

## Circulation Heaters Available For Quick Shipment

Throughout many steps in the semiconductor manufacturing process, Watlow cable circulation heaters help to improve process time and operating efficiency. Using clean, hot gases reduces wafer drying time. Flameless dry heat efficiently solders and desolders electronic circuits and boards. Heated gas streams quickly dry and cure circuit boards without using a large baking oven, saving precious floor space. Watlow's STARFLOW circulation heater is specifically designed to meet the requirements of these applications.

The STARFLOW circulation heater is engineered to heat a flowing gas stream up to temperatures of 1400°F (760°C). The 316L stainless steel chamber houses a small diameter sheathed element, which allows for quick response to both heat up and cool down cycles. Watlow's starwound coiled cable heater provides extremely efficient and reliable heating by maximizing the contact area of the gas or fluid with the element.

Because the element is sheathed, the unit can operate in gas streams that require a clean environment as well as atmospheres that contain contaminants and moisture. This provides superior performance compared to units with internally exposed or open element wires.

### Applications

- Semiconductor processing
- Curing and drying
- Electronics
- Heat shrinking
- Thermal forming and sealing

### Custom Applications/Non-Standard Options

- Please consult your sales representative or Watlow St. Louis for availability of custom manufactured products.



### Features and Benefits

#### Small diameter heater

- Quick response

#### Internal starwound element

- Fast, efficient heating

#### Sheathed element

- Able to heat in clean or impure streams

#### 316L stainless steel construction

- Rugged, corrosion resistant

#### Electropolishing available on all wetted surfaces

- Reduces particulate contamination

#### Type J or K thermocouples

- Precise control
- High limit safety

#### Replaceable heater and thermocouple

- Reduces replacement cost

#### Shipment from stock

- Reduces downtime

Preliminary



Watlow St. Louis

A subsidiary of Watlow, Designer and Manufacturer  
of Industrial Heaters, Sensors and Controls

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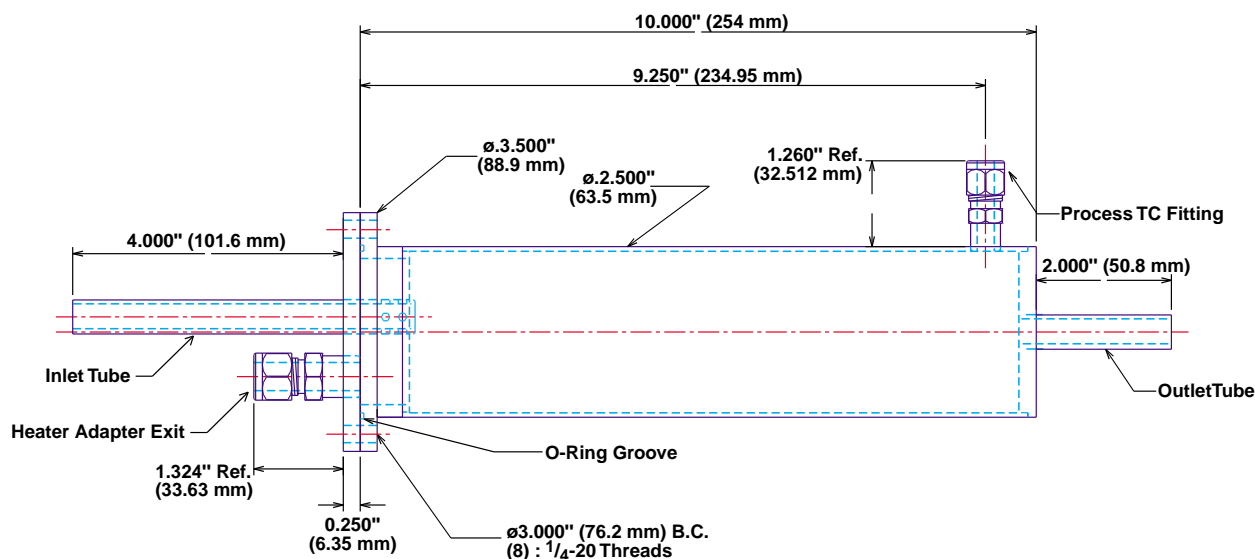
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STL-STAR-30

## Chamber Dimensions



## Ordering Information

C H

### Type of Inlet

ET = ¼" (6.35 mm) OD tube  
 JT = ½" (12.7 mm) OD tube

### Type of Outlet

ET = ¼" (6.35 mm) OD tube  
 JT = ½" (12.7 mm) OD tube

### Heater Wattage

0375 = 120V, 375W  
 0500 = 120V, 500W  
 0750 = 120V, 750W  
 1500 = 240V, 1500W  
 2000 = 240V, 2000W  
 3000 = 240V, 3000W

### Internal TC Calibration (Heater)

J = Type J  
 K = Type K

### Surface Finish of Assembly & Heater

X = Unfinished  
 E = Electropolished

### Process TC Calibration (Assembly)

J = Type J  
 K = Type K

### O-Ring Material

A = Viton® 500°F (260°C)  
 F = Aflas® 446°F (230°C)  
 T = Teflon® encapsulated Viton® 392°F (200°C)

## Quick Shipment

All options shown in the "Ordering Information" box are available for quick shipment. Watlow can provide a complete assembly—heater, high limit and process sensors, and circulation tank.

## Your Authorized Watlow Distributor Is:

Aflas® is a registered trademark of the Asahi Glass Co., Ltd.  
 Teflon® is a registered trademark of E.I. duPont de Nemours & Company  
 Viton® is a registered trademark of DuPont Dow Elastomers L.L.C.

**United States Sales Offices:** Atlanta/Greenville, (770)908-9164 • Austin, (512)249-1900 • Charlotte/Columbia, (704)541-3896 • Chicago, (847)458-1500 • Cincinnati, (513)398-5500 • Cleveland, (330)467-1423 • Dallas, (972)422-4988 • Denver, (303)798-7778 • Detroit, (248)651-0500 • Houston, (281)355-6015 • Indianapolis, (317)575-8932 • Kansas City, (913)897-3973 • Los Angeles, (714)935-2999 • Maryland/Virginia, (410)840-8034 • Minneapolis, (612)431-5700 • Nashville, (615)264-6148 • New England, (603)882-1330 • New York/New Jersey/Philadelphia, (215)345-8130 • New York, Upstate, (716)438-0454 • Orlando, (407)351-0737 • Phoenix, (602)708-1995 • Pittsburgh, (412)322-5004 • Portland, (503)245-9037 • St. Louis, (314)878-4600 • Sacramento, (707)425-1155 • San Diego, (760)728-9188 • San Francisco, (408)980-9355 • Seattle, (425)222-4090 • Tampa/St. Petersburg, (813)926-3600 • Tulsa, (918)496-2826 • Winston Salem/Raleigh, (336)766-9659 • Wisconsin, (414)723-5990

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**For other product information, call Watlow's FAX REPLY:** United States +1 (800) 367-0430 • Outside the United States +1 (732) 885-6344

