

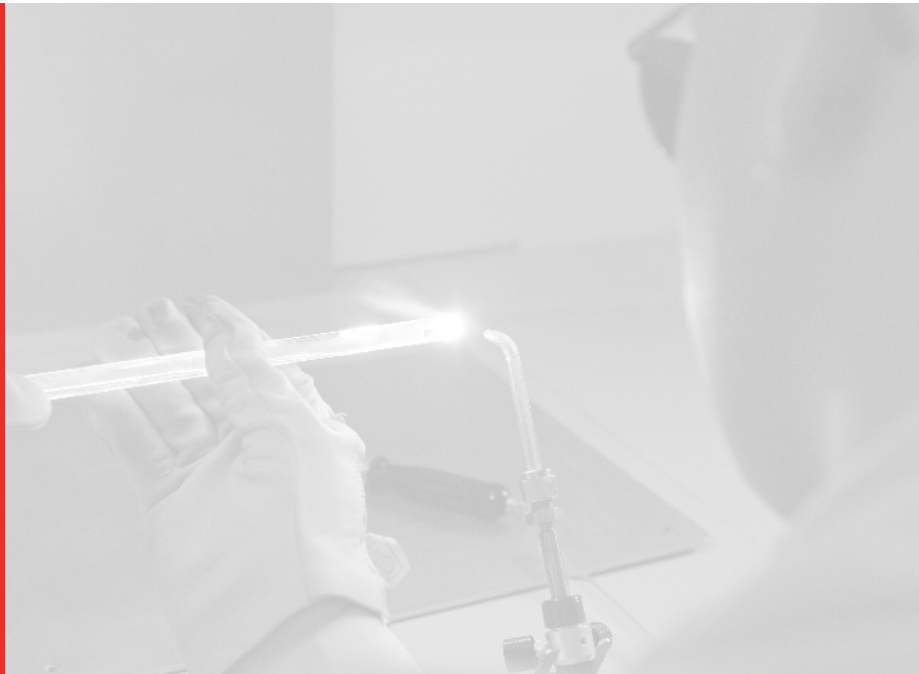


**DOEDIJNS
INSTRUMENTATION**

Temperature sensors for semi-conductor & solar industry

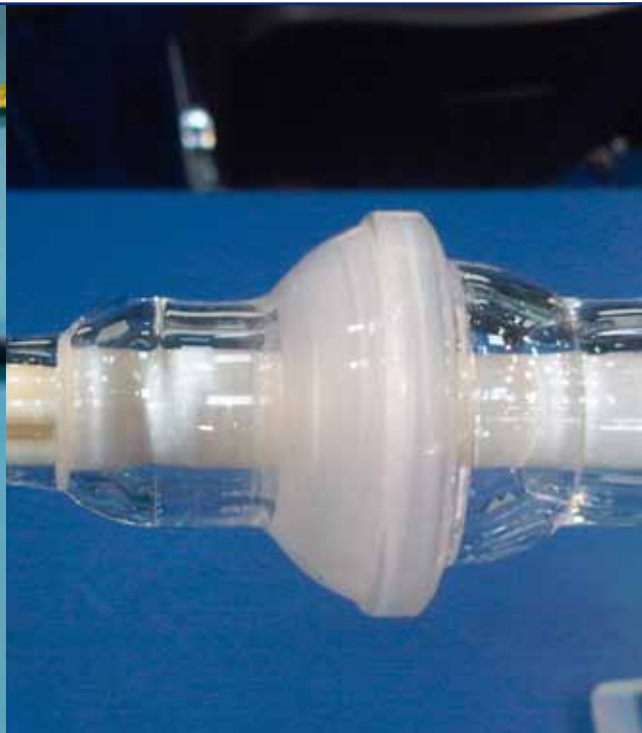


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**Innovative temperature
measurement solutions
from the global leader**

 **THERMO
ELECTRIC**
Brand name of Doedijns International B.V.



SEMI-CONDUCTOR & SOLAR TEMPERATURE SENSORS

Doedijns Instrumentation specialises in the design, manufacture and supply of spike and profile Thermocouples to both OEM's (Original Equipment Manufacturers) and end-users. Our Semi-conductor & Solar temperature sensors are manufactured under the brand name of Thermo Electric.

Strict clean room manufacturing policy

We manufacture all of our spike and profile Thermocouples in our purpose-built 'clean room', under exactly the same conditions required for the production of wafer steppers. This facility is dedicated to the manufacturing of our Semi-conductor & Solar sensors. Not only do we produce sensors in a 'clean room' environment, we also ensure that our materials are 'clean room' compatible. Our products are also shipped in 'clean room' approved packaging materials. These strict manufacturing policies ensure that our temperature sensing devices meet the highest standards for the Semi-conductor & Solar industry.

