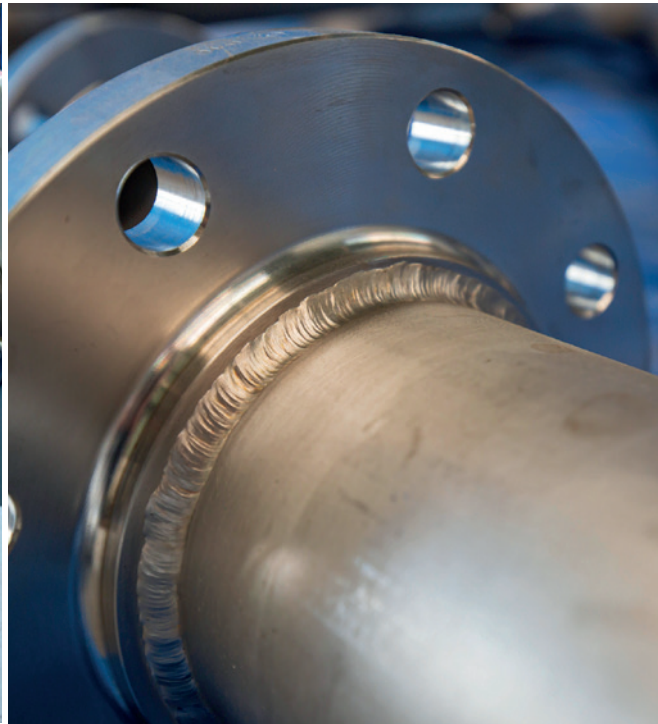
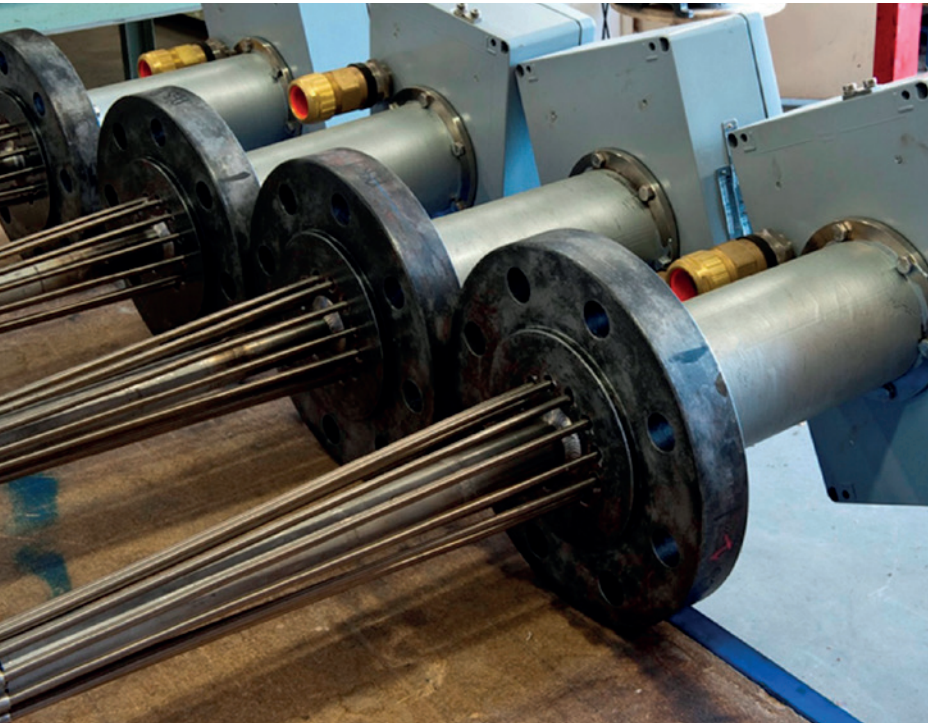


