



## Gain a fresh perspective on tank cleaning

Cleaning equipment to optimize plant hygiene and efficiency



# A rounded approach to tank cleaning

At Alfa Laval we take a panoramic view of tank cleaning. That's to say rather than simply seeing it as a maintenance issue, experience has taught us tank cleaning holds far-reaching benefits for the entire production cycle. This know-how is clearly reflected in the cleaning machines and services we supply.



Let's face it, for most companies tank cleaning is a necessary evil, a constant hindrance to maximum throughput. However, at Alfa Laval we take a slightly different view.

We believe tank cleaning has an important role to play in the drive for efficiency. You see we don't look at tank cleaning in isolation, but rather as an integral link in the production line. By optimizing every stage of the cleaning process, it's possible to have a significant impact on overall plant output.

Our ability to dramatically streamline tank cleaning – and plant efficiency – hinges on two vital proprietary resources: cutting-edge cleaning heads and an unparalleled knowledge base. To be more explicit, an intimate knowledge of process engineering lets us assess customer needs and weigh up system variations quickly. Then our exhaustive range of cleaning heads and implementation expertise allows us to select and configure a suitable cleaning system in a cost-effective, timely manner.

### **360° coverage**

Integral to our broader view of tank cleaning are the cleaning machines themselves. Including our respected Toftejorg brand, we supply a complete range of rotary spray and jet cleaning heads as well as fixed spray heads. We also supply verification systems that let you electronically certify each stage of a CIP cycle has been carried out as expected.

Rotary spray and jet heads are designed to make sure every square inch of a tank's internal surfaces are covered by detergent during a cleaning cycle. The physical impact of cleaning media combined with the rotary motion is highly effective in removing residual material.

As a result the heads have the obvious effect of improving tank cleanliness. But their effectiveness also has a wider impact on time and costs. Rotary cleaning heads significantly cut the amount of time, chemicals, water and energy used during cleaning. This means the volume of waste generated is reduced too. All this adds up to increased efficiency at lower cost, and the effect on throughput is often striking.

In other words, when you invest in an automated cleaning system from Alfa Laval, the impact is not only felt in your tanks, it resonates throughout your business.



Toftejorg rotary jet heads clean tanks by casting jets of cleaning media against tank walls. The flow of detergent through the head's turbine and gears causes the nozzles to perform rotations around the vertical and horizontal axes, generating a criss-cross spray pattern inside the tank.

### **Benefits of rotary cleaning heads**

- Improved tank hygiene
- Increased plant efficiency and reduced cleaning time
- Considerable savings in water, energy and chemical consumption
- Enhanced employee safety
- Significant reduction in waste
- Verification of cleaning process



# An insider's understanding of industry

With over a century's experience of working with industrial components and processes, few companies match Alfa Laval's depth of knowledge and range of tank cleaning products.

This background translates into meaningful benefits for our customers in that our cleaning heads display a profound understanding of industry and regulatory needs, with many designed to cope with specific applications.

Industry knowledge is also an invaluable guide in product development. We constantly refine and update our cleaning head range in response to customer feedback, changes in production techniques and new regulations.

Here are some key benefits our Toftejorg cleaning heads hold for specific industries. Beyond the sectors covered here, our products also cater to many other process cleaning applications.

## **Beverage applications**

Our Toftejorg range represents the cleaning benchmark for breweries, and the rotary cleaning machines streamline every stage of the process: from yeast propagation and fermentation to bright beer. A 30% saving in cleaning time and chemical consumption is quite normal when switching from conventional cleaning techniques to rotary jet heads. Our proprietary knowledge of the industry means we can optimize CIP performance for all types of brewery

