

Meet your sustainability  
and cost-savings targets with  
Cleaning-in-Place optimization



This presentation contains interactive elements

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## Process optimization fosters sustainable business



**Catarina Paulson**  
Vice President Sustainability,  
Alfa Laval

At Alfa Laval, we know the choices we make for our business and our customers shape the world we live in – today and tomorrow. Which is why we choose sustainable technologies as the way forward.

Sustainable solutions are our core business. Solutions that are more energy efficient, use less water and raw materials, and reduce waste, emissions and total cost of ownership. Solutions that optimize your processes while contributing to the UN Global Goals.

In this e-book you can explore how Alfa Laval helps optimize dairy, food and beverage processes with:

- Pumps that save up to 30% in energy costs
- Valves that deliver up to 90% savings in water and cleaning media
- Tank cleaning systems that use up to 70% less water and cleaning media
- Agitators that cut energy consumption by up to 80%

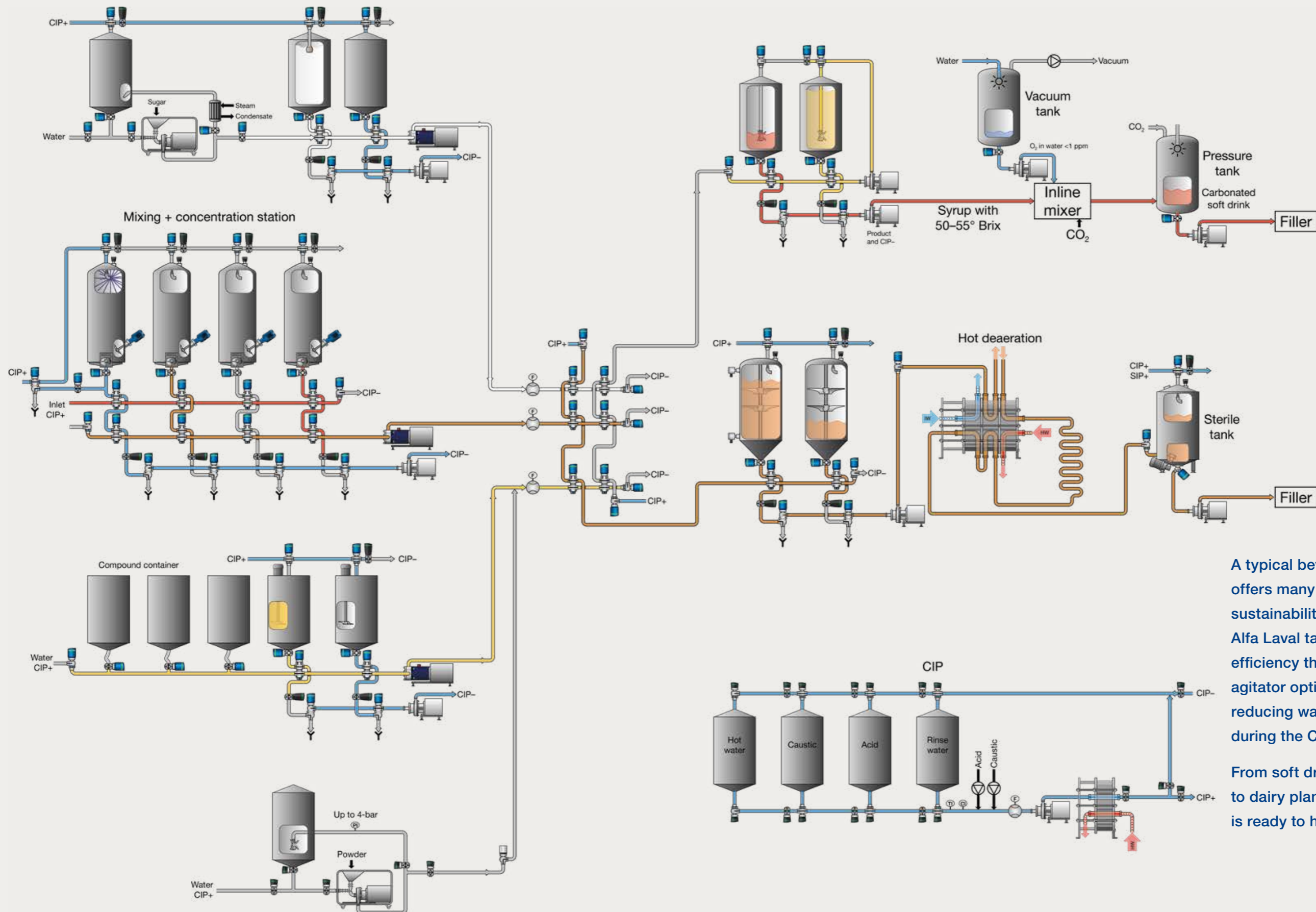
Introducing solutions like these to your Cleaning-in-Place processes can help your company achieve or exceed both your business and climate ambitions while fostering responsible, sustainable growth.

