

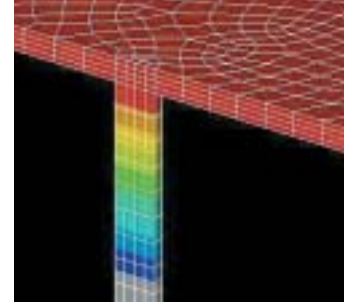
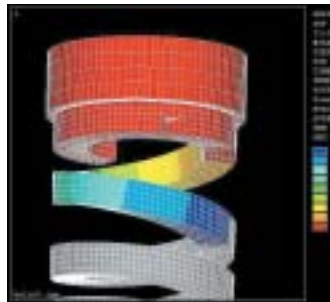
Temperature Sensor Technologies



MICROCOIL

MICROCOIL surface sensors are ideal for measuring chuck, internal wall, chip, heat sinks and circuit temperatures. The flexible probe design positions the sensor tip for optimal surface contact and isothermal response and accuracy. MICROCOIL can be designed as a single or dual probe and with metal or ceramic tips for maximum isothermal accuracy and process material compatibility.

U.S. Patent #6,257,758
European Patent #1,119,749



Features and Benefits

Miniature size

- Allows for precision measurement in tight spaces

XACTPAK® mineral insulated thermocouple cable

- Electronically isolated and shielded

Self leveling and loading

- Provides superior repeatability of measurement for a wide variety of surfaces and isothermal measurement accuracy

RADIO FREQUENCY Thermocouple Probe (RF)

RF immersion sensors are designed to reduce transient 13.56 MHz signals from being transmitted on the sensor leads in plasma environments. This results in a more stable and accurate measurement of chuck temperature.

Features and Benefits

3000V \pm (dc) dielectric rating

- Allows thermocouple to be used in platens with dc bias

High thermal conductivity design

- For accurate, repeatable measurements

High CMRR lead wire design

- Reduces induced error from EMI variety of surfaces



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TRUE SURFACE Thermocouple (TST)

TST is a surface sensor designed to reduce error in atmospheric applications where air currents can cause instability in temperature accuracy. A winner of *Control Engineering's* 2000 Editor's Choice Award, the TST achieves superior accuracy through a combination of isothermal design and shielding.

Features and Benefits

Isothermal measuring junction

- Offers excellent thermal conductivity for the measuring junction

Molded insulator

- Isolates the isothermal measuring junction from ambient airflow

Compact, universal package

- Fits into corners and other tight locations easily (11.2 mm (0.44 in.) wide by 6.1 mm (0.24 in.) high) and the molded insulator is removable for applications where an even smaller package is needed

Temperature rating of 200°C (400°F)

- Offers superior application flexibility for a wide variety of surfaces



Tapered Thermocouple Probe

The Tapered Thermocouple Probe is designed to provide rapid temperature response in applications where the sensor is inserted in an electrostatic chuck, gas line or wherever a fast accurate temperature measurement needs to take place in a small area. Tool design using the Tapered Thermocouple Probe is miniaturized by the combination of tapered tip construction and a new mini-bayonet style fitting.

Features and Benefits

NIST traceable cable calibration certification

- Calibration offset information allows the controller to compensate for known error
- INFOSENSE™ calibration code can be used with compatible Watlow controller to double sensor accuracy ($\pm 0.5^{\circ}\text{C}$ ($\pm 0.9^{\circ}\text{F}$) or ± 0.2 percent)

Tapered tip option

- Faster response time in more rigid sheath designs



Applications

Electrostatic chucks

Gas lines

Chambers