

LEE TECH TALK

TECHNICAL APPLICATION NEWS BRIEF

INNOVATIVE PINCH TUBE SOLENOID VALVE IMPROVES CYTOMETER PERFORMANCE AND LOWERS TESTING COSTS

THE CHALLENGE

Clinical and research applications that utilize flow cytometers are demanding increased sample throughput. Additional demands are placed on the effective use of cytometers for single-cell analysis with smaller volume control. These multi-faceted demands on functionality require smooth, laminar flow for the sheath fluid and sample and low crossover volume to facilitate sample processing. Additionally, flow cytometers must maintain cell vitality to ensure accurate target analysis. If these features are optimized, increased throughput and higher quality analysis can be achieved at the interrogation point.

THE SOLUTION

The Xover™ internal pinch tube solenoid valve features an innovative Y-shaped elastomer tube in a 3-way configuration. This tube allows for single-plane flow through the valve, keeping fluid flow laminar. The valve's 3-way configuration enables efficient flow selection between samples, calibrants, sheath, or cleaning solutions. Unlike traditional pinch valves, Xover is durable and does not require maintenance during its extensive life cycle. Finally, Xover features an extremely low internal volume that enables microliter sample volumes and leads to cost savings on reagents.



Xover improves the supply and regulation of samples, reagents, and sheath fluid during sample preparation and analysis. The valve is constructed from inert materials and can handle a wide variety of fluids commonly used in flow cytometers and sample preparation. The low-volume internal pinch tube is easily flushed between samples; this reduces the amount of wash volume and flush time and increases throughput. A further benefit of the unique pinch tube design is low shear that increases the viability of cellular samples and improves cell count accuracy. Lastly, Xover can be easily mounted and features industry-standard ¼-28 ports for a seamless connection to your flow cell or pump.

THE BENEFITS

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POTENTIAL APPLICATIONS

Xover excels wherever low crossover, low shear, and low internal volume switching is required. The valves are often used to supply sheath fluid, control samples upstream of the flow cell, or introduce cleaners or reagents to the flow stream. Due to its small size and low cost, Xover is frequently utilized as a high-value alternative to rotary shear valves for stream selection and injection.

FIELD-PROVEN INNOVATION

The Lee Company has been at the forefront of fluid control technology since 1948, supplying millions of innovative products worldwide from our state-of-the-art manufacturing facilities in Connecticut, USA. We transform complex problems into deliverable solutions through ongoing research, design, development, and our commitment to quality and innovation. Our in-depth application knowledge enables us to collaborate with customers and provide personal, technical support through a wide network of experienced sales engineers who are ready to address any challenge.