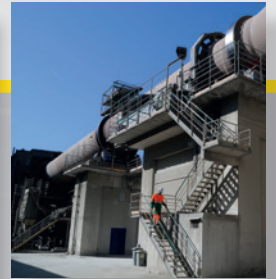


Cement Manufacturing



Temperature sensors



Reliability, performance
and long life span
for your temperature processes

Measuring your requirements

Pyrocontrole

YOUR PARTNER FOR TEMPERATURE MEASUREMENT

Pyrocontrole, a company in the Chauvin Arnoux Group, the European leader in measurement, designs and manufactures industrial temperature measurement and control systems.

Thanks to its extensive know-how, Pyrocontrole has become a key partner of the major industries.

Keeping as close as possible to the constraints facing cement manufacturers, Pyrocontrole has developed a comprehensive, specific range of temperature sensors which are reliable, rugged, dust-resistant, shockproof and capable of withstanding extreme temperatures.

We guarantee a long life span for our sensors by using high-quality materials and experienced teams to make them.

Our offering is part of a global approach helping to reduce your maintenance costs and cut your energy spending.



A FRENCH BRAND

Drawing on measurement know-how built up over a long period, Pyrocontrole contributes "temperature measurement expertise" to the Chauvin Arnoux Group's industrial processes. The temperature probes and sensors are designed in the R&D department in Lyon.

The equipment is also machined, assembled and checked in France by experienced, qualified teams who guarantee quality and reliability.

INTERNATIONAL PRESENCE

Thanks to its membership of the Chauvin Arnoux Group, Pyrocontrole is present worldwide, represented by a network of ten subsidiaries and an export department.

Sales teams and technical sites in China enable us to cover the whole continent of Asia with quick response backed by a high-performance strategy.

QUALIFICATION AND TESTING

Our team of metrological experts performs the inspections and the entry tests for materials, as well as the checks at the end of the manufacturing process, according to the requirements linked to the order.

For this, we have integrated resources in our factory:

- Laboratory with COFRAC accreditation no. 2-1385 for calibration by comparison up to 1,550 °C.
- Temperature sensor response time measurement bench in accordance with the NF EN 60751 standard.
- Specialized room equipped for welding and penetrant testing according to the NF EN 571-1 standard.
- Bench specially equipped for hydrostatic testing.
- Radiography for checking the welds and the positioning of the measuring elements.



TESTS AND VALIDATIONS

- Calibration in our laboratory with Cofrac accreditation no. 2-1385, from -40 °C to +1,550 °C
- PED, provision of design calculation notes

NON-DESTRUCTIVE TESTS

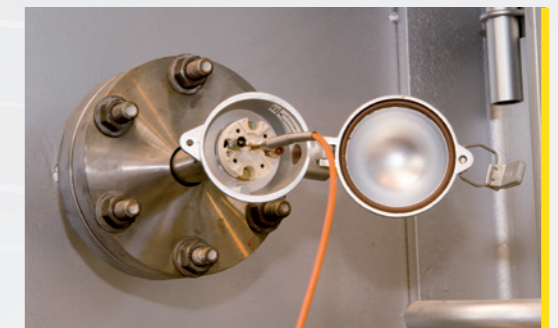
- Penetrant testing of welds
- Helium test
- Hydrostatic test
- Radiography of welds

MATERIAL TRACEABILITY AND MANUFACTURING METHOD

- CCPU material certificate
- PMI tests on sensors, welds and finished flanges
- DMOS (description of welding operating method), QMOS (qualification of welding operating method), QS (welder qualification)

IN-SITU CALIBRATION WITHOUT LOSING PRODUCTIVITY, ACCORDING TO YOUR OWN SCHEDULE

Depending on how demanding your requirements are, Pyrocontrole proposes an in-situ verification method without dismantling and without halting production to ensure that your temperature measurements remain accurate over time. Simple, reliable and quick to set up, our temperature assembly technology with in-situ calibration offers significant advantages in terms of energy saving, productivity, quality and traceability.



