



**DR. KURT WOLFF GMBH &  
CO. KG**

**More shampoo, less waste**

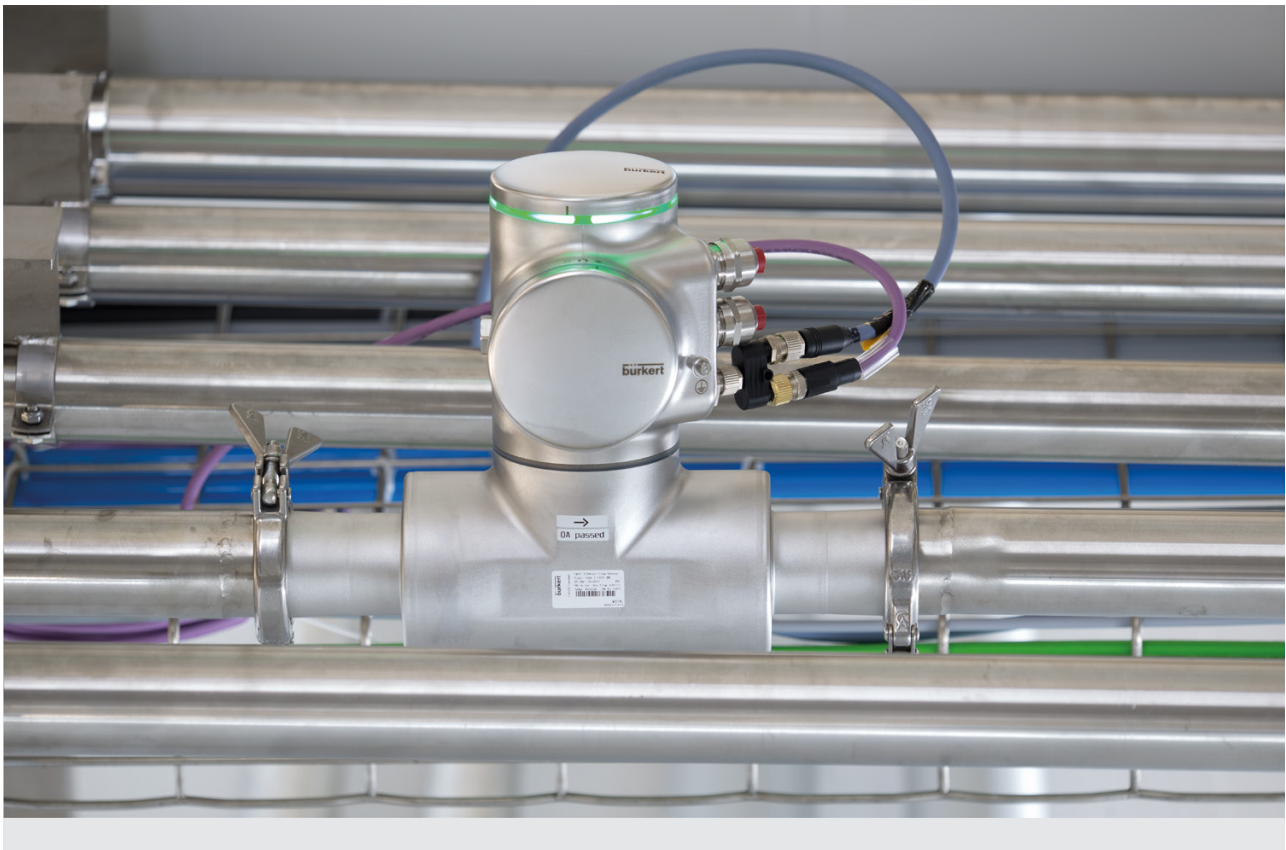
We make ideas flow.

**bürkert**  
FLUID CONTROL SYSTEMS

# Flow meter detects mixed phases - FLOWave clearly separates production steps from each other

## COOPERATION WITH DR. KURT WOLFF

In the production of cosmetics, as well as in the pharmaceutical, biotech or food sectors, strict quality and hygiene guidelines must be adhered to. Therefore, production plants must be cleaned regularly during batch or product changes. At the same time, however, the production process should run as efficiently as possible. Flowmeters that quickly recognise a change of medium with high accuracy open up considerable optimisation potential because they can be used to precisely differentiate between products, cleaning media and their mixing phases. As a result, production steps can be clearly separated from each other and waste can be reduced, e.g. in the production of high-quality shampoos.



