

New flowmeter technology from Bürkert

Flowmeter technology has made some significant steps in the past few years. While the traditional mechanical systems have remained relatively unchanged, the development of ultrasonic, sonar and magnetic systems has progressed significantly.

Bürkert for example has developed a flowmeter in which none of the components are in direct contact with the fluid and which causes no restriction to flow. Furthermore, the internal surface of the tube can be manufactured to the same surface finish as the rest of the pipeline, meaning that in terms of hygiene, cleaning and flow conditions, there is no difference to any other piece of straight pipe within the process.

The FLOWave flow measurement device uses Surface Acoustic Wave (SAW) technology that is based on the wave propagation forms similar to seismic waves, which start from an initial point of excitation and spread along the surface of a solid material. FLOWave uses four interdigital transducers which are located on the outside of the measuring tube and therefore have no direct contact with the fluid. Each transducer acts both as a transmitter and as a receiver.

The analysis of all the signals and comparisons based on different criteria such as amplitude, frequency and runtime, allows evaluation of the quality of the measurement, the existence of gas bubbles or solids as well as the kind of liquid.

FLOWave solves many of the issues associated with some high-end flowmeters, such as physical size, pressure drop, the volume of fluid within the device and cleaning issues. It is also unaffected by vibration in the plant, magnetic and electrical effects as well as the conductivity of the liquid - none of these factors have any effect on the accuracy or reliability of the flow measurements. The SAW technology also has the ability to distinguish between laminar and turbulent flows.

Accuracy and repeatability often rely on laminar flow which can require certain lengths of straight pipe upstream of the flowmeter. Continued testing and development of the SAW technology has minimised this requirement. In addition, specifically designed, on-board software introduces an automatic calibration process that can maximise accuracy, even in applications that require short pipe runs.

The installation process is significantly less complicated when using a FLOWave device as it can be mounted in any orientation and it requires a great deal less space than similar devices using more traditional measurement techniques. The FLOWave can also be specified with or without a display module that can be positioned to suit the final orientation in the process pipework.

This innovative flow measurement system currently provides very accurate flow and temperature data and the technology will, in the future, allow density information to be used to determine the mass flow rate.

Designers at Bürkert are continuing to broaden the capabilities of this innovative technology for the pharmaceutical industry by collaborating with a world-class bioprocessing research institute. Coupled with on-going design research at Bürkert, the future applications of this revolutionary flowmeter will be widened to include many more industries.

See video: Click here to watch the video on [YouTube](#)

Image Captions:

Image 1: FLOWave offers a compact solution, ideally suited to hygienic applications

Image 2: This innovative flowmeter has no direct contact with the fluid and causes no restriction in flow

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 2,500 people and has a comprehensive network of branches in 36 countries world-wide.

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