THERMO ELECTRIC
INSTRUMENTATION

YOUR PARTNER IN TEMPERATURE

TUBE SKIN TEMPERATURE SENSORS FOR SURFACE MEASUREMENT

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Tube Skin Temperature Sensors

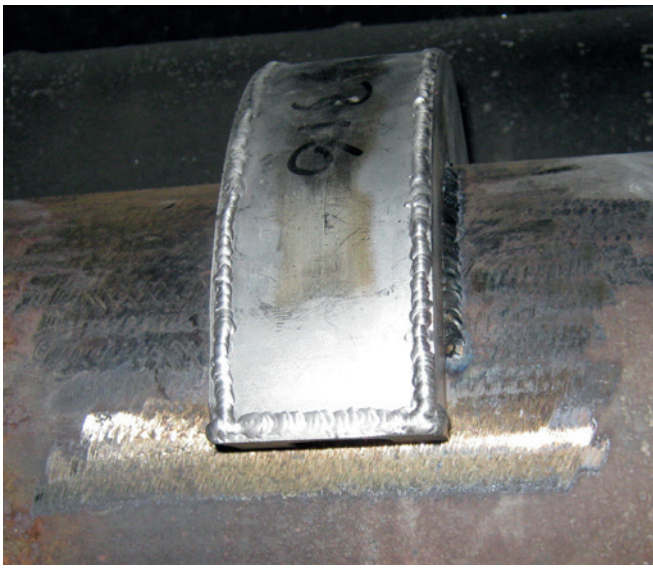
Thermo Electric Instrumentation specializes in the design and manufacturing of tube skin temperature sensors for a range of industrial applications.

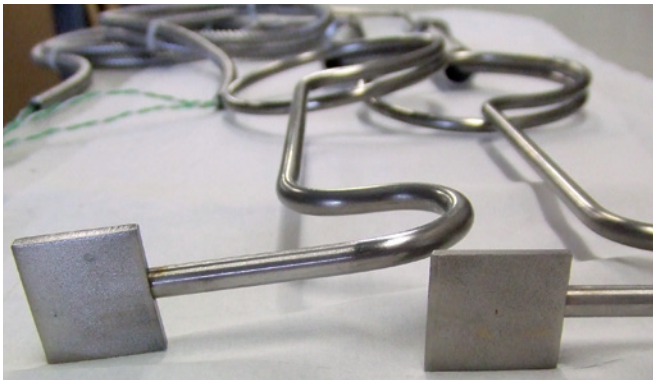
These tube skin thermocouples are engineered to precisely measure the surface temperature within fired process furnaces and boilers. Equipped with a protective pad (weld pad) and optional heat guard at the thermocouple's tip, they are designed to reduce the potential damage and interference from flame impingement and radiant heat.

Tube skin thermocouples have diverse applications, with each requiring sensors specifically tailored and calibrated for the corresponding furnace or boiler system.

FEATURES

- Durable Construction
- Mineral Insulated Cable
- Customizable Sheath Options
- Secondary Outer Protection
- Extractable Design
- Metric and Imperial Sizes
- Comprehensive Support





Optimal Tube Skin Performance

To ensure a tube skin temperature sensor operates at peak efficiency, it's vital that the thermocouple sheath maintains direct contact with the tube. The weld pad must be strategically placed at the essential point, and the excess cable needs to be guided away from intense heat, following the vessel's coolest side. This method of installation is critical because it enables the thermocouple to use the process tube as a heat sink, optimizing its performance.

EXPANSION LOOPS

In addition to the weld pad, our design considerations at Thermo Electric Instrumentation include the provision of expansion loops. A furnace may undergo movements ranging from 50 mm to 350 mm as it heats up to reach its operational temperature.

Failure to account for these incremental expansions by not incorporating expansion loops can lead to strain on the Tube Skin Thermocouple, potentially causing it to break. Thus, expansion loops are strongly recommended to maximize the lifespan of the thermocouples and to minimize issues during commissioning and maintenance.

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Tube Skin Construction

Our tube skin temperature sensors are constructed from advanced materials, these sensors provide long-lasting performance, delivering accurate measurements and seamless integration into complex systems. We also offer extractable designs to ensure continual reliable temperature monitoring with optimum operational efficiency and safety in mind.

SPECIAL PROTECTION MINERAL INSULATED CABLE

To enhance protection and durability, our sensors are manufactured using mineral insulated cable with a variety of sheath options tailored to meet specific industrial requirements. For added defense, the sheath can be encased in a secondary outer layer, such as a fiber frax sleeve, or configured with double outer sheaths made from distinct materials.

Our sensors are available in metric and imperial sizes, ensuring compatibility with diverse system needs. For extended constructions, we include weld clamps for secure installation. Available sheath materials include SS310, SS446, Hastelloy, and HR160, providing the ideal match for your specific application.

