

Micro flipper valve offers effective control at a whisper

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Bürkert Fluid Control Systems has launched its latest micro flipper valve, the Type 6757 Whisper Valve, which offers full media separation while measuring only 18 mm in width. Designed with high performance characteristics, nearly silent operation and a service life in excess of 10 million switching cycles, this innovative valve is ideal for demanding point-of-use / point-of-care applications such as dialysis equipment and dental treatment, as well as In-vitro diagnostics, endoscope cleaning and water analysis.

As experts in the field of fluid control, Bürkert design engineers strive to deliver innovative solutions that meet the challenges of modern applications. The Type 6757 flipper valve has been created for precision micro dosing tasks that also require media separation, high temperature capability and excellent chemical resistance.

With a choice of flowrates and operating pressures, the new valve can be specified to meet a range of applications, especially where cleaning agents are required. With options from high pressure (16 bar), low flow applications using a 1.6 mm orifice, to those requiring greater flow (4 mm orifice) at pressures up to 3 bar, the Type 6757 valve can be specified to suit.

Extended lifetime

Flipper valves have a much higher lifecycle rate than plunger valves because there is less mass in the flipper, causing less friction. The design of this valve is achieving more than 10 million cycles in testing so is likely to outlast much of the surrounding technology in many applications. Something that is essential in high dependency / critical equipment.

Bürkert offers further functionality in this product that can deliver precision control in more challenging applications through the addition of either “boost close” or “soft close” electronics integrated into the electrical cable connector, the Type 2503. The Soft Close feature, for example, controls the closing characteristics of the valve and allows the creation of more complex sampling processes such as air isolated liquids.

In IVD equipment, special applications have exceptional requirements that need innovative solutions. For example, there are applications that require 3-phase flow where a liquid sample being analysed is separated from a carrier fluid used to move the sample through a lab-on-a-chip by gas bubbles in the fluid stream.

In these multi-phase flows, particular attention needs to be given to the speed at which the liquid control valve closes to avoid pressure peaks, which may lead to the gas bubble collapsing and the contamination of the sample. For applications like these, Bürkert uses its soft close integrated electronics with the Whisper Valve range, which ensures the valve closes slowly in a repeatable manner, thus ensuring the integrity of the sample being analysed.

Innovative features

In applications that require high seat tightness, it is possible to apply an active closing force to the Whisper Valve by reversing the polarity of the voltage on the coil via the integrated electronics contained in the type 2503 electrical connector and a

control signal from the system PLC. The actuator force then works in the same direction as the spring force in the valve boosting the valve's closing power and ensuring a higher leak tightness.

This feature is required, for example, in analysers where low volumes of liquid are dosed via needles into microtitration plates. In these applications, customers wish to avoid cross-contamination generated by droplets forming on the dosing needle, which may subsequently detach and contaminate the next sample.

The technology used in the Whisper valve range also lends itself to diagnostics capability so the valve condition can be monitored, enabling trends to be identified, predicted and remedied during scheduled maintenance.

For manufacturers of equipment that is used within the in-vitro diagnostic, medical and dental sectors, Burkert offers a comprehensive design and build service that can incorporate any number of products into a compact and cost-effective solution. Using the experts in its Systemhaus, Burkert can offer a bespoke package that meets all the design criteria for a complete process function including fluidic control, electrical interfaces and communications protocols.

Image captions:

Image 1: Type 6757 flipper valve

Image 2: This innovative valve is ideal for demanding point-of-use / point-of-care applications such as dialysis equipment and dental treatment, as well as In-vitro diagnostics, endoscope cleaning and water analysis.

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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 2,200 people and has a comprehensive network of branches in 35 countries world-wide.

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