holes, etc.

Heated Area = Total Contact Area - No-Heat Area

To calculate the heated area:

1. Locate the **no-heat factor** from the chart on the right that corresponds to the type of heater being considered.
2. To use the formula below, insert the no heat factors, length and width (in inches).

$$\text{Heated Area} = (\text{Length} - \text{No-Heat Factor}) \times \text{Width}$$

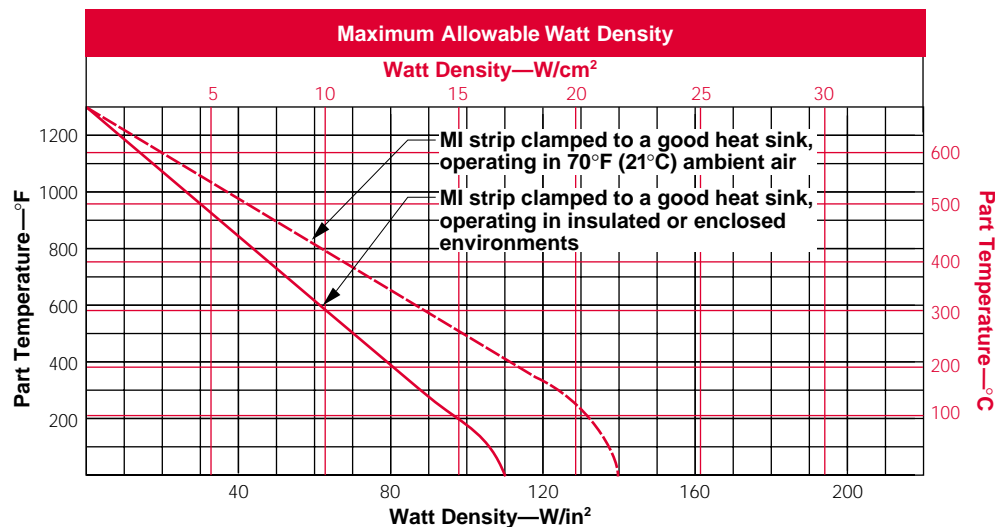
Type	Factor (inch)
1 in wide post term 1 on 1	1.56
1 in wide post term 1 on 1 with mounting holes	3.56
1 in wide post term 2 on 1	1.93
1 in wide post term 2 on 1 with mounting holes	3.93
For all other widths:	
2 on 1 post terminal	1.18
2 on 1 with mounting holes	3.18

Calculating Watt Density

The sketches on the next page and the graph on this page will help select the correct watt density for a particular application. First, refer to the sketches to determine the heated area of the heater. Then, use the

watt density formula and graph to make sure that the maximum watt density of the heater will not be exceeded in the specific application.

$$\text{Watt Density} = \frac{\text{Wattage}}{\text{Heated Area}}$$



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Specifications

Width: 1, 1.5 and 2 inches
(25.4, 38.1, 50.8 mm)

Tolerance: $\pm 1/32$

Length: 8 to 30 inches
(205 to 760 mm)

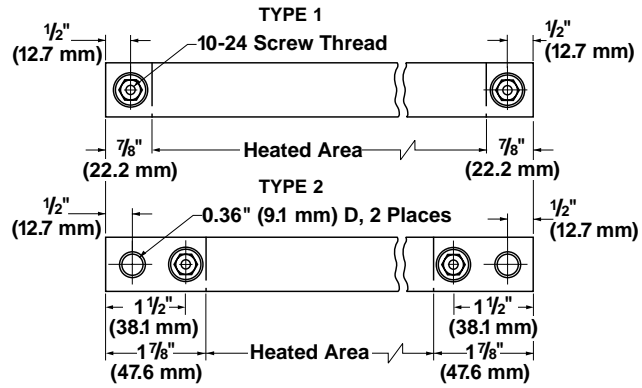
Tolerance: $\pm 1/8$

Terminations:

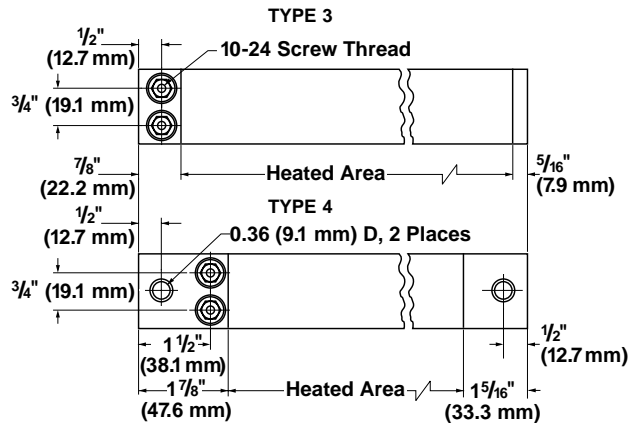
1 inch (25.4 mm) wide-
post terminals one-on-one

1.5 to 2 inches (38.1 to 50.8 mm)-
post terminals two-on-one

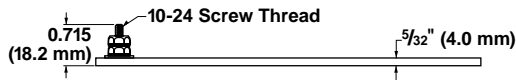
1" (25.4 mm) Wide



1 1/2"-2" (38.1-50.8 mm) Wide



All Widths



Strip Heaters

Stock List (Parallel Terminals) Type 3 and 4

F.O.B.: St. Louis, Missouri

Width in. (mm)	Length in. (mm)	Volts	Power (Watts)	Watt Density W/in ² (W/cm ²)	Approximate Net. Wt. lbs. (kg)	Type	Code No.
1 1/2 (38.1)	8 (203.2)	120	500	48 (7.4)	0.3 (0.15)	3	MS1J8AS1
1 1/2 (38.1)	8 (203.2)	240	500	50 (7.8)	0.3 (0.15)	3	MS1J8AS3
1 1/2 (38.1)	12 (304.8)	120	350	26 (4.0)	0.5 (0.2)	4	MS1J12AV2 ①
1 1/2 (38.1)	12 (304.8)	240	350	26 (4.0)	0.5 (0.2)	4	MS1J12AV3 ①
1 1/2 (38.1)	12 (304.8)	120	800	49 (7.6)	0.5 (0.2)	3	MS1J12AS1
1 1/2 (38.1)	12 (304.8)	240	800	49 (7.6)	0.5 (0.2)	3	MS1J12AS2
1 1/2 (38.1)	18 (457.2)	120	1000	40 (6.2)	0.8 (0.3)	3	MS1J18AS1
1 1/2 (38.1)	18 (457.2)	240	1000	40 (6.2)	0.8 (0.3)	3	MS1J18AS2

① Denotes units with mounting holes. Mounting holes are 0.36 inches (9.14 mm) in diameter, and are intended for use with 1/4 inch (6.35 mm) bolts. Centers of mounting holes are located 1/2 inch (12.7 mm) from the ends of the heater.

Note: Type 1 & 2 are made-to-order only.