Flow measurement

Measuring the flow fluently for more profit

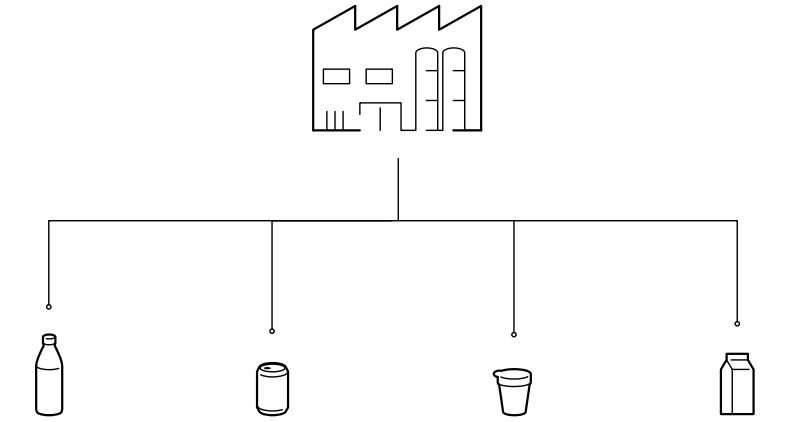
We make ideas flow.

bürkert
FLUID CONTROL SYSTEMS

Is everything flowing the way you want it to?

Let us as sume that you process several products at a single plant in your company. Be it milk or beer: above all, it is the quantity that counts. After each batch process, you rinse the pipeline with a cleaning agent. This mixes with your product – and causes litres of waste. Furthermore, costs are incurred for waste water treatment. A flow-meter that quickly detects the media changeover reduces waste and increases the efficiency of your plant. So that everything flows as it should.

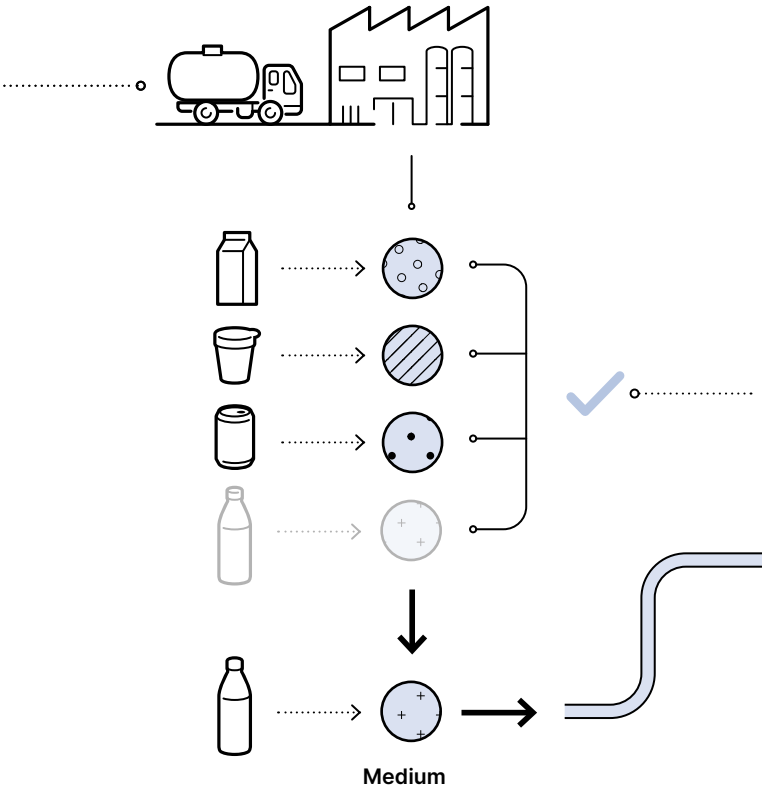
A food or beverage manufacturer operates an efficient pro-duction plant. It needs to run at full capacity to pro cess the wide range of products economically. The crucial point: the efficiency of the plant is below expectations as profit slips away with each media changeover.



Do you want to increase the efficiency of your plant? Read how easy this can be done in your plant on the following pages.

