

# Surface Acoustic Wave: flow measurement and prevention of biofilm in WFI loops

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**Flow control specialist Bürkert has developed a flowmeter that uses Surface Acoustic Wave (SAW) technology that also helps to prevent the formation of biofilms in Water for Injection (WFI) loops. Designed for the pharmaceutical sector, Bürkert's Type 8098 FLOWave flowmeter achieves high precision flow measurement by using contactless technology that also minimises the risk of contamination caused by poor flow characteristics.**

The flow meter generates surface acoustic waves (SAW) that travel through the fluid. Calculating the time differences of the waves proportional to the flow, FLOWave can measure real time volume flow rate, cumulative volume, and flow velocity, as well as temperature, and all measurements are achieved irrespective of fluid conductivity or entrained bubbles.

## **Performance and precision**

The technology optimises precision measurement, which is essential to closely monitor flow velocity and temperature in WFI systems to prevent the formation of biofilms. FLOWave achieves the required performance with accuracy as close as 0.4% of the measurement, repeatable to just 0.2% deviation. This ensures that a minimum flow rate and sufficient turbulence can be maintained at all times, avoiding biofilm development.

Precision flow management also maximises pump efficiency by preventing unnecessarily high pump speeds that would require greater energy consumption and increased pump wear.

FLOWave's contactless flow measurement technology is also highly reliable and maintains repeatable accuracy as it doesn't rely on sensors that depend on media contact and can degrade over time. As SAW technology is less susceptible to faults, minimising maintenance requirements, FLOWave also requires less calibration compared to other sensor technologies.

### **Better by design**

The contactless design also removes the potential of contamination through bacteria accumulation that can occur on sensors positioned within the flow. FLOWave relies on a straight-through measuring tube that also removes any dead zones, which can lead to the accumulation of particles and microorganisms. To prevent corrosion, the flowmeter is constructed from 316L stainless steel and the design is also CIP/SIP compatible.

The compact flowmeter, which is light enough for a single engineer to install without lifting apparatus, also simplifies installation and maintenance. FLOWave is also configured for all modern digital communication protocols, simplifying integration with existing infrastructure.

Thanks to its performance, hygienic design, and durability, FLOWave conforms with the highest grades of pharmaceutical standards, including an FDA certificate of conformity, and certification of compliance ASME BPE.

Bürkert also provides all the components required to implement a WFI distribution system, including diaphragm valves, point of use (POU) valves, control valves and POU batching systems.

[Find out more about FLOWave for WFI loops.](#)

**Image captions:**



**Image 1:** The precision and reliability of Bürkert's FLOWave makes it ideal for WFI sub loop batching systems.

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## About Bürkert

Bürkert Fluid Control Systems is one of the leading manufacturers of control and measuring systems for fluids and gases. The products have a wide variety of applications and are used by breweries and laboratories as well as in medical engineering and space technology. The company employs over 2,200 people and has a comprehensive network of branches in 35 countries world-wide.

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