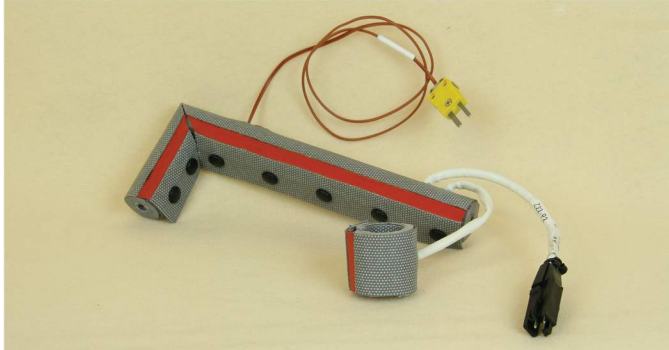
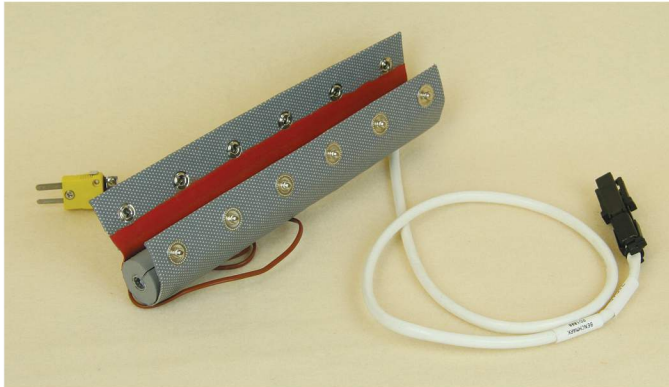


# Benchmark Thermal

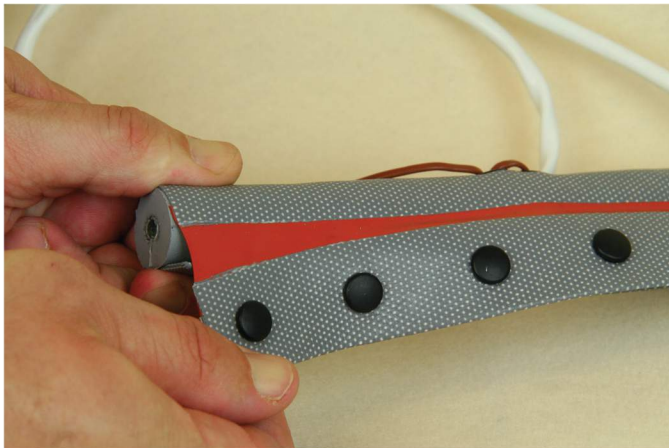
Benchmark Thermal  
13185 Nevada City Avenue, Grass Valley, CA 95945  
530-477-5011 (PH) 530-477-6507 (FAX)  
www.BenchmarkThermal.com



1/4" Gas Line with 90 Deg. Elbow, VCR Nut Heater & Insulation

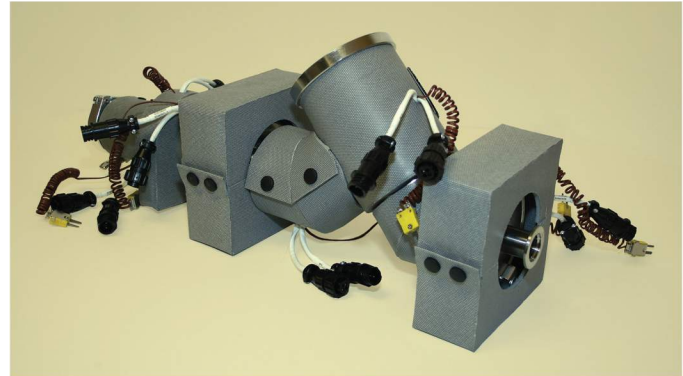


1/4" Straight Gas Line Heater with EZ snaps & Type 'K' T/C

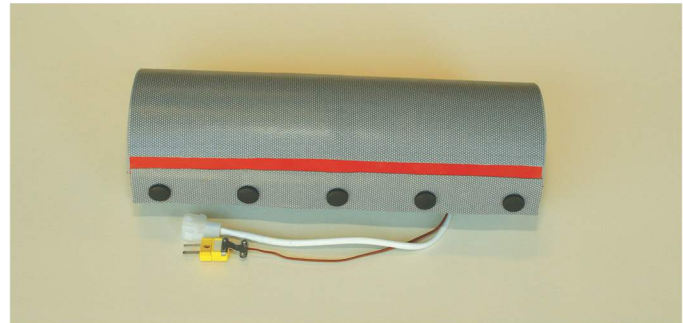


Example of EZ Snap Closure Solution

## Tech1 Gas Line Heaters



Multi-zone Vacuum Line Valve Heater



4" dia Vacuum Line Heater with 1/2" sponge EZ Snap Closure Type "K" T/C



HPS-KF50 Wing Nut Clamp Heater

## Gas Line Heaters for Semiconductor Tool Applications

Benchmark Thermal has been a full line manufacturer and supplier of industrial heating elements and controls in California since 1984, with high quality products. Our competitive advantage is that we can quickly custom design complex heater configurations to meet our customers' unique heating requirements.

Our company has been serving the Semiconductor Industry since 1997, with innovative heating solutions for complex and technical applications, along with a full complement of thermal components with the following features:

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- ▶ Uniform or profiled heat throughout or in discrete zones
- ▶ Heater Temperatures to 475°F (246°C)
- ▶ Overtemperature protection
- ▶ Control of surface temperature by insulation provides operator safety to conform with SEMI – S2 Specs
- ▶ Nylon coated snaps for operator protection
- ▶ E-Z snap, self-adjusting jacket closure to provide a better fit & easier installation
- ▶ Foam molded parts for precision fit

## MATERIAL SPECIFICATIONS

- ▶ Silicone Rubber Heaters rated up to 475°F (246°C)  
+ UL up to 200°C
- ▶ Foam Insulation rated up to 250°C  
+ UL up to 200°C

## OVER-TEMPERATURE / CONTROL OPTIONS

- ▶ Thermal Fuses
- ▶ Thermostats, Auto Reset or Manual Reset
- ▶ Temperature Controls
- ▶ Imbedded Thermocouples for closed loop control;  
Type J, K, etc.

## ELECTRICAL SPECIFICATIONS

- ▶ Voltage: 12V to 240V, AC or DC
- ▶ Wattage: Up to 15 Watts per square inch
- ▶ UL Approval for AC and DC Voltages

## GENERAL SPECIFICATIONS

- ▶ Agency approvals and conformance; UL, CSA, and CE
- ▶ Clean Room compatibility
- ▶ Process & Controls meet ISO 9002 standards with traceability on key components

# Tech1<sup>TM</sup>

For your exact heater needs, quotes or questions, please contact **800-748-6189**  
or [thermal@BenchmarkThermal.com](mailto:thermal@BenchmarkThermal.com)