

Radiant Heaters



Radiant Heaters

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Radiant Heaters

RAYMAX® Family

The diverse RAYMAX® heater line from Watlow® allows you to solve virtually any application requiring radiant heat. Watlow's capabilities cover a wide range of needs, from contamination-resistant surfaces, to fast responding high-temperature panels, to replaceable tubular elements.

Applying radiant heaters can be complicated. However, Watlow's engineering staff has the level of training and expertise required to meet your application requirements. Providing a high degree of technical support such as conducting testing for your application at our facility, calculating your watt density and temperature requirements and recommending system components such as sensors and controllers is Watlow's speciality. With Watlow's experience in a wide range of industries, chances are Watlow has already helped someone handle a radiant heating application like yours.

Features and Benefits

Variety of styles

- Matches the ideal temperature and watt density requirements of your application

Watlow engineering and application support

- Helps projects run smoothly

Custom designs

- Adaptable for particular needs such as special wattage zoning

Watlow sensors and controllers are completely compatible with RAYMAX heaters

- Offers a single source thermal system that is reliable and designed just for your application

Applications

- Thermoforming
- Food warming
- Paint and epoxy curing
- Heat treating
- High-temperature furnaces
- Tempering and annealing processes



Caution: Fire Hazard

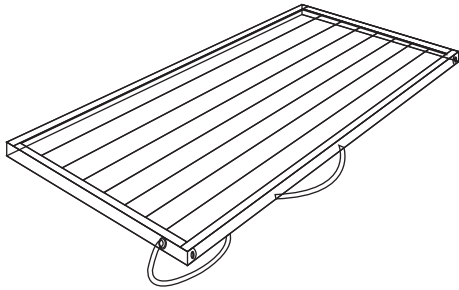
Radiant heaters must not be operated in the presence of flammable vapors, gases or combustible materials without proper ventilation and safety precautions. Radiant heaters must be properly wired and controlled to comply with all applicable electrical codes.

Radiant Heaters

RAYMAX Family

Mounting Accessories

Low Profile

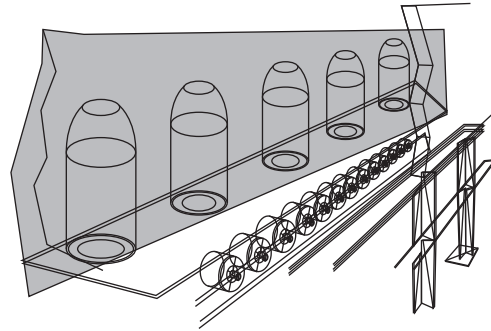


This design may be required where mounting space is limited. For example, when converting existing equipment or designs to radiant panels.

Available options may vary from the standard units when you specify a low-profile design. Contact your Watlow representative for further information.

Available with RAYMAX 1010, 1120, 1220 and 2030.

Zoning



Watt densities can be varied across the entire width of RAYMAX heaters. If desired, each zone can have an individually controlled power supply.

Zoning can be very valuable when part of the product requires more heat, or when you must compensate for heat losses at the edges. By separately turning off part of the heated width, you can adjust for various widths of material.

Available with RAYMAX 1010, 1120, 1220, 1330 and 2030.

Radiant Heaters

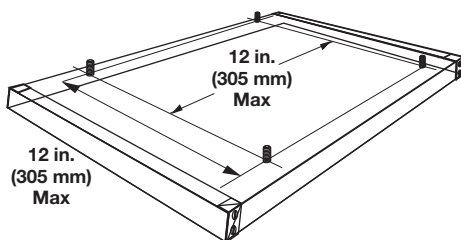
RAYMAX Family

Mounting Accessories (Continued)

Mounting Studs

Standard $\frac{1}{4}$ -20 x $1\frac{1}{2}$ in. (38 mm) or (M6-1 x 40) steel studs are welded to the case. For best support, studs should be approximately located on 12 in. (305 mm) centers. Contact your Watlow representative for exact locations on specific heaters.

Available with RAYMAX 1010, 1120, 1220, 1330 and 2030.

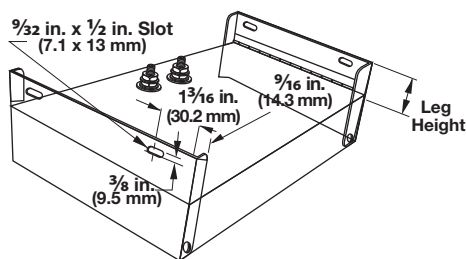


Mounting Legs

Mounting legs are extensions of the steel end caps with mounting slots for bolting directly to field support members. There is no extra charge for legs; they can be supplied in half inch increments from 0.5 in. (13 mm) to 3 in. (76 mm). No slots are provided in legs less than 1 in. (25 mm) long.

For panels over 24 in. (610 mm) long, mounting studs are recommended for the best panel support.

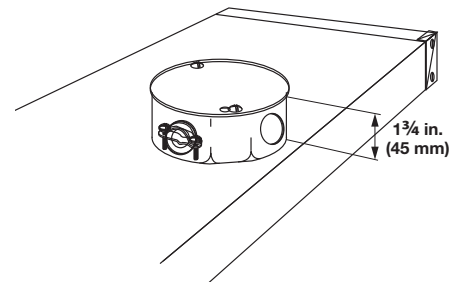
Available with RAYMAX 1120, 1220 and 2030.



Application note: Allow for some thermal expansion of the heater case during operation. An expansion of up to one percent can occur when the case reaches its normal maximum limit of 1100°F (595°C). If your equipment has mounting screws to connect to the slots in the mounting legs, allow for a small amount of extra length. If you are using mounting holes to interface with the mounting studs on the back of the RAYMAX case, make sure your holes are oversized. Also, use washers and avoid overtightening.

Terminal Accessories

Terminal Box

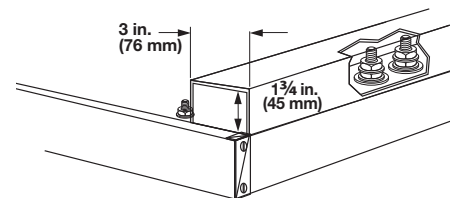


To protect electrical connections, a standard NEMA octagon terminal box is available. The standard size is $3\frac{3}{16}$ x $3\frac{3}{16}$ x $1\frac{1}{2}$ in. (90.5 x 90.5 x 38 mm) with knockouts for $\frac{1}{2}$ in. (13 mm) conduit. Other NEMA sizes are also available.

Care should be taken to use lead wire capable of withstanding the ambient temperatures.

Available with RAYMAX 1010, 1120, 1220, 1330 and 2030.

Wiring Raceway



A steel raceway provides electrical and physical protection for all terminal connections. This can be particularly useful for multi-zone panels.

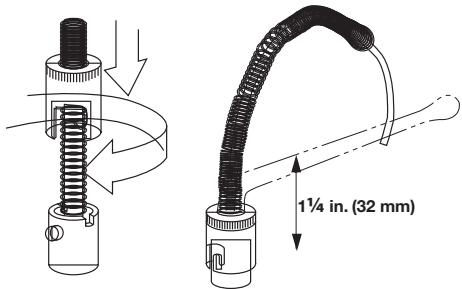
Available with RAYMAX 1010, 1120, 1220, 1330 and 2030.

Radiant Heaters

RAYMAX Family

Temperature Control

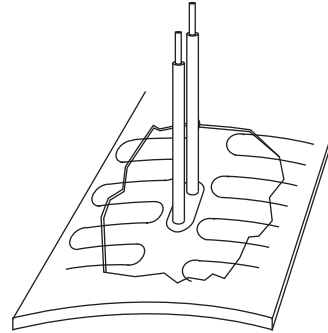
Thermowells



A thermowell allows you to use a thermocouple with a bayonet fitting to monitor heater temperature. The thermowell is located on the back of the panel to allow easy access for thermocouple replacement. Spring tension holds the tip of the thermocouple in contact for close control of the heater temperature. Thermocouple not included.

Available with RAYMAX 1010, 1120 and 1330.

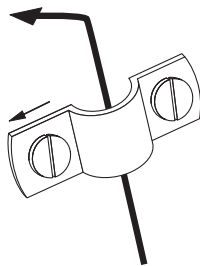
Welded Thermocouple



A thermocouple junction is welded to the emitting surface to provide optimum temperature sensing accuracy and responsiveness. This option permits the actual radiating face temperature to be precisely monitored and controlled. The standard length of the thermocouple wire is 12 in. (305 mm).

Available with RAYMAX 1010, 1120 and 1330.

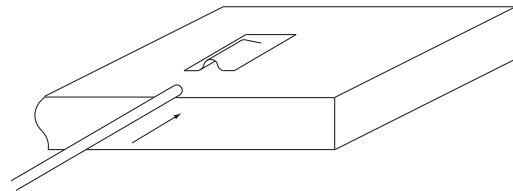
Thermocouple Clamps



A thermocouple mounting clamp can be provided on the end of the heater case. The clamp is suitable for use with 1/8 in. (3.2 mm) and 1/4 in. (6 mm) O.D. sheath thermocouples, which should be bent 90° so the sensing tip is just above and lightly touching the hot face at an element location.

Available with RAYMAX 1220, 1525 [1/8 in. (3.2 mm) only], 1626 [1/8 in. (3.2 mm) only] and 2030.

Thermocouple Pocket



A thermocouple pocket is welded to the emitting surface. The pocket accepts a 0.063 in. (1.6 mm) diameter thermocouple (not included). This option provides accurate temperature sensing and easy thermocouple replacement.

Available with RAYMAX 1010, 1120 and 1330.

Radiant Heaters

Panel Heaters

RAYMAX® 1010

Designed to resist contamination, the RAYMAX 1010 is ideal for use in screen printing, food warming and other low heat applications. The heater's "sealed face" keeps contaminants away from the heating element, and this metal surface can be easily wiped or brushed clean whenever needed.

The rugged all-metal construction results in a shock-proof, shatter-proof heater that is durable and long lasting. No fragile glass, ceramic or fiber is used.