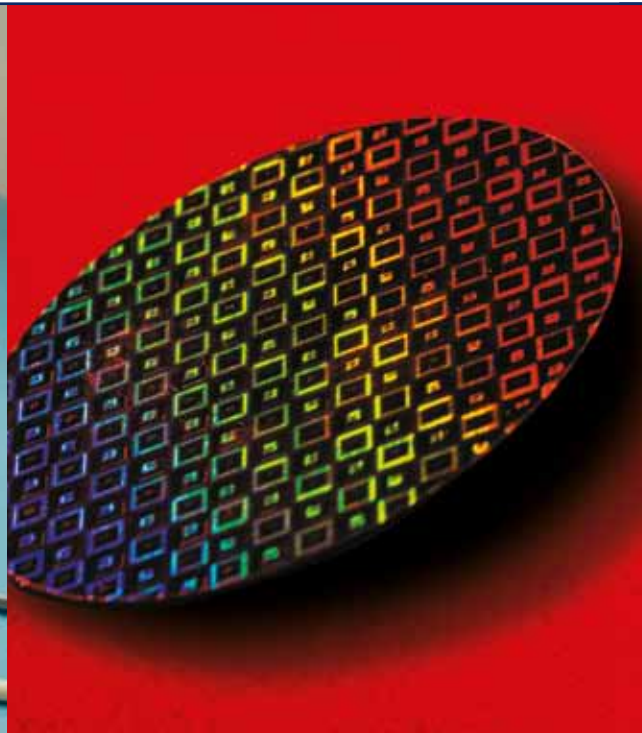
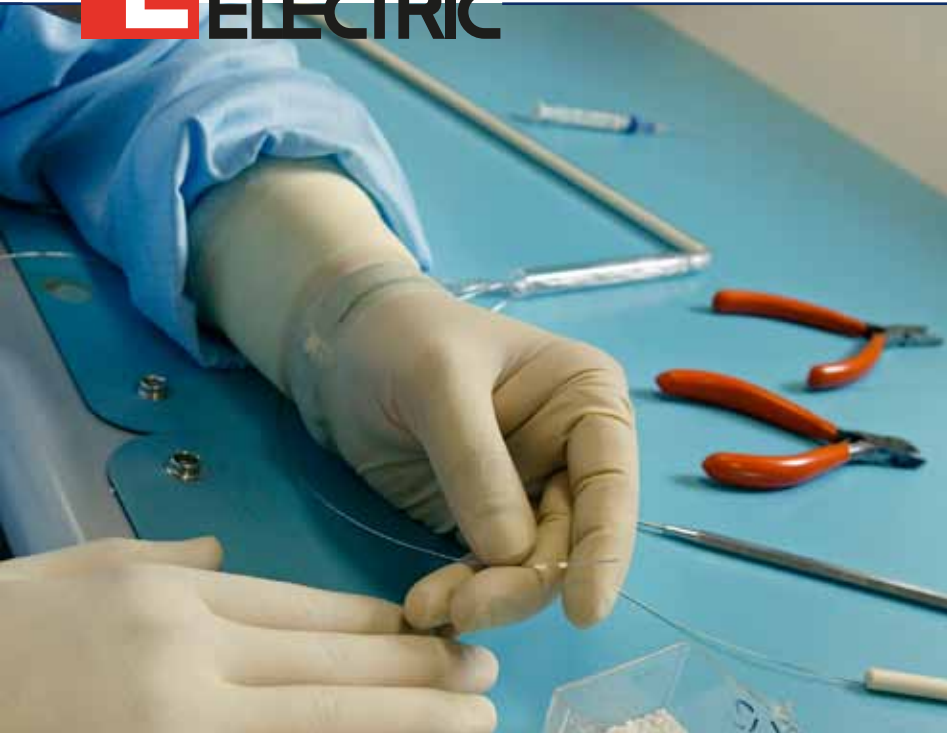
In-house calibration laboratory

In addition to our clean room we also have an 'in-house' calibration laboratory that meets the stringent requirements of NIST, COFRAC, RvA and other international certifications. These unique facilities allow us to calibrate Semi-conductor & Solar temperature sensors from -195°C up to $1,200^{\circ}\text{C}$.

This quality guarantee and calibration service provides our customers with a reassurance they have come to rely on. This is in part, why Doedijns Instrumentation and our brand Thermo Electric continue to be the number one choice for the supply of high quality, Semi-conductor & Solar sensors.