# YOUR PARTNER IN TEMPERATURE



**MULTILEVEL  
TEMPERATURE SENSORS**

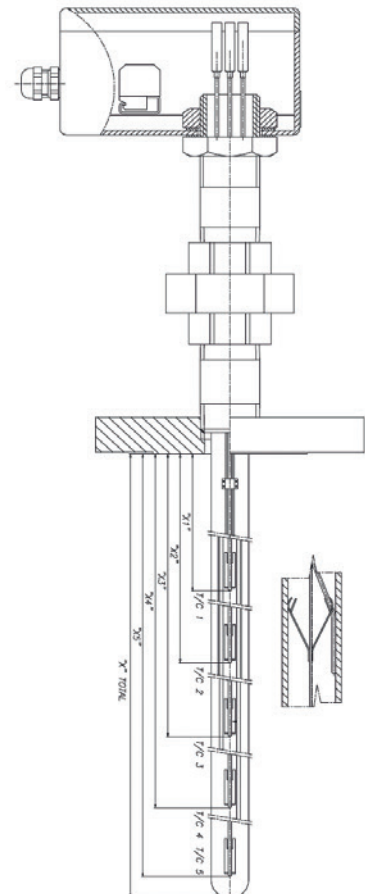


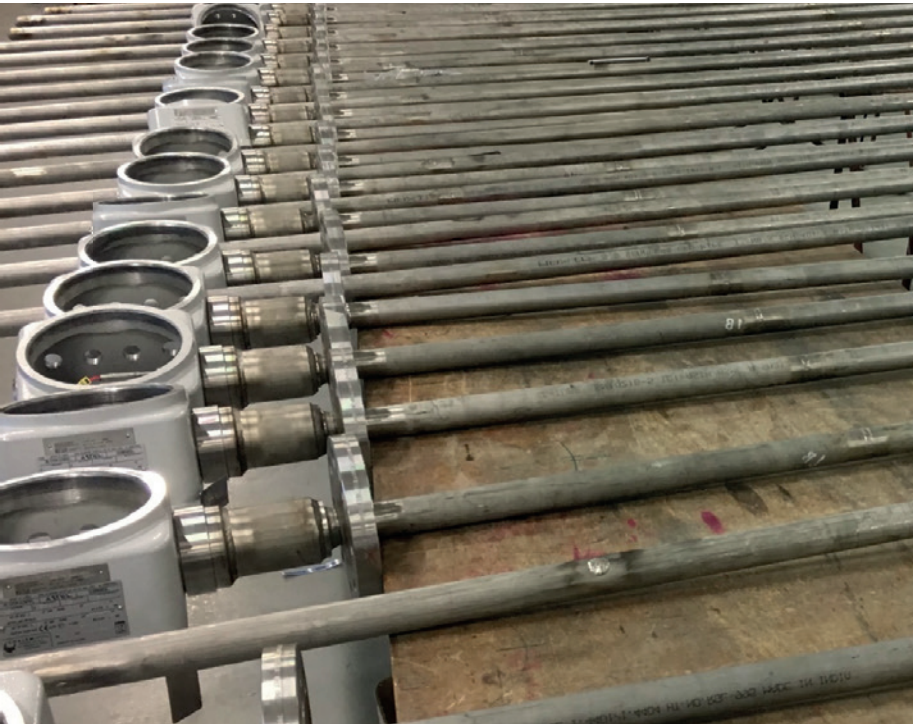
## Multilevel Temperature Sensors

Multilevel temperature sensors, also referred to as multipoint sensors, are industrial devices designed to measure temperatures at various points along their length.

We manufacture a range of these sensors, from single-probe tubular devices with multiple measurement points to Thermowell designs with guide tubes, enabling sensor removal without interrupting reactor or vessel operations.

These multilevel sensors are widely utilized in chemical, petrochemical, and refining industries, offering reliable temperature measurement solutions for chemical reactors, catalytic crackers, and fractionation towers.