Performance Capabilities

- Face temperature: 1000°F (540°C) maximum
- Watt densities: 10 W/in² (1.5 W/cm²) maximum
- 50 amperes maximum

Features and Benefits

Uniform full surface heat source

- Provides better, more even heat

No reflectors

- Results in nothing to clean or replace

Convenient ready-to-use package

- Makes installation easier

One-inch thick backside insulation

- Reduces losses

Totally sealed version available

- Suitable for hose down applications

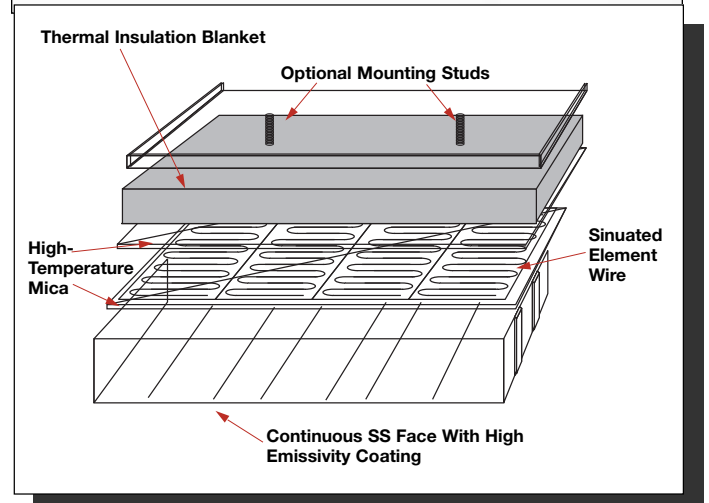
Repeatable temperature sensing options

- Increases accuracy

UL® component recognized versions are available

Applications

- Drying screen-printed textiles
- Curing process coatings on circuit boards
- Food warming/cooking
- Epoxy curing
- Thermoforming



Radiant Heaters

Panel Heaters

RAYMAX 1010

Applications and Technical Data

Sizes and Ratings

Thickness: 1.75 in. (45 mm)

Voltage: Customer specified up to 480V.

Note: Small heaters may not be able to be built at high voltages. Contact your Watlow representative for specific application.

Watt density: Up to 10 W/in² (1.5 W/cm²), 50A max.

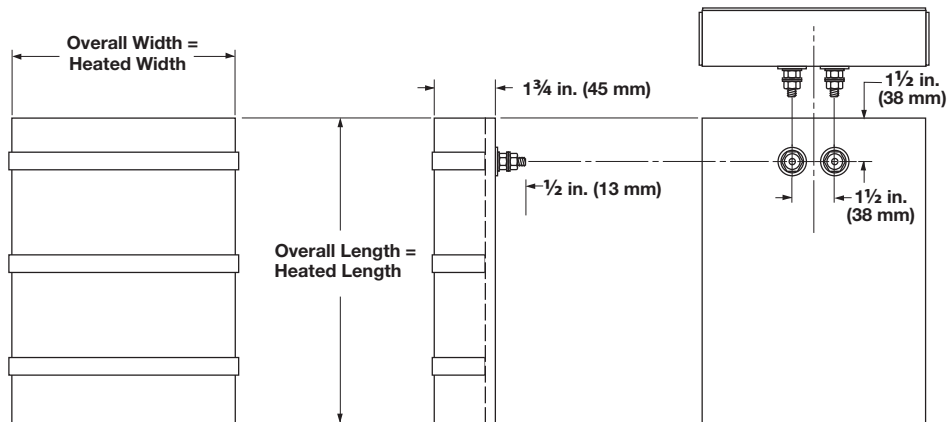
Face temperature: Up to 1000°F (540°C)

Typical peak energy wavelength: 3.5-4 microns

Specifications

Heater Dimensions	Min.	Max.	Increments
Width: in. (mm)	4 (102)	20 (508)	2 (50.8)
Length: in. (mm)	10 (254)	68 (1727)	0.06 (1.6)
Area: in ² (cm ²)		864 (5574)	any

Note: Less than maximum length x width may exceed maximum area.



Options

- Terminal box
- Thermowell (VAT style thermocouple required)
- Thermocouple pocket (thermocouple required)
- Thermocouple welded to hot face
- Mounting studs
- Totally sealed construction
- Food-safe surface treatment

How to Order

All units are **made-to-order**. Please specify the following information when placing an order:

- Width and length
- Total wattage
- Voltage and phase
- Mounting studs if desired
- Terminal location if non-standard
- Terminal box if desired
- Internally welded thermocouple or thermowell if desired

Availability

Please contact your Watlow representative for lead time required.

Radiant Heaters

Panel Heaters

RAYMAX 1120

The RAYMAX 1120 is a lightweight, yet sturdy and durable radiant heater panel. The emitter sheath is stainless steel with a black coating, which makes it a highly efficient radiating surface. In addition, the heater's low mass allows rapid start-up and fast response to controllers.

The patented RAYMAX heater features 1 in. (25 mm) wide emitter strips that are individually replaceable for lower maintenance costs. Weighing only 5.5 lbs/ft² (26.8 kg/m²), the heater is easy to mount.

Performance Capabilities

- Face temperature: 1100°F (595°C) maximum
- Watt density: 20 W/in² (3 W/cm²) maximum

Features and Benefits

Replaceable emitters

- Reduces your cost

High temperature mica

- Insulates nickel chromium resistance wire, permitting longer heater life

High emissivity coating on emitter strips

- Improves radiant heating efficiency

3/8 in. (22.2 mm) thick thermal insulation

- Backs the emitter strips to reduce backside losses

Uniform full surface heat source

- Provides better, more even heat

Special requirements are easily met

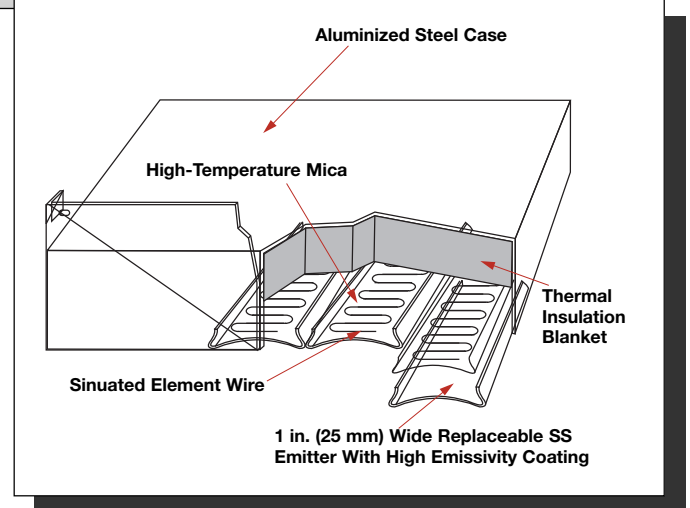
- Assures availability of custom sizes and ratings

Next day shipment

- Available on stock units

Applications

- Thermoforming
- Textile drying
- Paint curing
- Powder coating fusing
- Shrink wrapping
- Circuit board soldering



Radiant Heaters

Panel Heaters

RAYMAX 1120

Applications and Technical Data

Specifications

Heater Dimensions	Min.	Max.	Increments
Width: in. (mm)	1 (25)	36 (914)	1 (25.0)
Length: in. (mm)	6 (152)	94 (2388)	0.06 (1.5)
Area: in ² (cm ²)	6 (38.7)	864 (5574.2)	any

Note: Less than maximum length x width may exceed maximum area.

Sizes and Ratings

Face Temperature: 1100°F (595°C) max.

Wattage: Watt densities up to 20 W/in² (3 W/cm²)

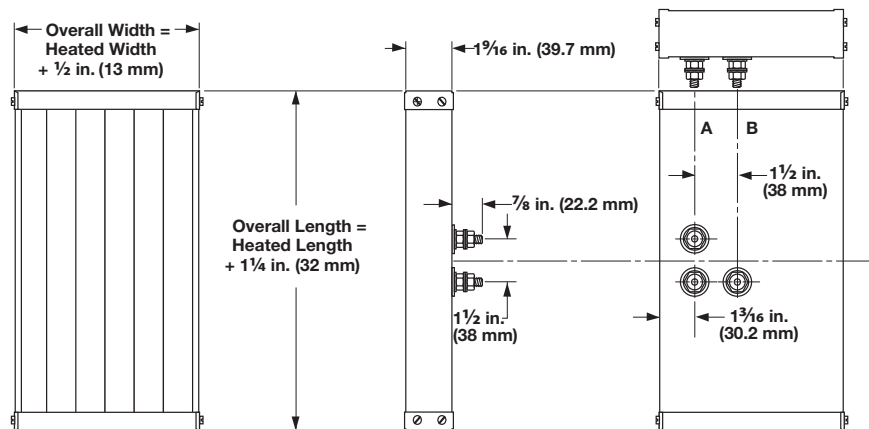
Voltage: Customer specified up to 480V. Balanced three-phase available on unit widths divisible by three.

Note: Small heaters may not be able to be built at high voltages. Contact your Watlow representative for specific application.

Terminals: Non-standard locations are available. Please specify.

Standard Tolerance: ±1/16 in. (1.6 mm)

Typical Peak Energy Wavelength: 3-3.5 microns



Panel Overall Size in. (mm)		Panel Heated Size in. (mm)		Volts	Watts	Watt Density W/in ² (W/cm ²)	Approx. Net Wt. lbs (kg)	Availability	Code Number
Width	Length	Width	Length						
6 1/2 (165)	25 1/4 (641)	6 (152)	24 (610)	240	2880	20 (3.1)	6 (2.7)	Stock	P0624AX050
12 1/2 (318)	13 1/4 (337)	12 (305)	12 (305)	240	2880	20 (3.1)	6 (2.7)	Stock	P1212AX030
12 1/2 (318)	25 1/4 (641)	12 (305)	24 (610)	240	5760	20 (3.1)	12 (5.4)	Stock	P1224AX062
12 1/2 (318)	49 1/4 (1251)	12 (305)	48 (1219)	480 3-phase	11,520	20 (3.1)	24 (10.8)	Stock	P1248AX073

- Note:**
- Stock panels are equipped with terminal box, thermocouple well with bayonet adapter and mounting studs.
 - Watlow stock radiant panels must be properly applied for safe operation.
 - Please contact your Watlow representative with your application before ordering.

How to Order

To order your stock RAYMAX heater, specify:

- RAYMAX 1120
- Quantity
- Watlow code number

If our stock units do not meet your application needs, Watlow can manufacture RAYMAX heaters to your special requirements. For made-to-order heaters, specify the following:

- Heated width and length. Three-phase panels must have width divisible by three.
- Total wattage of each panel.
- Exact voltage and phase. A 5 percent variation in voltage at the oven will cause a 10 percent variation in power.

- Zoning - Indicate dimensions and wattage of each zone.
- Mounting legs or mounting studs, if desired. For studs, give number and location or indicate standard location.
- Terminal location if non-standard.
- Terminal box or wire raceway if required.