## Did you know?

**The inline flowmeter works according to the patented SAW process (Surface Acoustic Waves) and reliably detects media changes. The main advantage of this method is that there are no installations or constrictions and thus no dead space in the measurement tube.**

### Optimisation potential in product transfer

its central production plant in Bielefeld, Germany, Dr. Kurt Wolff GmbH & Co. KG produces various shampoos which are known, for example, under the trade names Alpecin and Plantur. After production, these are temporarily stored in four tanks for the subsequent filling process.

With each product change, the pipes must be cleaned and disinfected. However, no residual water must get into the shampoo, as this would lead to a loss of quality. However, residual water is inevitably present in the pipes after each cleaning phase. In the past, this meant that the product from the first few seconds of the transfer had to be disposed of. There was also a mixing phase at the end of the transfer to the storage tanks. To minimise loss of any product remaining in the lines before the next cleaning, it had to be flushed out with cold water. The first part was then conveyed into the storage tanks, while the much larger remainder was disposed of.

“In both mixing phases, quite a substantial amount of product was lost, because in the past we had to work with estimated time values that did not apply equally to every product. Our goal in the future was to save litres of waste and excess costs associated with wastewater treatment”. – Nils Gorowicz

### One sensor for flow, temperature and differentiation factor

The company needed a sensor that could detect the mixing phases at the beginning and end of the transfer – i.e. with every product change before and after cleaning – with high reproducibility within milliseconds, and for different viscous media. At the same time, it needed to be suitable for hygiene applications and could not be damaged by the ingredients of the shampoos or cleaning agents. To further complicate matters, the construction of the existing, relatively new plant could not be changed. The sensor was therefore to find space in the pipelines without affecting the fluidic conditions. The Bielefeld shampoo producers found what they were looking for in Bürkert's product portfolio. They opted for the FLOWave flowmeter, which works according to the innovative SAW process (Surface Acoustic Waves), i.e. uses the propagation speed of acoustic surface waves in liquids. Thanks to this technology, the measuring system does not require sensor elements in the measuring tube. This has several advantages: No elements in the measurement tubes mean no leaks, material incompatibilities, maintenance or pressure drop, and at the same time, cleaning is easy. In the process, the sensor behaves like a piece of pipe. It is made of high-quality stainless steel, there is no dead space, and all hygiene requirements are met. This is confirmed by several

“We saw potential for optimisation in the transfer from the production plant to the storage tanks. This involves two mixing phases of product and water, which previously caused quite a lot of waste”.

Nils Gorowicz, Production Engineer at Dr. Kurt Wolff

certificates such as ASME BPE and EHEDG. In addition to ascertaining the volume flow with an accuracy of 0.4% of the measured value, the sensor simultaneously measures the temperature and differentiation factor of the medium. This makes it possible to reliably distinguish whether shampoo or water is in the line. The sensor measures extremely quickly. The distance between the measurements is only a few milliseconds and the reproducibility is extremely high at 0.2%.

### **Good cooperation, easy installation and uncomplicated start-up**

It was not only the technology of the SAW flowmeter that impressed the company. We were also delighted with Bürkert's efficient cooperation and outstanding communication” says Nils Gorowicz. Bürkert was present on site and actively supported us in the test phase as well as during start-up. The project was completed quickly and the cooperation went smoothly. The Bürkert service team was able to quickly resolve as well as problems with network integration during start-up on site. The FLOWave transmitter is based on the EDIP (Efficient Device Integration Platform) electronics platform, which enables networking with other Bürkert devices to form an intelligent system.

As a result, the Profinet connection of the four flowmeters via a common gateway (ME43) was possible. This not only facilitated the integration into the existing system, but also simplified the handling of the devices. Since the gateway has an integrated web server, remote access is also possible via OPC UA.



