

Your global partner for temperature solutions



INNOVATIVE TEMPERATURE
MEASUREMENT SOLUTIONS
FROM THE GLOBAL LEADER



Thermo Electric

“We are an innovative organisation and highly experienced specialists in temperature measuring solutions. Spanning over 50 years of temperature sensing manufacturing, the original activities of Thermo Electric addressed a specific market need: measuring exhaust gas temperatures from aeroplane engines.

Today our company is proud to manufacture and supply a complete range of temperature sensors, wires, cables and connectors for almost every application and market. We are at the forefront of technology for temperature sensing and ancillary equipment. Our products continue to outperform in the field, providing reliable solutions worldwide.

We manufacture products capable of withstanding corrosive chemicals, vibrations, extreme temperatures and high pressures, ranging from the absolute zero point (-273 °C) to over 2.700 °C. It is here where we are at our best.

Our business touches global markets, however we act locally. Our network of factories, distribution, sales and service centers span Europe, Middle East and Asia.

We have also had the fortunate pleasure of working on the most prestige engineering contracts, alongside some of the largest organisations for many years. The successes we have experienced on these major projects can be attributed to our highly knowledgeable and experienced workforce.

Thermo Electric Instrumentation has over 60 personnel strategically placed in major industrial areas. This global strategy allows us to service our customers worldwide, providing the individual temperature measuring solutions that are required in today's market”.

Jan-Willem Noordermeer
Managing Director, Thermo Electric Instrumentation



We specialise in a variety of sectors

- Chemical, petrochemical, oil and gas
- Semi-conductor / solar
- Steel, non-ferrous and glass
- Aerospace
- Energy

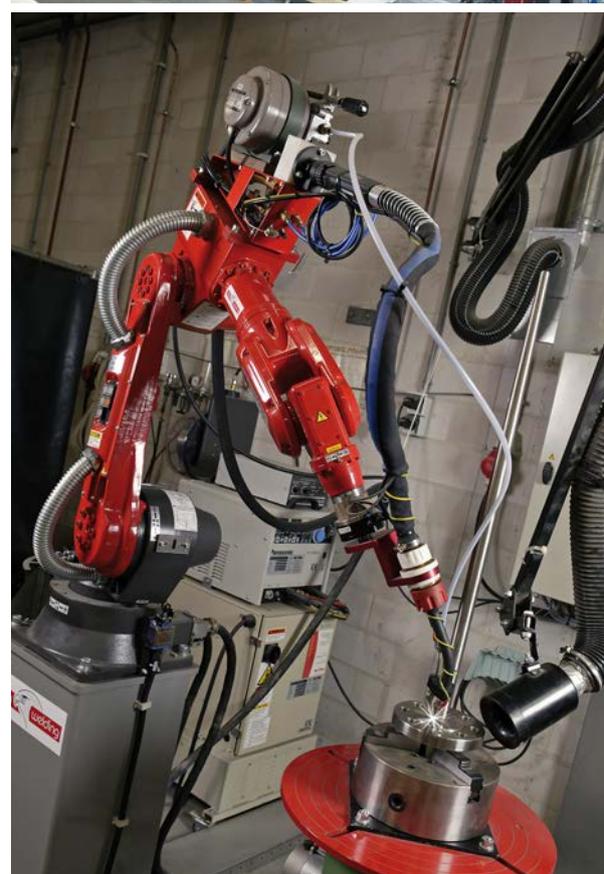


Quality is our Priority

The quality of our products is backed by our quality management System and ISO certifications. You can be confident that our systems will provide you with all of the necessary traceability requirements for your projects.

In addition to our quality system we have a accredited calibration laboratory by RvA. The accreditation is based on an assessment against the requirements as laid down in ISO/IEC 17025:2005. This facility enables us to reduce our lead-times for certification and calibration by removing the need for external suppliers, thus retaining tighter control of our delivery times to you.

Our laboratory is our competitive advantage and we are unique in our capabilities. We can offer you temperature sensors along with full manufacturer calibration certificates from -195°C up to 1.500°C , performed against a range of criteria, depending on your requirements.





Chemical, petrochemical, oil and gas

There is a growing need in the chemical, petrochemical, oil and gas industry for innovative solutions to temperature measurement problems. Reliability, durability and quality are all important factors and are standard features of our products.

