



Flow measurement on the feed system for the spray tower

Insight

SAW technology

Flowmeter uses SAW technology. To measure flow rate, Surface Acoustic Wave technology (SAW) uses wave propagation similar to that which occurs during seismic activities (e.g. earthquakes). The main part of the sensor consists of a measurement tube, on the surface of which interdigital transducers are arranged, which start the wave propagation when electrically stimulated. The FLOWave technology works with four interdigital transducers, each of which can operate as a transmitter and receiver. If one is active as a transmitter, the two furthest away work as receivers. The surface waves generated on the pipe surface also couple into the liquid inside. The coupling angle depends on the liquid or the speed of the wave propagating in it. On the other side of the measurement tube, the waves couple back into the measuring tube and run to the next interdigital transducer. Therefore, the excitation of each interdigital transducer leads to a sequence of received signals at two others. Two interdigital transducers transmit in the flow direction, and two in the opposite direction. The volume flow is proportional to the time difference between the duration of wave propagation in the forward and backward directions. What is particularly noteworthy is that measured values can be determined from one or more passages through the liquid and the comparison of all received signals. With the right mathematical evaluation, they can provide a wide range of information about the fluid.



“At a certain point in the production process we need to measure the flow at a dry content of 60%. This is inherently not possible with the SAW process. Nevertheless, a suitable solution was found that was easy to implement.”

Danilo Beer, Team leader and Deputy Production Manager Drying at Molkerei Hainichen-Freiberg

D. BEER



Danilo Beer, Molkerei Hainichen-Freiberg (left) and Roland Englmann, Bürkert in the production halls of the dairy

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