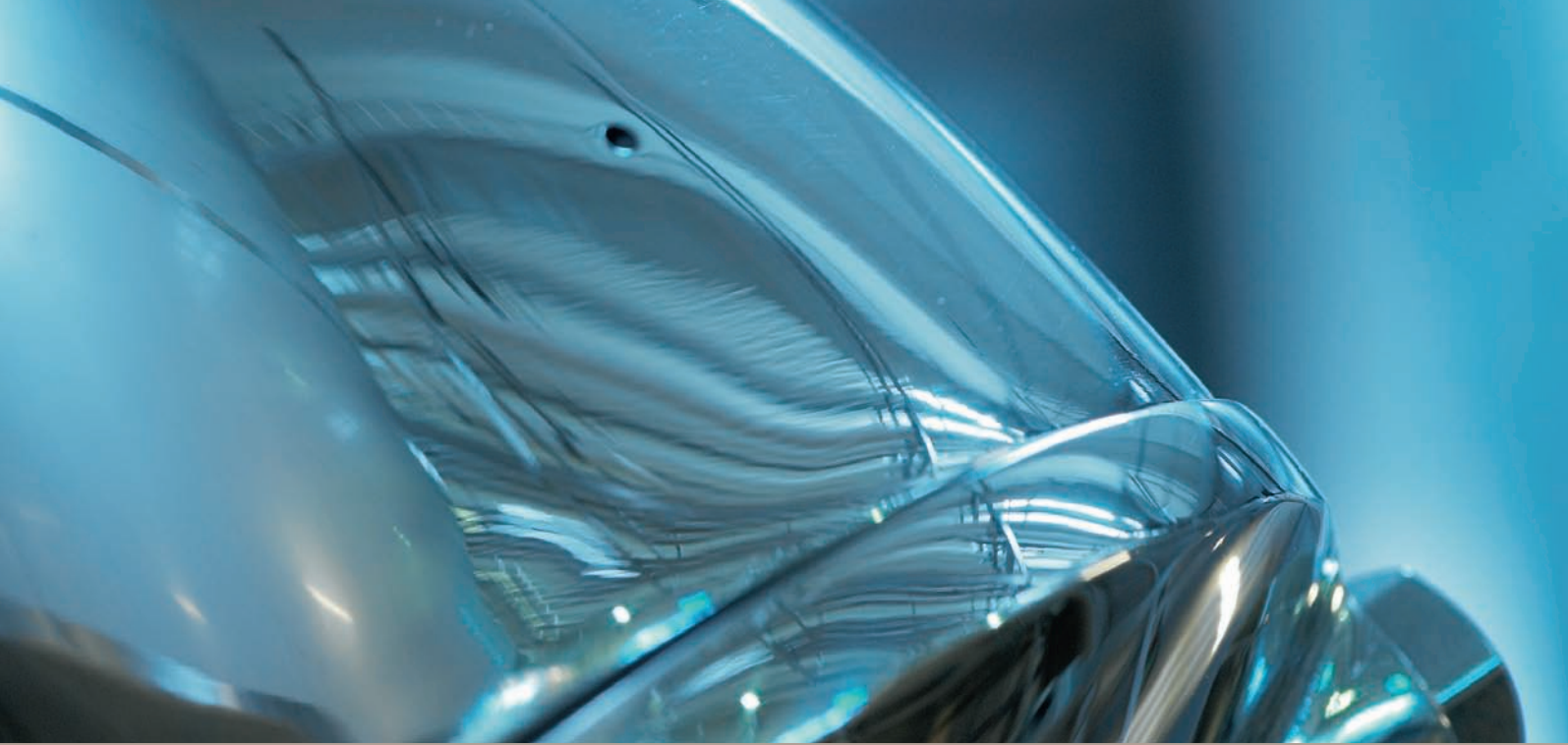
vessels extremely quickly. And for added peace of mind, a Rotacheck verification system lets you confirm that each stage of a CIP cycle is carried out as expected. All these benefits also hold true for the beverage industry at large, and rotary heads are ideal for streamlining cleaning operations in the wine and soft drink sectors.

## **Food applications**

Our cleaning machines for the food industry are designed to meet all manner of cleaning challenges common in food production, including the removal of burnt residue and biofilm, elimination of cross-contamination, and cleaning tanks and mixers with agitators or baffles. Our technology complies with industry hygiene requirements, and many of the heads are self-cleaning and self-draining. In addition, products come in FDA-compliant materials, and adding a Rotacheck verification system lets you document that your tanks are being consistently cleaned to the required standards.

## **Dairy applications**

Consistent with EHEDG design requirements, our rotary heads can significantly improve tank cleanliness in dairies, while minimizing time, water and chemical consumption. The scrubbing action that rotary



technology delivers is ideal for removing stubborn residues such as fermented products, eg, yogurt or fresh cheese. Rotary heads heat up tanks faster during a CIP cycle, thereby reducing total turn-around time. For powder applications or where internal components or geometry complicate installing permanent cleaning machines, our self-actuated retractable systems represent an extremely effective and reliable solution.