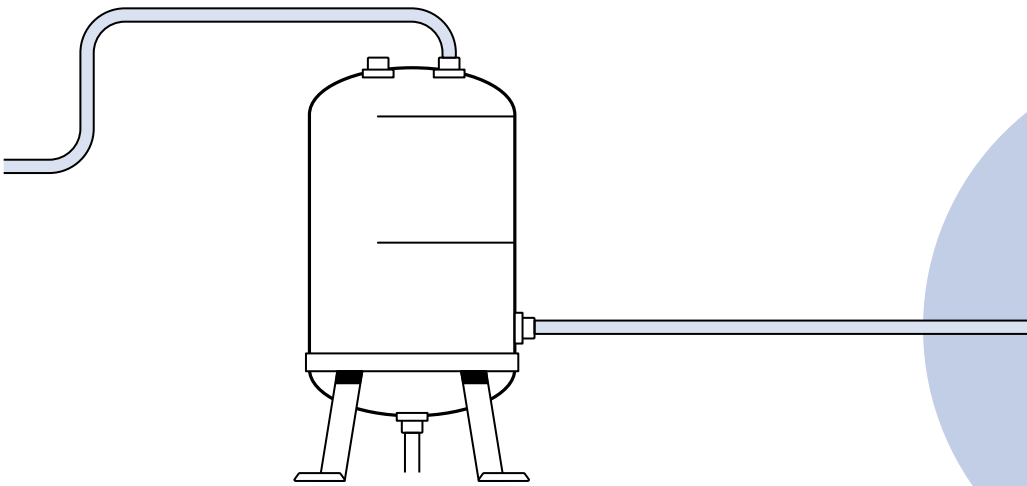
Efficiency is key

Regardless of whether you process milk, beer or lemonade: during normal operation, your plant should produce as efficiently as possible.

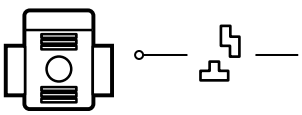


Compatible

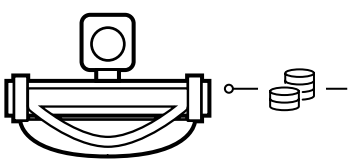
Regardless of whether milk, beer or cleaning fluid: flow measurements demand flowmeters that are compatible with a range of liquids.



Conventional solutions



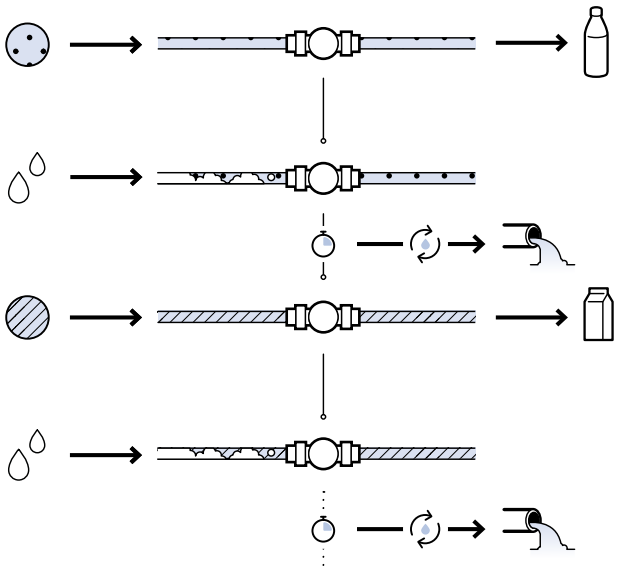
Electromagnetic flowmeters (EMF) can also be used to measure the flow of various liquids. However, if they should also detect the media changeover, they must be combined with additional sensors.



Coriolis flowmeters detect the media changeover, but are expensive to purchase and difficult to handle due to their size and weight.