Supplying a drawing with an order or request for quotation can be very helpful in clarifying design information.

Availability

Stock: Next day shipment

Made-to-Order: Contact your Watlow representative

Radiant Heaters

Panel Heaters

RAYMAX 1220 and 2030

Easy to install and capable of high surface temperatures, the RAYMAX 1220 and 2030 are ideal for many process heating applications requiring “hot-face” temperatures above 1000°F (540°C).

Each unit consists of a ceramic fiber heater mounted in a 2.5 in. (64 mm) deep sheet metal case providing thermal insulation. The case includes post terminals for electrical connections and provides a mounting system that can be used with virtually any flat ceramic fiber unit, whether it is a stock, standard or custom size. Since any of the flat unit heating element configurations can be used—exposed sinuated, embedded coil or foil elements—watt density and temperature capabilities can be tailored to meet a specific radiant application.

Performance Capabilities

- RAYMAX 2030 (uses sinuated or coil elements): temperatures up to 2000°F (1095°C); watt densities up to 30 W/in² (4.7 W/cm²)
- RAYMAX 1220 (uses an etched foil element): temperatures up to 1200°F (650°C); watt densities up to 20 W/in² (3 W/cm²)

Features and Benefits

Lightweight, low mass design

- Allows fast response to controllers

Provides high efficiency

- Self insulation with 2.5 in. (64 mm) thick mounting case

Thermocouple mounting clamp

- Makes process system control easier

Aluminized steel case

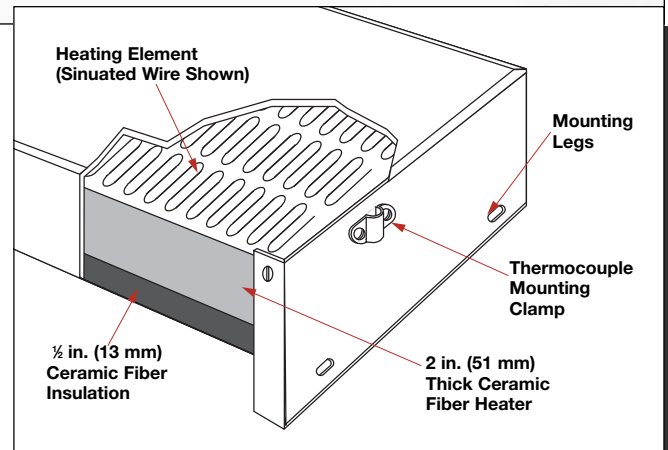
- Handles temperatures up to 1100°F (595°C)

Special hot-face heating patterns

- Provides a design specifically for an application using an etched foil RAYMAX 1220

Applications

- Conveyor furnaces
- High temperature vessel heating
- Tempering and annealing processes for glass, wire, ceramics and metals
- Coating, curing and drying of inks, paints, plastics and films



Radiant Heaters

Panel Heaters

RAYMAX 1220

Ceramic Fiber with Foil Element

Panel Overall Size ± 1/16 in. (1.5 mm)		Panel Nominal Heated Size in. (mm)		Volts	Watts	Watt Density		Approx. Net Wt.		Availability	Code Number
Width	Length	Width	Length			W/in ²	(W/cm ²)	lbs	(kg)		
4 1/4 (108)	12 (305)	4 (102)	12 (305)	120	950	19.8	(3.1)	2.8	(1.3)	Assy. Stock	VP504A12F
4 1/4 (108)	24 (610)	4 (102)	24 (610)	240	1900	19.8	(3.1)	4.8	(2.2)	Standard	VP504A24F
8 1/4 (210)	12 (305)	8 (203)	12 (305)	240	1900	19.8	(3.1)	4.5	(2.1)	Assy. Stock	VP508A12F
8 1/4 (210)	24 (610)	8 (203)	24 (610)	240	3800	19.8	(3.1)	7.7	(3.5)	Standard	VP508A24F

All units in this table are suitable for use up to 1200°F (650°C) max. surface temperature.

① Thermocouple clasp is not included in the length.

RAYMAX 2030

Ceramic Fiber with Sinuated Element

Nominal Heated Width in. (mm)	Nominal Heated Length in. (mm)	Volts	Watts	Watt Density		Approx. Net Wt.		Availability	Code Number
				W/in ²	(W/cm ²)	lbs	(kg)		
4 (102)	6 (152)	30	500	20.8	(3.2)	1.9	(0.9)	Standard	VP504A06T
	12 (305)	120	925	19.3	(3.0)	3.1	(1.4)	Assy. Stock	VP504A12T
	18 (457)	120	1400	19.4	(3.0)	4.1	(1.9)	Standard	VP504A18T
	24 (610)	240	1850	19.5	(3.0)	5.2	(2.4)	Assy. Stock	VP504A24T
	30 (762)	240	2250	19.6	(3.1)	6.3	(2.9)	Standard	VP504A30T
	36 (914)	240	3200	22.2	(3.4)	7.4	(3.3)	Standard	VP504A36T
6 (152)	6 (152)	60	650	18.1	(2.8)	2.4	(1.1)	Standard	VP506A06T
	12 (305)	120	1250	17.4	(2.7)	4.1	(1.9)	Standard	VP506A12T
	18 (457)	240	2000	18.5	(2.9)	5.8	(2.6)	Standard	VP506A18T
	24 (610)	120	2500	17.4	(2.7)	7.4	(3.3)	Assy. Stock	VP506A24T
	24 (610)	240	2500	17.4	(2.7)	7.4	(3.3)	Assy. Stock	VP506A24U
	30 (762)	240	3400	18.9	(2.9)	9.0	(4.1)	Assy. Stock	VP506A30T
8 (203)	36 (914)	240	4000	18.5	(2.9)	10.6	(4.8)	Standard	VP506A36T
	12 (305)	120	1800	18.8	(2.9)	4.7	(2.4)	Assy. Stock	VP508A12T
	18 (457)	240	3000	20.8	(3.2)	7.4	(3.3)	Assy. Stock	VP508A18U
	24 (610)	240	3600	18.8	(2.9)	9.5	(4.3)	Assy. Stock	VP508A24T
	30 (762)	240	5000	20.8	(3.2)	11.7	(5.3)	Standard	VP508A30T
	36 (914)	240	6000	20.8	(3.2)	13.9	(6.3)	Standard	VP508A36T

CONTINUED

All units in this table are suitable for use up to 1800°F (982°C) max. surface temperature.

RAYMAX 1220 or 2030 heaters are assembly stock or standard. Delivery of assembly stock products is three working days.

Delivery of standard products is 15 working days.

Radiant Heaters

Panel Heaters

RAYMAX 2030 (Continued)

Nominal Heated Width in. (mm)		Nominal Heated Length in. (mm)		Volts	Watts	Watt Density W/in ² (W/cm ²)		Approx. Net Wt. lbs (kg)		Availability	Code Number
10 (254)		12 (305)	12 (305)	120	2000	16.7	(2.6)	6.3	(2.9)	Assy. Stock	VP510A12T
		18 (457)	12 (305)	120	3600	20.0	(3.1)	9.0	(4.1)	Assy. Stock	VP510A18T
		24 (610)	12 (305)	240	4500	17.9	(2.8)	11.7	(5.3)	Assy. Stock	VP510A24T
		30 (762)	12 (305)	240	6000	20.0	(3.1)	14.4	(6.5)	Standard	VP510A30T
		36 (914)	12 (305)	240	7200	19.4	(3.0)	17.1	(7.8)	Standard	VP510A36T
12 (305)		12 (305)	12 (305)	120	2500	17.4	(2.7)	7.4	(3.3)	Assy. Stock	VP512A12T
		12 (305)	12 (305)	240	2500	17.4	(2.7)	7.4	(3.3)	Assy. Stock	VP512A12U
		18 (457)	12 (305)	240	4000	18.5	(2.9)	10.6	(4.8)	Assy. Stock	VP512A18T
		24 (610)	12 (305)	240	6000	20.8	(3.2)	13.9	(6.3)	Assy. Stock	VP512A24T
		30 (762)	12 (305)	240	7200	20.0	(3.1)	17.1	(7.8)	Standard	VP512A30T
		36 (914)	12 (305)	240	8400	19.4	(3.0)	20.3	(9.2)	Standard	VP512A36T
14 (356)		12 (305)	12 (305)	240	3500	20.8	(3.2)	8.5	(3.8)	Assy. Stock	VP514A12T
		18 (457)	12 (305)	240	4900	19.4	(3.0)	12.2	(5.5)	Standard	VP514A18T
		24 (610)	12 (305)	240	7000	20.8	(3.2)	16.0	(7.3)	Standard	VP514A24T
		30 (762)	12 (305)	240	8400	20.0	(3.1)	19.8	(9.0)	Standard	VP514A30T
		36 (914)	12 (305)	240/240	9800	19.4	(3.0)	23.6	(10.7)	Standard	VP514A36T
16 (406)		12 (305)	12 (305)	240	3600	18.8	(2.9)	9.5	(4.3)	Standard	VP516A12T
		18 (457)	12 (305)	240	5700	19.8	(3.1)	13.9	(6.3)	Standard	VP516A18T
		24 (610)	12 (305)	240	7100	18.5	(2.9)	18.2	(8.2)	Standard	VP516A24T
		30 (762)	12 (305)	240/240	9600	20.0	(3.1)	22.5	(10.2)	Standard	VP516A30T
		36 (914)	12 (305)	240/240	11500	20.0	(3.1)	26.8	(12.2)	Standard	VP516A36T

All units in this table are suitable for use up to 1800°F (982°C) max. surface temperature.

RAYMAX 1220 or 2030 heaters are assembly stock or standard. Delivery of assembly stock products is three working days.

Delivery of standard products is 15 working days.

How to Order

To order a **stock**, **assembly stock**, or **standard heater**, specify:

- RAYMAX 1220 or 2030
- Quantity
- Watlow code number
- Mounting studs if desired

Note: Stock includes 1 in. (25 mm) mounting legs which are provided. 3 in. (76 mm) legs are available from stock upon request.

If stock or standard units do not meet application needs, Watlow can manufacture radiant heaters to fit special requirements.

