

# 316 Stainless Steel Heaters

## Superior Corrosion and Contamination Resistance When You Need It



Watlow® offers the most complete line of 316 stainless steel heaters from stock for your deionized water, cleaning or corrosive liquid applications. Watlow offers tubular screw plug, flange and circulation heaters designed to reduce contamination of the process, improve corrosion resistance, and provide optimum performance and long life.

### Fast Deliveries

More than 150 assembly stock designs are available for shipment in five days or less. Heaters same as stock, except for voltage and/or wattage, are available for shipment in 10 days or less.

### Performance Capabilities

- Sheath temperatures up to 1200°F (649°C)

### Typical Applications

- Ultrasonic cleaning for:
  - Circuit boards
  - Electronic components
  - Disk drive components
  - Plastic parts
  - Laboratory test tubes
  - Glassware
  - Medical instruments
  - Metal stampings
  - Optical lenses
  - Glass and ceramic parts
  - Jewelry
  - Precious stones
  - Watches and coins
- In-line process heating
- Hot runner molds
- Aqueous and semi-aqueous cleaning
- Spot-free rinse at car washes

### Features and Benefits

#### 316 stainless steel construction with molybdenum

- Assures long heater life
- Resists corrosion
- Eliminates pitting

#### Passivated, oxide-free elements

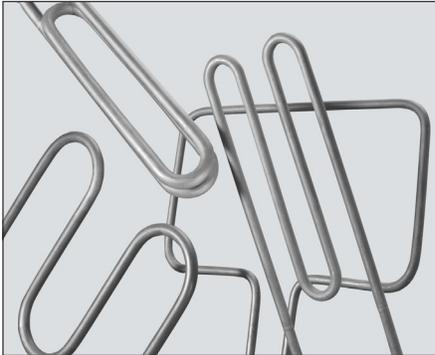
- Prevents process contamination

#### UL® and CSA recognition

- Assures compliance with safety regulations

## Typical Applications

- **Fully annealed:** can be formed into virtually any shape and size to fit your application requirements.
- **36 standard bend formations:** spirals, compound bends and multi-axis or multiplane configurations.
- **A variety of termination and mounting options:** threaded stud terminals or lead wires and bulkheads for liquid tight mounting.
- **Specially sealed:** prevents moisture contamination from entering the heater sheath.



WATROD™ Tubular Heater

## Circulation Heaters

- Complete assemblies with heating elements, vessels, insulation, terminal enclosure, mounting brackets, and inlet and outlet connections.
- NPT connections and mounting blocks allow for easy installation. Optional flanged connections available.
- All wetted parts are passivated 316 stainless steel to minimize contamination of the process.
- Specifically designed for in line processes requiring the heating of flowing gases or liquids.
- Optional thermostats, process or high limit thermocouples and electrical enclosures available.



Circulation Heater

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

*Powered by Possibility*

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 North American Technical Sales Office:

**1-800-WATLOW2 • [www.watlow.com](http://www.watlow.com)**

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## Screw Plug and Flanged Immersion Heaters

- Stock voltages include 120V 1-phase, 240 and 480V 1- or 3-phase. Stock wattages from 3 to 150kW.
- All wetted parts are passivated 316 stainless steel to minimize contamination of the process.
- Standard Type 1 electrical enclosures. Moisture and explosion resistant enclosures available.
- Special voltages, wattages, materials and sizes available upon request. Contact your local authorized sales agent or distributor.
- 2½ inch NPT screw plug heater, and 4 and 6 inch ANSI flange heater stock configurations. Other sizes available.



Flange Heater



Screw Plug Heater

## Corrosion

Corrosion occurs when the heater's outer sheath deteriorates due to chemical attacks from the material being heated. This allows contaminants to enter the heater. Watlow's 316 stainless steel sheath, which contains molybdenum, minimizes corrosion in various environments, especially in deionized or demineralized water applications. Molybdenum eliminates pitting caused by chlorides, increases corrosion resistance to chemicals and solvents, and increases strength and ductility.

## Contamination Prevention

Watlow's 316 stainless steel heaters are passivated to reduce the possibility of contamination of your process from free iron and other contaminants.

### 316 stainless steel offers optimum resistance against these corrodants and more:

- Acid solutions
- Aluminum acetate
- Barium hydroxide
- Bisulfate
- Butyl acetate
- Calcium bisulfate
- Deionized water
- Magnesium sulfate
- Electroplating baths
- Potassium chlorate
- Potassium chloride
- Process water

Contact your Watlow representative for proper watt densities for these various solutions.