

# ASSURANT™ SERIES TC Heater Jacket

## Evenly Heats Downstream Semiconductor Vacuum Lines

Watlow's heater jackets are developed to provide flexibility in designing the optimum heating systems for pump lines, fore lines and exhaust lines. ASSURANT™ TC heater jackets are designed for high temperature/low outgassing for cleanroom applications.

Watlow's ASSURANT SERIES TC heater jacket maximizes thermal uniformity and coverage by providing an efficient, easy-to-install heating solution for downstream exhaust line applications. The ASSURANT heater jackets optimize process tool uptime and chip yield by providing full coverage to the line eliminating cold spots that result in particle buildup.

ASSURANT heater jackets can be customized with distributed watt densities, so lighter and heavier component parts are heated uniformly.

This heater jacket can be supplied with integrated temperature sensors and controllers to assure accuracy and equipment longevity.

### Features and Benefits

#### Even heating for uniform temperature profiles over the entire heated line

- Eliminates cold spots that result in sublimation and solid particle buildup in the line

#### High operating temperatures up to 250°C (482°F)

- Prevents particle buildup in high-temperature applications such as certain atomic layer deposition (ALD) applications

#### PTFE construction

- Exhibits low out-gassing and little to no particle generation
- Appropriate solution for clean-room applications

#### UL®, SEMI S2 and CE agency approval

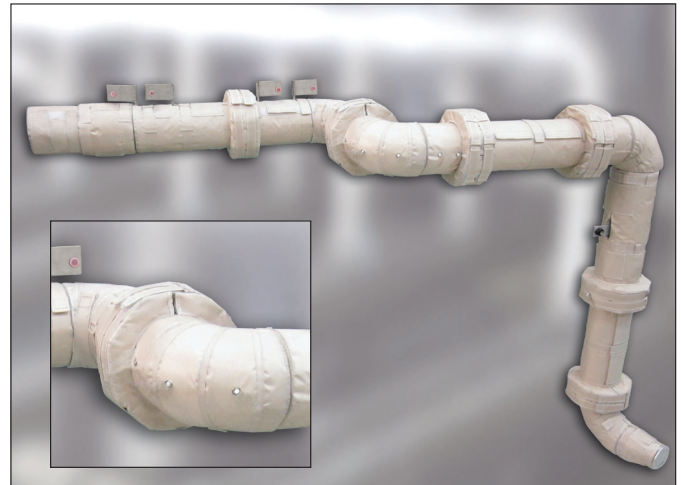
- Assures safety standard compliance

#### Environmental safety

- Reducing particle buildup decreases potential of employee exposure to hazardous materials during normal cleaning cycles

#### Easy-to-install system

- Conveniently fits on most pump line configurations
- Provides full line coverage for uniform heating
- Interconnection between heaters is easily accomplished using the mating electrical connectors



#### Integrated sensors and controllers

- Enables flexible control solutions using PID temperature algorithms to deliver accurate and precise temperature control

#### Flexible heater design

- Allows for heating typical vacuum line components and fittings including pipes, valves, clamps and elbows in the line
- Allows quick prototyping to determine energy distribution requirements for process improvements

#### Fibreglass insulation

- Provides high efficiency
- Lowers power consumption and the cost of ownership
- Yields low backside temperatures

#### Typical Applications

- Semiconductor, PV, FPD and LED
- Fore Lines, pump lines, exhaust lines and bypass lines
- Etch
- PECVD
- Nitride
- TEOS
- OEM tools
- Vacuum bake-out
- Abatement tools

## Specifications

### Operating temperature

- Standard operating temperature up to 180°C (356°F) (recommended)
- Maximum operating temperature up to 250°C (482°F)
- Other options available (contact your Watlow representative)

### Agency approvals

- UL® 499, File # E52951
- RoHS compliant
- CE
- SEMI S2

### Standard connectors

- Amp MATE-N-LOK™
- 4-PIN AMP CPC
- Other options available (contact your Watlow representative)

### Integrated sensor (optional)

- Type K thermocouple
- Over-temperature mechanical thermostat 200°C (392°F) max.