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Why Choose Us

PRECISION AND RELIABILITY

All of our tube skin temperature sensors are engineered for accurate and reliable temperature measurement, even in the toughest environments. Designed for industries like petrochemical, refining, and power generation, these sensors ensure operational safety and efficiency. With a focus on precision, they help optimize performance and minimize risks related to temperature fluctuations.

CUSTOM SOLUTIONS

We provide custom-built tube skin sensors tailored to your specific needs. Our sensors are designed for seamless integration, ensuring they meet the exact performance requirements of your systems. With a commitment to innovation, we deliver cutting-edge technology for long-lasting, reliable results.

Our experts are always ready to guide you in selecting the right materials and configurations for your sensing needs, and we provide comprehensive installation, operation, and maintenance guidelines to ensure optimal performance.

CERTIFICATIONS

Our sensors come with key certifications, such as IECEx and ATEX, reflecting our dedication to meeting the highest industry standards. These certifications guarantee that our products comply with strict regulatory requirements, giving you dependable and certified solutions.

Quality Assurance

We prioritize quality throughout the production process, conducting thorough testing and validation to ensure the reliability of every sensor. Our strong commitment to quality assurance ensures that our products consistently perform under demanding conditions, keeping your operations safe and efficient.

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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 °C to 1,500 °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

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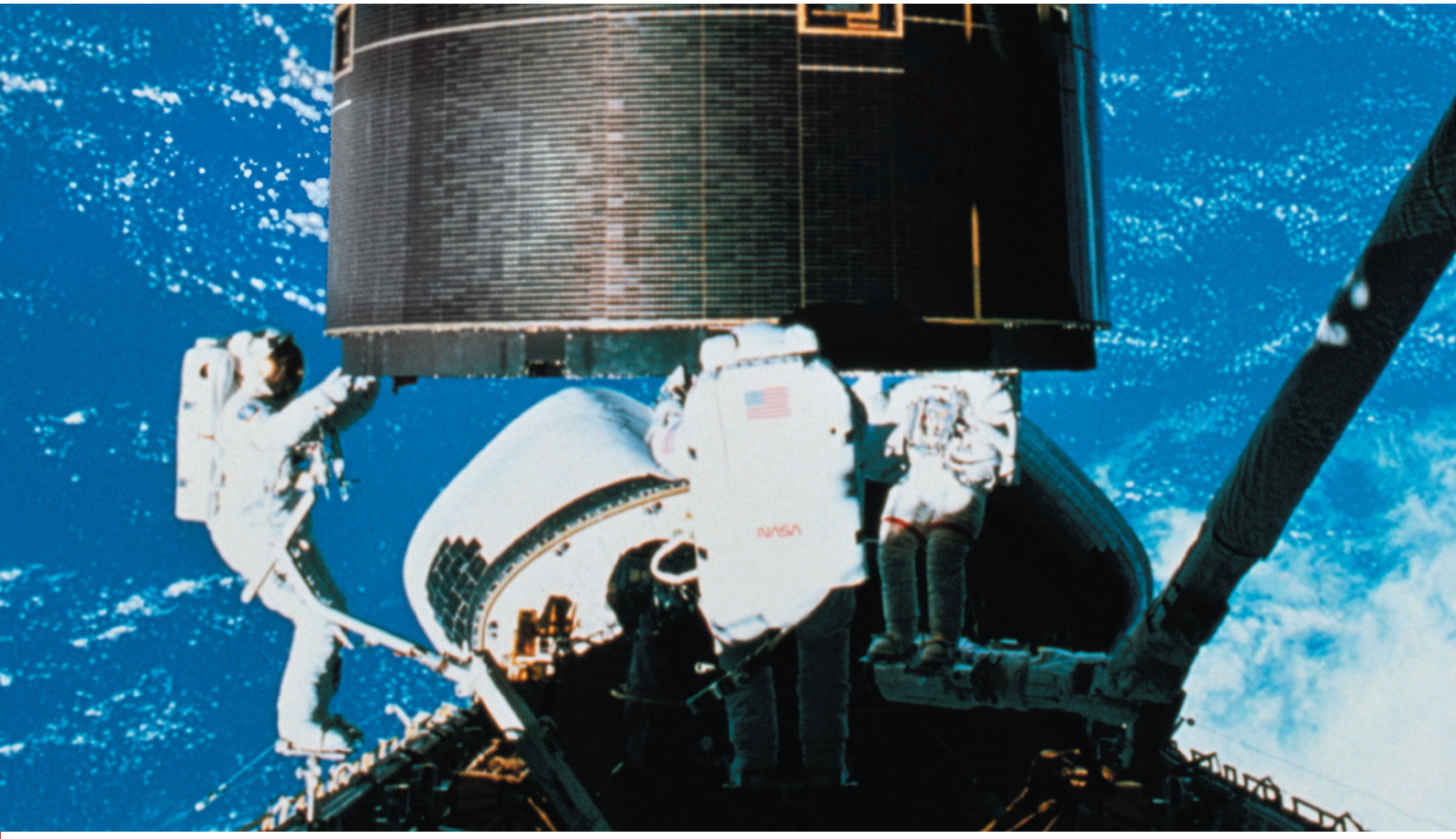


