APPLICATION REPORT

Food & Beverage

Volume flow measurement of beer in a brewery

- Monitoring the volume of beer in stock for efficient bottling of different types of bottles and kegs
- Electromagnetic flow measurement at the inlet and outlet of beer tanks
- Improved productivity thanks to automated control of beer transport

HEINEKEN

1. Background

HEINEKEN has been brewing and distributing beer in France for over thirty years. The company is part of the HEINEKEN Group, one of the largest breweries in the world. The group includes 170 breweries in more than 70 countries and a total of 250 beer brands.

In France the beers are mainly produced in three breweries: Mons-en-Baroeul in nothern France, Marseille and Schiltigheim in Alsace. Today, the Schiltigheim brewery produces 1.8 million hectolitres (hl) of Heineken®, Desperados®, Edelweiss® and the Alsatian tradition brand Fischer® per year.

2. Measurement requirements

Having been brewed and filtrated, the beers are stored in 27 pressure tanks on site, including seven tanks with a capacity of more than 2000 hl. These are located at the end of the production unit, in front of the bottling line. In order to change the bottles or kegs (with different capacities: 20 l, 30 l, etc.), the available volume of beer in the tanks must be known. The customer therefore needs to know how much beer is in the different tanks in order to bring the product to the bottling lines in the right quantity. Given the large number of beer brands, this is a challenge.

Schiltigheim plant in Alsace

In the past, the customer used a visual level indicator and differential pressure gauges to take the measurement. These were very inaccurate and had to always be moved manually for the measurement, which took a considerable amount of time. Furthermore, they no longer met the brewery's high hygienic requirements and had to be replaced.

KROHNE

3. KROHNE solution

Around 30 OPTIFLUX 6300 W (DN80) electromagnetic flowmeters (EMF) were installed at the inlet and outlet of the beer tanks. The measuring devices were provided with hygienic weld-in connections and are designed for use in the food and beverage industry.
The measured values are transferred to the process control system via pulse and 4...20 mA output. Via a function stored in the control system, the beer flow is controlled accordingly depending on the type of beer to be transported to the filling line.

Flow measurement of beer with OPTIFLUX 6300 W (installed near beer tank)

Together with these EMFs, a total of around 150 measuring devices from KROHNE are being operated for process control throughout beer production. A service contract between the operator and KROHNE exists for the maintenance of the measuring devices. A KROHNE service technician checks the flowmeters five to six times a year using the portable service tool OPTICHECK Master.
In this way, drift or changes in meter performance can be quickly detected.

4. Customer benefits

By using the new flowmeters, the operator knows exactly what is in the tanks. He can automate the entire process and precisely control the valves of the tanks so that the desired quantity of beer is always delivered to the bottling line. This makes the operator much more flexible and efficient. He no longer has to intervene manually to route the beer from the right tank to the filling line. This saves the customer a lot of time. The risk of errors is also significantly minimised.

Monitoring the filling and emptying of beer tanks

Francis Geist, the technician responsible for the measuring technology and the process area of the plant, explains: "We can count the remaining volume accurately. Thanks to this information, we can have an additional pallet of bottles brought to the bottling line if required. Or we can inform the scheduler that he can prepare the containers for the next bottling. At the same time, the hygienic conditions are improved because we have changed over to measuring devices with hygienic weld-in connections".

The investment in more accurate and hygienic measuring instruments quickly paid off for the customer. The productivity of the plant has increased. In a next step, the company intends to further improve the accuracy and replace old flowmeters with the latest generation devices.

5. Products used

OPTIFLUX 6300 W
- Electromagnetic flowmeter for advanced hygienic applications
- Compact version (C) or remote version with wall-mounted, field-mounted or rack-mounted signal converter (W, F, R)
- High accuracy (±0.2%), for exact dosing or filling in the food sector
- Certified to 3A, EHEDG; complies with FDA and EC1935/2004 regulations

OPTICHECK Master
- Handheld for in-depth verification, device commissioning and monitoring

Contact
Would you like further information about these or other applications?
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