For **made-to-order** units, please specify, in addition to previous information:

- Heated width and length, and overall size
- Total wattage
- Voltage, and phases or zones required

- Load temperature expectations
- Mounting studs, if desired
- Mounting legs and leg height, if desired (1 in. [25 mm] is provided unless otherwise specified)
- Location of terminals
- Terminal box, if desired
- Thermowell (specify size and location if standard end clamp is not sufficient)

Availability

Assembly Stock: Three working days

Standard: 15 working days

Made-to-Order: Contact your Watlow representative

Radiant Heaters

Panel Heaters

RAYMAX 1330

The RAYMAX® 1330 is the only radiant heater that features specially insulated heater emitter strips for higher performance. Watlow developed a unique compacted mineral insulation to electrically insulate the element wire, with a result of superior heat transfer and higher operating capabilities.

Because of its rugged stainless steel construction, the RAYMAX 1330 will last longer. Plus, this heater features a high emissivity black coating and a uniform, full surface heat source for better efficiency.

Performance Capabilities

- Maximum face temperature: 1300°F (700°C)
- Maximum watt density: 30 W/in² (4.7 W/cm²)
- Typical peak energy wavelength: 3-3.6 microns

Features and Benefits

Field replaceable emitter strips

- Prevents the cost of buying a whole new radiant heater

Rugged metal construction

- Protects heater from contaminants

No reflectors

- Eliminates cleaning and replacement

No fragile glass or ceramic elements

- Prevents possible safety hazards

Backside insulation

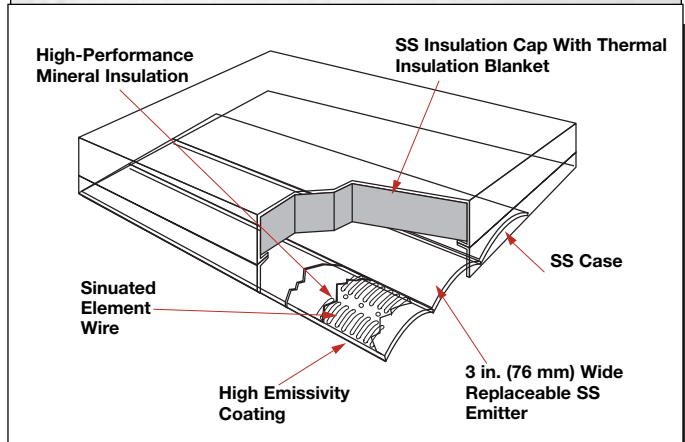
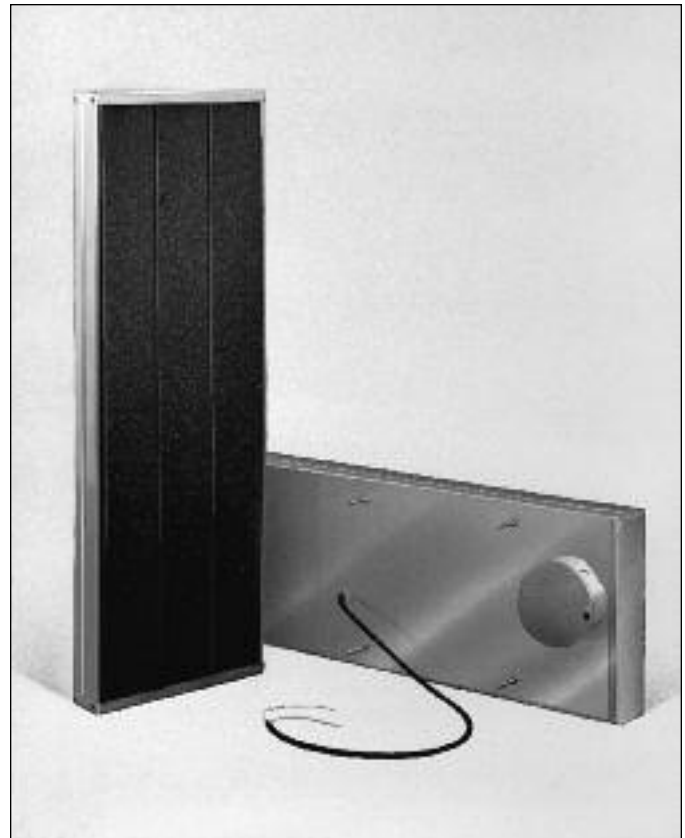
- Results in better heating efficiency

Responsive face temperature sensing options

- Increases accuracy

Applications

- Thermoforming plastics and composites
- Circuit board soldering
- Heat shrinking of plastic



Radiant Heaters

Panel Heaters

RAYMAX 1330

Applications and Technical Data

Sizes and Ratings

Thickness: 2.46 in. (62.5 mm)

Voltage: Customer specified up to 480V. Balanced three-phase available on units with three or six emitters.

Note: Small heaters may not be able to be built at high voltages. Contact your Watlow representative for specific application.

Maximum Watt Density: 30 W/in² (4.7 W/cm²)

Maximum Face Temperature: 1300°F (700°C)

Typical Peak Energy Wavelength: 3 microns

Standard Tolerances: ± $\frac{1}{16}$ in. (1.6 mm)

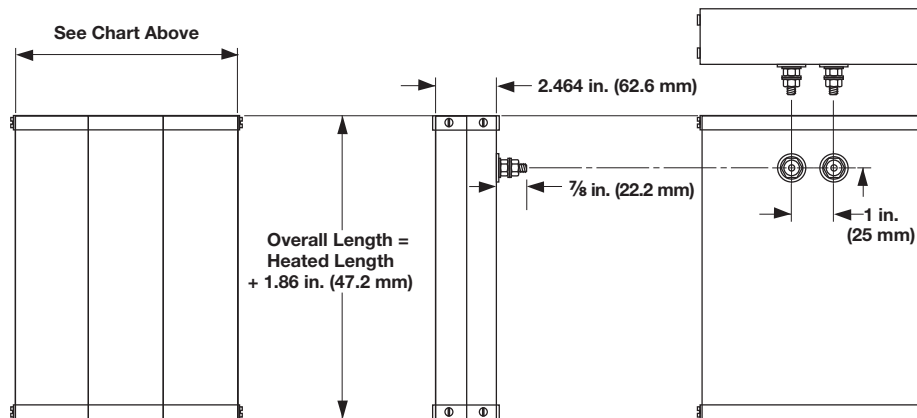
Specifications

Heater Dimensions	Min.	Max.	Increments
Length: in. (mm)	12 (305)	30.5 (775)	0.06 (1.5)

Number of Emitters	Heated Width		Overall Width	
	in.	(mm)	in.	(mm)
1	2.95	(74.9)	3.36	(85.3)
2	6.14	(155.9)	6.54	(166.1)
3	9.33	(236.9)	9.73	(247.1)
4	12.51	(317.8)	12.92	(328.2)
5	15.70	(398.8)	16.11	(409.2)
6	18.89	(479.8)	19.29	(489.9)
7	22.08	(560.8)	22.48	(570.9)
8	25.26	(641.6)	25.67	(652.0)

Options

- Terminal box
- Thermowell
- Thermocouple welded to hot face
- Mounting studs



How to Order

The RAYMAX 1330 is available **made-to-order** only. It is helpful to have the following information available:

- Heated width and length (or diameter for band emitters)
- Total wattage
- Voltage and phase
- Mounting studs if desired
- Mounting legs and leg height if desired

- Terminal location
- Terminal box if desired
- Thermocouple or thermowell if desired

Availability

Made-to-Order: Contact your Watlow representative

Radiant Heaters

Tubular Reflector Heaters

RAYMAX 1525

The RAYMAX 1525 from Watlow® is a rugged radiant heater with a unique design allowing quick removal and replacement of the element and reflectors. Instead of dismantling the heater, the parts are simply removed from the front. Replacing dirty reflectors often can improve heating efficiency by up to 30 percent.

The RAYMAX 1525 is available with either a fast responding quartz element or an Incoloy®-sheathed WATROD tubular element. Both are supported by stainless steel hardware in an extruded aluminum housing.

All stock units come with 1 $\frac{5}{8}$ in. (41.3 mm) long, $\frac{3}{8}$ in. (9.5 mm) -16 thread mounting bolts that slide along the heater's length to accommodate mounting considerations.

Performance Capabilities

- Element temperatures to 1600°F (870°C)
- Watt densities measured across the reflector area up to 25 W/in² (3.9 W/cm²)

Features and Benefits

Fast and easy replacement of tubular element and reflectors

- Provides quick servicing

Variety of element styles available

- Includes single or dual element, hairpin, liquid tight housing and quartz element

Assembly stock availability

- Provides quick three-day shipment from order receipt

Optional single end wiring available on most units

- Simplifies installation

Polished aluminum reflector

- Directs heat to the work

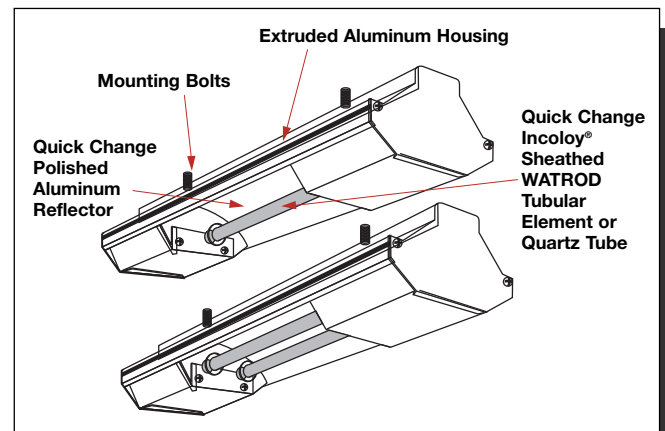
Applications

- Drying bulk materials
- Freeze protection
- Space heating
- Process heating
- Warming equipment

Options

Single-End Wiring

Standard units with straight elements must be wired at both ends. Single-end wiring permits power leads to be brought into only one end of the unit.



Power Leads

Appropriate power leads come attached to the heating element(s). To order, simply specify **length** and **flexible conduit** if required.

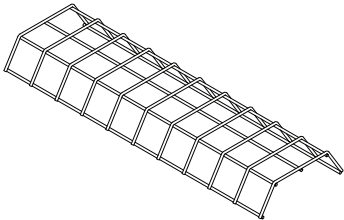
Radiant Heaters

Tubular Reflector Heaters

RAYMAX 1525

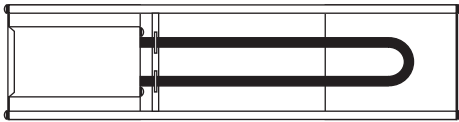
Options (Continued)

Protective Grill



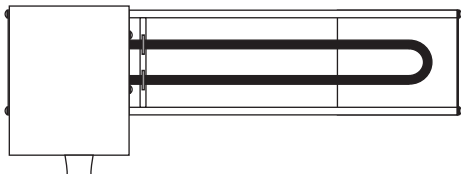
A stainless steel grill section that snaps in to reduce the possibility of personnel or product coming in contact with the heating elements.