### Voltage

- 120, 208, or 240V standard, other voltages available

### Fastener

- Hook and loop

### Inner jacket material options

- PTFE coated fiberglass

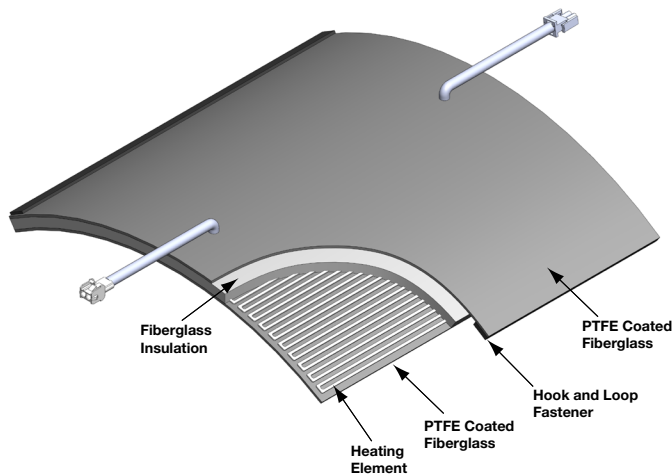
### Outer jacket material options

- PTFE coated fiberglass

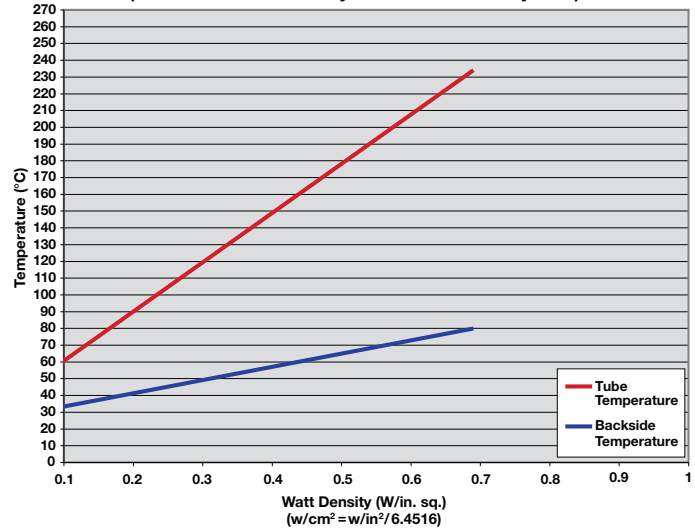
### Dimensions

- Available for pipe sizes 1 to 6 in. (25 to 152 mm) diameter. For other sizes contact your Watlow representative.

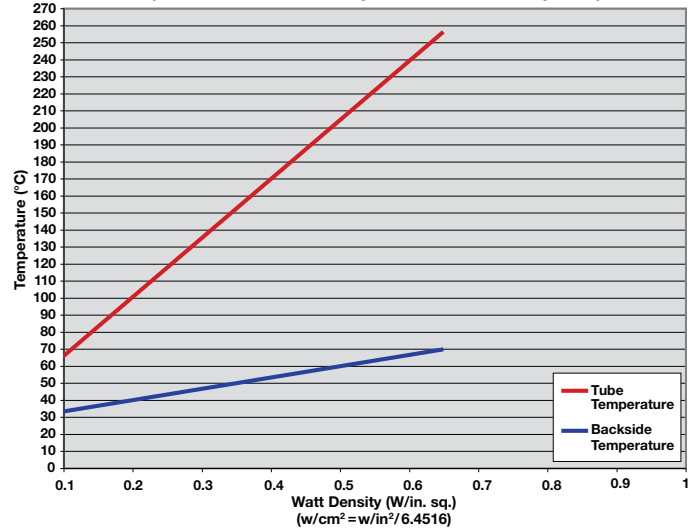
## Heater Construction



Watt Density vs. Tube Temperature vs. Jacket Backside Temperature  
Assurant SERIES TC - 10 mm Insulation  
(Data collected at steady state with boundary heat)



Watt Density vs. Tube Temperature vs. Jacket Backside Temperature  
Assurant SERIES TC - 15 mm Insulation  
(Data collected at steady state with boundary heat)



**Note:** The data in the charts above represent nominal values derived from a test environment. Please consult a Watlow sales engineer to discuss your particular application.

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