

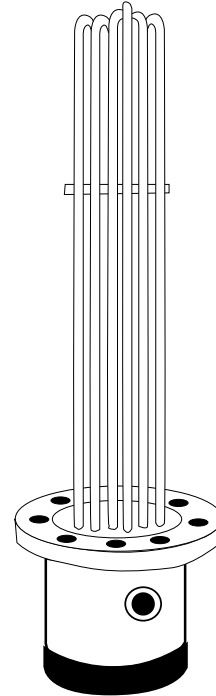
Ideal For Heating Liquids, Gases, Tanks and Pressure Vessels Requiring Higher Kilowatts

Features

- ANSI and ANSI compatible 2, 2½, 3, 4, 5, 6, 8, 10, 12 and 14 inch flanges
- Flange sizes up to 24 inches available on Made-to-Order units
- Element sheath and flange materials available to meet application needs
- Integral thermowells
- A standard, general purpose (NEMA 1) terminal enclosure
- Element support(s)
- Drilled and tapped holes supplied for eye bolts on 10 inch and larger flange heaters
- All units are inspected and/or tested
- 4 to 6 inch FIREBAR flange heaters
- Repressed (recompacted) WATROD hairpins
- Branch circuits meet NEC requirements for 48 amps per circuit maximum
- UL® and CSA component recognition; under files #E52951 and 31388 respectively

Benefits

- Provide appropriate heater size-to-application and fit
- Fits a wide range of industrial needs
- Compatible with media being heated
- Provide convenient temperature sensor insertion and replacement without draining the fluid being heated
- Offers easy access to wiring and ensures safety to user
- Provide proper element spacing to maximize heater performance and life
- Facilitates lifting of heavier units
- Ensures element-to-flange pressure seals do not leak
- Pack more kilowatts in smaller bundles—in liquid immersion applications, a conventional 10-inch round tubular element flange can be replaced with a 6-inch FIREBAR flange
- Maintains MgO density, dielectric strength, heat transfer and life
- Meets applicable safety codes
- Designed and built for safety



Watlow flange heaters are easy to install and maintain. Designed for heating liquids and gases in tanks and pressure vessels, flange immersion heaters are ideal for applications requiring higher kilowatt output.

Watlow flange heaters are made with WATROD or FIREBAR® tubular elements brazed or welded to a flange. Stock flange heaters are equipped with a general purpose (NEMA 1) terminal enclosure.

Flange heaters, with FIREBAR elements, also answer the need for liquid immersion applications requiring high kilowatt output in small tanks. The FIREBAR element's unique flat surface geometry packs more power in a smaller bundle, with lower watt density, making it especially well suited for petroleum-based liquid heating applications.

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A subsidiary of Watlow, Designer and Manufacturer of Industrial Heaters, Sensors and Controls
6 Industrial Loop Road
Hannibal, Missouri 63401 USA
Phone: 573-221-2816
Fax: 573-221-3723
Internet: www.watlow.com

FLANGE IMMERSION HEATERS

Applications

- Water
 - Deionized
 - Demineralized
 - Clean
 - Potable
 - Process
- Industrial water rinse tanks
- Vapor degreasers
- Hydraulic oil, crude, asphalt
- Lubricating oils at API specified watt densities
- Air and gas flow
- Caustic solutions
- Chemical baths
- Process air equipment
- Boiler equipment
- Freeze protection of any fluid
- Anti-freeze (glycol) solutions
- Paraffin

Options

Terminal Enclosures

General purpose terminal enclosures, without thermostats, are standard on all flange immersion heaters. Optional terminal enclosures include:

- General purpose (NEMA 1) with a single or double pole thermostat.
- Moisture resistant (NEMA 4- steel). Available with or without a single or double pole thermostat.
- Corrosion resistant (NEMA 4X). Available with or without a single or double pole thermostat.
- Explosion resistant (NEMA 7) class 1 groups C and D. Available with or without a single or double pole thermostat.
- Explosion / moisture resistant (NEMA 7/4) combinations. Available with or without a single or double pole thermostat.
- For class 1, group B enclosures, consult your Watlow representative.

Enclosure Enhancements

- Enclosure heater to solve condensation and freeze problems
- Power distribution blocks to facilitate power feed line wiring

Caution!



Explosion-resistant terminal enclosures are intended to provide explosion containment in the electrical

termination/wiring enclosure only. No portion of the assembly outside of this enclosure is covered under this NEMA rating. NEMA rating effectiveness may be comprised by abuse or misapplication.

