

Fluidics in the service of the customer

Innovations, systems and services – Bürkert creates complete added value



White Paper
2015

Innovations, systems and services – Bürkert creates complete added value

Frank Hils, Managing Director Sales Germany

Bürkert Fluid Control Systems has become a worldwide leading manufacturer of process measuring and control technology for fluidics and is expanding its product portfolio at all levels: new products, custom-developed system solutions and excellent all-round service for end-to-end systems – more than ever, the focus is on the demands of the customer.

“What makes our customers happy?” For the fluidics experts at Bürkert Fluid Control Systems this question is at the root of every activity performed for the customer. Genuine interest in the customer’s requirements is shown by slightly altered questions, as Frank Hils, managing director of German Sales, explains. The right approach is not “What can we sell the customer?” or “What can our products do?”, but rather “How can we be of benefit to the customer and what does he really need?”. This attitude is assumed by Bürkert employees not only when talking to customers, but also as a fundamental principle.

If one considers the current requirements in the field of fluidics from the customer’s point of view, one discovers aspects such as more stringent hygiene requirements for pharmaceuticals, complex projects with high time pressure or low system availabilities.

Solutions for hygiene requirements

The pharmaceutical industry requires one hundred percent hygiene in order to guarantee maximum product safety. One key to this is the hygienic design of all system components for optimal cleaning properties. High yield in a compact space combined with optimal process flexibility is also important. To meet these requirements, Bürkert developed the FLOWave flow meter in close cooperation with the customer, thus establishing an entirely new measuring principle. The device has no sensor elements in the measuring tube and no dead spaces and also features a hygienic external design. The compact construction and low weight save space and facilitate installation. The device is equally suitable for conductive and non-conductive media. However, FLOWave is not only a new, improved measuring device, but also reduces the time for filling, since the required flushing times during cleaning of the system can be shortened significantly.



Caption 1: FLOWave has no sensor elements in the tube and no dead spaces and features a hygienic external design.

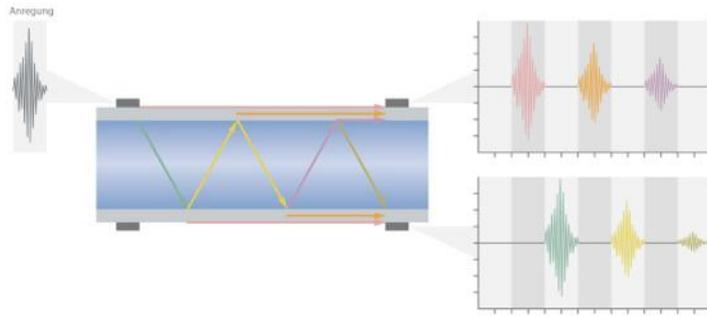
New measuring principle developed



Caption 2: FLOWave enables continuous monitoring of the cleaning procedure, which makes it a valuable quality assurance tool.

The underlying Surface Acoustic Wave (SAW) technology uses wave propagation for the measurement, similar to that which occurs in seismic activities. The main component of the sensor consists of a measuring tube, the surface of which is equipped with inter-digital converters – or transducers – that start the wave propagation through electric excitation. The FLOWave technology uses four transducers, each of which can operate as a transmitter and receiver. If one is active as a transmitter, the two most distant operate as receivers. The surface waves generated on the surface of the tube couple out into the fluid. The coupling angle is dependent on the fluid and on the velocity of the wave propagating in the fluid. On the other side of the measuring tube the waves couple back into the measuring tube and continue to the next transducer. In this way, the excitation of each transducer leads to a series of

reception signals at two others. Two transducers transmit in the direction of flow, the other two against the flow. The volume flow rate is proportional to the difference in the duration of the wave propagation in forward and reverse direction. FLOWave is only one part of an end-to-end system solution with different Bürkert components that were designed for the reference customer based on his requirements. In other words, the customer received not only suitable components, but also a custom-tailored system solution, including the development of a world innovation.

