

Unique Water Savings

How to achieve up to 70% savings in water consumption in your dairy!



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Imagine saving a million litres of water or up to 70% of your annual water consumption by making minor adjustments to your dairy installation. That is what a major European dairy did by reprogramming their valve Cleaning-in-Place (CIP) program.

Using Alfa Laval Unique Mixproof valves (Image 1) lets you select between two cleaning operations:

1. **External cleaning**, which connects an external CIP line directly to the leakage chamber.
2. **Seat lift (Image 2) and seat push (Image 3) cleaning**, where the independent movement of the upper and lower plugs enables simultaneous cleaning of the leakage chamber, seal, and seat.

Alfa Laval recommends the seat lift and seat push method because it saves significant amounts of water and cleaning agent while providing superior cleaning results compared to the external cleaning method. Most residues, whether milk or quark, generally require between one and five seat lifts with each lift lasting about two to five seconds. By following the recommendations in the Alfa Laval Unique Mixproof valve manual, dairies are able to select the most efficient CIP program to remove various product residues.

Improved seat lift and seat push cleaning method

Now there is a better way to clean double-seat mixproof valves and reduce

water and CIP liquid consumption even further. This involves quick and repetitive opening and closing of the seat, rather than exposing valve surfaces to CIP liquid flow for a given duration of time. This discovery was made at one of Alfa Laval's process facilities. Alfa Laval engineers observed that, during the first fractions of a second of a cleaning cycle, the flow of CIP liquid created a high level of shear stress on the valve surfaces used less water than traditional seat lift and seat push cleaning, and increased overall cleaning efficiency.

To substantiate this hypothesis, Alfa Laval worked with a major European dairy to verify whether the same would hold true under actual operating conditions in its raw milk reception. The results confirmed higher cleaning efficiency and a potential annual savings of one million litres of water. The dairy has therefore implemented this new seat lift and seat push cleaning method in its milk reception.

Requirements for improved CIP efficiency

Can you save more water during every cleaning cycle at your dairy? You can start saving immediately by making a few adjustments on the CIP program for your double-seat mixproof valves if your installation:

- **Uses double-seat mixproof valves** because single-plug, double-seat valves do not have a seat lift and seat push cleaning function and therefore require external cleaning.
- **Has a fixed kV value for the seat lift and seat push function that is known.** If the kV value is not known, ask your valve supplier. This value indicates the flow of water per second through the seat opening. Double-seat mixproof valves with fixed kV values and a defined metal-to-metal stop,

Image 1: Alfa Laval Unique Mixproof SeatClean is the choice for standard installations that handle products with solids. Seat lift during normal cleaning procedures cleans the plugs and seats.



such as Alfa Laval Unique Mixproof valves, make it possible to inspect only one valve after a given number of seat lifts to validate the cleaning program for the entire installation. Validating the cleaning program when the seat lift is adjustable, on the other hand, is a labour-intensive and time-consuming process because every valve requires adjustment and subsequent inspection.

- **Has a very fast-acting actuator** that requires a small air volume to perform seat lift and seat push cleaning operations and locally situated solenoid valves to optimize the cleaning process.

Reprogram your PLC today

If your installation meets these requirements, then consider the savings that can be realized on a dairy installation with hundreds of valves that require frequent seat lift and seat push cleaning. Simply adjust the PLC cleaning program of your dairy's double-seat valves to lift and push the valve seats as quickly as possible. Why wait? Optimize today and start saving now.

About Alfa Laval

Alfa Laval is a leading global provider of specialized products and engineering solutions based on its key technologies of heat transfer, separation and fluid handling.

The company's equipment, systems and services are dedicated to assisting

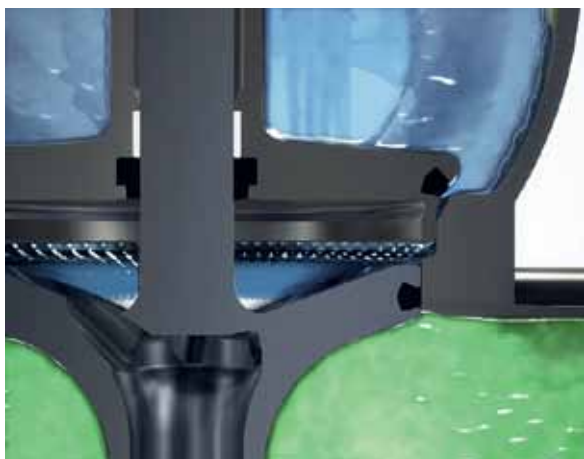


Image 2: Seat lift: The upper valve plug is raised off the seat thus cleaning plug seal, seat and leakage chamber through CIP flow.

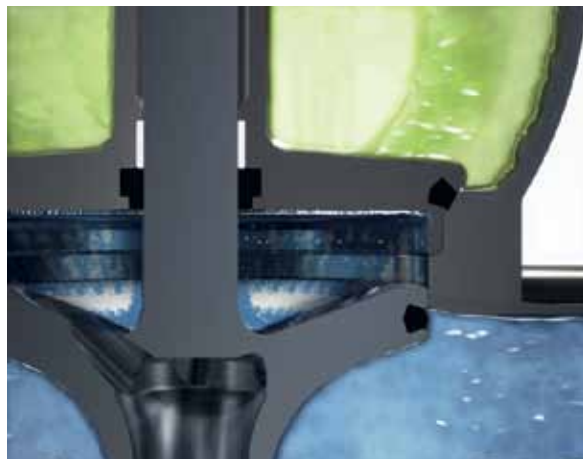


Image 3: Seat push: The lower plug is pushed downwards thus cleaning the plug seal, seat and leakage chamber through CIP flow.

customers in optimizing the performance of their processes. The solutions help them to heat, cool, separate and transport products in industries that produce food and beverages, chemicals and petrochemicals, pharmaceuticals, starch, sugar and ethanol.

Alfa Laval's products are also used in power plants, aboard ships, in the mechanical engineering industry, in the mining industry and for wastewater treatment, as well as for comfort climate and refrigeration applications. Alfa Laval's worldwide organization works

closely with customers in nearly 100 countries to help them stay ahead in the global arena. Alfa Laval is listed on Nasdaq OMX, and in 2013, posted annual sales of about SEK 29.8 billion (approx. 3.5 billion Euros). The company has today about 16 300 employees. ■

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Alfa Laval offers a complete range of valves, centrifugal and positive displacement pumps, heat exchangers, mixing & blending equipment and tank equipment to optimize and control processes such as in formulation and fermentation. From valves and automation for improved flow, to efficient mixing & blending and tank cleaning equipment for shorter turnaround times.

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