**Construction Types**

Our multilevel temperature sensors come with a variety of profiling options, with or without explosion-proof certifications. All sensors are supplied with mechanical or electrical test certificates, meeting international standards.

**Pilot Plant Multi-Level Sensor**

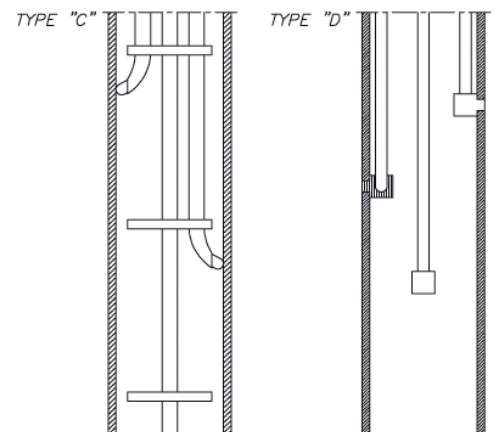
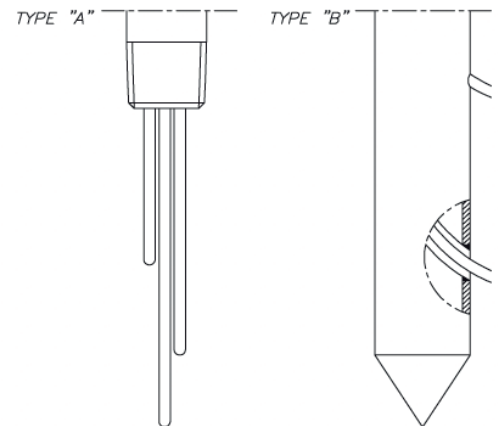
This design features a small diameter protection tube for pilot plants, capable of housing up to 10 thermocouples. It can be customized in both length and configuration based on specific needs.