To us, sustainability is a matter of trust. Every single one of our actions is guided by our commitment to business integrity, human rights, optimizing the use of natural resources, and full transparency. Alfa Laval is committed to the Sustainable Development goals, to becoming carbon neutral by 2030 and to creating circular business models.

Optimizing your processes with Alfa Laval's sustainable technologies is good for your business, good for the environment and good for the planet.

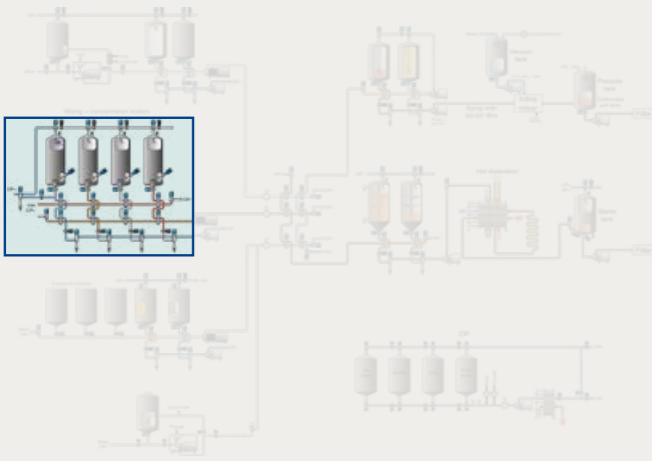
Join us on our quest to making our world better, every day.