We understand that our customers seek dependability and experience from a supplier partner. Our engineers are capable of integrating seamlessly with main contractors and have the experience of working alongside well known, leading engineering and procurement houses.

AN INVALUABLE RESOURCE FOR OUR CUSTOMERS

Our knowledge of procurement, engineering and qualification of products within the chemical, petrochemical, oil & gas industries helps our customers ensure that they choose the right product first time.

Our assistance with design and calculations on projects has proven to be a reliable and invaluable resource, which is why our customers continue to specify Thermo Electric products in their projects:

- Industrial temperature assemblies
- High pressure devices
- Tube skin thermocouple
- Multipoint assemblies
- Proflexi®
- Thermowells





Semi conductor / solar industry

TEMPERATURE SENSING AND PRODUCT DEVELOPMENT

We have remained at the forefront of technology for temperature sensing within the semiconductor and solar industries for many years. Consequently we have developed a number of key proprietary features in our processes. It is these manufacturing processes that provide us with our competitive advantage and our unique positioning.

KEY FEATURES AND BENEFITS OF SPIKE AND PROFILE THERMOCOUPLES

- The use of single ceramic insulation sleeves – up to ten channels
- Lightweight handles, aluminium or anodised aluminium complete with simple assembly features
- Positive and negative t/c wires over the whole length (no common return)
- Stronger construction – less chance of breakage
- Improved positioning of measurement points – ensuring greater accurate Delta T measurements
- Simplified decontamination procedures

EXTRAORDINARY CARE AND CALIBRATION

We manufacture all of our spike and profile thermocouples in our purpose-built clean room. Extra care is taken to ensure that each sensor is manufactured to the highest degree of quality.

Each thermocouple is supplied with a calibration report and conforms to the latest international specifications and criteria.



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



Steel, non-ferrous and glass industry

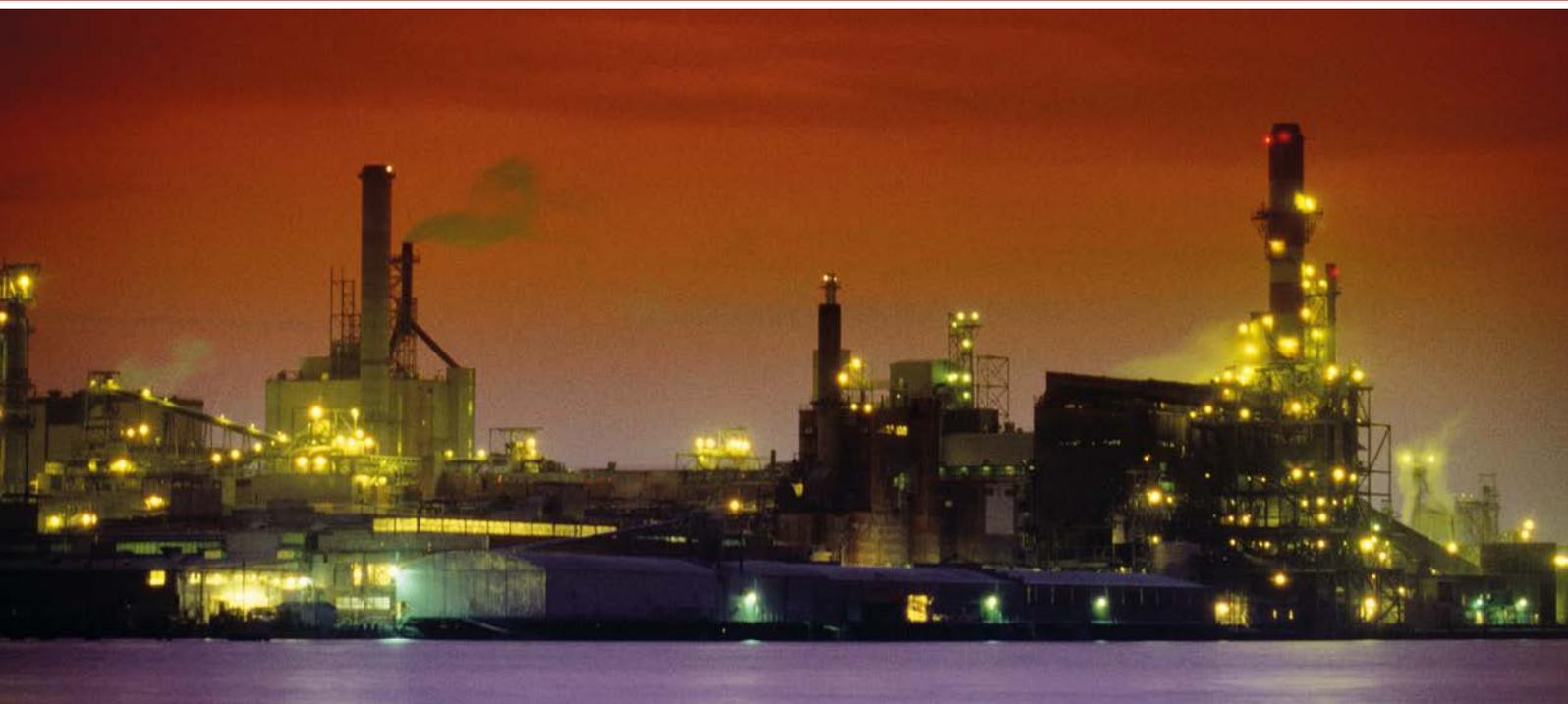
Thermo Electric Instrumentation has been manufacturing and supplying temperature sensors for many years. Our products continue to play an important part in the steel, non-ferrous and glass industry.