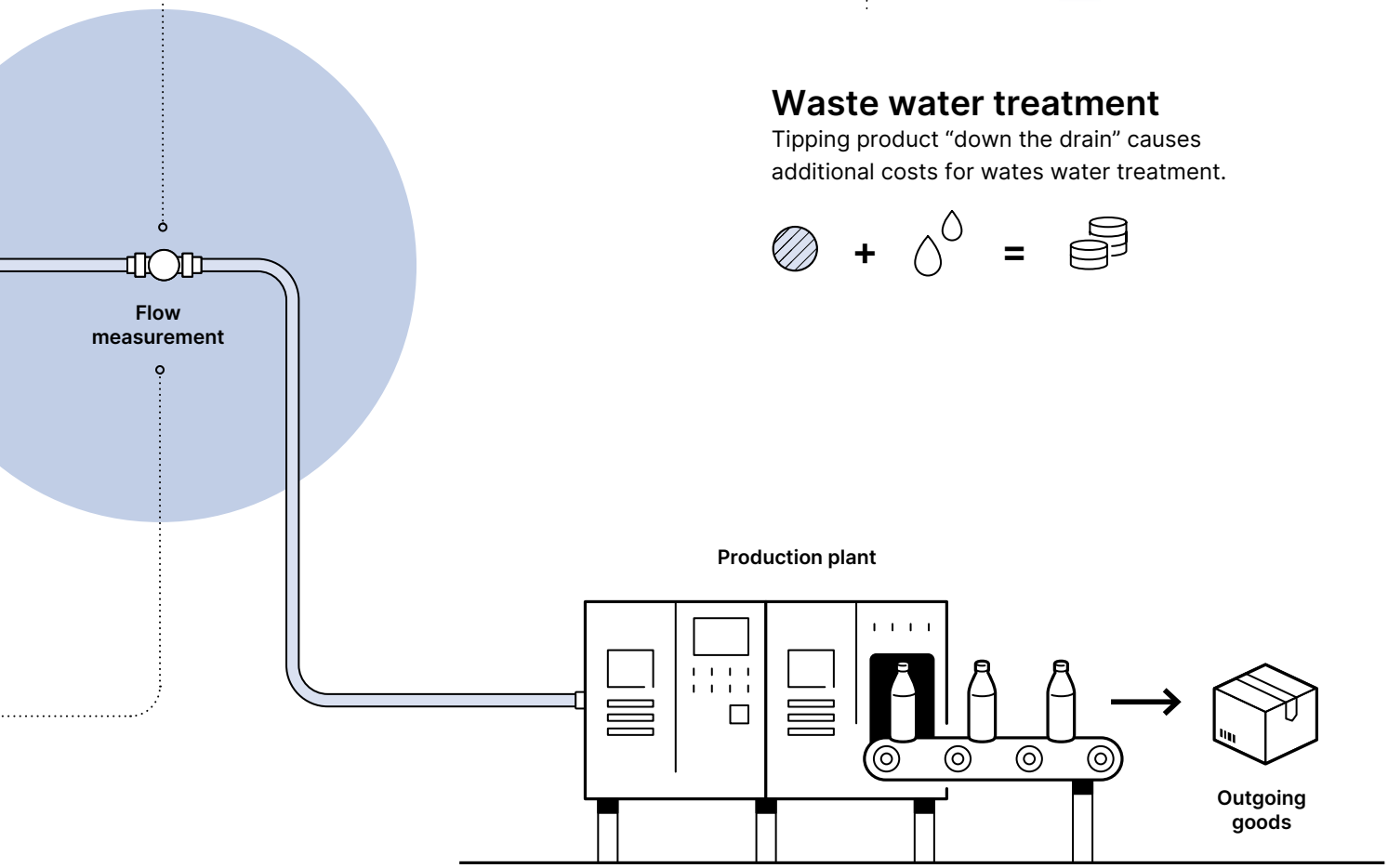
Media changeover

The pipeline has to be rinsed after each batch process. During the media changeover, the cleaning agent contminates the product rendering it worthless.



Waste water treatment

Tipping product “down the drain” causes additional costs for wates water treatment.



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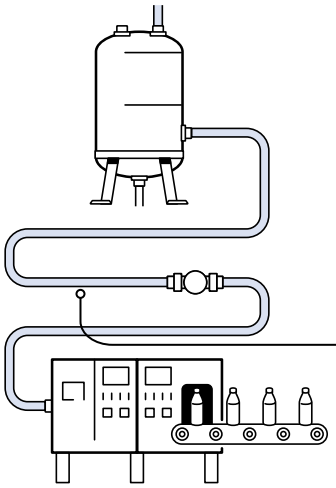
Flow measurement with SAW technology

Hygiene is the top priority when pr oducing food pr oducts and bever ages. FLOWave provides you with a compact solution that meets strict hygienic r equirements. Thanks t o innovative SAW technology, the flowmet er dispenses with sensor elements in the measuring tube. No par ts in the measuring tube means: no leaks, no mat erial incompatibility, no maint enance, no pressure drop and easy cleaning.