Yours sincerely,

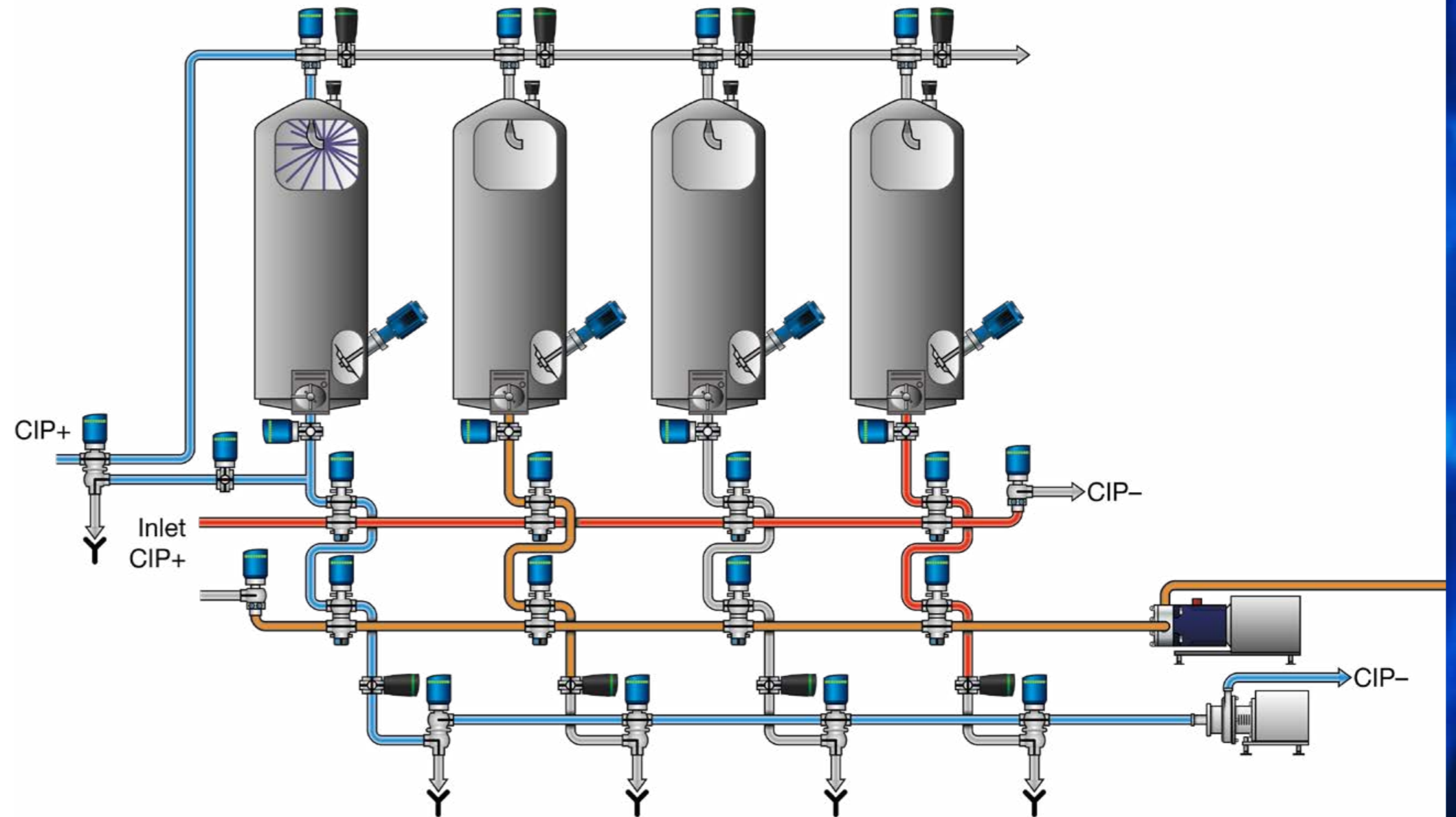


A typical beverage system offers many opportunities for sustainability improvements. Alfa Laval targets improved efficiency through pump and agitator optimization and by reducing water and wastewater during the CIP process.

From soft drink production to dairy plants, Alfa Laval is ready to help.



Did you know that, on average, 20% of a plant's energy use is required for Cleaning-in-Place (CIP)? Upgrading to Alfa Laval equipment reduces your consumption of energy, water and cleaning media.



# Optimizing pumps delivers up to 30% in energy savings

Studies show that 90% of all installed pumps are incorrectly sized. Many of these can be optimized to save up to 30% of their power consumption. Because the purchase price of a pump is a minor cost compared to the running costs – the payback time for required modifications often is less than a year.

Optimizing your pump's energy use starts with fitting a correctly sized impeller or installing a variable speed drive (VSD). Choose a pump that operates as closely as possible to the best efficiency point. In our analysis, it is assumed that low-hanging fruit such as using pumps with VSD to regulate flow rather than control valves has already been implemented across the beverage industry.

Optimizing pump performance allows you to realize up to 30% in energy savings.



## Customer success

“Byrne Dairy is now able to get a better, more consistent return flow while using 30% less energy.”

– Mike Sima, Senior Process Engineer, Byrne Dairy

New York-based dairy producer Byrne Dairy discovered the superior performance of the Alfa Laval LKH Prime. By installing a variable frequency drive motor, the motor speed was reduced by 70-75% of its full-speed power, making it ideal for the process. In addition to superior performance, Byrne achieved about 30% in energy savings using the Alfa Laval LKH Prime.

## Product spotlight

### Alfa Laval LKH Prime

Using the combination of advanced air-screw technology, optimized impeller and casing geometry, the Alfa Laval LKH Prime exceeds industry expectations for quiet, efficient operation, reduced energy consumption and CO<sub>2</sub> footprint. The Alfa Laval LKH Prime is engineered to meet the most stringent standards and hygienic requirements.

# Minimize your annual water consumption

Drastically reduce water usage and improve re-use of valuable resources by optimizing the seat lift for double block-and-bleed mixproof valves. The improved seat lift and seat push cleaning method involves quick and repetitive opening and closing of the seat, rather than exposing valve surfaces to the flow of Cleaning-in-Place (CIP) media for a given duration of time. A processing plant with hundreds of valves that requires frequent seat lift and seat push cleaning can expect to reduce water use by up to 90% and see a 25% return on investment. You can also cut cleaning media costs by 90% with optimized valve cleaning processes.

## Customer success

“With potential annual savings of one million litres of water, the dairy customer was quick to implement the seat lift and seat push cleaning method with Alfa Laval Unique mixproof valves in its raw milk reception.”

