

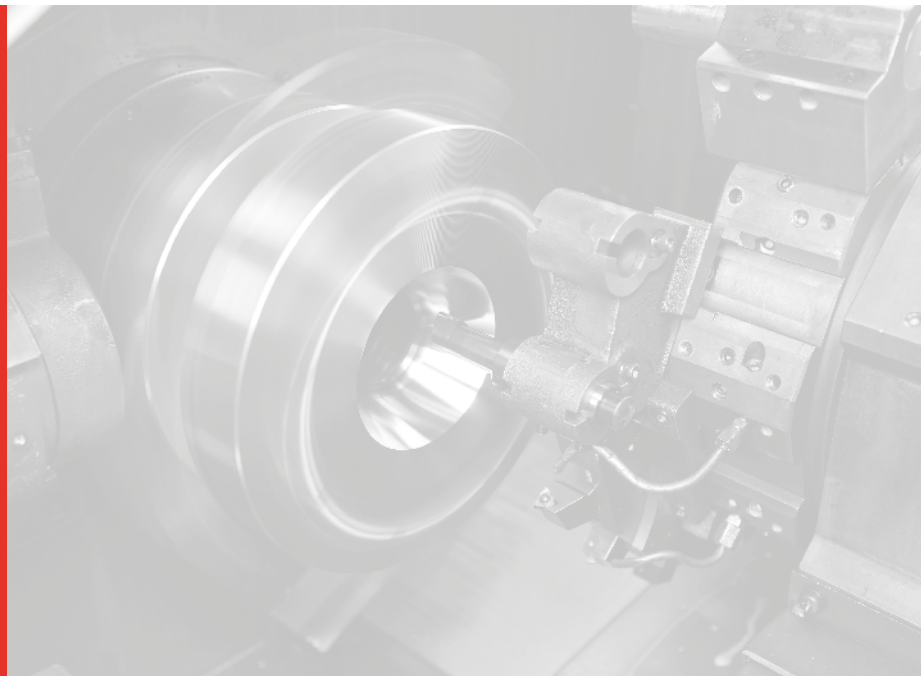


**DOEDIJNS  
INSTRUMENTATION**

# **Multi-level temperature sensors for reactor measurement**



**TE**



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

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



## MULTI-LEVEL TEMPERATURE SENSORS

**Doedijns Instrumentation manufactures and supplies Multi-level temperature sensors across a variety of industrial sectors. Our Multi-level temperature sensors are manufactured under the brand name of Thermo Electric.**

Multi-level or Multipoint temperature sensors as sometimes referred to, are industrial devices that measure temperatures at different points along the length. We manufacture a range of these sensors ranging from single probe tubular devices - housing a number of profiling points, right up to heavy duty Thermowell designs with guide tubes - allowing sensor removal without shutting down the reactor or vessel. Our Multi-level sensors are frequently used in chemical, petrochemical and refining industries, providing an excellent temperature measurement solution for chemical reactors, catalytic crackers and fractionation towers.

### **Accreditation by Lloyds Quality Register**

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 Multi-level temperature sensor manufacturing speaks for itself.





## CONSTRUCTION TYPES

**We can supply a variety of profiling options with or without explosion proof certificates. All of our Multi-level temperature sensors can also be supplied with mechanical or electrical test certificates, conforming to International standards.**

### Thermocouple Multi-level sensor

This construction consists of a small diameter protection tube for measuring the temperature in a Pilot Plant. The Thermocouples mount straight into the inner-tube. Small diameters from 3 mm with up to 10 Thermocouples are available. Overall length and design is flexible, depending on requirements.

### Spring loaded strip construction

We offer this type of Multi-level profile with either Thermocouples and/or Pt100 elements. Mounted in a protection tube, each element is spring loaded to the inside wall of the tube to increase both response time and accuracy.

### Spring loaded strip construction B

For Thermocouples and RTD's. Complete with a spring-loaded construction for measuring the temperature at the inner-wall of the Thermowell.

### Replaceable inserts construction

For Thermocouples and RTD's. Consisting of replaceable inserts. Complete with support tubes which have an open end for connecting to the inner-wall.

### Replaceable inserts construction B

For Thermocouples and RTD's. Consisting of replaceable inserts. Complete with support tubes which can be welded to the inner-wall.

### Radial Multipoint Proflexi®

This type of Multi-level temperature assembly is available in Thermocouple and RTD constructions. Directly mounted into the process (without protection tube).





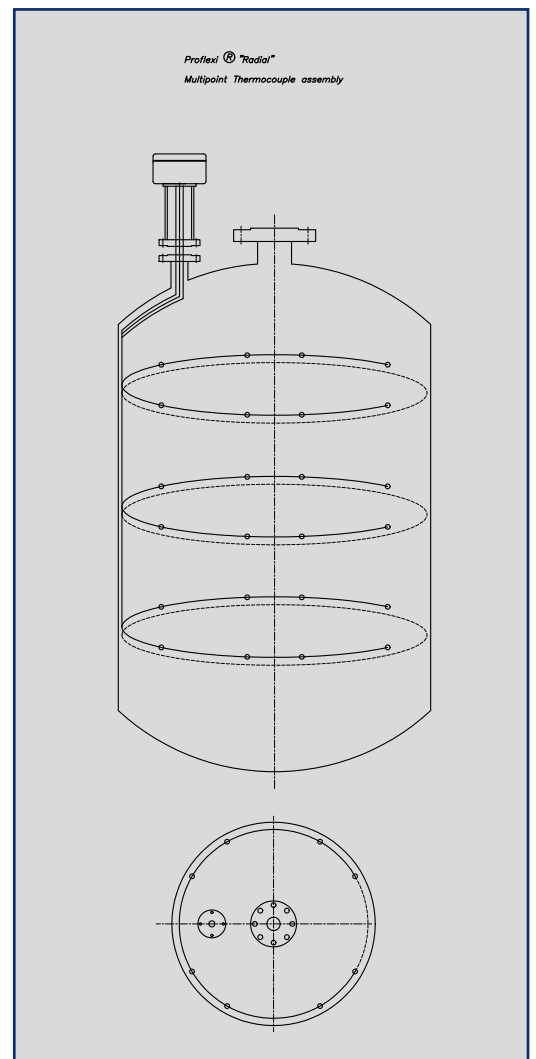
## PROFLEXI® MULTI-LEVEL ASSEMBLY

Due to increased regulation requirements within the refining and petroleum industries, Doedijns Instrumentation have developed a Proflexi® “Radial” Multipoint Thermocouple assembly. This design provides a more accurate representation of vessel contents due to the unique radial design.

### Accurate measurement and representation

Standard Multi-level constructions can limit or mislead operators. This is due to the design or location at the point where the measurement is being taken. In order to address the need for a more accurate representation of a vessel contents, we have developed the Proflexi® assembly. This unique type of Multipoint assembly is available in a range of material and construction options to match your process requirements.

Doedijns Instrumentation can help you with the design for your next Multi-level temperature sensing project. We utilise our industry knowledge and extensive experience in order to match available products to your process conditions. This consultative approach to product design and manufacturing ensures that our customers receive the best possible service and the right product for their process.





## 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