



APPLICATION REPORT Food & Beverage

High accuracy batching of edible oil

- Equipping an automatic filling machine for vegetable oils with Coriolis mass flowmeters
- Reliable batching processes for PET filling of a non-conductive product
- Space-saving installation of flowmeter units in parallel
- Integrated electronics without a separate converter allowed direct communication with the control room



1. Background

The Czech family-owned company PALI s.r.o. engineers and manufactures filling machines and bottling line equipment for customers in the food and beverage industry. The automatic filling lines can be designed for different liquids - from water and wine to edible oils.

2. Measurement requirements

For a customer in the edible oil industry, the manufacturer produced a small volumetric PET filling machine for batching vegetable oils. The filling process places high demands on the accuracy, repeatability, and long-term stability of the measuring technology used for dosing. Having been unsatisfied with their previous instruments from another batch meter supplier, the company was looking for a suitable replacement. Only meters with a proven track record in filling applications were to be considered. As vegetable oil is a non-conductive medium, a flowmeter without any conductivity limitations was required.

3. KROHNE solution

The filling machine manufacturer turned to KROHNE as one of the leading manufacturers of batch meters for filling applications. Given the medium properties, the customer equipped the filling machine with several OPTIBATCH 4011 flowmeters. This Coriolis mass flowmeter is specifically designed for high-accuracy batching of conductive as well as non-conductive liquids such as edible oil.

The specialised meter has a fully welded and maintenance-free stainless-steel construction featuring a twin U-shape tube design suitable for hygienic applications with linear and rotating filling machines. The instruments were supplied with hygienic flanges with groove (DIN 11864-2a) as per customer specifications.

Due to its integrated electronics, the OPTIBATCH 4011 does not require a conventional signal converter. This allows the flowmeter to be directly connected to the end customer's PLC or DCS. In this application, the readings are transmitted via pulse output, giving fast and reliable communication. The flowmeters were mounted in parallel on the linear filling machine, reducing the installation space required.



OPTIBATCH 4011 installed in parallel on the linear PET filling machine

4. Customer benefits

The OPTIBATCH 4011 proved to be the high-performance replacement the customer had hoped for. Providing long-term stable and repeatable flow measurement allows for trouble-free and reliable batching of the vegetable oil.

KROHNE has been equipping linear and rotary filling machines – from small filling systems to large carousel fillers and filling lines – with process instrumentation for decades. The company offers a tried-and-tested portfolio of different batching meters. In addition to Coriolis flowmeters, this also includes electromagnetic flowmeters for conductive liquids.

KROHNE's application expertise, however, goes far beyond the process of batching vegetable oils. With its extensive product range for flow, temperature, pressure, and level measurement as well as liquid analytical measurements, KROHNE can address many other measurement tasks in filling plants and other process applications in the edible oil industry from a single source.

5. Product used

OPTIBATCH 4011

- Coriolis mass flowmeter for linear and rotating filling machines
- High-accuracy batching of conductive and non-conductive liquids
- Meter size: DN8...25 (FDA, EC1935/2004 etc.)
- Many hygienic process connections
- Pulse/frequency; integrated Modbus



Contact

Would you like further information about these or other applications?
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