Hairpin Element



A WATROD hairpin-shaped tubular element provides the convenience of single end wiring and a reduced no-heat area on the non-terminal end.

Liquid Tight Housing



On this style, the hairpin element terminates in a liquid tight housing to permit operation in a hose down area or exposure to weather. The cast aluminum housing has a 1/2 in. (13 mm) NPT conduit fitting. The box is 2 5/16 in. x 3 3/8 in. x 5 1/4 in. (71.5 x 85.7 x 133 mm) including conduit hub.

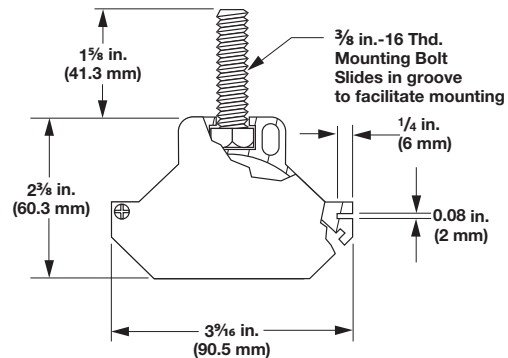
How to Order

To order, specify:

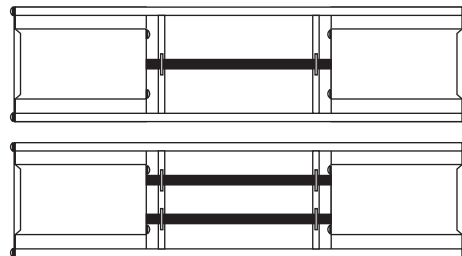
- Watlow code number
- Options
- Watts/volts
- Quantity

If our stock units do not meet your application needs, Watlow can manufacture to meet your special requirements. For **made-to-order** units, please specify:

Element Styles

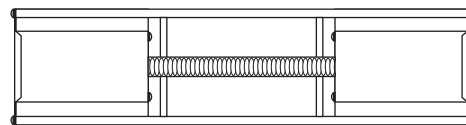


Single and Dual Elements



Straight length WATROD tubular elements come in single or dual styles. The dual style produces twice the wattage of the same length single element. Dual elements can also be jumpered to permit single end wiring and operating at twice the rated voltage up to 480V~(ac).

Quartz Tube Element



Watlow quartz elements provide the advantage of faster heat-up and cool down—important when encountering frequent line stoppages. A standard 1/2 in. (13 mm) diameter quartz tube provides strength and long resistance wire life.

- Overall or heated length
- Element style
- Volts/watts
- Options
- Quantity

Availability

Assembly Stock: Three working days

Made-to-Order: Contact your Watlow representative

Radiant Heaters

Tubular Reflector Heaters

RAYMAX 1525



Single Element Assembly Stock List

Overall Length in. (mm)	Heated Length in. (mm)	Volts	kW	Approx. Net Wt. lbs (kg)	Base Code Number	Protective Grill Code Number	Replacement Element Code Number	Replacement Reflector Code Number
13% (346.1)	7¼ (184.0)	120	0.40	1.9 (0.9)	RT1A013L00	RPT013L00	RDN10E1	RR1013L00
20% (523.9)	13% (346.1)	120	0.65	2.7 (1.3)	RT1A020A00	RPT020A00	RDN16L1	RR1020A00
24% (619.1)	16⅜ (427.0)	120	0.80	3.2 (1.5)	RT1A024G00	RPT024G00	RDN21B1	RR1024G00
24% (619.1)	16⅜ (427.0)	240	0.80	3.2 (1.5)	RT1G024G00	RPT024G00	RDN21B10	RR1024G00
30% (777.9)	22⅞ (581.0)	120	1.10	4.0 (1.8)	RT1A030L00	RPT030L00	RDN27C1	RR1030L00
30% (777.9)	22⅞ (581.0)	240	1.10	4.0 (1.8)	RT1G030L00	RPT030L00	RDN27C10	RR1030L00
35% (911.2)	27% (708.0)	240	1.30	4.7 (2.2)	RT1G035R00	RPT035R00	RDN32C10	RR1035R00
35% (911.2)	27% (708.0)	480	1.30	4.7 (2.2)	RT1P035R00	RPT035R00	RDN32C11	RR1035R00
46% (1184.3)	38% (981.1)	240	1.80	5.8 (2.7)	RT1G046L00	RPT046L00	RDN42R10	RR1046L00
46% (1184.3)	38% (981.1)	480	1.80	5.8 (2.7)	RT1P046L00	RPT046L00	RDN42R11	RR1046L00
61% (1558.9)	53% (1353.0)	240	2.50	7.5 (3.4)	RT1G061G00	RPT061G00	RDN57J10	RR1061G00
61% (1558.9)	53% (1353.0)	480	2.50	7.5 (3.4)	RT1P061G00	RPT061G00	RDN57J11	RR1061G00
73% (1873.0)	65% (1666.9)	240	3.00	9.0 (4.1)	RT1G073N00	RPT073N00	RDN69E10	RR1073N00
73% (1873.0)	65% (1666.9)	480	3.00	9.0 (4.1)	RT1P073N00	RPT073N00	RDN69E11	RR1073N00
85% (2178.0)	77% (1971.7)	240	3.60	10.2 (4.7)	RT1G085N00	RPT085N00	RDN81E10	RR1085N00
85% (2178.0)	77% (1971.7)	480	3.60	10.2 (4.7)	RT1P085N00	RPT085N00	RDN81E11	RR1085N00

Dual Element Assembly Stock List



13% (346.1)	7¼ (184.0)	120	0.80	2.2 (1.0)	RT2A013L00	RPT013L00	RDN10E1	RR2013L00
20% (523.9)	13% (346.1)	120	1.30	2.9 (1.3)	RT2A020A00	RPT020A00	RDN16L1	RR2020A00
24% (619.1)	16⅜ (427.0)	120	1.60	3.4 (1.5)	RT2A024G00	RPT024G00	RDN21B1	RR2024G00
24% (619.1)	16⅜ (427.0)	240	1.60	3.4 (1.5)	RT2G024G00	RPT024G00	RDN21B10	RR2024G00
30% (777.9)	22⅞ (581.0)	120	2.20	4.1 (1.9)	RT2A030L00	RPT030L00	RDN27C1	RR2030L00
30% (777.9)	22⅞ (581.0)	240	2.20	4.1 (1.9)	RT2G030L00	RPT030L00	RDN27C10	RR2030L00
35% (911.2)	27% (708.0)	240	2.60	4.7 (2.1)	RT2G035R00	RPT035R00	RDN32C10	RR2035R00
35% (911.2)	27% (708.0)	480	2.60	4.7 (2.1)	RT2P035R00	RPT035R00	RDN32C11	RR2035R00
46% (1184.3)	38% (981.1)	240	3.60	6.0 (2.7)	RT2G046L00	RPT046L00	RDN42R10	RR2046L00
46% (1184.3)	38% (981.1)	480	3.60	6.0 (2.7)	RT2P046L00	RPT046L00	RDN42R11	RR2046L00
61% (1558.9)	53% (1353.0)	240	5.00	7.7 (3.5)	RT2G061G00	RPT061G00	RDN57J10	RR2061G00
61% (1558.9)	53% (1353.0)	480	5.00	7.7 (3.5)	RT2P061G00	RPT061G00	RDN57J11	RR2061G00
73% (1873.0)	65% (1666.9)	240	6.00	9.1 (4.1)	RT2G073N00	RPT073N00	RDN69E10	RR2073N00
73% (1873.0)	65% (1666.9)	480	6.00	9.1 (4.1)	RT2P073N00	RPT073N00	RDN69E11	RR2073N00
85% (2178.0)	77% (1971.7)	240	7.20	10.5 (4.8)	RT2G085N00	RPT085N00	RDN81E10	RR2085N00
85% (2178.0)	77% (1971.7)	480	7.20	10.5 (4.8)	RT2P085N00	RPT085N00	RDN81E11	RR2085N00

Hairpin Element Assembly Stock List



12% (324.0)	8% (212.7)	120	0.80	2.1 (0.9)	RU1A012N00	RPU012N00	RDN21B1UAAB	RR3012N00
12% (324.0)	8% (212.7)	240	0.80	2.1 (0.9)	RU1G012N00	RPU012N00	RDN21B10UAAA	RR3012N00
15% (403.2)	11⅞ (290.5)	120	1.10	2.4 (1.1)	RU1A015R00	RPU015R00	RDN27C1UAAA	RR3015R00
15% (403.2)	11⅞ (290.5)	240	1.10	2.4 (1.1)	RU1G015R00	RPU015R00	RDN27C10UAAC	RR3015R00
23% (603.0)	19⅞ (487.4)	240	1.80	3.3 (1.5)	RU1G023N00	RPU023N00	RDN42R10UAAC	RR3023N00
23% (603.0)	19⅞ (487.4)	480	1.80	3.3 (1.5)	RU1P023N00	RPU023N00	RDN42R11UAAB	RR3023N00
31¼ (794.0)	26⅞ (674.7)	240	2.50	4.2 (1.9)	RU1G031E00	RPU031E00	RDN57J10UAAB	RR3031E00
31¼ (794.0)	26⅞ (674.7)	480	2.50	4.2 (1.9)	RU1P031E00	RPU031E00	RDN57J11UAAB	RR3031E00
37¼ (946.0)	32⅞ (823.9)	240	3.00	4.9 (2.2)	RU1G037E00	RPU037E00	RDN69E10UAAB	RR3037E00
37¼ (946.0)	32⅞ (823.9)	480	3.00	4.9 (2.2)	RU1P037E00	RPU037E00	RDN69E11UAAB	RR3037E00
43% (1101.7)	38⅞ (976.3)	240	3.60	5.6 (2.5)	RU1G043G00	RPU043G00	RDN81E10UAAB	RR3043G00
43% (1101.7)	38⅞ (976.3)	480	3.60	5.6 (2.5)	RU1P043G00	RPU043G00	RDN81E11UAAB	RR3043G00

Radiant Heaters

Tubular Reflector Heaters

RAYMAX 1525

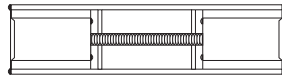
Hairpin Element with Liquid Tight Housing



