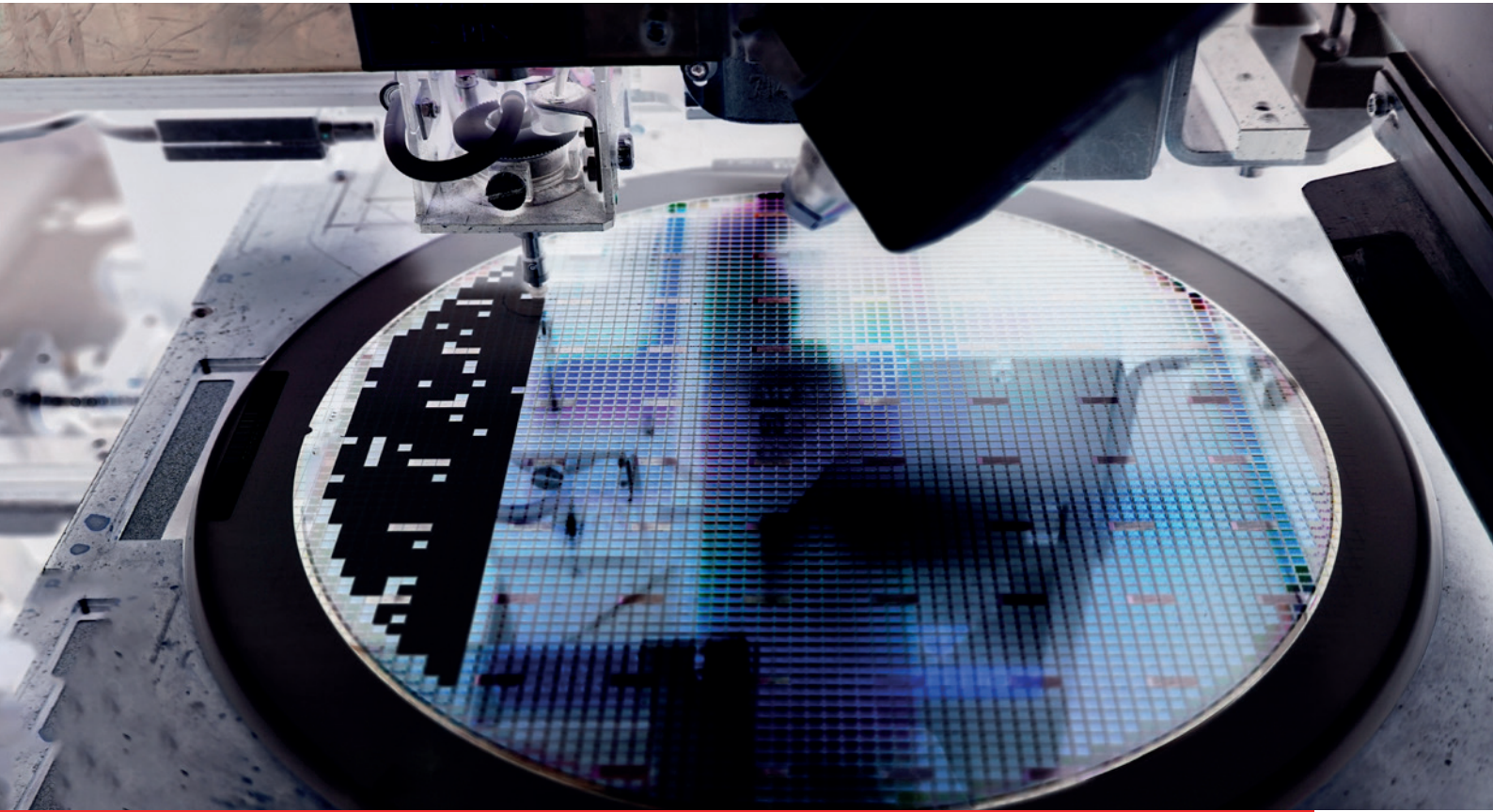
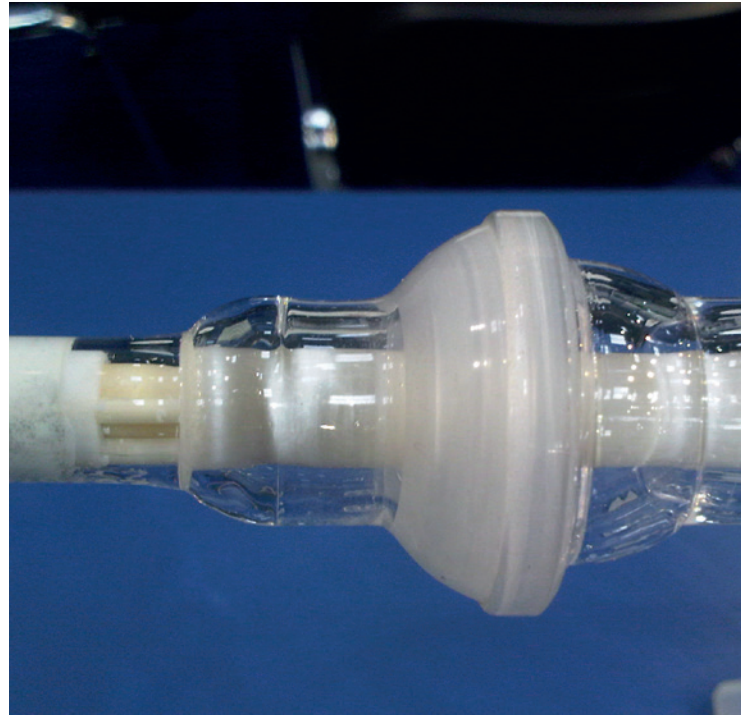


