



Standard Circulation Heaters



- Five day or less lead time
- Premium same-day/next-day expedite available
- Dimensional drawing included (via Watlow's Visual Designer)*

Watlow® circulation heaters provide a turn-key heating solution for forced air, gases or liquids. This is accomplished by combining heating elements, vessel, insulation, terminal enclosure, mounting brackets and inlet and outlet connections into a complete assembly. All circulation heaters ship in five-days or less with a premium same-day/next-day expedite available. You can custom configure your circulation heater with Watlow's Visual Designer tool on Watlow.com. The tool will guide you through all of the steps required to quickly configure and order your heater.

Made from screw plug or flange heater assemblies mated with a pressure vessel (tank), circulation heaters are designed to heat forced-circulation air, gases or liquids. Ideal for either in-line or side-arm operations, these assemblies direct fluids past WATROD™ heating elements, to deliver fast response and even heat distribution.

Watlow meets virtually all circulation heater assembly needs with made-to-order units. Watlow circulation heaters can be made from a wide range of heating element sheath materials, wattages, vessel sizes and materials, pressure ratings, terminal enclosures and controls.

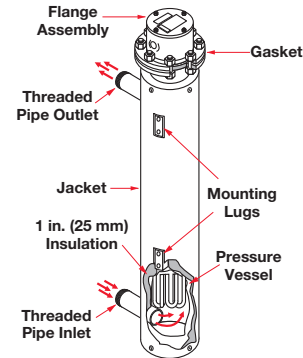
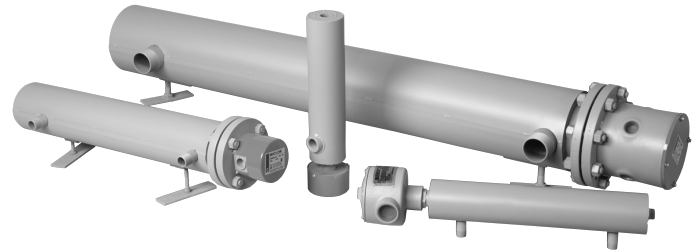
Performance Capabilities

- Watt densities up to 120W/in² (18.6 W/cm²)
- UL® and CSA component recognition up to 480VAC
- Alloy 800/840 sheath temperatures up to 1600°F (870°C)
- Passivated 316 stainless steel sheath temperatures up to 1200°F (650°C)
- Steel sheath temperatures up to 750°F (400°C)

Configure your circulation heater at:
www.watlow.com/design-a-product

* Drawings do not include vessel.

Watlow® is a registered trademark of Watlow Electric Manufacturing Company.
 WATROD™ is trademark of Watlow Electric Manufacturing Company.
 UL® is a registered trademark of Underwriter's Laboratories, Inc.



Features and Benefits

Catalog screw plug and flange part numbers

- Provides a wide selection of WATROD elements to meet specific application requirements

Type	Sizes (in.)
NPT screw plugs	1 ¹ / ₄ , 2 ¹ / ₂
ANSI flanges	3, 4, 5, 6, 8, 10, 12, 14

American National Standard Taper Pipe Thread (NPT) form on 1¹/₄ and 2¹/₂ inch WATROD element plugs

- Meets recognized agency standards

ANSI B16.5 Class 150 on 3 to 14 inch WATROD element flanges

- Meets recognized agency standards

Compacted mgO insulation filled elements

- Maximizes dielectric strength, heat transfer and life

1 inch (25 mm) thermal insulation rated to 750°F (400°C)

- Reduces heat loss from the vessel

Heavy-gauge steel jacket (shroud)

- Protects thermal insulation and heating vessel and comes with protective primer coating

All catalog vessels are rated to ANSI pressure Class 150

- Provides pressure vessels (tanks) that are either carbon or 316 stainless steel

Mounting lugs are welded onto the tank wall of all 2¹/₂ in. (64 mm) NPT and larger units

- Provides mounting support



Features and Benefits (Continued)