Our experienced staff are always on hand 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 accredited by Lloyds Quality Register and our reputation for consistent excellence in Semi-conductor & Solar sensor manufacturing speaks for itself.





SPECIALISED APPLICATIONS

The semi-conductor & Solar industry has advanced at a spectacular rate over the past five years. Thermo Electric has contributed significantly to temperature sensing developments in the diffusion and oxidation processes. For example, we have developed intelligent solutions such as our profiling sensors and spikes. These developments make extremely compact, multiple applications possible in the wafer stepping process.

We are also extremely proud to have created a number of proprietary features that increases our guarantee for quality, durability and prevention of contamination:

- Vacuum testing for profile Thermocouples
- Single ceramic insulation sleeves with channels for 5-fold Thermocouples
- Lightweight handles - aluminium or anodised
- Simple assembly features
- Positive and negative t/c wires over the whole length (no common return)
- Batch calibration – we can also provide an RvA approved calibration certificate from our own accredited laboratory





Profile Thermocouple

Probe type: single piece ceramic insulator with fused quartz sheath.

Thermocouple:

- Pt/Pt 10% Rh (type S)
- Pt/Pt 13% Rh (type R)
- Pt 6% Rh/Pt 30% Rh (type B)

NEN-EN-ISO accreditation

We have in-house calibration facilities and have achieved accreditation to NEN-EN-ISO/IEC 17025 certified laboratory standards, in accordance with EA (European co-operation for Accreditation) member states. This strict manufacturing and calibration control provides us with a competitive advantage and guarantees the quality of our products.

Constructions

- Profile Thermocouples for 3 zone – 5 zone
- Spike single/duplex Thermocouple
- Paddle single/duplex Thermocouple
- Sic protection tube
- Quartz protection tube
- Ball joints

QUALITY CONTROL

Our customers rely on Thermo Electric branded products because of our experience, reliability and manufacturing excellence. All of this is backed by our Total Quality Management System and ISO certificate. This quality guarantee provides additional security and has formed the foundation of our Thermo Electric brand, synonymous for Semi-conductor temperature sensors that have the highest level of performance and reliability.





MANUFACTURING FACILITIES

We have dedicated manufacturing and testing facilities located in The Netherlands. Our Thermo Electric branded temperature sensing products are supplied direct from our headquarters to our customers, through Doedijns Instrumentation 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

- Vortex stress calculations for Thermowells
- X-rays
- Welding robot
- Manufacturing record book
- Quality inspection plan
- Explosion safe certificate Exi, Exe, Exd, Exn
- Material certificate (NACE, 3,1)
- 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
- ATEX
- GOST K
- 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 $1,250\text{ }^{\circ}\text{C}$ (RvA/ILAC)
- Calibration test for each instrument, mV, mA, Ohms and V (RvA/ILAC)
- Vacuum test
- Helium leak test
- PMI test



Doedijns Instrumentation B.V.
Member of Doedijns International

| Coenecoop 71 - 73 | 2741 PH Waddinxveen | The Netherlands
| P.O. Box 179 | 2740 AD Waddinxveen | The Netherlands
| t. +31 [0] 182 30 28 50 | f. +31 [0] 182 30 27 75
| info@doedijns.com | www.doedijns-instrumentation.com



Doedijns Middle East & Africa FZE
Member of Doedijns International

| P.O. Box # 261894 | Jebel Ali Free Zone
| Dubai | United Arab Emirates
| t. +971 4 887 6315 | f. +971 4 887 6314
| info@doedijns.com | www.doedijns.com



Doedijns Instrumentation Limited
Member of Doedijns International

| 3 Glenholm Park | Brunel Drive
| Northern Road Industrial Estate | Newark | NG24 2EG
| t +44 [0]1636 612358 | f. +44 [0]1636 671055
| info@doedijns.com | www.doedijns-instrumentation.co.uk



Doedijns Asia Sdn. Bhd. (701989-P)
Member of Doedijns International

| 11A Jalan PJS 7/19 | Taman Bandar Sunway
| 46150 Petaling Jaya | Selangor D E | Malaysia
| t. +60 [0]3 5631 6733 | f. +60 [0]3 5632 6733
| info@doedijns.com.my | www.doedijns.com



Doedijns International B.V.

| Coenecoop 103 - 105 | 2741 PH Waddinxveen | The Netherlands
| P.O. Box 179 | 2740 AD Waddinxveen | The Netherlands
| t. +31 [0] 182 30 28 88 | f. +31 [0] 182 30 27 77
| info@doedijns.com | www.doedijns.com