YOUR PARTNER IN TEMPERATURE



**SPIKE & PROFILE
THERMOCOUPLES**



Semiconductor & Solar Thermocouples

Thermo Electric Instrumentation specializes in the design, manufacture, and supply of Spike & Profile thermocouples to both OEMs (original equipment manufacturers) and end-users.

We address key challenges in the industry, including temperature uniformity, precision and accuracy, response time, calibration, secure packing during transit, and sustainability through recycling. Our Spike & Profile thermocouples are essential for precise temperature measurement and control, custom-manufactured to fit every furnace type and requirement, with regular repair and recalibration services to maintain accuracy.

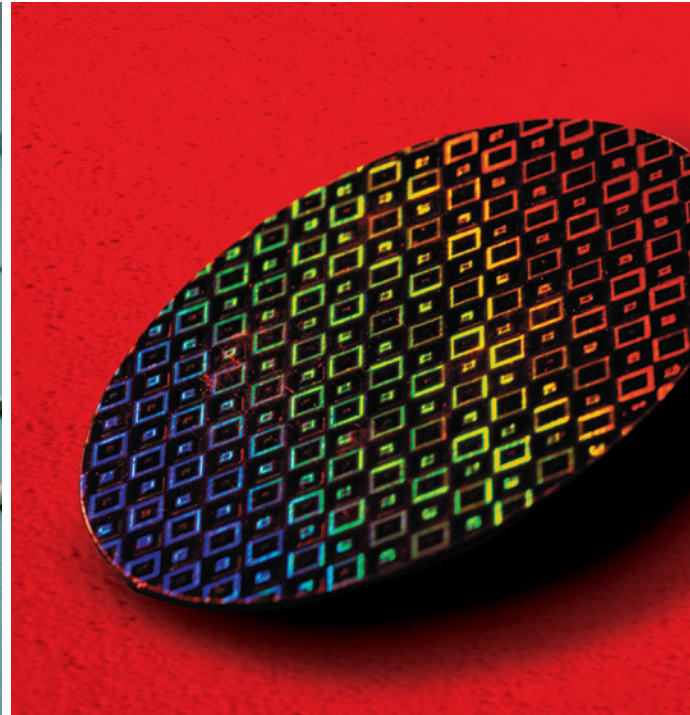
STRICT CLEAN ROOM MANUFACTURING POLICY

We manufacture all of our Spike & Profile thermocouples in our purpose-built clean room, under the exact conditions required for the production of wafer steppers. This facility is dedicated to the manufacturing of our semiconductor and solar sensors. Not only do we produce sensors in a clean room environment, but we also ensure that our materials are clean room compatible. Our products are shipped in 'clean room' approved packaging materials, ensuring secure transit and maintaining the highest standards for the semiconductor and solar industry.