Overall Length		Heated Length		Volts	kW	Approx. Net Wt.		Base Code Number	Protective Grill Code Number	Replacement Element Code Number	Replacement Reflector Code Number
in.	(mm)	in.	(mm)			lbs	(kg)				
12 ¹⁵ / ₁₆	(328.6)	8 ⁷ / ₁₆	(212.7)	120	0.80	2.5	(1.1)	RS1A012N00	RPS012N00	RDN21B1BAAB	RR4012N00
12 ¹⁵ / ₁₆	(328.6)	8 ⁷ / ₁₆	(212.7)	240	0.80	2.5	(1.1)	RS1G012N00	RPS012N00	RDN21B10BAAA	RR4012N00
16 ¹ / ₁₆	(410.5)	11 ¹ / ₁₆	(290.5)	120	1.10	2.9	(1.3)	RS1A015R00	RPS015R00	RDN27C1BAAB	RR4015R00
16 ¹ / ₁₆	(410.5)	11 ¹ / ₁₆	(290.5)	240	1.10	2.9	(1.3)	RS1G015R00	RPS015R00	RDN27C10BAAA	RR4015R00
24 ¹ / ₁₆	(611.2)	19 ³ / ₁₆	(487.4)	240	1.80	3.8	(1.7)	RS1G023N00	RPS023N00	RDN42R10BAAD	RR4023N00
24 ¹ / ₁₆	(611.2)	19 ³ / ₁₆	(487.4)	480	1.80	3.8	(1.7)	RS1P023N00	RPS023N00	RDN42R11BAAD	RR4023N00
31 ¹¹ / ₁₆	(804.9)	26 ⁶ / ₁₆	(674.7)	240	2.50	4.8	(2.2)	RS1G031E00	RPS031E00	RDN57J10BAAB	RR4031E00
31 ¹¹ / ₁₆	(804.9)	26 ⁶ / ₁₆	(674.7)	480	2.50	4.8	(2.2)	RS1P031E00	RPS031E00	RDN57J11BAAA	RR4031E00
37 ¹³ / ₁₆	(960.4)	32 ⁶ / ₁₆	(823.9)	240	3.00	5.5	(2.5)	RS1G037E00	RPS037E00	RDN69E10BAAD	RR4037E00
37 ¹³ / ₁₆	(960.4)	32 ⁶ / ₁₆	(823.9)	480	3.00	5.5	(2.5)	RS1P037E00	RPS037E00	RDN69E11BAAD	RR4037E00
44 ¹ / ₁₆	(1119.2)	38 ¹ / ₁₆	(976.3)	240	3.60	6.2	(2.8)	RS1G043G00	RPS043G00	RDN81E10BAAB	RR4043G00
44 ¹ / ₁₆	(1119.2)	38 ¹ / ₁₆	(976.3)	480	3.60	6.2	(2.8)	RS1P043G00	RPS043G00	RDN81E11BAAA	RR4043G00

Note: Quartz tube elements must be operated in a horizontal position.

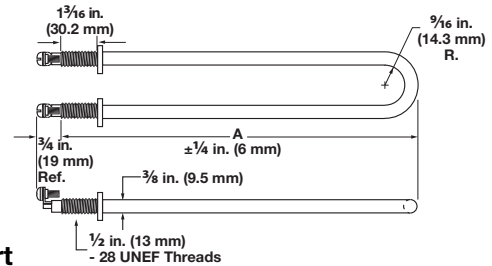
Quartz Tube Element



18 ¹ / ₁₆	(458.8)	10	(254.0)	120	0.50	2.4	(1.1)	RG1A018B00	RPG018B00	RQB12FA05001B	RR5018B00
26 ¹ / ₁₆	(662.0)	18	(457.0)	120	0.90	3.2	(1.4)	RG1A026B00	RPG026B00	RQB20EA09001B	RR5026B00
26 ¹ / ₁₆	(662.0)	18	(457.0)	240	0.90	3.2	(1.4)	RG1G026B00	RPG026B00	RQB20EG09001B	RR5026B00
33 ³ / ₁₆	(839.8)	25	(635.0)	120	1.25	3.9	(1.7)	RG1A033B00	RPG033B00	RQB27GA12001B	RR5033B00
33 ³ / ₁₆	(839.8)	25	(635.0)	240	1.25	3.9	(1.7)	RG1G033B00	RPG033B00	RQB27GG12001B	RR5033B00
45 ¹ / ₁₆	(1165.2)	38	(965.0)	240	1.90	5.1	(2.3)	RG1G045S00	RPG045S00	RQB40DG19001B	RR5045S00
45 ¹ / ₁₆	(1165.2)	38	(965.0)	480	1.90	5.1	(2.3)	RG1P045S00	RPG045S00	RQB40DP19001B	RR5045S00
60 ³ / ₁₆	(1546.2)	53	(1346.0)	240	2.60	6.6	(3.0)	RG1G060S00	RPG060S00	RQB55HG26001B	RR5060S00
60 ³ / ₁₆	(1546.2)	53	(1346.0)	480	2.60	6.6	(3.0)	RG1P060S00	RPG060S00	RQB55HP26001B	RR5060S00

Tubular Replacement Elements for Reflector Style Radiant Heaters

The following tubular radiant heating elements are available for replacing popular non-Watlow radiant elements.



Hairpin (U-Shaped) Element With Liquid Tight Bulkheads Stock Chart

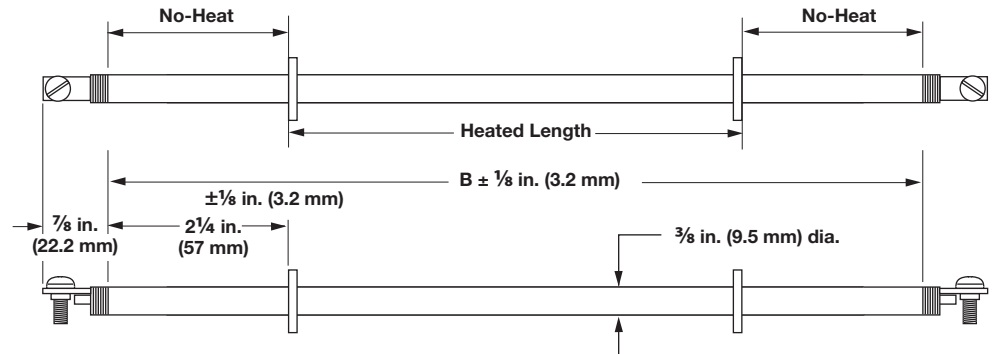
Hairpin A Dimension	Volts	Watts	Approx. Net Wt.		Availability	Chromalox®		Watlow Code Number
			in.	(mm)		oz	(g)	
10 ⁵ / ₁₆	120	800	6	(170)	Assy. Stock	106673	UTU-2LT	RDN21B1B
10 ⁵ / ₁₆	240	800	6	(170)	Assy. Stock	106681	UTU-2LT	RDN21B10B
13 ⁵ / ₁₆	120	1100	8	(225)	Assy. Stock	106690	UTU-3LT	RDN27C1B
13 ⁵ / ₁₆	240	1100	8	(225)	Assy. Stock	106702	UTU-3LT	RDN27C10B
21 ⁵ / ₁₆	240	1800	13	(370)	Assy. Stock	106710	UTU-4LT	RDN42R10B
21 ⁵ / ₁₆	480	1800	13	(370)	Assy. Stock	106729	UTU-4LT	RDN42R11B
28 ¹ / ₂	240	2500	16	(455)	Assy. Stock	106737	UTU-5LT	RDN57J10B
28 ¹ / ₂	480	2500	16	(455)	Assy. Stock	106745	UTU-5LT	RDN57J11B
34 ³ / ₈	240	3000	19	(540)	Assy. Stock	106753	UTU-6LT	RDN69E10B
34 ³ / ₈	480	3000	19	(540)	Assy. Stock	106761	UTU-6LT	RDN69E11B
40 ³ / ₈	240	3600	22	(625)	Assy. Stock	106770	UTU-7LT	RDN81E10B
40 ³ / ₈	480	3600	22	(625)	Assy. Stock	106788	UTU-7LT	RDN81E11B

