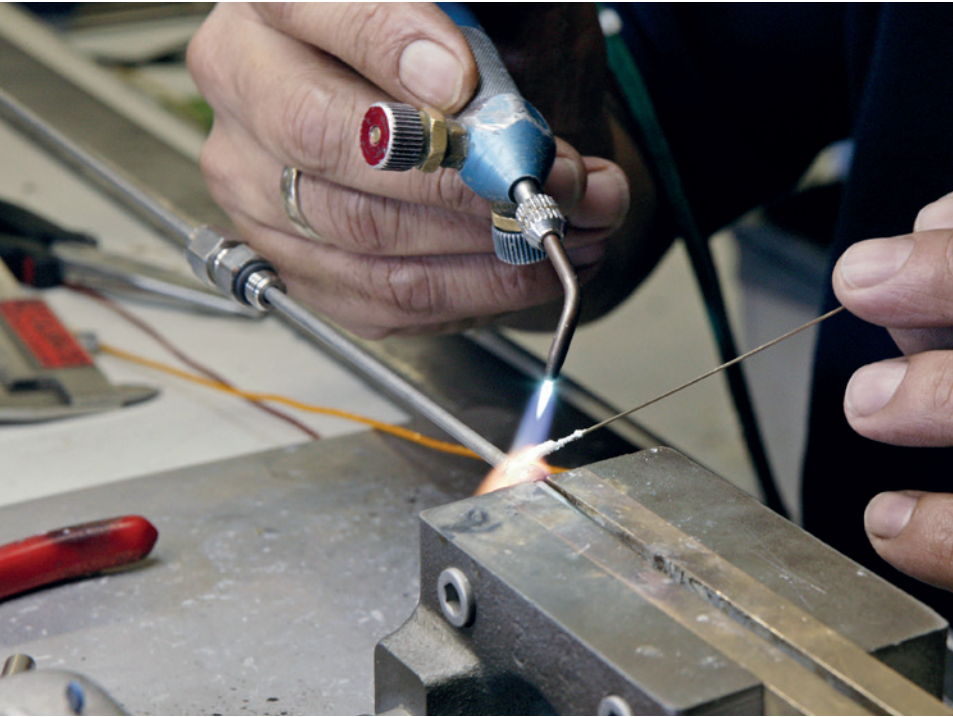


YOUR PARTNER IN TEMPERATURE



**HIGH-PRESSURE
TEMPERATURE SENSORS**



High Pressure (LDPE) Temperature Sensors

Thermo Electric Instrumentation has been at the forefront of manufacturing and supplying High Pressure (LDPE) temperature sensors across various industrial sectors.

With a strong reputation for quality-engineered devices, we are recognized by leading engineering and construction design houses worldwide. Our sensors have been a trusted choice in high-pressure industrial processes for over 40 years, offering reliability and precision in critical applications.

VACUUM BRAZING

All our high-pressure temperature assemblies are custom-built to meet your exact specifications. To ensure consistent quality, we exclusively employ vacuum brazing for all pressurized joints.

This fully automated process eliminates the risk of human error during brazing. Our engineers select the most suitable brazing alloys based on process conditions, with a preference for gold-based alloys due to their exceptional strength and adherence.

Our engineering and design team is always available to assist you with your designs.





Construction

At the core of our high-pressure thermocouples is the heavy-wall mineral insulated thermocouple cable. Available in standard or premium-grade materials and various sheath diameters, these thermocouples are designed to meet the rigorous demands of your applications.

We also offer calibration certificates from our in-house laboratory, fully traceable to international standards.

LONG-TERM PROTECTION AND RELIABILITY

Our thermocouples are designed for durability. The conductors are isolated from the outer sheath by high-purity magnesium oxide (MgO), ensuring long-term stability of the mV output. The hot junction can be either grounded or ungrounded, with grounded junctions recommended for faster response times.

We offer a variety of designs, including screwed, clamped, or ring (waver, lens, and cone) types, tailored to your specifications.

To prevent leaks, we take extra care to protect the surface finish of the sealing area during manufacturing and transit.

The device can be connected to your instrumentation using flexible (braided) wires, quick coupling connectors, or industrial junction boxes.





Pressure Parts Materials

When designing high-pressure sensors, several factors must be considered:

CORROSION

Our sensors are designed to withstand corrosive environments. We select materials that are resistant to corrosion across the entire operating temperature range, ensuring long-lasting performance.

FATIGUE

Twisting, flexing, and vibration are critical factors. Selecting the wrong material can lead to premature sensor failure and costly downtime. Our experienced engineers will guide you in choosing the right materials to avoid these issues.

BRITTLENESS

Exceeding the maximum design operating temperature of a metal can lead to brittleness, risking process failure or inducing chemical reactions. We work closely with your engineers to specify the correct materials, minimizing this risk.

THERMAL AND MECHANICAL STRESS

Our expertise in metallurgy ensures that materials with compatible coefficients of expansion are selected, particularly at high temperatures or pressure points.





