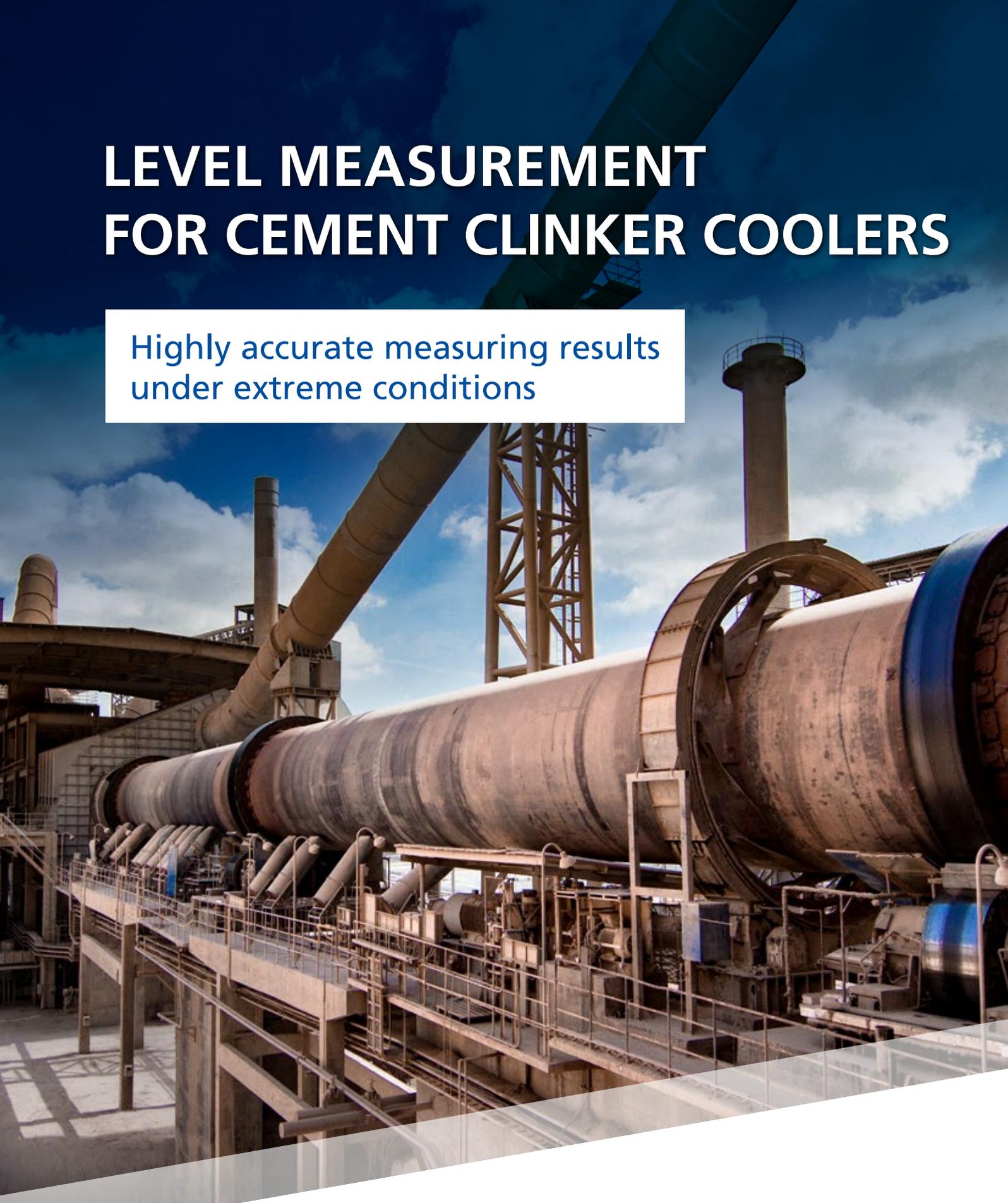


# LEVEL MEASUREMENT FOR CEMENT CLINKER COOLERS

Highly accurate measuring results  
under extreme conditions



**BERTHOLD**

# CONTINUOUS LEVEL MEASUREMENT FOR CEMENT CLINKER COOLERS

In cement production, the heart of the system is the rotary kiln, and the corresponding cooling system that follows. The efficient operation of these two systems together is critical to maintain efficiency and profitability in the cement manufacturing process. With operating temperatures exceeding up to 1300°C, the measurement of important parameters, such as the level of clinker on the cooling grates, is fraught with problems. Traditional, intrusive level measurement technologies simply cannot last in such a harsh environment.

To be cost efficient, the airflow to the clinker cooler must be regulated to the proper amount for the mass of the clinker present on the cooler grates. This requires an accurate level measurement of the clinker. Berthold's noncontact and nonintrusive radiometric level measurement technology provides an accurate and reliable clinker level measurement while operating outside of this extremely high temperature environment. The high degree of accuracy, stability and repeatability provided with this level measurement ensures high production rates, optimal efficiency, and superior product quality.

