

Focus on lab technology:

New micro valves from Bürkert combines dosing precision with media separation



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FLUID CONTROL SYSTEMS

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New micro valve from Bürkert combines dosing precision with media separation

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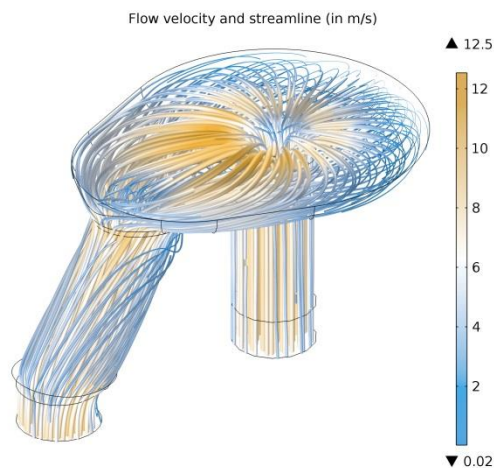
Noise can become a burden. Especially when it occurs in places where high concentration is required, such as at the workplace. In the manufacturing and construction industries, the problem of noise is obvious. But also in lab facilities, the continuous clicking sound of an analysis instrument can be nerve-racking. In response to this issue Bürkert launched the new Type 6712 micro-valve, a fluidic solution that not only features very quiet switching, but also allows optimal flushing thanks to its minimal internal volume.



The new WhisperValve is small, precise and quiet.

Due to its compact size and excellent flushability, the new micro-valve with the name WhisperValve Type 6712 is ideal especially for applications in lab environments. Typical examples of such applications would be the analysis of blood or urine. The ideal flushing properties of the valve are achieved by a minimal internal volume of only 5 μl , including the valve flange. This value is significantly lower than that of comparable valves of competitors. What is often a problem in smaller valves due to the poor flushability, namely the accumulation of air bubbles, has been effectively minimised by Bürkert in the new valve. With a pressure differential of 1 bar the longest dwell time of a fluid is 5 ms (see illustration for flow properties). In addition to high

dosing precision, the requirement for exact flow rates is also increasing in diagnostics and other applications. For manufacturers of fluid control components, that means increasing the power density of the actuators, so that smaller valves can also switch high pressures. Compared to similar sized valves the pressure working range is very high, at 3 bar (0.3 MPa) during switching and 8 bar (0.8 MPa) during the flushing process of the open valve.



The excellent flushability of the 6712 micro-valve is a result of the good flow properties of the valve and the short time required for exchanging the entire volume within the valve.

The requirements placed on micro-valves for the control of small fluid quantities do not differ fundamentally from those of larger valves: leak tightness, media separation, switching speed and service life are the crucial properties. Especially with small quantities the requirement for exact flow rates is absolutely essential. With the combination of dosing precision and media separation Bürkert's new micro-valve more than fulfils this requirement. Due to the compact design and the very quiet switching of the valve, it is possible to conduct analyses in the direct vicinity of the patient. This guarantees especially high measuring accuracy that cannot be achieved with other processes, due to the distance involved.

The actuator technology is separated from the fluid-conducting structure. The dosing chamber is easy to replace and, for one-way applications, can be manufactured from inexpensive materials and also sterilised. In summary, the essential characteristics of the new micro-valve can be described by the three adjectives smaller, faster and quieter.

Smaller means closer

With a width of just 7 mm and a height of 26 mm, the new micro-valve (Type 6712 in the wire version) fits in miniature apparatuses. The terminal dimensions make it ideal for 9 mm titre plates, but it can also be installed in smaller spaces. For applications on moving arms the low overall weight of the valve is an advantage. Low likewise describes the power consumption of the WhisperValve: in both switching and holding it uses less than 1 W and,



Space-saving dimensions and a compact design pre-destine the micro-valve for small spaces.

in addition, no expensive, space-consuming electronics are needed for power reduction.

Faster means high dosing precision

Filling or pipetting a specified fluid quantity into a vessel is a function that is controlled by opening and closing of a fluid line by means of a valve. Reproducible fluid quantities can be filled into a vessel or applied to a substrate by opening the valve for a controlled time at a fixed pressure. This application additionally requires a pump with a constant pump pressure or a pressure reservoir. In the constantly growing miniaturisation market the WhisperValve from Bürkert is a micro-valve that exactly meets the requirements for the exact and precise control of small fluid quantities.

Quieter means more user-friendly

The name of the micro-valve – WhisperValve – reveals another special property of the new media separated 2/2-way valve: with its non-impact actuator, it controls the flow rate very quietly. The new actuator is designed to operate at a sound level below 36 dB. The typical noise of a solenoid valve with metal-to-metal contact is eliminated in the WhisperValve. This is an advantage not only for the patient, but also for the lab employees, who enjoy a quieter work environment.



At 36 dB the new 6712 micro-valve is hardly perceptible to the human ear.

With the goal of analysing a large number of samples simultaneously and saving costs through reduced material consumption, miniaturisation is at the focus of diverse applications. Microfluidics is a concept that has been under continuous development for nearly 25 years. Both processes that use large automated analysis instruments, printers, beverage filling machines as well as lab technology can increasingly benefit from the downscaled applications. Micro-IVDs (In Vitro Diagnostics) at the doctor's office, for example, enable faster and more focused therapies. Miniaturised components also minimise the fluid consumption as well as the dosing and washing cycles. The smaller the components – not only in analysis and dosing technology – the easier it is to bring the technology to the point of use, or in the case of medical technology, to the point of care.

Contact

Do you have questions or can we show you our newest controlling technology? Just contact:

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