



Retrofit of tank cleaning machines guarantees the highest standard of brewery cleaning performance

A major European brewery

Case story



A European brewery was asked to produce a new beer type for one of its customers. Although the brewery's rotary spray head tank cleaning devices in its horizontal fermentation tanks provided years of excellent service, it became clear that the new brew required a faster, more efficient tank cleaning solution.

To ensure first-class cleaning performance of their horizontal fermentation tanks, the brewery turned to an authorized Alfa Laval channel partner to guarantee repeatable performance for its tank cleaning machines. The solution? Retrofitting the fermentation tanks with Alfa Laval Gamajet Powerflex Flow-Through (GJ PF FT) tank cleaning machines for maximum uptime, high-quality beer as well as a documented and validated Cleaning-in-Place (CIP) process.

Rotary jet head retrofit optimizes cleaning efficiency

Every year, the brewery produces new seasonal guest ales along with its permanent cask ale and beer portfolio. One guest ale proved challenging for the existing rotary spray heads, two of which were installed in each of the 30 closed fermentation tanks. The brewery's chief engineer called on its trusted partner, an authorized Alfa Laval channel partner, to ensure that the fermenters would be 100% clean the first time – every time.

Upgrading 30 closed fermentation tanks to a higher cleaning level can be expensive due to new tank cleaning machines, high costs for labor, installation and potential conversion of the fermentation tanks, if required. Rebuilding and installation of new tank cleaning equipment can also result in lost production time.

The brewery's chief engineer also asked the Alfa Laval channel partner to optimize the pre-rinse cycle to prevent yeast contamination in the recirculated caustic. Optimization would reduce downtime and contamination risks in the CIP system's caustic tank. Due to their long-standing business relationship, the brewery also tasked the Alfa Laval channel partner with improving the entire cleaning cycle.

To optimize tank cleaning equipment, the Alfa Laval channel partner worked closely with Alfa Laval tank cleaning experts. Retrofitting the horizontal fermenters with Alfa Laval rotary jet heads offered obvious advantages, cost-effectively replacing the current rotary spray heads with their medium-impact cleaning jets with high-impact cleaning jets.

“Retrofitting our fermentation tanks with Alfa Laval GJ PF FT machines solved everything. The tanks have never been cleaner.”

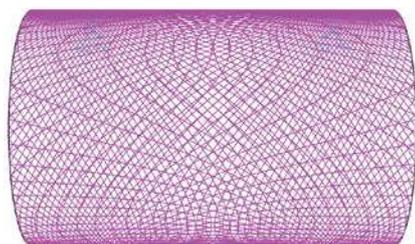
– Chief Engineer at a European brewery

Do more with less:

Validated cleaning efficiency

Fermentation tanks are very hard to clean. It is therefore important to ensure no residues remain in the tank after each tank cleaning.

The Alfa Laval channel partner used Alfa Laval TRAX software to simulate cleaning in the fermentation tanks. Based on results from TRAX, Alfa Laval GJ PF FT tank cleaning machines were selected. These tank cleaning machines combine pressure and flow to create high-impact cleaning jets that continuously rotate in a 360° pattern. The full-coverage, global indexing pattern ensures the entire tank interior is cleaned, every time. The reliable 360° spray pattern and enhanced impingement action easily cleaned the toughest residues during trials at the brewery. Cleaning was validated both visually and by measuring pH values.



Alfa Laval TRAX software simulates the cleaning cycle in a specific tank in order to determine the optimal tank cleaning solution.

Quick and easy retrofit

An excellent choice for retrofits, the Alfa Laval GJ PF FT fits through most existing openings, including the 100 mm openings in the brewery fermentation tanks. No modification of the existing top-entry nozzle openings was required. This eliminated reworking the tank, enabling a quick, cost-effective upgrade. High-impact, low-profile quad-nozzle rotary jet heads were configured to the current operating conditions with a total CIP flow rate of 12 m³/h per fermentation tank. The machines were replaced in a few weeks. The brewery chose to maintain the existing pressure during this replacement process. Although satisfactory cleaning results were achieved with a pressure of 3 bar, the brewery subsequently chose to upgrade the pressure to 5 bar as recommended in the specifications.

Less downtime

Compared to rotary spray head tank cleaning devices, the Alfa Laval GJ PF FT rotary jet heads reduce both the cleaning time and the use of energy, water and cleaning agents. This makes

Technical data

Tank dimensions	Diameter: 3 m, length: 4.5 m
Machine type	GJ PF FT 4 × 6.4 LP
No. of tank cleaning machines per tank	2
Simulation	Wetting intensity (l/m ²)
Total flow rate	12 m ³ /h
Operating pressure	5 bar
Cleaning time in minutes	10:49
Water used	2,098 litres

it possible for the brewery to spend less time on maintaining the equipment and cleaning the tanks – and more time producing beer.

Benefits

- High reliability
- Low maintenance
- Media driven
- Hygienic design
- Optimal cleaning
- High-impact 360° cleaning
- Quick return on investment

Improved product quality

With the tanks so clean, the brewery is confident that no impurities are left in the tanks when starting a new fermentation batch.

“We’ve never seen the fermenters this clean before,” says the chief engineer at the brewery.

Completely clean tanks are absolutely crucial for the quality of the beer to prevent the risk of cross-contamination from yeast strains. This is promising for the brewery’s future.



Before: Dirty fermentation tank with Alfa Laval GJ PF FT tank cleaning machines.



After: A cleaned fermentation tank with Alfa Laval GJ PF FT tank cleaning machines.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com.