

MOISTURE MEASUREMENT ON CEREAL, GRAINS & POWDERS

Online process monitoring
for food products



BERTHOLD

ONLINE MOISTURE MEASUREMENT ON CEREAL, GRAINS & POWDERS

For food products produced by the grain industries, moisture is a crucial issue throughout the manufacturing process. Too little or too much moisture at different stages of production can affect the quality of the final product and the optimisation of production costs. By using microwave technology, it is possible to monitor moisture online, allowing trend analysis and early intervention when necessary. The Berthold moisture systems can measure grain moisture when harvested, throughout processing, and before storage and sale. This significantly reduces production costs and improves product quality. For example, as a rule the moisture content of couscous must not exceed 13.5%.

Early recognition of fluctuations

The MicroPolar system provides real-time, continuous measurement of moisture or dry matter content in a wide range of products. The measurement is performed directly on the main production line. This microwave measurement is nonintrusive; no sensor comes into contact with the product to be measured, which reduces maintenance. The measurement is not influenced by the colour, viscosity or inhomogeneity of the product. Moreover, the measurement is carried out on the entire product. The MicroPolar system is easy to install. The processing unit has a large display and a user-friendly interface. Calibration can also be performed on site.

Measuring principle

The microwaves pass through the product to be measured, causing the free water molecules, which have excellent dielectric properties, to rotate. This rotation causes a slowing down (phase shift) and a decrease in amplitude (attenuation) of the microwaves, resulting in a very accurate measurement of the water content. Thanks to the multi-frequency technique used by Berthold, measurements are highly reliable and stable and are not affected by reflectance or resonance. The integrated reference signal ensures excellent compensation for the influence of environmental parameters. As the device generates very low power microwaves (in the range of 0.1 mW), the measured product is not subject to any temperature increase or change. The radio licenses of the system have been approved by FCC, IC and ETSI.



Measuring sensors from Berthold

Horn antennas

Horn antennas are used in combination with our MicroPolar LB 567 or LB 568 units.

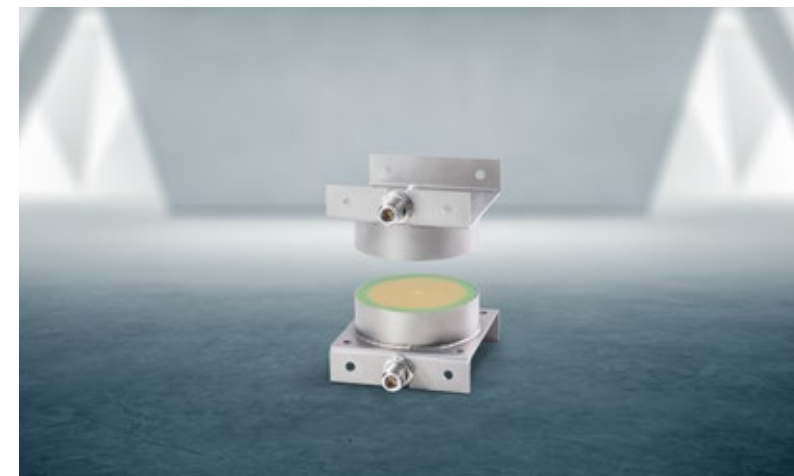
- Assembly outside of the media stream
- Nonintrusive, hence free of wear and tear
- Transmission technology measures the whole product stream
- Most accurate and representative



Spiral antennas

- Small compact design
- Broadly aligned microwave field
- Robust design

Applications: Perfect alternative for applications with limited space.

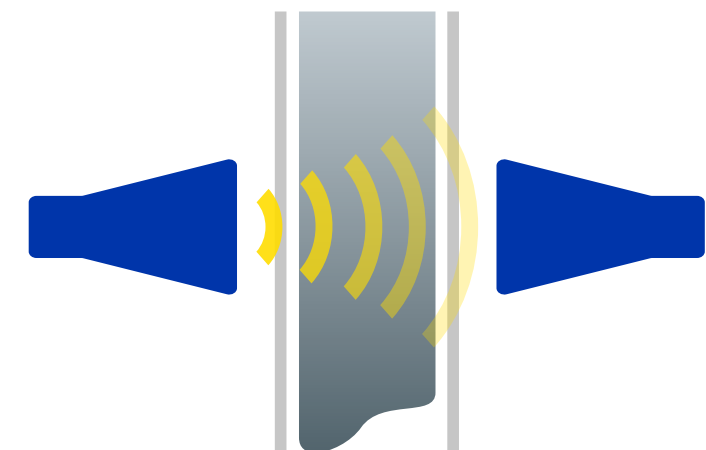


Customer Benefits

- Measures moisture across a representative product path
- Energy reduction in drying processes
- Increased yield through reduced amount of rejects
- Free of wear and maintenance
- Online process control for real-time process information

Characteristics

- Measure moisture content of a representative section across the measurement path
- Nonintrusive measurement
- Highly representative due to transmission principle
- Easy to install on existing pipelines, vessels, and conveyors
- Smooth handling and operation
- Robust system design



Installation on a shaft, chute, or rubber conveyor with horn antennas



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.

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.

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