



## APPLICATION NOTE Food & Beverage

### Flow measurement in an oil mill

- Determining the quantity of vegetable oil in production
- Mass flow measurement of a non-conductive liquid
- Control via PROFIBUS® PA interface

#### 1. Background

A food producer in Switzerland operates an oil mill for the manufacture of vegetable oil. The company extracts the oil by pressing the pulp of oil plants (olives, sunflowers, rapeseed). After pressing, the oil is cleaned and refined. The finished end product is then used in the food industry or for the manufacture of biofuel.

#### 2. Measurement requirements

To measure the flow of the vegetable oil, the customer needed a flowmeter that could measure the volume of the non-conductive medium. The pressure loss caused by the measuring device had to be negligible in order to keep pump output low. The devices also had to be maintenance-free, easy to drain and easy to clean. As the PROFIBUS® PA was to take care of the entire process control, the measuring device also had to have an appropriate interface.

Medium	Vegetable oil
Process temperature	approx. 20 °C (max.: 90 °C) / 68 °F (max. 194 °F)
Pressure	2 bar / 29 psi
Density	0.88...0.93 kg/l / 55...58 lb/ft <sup>3</sup>
Viscosity	approx. 160 mPa•s
Measuring range	0...30000 kg/h / 1102.3 lb/min

### 3. KROHNE solution

KROHNE supplied the OPTIMASS 1300 C. This mass flowmeter is designed to measure the flow of non-conductive, slightly viscous liquids. The OPTIMASS 1300 is self-draining and, thanks to its twin straight measuring tube, causes only very minimal pressure loss. Compared to U-shaped mass flowmeters, the OPTIMASS 1300 features a compact design. The measuring device's PROFIBUS® PA interface transfers the measuring results to a control room.



Flow splitter



Mass flow measurement of vegetable oil

### 4. Customer benefits

With the help of the OPTIMASS 1300, the oil mill operator can control his production processes. At the same time he benefits from a low-priced mass flow measuring device that features a space-saving design and comparatively high accuracy. There were no additional requirements when it came to installing the straight measuring tube device and no special knowledge was required on the part of the customer.



OPTIMASS 1300 C in a vegetable oil pipeline

### 5. Product used

#### OPTIMASS 1300 C

- Coriolis mass flowmeter in twin straight tube design for standard applications in the food and beverage industry
- Optimised flow divider for minimum pressure loss
- Can be used up to 130 °C / 266 °F
- Self-draining and easy to clean
- Options: heating/cooling jackets, purge ports, hygienic connections
- Modular electronics with data redundancy



#### Contact

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