



## APPLICATION REPORT Food & Beverage

### Flow measurement on a flash pasteuriser



- Pasteurisation system for up to 60,000 l/h (ca. 15,850 US gph) beer, juice or soft drinks
- Electromagnetic flow measurement for the automated control of heat retention times
- Efficient use of hot water corresponding to beverage flow rate

#### 1. Background

KHS GmbH is one of the world's leading suppliers of filling and packaging systems as well as technical systems for the beverage industry. This includes fully-automated flash pasteuriser such as the Innopro KZE C. This system makes it possible to heat liquid foods to a minimum of +72 °C / +161.6 °F or up to +120 °C / +248 °F (high-temperature pasteurisation). That means that microorganisms and germs in beer, juice and soft drinks are killed, considerably increasing the shelf life of these beverages even without cooling.

#### 2. Measurement requirements

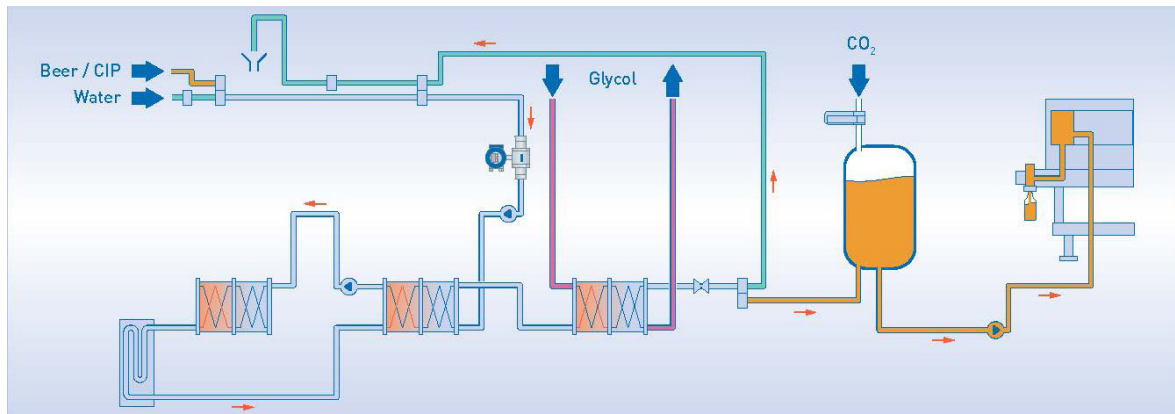
In the Innopro KZE, hot water is circulated at a regulated temperature using a system of plate heat exchangers and steam while maintaining a constant temperature. In the heating section the beverage is heated in a counterflow and brought to pasteurisation temperature. Following flash pasteurisation the microbiologically impeccable drink is cooled and transferred to the filler.

The Innopro KZE controls the pasteurisation fully automatically according to the beverage flow (up to 60,000 l/h, ca. 15,850 US gph). To do this the system must be fitted with a hygienic flowmeter that transmits the measured values via a Profibus interface to the higher-ranking control unit.

## 3. KROHNE solution

KHS equips the Innopro KZE with the OPTIFLUX 6300 C. The electromagnetic flowmeter (EMF) continuously measures the flow of the respective customer-specific beverage. The measuring device has been designed for hygienic applications in the food and beverage industry and measures extremely accurately with a deviation of 0.2% (of the measured value), even with beverages with a high fibre and fruit content.

The OPTIFLUX 6300 C transmits the measured values digitally via Profibus interface to the control unit (PLC) of the end customer. Thanks to the comprehensive diagnostic functions of the KROHNE device, all parameters and operating states can be determined and further processed at any time.



Process description of flash pasteurisation with the OPTIFLUX 6300 C

## 4. Customer benefits

Using the OPTIFLUX 6300 C enables consistent and gentle pasteurisation. The heat retention time and use of hot water can be automatically controlled via the flow rate. In this way, the OPTIFLUX 6300 C contributes to the making of a safe product as well as consistent, cost-efficient production.

In the past KHS has successfully used the OPTIFLUX 6300 for other systems (e.g. for beer stabilisation). The measuring device met expectations in this application as well. Thanks to the high-performing measuring technology and accompanying application-focused services, KROHNE has qualified as the standard supplier for flowmeter technology at KHS GmbH.

## 5. Product used

### OPTIFLUX 6300 C

- Electromagnetic flowmeter for the food and beverage industry
- For demanding mixing, dosing and filling applications with liquids
- Robust stainless steel housing and PFA liner
- DN 2.5...150 / 1/10...6"; process temperature up to 140 °C / 284 °F
- All industry-specific process connections
- On-site verification of flowmeter with OPTICHECK
- 3A, EHEDG; FDA, EC 1935/2004
- HART®, FOUNDATION™ fieldbus, Profibus® PA and DP, Modbus etc.



### Contact

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