Surface acoustic waves (SAW) occur in nature, e.g. as a result of seismic activities. We have harnessed these effects in a patented technology for the inline flow measurement of liquids.

Compact and clever

FLOWave not only measures the flow rate, but also the temperature, differentiation factor and acoustic tr ans-mission factor of your liquids. It ther efore detects media changeovers quickly and pr ecisely. This is a gain for your pr oduction plant: it works much mor e efficiently.



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Maximum precision

FLOWave measures the volume flow independently of the conductivity of the medium with an accuracy of 0.4 % of the measured value, the accuracy for the temperature is ≤ 1 °C.

Meets the highest hygiene r equirements

FLOWave dispenses with sensors in the measuring tube that come into contact with the medium. It therefore measures the flow under completely hygienic conditions. This is confirmed by various certificates (ASME BPE, 3A and EHEDG).

Fit for the future

FLOWave devices utilise the Bürkert device platform EDIP. EDIP stands for “Efficient Device Integration Platform”. It considerably simplifies the handling of the devices and helps to integrate them quickly into an existing fieldbus system. In short: EDIP is just one way we addressing the challenges of Industry 4.0.

Easy to handle and install

The compact and lightweight flowmeter fits into every system and is easy to install. A FLOWave device with two inches pipe size weighs just 3.4 kg - compared to a Coriolis flowmeter with 70 kg.

Less loss, mor e productivity

Thanks to the “Differentiation factor” function, FLOWave detects fluid changeovers very quickly and simplifies the separation of production steps. This reduces waste and costs while increasing productivity.

Constant processes and pr oduct quality

The “Acoustic Transmission Factor” function detects bubbles, particles or solids in the liquid. This allows the user to intervene quickly as soon as defined process variables are exceeded or undercut.

Fast start-up and easy operation

The high-resolution 2.4“ display offers flexible operation with intuitive, graphic user guidance. Freely definable measured value designations and the optional display of one to four measured values, a trend curve and the parameterisation interface enable an individually coordinated display. The WiFi module allows remote access to measurement parameters via web browser. This is particularly relevant when FLOWave is installed at difficult-to-access points in the process.

