



APPLICATION NOTE Food & Beverage

Silo monitoring in a pet food production facility

- Continuous, non-contact level measurement of 24 silos
- Improved silo efficiency
- Uninterrupted production supply

1. Background

A variety of types of grain and vegetables are stored in silos as finely ground flour and granulate used in the production of dry dog food. The size of the silos is large enough to ensure a continuous supply for production.

2. Measurement requirements

A dry dog food manufacturer has built a new production facility with a silo system consisting of 24 silos of different sizes (up to 20 m / 66 ft). The manufacturer was looking for a suitable measurement technology solution to ensure the continuous monitoring and automation as well as better utilisation of the silo cells. In the old plant, the level was sounded out manually.



3. KROHNE solution

For this application, KROHNE provided a total of 24 OPTIWAVE 6300 C radar level meters, each with DN 80 / 3" drop antenna and dust Ex approval. The measuring devices are designed as blind devices without display, the configuration of the devices is done via PC using PACTware. For several reasons, the customer decided on non-contact measurement: on the one hand, unlike the guided radar TDR, it is accessible at any time and can be removed without great effort. On the other hand, there is no cable to tear off and fall into the gear.

One challenge with this application is the poor reflection property of the different raw materials due to the low dielectric constants as well as the high dust formation when filling the silos. The shape of the silos, typically tall and extremely narrow in animal feed production, presents another challenge. In this case it is important that the radar lobe is finely focused, which is made possible by the special shape of the drop antenna. Due to its high dynamic range, the OPTIWAVE 6300, an FMCW radar, is in a position to reliably meet these requirements.

4. Customer benefits

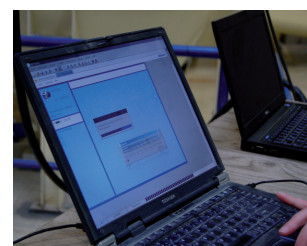
The measuring requirements are fully met using the OPTIWAVE 6300: continuous measurement informs the operator at any time of the supply in the silos, thus ensuring a continuous supply of flour types for production and improved silo efficiency. This also prevents mathematical errors and the incorrect level calculation that can occur with manual measurement. All of the data from the OPTIWAVE measuring devices are directly available by way of visualisation in the control system.

Another advantage for the operator comes in the shape and deposit-free property of the drop antenna, meaning that it requires no purge air. It features no moving parts and is thus wear and maintenance-free.

5. Product used

OPTIWAVE 6300 C

- Radar level meter for solid applications
- 2-wire FMCW 24...26 GHz radar
- Software specifically developed to measure solids
- Continuous, non-contact level measurement
- Various ATEX approvals available
- Pre-configured ex-works
- Simple start-up thanks to installation wizard
- Basic version with DN 80 / 3" drop antenna measures up to a height of 30 m / 98 ft
- Also available with DN 150 / 6" drop antenna for a measuring range up to 80 m / 263 ft or products with very low reflectivity



Configuration of the OPTIWAVE measuring devices via PACTware



Installed devices on the silo roof

Contact

Would you like further information about these or other applications?
Do you require technical advice for your application?
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