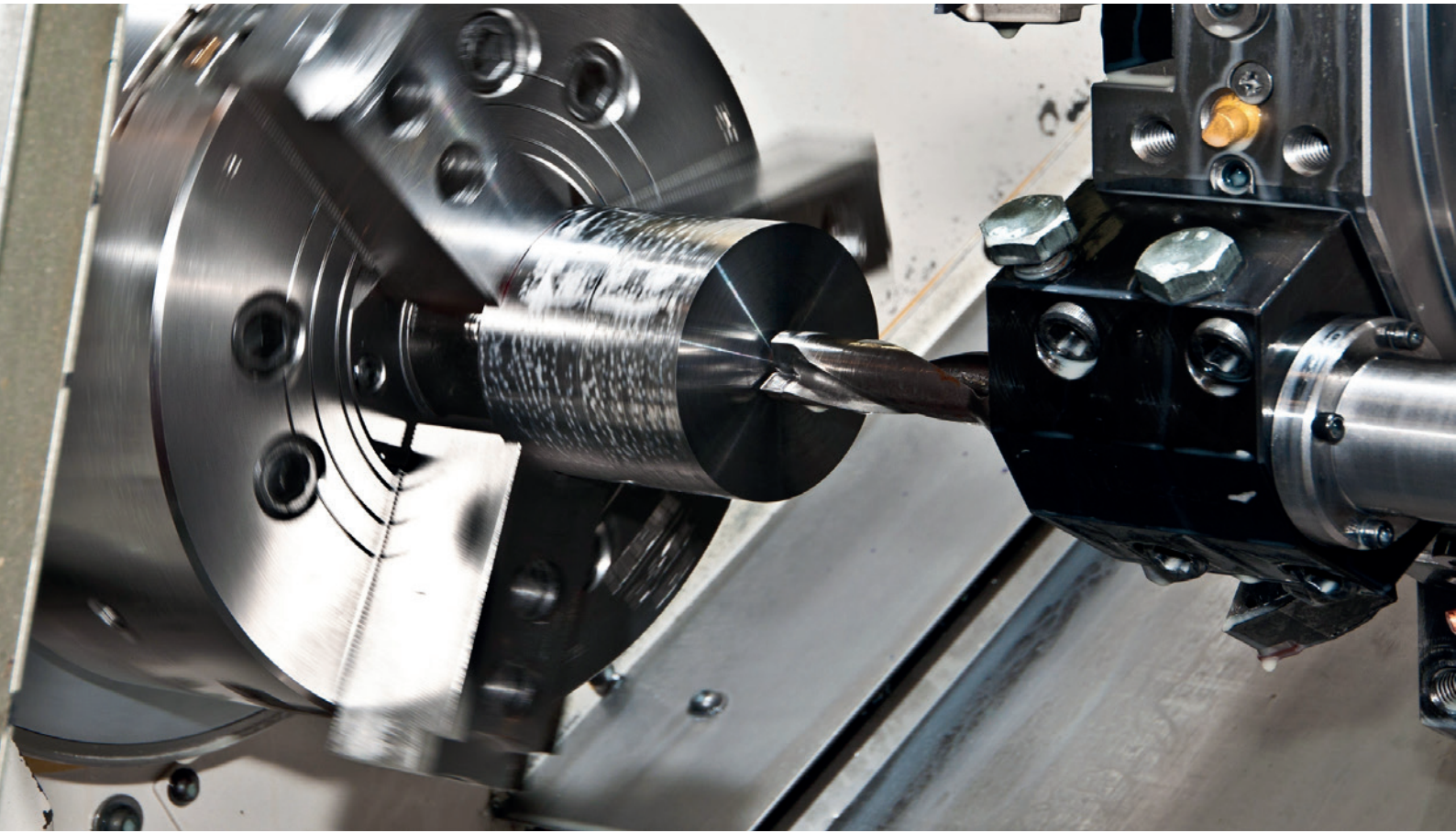
**Spring-Loaded Strip Construction**

Featuring thermocouples and/or Pt100 elements, this configuration mounts each sensor inside a protection tube. The spring-loaded design enhances response time and accuracy by maintaining constant contact with the tube wall.

**Replaceable Inserts Construction**

Designed for thermocouples and RTDs, this option allows for easy replacement of inserts and includes support tubes for secure inner-wall temperature measurements.





## Solving Industry Problems

To address increasing regulatory demands in the refining and petroleum industries, we have developed the Proflexi® Radial multipoint thermocouple assembly. This innovative design offers a more accurate representation of temperature profiles within vessels.

We use advanced modelling software to simulate various configurations, ensuring optimal placement of the thermocouples to capture the most relevant data.

### UNIQUE DESIGN

Unlike standard configurations that may limit measurement accuracy due to the positioning of sensors, the Proflexi® assembly's radial layout provides a more comprehensive and accurate reading.

Available in a range of materials and construction options, this assembly is adaptable to meet specific process requirements.





## Why Choose Us

### IN PARTNERSHIP

With over 50 years of experience in temperature sensing, we work closely with our customers to deliver tailored solutions that meet their specific process needs. Our consultative approach ensures that you receive high-performance, reliable products that exceed industry standards.

### Certifications

Our quality management system is certified to ISO 9001, ensuring that all our products meet the highest standards of quality. Additionally, we are certified to ISO 14001 for environmental management and ISO 45001 for occupational health and safety, demonstrating our commitment to sustainability and the well-being of our workforce.

We also hold industry-specific certifications, including IECEx, ATEX, and CSA/US, which confirm that our products meet stringent safety requirements for use in explosive and hazardous environments.