IN-HOUSE CALIBRATION LABORATORY

In addition to our clean room, we have an accredited calibration laboratory by RvA. The accreditation is based on an assessment against the requirements laid down in ISO/IEC 17025. These unique facilities allow us to calibrate semiconductor and solar temperature sensors from $-195\text{ }^{\circ}\text{C}$ up to $1,500\text{ }^{\circ}\text{C}$. This quality guarantee and calibration service provide our customers with the reassurance they have come to rely on. This is, in part, why Thermo Electric Instrumentation continues to be the number one choice for high-quality semiconductor and solar sensors.

Our experienced staff are always available to assist you with your sensing requirements. We only select the highest grades of materials based on your applications. Our production procedures and Quality Control System are fully certified by ISO 9001, and our reputation for consistent excellence in semiconductor and solar sensor manufacturing speaks for itself. Additionally, our commitment to sustainability is demonstrated through our recycling initiatives, ensuring that our processes are environmentally responsible.



Specialized Applications

Our innovative solutions, such as our Spike & Profile thermocouples, have enabled highly compact and versatile applications in wafer stepping processes.

The semiconductor and solar industries have seen remarkable advancements in recent years. Thermo Electric has played an important role in enhancing temperature sensing for diffusion and oxidation processes.

We are proud to introduce several proprietary features that enhance our commitment to quality, durability, and contamination prevention:

- Helium leak testing of profile thermocouples
- Single ceramic insulation sleeves with channels for 5-fold thermocouples
- Lightweight anodized aluminum handles
- Simplified assembly features
- Positive and negative thermocouple wires along the entire length (no common return)
- Batch calibration, with the option to provide an RvA accredited calibration certificate from our in-house accredited laboratory





Spike & Profile Thermocouples

PROFILE THERMOCOUPLES

- Probe Type: Single piece ceramic insulator with fused quartz sheath.
- Thermocouple Types:
 - Pt/Pt 10% Rh (Type S)
 - Pt/Pt 13% Rh (Type R)
 - Pt 6% Rh/Pt 30% Rh (Type B)

RvA ACCREDITATION

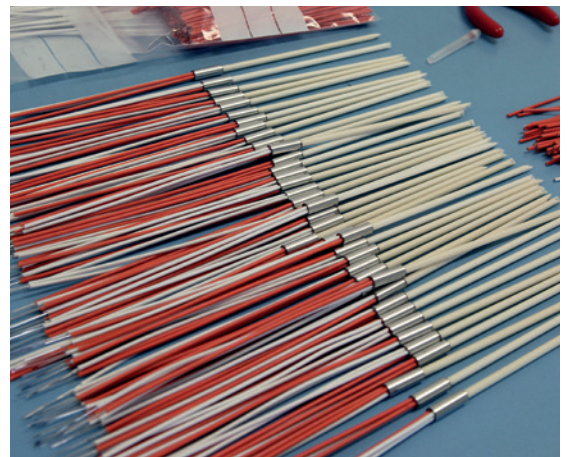
Our in-house calibration laboratory is accredited by RvA, based on an assessment against the ISO/IEC 17025 requirements in accordance with EA (the European co-operation for Accreditation). This stringent manufacturing and calibration control provides us with a competitive advantage, ensuring the highest quality of our products.

