

High Uniformity Gas Delivery Line Heaters



A number of gases used in semiconductor wafer processing require uniform heating of the gas lines in order to prevent condensation and potential contamination of the wafer process. Condensation occurs at cold spots and may result in expensive maintenance and tool down time. Contamination occurs when hot spots in the gas line cause the gases to break down and results in reduced yields.

Watlow's High Uniformity Temperature Solution starts with thermal profiling the gas lines in order to understand the thermal gradients resulting from component mass, material and physical orientation. The standard and custom modeled silicone rubber gas line heater solution results in a thermal system that meets specification and is repeatable for common tool designs.

Features and Benefits

Even heating to 200°C (392°F) for uniform temperature profiles over the entire heated line

- Helps eliminate condensation in lines and/or maintain process chemistry
- Insulated straight fillers for 100 percent line coverage (elbows and tees are trim-to-fit to proper length)

Cleanroom compatible silicone rubber construction

- Clean heaters will not contribute to particle generation

Environmental safety

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

Optional UL® 94-VO flame retardant materials

- Fire-safe UL® 94-HB or UL®-VO material

Applications

Gas delivery lines

- Boron trichloride, BCl_3
- Chlorine trifluoride, ClF_3
- Dichlorosilane, (DCS), SiH_2Cl_2
- Tetraethylorthosilicate, TEOS
- Tungsten hexafluoride, WF_6
- Process gas line qualification