## Manufacturing Facilities Overview

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 ( $\Omega$ ), 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

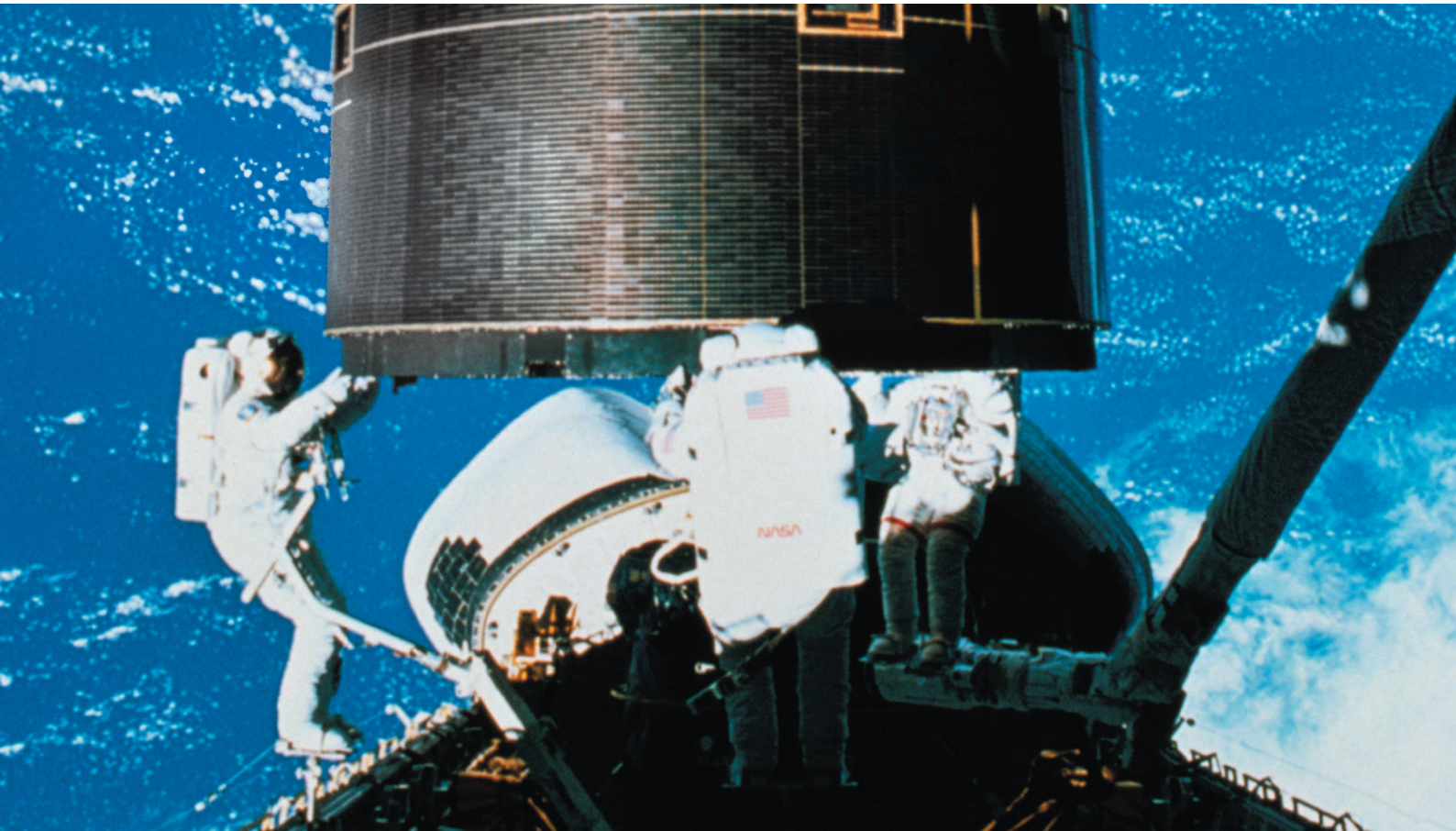
- Material certificate as per EN10204 3.1 or 3.2 and NACE
- Welding procedure specification (WPS) including procedure qualification records (PQR) and Welder performance qualifications (WPQ) as per ASME IX and ISO15614
- Certificate of conformance (EN10204 2.1)
- Certificate of origin