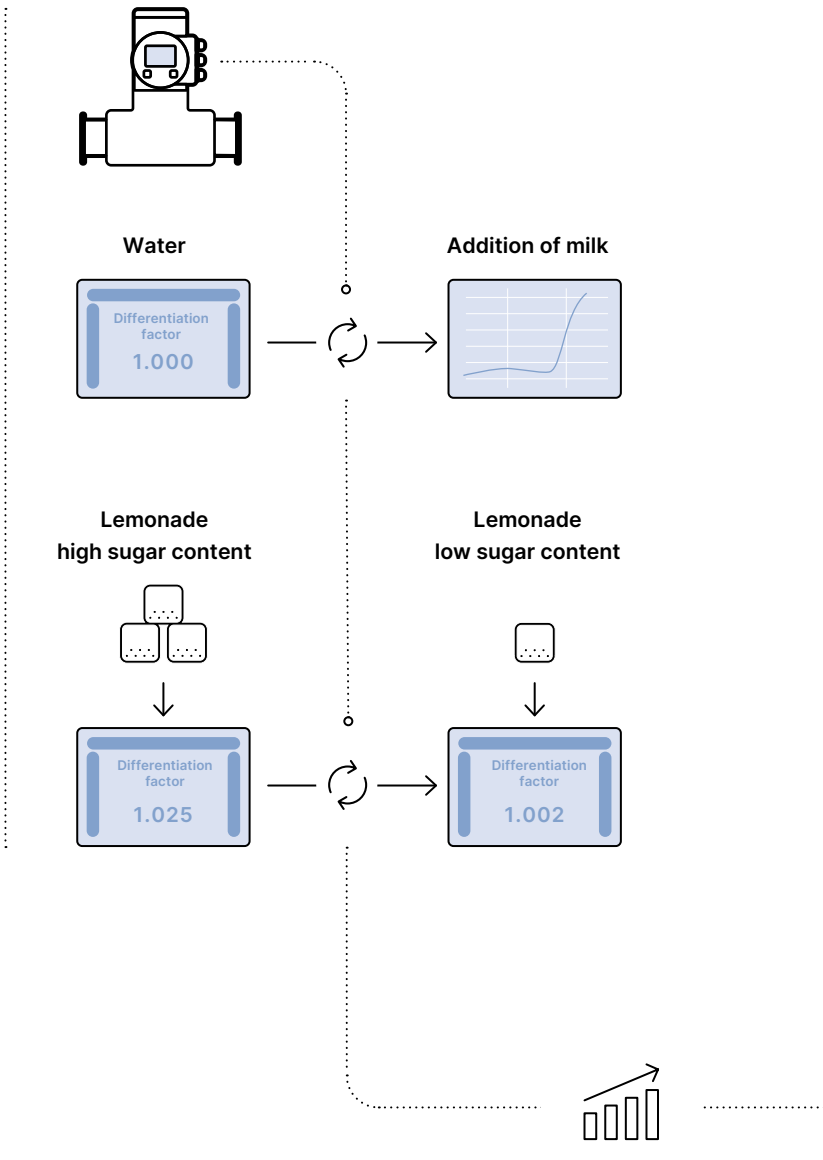
Wave goodbye to waste: Detecting media changeover, separating production steps

FLOWave continuously determines the differentiation factor. This is a temperature compensated measured value. If it changes, FLOWave recognises that a differ ent liquid is flowing. For example, when milk turns into water at the end of a batch process.

This fast and precise measurement reduces waste and incr eases the efficiency of the plant. We illustrate it here using an example of water, milk and lemonade with varying sugar content:

Regardless of the temperature, FLOWave outputs a differentiation factor of 1.000 for water. If milk is added, the differentiation factor increases. The higher the density of a liquid, the higher the differentiation factor.

In the second example, two types of lemonade with varying sugar content are distinguished from each other: the lemonade with more sugar has a differentiation factor of 1.025. The differentiation factor for the lemonade with slightly less sugar is 1.002. The higher the sugar content of a liquid, the higher the differentiation factor.

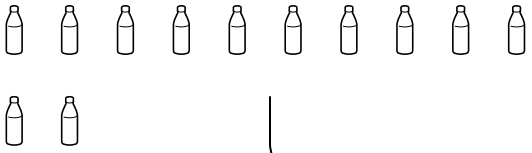


Example calculation

Fluent and pr ofitable: 100 litres of liquid per minute flow thr ough a DN50 pipeline. Conventionally, the media changeover is time-controlled; due to the tolerance, the valve to the drain opens 15 seconds too early. With 5 media changeovers per day, around 125 litres of your product end up in the drain. FLOWave detects the media changeover faster, sends a message to the valve, which switches 10 seconds later, thereby protecting your resources and your budget.

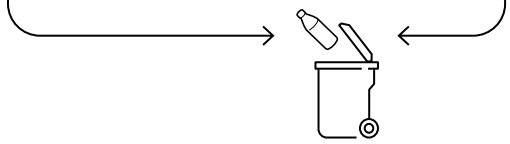
Conventional plant

125 litres of lost product per day
(per production day)



Plant with FLOWave

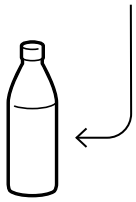
42 litres of lost product per day
(per production day)



Savings

Product loss with conventional solution	**125** litres
Reduced product loss with FLOWave	**42** litres

Difference = **83** litres



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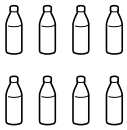

166 more bottles with a difference of 83 litres

€ **0,2** profit per 0.5-litre bottle

= 166 bottles x €0.2 = €33.2 more profit per day; based on 30 production days a month, it results in an additional profit of €996

€ **11,952** additional profit per year

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