Why Choose Us

TESTING

Our rigorous manufacturing procedures and complete control over the assembly process guarantee the highest quality for our high-pressure temperature sensors. Every sensor is supplied with hot junction and brazing joint X-rays, along with all required certificates.

We also offer additional testing services, including:

NON-DESTRUCTIVE TESTING

- • Temperature calibration
- • Ultrasonic inspection
- • Magnetic particle inspection
- • Liquid penetrant inspection
- • Helium leak detection
- • Liquid nitrogen testing
- • Positive Material Identification (PMI)
- • Pressure testing (up to 5500 Bar)

DESTRUCTIVE TESTING

- • Strength testing
- • Stress rupture testing
- • Hardness testing
- • Fracture toughness testing
- • Dynamic tear testing
- • Impact testing (Charpy V-notch)

In addition to standard test certifications, we provide material certificates that include chemical composition and mechanical properties for all pressurized parts, such as sheaths and soldering materials.

Quality Control

Our experienced team is always available to support your sensing requirements. We use only the highest grades of materials, selected specifically for your application needs. Our production procedures and quality control systems are fully certified, ensuring that our reputation for excellence in high-pressure temperature sensor manufacturing is maintained.



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

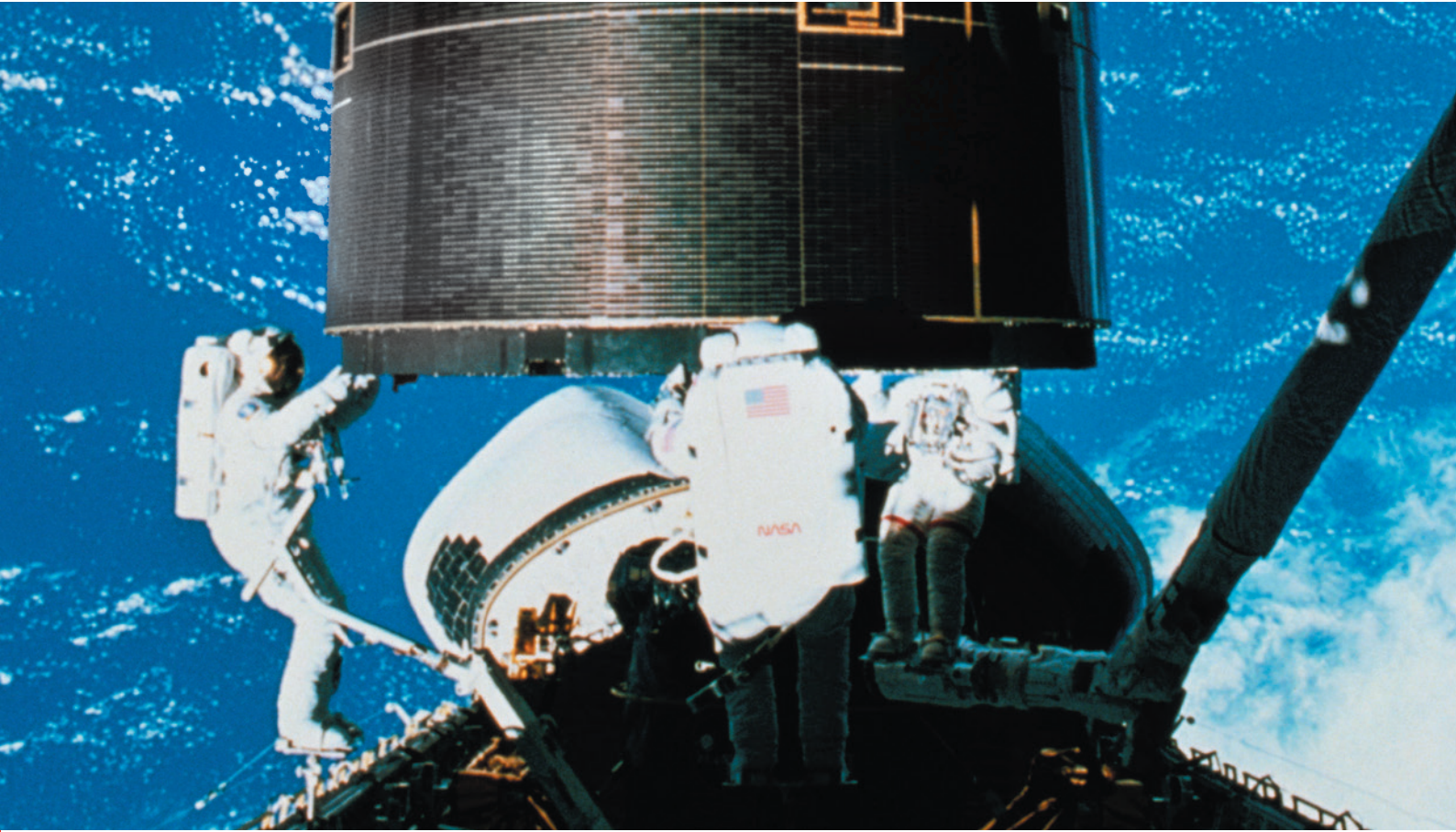
- Material certificate as per EN10204 3.1 or 3.2 and NACE
- Welding procedure specification (WPS) including procedure qualification records (PQR) and Welder performance qualifications (WPQ) as per ASME IX and ISO15614
- Certificate of conformance (EN10204 2.1)
- Certificate of origin