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


Alfa Laval worked with a major European dairy to verify the benefits of reprogramming their valve Cleaning-in-Place (CIP) program. The results confirmed higher cleaning efficiency and 70% savings in water consumption.

## Product spotlight

### Alfa Laval ThinkTop V70

The Alfa Laval ThinkTop V70 is the next generation of our leading sensing and control units for hygienic valves. Designed for mounting on our Unique mixproof valve range, it delivers the fastest-ever burst seat cleaning in the industry. A single ‘burst seat clean’ (one fast seat lift takes place in less than a second) sufficiently cleans the valve of product with low-fat content. Its unrivalled performance can reduce water and wastewater consumption by up to 90%.





Optimizing tank  
cleaning boosts  
yield and  
environmental  
efficiencies

Tank cleaning can result in high water consumption, especially in food and beverage processing systems where the nature of product demands frequent, thorough tank cleaning.

Switching from static spray balls to Alfa Laval rotary jet heads leads to 70% in cost savings from reduced use of water and cleaning media and up to 60% savings in time, which translates into more production time.

#### Customer success

“Retrofitting our tanks with Alfa Laval rotary jet heads helps ensure food hygiene and safety while saving water, time and money.”

– Process engineer at the global food and beverage manufacturer

The subsidiary of a global food and beverage manufacturer wanted to improve tank cleaning operations. The manufacturer installed Alfa Laval rotary jet heads in eight of its tanks at the plant to reduce the cleaning cycle times by 50% and to deliver savings in water, energy, cleaning media and wastewater.

#### Product spotlight

### Alfa Laval TJ Rotary Jet Head

The Alfa Laval rotary jet head range of tank-cleaning devices provides exceptional cleanability, better end-product quality, greater overall output and up to 70% reduction in water and cleaning media. Avoid contamination with a 360° repeatable cleaning pattern and reduce water and cleaning media requirements.

# Increase energy savings by including next-generation agitators

Agitators are used for different beverage applications such as mixing beverages containing fruit pulp, dissolving flavour additives, aspartame and other powders as well as accelerating fermentation.

