Thinking Ahead

Unique Water Savings

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

Article by Allan Bruun, Industry Manager, Dairy, Market Unit Food, Alfa Laval

Share this document!

Unique Water Savings

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

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's 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 cleaning,
which connects an external CIP line directly to the leakage chamber.

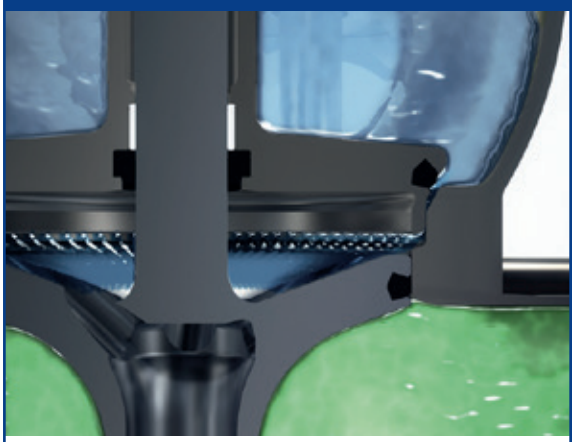
2. Seat lift (Image 2) **and seat push** (Image 3) **cleaning,** where the independent movement of the upper and lower plugs enable simultaneous cleaning of the leakage chamber, seal and seat.

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.

Image 1. Alfa Laval Unique Mixproof SeatClean

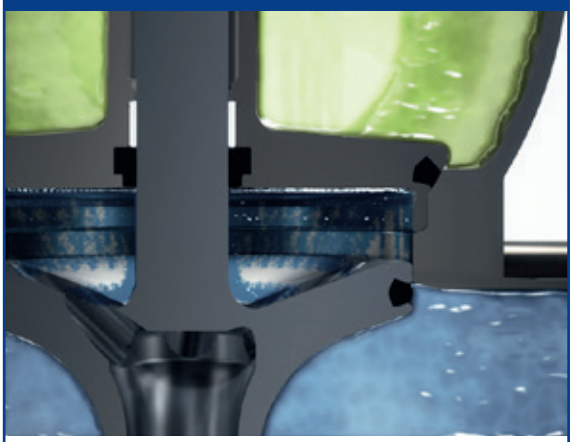
Alfa Laval Unique Mixproof SeatClean is the choice for standard installations that handle products with solids. Seat lift during normal cleaning procedures cleans the plugs and seats.

Image 2. Seat lift cleaning



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 cleaning



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

Improved seat lift and seat push cleaning method

Now there's 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-seal 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, 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 engineered solutions that help customers heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Alfa Laval's worldwide organization of 16,300 employees works closely with customers in 100 countries. Listed on the NASDAQ OMX Nordic Exchange, Alfa Laval posted annual sales of approximately 3,45 BEUR in 2013.

Allan Bruun
Industry Manager, Dairy, Market Unit Food, Alfa Laval

Allan Bruun is Alfa Laval´s Dairy Industry Manager, responsible for the heat transfer and fluid handling business. Allan coordinates commercial and technical market intelligence between sales channels, dairies and central Alfa Laval functions seeking to optimize the customers' processes and increase the competence level of the organization. Allan holds university degrees in mechanical and electrical engineering as well as business administration.

Contact: allan.bruun@alfalaval.com

ESE02879EN-01 0115

How to contact Alfa Laval
Contact details for all countries are continually updated on our web site. Please visit **www.alfalaval.com** to access the information directly.