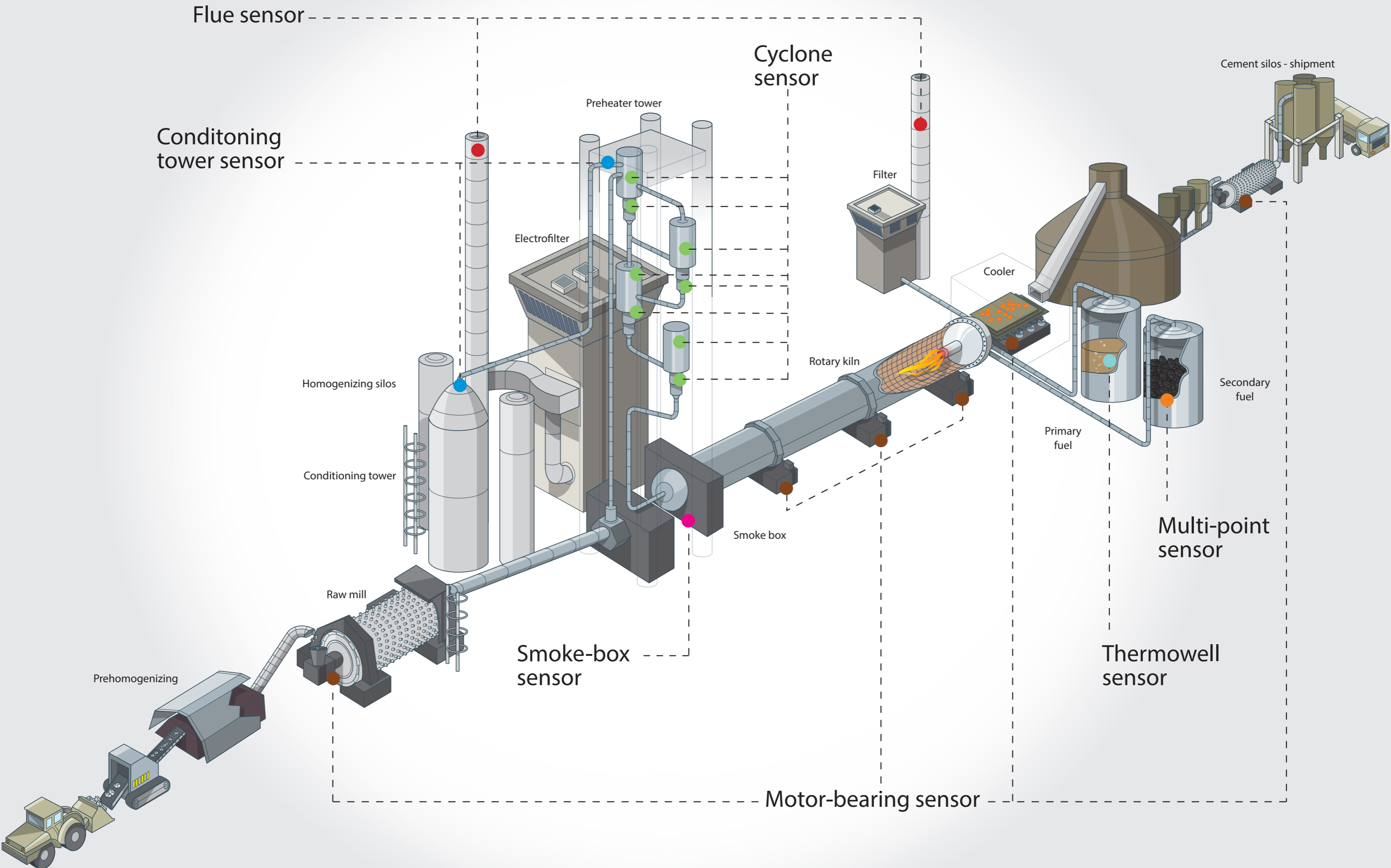
References

CIMENTS CALCIA
CIMPOR
DANGOTE

HOLCIM

ITALCEMENTI GROUP
LAFARGE
VICAT...

Qualified temperature sensors for cement manufacturing





● Flue sensor

Used in discharge chimneys, this sensor measures and controls the temperature of the gases discharged into the atmosphere. In this way, it can be used to ensure correct operation of the installation and environmentally-friendly production.

Sensing element: Pt100
Measurement withstand: up to 350 °C



● Conditioning tower sensor

Installed to check the temperature of the gases, its rugged, compact design makes it highly resistant to shocks and vibrations. Its sensing element is protected by a stainless-steel sheath capable of withstanding corrosive gases.

Sensing element: Pt100
Measurement withstand: up to 450 °C



● Smoke-box sensor

This sensor is capable of withstanding high temperatures and high concentrations of clinker dust. It monitors the temperature of the hot gases recovered from the rotary kiln and from the preheater tower.

Sensing element: S thermocouple with high-temperature protection
Measurement withstand: up to 1,300 °C



● Thermowell sensor

Immersed in the liquid fuel, this thermowell sensor is equipped with an interchangeable sensing element which avoids any loss of tightness on the installation and prevents shutdown and/or draining of the process. This sensor is qualified as ATEX / IECEx.

Sensing element: Pt100
Measurement range: ambient temperature



● Multi-point sensor

Fixed onto the process by a flange, the ATEX / IECEx-qualified multi-point sensor comprises several probes of different lengths. This multi-point assembly makes it possible to gather enough information on the thermal gradation to map any overheating of the tank sufficiently quickly.

Sensitive elements: Pt100
Measurement range: ambient temperature



● Cyclone sensor

Installed upstream and downstream (discharge chute) of each cyclone, this sensor measures the gas and material temperatures. This monitoring helps to control and prevent any obstructions due to clogging of the fines. For the lower levels, the sensor is equipped with anti-abrasion protection. This rugged sensor withstands severe mechanical shocks.

Upper levels:
Sensing element: K thermocouple
Measurement withstand: up to 700 °C

Lower levels:
Sensing element: K thermocouple with high-temperature anti-abrasion protection
Measurement withstand: up to 1,000 °C



● Motor-bearing sensor

Located near the bearing greasers and resistant to vibrations, this sensor checks the temperature of the bearing reliably and instantaneously. It can detect at an early stage any overheating which may lead to malfunctions.

Sensing element: Pt100
Measurement withstand: up to 200 °C

■ Temperature transmitters & controllers



Probe-head transmitter
PRETOP



DIN-rail transmitter
C.A 3420



STATOP-Series
controllers

Universal input: thermocouple or Pt100	•	•	Choice of more than 1,000 temperature control solutions: 1 or 2 inputs, fixed or universal, outputs: relays or 4-20 mA, on-off or PID control, self-adapting and fuzzy logic...
4-20mA output	•	•	
Galvanic insulation	•	•	
2 x relay outputs	•	•	
Display with removable programming panel	•	•	
ATEX EEx ia IIC T1-T6 option	•	•	
HART option	•	•	

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With its seven brands (Chauvin Arnoux[®], Metrix[®], Multimetrix[®], Enerdis[®], Pyrocontrole[®], AEMC[®] and AMRA[®]) and its metrology and regulatory testing subsidiary, Manumasure, Chauvin Arnoux is one of the European leaders in measurement, energy performance, industrial thermography and metrology.

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