### HAZARDOUS AREA CERTIFICATES

	XPS1	XPS2	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 (up to 1100Bar)
- High pressure testing (up to 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



## 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

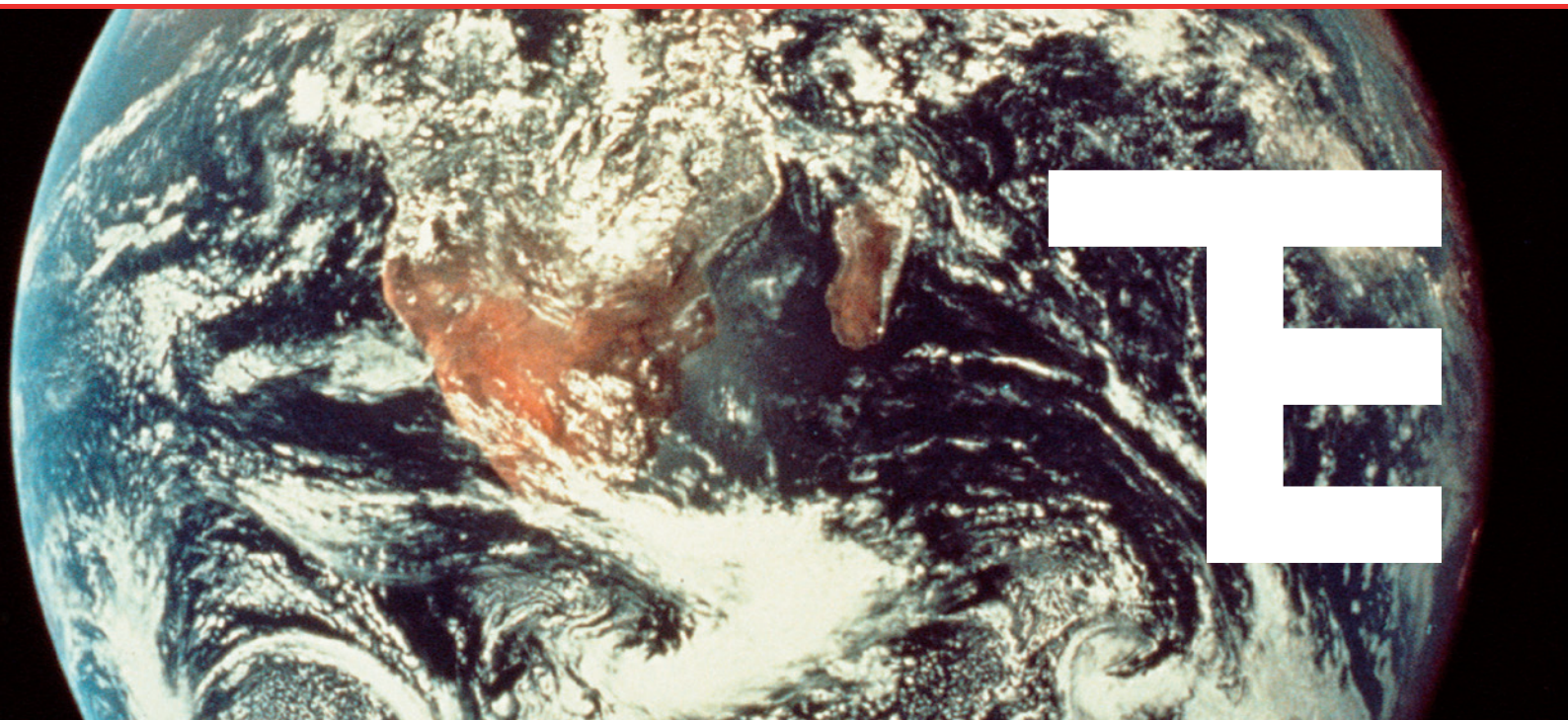
### CONNECTORS, PANELS AND WIRES

- 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**



**THERMO ELECTRIC INSTRUMENTATION B.V.**

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