INNOVATIVE SOLUTIONS FOR DEMANDING PROCESSES

Thermo Electric products are used across a number of applications such as coal grinders, sintering plants, blast furnaces and glass furnaces. Applications where demanding processes require high-performing industrial temperature sensors that have the capabilities to withstand up to 1.500 °C.

We can provide innovative solutions to such high temperature measuring requirements. For example our platinum sleeved thermocouple sensor is manufactured using ceramics, complete with a vacuum sealed platinum protective coating. This technique results in considerable savings over the total volume of precious metals used, with a significant reduction in costs.





Energy industry

We are proud that our products have pioneered industry standard specifications within the energy industries, most of which remain in use today.

UNIQUE 'COOK BOOKS'

As a partner to the energy sector we have also worked closely with our customers to streamline order processes and to devise simple mechanisms for the selection and calculation of temperature sensors.

Our unique 'cook books' are guaranteed to simplify and allow rapid engineering of solutions for temperature measurement in gas turbines, boilers and steam pipelines. This information is available to download or view directly on our website.





Manufacturing facilities

We have dedicated manufacturing and testing facilities located in The Netherlands. Thermo Electric temperature sensing products are supplied direct from our headquarters to our customers, through sales and service centres across the globe.

HIGH STANDARDS AND EFFICIENT SUPPLY

Our dedicated central production and engineering facilities allow us to maintain our high standards and best practice in engineering and design. This expertise is reflected in the efficient supply of Thermo Electric temperature sensors and in our consistent achievement of quality in the field.