Stand-off Terminal Enclosures

Stand-off terminal enclosures provide an air-insulating barrier between the flange and terminal enclosure by mounting the terminations and wiring away from the flange. Stand-off terminal enclosures are recommended whenever a process operating temperature exceeds 400°F (205°C). This helps minimize terminal enclosure temperatures.

CSA Certified Enclosures

CSA certified moisture and/or explosion resistant terminal enclosures protect wiring in hazardous gas environments. These terminal enclosures, covered under CSA file number 61707, are available on all WATROD and FIREBAR flange heaters. For additional information, consult your Watlow representative.

Thermostats

To provide process temperature control, Watlow offers optional single pole, single throw (SPST) and double pole, single throw (DPST) thermostats.

Unless otherwise specified, thermostats are mounted inside the terminal enclosure.

Thermocouples

ANSI Type J or K thermocouples offer more accurate sensing of process and/or sheath temperatures. A thermocouple may be inserted into the thermowell or attached to the heater's sheath.

Thermocouples are supplied with 120 inch (3050 mm) leads (longer lead lengths are available).

Using a thermocouple requires an appropriate temperature and power control. These must be purchased separately. Watlow offers a wide variety of temperature and power controls to meet virtually all applications. Temperature controls can be configured to accept process variable inputs, too.

Wattages and Voltages

Watlow routinely supplies flange immersion heaters with 240 to 480VAC as well as wattages from 150 watts to 1 megawatt. If required, Watlow will make heaters with voltage up to 600VAC and wattage beyond one megawatt. For more information on special voltage and wattage configurations, consult your Watlow representative.

FLANGE IMMERSION HEATERS

Branch Circuits

Branch circuits are subdivided by National Electrical Code (NEC) requirements to a maximum of 48 amps per circuit.

Sheath Materials

The following sheath materials are available on WATROD and FIREBAR flange heaters:

Standard Sheath Materials

WATROD	Incoloy®
	316 stainless steel
	Steel
	Copper
FIREBAR	Incoloy

Made-to-Order Sheath Materials

WATROD	304 stainless steel
	Monel®
FIREBAR	304 stainless steel

Exotic Sheath Materials

Consult your Watlow representative for details and availability.

External Finishing

Passivation

During the manufacturing process, particles of iron or tool steel may become embedded in the stainless steel or alloy sheath. If not removed, these particles may corrode, produce rust spots and/or contaminate the process. For critical sheath applications, passivation will remove free iron from the sheath.

Other Finishes

Simple belt polishing and glass beading are available to meet cosmetic demands.

Flanges

Flange Sizes and Styles

Standard: 2^①, 2½^①, 3, 4, 5, 6, 8, 10, 12 and 14 inch ANSI raised face/blind flanges.

Made-to-Order: 16, 18, 20 and 24 inch in any recognized configuration, as well as customer specified. Over 24 inch, consult Watlow Process Systems, Troy, Missouri.

Gaskets

Rubber, asbestos-free and spiral wound gaskets are available for all flange sizes.

Baffles

For forced circulation applications, baffles can be arranged on the heating element bundle to enhance and/or modify fluid or gas flow for better heat transfer. For open tank or convection heating applications, standard element supports will be supplied.

^① ANSI compatible only.

Ordering Information

How to Order

To order a stock flange heater, please specify:

- Watlow code number (from Watlow Heater's Catalog)
- Flange size and material
- Volts / watts
- Phase
- Options
- Quantity

If the flange immersion heater is to be configured with options, add the suffix letter(s) to the base flange heater code number, as indicated on the Build-a-Code chart in Watlow Heater's Catalog. If our stock units do not meet your application needs, Watlow will make-to-order.

For Made-to-Order units please specify:

- Application, including media heated, flow rate, pressure, and process operating temperatures
- Volts/watts
- Watt density
- Phase
- Number of circuits
- Number of heating elements
- Element diameter (WATROD only)
- Immersed length
- Flange size, rating and material
- No-heat section below the flange
- Terminal enclosure type
- Options
- Quantity

Availability

- **Stock:** Same day shipment
- **Assembly Stock:** 5-7 working days
- **Modified Stock:** 5-7 working days
- **Standard:** 10 working days
- **Made-to-Order:** 5-7 weeks

Options, complexity and quantity may affect availability and leadtimes. Consult factory.