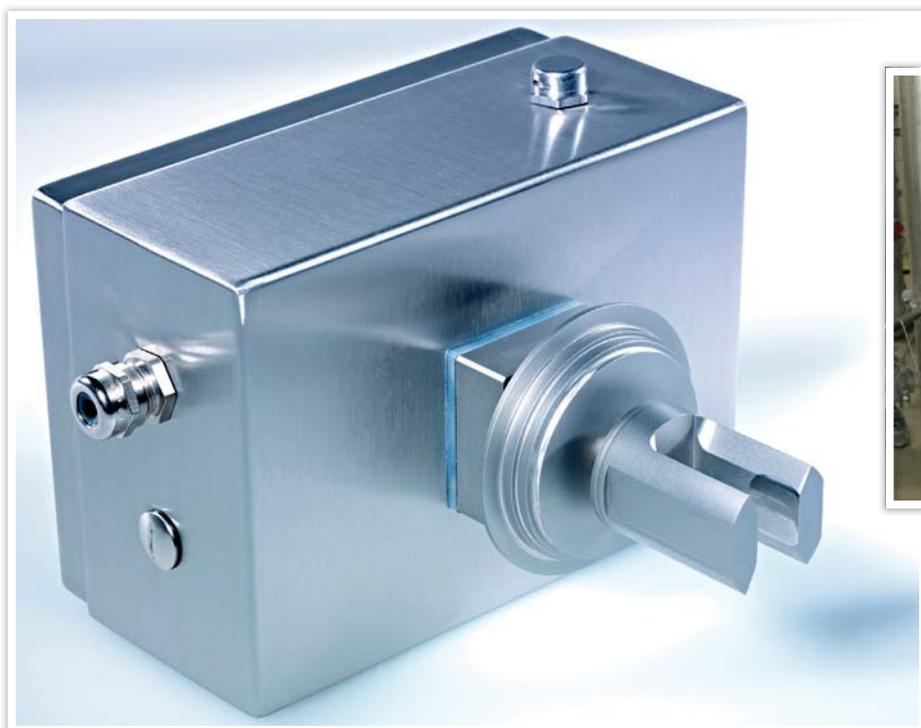


# Measurement of concentration and density via ultrasonic

More precise and faster



**LiquiSonic sensors are positioned in main pipings or vessels**

## **Faster and more precise – LiquiSonic sensors for measurement of density and concentration**

In a defined medium the measurement of the speed of ultrasound can determine the dry matter content up to a precision of 0.1%. SensoTech GmbH from Magdeburg/Germany has been specializing in this technology for more than 20 years. The company has developed solutions for a wide range of various applications. IDM visited the company based in Magdeburg, Germany.

“As we have been focussing on ultrasonic technology for the past 20 years, we were able to stay on top of technological development. For dairy applications, we use standard systems that are tailored to the typical installa-

tion and hygienic requirements in the food industry. But our devices can also be tailored to specific applications,” explains Application Engineer Stefan Nitschke. For such special applications, SensoTech needs 8-12 weeks of delivery time. All sensors, branded LiquiSonic, deliver highly accurate results within almost no time.

## **Install and forget**

Every second, the sensors combine a number of single measurements to a compensated signal. The digital intelligence of the sensor takes into account the actual temperature of the medium as well as of drifts within the series of single

measurements. Resistant to pressure shocks, the measurement takes place regardless of colour or conductivity of the medium or of possible fibres or gas bubbles. The method finds its end, however, in foams. Unlike other measuring methods, LiquiSonic sensors are maintenance- and drift-free, and engineered for a service time of 15-20 years at temperatures of up to 200 °C. Mr Nitschke: “When using our sensors, the user needs not think about the measurement anymore.”

## **The concept**

The advantage of the ultrasonic technology is that one gets an unique and reproducible physical signal, namely the speed of sound within a defined medium. As reaction time of the sensors is only 0.5 seconds, one may separate phases much faster and more precise than with, for instance, measurements of conductivity (whose application has a number of limitations anyway).

The LiquiSonic devices are made up from the sensor which is positioned in a main piping or a vessel. SensoTech supplies all usual process connections like Varivent, Clamp, etc. The electronics are placed in a stainless steel housing (IP 69) which can be mounted on top of the sensor or a nearby place. The controller offers a number of signal outlets so that a connection to a control system is possible. as a standard, the controller features an internal data storage as well as a card slot so that the measurement can be stored for a long period. Each controller can be connected to 4 sensors that may have different tasks.

## Applications

There is a great number of applications for LiquiSonic devices. For example, a sensor can be positioned in areas where it is important to monitor whether the right products gets into the right package. The sensors can also be used for phase separation or in measurement of concentration and density. In whey processing, there are interesting applications in evaporation and lactose crystallization, and several applications in cheese making (such as monitoring the dry matter in whey). All sensors come in hygienic design, are CIP-able, and feature the 3-A certification.

The foundation of all applications are data sets that SensoTech compiles for the products concerned. This takes place in-house at



**Application Engineer Stefan Nitschke:**  
**When using our sensors, the user needs not think about the measurement anymore**

SensoTech's own lab, with automated test sets where the typical sonic velocity in the liquids is measured at varying temperatures. Data sets for standard applications like liquid milk with different fat content, whey or cream are readily available; data sets for special products will be generated by SensoTech.

Investment in LiquiSonic sensors quickly pays off. Compared to other methods, the sensors are more user-friendly, need no maintenance and no calibration – all adding up to long-term advantages. (All photos: SensoTech)

## Viscofill – a new food filler

### Krones

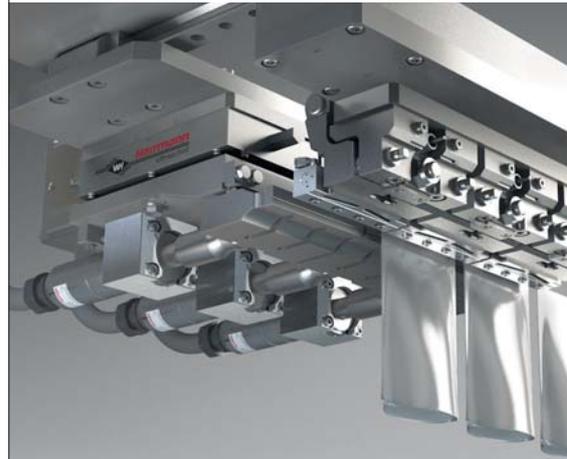
The new Viscofill product family from Krones has been conceived specifically for filling liquid foods. It is based on the classical piston filler's dosing principle in a rotary-type process. This filling process is as ultra-accurate as it is ultra-dependable, and particularly well suited for handling highly viscous products, and those containing large chunks or high particle concentrations. The Viscofill can handle glass bottles, jars, cans or plastic containers. The Viscofill V uses vertical (V) 180° rotary valves to switch over from the cylinder-charge to the cylinder-discharge phase, instead of the conventional horizontal rotary-slide technology.

The Viscofill S combines the classical piston filler with seat (S) valve technology: Charging the cylinder with product, and pushing it out again are controlled by two individually switchable pneumatic valves. This version does entirely without conventional rotary-valve technology, and is particularly well suited for filling products exhibiting widely different degrees of viscosity, also containing cuttable constituents measuring up to 10 mm. In the Viscofill H charging the cylinder with product, and pushing it out again controlled by means of horizontal (H) rotary valves. [krones.com](http://krones.com)

**The new Viscofill product family is particularly well suited for handling highly viscous products, and those containing large chunks or high particle concentrations (photo: Krones)**



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