

# Air Heaters



## Finned Heaters

### 375 Finned Strip Heaters

Watlow's 375 finned strip heater is constructed of highly-compacted magnesium oxide (MgO) based insulation, which conducts heat efficiently from the nickel chromium element wire to the sheath. Two-inch wide (51 mm) nickel plated fins are attached to maximize surface contact allowing heat to transfer into the air faster. Lower sheath temperature and element life are maximized by this finned construction.

### Performance Capabilities

- Aluminized steel sheath temperatures up to 1100°F (595°C)
- Watt density up to 33 W/in<sup>2</sup> (5.1 W/cm<sup>2</sup>)
- UL® approved up to 240VAC (File No. E52951)
- CSA approved up to 480VAC (File No. LR7392)

### Features and Benefits

#### Nickel chromium element wire is centered in the heater

- Ensures temperature uniformity

#### Aluminized steel sheath

- Operates at higher temperatures
- Resists corrosion more effectively than iron-sheathed heaters

#### Optional 430 stainless steel sheath

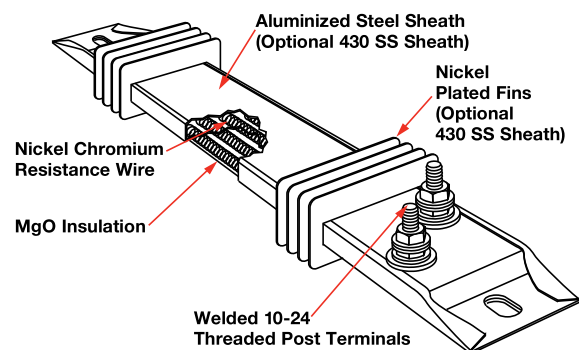
- Provides a durable solution for highly-corrosive environments

#### Welded post terminals

- Produces strong, trouble-free connections

#### Available lengths from 5 1/2 to 48 in. (140 to 1220 mm)

- Fits a variety of application needs



### Typical Applications

- Enclosure heating
- Load bank resistors
- Shrink tunnels
- Duct heaters
- Space heaters
- Drying ovens
- Incubators
- Air heating
- Heat curing
- Ink drying
- Food warmers
- Moisture protection
- Dehumidifiers
- Stress relieving ovens

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#### Applications and Technical Data

##### Calculating Watt Density

Use the graph and formulas to ensure that the maximum allowable watt density for the heater is not exceeded in the application.

Open air watt density is calculated for the total heated surface area.

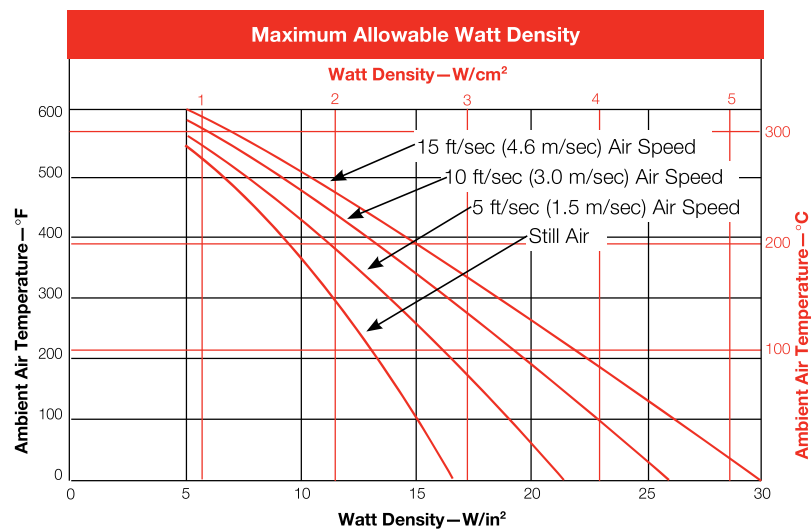
##### Formulas

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

$$\begin{aligned} \text{Heated Area} \\ (\text{Offset Terminals}) &= [\text{Overall Length (A)} - 4 \text{ in.}] \\ &\quad \times 3.75 \text{ in.} \\ &= [\text{Overall Length (A)} - 102 \text{ mm}] \\ &\quad \times 95.3 \text{ mm} \end{aligned}$$

