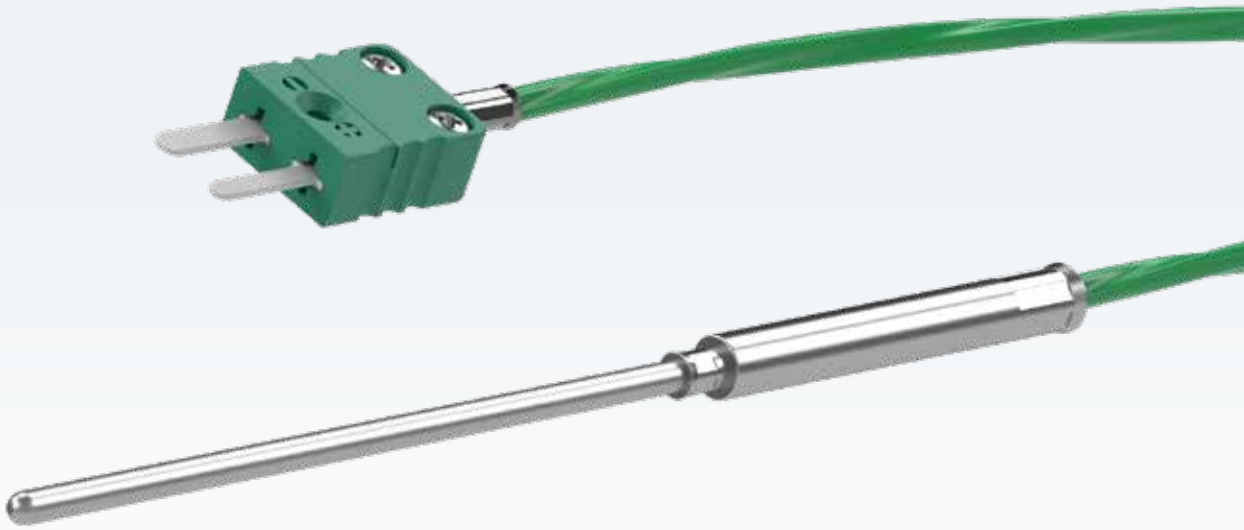


RÖSSEL MESSTECHNIK

SEMICONDUCTOR INDUSTRY

TEMPERATURE MEASUREMENT TECHNOLOGY FOR THE SEMICONDUCTOR INDUSTRY

Consultation. Solution. Innovation.

SEMICONDUCTOR INDUSTRY

TEMPERATURE MEASUREMENT TECHNOLOGY FOR THE SEMICONDUCTOR INDUSTRY

THERMOCOUPLES AND RESISTANCE THERMOMETERS FOR PROCESS RELIABILITY AND QUALITY ASSURANCE

Microprocessors or semiconductor chips are everywhere you look nowadays, in everything from coffee machines to industrial servers. Temperature sensors are required throughout the semiconductor manufacturing process: from wafer fabrication and doping to final metalization and packaging. RÖSSEL-Messtechnik precisely targets the specific manufacturing conditions faced in the semiconductor industry. Our expertise lies in the use of special materials and material combinations to facilitate even the most sensitive applications. This involves the use of quartz glass and combinations with ceramics for quartz, sapphire and silicon thermowells, for example.

Pressure and vacuum-tight thermocouples, high-temperature thermocouples and corrosion-resistant sensors for etching processes are just a few examples of the products we specialize in at RÖSSEL-Messtechnik.

Designed with the semiconductor industry in mind, RÖSSEL-Messtechnik runs a class 5 clean room to ensure we consistently meet the strictest quality requirements.

Whatever the process, our experts are the first point of call!

- Class 5 clean room
- Acid-resistant sensors for etching processes
- Pressure and vacuum-tight sensors
- Quartz glassblowers available at any time
- Sensors with extremely short response times

OUR
SUCCESS STORY

INCREASED CHIP YIELD THANKS TO PROFILE TEMPERATURE MEASUREMENT

Assuring the quality of manufacturing processes is crucial for chip yield in the semiconductor industry. In wafer coating, miniature thermocouples are used to ensure uniform coating at temperatures of 700°C. The challenge lies in tracking the processes with as many sensors as possible yet without any noticeable effects. RÖSSEL-Messtechnik has developed a test wafer that can be equipped with almost any number of sensors and also used in a vacuum chamber.

THE CHALLENGE

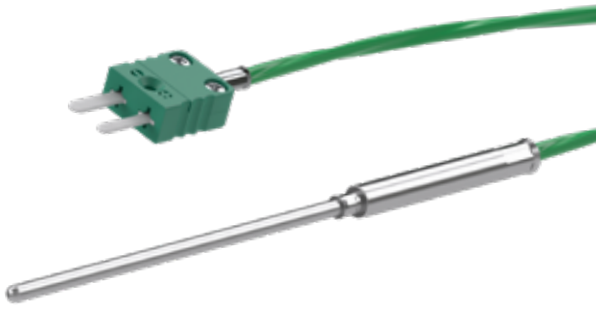
Coating processes on the wafer take place at temperatures up to 700°C. Sheathed thermocouples smaller than 0.5mm in diameter are therefore required to monitor temperatures. If possible, the process parameters need to be recorded on the product to be coated (wafer) and checked against the measured values in the system. The main challenge is temporarily mechanically attaching the thermocouples to the wafer for removal during the calibration process.

THE SOLUTION

RÖSSEL-Messtechnik developed a test wafer for the customer that permitted almost any number of sheathed thermocouples to be temporarily attached Instead of adhesives, the same material used to coat the wafer was used to attach the thermocouples. This offered several advantages: 1. Adhesive-free application permits use in a vacuum environment. 2. Direct transfer to the process is possible. 3. The sensors can be removed without damage using a corresponding process and can therefore be recalibrated and reused.

THE ADVANTAGE

Profile temperature measurement with the test wafer from RÖSSEL-Messtechnik offers customers the highest degree of accuracy for process measurement values with reproducible and reliable results. Using the system-specific information gained, customers can optimize their coating processes with pinpoint accuracy. Thanks to the ability to remove them without causing any damage, sensors from RÖSSEL-Messtechnik can be recalibrated and reused both on the same wafer and on others. After special cleaning procedures, the sensors can also be used in other coating processes. The ability to reuse the sensors saves the environment and resources.



YOUR PERSONAL
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Jörg Reichelt
Semiconductor expert
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RÖSSEL-MESSTECHNIK – YOUR CERTIFIED PARTNER

As a leading manufacturer of temperature measuring technology for industrial and research purposes, we meet the strictest production standards. With internationally recognized approvals and calibrations, we offer quality you can rely on around the globe.

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