

**Check  
the drift of  
your temperature  
sensors...**

## > SENSOR DRIFT...

In operation, the accuracy of temperature sensors deteriorates at varying rates, depending on the process constraints, so that they no longer guarantee correct measurements as initially defined by the applicable standard (Pt 100  $\Omega$  RTD or thermocouple). They must therefore be calibrated regularly.

A thermocouple always drifts downwards by several degrees a year.

To counteract this phenomenon, industrial companies set their processes to overheat with a sufficient margin to overcome this drift until the next calibration, which is usually done once a year. In this way, they define a setpoint which is higher than the optimum temperature for the heat treatment required.

**This overheating obviously has consequences and may cause defects or heterogeneous areas on parts, premature refractory wear and excessive energy consumption. So it makes sense to control the drift of the sensors.**

## > ... IN-SITU CALIBRATION!

Pyro-Contrôle's temperature sensor assemblies with in-situ calibration can be used to monitor your sensors' drift over time with a method which is very simple to set up. This technology offers a host of advantages in terms of energy saving, productivity, quality and traceability:

- ▶ The reduced measurement uncertainty makes it possible to lower the heating setpoint, thus saving energy. By avoiding overheating, the life span of the equipment is also extended.
- ▶ The process remains available so there is no longer any need to stop production; calibration is carried out with the equipment still operating, without having to dismantle the sensors, so there is less risk of breakage. Intervention time is also reduced. This technology offers considerable flexibility for metrological test scheduling.
- ▶ Because your measurements are more accurate, your standard deviations can be reduced, the quality of the finished product is improved and quality can be monitored more simply. This all contributes to better traceability of your thermal process.

**...without  
stopping  
your process.**

### TEMPERATURE MEASUREMENT

In-situ calibration

Energy saving

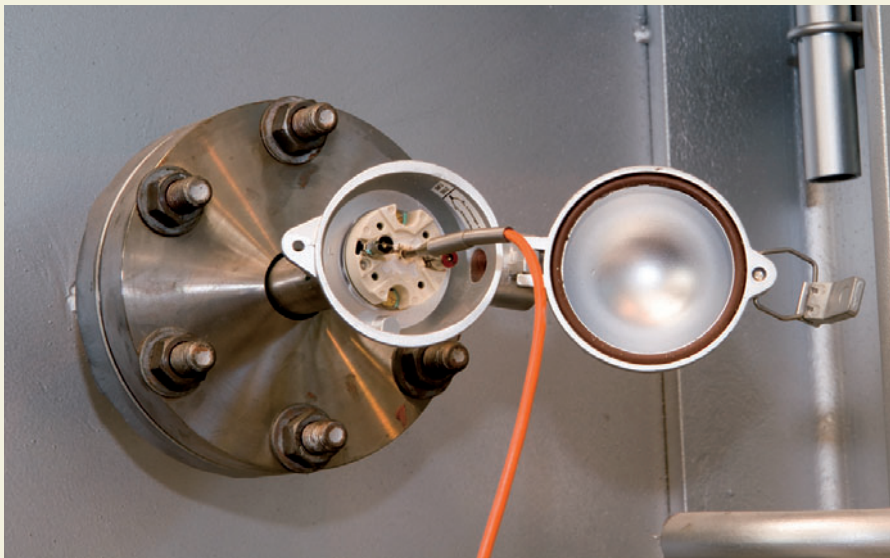
Quality & traceability

Productivity



## > METHOD FOR IN-SITU CALIBRATION WITHOUT DISMANTLING THE SENSOR

This method\* for verification by comparison is simple and quick to implement.

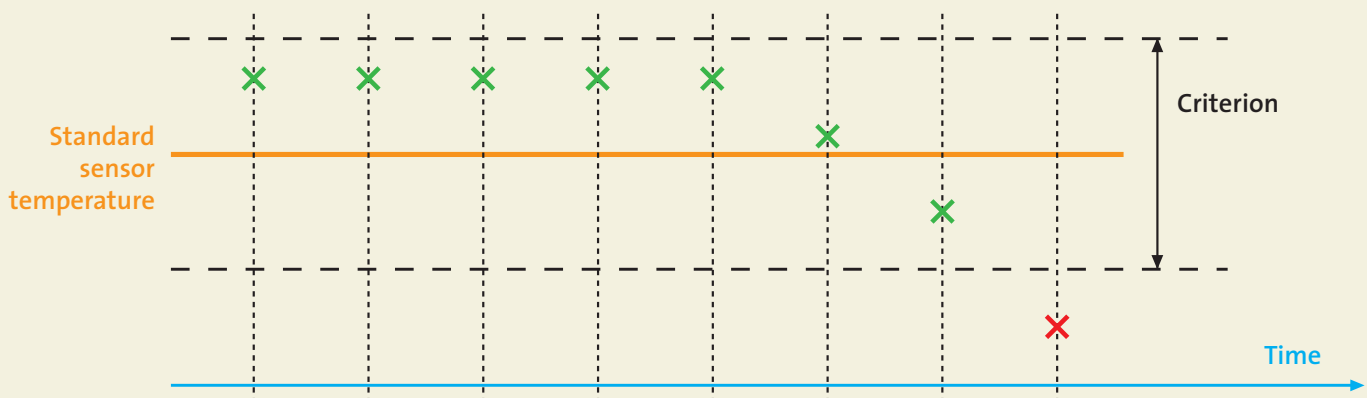


- ▶ The connection head of the sensor to be checked is **opened**.
- ▶ The standard sensor is **inserted** into the guide tube.
- ▶ The standard sensor is **connected** to the precision thermometer.
- ▶ The temperature is left to **stabilize**.
- ▶ The process sensor is **calibrated** by comparison with the temperature indicated by the standard sensor.

\* Patent no. 0213616

## > DECIDE ON THE FREQUENCY OF YOUR TESTS

Measurement drift can be detected by regularly comparing the temperature read at the point of operation with the temperature indicated by the standard sensor.



## > ASSOCIATED SERVICES

Pyro-Contrôle possesses a temperature metrology calibration laboratory.  
COFRAC accreditation no. 2-1385 - Calibration by comparison.

- From -20 °C to +450 °C for Pt 100  $\Omega$  RTD
- From -20 °C to +1,550 °C for thermocouples



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