$$\begin{aligned} \text{Heated Area} \\ (\text{Parallel Terminals}) &= [\text{Overall Length (A)} - 3.12 \text{ in.}] \\ &\quad \times 3.75 \text{ in.} \\ &= [\text{Overall Length (A)} - 79.3 \text{ mm}] \\ &\quad \times 95.3 \text{ mm} \end{aligned}$$

$$\begin{aligned} \text{Heated Area} \\ (\text{One-on-One Terminals}) &= [\text{Overall Length (A)} - 4.25 \text{ in.}] \\ &\quad \times 3.75 \text{ in.} \\ &= [\text{Overall Length (A)} - 108 \text{ mm}] \\ &\quad \times 95.3 \text{ mm} \end{aligned}$$





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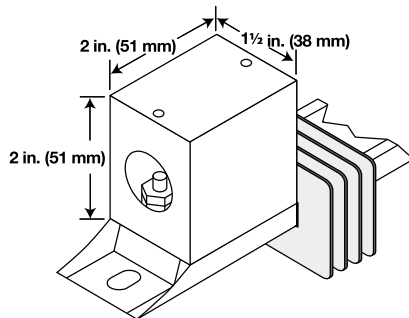
## Finned Heaters

### 375 Finned Strip Heaters

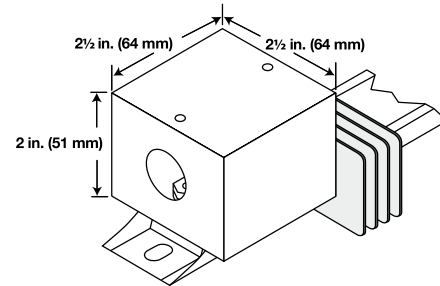
#### Termination Options *(Continued)*

#### Metallic Terminal Boxes - Variations

Metallic terminal boxes are available from stock on offset terminals. Terminal boxes act as a safety feature by covering the terminals. A conduit may be attached to the box through  $\frac{7}{8}$  in. (22.2 mm) diameter holes in the ends of the box. To order, specify **terminal box**.



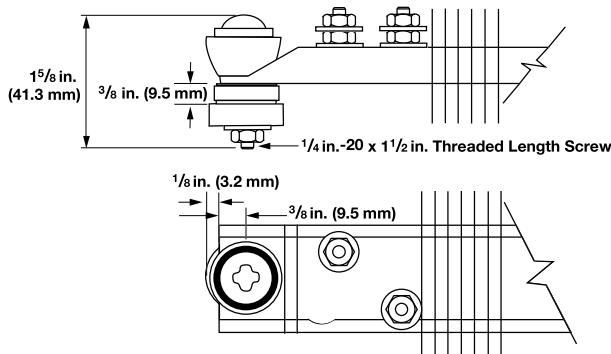
Available on in-line terminals only.



Available on offset terminals from stock and manufactured.

## Accessories

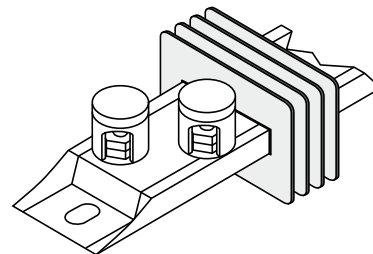
### Secondary Insulation Bushings



Insulators are suitable when air heating and/or voltage to ground is a concern. A secondary insulation bushing kit, part number **Z-5230**, contains one set of bushings for one heater. To accommodate bushings,  $\frac{17}{32} \times \frac{11}{16}$  inch diameter mounting holes **must** be specified when ordering.

**Note:** Number of fins are dependent on length of heater.

### Ceramic Terminal Covers



Ceramic terminal covers offer a convenient and economical method to insulate post terminals. A 10-24 screw thread is sized for standard length posts and is supplied as an accessory item and shipped separately. Specify **Z-4918** and quantity.