Catalog units provided with NPT or ANSI Class 150 nozzle connection

- Makes installation easy. Inlet and outlet nozzle connections are threaded MNPT on 8 in. (203 mm) and smaller tanks. Class 150 flanged connections on 10 in. (254 mm) and larger tanks

General purpose terminal enclosures are standard, with optional enclosures available

- Offers easy access to terminal wiring

Flange mounting holes

- Straddles centerline to comply with industry standards

UL® and CSA component recognition under file numbers E52951 and 31388 respectively

- Meets industry safety standards

Typical Applications

Water:

- Deionized
- Demineralized
- Clean
- Potable
- Process
- Industrial water rinse tanks
- Hydraulic oil, crude, asphalt
- Lubricating oils at API specified watt densities
- Heat transfer oil
- Paraffin
- Caustic cleaners
- Nitrogen, hydrogen and other air/gas systems
- Superheating steam

Options

Terminal Enclosures

Watlow offers the following optional terminal enclosures:

- **Non-certified**, moisture resistant enclosure. Protects wiring in a high moisture environment.
- **CSA certified** (File number 31388), Enclosure 4 enclosure. Protects wiring in a high moisture environment.
- **CSA certified** (File number 61707), Explosion-proof enclosure. Protects wiring in hazardous gas environments.
- **CSA certified** (File number 61707), Type 4/Explosion-proof enclosure. Protects wiring in a high moisture/hazardous gas environment.

When ordering a CSA Explosion Proof enclosure, specify the following:

- **Process temperature** (°F)
- **Maximum working pressure** of application (psig)
- **Media** being heated
- **Mounting orientation** (horizontal or vertical)

Powered by Possibility

To be automatically connected to the nearest North American Technical Sales Office:

1-800-WATLOW2 • www.watlow.com
inquiry@watlow.com

International Technical Sales Offices:

Austria	+43 6244 20129 0	India	+91 40 6661 2700
China	+86 21 3532 8532	Italy	+39 02 458 8841
France	+33 1 41 32 79 70	Japan	+81 3 3518 6630
Germany	+49 7253 9400 0	Korea	+82 2 2169 2600

Mexico	+52 442 256 2200
Singapore	+65 6773 9488
Spain	+34 91 675 1292
Taiwan	+886 7 288 5168
UK	+44 115 964 0777

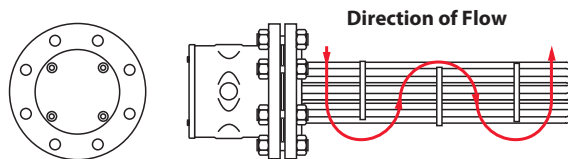
Branch Circuits

Branch circuits are designed for 48 amperes per circuit maximum.

Thermostats

To provide process temperature control, Watlow offers optional single- and double-pole thermostats. Thermostats are mounted in the terminal enclosure.

Baffles



Baffles mounted on the heating element bundle enhance and/or modify liquid or gas flow for better heat transfer.

For critical sheath temperature and low flow conditions, baffles may be required.

Contact a Watlow representative for details.

Thermocouples

To sense process or element sheath temperature, ASTM Type J or K thermocouples are available.

Sheath Materials

The following sheath materials are available on WATROD heating elements:

Standard Sheath Materials

WATROD	Alloy 800/840
	316 SS
	Steel

Wattages and Voltages

Watlow routinely supplies circulation heaters with 120 to 480VAC as well as wattages from 500 watts to 200kW.

For more information on special voltage and wattage configurations, contact a Watlow representative.

Inlet and Outlet Nozzle Connections

All inlet and outlet materials are compatible with the pressure vessel material and pressure class rating.

Vessel sizes from 1¼ to 8 inches are configured with Male National Pipe Thread (MNPT) nozzles.

10 inch and larger vessels are supplied with Class 150 inlet and outlet flanges.

Pressure Vessels

All catalog pressure vessel (tank) materials consist of standard schedule and class 150 forged fittings and are made from one of the following materials:

- Carbon steel
- 316 stainless steel

316 stainless steel pressure vessels (tanks) are passivated on all wetted surfaces.