Other Products and Services at a Glance

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

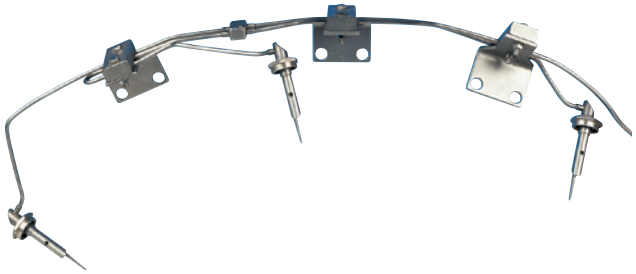
- Optical temperature meters
- Controllers
- Transmitters
- Dry well calibrators

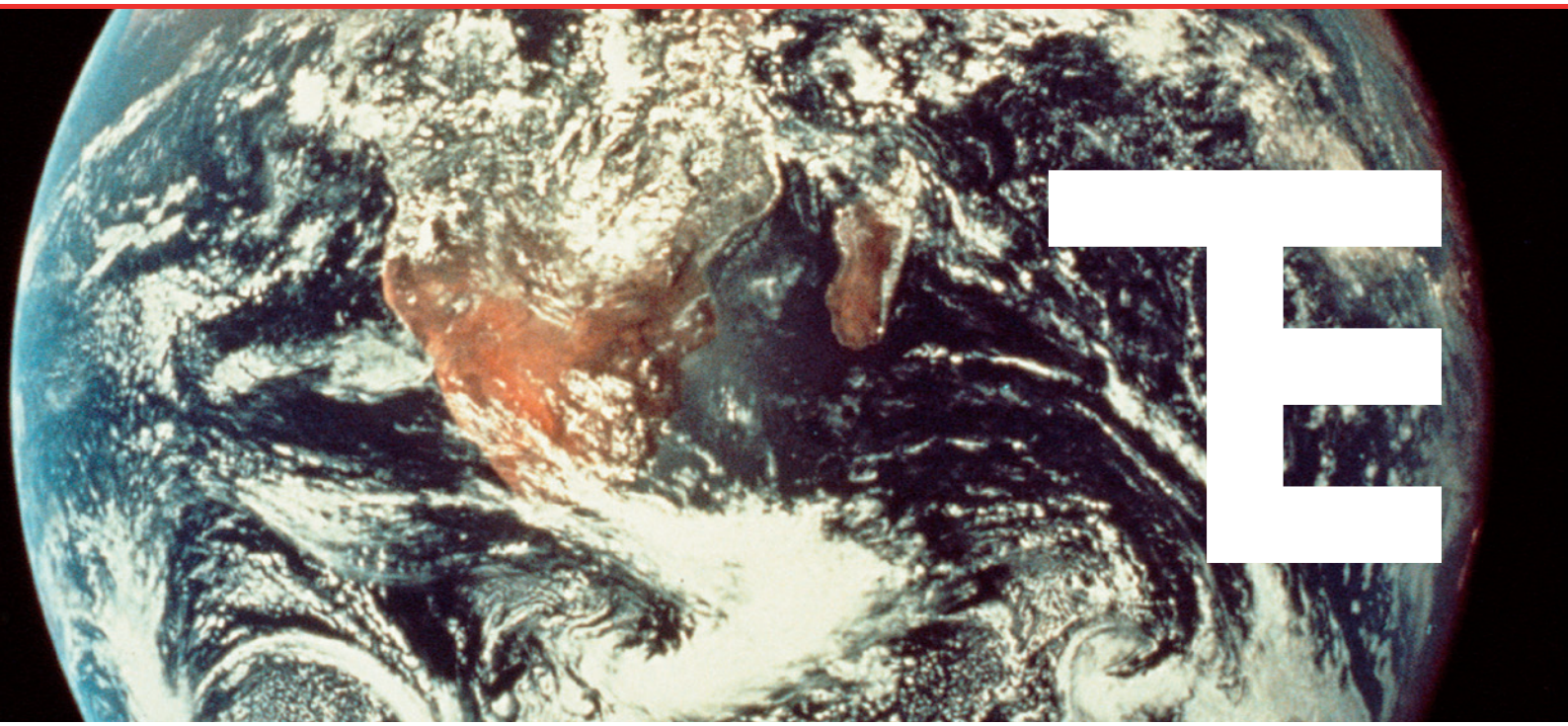
CONNECTORS, PANELS AND WIRES

- 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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