HAZARDOUS AREA CERTIFICATES

	XPS1	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

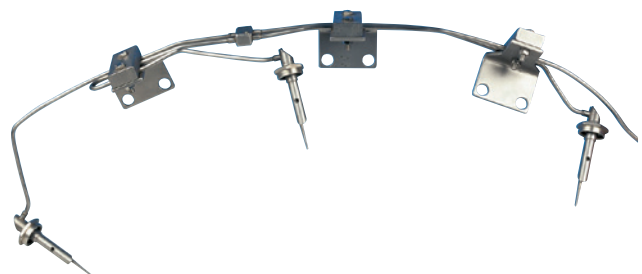
- Optical temperature meters
- Controllers
- Transmitters
- Dry well calibrators

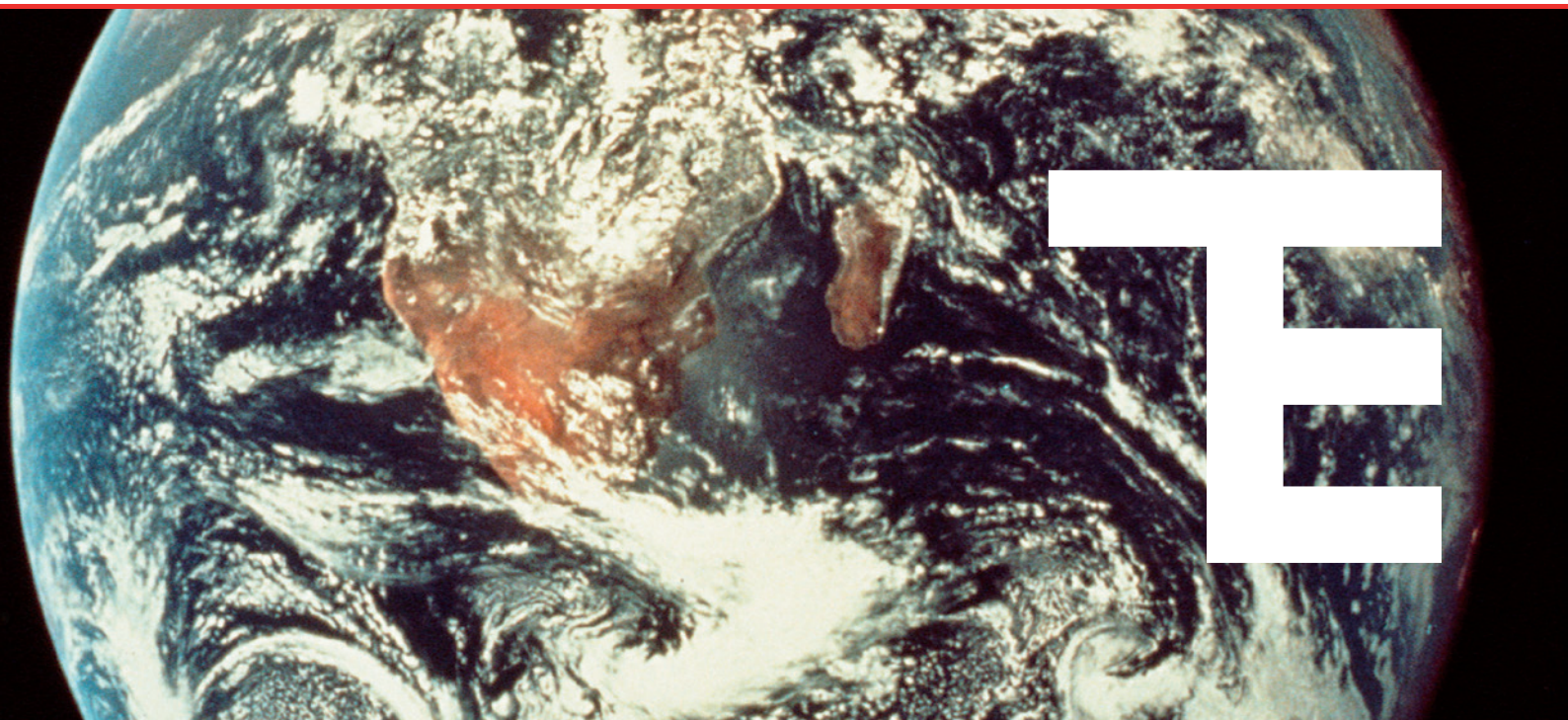
CONNECTORS, PANELS AND WIRES

- 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**

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DI11392-1

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