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#### Heater Part Numbers

Width in. (mm)	Termination	Length in. (mm)	Volts	Power (Watts)	W/in <sup>2</sup> (W/cm <sup>2</sup> )	Approx. Net Wt. lbs (kg)	Part Number
1 1/2 (38)	Parallel	5 1/2 (140)	120	125	14 (2.1)	0.5 (0.23)	SGA1J5JY2
	Parallel	5 1/2 (140)	120	250	28 (4.3)	0.5 (0.23)	SGA1J5JY3
	Parallel	6 (152)	120	150	14 (2.1)	0.5 (0.23)	SGA1J6AY1
	Parallel	6 (152)	240	150	14 (2.1)	0.5 (0.23)	SGA1J6AY2
	Parallel	6 (152)	120	300	28 (4.3)	0.5 (0.23)	SGA1J6AY3
	Parallel	6 (152)	240	300	28 (4.3)	0.5 (0.23)	SGA1J6AY4
	Offset	7 1/2 (191)	120	150	12 (1.8)	0.7 (0.32)	SGA1J7JW1
	Offset	7 1/2 (191)	240	150	12 (1.8)	0.7 (0.32)	SGA1J7JW2
	Offset	7 1/2 (191)	240	200	15 (2.3)	0.7 (0.32)	SGA1J7JW3
	Offset	8 (203)	120	150	10 (1.5)	0.7 (0.32)	SGA1J8AW2
	Offset	8 (203)	240	150	10 (1.5)	0.7 (0.32)	SGA1J8AW3
	Offset	8 (203)	120	175	12 (1.8)	0.7 (0.32)	SGA1J8AW4
	Offset	8 (203)	240	175	12 (1.8)	0.7 (0.32)	SGA1J8AW5
	Offset	8 (203)	120	250	17 (2.6)	0.7 (0.32)	SGA1J8AW6
	Offset	8 (203)	240	250	17 (2.6)	0.7 (0.32)	SGA1J8AW7
	Offset	8 (203)	120	400	27 (4.2)	0.7 (0.32)	SGA1J8AW8
	Offset	8 (203)	240	400	27 (4.2)	0.7 (0.32)	SGA1J8AW9
	Offset	8 (203)	120	500	33 (5.1)	0.7 (0.32)	SGA1J8AW10
	Offset	8 (203)	240	500	33 (5.1)	0.7 (0.32)	SGA1J8AW11
	Offset	10 1/2 (267)	120	250	10 (1.5)	0.9 (0.40)	SGA1J10JW1
	Offset	10 1/2 (267)	240	250	10 (1.5)	0.9 (0.40)	SGA1J10JW2
	Offset	10 1/2 (267)	120	350	14 (2.1)	0.9 (0.40)	SGA1J10JW3
	Offset	10 1/2 (267)	240	350	14 (2.1)	0.9 (0.40)	SGA1J10JW4
	Offset	10 1/2 (267)	120	400	16 (2.5)	0.9 (0.40)	SGA1J10JW5
	Offset	10 1/2 (267)	240	400	16 (2.5)	0.9 (0.40)	SGA1J10JW6
	Offset	12 (305)	120	250	8 (1.2)	1.0 (0.45)	SGA1J12AW1
	Offset	12 (305)	240	250	8 (1.2)	1.0 (0.45)	SGA1J12AW2
	Offset	12 (305)	120	350	12 (1.8)	1.0 (0.45)	SGA1J12AW3
	Offset	12 (305)	240	350	12 (1.8)	1.0 (0.45)	SGA1J12AW4
	Offset	12 (305)	120	500	17 (2.6)	1.0 (0.45)	SGA1J12AW5
	Offset	12 (305)	240	500	17 (2.6)	1.0 (0.45)	SGA1J12AW6
	Offset	14 (356)	120	300	8 (1.2)	1.2 (0.54)	SGA1J14AW1
	Offset	14 (356)	240	300	8 (1.2)	1.2 (0.54)	SGA1J14AW2
	Offset	14 (356)	120	500	13 (2.0)	1.2 (0.54)	SGA1J14AW3
	Offset	14 (356)	240	500	13 (2.0)	1.2 (0.54)	SGA1J14AW4
	Offset	15 1/4 (387)	120	325	8 (1.2)	1.4 (0.64)	SGA1J15EW1
	Offset	15 1/4 (387)	240	325	8 (1.2)	1.4 (0.64)	SGA1J15EW2
	Offset	15 1/4 (387)	240	500	12 (1.8)	1.4 (0.64)	SGA1J15EW3