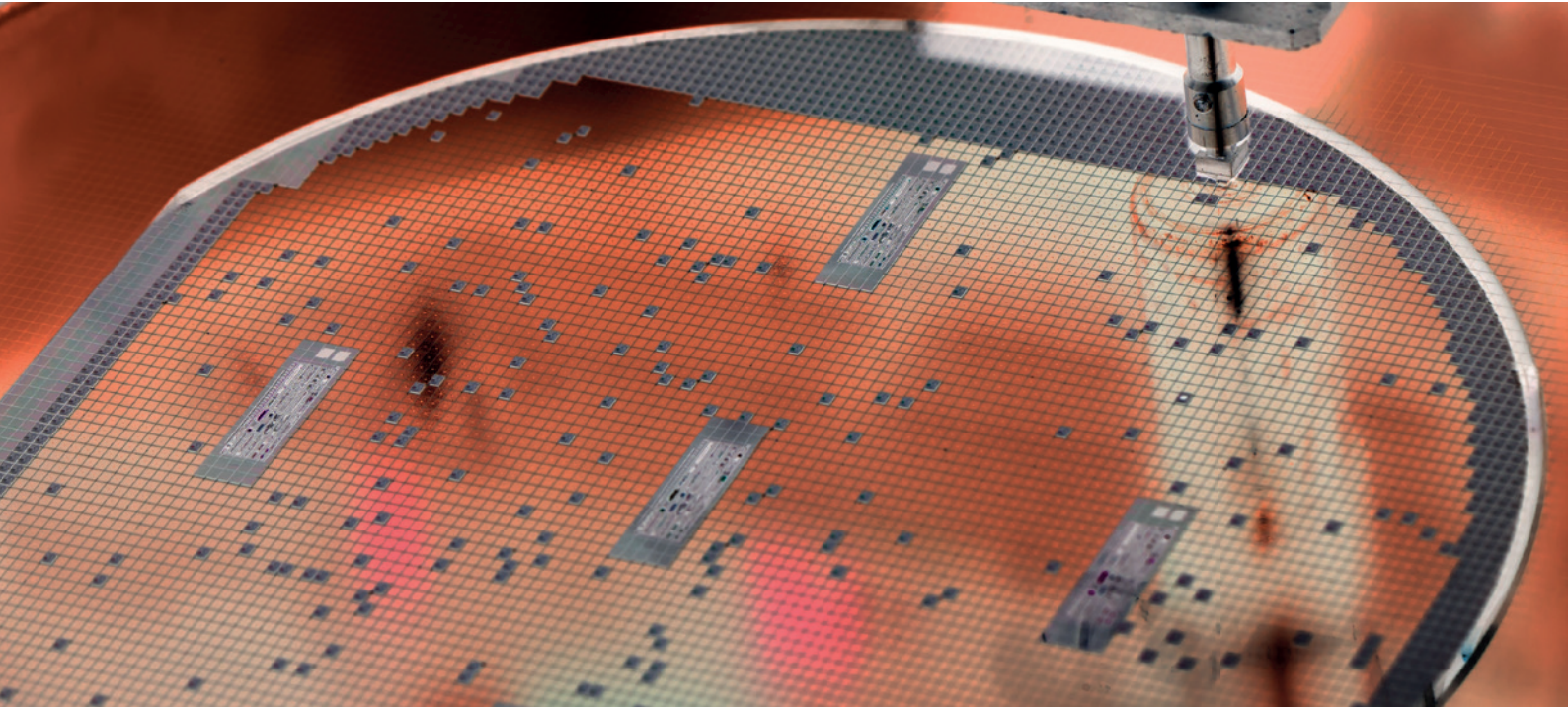
CONSTRUCTIONS

- Profile Thermocouples for 3-zone to 5-zone applications
- Spike Single/Duplex Thermocouples
- Paddle Single/Duplex Thermocouples
- Sic Protection Tubes
- Quartz Protection Tubes
- Ball Joints

Quality Control

Our customers trust our products due to our extensive experience, reliability, and manufacturing excellence. Supported by our quality management system and ISO 9001 certification, our quality guarantee offers added security and has established the Thermo Electric brand as synonymous with high-performance and reliable semiconductor temperature sensors.





Why Choose Us

HIGHEST GRADE QUARTZ & CERAMICS

At Thermo Electric Instrumentation, we prioritize high-quality materials and rigorous testing to ensure the reliability and performance of our thermocouples. Our quartz components meet GE214 / HSQ300 standards and undergo helium leak testing to prevent potential leaks. Additionally, our ceramic materials conform to AL203 Type C799 standards, ensuring consistent and reliable performance.