## As easy to install as a piece of pipeline

The compact size and low weight of the FLOWaves ensure uncomplicated installation. With a nominal diameter of 50 mm, the flowmeter weighs only around 3.5 kilograms, i.e. only slightly more than a piece of

pipe of the same size. This makes it easy to mount by one person. The installation position is flexible, so that the display can be easily adjusted and the flowmeter is easily accessible for configuration during start-up. During operation, the SAW flowmeter consumes little energy.



FloWave inline flowmeter (left) and Gateway ME43 (right), which supports all common Industrial Ethernet protocols and fieldbus interfaces.

## Take advantage

of process reliability and waste minimisation ...



### Maximum performance:

Fast and precise detection of media change reduces waste.



### Reliability:

The distance between the measurements is only a few ms and reproducibility is extremely high at 0.2%.



### Safe processes:

FLOWave measures the volume flow, temperature and differentiation factor of the medium in order to reliably distinguish shampoo and cleansing water from each other.



### Simple start-up:

Flexible installation position, compact size and low weight of around 3.5 kg with a nominal diameter of 50 mm enable installation by just one person.

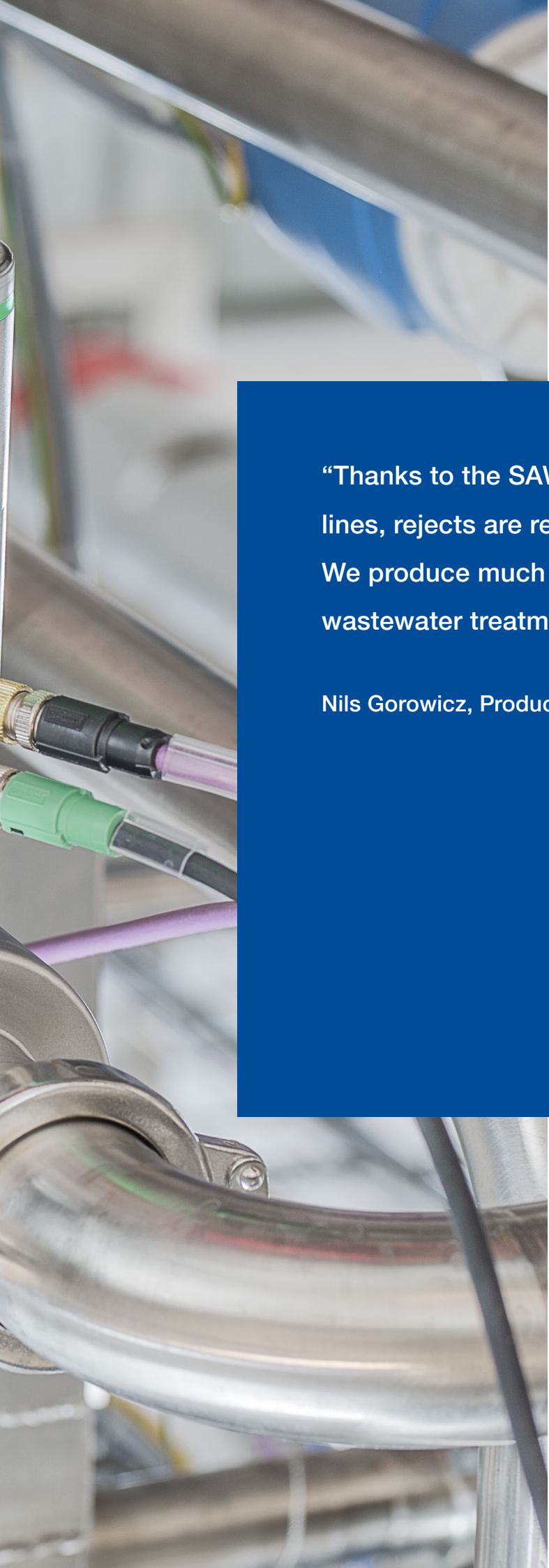


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“Thanks to the SAW flow meters in the four transfer lines, rejects are reduced by more than two thirds. We produce much more efficiently and also save on wastewater treatment”.

Nils Gorowicz, Production Engineer at Dr. Kurt Wolff

You can find out more about this project at:  
[www.buerkert.com](http://www.buerkert.com)

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