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What type of heater do you need?

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Watlow's Lead Time Options

To remain competitive in our fast-paced world, you need a supplier that is committed to helping you succeed. Watlow® shows its commitment through multiple options designed to get you what you need quickly.

Watlow understands that your heating requirements vary from application to application. To help meet your individual needs, Watlow offers several options to ensure you receive your product when you need it.

RAPID SHIP and Manufacturing Lead Times

RAPID SHIP

Watlow's industry-leading RAPID SHIP offering is available throughout the catalog for various products. RAPID SHIP products are noted with "RS" and the RAPID SHIP logo. RAPID SHIP assures that your products will be manufactured and shipped from the factory the next business day.

Products not available as RAPID SHIP will be noted with an "M" which stands for Manufacturing lead times. In many instances Manufacturing lead times are just a few days longer than RAPID SHIP due to lower volumes, unique materials or other manufacturing complexities that must be considered when building your heaters. Contact your local sales representative to check the current lead times offered.

FAST TRACK™ for FIREROD® Heaters

FAST Track™

Watlow's FAST TRACK™ program for made-to-order FIREROD® cartridge heaters allows a range of FIRERODs to be shipped in two or five days.

With the FAST TRACK program, you can choose the size, voltage, wattage and termination from a predetermined set of options and choose when you want it – either a two- or five-day lead time.

For more information and applicable products, look for the FAST TRACK logo in the cartridge section of this catalog.

Heater Selection Matrix

Heating Solids

Heater Type	Application Description	Sheath Materials	Typical Max. Watt Densities W/in²	W/cm²	Max. Operating Temperatures °F	°C	Catalog Page
Cartridge/ Insertion Heaters	These heaters are inserted into a close fit hole (i.e. platens, dies and molds).	Alloy 800 Stainless steel	up to 400 up to 400	62.0 62.0	1400 1000	760 540	11
Tubular Heaters	These heaters are clamped to the object to be heated, usually exterior surfaces of tanks or other process vessels or fitted into milled grooves in a platen.	Flat: Alloy 800 Stainless steel Round: Alloy 800 Stainless steel	40 40 40 40	6.2 6.2 6.2 6.2	1400 1200 1600 1200	760 650 870 650	93 93 61 61
Flexible Heaters	These heaters are bonded or otherwise fastened to the part. Commonly used to heat irregular surfaces and shapes, or applications requiring distributed wattage or limited space.	Polyimide Silicone rubber	20 10	3.1 1.6	390 500	200 260	148 117
High-Temperature Heaters	MULTICELL™ heaters are loosely inserted into the platen hole for radiant heating. Can also be used in any static or dynamic non-contact application as a radiant heat source. Commonly used for extreme high temperature applications.	Alloy 600 Alloy 800	60 60	9.3 9.3	2100 2100	1150 1150	425
	Ceramic fiber heaters can be formed into an oversized chamber to surround the object being heated. Using radiant and convection heat transfer, ceramic fiber heaters are used in ovens and furnaces.	Molded ceramic fiber	30	4.6	2200	1205	433
Specialty Heaters	ULTRAMIC® advanced ceramic heaters are bonded or clamped to the object being heated.	Aluminum nitride	1000	155	1112	600	459
	Thick film conduction heaters are clamped to the part being heated.	Dielectric glass on 430 stainless steel substrate	75	11.6	1022	550	463
	Coil/Cable heaters can be formed to heat flat or curved surfaces, or wound around the object being heated. Typical applications include platen heating and plastic injection molding nozzles.	Stainless steel or Alloy 600	30	4.6	1200	650	467
Strip/ Clamp-On Heaters	These heaters are bolted or clamped to a surface (i.e. dies, molds, ovens). Often used for freeze and moisture protection.	Aluminized steel with refractory insulation Stainless steel with mineral insulation	100 140	15.5 21.7	1100 1400	595 760	481 477
Band/ Barrel Heaters	These heaters are clamped to cylindrical surfaces (i.e. extrusion barrels and nozzles).	Stainless steel with mineral insulation	100	15.5	1400	760	493
Radiant Heaters	These heaters are used in any static or dynamic, non-contact application where conduction or convection heating is not practical. Commonly used in laminating processes, thermoforming and paint drying.	Molded ceramic fiber Stainless steel emitter strip	20 30	3 4.6	2000 2200	1095 1200	518 514