#### Pharmaceutical applications

As well as delivering highly effective tank cleaning, our machines for the pharma-

ceutical sector are self-cleaning and self-draining and some have integrated self-cleaning down-pipes (patent pending). Using automated CIP systems severely reduces employee exposure to hazardous materials, and including a Rotacheck verification system lets you certify electronically that tanks are being consistently cleaned to validated standards.

Our sanitary product line conforms with the strictest guidelines laid down by industry regulators (e.g. FDA, cGMP, ICH Q7A, EHEDG). As such we can provide all required documentation and data on

machines, application analyses, or both. Product documentation includes surface roughness data, material traceability, FDA material conformance, factory test reports, manuals and validation support.

#### Personal care applications

The complete coverage, rotary action and impact afforded by rotary jet heads makes them particularly effective in cleaning viscous, foaming or thixotropic products of the type commonly produced in the personal care industry. The efficient removal of such residue also grants significant savings in terms of time and water consumption.



**Toftejorg Rotary Jet Head SaniJet 20**

- Totally self cleaning
- Follows EHEDG guidelines
- FDA compliant
- High-impact cleaning



**Toftejorg Rotary Jet Head SaniJet 25**

- EHEDG certified
- FDA Compliant
- High-impact cleaning



**Toftejorg Rotary Jet Head TJ 20G**

- 360° impact cleaning and coverage
- Award-winning hygienic design



**Toftejorg Rotary Jet Head TZ-74**

- 360° impact cleaning and coverage
- Effective cleaning at low flow rate



**Toftejorg Rotary Spray Head SaniMidget**

- Full coverage
- Effective cleaning at low flow rate
- Sanitary design



**Toftejorg Retractable Rotary Spray Head SaniMidget Retractor**

- Retractable
- Suited to tanks with internal components
- Self cleaning and self draining



**LKRK Static Spray Ball**

- DIN and ISO connections
- Sanitary design

# A scientific route to implementation, a human path to customer service

Purchasing a tank cleaning system from Alfa Laval is also an investment in peace of mind. That's because our wealth of experience in selecting, configuring and maintaining tank cleaning machines leaves nothing to chance.



We're quite aware tank cleaning isn't the foremost thought in your mind. On the contrary, it's probably something you'd rather forget in your daily life. Our sentiments exactly.

By taking the care and attention up front to ensure all equipment is correctly implemented, and by delivering responsive post-sales support, customers can spend their energy on issues other than tank cleaning. To help in this endeavor, we have several unique resources at our disposal.



## **TRAX® simulation**

On each rotary jet head within a tank cleaning system, all variables are carefully selected and adjusted for best results. Then our proprietary TRAX® simulation software is used to recreate how a machine would perform in a customer's tank. The simulation gives information on wetting intensity, pattern mesh width and cleaning jet velocity. Using this information it's not only possible to determine an appropriate jet head and its placement, but also the correct combination of flow, time and pressure to implement in a CIP program.

## **Test facility**

Customers have access to Alfa Laval's world-class tank cleaning test facilities. Here it's possible to recreate a huge variety of specific tank cleaning operations under carefully controlled conditions. The facility has two full-scale production tanks, each connected to a CIP unit. The test facility allows customers to compare the cleaning performance of different machines and multiple CIP programs under varying conditions of temperature and detergent concentration.

Among other things, the test facility aids in determining suitable machines, the placement and configuration of each machine, and CIP program steps.

## **Global customer support**

Our tank cleaning machines are guaranteed to deliver high performance and complete coverage. The same is true for our sales companies and global distribution network. That's to say our offices around the world are always ready to provide you with the parts, advice and service you may need at any time. Known as "Nonstop Performance", our service commitment gives customers total confidence they won't be left high and dry should a tank cleaning system fail.

## Validation services

At Alfa Laval we're able to provide data and documentation for various validation purposes, including:

- Riboflavin or other similar coverage tests
- Certification and surface roughness test
- Final TRAX® simulations and installation drawings to support cleaning validation
- RotaCheck Sensor



Wetting Intensity (US gal/ft<sup>2</sup>)



A TRAX® simulation illustrates cleaning fluid distribution inside a tank.