Radiant Heaters

Tubular Reflector Heaters

RAYMAX 1525

Tubular Replacement Elements for Reflector Style Radiant Heaters



Straight Element Stock Chart

Sheath B Dimension in. (mm)	Heated Length in. (mm)	No-Heat Length in. (mm)	Volts	Watts	Approx. Net Wt. oz (g)	Availability	Chromalox®		Watlow Code Number
							PCN	Catalog Number	
10 1/4 (260.0)	7 1/4 (184.0)	1 1/2 (38.0)	120	400	3 (85)	Assy. Stock	147766	RTU-2063AX35	RDN10E1
16 5/8 (422.3)	13 5/8 (346.1)	1 1/2 (38.0)	120	650	5 (140)	Assy. Stock	147774	RTU-2063AX29	RDN16L1
21 1/16 (535.0)	16 11/16 (427.0)	2 1/2 (54.0)	120	800	6 (170)	Assy. Stock	106112	RTU-2083A	RDN21B1
21 1/16 (535.0)	16 11/16 (427.0)	2 1/2 (54.0)	208	800	6 (170)	Standard	106120	RTU-2083AV	RDN21B2
21 1/16 (535.0)	16 11/16 (427.0)	2 1/2 (54.0)	240	800	6 (170)	Assy. Stock	106139	RTU-2083A	RDN21B10
21 1/16 (535.0)	16 11/16 (427.0)	2 1/2 (54.0)	277	800	6 (170)	Standard	106147	RTU-2083AV	RDN21B4
27 7/8 (689.0)	22 7/8 (581.0)	2 1/2 (54.0)	120	1100	8 (225)	Assy. Stock	106155	RTU-3113A	RDN27C1
27 7/8 (689.0)	22 7/8 (581.0)	2 1/2 (54.0)	208	1100	8 (225)	Standard	106163	RTU-3113AV	RDN27C2
27 7/8 (689.0)	22 7/8 (581.0)	2 1/2 (54.0)	240	1100	8 (225)	Assy. Stock	106171	RTU-3113A	RDN27C10
27 7/8 (689.0)	22 7/8 (581.0)	2 1/2 (54.0)	277	1100	8 (225)	Standard	106180	RTU-3113AV	RDN27C4
32 1/8 (816.0)	27 7/8 (581.0)	2 1/2 (54.0)	240	1300	9 (255)	Assy. Stock	108409	RTU-3133A	RDN32C10
32 1/8 (816.0)	27 7/8 (581.0)	2 1/2 (54.0)	480	1300	9 (255)	Assy. Stock	108396	RTU-3133A	RDN32C11
42 7/8 (1089.0)	38 3/8 (981.1)	2 1/2 (54.0)	208	1800	13 (370)	Standard	106198	RTU-4183AV	RDN42R2
42 7/8 (1089.0)	38 3/8 (981.1)	2 1/2 (54.0)	240	1800	13 (370)	Assy. Stock	106200	RTU-4183A	RDN42R10
42 7/8 (1089.0)	38 3/8 (981.1)	2 1/2 (54.0)	277	1800	13 (370)	Standard	106219	RTU-3133AV	RDN42R4
42 7/8 (1089.0)	38 3/8 (981.1)	2 1/2 (54.0)	480	1800	13 (370)	Assy. Stock	106227	RTU-3133A	RDN42R11
57 1/2 (1460.0)	53 3/4 (1353.0)	2 1/2 (54.0)	208	2500	16 (455)	Standard	106235	RTU-5253AV	RDN57J2
57 1/2 (1460.0)	53 3/4 (1353.0)	2 1/2 (54.0)	240	2500	16 (455)	Assy. Stock	106243	RTU-5253A	RDN57J10
57 1/2 (1460.0)	53 3/4 (1353.0)	2 1/2 (54.0)	277	2500	16 (455)	Standard	106251	RTU-5253AV	RDN57J4
57 1/2 (1460.0)	53 3/4 (1353.0)	2 1/2 (54.0)	480	2500	16 (455)	Assy. Stock	106260	RTU-5253A	RDN57J11
69 1/4 (1759.0)	65 (1651.0)	2 1/2 (54.0)	208	3000	19 (540)	Standard	106278	RTU-6303AV	RDN69E2
69 1/4 (1759.0)	65 (1651.0)	2 1/2 (54.0)	240	3000	19 (540)	Assy. Stock	106286	RTU-6303A	RDN69E10
69 1/4 (1759.0)	65 (1651.0)	2 1/2 (54.0)	277	3000	19 (540)	Standard	106294	RTU-6303AV	RDN69E4
69 1/4 (1759.0)	65 (1651.0)	2 1/2 (54.0)	480	3000	19 (540)	Assy. Stock	106307	RTU-6303A	RDN69E11
81 1/4 (2064.0)	77 (1956.0)	2 1/2 (54.0)	208	3600	22 (625)	Standard	106315	RTU-7363AV	RDN81E2
81 1/4 (2064.0)	77 (1956.0)	2 1/2 (54.0)	240	3600	22 (625)	Assy. Stock	106323	RTU-7363A	RDN81E10
81 1/4 (2064.0)	77 (1956.0)	2 1/2 (54.0)	277	3600	22 (625)	Standard	106331	RTU-7363AV	RDN81E4
81 1/4 (2064.0)	77 (1956.0)	2 1/2 (54.0)	480	3600	22 (625)	Assy. Stock	106340	RTU-7363A	RDN81E11
109 1/4 (2775.0)	105 (2665.0)	2 1/2 (54.0)	240	4000	32 (905)	Standard	106358	RTU-7303AX10	RDN109E10 Ⓢ
134 1/2 (3416.0)	127 3/4 (3245.0)	3 3/8 (85.7)	240	5000	37 (1050)	Standard	106366	RTU-7303AX13	RDN134J10 Ⓢ
153 3/4 (3895.7)	145 1/2 (3705.2)	4 (102.0)	240	5500	40 (1135)	Standard	106374	RTU-7303AX9A	RDN153R10 Ⓢ
179 1/4 (4553.0)	171 1/4 (4350.0)	4 (102.0)	240	6500	51 (1445)	Standard	106382	RTU-7363AX38	RDN179E10 Ⓢ

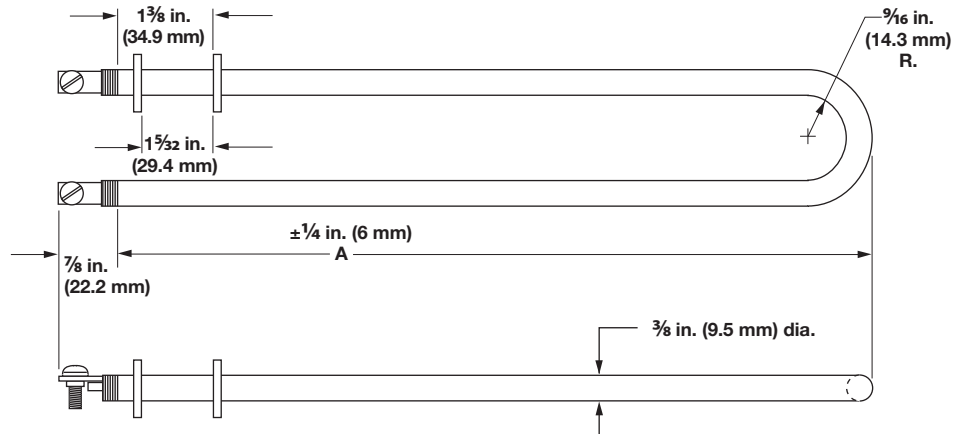
Ⓢ Assembly Stock with catalog options.

Radiant Heaters

Tubular Reflector Heaters

RAYMAX 1525

Tubular Replacement Elements for Reflector Style Radiant Heaters



Hairpin (U-Shaped) Element Stock Chart

Hairpin A Dimension in. (mm)	Volts	Watts	Approx. Net Wt.		Availability	Chromalox®		Watlow Code Number
			oz	(g)		PCN	Catalog Number	
10 1/2 (267.0)	120	800	6	(170)	Assy. Stock	106438	UTU-2	RDN21B1U
10 1/2 (267.0)	240	800	6	(170)	Assy. Stock	106454	UTU-2	RDN21B10U
10 1/2 (267.0)	277	800	6	(170)	Standard	106462	UTU-2V	RDN21B4U
13 5/16 (344.5)	120	1100	8	(225)	Assy. Stock	106470	UTU-3	RDN27C1U
13 5/16 (344.5)	240	1100	8	(225)	Assy. Stock	106497	UTU-3	RDN27C10U
13 5/16 (344.5)	277	1100	8	(225)	Standard	106500	UTU-3V	RDN27C4U
21 5/16 (541.3)	208	1800	13	(370)	Standard	106518	UTU-4V	RDN42R2U
21 5/16 (541.3)	240	1800	13	(370)	Assy. Stock	106526	UTU-4	RDN42R10U
21 5/16 (541.3)	480	1800	13	(370)	Assy. Stock	106542	UTU-4	RDN42R11U
28 11/16 (728.7)	208	2500	16	(455)	Standard	106550	UTU-5V	RDN57J2U
28 11/16 (728.7)	240	2500	16	(455)	Assy. Stock	106569	UTU-5	RDN57J10U
28 11/16 (728.7)	277	2500	16	(455)	Standard	106577	UTU-5V	RDN57J4U
28 11/16 (728.7)	480	2500	16	(455)	Assy. Stock	106585	UTU-5	RDN57J11U
34 9/16 (877.9)	240	3000	19	(540)	Assy. Stock	106606	UTU-6	RDN69E10U
34 9/16 (877.9)	480	3000	19	(540)	Assy. Stock	106622	UTU-6	RDN69E11U
40 9/16 (1030.3)	240	3600	22	(625)	Assy. Stock	106649	UTU-7	RDN81E10U
40 9/16 (1030.3)	277	3600	22	(625)	Standard	106657	UTU-7V	RDN81E4U
40 9/16 (1030.3)	480	3600	22	(625)	Assy. Stock	106665	UTU-7	RDN81E11U

How to Order

For units listed in the stock charts, please specify:

- Watlow code number
- Volts/watts
- Style (straight length, hairpin or hairpin with bulkheads)
- Quantity

If our stock elements do not meet your needs, Watlow can provide a **made-to-order** unit. For **made-to-order** units, please specify:

- Volts/watts
- Sheath material and diameter
- Sheath length and no-heat length

- Terminations or terminal pin length
- Bend configuration if applicable
- Mounting method
- Quantity

Availability

Assembly Stock: Three to five days

Standard: 10 working days

Modified Stock®: Five to seven working days

Made-to-Order: Four to six weeks

Radiant Heaters

Quartz Tube Panel Heaters

RAYMAX 1626

The RAYMAX 1626 quartz tube panel from Watlow® is a fast responding and very efficient source of radiant thermal energy. Most designs reach full output in 30 to 60 seconds and typically cool down to 50 percent output in under 15 seconds. The quartz heater is ideal for use in operations where frequent line stoppages are anticipated or immediate heat-up and cool-down is necessary. Custom sizes are available up to 27 in. (686 mm) wide in 3 in. (76 mm) increments and 70 in. (1778 mm) long.

