

Case | Carlsberg Britvic

Carlsberg Britvic reuses water before it's wastewater, saving enough water for 500 homes

Carlsberg Britvic wanted to decrease its water use. It partnered with Grundfos for a water reuse system to recover water used to rinse its beverage bottles. The closed-loop system filters, cleans and treats the used process water to a super-high quality for reuse at the bottle rinse carousels.

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GRUNDFOS 

Possibility in every drop



Carlsberg Britvic produces 14 million cases of carbonated and still beverages a year – including brands like Pepsi, 7UP and UK-household brand Robinsons.

The situation

Carlsberg Britvic was looking for new ways to reduce water use on its production sites in the UK.

“As a beverage company, water is obviously critical to us. It is part of everything we do,” says Calvin Winch, Head of Supply Chain Sustainability.

Carlsberg Britvic, part of Carlsberg Group, produces PepsiCo soft drink brands under license in Great Britain and Ireland as well as its own brand portfolio that includes UK favourite Robinsons.

At the company’s bottling plant in the Beckton suburb of East London, the company saw a potential of reducing water in its bottle rinsing – a high water-use area.

“We have a process on several lines where we rinse the bottles before we fill them,” says Calvin Winch. “That’s typically a straight-through process.

The water that was rinsing the bottles goes to drain. It was wasted.

So, we really wanted to tackle that issue and see what we could do to reduce the water usage in that area.”

Previously, Carlsberg Britvic had built its own water recovery system for the bottle rinse systems. “Over time, we had lots of issues with quality and performance, so we turned it off.” Thus, all the rinse water was just going to the floor drains again after one use.

“It’s quite a lot of water going around the system,” adds Martin Campbell, Head of Maintenance. He says that the more they can reuse that water before it becomes wastewater, the more they are saving.

“So, we looked at how we could change it from a one shot, one-rinse system to multiple uses of that water. And that’s when we engaged with Grundfos to get us where we are now.”

The solution

The Grundfos Bottle Rinse Reuse System stands up against the wall by one of the bottling lines. It captures the rinse carousel's water and pumps it through a Grundfos patent-pending water treatment process before sending it back to the bottle-rinse units.

“We treat the water back to a higher standard and a higher specification than when it first came in,” says Sr. Water Engineer Alex Reina of Grundfos Pumps UK. He adds that even though the water is treated above drinking water standards, it is not used in the actual beverage product – only for cleaning the bottles.

“And the system is completely integrated into Carlsberg Britvic's SCADA system, with in-line water quality testing meaning production is always protected.”

He says that because the treatment process uses only minimal amounts of disinfectant, the chemical usage to treat rinse water has significantly reduced. Calvin Winch says, “The great thing about reusing the water is that water isn't free. At that point (of the bottle rinsing), we've put a lot of time and effort in converting our incoming water into beverage water. We've treated it, we've filtered it, we've chlorinated it, de-chlorinated it, moved that all around our water treatment system with pumps and drives. There's a lot of electricity, chemicals, time and effort gone into making that water in the first place, so we want to reuse it as much as possible before it goes down the drain.”



Over a year, the Grundfos Bottle Rinse Reuse System at Carlsberg Britvic saves the company about 60 million litres of water a year – the amount that 500 homes use in the UK over a year.

“We're sending less water over to our wastewater plant. We're using less chemicals over there, pumping less water, so that's saving energy. All in all, it's a win.”

Martin Campbell,
Head of Maintenance
Carlsberg Britvic

The outcome

Grundfos' custom-designed water treatment system for Carlsberg Britvic has saved about 64,272,000 litres per year, with a return on investment of 2 years. The CO2 impact is minimal, using 0.5 kWh per 1000 litres of water.

Calvin Winch says, "We're saving over 60 million litres a year. When you put that into context, the amount of water this system is saving us in a year could provide water for over 500 UK households."

He adds that one of the company's sustainability commitments is reducing its water ratio in

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production – that is, how many litres of water it takes to produce one litre of product. "In the past, we've been up over a 1.7 water ratio at our soft drinks sites in Great Britain. Last year, we were down to 1.61, and in the future, we're looking to get to 1.4. So, this system has given us a good step increase on performance for water ratio," Calvin adds.

The system brings softer benefits as well.

"We're sending less water over to our wastewater plant," says Martin Campbell. "We're using less chemicals over there, pumping less water, so that's saving energy. So, all in all, it's a win."

Calvin Winch adds less wastewater also benefits the town's wastewater treatment plant.

"A project like this really does support the local community, because we're putting less of a burden on that infrastructure for them. And we all know how much pressure those treatment plants are under at the minute. So, the more we can de-burden that local infrastructure, the better."

He adds, "We've been working with Grundfos for several years now on water efficiency and water reuse projects. We have developed new strategies with them in terms of how to reduce water, recycle water. We can lift and shift those projects from site to site. So they're coming on the journey with us, and we both can work in that trusting partnership to move forwards."



Carlsberg Britvic's Head of Maintenance Martin Campbell speaks with Alex Reina of Grundfos.

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Case story info:

Topic: Process water reuse

Location: Beckton, London, UK

Customer: Carlsberg Britvic

Grundfos supplied:

The Grundfos Bottle Rinse Reuse System is a modular filtration system uniquely combining micro and carbon filtration, UV AOP, Grundfos Digital Instrumentation Dosing (DID) control, CRE and dosing pumps, patent-filed valving, SCADA system, custom built tanks and turnkey installation. The combination of the technologies used and how it is controlled is unique and is pending a patent. The solution is risk-free, automatically diverting poor quality batches to the drain. It did not require any shutdown of production and passed the PepsiCo quality test.

Carlsberg Britvic's Calvin Winch says, "One of the good things about working with Grundfos is that you get the total care package: Smart design and the service and care package that comes with it. You know it's going to be a pretty much fire-and-forget solution. We put it in. It works. And that's what we need, because we need to concentrate on making drinks, because that's our core business and our core skill set."

Sources

The facts in this story come from interviews on site at Carlsberg Britvic in Beckton, East London, UK, on 12 December 2024, and from a follow-up online interview with Calvin Winch on 20 December 2024.

[Read more about Grundfos solutions for the food and beverage industry here.](#)

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