Heater Selection Matrix

Heating Liquids/Surface Heating and Immersion

Heater Type	Application Description	Sheath Materials	Typical Max. Watt Densities W/in²	W/cm²	Max. Operating Temperatures °F	°C	Catalog Page
Cartridge/ Insertion Heaters	These are used as an immersion heater placed either directly in the liquid, or in a protective well (recommended for immersion in water or 90 plus percent water soluble solutions).	Alloy 800	Up to 300 in water	46.5	212 in water	100	11
Tubular Heaters	These heaters are immersed directly in the liquid being heated. Most commonly used when high kilowatts are required. Multiple style mounting adaptors, such as flanges and NPT fittings, provide excellent pressure boundaries.	Flat: Alloy 800 Stainless steel Round: Alloy 800 Stainless steel Steel	60 60 60 60 60 60	9.3 9.3 9.3 9.3 9.3 9.3	1400 1200 350 1600 1200 750	760 650 180 870 650 400	93 93 61 61 61 61
Flexible Heaters	These heaters are applied to the surface of a pipe vessel containing a liquid (well suited for curved surfaces and irregular shaped objects; frequently used for freeze protection).	Polyimide Silicone rubber	20 10	3.1 1.6	390 500	200 260	148 117
Immersion Heaters	FIREBAR® heaters have multiple elements mounted in a flange or screw plug fitting. They are immersed directly in a fluid or in a protective well.	Alloy 800	Up to 100 Up to 100	15.5	212 in water	100	165
	WATROD™ heaters have multiple elements mounted in a flange or screw plug fitting. These are immersed directly in a fluid or in a protective well.	Alloy 800 316 stainless steel Steel		15.5	212 in water 1400 in air	100 760	165
Circulation Heaters	Tubular heaters have multiple elements mounted in a screw plug or ANSI flange fitting and placed in a vessel through which fluid is passed. FIREBAR or WATROD elements may be utilized.	Round: Alloy 800 Stainless steel Steel	60 60 60 60	9.3 9.3 9.3 9.3	1600 350 1200 750	870 180 650 400	331
Fluid Delivery Heaters	FREEFLEX® heaters have polymeric heated tubing, used to maintain temperature in medical applications where heated flexible tubing is required.	Polyimide	72 W/ft	22 W/m	212	100	385
	Syringe heaters are formed to fit a cylindrical part. They are often used in medical applications for heating contrast media and often incorporate a sensor and on-board system.	Lexan Silicone rubber	2 3	0.31 0.47	185 428	85 220	388
High-Temperature Heaters	Ceramic fiber assembled heaters can be used in a chamber surrounding the tank, vessel, crucible or bath. Radiant and convection heat transfer heat the load.	Molded ceramic fiber	30	4.6	2200	1205	433
Specialty Heaters	Coil/Cable heaters that are wrapped or wound around pipe or vessel containing a liquid can be used, or used directly as an immersion heater. They are often used in applications with space limitations (i.e. photo processing equipment, scientific instruments and heat tracing).	Stainless steel or Alloy 600	30	4.6	1200	650	467
Strip/ Clamp-On Heaters	These heaters are bolted or clamped to the wall of a tank or vessel. They are used in food warming and other applications offering a flat mounting surface.	Aluminized steel with refractory insulation Stainless steel with mineral insulation	100 140	15.5 21.7	1100 1400	595 760	481 477
Band/ Barrel Heaters	These heaters are clamped to cylindrical surfaces and are most commonly used to heat liquids flowing through pipes as freeze protection.	Stainless steel with mineral insulation	100	15.5	1400	760	493

