



APPLICATION REPORT Food & Beverage

Level measurement in tanks of liquid chocolate

- Monitoring different kinds of chocolate for a production line
- 80 GHz FMCW radar level measurement in small tanks with agitators
- Automated replenishment of tanks if level falls below a set value

1. Background

Nestlé Česko s.r.o. operates a production site in Olomouc, Czech Republic, and manufactures different kinds of confectionery products.

2. Measurement requirements

The plant operator stores different kinds of liquefied chocolate in storage tanks located outside of the production facility. In order to make them available for production, the different types of chocolate are transported to six smaller tanks inside the plant, where they are temporarily stored and kept at around +45°C / +113°F. These double bottom tanks (1.8 m / 5.9 ft in height) are heated with liquid water. The liquid chocolates are continually stirred by a slowly rotating agitator.

In order to guarantee consistent chocolate supply to the production line, these tanks need continuous level monitoring. In order to automate replenishment of the tanks, the customer decided to equip them with non-contact level transmitters.



Tank with agitator

3. KROHNE solution

KROHNE recommended using the OPTIWAVE 7500 C. Six units of the 80 GHz FMCW radar level transmitter with PEEK Lens antenna were supplied. The 80 GHz technology allows the antenna (DN25) and the process connection to be small. Upon customer request, the radar level devices were provided with G1 thread and subsequently installed via hygienic Tri-Clamp connection manufactured by the food company itself. If it had been required for this application, KROHNE would have been able to deliver radar level devices already equipped with any hygienic connections.



OPTIWAVE 7500 with Tri-Clamp connection

The OPTIWAVE 7500 enables reliable measurement independent of process conditions like temperature, pressure, density or viscosity. It is particularly suitable for liquid applications in small tanks with agitators. Due to its empty spectrum function, false reflections caused by those tank internals are eliminated right away, preventing failed measurements.

The level of each tank is monitored continuously. The readings are transferred to the control room of the plant. Whenever the chocolate level falls below a certain threshold, the tanks are replenished by the storage tanks.

4. Customer benefits

The 80 GHz radar level transmitter helps the customer run an automated process that keeps stock levels constantly replenished. In this way, an uninterrupted supply of chocolate to the production line is ensured. Costly process shut down due to product shortage is prevented. Product output can be maximized according to plan.

The OPTIWAVE 7500 completed the installed base of more than 80 KROHNE level devices already in place at the plant.



OPTIWAVE 7500 mounted on chocolate tanks

5. Product used

OPTIWAVE 7500 C

- Radar (FMCW) level transmitter for liquids in narrow tanks with internal obstructions
- Continuous, non-contact level measurement in small or large tanks with agitators as well as long nozzles
- 80 GHz radar, flush-mounted PEEK Lens antenna
- -50...+150°C / -58...+302°F; -1...40 barg / -14.5...580 psig
- ± 2 mm / 0.08" accuracy



Contact

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