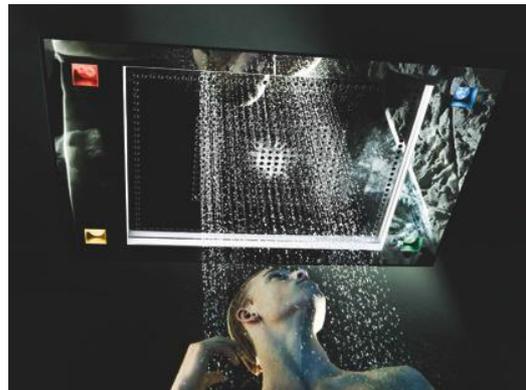


Caption 3: The Surface Acoustic Wave (SAW) technology on which FLOWave is based uses wave propagation such as that which occurs in seismic activities.

Complex projects all of a piece

Bürkert has all of the necessary core competences for complex fluidics projects and offers the complete development of entire fluidics systems, bundled from a single source. A manufacturer of bath furnishings, for example, made use of Bürkert know-how for digitalisation in the bath and kitchen. The requirement was for a digitalised water control, with fast and precise control behaviour at a low flow rate, in addition to a high protection class. A compact design was another important factor.

Bürkert fulfilled the complex requirements for control of the water with the eValve. The system consists of two actuators with integrated flow meters and redundant thermal sensors. An electronic controller automatically regulates the specified set points for flow rate and temperature. In addition to improvement and expansion of the development capacities, the customer also received added value in the form of additional control scenarios, such as automatic bathtub filling or relaxation and vitalisation functions. Bürkert uses a phase model to structure such a project step by step until the customised system solution is completed: in the beginning, ideas and advice are provided as the basis for subsequent prototype development and simulation. The third step is system development, which is followed by system and process qualification. The final step of a system development is implementation of the system on the customer's premises.



Caption 4: For a manufacturer of bath furnishings Bürkert developed a digitalized end-to-end water control system.



Caption 5: Competence in custom-tailored system solutions was displayed by Bürkert Fluid Control Systems in the development of the eValve for controlling flow rate and temperature.

Plastics process from a single source

Such a development also requires suitable test bench and assembly technology. The bundling of the necessary core competences from a single source makes it possible to manage the complexity of such a system development: Bürkert even organises such highly specific production details as mechanical production, coil production, welding technology and plastics technology.

For example, Bürkert manages the entire plastics process, starting with the selection of materials in the in-house materials lab, through component development and prototyping for the function and installation space test, all the way to tool design and construction in the technology centre. The spectrum also includes part and tool simulation. Since Bürkert has the in-house capability for complete visualisation of all core processes, the company does not have to rely on third-party services. If the customer needs a system that is ready for use as quickly as possible, Bürkert will develop it as a full package, if required. Development and complete production from a single source prevents loss of information and shortens the implementation time. The result: a satisfied Bürkert customer!

BürkertPlus – service that adapts to customer needs

Bürkert also offers custom-tailored services. An analysis of the problems faced by customers in the operation of a system calls attention to three central aspects: increased system availability, lower costs and higher output. These customer requirements were used as the basis for the BürkertPlus service bundle, a concept with a transparent and modular structure from which Bürkert and the customer jointly select the relevant aspects.

Bürkert Fluid Control Systems fundamentally offers complete all-round service throughout the entire product life cycle of a customer system. That means the specialists are at the customer's side from the outset, starting with planning of the overall system concept. And it also includes components of other manufacturers. The commissioning phase is next: parametrisation, system start-up with production tests, initial steps in application, personnel training – Bürkert performs all of these services either as the central coordinator or in the form of as-needed support.

Existing systems? Everything under control!

Of course, BürkertPlus is also relevant for existing customer systems. On request, Bürkert will conduct a system screening process. This includes documentation of all installed valves, sensors and controllers, as well as an individual maintenance recommendation. In this way, Bürkert can become familiar with the customer's system and processes and the customer gets a general idea of the required spare parts and substantially minimises the risk of unplanned system downtimes. The central focus is on all measures needed to reduce downtimes, especially preventive maintenance. The goal is to prevent unforeseeable failures and to allow the customer to plan resources precisely, in addition to a system with maximum availability and accurate production planning.



Caption 6: The Bürkert product spectrum is supplemented by the comprehensive BürkertPlus service package, which provides support to the customer throughout the entire product life cycle.

Contact

Can we help you to optimize your industry processes or do you have further questions? Just contact us:

Bürkert Fluid Control Systems
Frank Hils | Managing Director Sales Germany
Tel.: +49 (0) 7940 1091562
E-Mail: frank.hils@burkert.com
www.buerkert.de