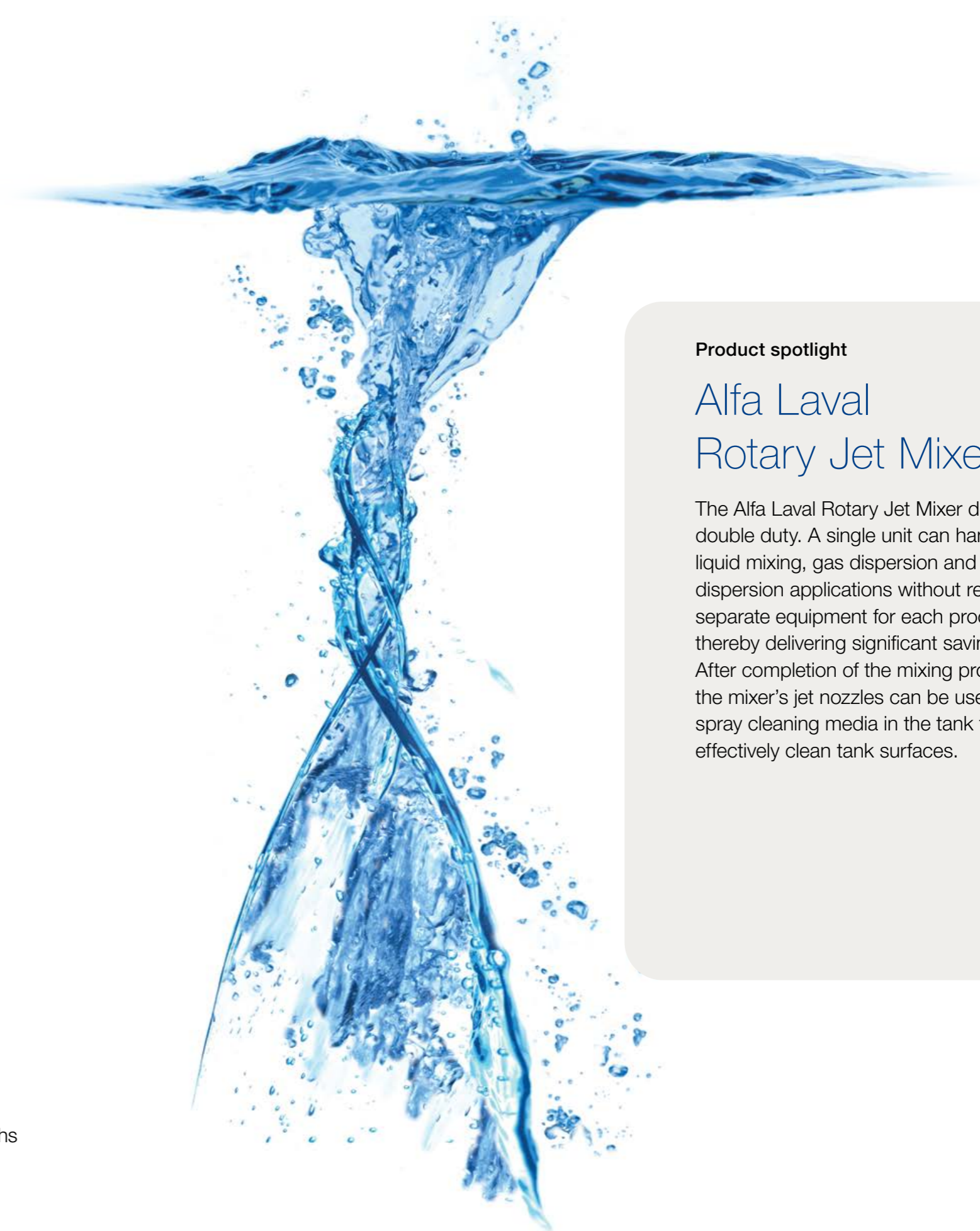
Alfa Laval Rotary Jet Mixers not only ensure fast and efficient mixing of liquids, gases and powder, but can also be used as a rotary jet cleaner which reduces both water and wastewater when cleaning the tank. Alfa Laval agitators with patented energy-saving airfoil (EnSaFoil) impellers as well as specially designed EnSaFerm impellers for fermentation use provide up to 400% greater efficiencies due to their unique shape. Compared to a conventional impeller, the impellers deliver up to 80% in energy savings.

## Customer success

“Alfa Laval agitators are specifically designed for extra-low energy consumption. This enables customers to reduce the energy cost from agitators by up to 80%.”

– Jeff Surmon, Hygienic Fluid Handling Manager, South East Asia, Alfa Laval

A Danish dairy producer achieved payback from energy savings in just over eight months by replacing its direct-drive agitators with energy-saving agitators from Alfa Laval.



## Product spotlight

### Alfa Laval Rotary Jet Mixer

The Alfa Laval Rotary Jet Mixer does double duty. A single unit can handle liquid mixing, gas dispersion and powder dispersion applications without requiring separate equipment for each process, thereby delivering significant savings. After completion of the mixing process, the mixer's jet nozzles can be used to spray cleaning media in the tank to effectively clean tank surfaces.