CONTINUED

**Note:** 375 finned strip heaters with one-on-one terminations are available as a manufactured item only. Please contact your Watlow representative for additional information.

**Note:** Above heaters are modified stock and may not be returned for a restocking charge.

**Note:** 5/16 x 1/2 in. (7.9 x 13 mm) mounting holes are supplied on all 375 finned strip heaters as standard, larger mounting holes may be provided 17/32 in. x 11/16 in. (13.5 mm x 17.5 mm).

**Note:** Heaters can be customized given a business case review. Contact the factory for details.

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### 375 Finned Strip Heaters

#### Heater Part Numbers (Continued)

Width in. (mm)	Termination	Length in. (mm)	Volts	Power (Watts)	W/in <sup>2</sup> (W/cm <sup>2</sup> )	Approx. Net Wt. lbs (kg)	Part Number
1 1/2 (38)	Offset	17 7/8 (454)	120	350	8 (1.2)	1.6 (0.73)	SGA1J17RW1
	Offset	17 7/8 (454)	240	350	8 (1.2)	1.6 (0.73)	SGA1J17RW2
	Offset	17 7/8 (454)	120	375	9 (1.4)	1.6 (0.73)	SGA1J17RW3
	Offset	17 7/8 (454)	240	375	9 (1.4)	1.6 (0.73)	SGA1J17RW4
	Offset	17 7/8 (454)	120	500	12 (1.8)	1.6 (0.73)	SGA1J17RW5
	Offset	17 7/8 (454)	240	500	12 (1.8)	1.6 (0.73)	SGA1J17RW6
	Offset	17 7/8 (454)	120	750	18 (2.8)	1.6 (0.73)	SGA1J17RW7
	Offset	17 7/8 (454)	240	750	18 (2.8)	1.6 (0.73)	SGA1J17RW8
	Offset	17 7/8 (454)	120	1000	24 (3.7)	1.6 (0.73)	SGA1J17RW9
	Offset	17 7/8 (454)	240	1000	24 (3.7)	1.6 (0.73)	SGA1J17RW10
	Offset	19 1/2 (495)	240	350	6 (.9)	1.7 (0.77)	SGA1J19JW2
	Offset	19 1/2 (495)	120	500	9 (1.4)	1.7 (0.77)	SGA1J19JW3
	Offset	19 1/2 (495)	240	500	9 (1.4)	1.7 (0.77)	SGA1J19JW4
	Offset	19 1/2 (495)	240	750	13 (2.0)	1.7 (0.77)	SGA1J19JW5
	Offset	19 1/2 (495)	240	1000	17 (2.6)	1.7 (0.77)	SGA1J19JW6
	Offset	21 (533)	120	500	8 (1.2)	1.9 (0.86)	SGA1J21AW3
	Offset	21 (533)	240	500	8 (1.2)	1.9 (0.86)	SGA1J21AW4
	Offset	21 (533)	120	750	12 (1.8)	1.9 (0.86)	SGA1J21AW5
	Offset	21 (533)	240	750	12 (1.8)	1.9 (0.86)	SGA1J21AW6
	Offset	23 3/4 (603)	240	500	7 (1.0)	2.1 (0.95)	SGA1J23NW3
	Offset	23 3/4 (603)	240	750	10 (1.5)	2.1 (0.95)	SGA1J23NW5
	Offset	23 3/4 (603)	120	1000	14 (2.1)	2.1 (0.95)	SGA1J23NW6
	Offset	23 3/4 (603)	240	1000	14 (2.1)	2.1 (0.95)	SGA1J23NW7
	Offset	23 3/4 (603)	240	1500	20 (3.1)	2.1 (0.95)	SGA1J23NW8
	Offset	25 1/2 (648)	120	500	6 (0.9)	2.3 (1.00)	SGA1J25JW2
	Offset	25 1/2 (648)	240	500	6 (0.9)	2.3 (1.00)	SGA1J25JW3
	Offset	25 1/2 (648)	120	750	9 (1.4)	2.3 (1.00)	SGA1J25JW4
	Offset	25 1/2 (648)	240	750	9 (1.4)	2.3 (1.00)	SGA1J25JW5
	Offset	25 1/2 (648)	240	1000	12 (1.8)	2.3 (1.00)	SGA1J25JW6
	Offset	26 3/4 (680)	240	700	8 (1.2)	2.4 (1.10)	SGA1J26NW2
	Offset	26 3/4 (680)	240	1000	12 (1.8)	2.4 (1.10)	SGA1J26NW3
	Offset	30 1/2 (775)	120	750	8 (1.2)	2.7 (1.20)	SGA1J30JW1
	Offset	30 1/2 (775)	240	750	8 (1.2)	2.7 (1.20)	SGA1J30JW2
	Offset	33 1/2 (851)	240	750	7 (1.0)	3.0 (1.40)	SGA1J33JW1
	Offset	35 7/8 (911)	120	1000	8 (1.2)	3.2 (1.50)	SGA1J35RW1
	Offset	35 7/8 (911)	240	1000	8 (1.2)	3.2 (1.50)	SGA1J35RW2
	Offset	35 7/8 (911)	240	1500	13 (2.0)	3.2 (1.50)	SGA1J35RW3
	Offset	38 1/2 (978)	120	1000	8 (1.2)	3.4 (1.50)	SGA1J38JW2
	Offset	38 1/2 (978)	240	1500	11 (1.7)	3.4 (1.50)	SGA1J38JW3
	Offset	42 1/2 (1080)	240	1500	10 (1.5)	3.8 (1.70)	SGA1J42JW1
	Offset	47 7/8 (1216)	240	2250	16 (2.4)	4.3 (2.00)	SGA1J47RW2

