



APPLICATION NOTE Food & Beverages

Level measurement in a beetroot hopper

- Non-contact radar level measurement
- Flow control
- Filling distribution

1. Background

Beetroots are a raw material used in the production of sugar. A company in France uses a beetroot hopper which holds about 20 thousand beetroots to supply the factory. Underneath the hopper, 4 root cutters cut the beetroot into fine slices called cossettes.

2. Measurement requirements

The factory must use a non-contact radar measurement technology to distribute the beetroots evenly and regularly into the hopper. The beetroot pulp is measured at atmospheric pressure.



OPTIWAVE 6300 C mounted on top of hopper.

3. KROHNE solution

KROHNE installed 3 OPTIWAVE 6300 C radar level meters, mounted vertically on top of the hopper at a height of 8 m / 26.25 ft. One of them is located at the end of the beetroot inlet belt to measure the “north” side of the hopper. The other two are located on either side of a scraper which lowers onto the belt and distributes the beetroots to the “east” and “west” side of the hopper. The zero point of measurement (4 mA) is set just above the yoke ears formed by the exit chutes, at a distance of 5.8 m / 19.03 ft from the radar devices. The maximum filling level (20 mA) is set to 0.8 m / 2.63 ft below the radar meters. These 3 measurements allow the beetroots to be distributed evenly into the hopper.

In addition, the average of the 3 measurements makes it possible to manage the flow of beetroots from the inlet belt by directing the supply system of the washer located upstream.

Due to these 2 actions, these measurements are very important as it is the supply of the raw material to the factory that is at stake.



Beetroot hopper.

4. Customer benefits

- Precise, reliable measurement
- Less wear and tear on the blades of the root cutters in the case of uniform distribution in the hopper
- Flow control resulting in increased plant productivity
- On-site presence of KROHNE for several years

5. Product used

OPTIWAVE 6300 C

- Non-contact radar level meter (FMCW) for solids : optimised price/performance ratio
- 2-wire loop powered for minimal wiring expense
- Reliable and accurate level measurement (± 10 mm / 0.39 in up to distance of 10 m / 32.8 ft) of low reflective product on non-flat, moving surface
- Measuring distance up to 30 m / 98.43 ft with DN 80 / 3" drop antenna



Contact

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