TC WIRE

Our thermocouples feature Pt/Rh bare wire with a diameter of 0.5 mm, providing a longer lifespan and better performance. The sleeve openings in our ceramic components are designed to prevent obstructions, ensuring smooth and efficient operation. These carefully considered features enhance the overall functionality and dependability of our thermocouples, making them suitable for the most demanding applications.

CONNECTORS

Thermo Electric only uses Lemo connectors locked with Loctite to prevent short circuits and ensure secure connections.

By choosing Thermo Electric Spike & Profile thermocouples, customers benefit from superior material quality, stringent testing protocols, and innovative design features that lead to higher reliability, longer lifespan, and reduced potential for failures



Thermo Electric Instrumentation specializes in the design, manufacture and supply of spike and profile thermocouples to both original equipment manufacturers and end-users.



Manufacturing Facilities

Our production and engineering facilities are centrally located in the Netherlands and manned by our highly skilled employees. This setup is essential for upholding our high standards and best practices in engineering and design. The expertise of our personnel, coupled with state-of-the-art facilities, guarantees the efficient manufacture of Thermo Electric temperature sensors and their consistent high-quality performance in the field.

CALIBRATION FACILITIES

Our laboratory holds ISO17025 accreditation for temperature measurements ranging from $-200\text{ }^{\circ}\text{C}$ to $1,500\text{ }^{\circ}\text{C}$, as well as for evaluating electrical parameters including millivolts (mV), milliamperes (mA), ohms (Ω), and volts (V).



SERVICES

- Wake frequency calculations for Thermowells as per ASME PTC19.3
- Cleaning for oxygen services
- Customized drawings
- Customized Inspection and test plans / procedures

CERTIFICATIONS

- Material certificate as per EN10204 3.1 or 3.2 and NACE
- Welding procedure specification (WPS) including procedure qualification records (PQR) and Welder performance qualifications (WPQ) as per ASME IX and ISO15614
- Certificate of conformance (EN10204 2.1)
- Certificate of origin

HAZARDOUS AREA CERTIFICATES

	XPS1	XPS	XPS3	XPS4
IECEX:	Exeb	Exia/b	Exdb	Exec
ATEX:	Exeb	Exia/b	Exdb	Exec
CSA/US:	(A)Exe	(A)Exia/b	(A)Exd	(A)ExnA
KTL:	Exe	Exia	Exd	ExnA
CCOE(PESO):	Exeb	Exia/b	Exdb	
CCC:	Exia	Exdb		

TESTING FACILITIES

- Visual inspection
- Dimensional check
- Pressure testing (upto 1100Bar)
- High pressure testing (upto 5500Bar)
- Dye penetrant examination (DP)
- Radiographic testing (X-ray)
- Ultrasonic testing (US)
- Vacuum testing
- Helium leak testing
- Positive material identification (PMI)
- Batch calibration certificates
- Sensor calibration certificates



All of our Other Products and Services at a Glance

TEMPERATURE SENSORS

- Industrial temperature sensors
- Multiple temperature sensors
- Profiling temperature sensors
- High-pressure temperature sensors
- Resistance temperature detectors
- PT100, PT1000, NTC
- Miniature temperature sensors
- Tubeskin temperature sensors

INSTRUMENTS

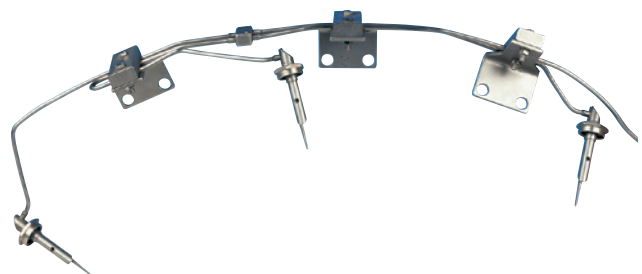
- Optical temperature meters
- Controllers
- Transmitters
- Dry well calibrators