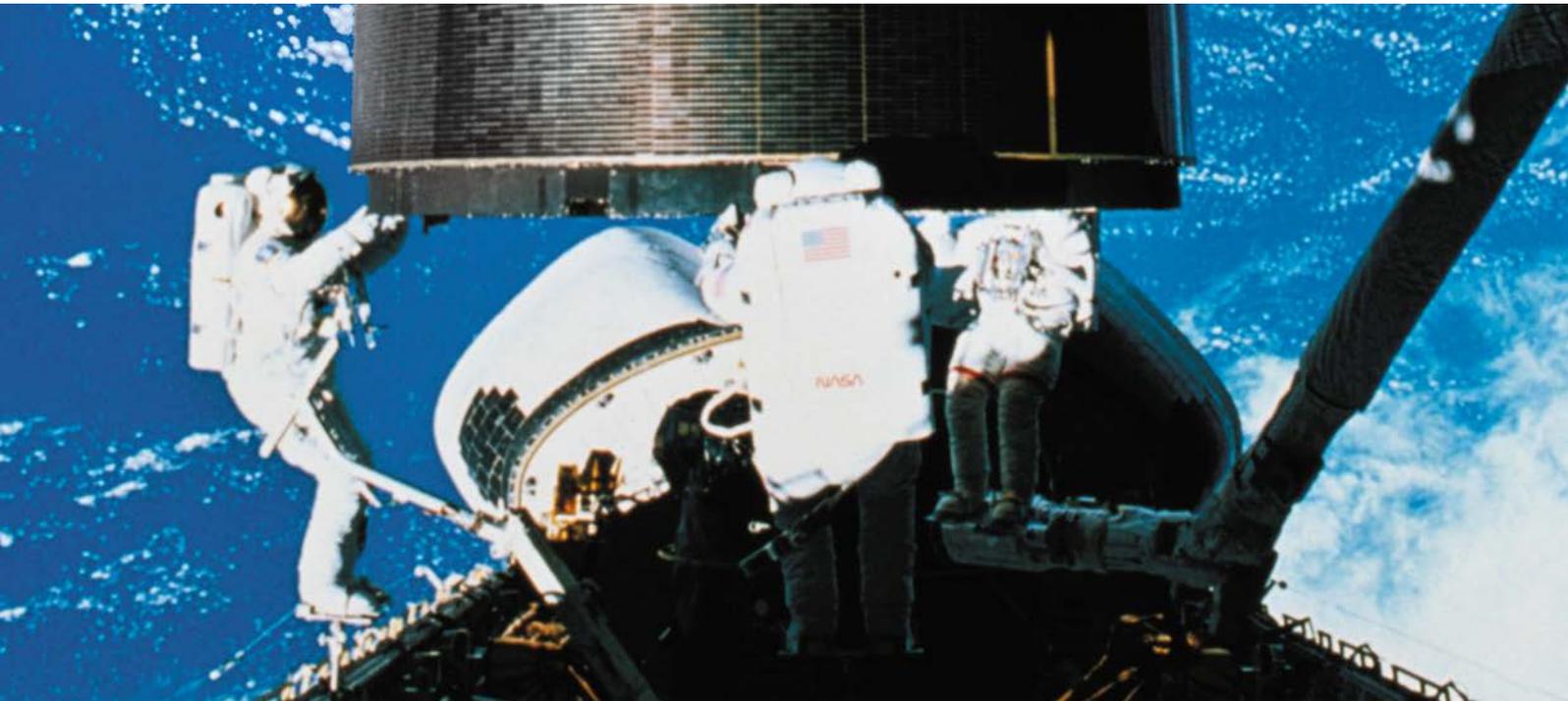


SERVICES

- Wake frequency calculations according ASME PTC19.3 (2010) for thermowells
- X-rays
- Welding robot
- Manufacturing record book
- Quality inspection plan
- Explosion safe certificate Exi, Exe, Exd, Exn
- Material certificate (according EN10204 3.1 and NACE MR0175)
- Cleaning for oxygen service
- Visual inspection
- Dimensional check
- Drawings for approval
- WPS and PQR for welded Thermowells
- Batch certificate
- Certificate of origin
- Certificate of conformance
- CSA/US
- IEC-Ex
- CCOE
- KTL
- ATEX
- GOST R

TEST FACILITIES

- Functional performance test
- Loop resistant test
- Insulation resistance test
- Dye penetration test
- Pressure test
- Calibration test
- From $-200\text{ }^{\circ}\text{C}$ up to $1.500\text{ }^{\circ}\text{C}$ (RvA/ILAC)
- Calibration test for each instrument, mV, mA, Ohms and V (RvA/ILAC)
- Vacuum test
- Helium leak test
- PMI test



Products and Services at a glance

TEMPERATURE SENSORS

- Industrial temperature sensors
- Multiple temperature sensors
- Profiling temperature sensors
- High-pressure temperature sensors
- Resistance temperature detectors
- Miniature temperature sensors
- Proflexi ®
- Tubeskin

THERMOCOUPLE WIRE

- PVC insulated
- Nylon, silicone or PTFE
- PTFE and kapton insulated
- Glass fiber insulated
- Multi-pair thermocouple extension and instrument cable

INSTRUMENTS

- Optical temperature meters
- Indicators
- Controllers
- Recorders
- Portable indicators/calibrators/simulators
- Transmitters
- Dry well calibrators