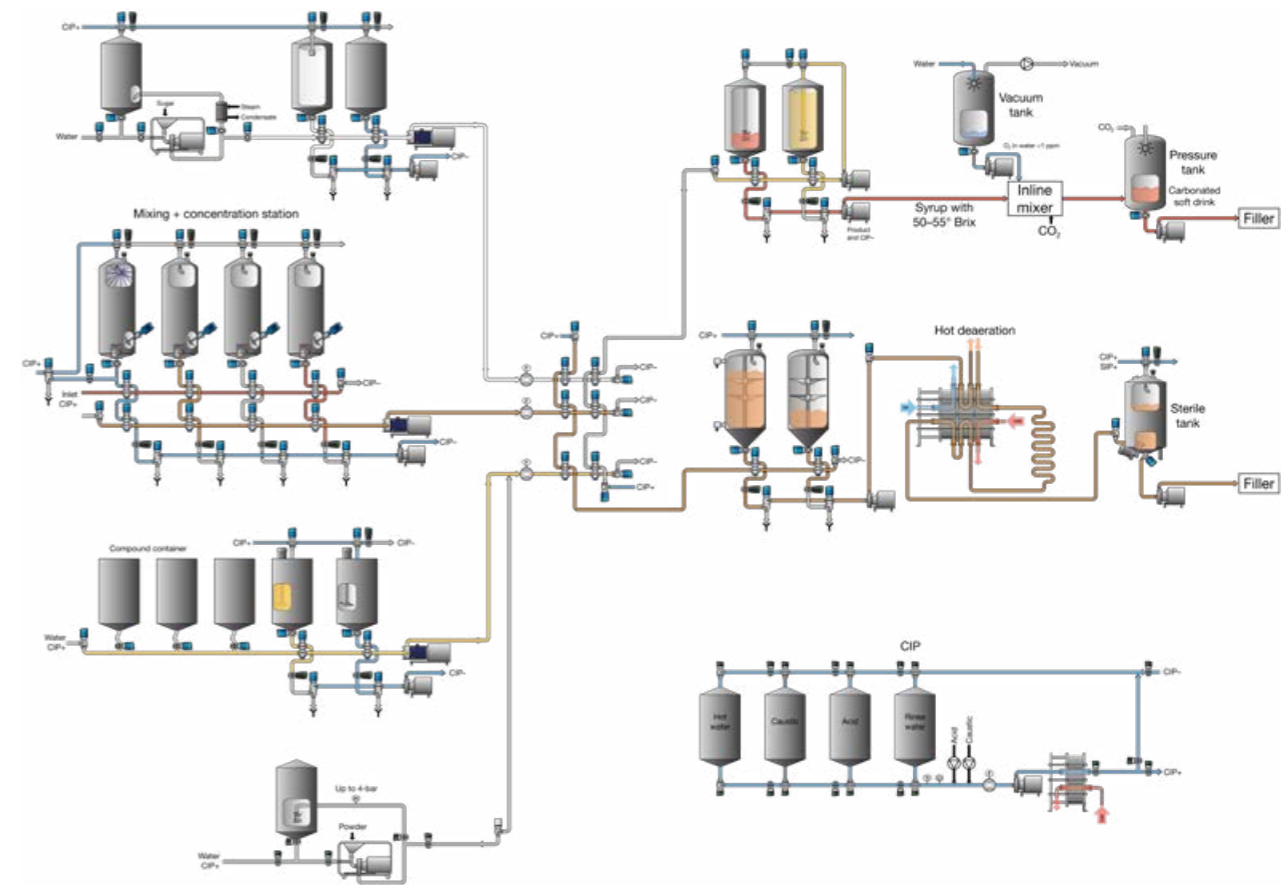
## How much an average processing plant can save

Small changes can make a big difference in reducing costs and improving the environmental footprint of your plant.

For water savings, burst cleaning of your valves and rotary jet head cleaning will have the biggest impact, with a 25% reduction in water used for each litre of product. The calculations are based on an average milk condensing plant.

To calculate achievable energy savings, more factors must be taken into consideration. Pump optimization, rotary jet tank cleaning, energy-efficient agitators and burst cleaning valves contribute to significant savings in energy and wastewater treatment

These calculations assume that the basics for plant operations such as replacing throttling control valves with flow control using a variable speed drive pump and heat recovery for pasteurizers have already been implemented.



## Book an Alfa Laval equipment audit

Depending on the nature of your company, we are able to deploy a sustainability expert to do an equipment audit on your processes and suggest efficiency upgrades.

Alfa Laval has developed Joules, an online sustainability tool, to compare fluid handling equipment and verify savings on water, energy and cleaning media.

Contact us today to get started.



# Our contribution to the United Nations' Sustainable Development Goals

The United Nations has adopted 17 Sustainable Development Goals for 2030, known as the Global Goals, that world leaders have pledged to achieve. Cross-sector collaboration between civil society, academia and the business community is key to achieving these goals.

Alfa Laval's business strongly contributes to the achievement of 15 of these Global Goals.

## This is Alfa Laval

Alfa Laval is active in the areas of Energy, Food, Water and Marine, offering its expertise, products and service to a wide range of industries in some 100 countries. The company is committed to optimizing processes and creating responsible growth. We drive progress, always going the extra mile to support customers in achieving their business goals and sustainability targets.

Alfa Laval's innovative technologies are dedicated to purifying, refining and recycling material. They contribute to enhanced energy efficiency, improved heat recovery, responsible use of natural resources, better water treatment, and reduced emissions. Thereby not only accelerating success for our customers, but also for people and our planet. Making the world better, every day.

It's all about *Advancing better*<sup>™</sup>.