

Challenges of valve selection and maintenance in pharmaceutical manufacturing

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Process valves, including diaphragm valves, used in the pharmaceutical industry are subjected to some of the toughest conditions in manufacturing. Reliability and consistency of every component is crucial for pharmaceutical companies because it directly influences the overall product quality and process reliability. What factors, then, should be considered to ensure the correct selection of manual valves every time?

Avoiding contamination and dosage errors

From standard two-port valve setups to configurations that incorporate multiple valves into a single solution, choosing the right design can affect product quality, the overall process footprint, pipework complexity, as well as minimizing dead space. Optimising valves for their application ensures the best performance, precision dosing and repeatability, all of which deliver process reliability and uniformity. Similarly, valves need to be able to handle the process fluids as well as the sterilisation processes used between production runs.

Valves that include visual position indicators enable precise control and repeatability, which are important as each adjustment can impact the final product. The ability to set limits on the valve's stroke length enables extreme settings to be avoided, ensuring minimum and maximum flows are maintained.

To ensure that maintenance and safety procedures are also adhered to, Bürkert valves include locking features such as lock out, tag out (LOTO) to protect against accidental and unauthorized adjustments during operation and maintenance.

Testing diaphragm valves for enhanced performance

When a diaphragm valve is required, the choice of materials impacts the reliability of the component and the mean time between failures (MTBF). Designers of pharmaceutical processes should ensure that the diaphragms used in valves are capable of offering the longest possible service life, can withstand the ingredients used in production, and can be easily replaced when necessary.

However, when the time does come to replace a diaphragm, it's vital that the correct procedure is carried out as quickly as possible and only by trained personnel. Bürkert offers a diaphragm replacement service or can provide training for a customer's existing team. There is an opportunity for a hands on demonstration of this by visiting the workshop on diaphragm replacement at Bürkert's stand, J80 atACHEMA 2024, further details below.

To ensure that diaphragm valves are constructed with the most appropriate materials for a long, reliable service life, Bürkert provides access to its multi-medium testing facility. Here, valves with orifice sizes up to DN100 are tested under realistic conditions to optimise the service life and reliability of all components in direct contact with the media.

Understanding customer challenges in specialised sectors

With a deep understanding of the challenges affecting its customers' operations, particularly in specialised sectors like pharmaceuticals, Bürkert offers a diverse range of products available in a variety of materials to suit any application. Each

component is crafted with precise, repeatable machining accuracy and undergoes rigorous testing procedures, such as delta ferrite testing.

Bürkert also ensures full traceability of all materials and compounds used in its production process. This meticulous attention to detail allows Bürkert valves to be seamlessly integrated into a customer's existing setup.

You can learn more about Bürkert's full suite of products and services by visiting <https://www.burkert.co.uk/en>.

Don't miss your opportunity to see Bürkert's solutions in person atACHEMA 2024, 10th-14th June at Booth J80, Hall 8, Ludwig-Erhard-Anlage 1 in Frankfurt am Main. Learn more at: [Bürkert live on stage: Achema 2024 - Bürkert Fluid Control Systems \(burkert.co.uk\)](#)

Additionally, Bürkert also has a comprehensive library of videos on its YouTube channel at <https://www.youtube.com/c/B%C3%BCrkertFluidControlSystems>

Image captions:



Image 1: A selection of Bürkert's manually actuated process valves for pharma



Image 2: See Bürkert's solutions live at ACHEMA 2024

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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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