



APPLICATION NOTE Food & Beverage

Mass flow measurement of liquid chocolate

- Dosing chocolate to refine desserts
- Accurately determining the amount of chocolate for consistent product quality

1. Background

An international food manufacturer produces a variety of types of chocolate among other things. Some of these white and dark chocolates are then used to refine cakes, puddings and yoghurt.

2. Measurement requirements

To maintain the consistent appearance and taste of these desserts, it is necessary to dose the various types of chocolate very precisely. This had previously been done using dosing pumps. However, the accuracy of the pumps was not in keeping with the high quality standards of the food manufacturer. The company thus went in search of a suitable flowmeter for this application. Liquid chocolate is not electrically conductive. Its viscosity is about 150 mPas (at 10 bar / 145 psi and 55 °C / 131 °F). The mass flow from the storage tanks to the mixing containers is 1400 kg/h (approx. 51.5 lb/min) at overall low flow velocities. The new measuring solution had to be easy to clean. The measuring instrument could cause no blockages in the pipeline. In addition, it had to be manufactured in accordance with the hygienic requirements of the food and beverage industry.



Chocolate for cakes

3. KROHNE solution

KROHNE supplied 6 OPTIMASS 7300 W mass flowmeters for this application. The measuring devices were installed with hygienic connections into the dosing lines (DN 25) in front of the mixing containers. Unlike U-shaped mass flowmeters, the space-saving straight tube design of the OPTIMASS 7300 made it possible to install in limited space. Vibrations in the pipeline have no impact on the measurement. Process control is completely automatic via the 4...20 mA current output.



OPTIMASS 7300 W mass flowmeter

4. Customer benefits

Now the food producer can automatically add the desired amount of chocolate and attain consistent quality in the end product. With the OPTIMASS 7300 the customer benefits from a mass flowmeter with best in class accuracy. A change in the viscosity of the chocolate does not affect the measuring performance of the OPTIMASS 7300. Since the KROHNE device features just one single straight measuring tube without a flow splitter, blockages and unnecessarily high pressure losses can be reliably prevented.

5. Product used

OPTIMASS 7300 W

- Only mass flowmeter with a straight measuring tube in stainless steel, Hastelloy®, titanium or tantalum
- For hygienic applications requiring high performance
- Reliable measurement of mass and volume flow, density, temperature as well as liquids with solids content
- Easy to clean, maintenance-free
- Approved according to OIML R117-1 for mass and volume with accuracy class 0.3



Contact

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