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## Finned Heaters

### FINBAR™ Single-Ended Heaters

Composed of aluminized steel fins press fitted to a one-inch single-ended FIREBAR element. The FINBAR™ is designed to improve heat transfer to the air and permits putting more power in tighter spaces—like forced air ducts, dryers, ovens and load bank resistors.

Heat transfer, lower sheath temperature and element life are all maximized by its finned construction. Installation is simplified by terminations exiting at one end and mounting accommodations on both ends.

### Performance Capabilities

- Watt densities up to 50 W/in<sup>2</sup> (7.7 W/cm<sup>2</sup>)
- 304 stainless steel sheath temperatures up to 1200°F (650°C)
- Voltages up to 480VAC
- Amperages up to 48 amperes per heater or 16 amperes per coil

### Features and Benefits

#### Rugged aluminized steel fins

- Provides an increase in surface area to approximately 16 square inches for every linear inch of element length. Fins press fitted to the heating element improve heat transfer to the air

#### Single-ended termination

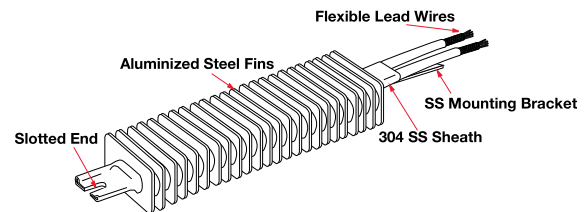
- Simplifies wiring and installation

#### Stainless steel mounting bracket, welded to the terminal end, supplied with a slotted end

- Allows ease of installation

#### Lavacone seals

- Provides protection against humid storage conditions, moisture retardant to 221°F (105°C)



### Typical Applications

- Forced air heating for dryers, ovens, ducts
- Still air heating for ovens, comfort heating
- Incubators
- Ink drying
- Load bank resistors

**For detailed product and technical data,  
see the full FINBAR product  
section located on pages 103 through 105.**