Performance Capabilities

- Watt densities to 20 W/in² (3.1 W/cm²) measured across the reflector area
- Element temperatures to 1700°F (930°C)

Features and Benefits

Quartz tubes and reflectors are easy to replace from front of heater

- Provides less downtime waiting for parts

Polished parabolic aluminum reflectors

- Directs radiant energy for efficient heating

Little residual heat

- Reduces possibility of product damage during line stoppage

Fast heat-up, cool down

- Allows heater turn off during gaps in production for more energy savings

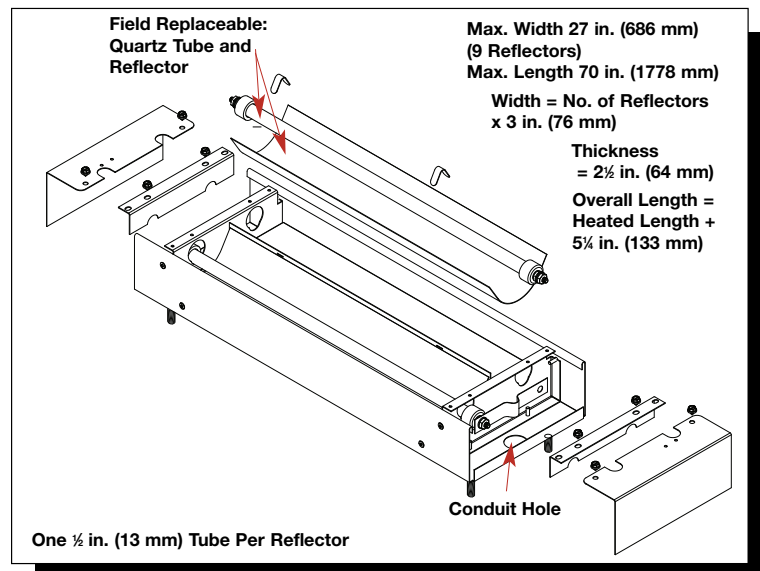
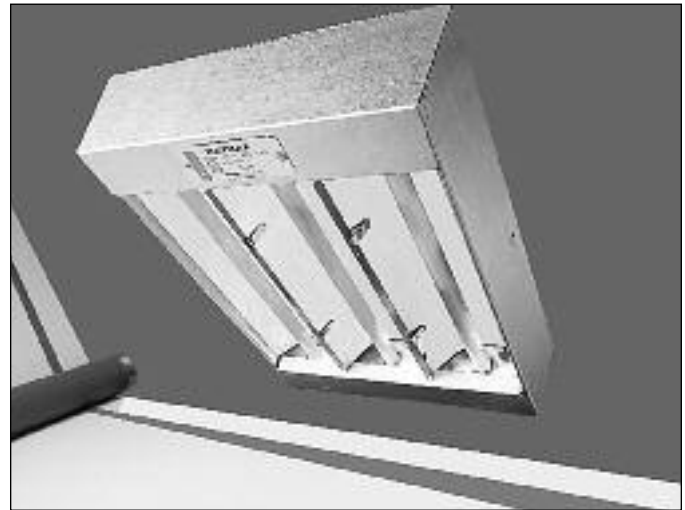
Applications

- Heating plastic films
- Ink drying
- Coating curing
- Fusing powder coating
- Activating adhesives

How to Order

The RAYMAX 1626 is **made-to-order** only. It is helpful to have the following information available:

- Heated width (3 in. [76 mm] increments) and length
- Total wattage
- Voltage and phase (balanced three phase on three, six and nine tube units only)
- Mounting studs if desired



Options

A **thermocouple clamp** is located on the end cap. The clamp is used to hold a ½ in. (3.2 mm) diameter thermocouple (not included) in front of the reflector to intercept the radiated energy to provide a control temperature. The thermocouple should be painted with a high-temperature black paint to improve absorption.

Availability

Made-to-Order: Contact your Watlow representative

Note: Horizontal operation only

Specifications

Overall Dim.	Min.	Max.	Inc.
Width in. (mm)	3 (76.0)	27 (686.0)	3 (76.0)
Length in. (mm)	12 (305.0)	70 (1778.0)	0.06 (1.5)

Radiant Heaters

Quartz Tube Heaters

The Watlow® quartz tube radiant heater provides medium wave infrared energy and fast heat up and cool down. With element temperatures around 1700°F (930°C) the heater produces infrared radiation with a peak energy wavelength of 2.5 microns. Lower operating temperatures produce longer wave lengths. The majority of the energy is transmitted through the translucent quartz tube without being absorbed.

Most designs reach full output in 30 to 60 seconds and typically cool down to 50 percent output in under 15 seconds. The quartz tube heater is ideal for applications where frequent line stoppages are anticipated or quick heat-up or cool down is necessary. Heaters can be turned off between production runs to save energy. Unique control schemes are possible that adjust the wattage output of the heaters during the heating cycle.

Performance Capabilities

- Element temperatures up to 1700°F (930°C)
- Tube watt densities up to 60 watts per linear inch of heated length (23.6 watts per linear cm of heated length)

Features and Benefits

Termination styles

- Provides compatibility to virtually every enclosure on the market

Ceramic end caps bonded to the quartz tubing ends

- Provides a rigid support for terminations

Quick heat-up and cool down

- Assures higher productivity and better efficiency

Low emission in the visible spectrum

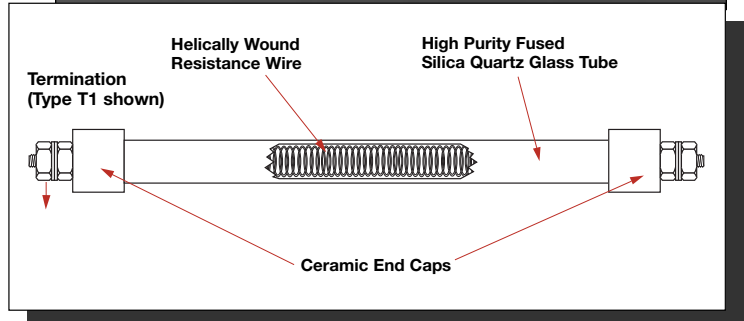
- Assures no objectionable glare is created

Clean thermal energy source

- Assures no process contamination occurs

Applications

- Shrink packaging
- Laminating
- Thermoforming
- Fusing processes
- Vulcanizing and curing rubber
- Sterilizing
- Sealing
- Electrostatic copy equipment
- Drying processes: photos, textiles, coatings and sand core castings

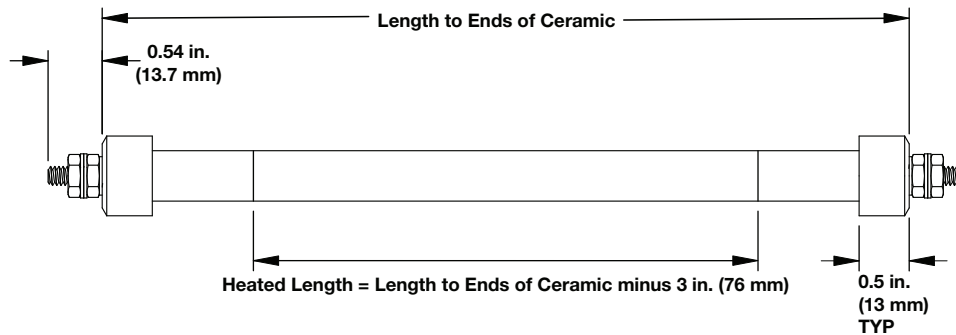


Note: Horizontal operation only

Radiant Heaters

Quartz Tube Heaters

Applications and Technical Data

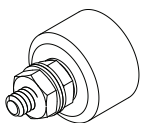


Specifications

Nominal Tube O.D. in.	Actual Tube O.D. in. (mm)	Ceramic End Cap O.D. in. (mm)	Available Tube Lengths in.
3/8	0.374 (9.5)	0.646 (16.41)	8 to 64 ± 1/8
1/2	0.500 (13.0)	0.796 (20.22)	8 to 64 ± 1/8
5/8	0.626 (15.9)	0.918 (23.32)	8 to 69 ± 1/8

Standard Terminations

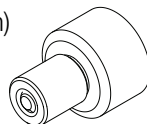
Type T1



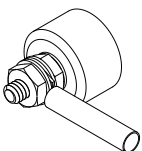
Standard termination: 10-24 stainless steel screw thread terminals.

Type T2

Quick disconnect fuse style: 7/16 in. (11.1 mm) dia. x 1/2 in. (13 mm) long terminals.

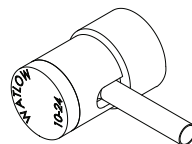


Type T4



Flexible lead termination: 12 in. (305 mm) flexible leads; if longer leads are required, please specify.

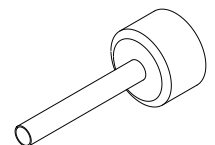
Type T5



Flexible lead termination: 10-24 SS screw thread terminals insulated with ceramic terminal covers. Terminals are pre-wired with 12 in. (305 mm) flexible lead wire. If longer leads are required, please specify.

Type T6

12 in. (305 mm) flexible leads exit the ceramic cap. There are no post terminals. Please specify if longer leads are required.



Mounting Frames for Watlow Quartz Heaters

See RAYMAX 1626

Radiant Heaters

Band and Strip Emitters

Constructed using Watlow's exclusive mineral insulation, rugged stainless steel sheath and high emissivity coating, these heaters can operate at temperatures to 1300°F (700°C), and 30 W/in² (4.7 W/cm²).

Sizes

Strip Emitters

Width: 2 in. (51 mm), 3 in. (76 mm)

Length: 6 in. (152 mm) minimum,
31 in. (787 mm) maximum

Band Emitters

Width: 1 in. (25 mm), 2 in. (51 mm),
3 in. (76 mm) maximum

- Segment Length: 6 in. (152 mm) minimum to 42 in. (1067 mm) maximum
- Partial arcs to full 360° coverage, contact your Watlow representative.
- High emissivity coating on inside standard. For high emissivity coating on outside, contact your Watlow representative.
- Post terminals standard; high temperature leads available on bands only.

Options

- Mounting studs
- Mounting clips for 3 in. (76 mm) wide emitter strips, part #MM6063
- Thermocouple welded to sheath
- Thermocouple pocket welded to sheath
- Bayonet fitting for VAT style thermocouple

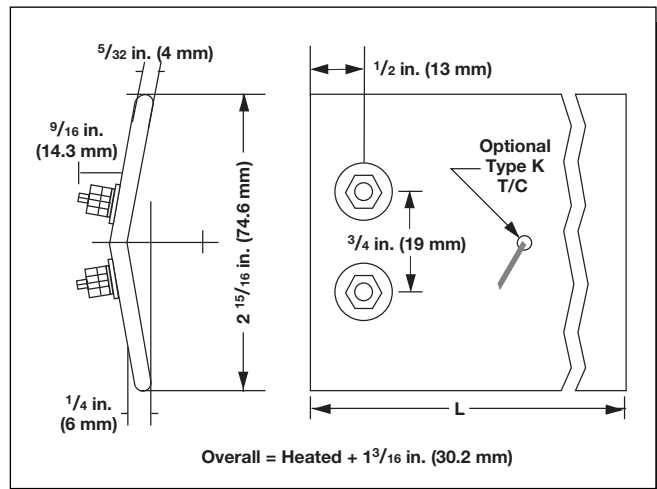
Applications

- Heating rotating drums and rollers
- Tube ovens
- Small spot heating
- Heat shrinking and curing wire coatings
- Heat laminating wheels

How to Order

The radiant band/strip emitters are available **made-to-order** only. It is helpful to have the following information available:

- Overall width and length (or diameter for band emitters)
- Total wattage
- Voltage, single phase only
- Mounting studs if desired
- Thermocouple or thermowell or thermocouple pocket if desired



Availability

Made-to-Order: Contact your Watlow representative

Mounting Clip (Part # MM6063) (For 3 in. (76 mm) wide strip heater)