Heater Selection Matrix

Heating Gases

Heater Type	Application Description	Sheath Materials	Typical Max. Watt Densities W/in²	W/cm²	Max. Operating Temperatures °F	°C	Catalog Page
Cartridge/ Insertion Heaters	These heaters are mounted in pipes or vessels through which gases pass. They can be placed in protection tubes, making access and wiring easier.	Alloy 800 or stainless steel	100	15.5	Contact Watlow		11
Tubular Heaters	These heaters have multiple elements mounted in an array and placed in a duct or vessel through which gases pass. Flat tubular elements can be modified with the addition of fins to increase surface area.	Flat: Alloy 800 Stainless steel Round: Alloy 800 Alloy 600	30 30 30 30	4.6 4.6 4.6 4.6	1400 1200 1600 1800	760 650 870 980	237
Flexible Heaters	These heaters are applied to the surface of a pipe or vessel containing gases. They are well suited for curved surfaces and irregular shaped objects. Excellent for use in enclosures.	Polyimide Silicone rubber	5 5	0.8 0.8	390 500	200 260	148 117
Circulation Heaters	Tubular heaters have multiple elements mounted in a screw plug or ANSI flange fitting and placed in a vessel through which fluid is passed. FIREBAR or WATROD elements may be utilized.	Flat: Alloy 800 304 stainless steel Round: Alloy 800 Alloy 600	30 30 30 30	4.6 4.6 4.6 4.6	1400 1200 1600 1800	760 650 870 980	331
Air Heaters	Duct heaters have multiple elements placed in a duct through which gases pass.	Alloy 800	20 to 30	3 to 4.6	1400	760	391
	Enclosure heaters prevent freezing and condensation in electrical and mechanical housings.	Stainless steel Aluminum	15 5	2.3 0.8	1200 150	650 66	417 419
	Finned FIREBAR heaters have aluminized steel fins attached to a FIREBAR element. They are used for forced air heating and radiant heating in drivers, ovens and duct work.	Stainless steel	Up to 50	7.7	1200	650	112
	Finned Strip have aluminized steel fins attached to a 375 heater. They are used for air heating, freeze protection and load bank resistors.	Aluminized steel	30	4.7	1100	595	409
High-Temperature Heaters	MULTICELL heaters have multiple elements placed in a duct or vessel through which gases pass. Designs are also available to heat a pass tube externally to isolate gas from the element. Excellent for use in high temperature/high pressure applications.	Alloy 600 Alloy 800	60 60	9.3 9.3	2100 2100	1150 1150	425
	Ceramic fiber heaters are used to construct chambers and furnaces through which gases are passed. Heaters function as high-temperature radiant heaters surrounding transfer pipes or other special vessels.	Molded ceramic fiber	30	4.6	2200	1205	433
Specialty Heaters	Coil/Cable heaters are sinuated or wound into coils, which can be inserted into a pipe or vessel to heat flowing air or gases. Cable heaters readily lend themselves to applications where space is restricted.	Stainless steel or Alloy 600	30	4.6	1200	650	467

Heater Selection Matrix

Heating Within a Vacuum

Heater Type	Application Description	Sheath Materials	Typical Max. Watt Densities W/in²	W/cm²	Max. Operating Temperatures °F	°C	Catalog Page
Cartridge/ Insertion Heaters	These heaters are mounted in a vacuum vessel for radiant energy transfer.	Alloy 800 Stainless steel	up to 35 up to 35	5.4 5.4	1400 1000	760 538	11
Tubular Heaters	These heaters are mounted in a vacuum vessel for radiant energy transfer.	Flat: Alloy 800 Stainless steel Round: Alloy 800 Alloy 600	30 30 30 30	4.6 4.6 4.6 4.6	1400 1200 1600 1800	760 650 870 980	93 93 61 61
Flexible Heaters	These heaters are applied to the exterior surface of a pipe or vessel. They are well suited for curved surfaces and irregular shaped objects. Note: Polyimide is the only flexible heater type recommended for use in the vacuum.	Polyimide	7	1.1	390	200	148
High-Temperature Heaters	MULTICELL heaters are mounted in a vacuum vessel for radiant energy transfer.	Alloy 600 Alloy 800	60 60	9.3 9.3	2250 2250	1230 1230	425
	Ceramic fiber heaters surround the exterior surface of a vacuum vessel, using radiant energy for heat transfer.	Molded ceramic fiber	30	4.6	2200	1205	433
Specialty Heaters	ULTRAMIC advanced ceramic heaters are bonded or clamped to the object being heated.	Aluminum nitride	1000	155	1112	600	459
	Coil/Cable heaters are wound into a coil or sinuated pattern and mounted in a vacuum vessel for radiant energy transfer.	Alloy 600 or Stainless steel	20	3.1	1200	650	467
Band/Barrel Heaters	These heaters are applied to exterior surface of a pipe or vessel.	Stainless steel with mineral insulation	100	15.5	1400	760	493

Cartridge/Insertion Heaters

Cartridge/Insertion Heaters	Sheath Materials	Max. Operating Temperatures °F	°C	Typical Max. Watt Densities W/in²	W/cm²	Page
FIREROD®	Alloy 800	1400	760	400	62.0	11
	Stainless steel	1000	538	400	62.0	
High-Temperature FIREROD	Alloy 800	1800	982	100	15.5	36
Metric FIREROD	Alloy 800	1400	760	330	50.0	48
MULTICELL™	Alloy 800	2050	1120	30	4.6	58