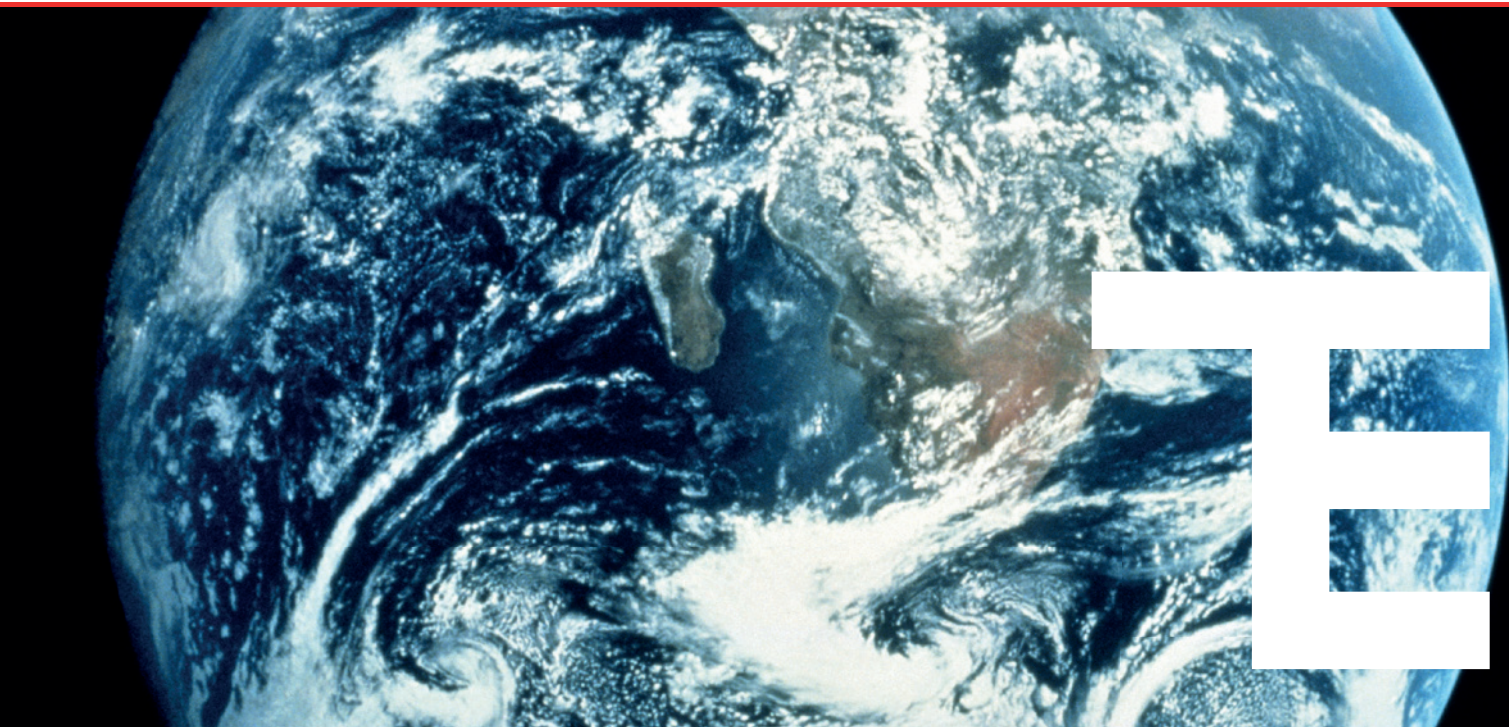
CONNECTORS, PANELS AND WIRES

- Standard thermocouple connectors
- Miniature thermocouple connectors
- Standard thermocouple panels
- Miniature thermocouple panels
- PVC, PTFE, Kapton, Silicon, Glass Fiber

SERVICES - RvA/ILAC ACCREDITED CALIBRATION

- Calibration of temperature sensors
- Repair of instruments





**Your trusted
partner in the
development and
production
of temperature
measurement solutions**

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