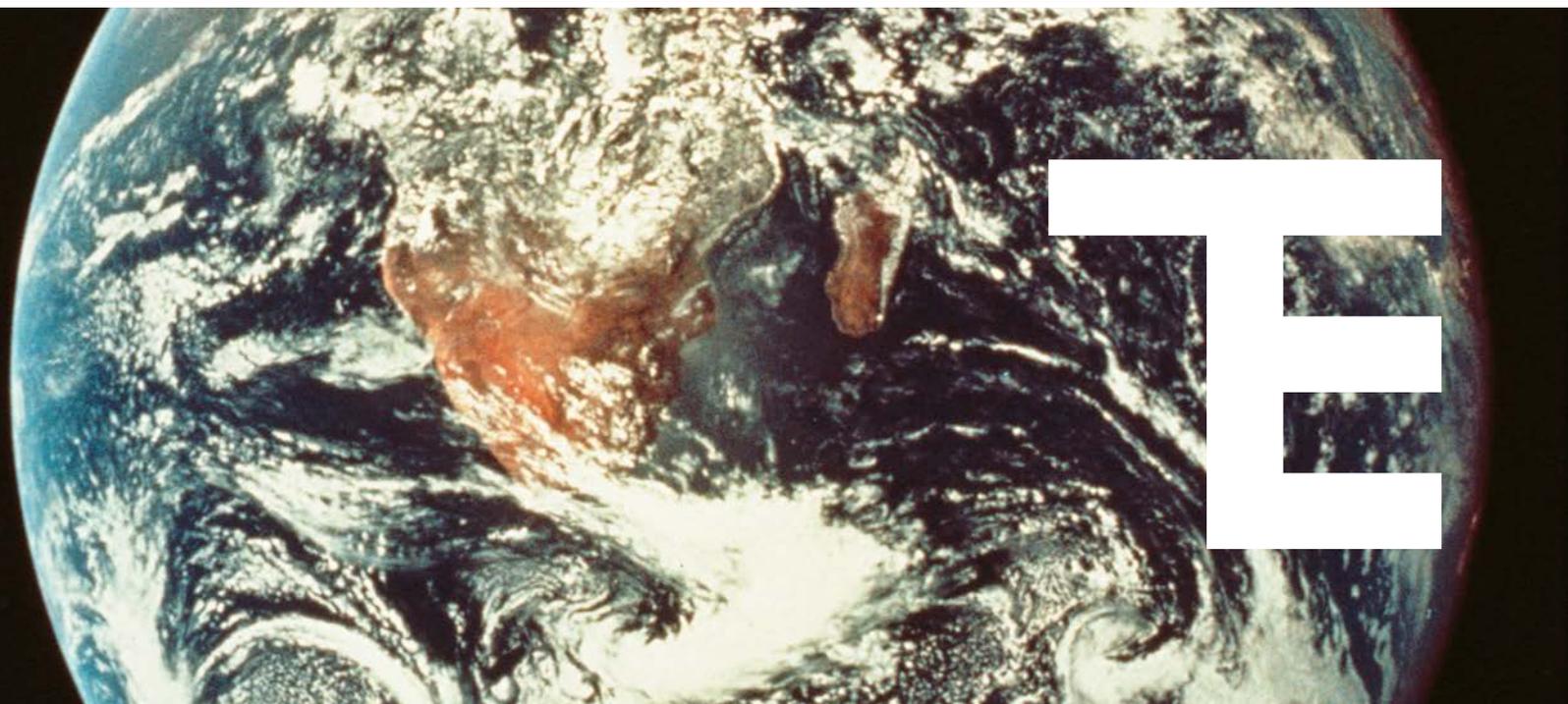
CONNECTORS AND PANELS

- Standard thermocouple connectors
- Miniature thermocouple connectors
- Standard thermocouple panels
- Miniature thermocouple panels

SERVICES - RvA/ILAC ACCREDITED CALIBRATION

- Accredited in accordance with EAL, the European co-operation for accreditation
- Repair of instruments





**The market leader
in the development
and production
of temperature
measurement
systems**

THERMO ELECTRIC INSTRUMENTATION B.V.

| Coenecoop 71 - 73 | 2741 PH Waddinxveen | The Netherlands
| P.O. Box 85 | 2740 AB Waddinxveen | The Netherlands
| t. +31 (0) 88 760 73 00 | f: +31 (0) 88 760 73 01
| info@te-instrumentation.com | www.te-instrumentation.com