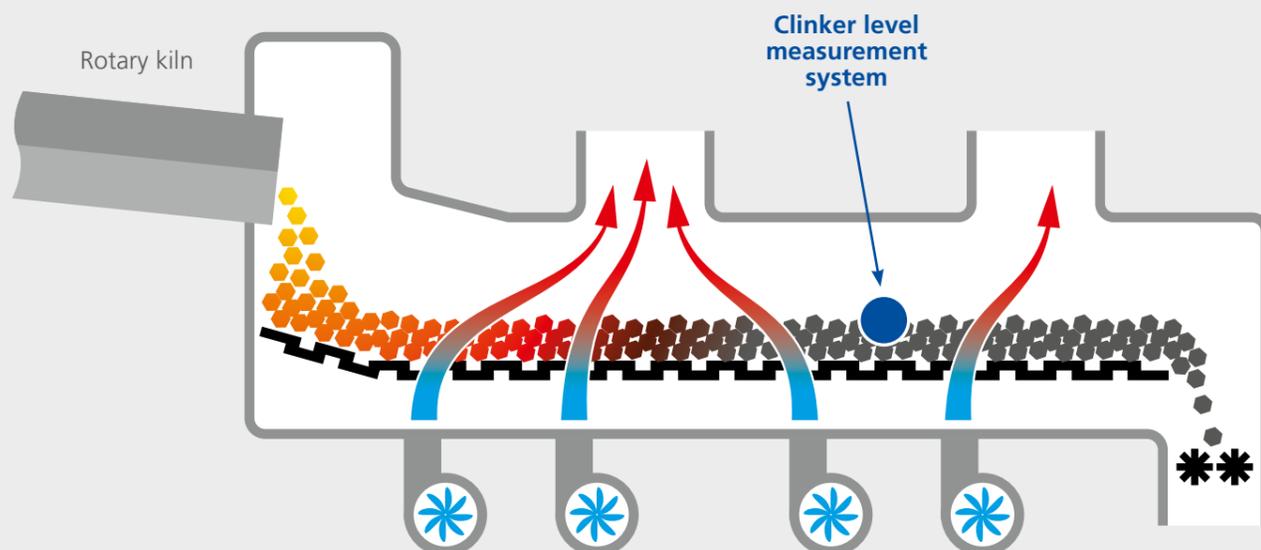
## Detector for extreme operating environments

The clinker is cooled as it is discharged from the rotary kiln onto a moving grate through which air is forced. The cooling is regulated by the feed rate and the amount of airflow. The quality of the clinker is directly affected by the cooling rate.

Cooling too slowly results in larger crystalline structure, which requires more energy to complete the grinding process and can decrease product quality. Increasing airflow to the cooler ensures rapid cooling but also results in high energy costs and inefficiencies in other parts of the process. With an accurate measurement of the clinker level, the proper amount of clinker present on the cooler grates can be regulated. This leads to an optimized process and therefore generates cost savings.

Whether it is the proven two-wire system using remote transmitters or the integrated field devices with HART or Bus protocol, Berthold's level gauges provide patented technology ensuring long-term stability and temperature stability. This achieves a long-lasting measurement stability that withstands even strong ambient temperature changes (up to 0.002% per °C). Berthold's level measurement systems are therefore the proven solution for this application.

## Clinker level in the cooling system

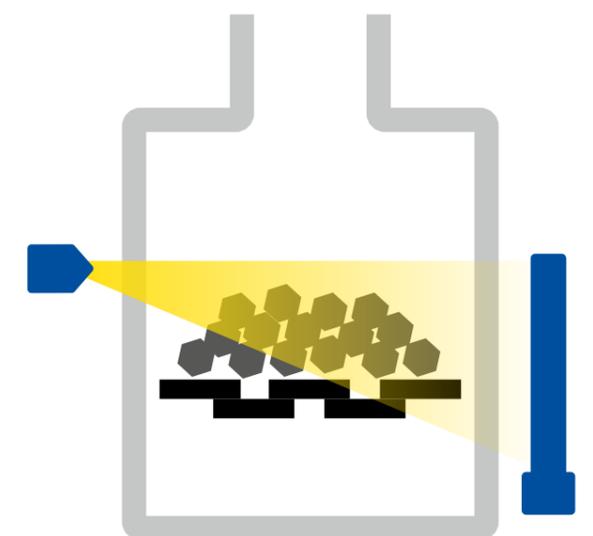


## Features

- Contactless measurement
- Not exposed to harsh process conditions due to external mounting
- Free of wear and maintenance
- Lowest possible source activity through extreme sensitive detector design
- SuperSENS option, with industry leading sensitivity, can extend lifetime of an aged source
- No re-calibration due to unmatched stability and aging compensation

## Customer Benefits

- Accurate and reliable measurement of clinker level
- Energy savings through process optimization
- Low maintenance cost



Typical measuring arrangement with point source and rod detector



## THE EXPERTS IN MEASUREMENT TECHNOLOGY

Berthold Technologies stands for excellent know-how, high quality and reliability. The customer is always the focus of our solution. We know our business!

Using our varied product portfolio, our enormous specialized knowledge and extensive experience, we develop suitable solutions together with our customers for new, individual measurement tasks in a wide variety of industries and applications. Berthold Technologies is specialised in radiometric process measurements for over 70 years. This is our core competence with state-of-the-art and cutting edge products and solutions covering a vast range of industries and applications.

### **We are here for you – worldwide!**

The engineers and service technicians from Berthold Technologies are wherever you need them. Our global network assures you fast and above all competent and skilled assistance in case when needed. No matter where you are, our highly qualified experts and specialists are ready and waiting and will be with you in no time at all with the ideal solution for even the most difficult measurement task.

**Berthold Technologies GmbH & Co. KG**

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