

Case | Britvic

# Grundfos increases production capacity of water treatment plant and reduces pump system energy by 60% and 630 MWh

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**GRUNDFOS** 

Possibility in every drop





**Calvin Winch**, Group Sustainability Manager, Head of Supply Chain Sustainability of Britvic Soft Drinks Ltd.



The Grundfos beverage network supply pumps.

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*Britvic Soft Drinks Ltd. had increased its production on soft drink bottling lines, but its water treatment plant was struggling to keep up. Plus, the incoming water's chlorine levels were wearing down the water softening system beds much faster than usual at a high replacement cost. Grundfos helped the company upgrade its total pump systems and controls in the Beckton factory's water treatment plant, slashing energy use by 60% and saving 630 MWh in electricity. This helped the plant achieve an SBTi target of reducing the amount of energy used per litre of product produced. Plant upgrade payback time was under 1.3 years. "Now we have better control over the quality levels that we need to achieve," says Maintenance Manager Martin Campbell. Read the story and see the film to learn more.*

### **The situation**

For Britvic, water is its most precious ingredient and it is a priority for the company to protect this precious resource in manufacturing processes. This bottling plant operating in the Beckton suburb of East London produces PepsiCo soft drink brands under license, as well as its own brand portfolio that includes UK favourite Robinsons. The plant had added a production line, but its water treatment plant was struggling to keep up. "At times we were at max capacity, and other times we actually outstripped the capacity of the water treatment plant," says Calvin Winch, Head of Supply Chain Sustainability. "We were having to stop lines occasionally,

which reduced productivity. Obviously losing reliability, OEE (Overall Equipment Effectiveness) – lack of cases out the door." says Martin Campbell, Maintenance Manager. So, we needed a more reliable, more stable system with a smoother flow control through the process."

The chlorine levels of the incoming water from local (very nearby) utility Thames Water added another challenge. "It caused our resin beds within our de-alkalisation (de-alk) plant – the plant that softens the water for us – to deteriorate rapidly – a lot more rapidly than they should," says Calvin Winch.

Campbell adds, "We were replacing the resin beds every year rather than every three years as forecasted. So obviously that needed to be looked at, because it cost £100,000 every time they needed to be replaced."

As Britvic and Grundfos are both SBTi-committed companies, Calvin Winch says Britvic has been working with Grundfos more extensively on optimisation and sustainability projects for reducing carbon and water impacts. "We have a Healthier People, Healthier Planet programme, where we look to reduce our impact on the environment," he says "a key part of this sustainability strategy is to reduce the amount of energy used or consumed to make a litre of product. And since our massive production increase over the last few years, it was critical for us to find a solution to these water and energy challenges."



## The solution

When Grundfos was brought in to propose a solution, the company first installed temporary flow meters all around the system with the Grundfos Energy Check Advanced programme. The sensors collected data for about four months. The Grundfos team then analysed that data to see what the current system was doing and how they could improve it.

Grundfos Sales Engineer Adam Howe says, “The key to the solution was designing a new water treatment control system for Britvic with our new Grundfos Water Treatment Control philosophy. This delivers a higher flow rate with less energy.”

A newly designed Grundfos central PLC controls and monitors the operation parameters of the water treatment plant systems. Each pump station in the water treatment operation is controlled via individual Grundfos MPC-E controllers and can be accessed via the central PLC or remotely via the cloud-connected Grundfos iSOLUTIONS.

With zero downtime for Britvic, the Grundfos turnkey project replaced all of Britvic’s water treatment pump systems with Grundfos electronically speed-controlled e-Pumps.



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

That included a Hydro MPC-E booster set for controlling pressure and bringing consistent flow to incoming water, along with UV disinfection units for chlorine control. Grundfos also added NBE booster sets for contact tank control, degassing, carbon bed feed/backwash and also for beverage network delivery.

**“We now have a lot more visibility in terms of what the plant is doing - a lot of data trending. With that data trending going forwards we can optimise the plant even further.”**

Calvin Winch, Group Sustainability Manager, Head of Supply Chain Sustainability  
Britvic Soft Drinks Ltd.





The Grundfos carbon bed feed and backwash pumps at Britvic



Grundfos's **Adam Howe** checks the parameters in the water treatment system on the Control MPC-E touch screen with Britvic's Group Sustainability Manager **Calvin Winch**.

### The outcome

The Grundfos systems have doubled the flow through Britvic's water treatment system to 240 cubic metres an hour while keeping consistent water pressure. This also meant that when the local water authority Thames Water had a burst water main in late 2023, the new installation kept the factory running – with zero reduction in output. In the previous set up, the site

would have had to shut down production. “Our control of the water is a lot better and much smoother. It's a continuous flow type system, so it's much more constant. We have more precise control over the quality levels that we need to achieve. Increased efficiency has meant that we are only needing to use the minimum levels of energy, pressure and flow rates, and less intervention is needed by the team to keep the system running”





The water transfer end suction pumps, the Towns booster for incoming water and the UV unit for ensuring water quality in Britvic's water treatment plant



Monitoring chlorine levels at the Grundfos DID Monitor

Calvin Winch says the Grundfos system has reduced energy consumption at the water process plant by 60% – or 630 megawatt hours, which equals a payback in less than 1.3 years. “Which was really good for us.”

The chlorine levels are also now under control, reduced by 1-1.5 ppm to 0.2-0.3 ppm. “This has saved our de-alk beds a great deal,”

Campbell says. “We’ve seen a lot longer runs on the de-alk beds between regenerations, and that’s obviously using less water as well.” Winch adds that the upgrade has brought some softer benefits as well. “We now have a lot more visibility in terms of what the plant is doing – a lot of data trending. With that data trending going forwards we can optimise the plant even further.”

Britvic Soft Drinks Ltd. Site Director Paul Wiggins says, “Part and parcel of our increased capacity means that we also need to increase our services in general. So power, water, effluent, for example. And this project that we’re doing in partnership with Grundfos has been instrumental in making our operations more efficient.”

Martin Campbell adds, “It’s continuing to work properly. Any alterations or improvements, Grundfos comes and says, ‘Look, we can improve it even more.’ So it’s continuing to grow and develop.”

**“Our control of the water is a lot better and much smoother. We have more precise control over the quality levels that we need to achieve. Increased efficiency has meant that we are only needing to use the minimum levels of energy, pressure and flow rates, increasing our efficiency”**

**Martin Campbell**, Maintenance Manager  
Britvic Soft Drinks Ltd.



The Grundfos DID units test and monitor chlorine levels in the plant.

### **Grundfos Supplied**

Grundfos supplied a full pump system upgrade for Britvic Soft Drinks Ltd.'s water treatment facility, including some of the following products and services:

- Hydro MPC-E booster set
- NBE booster sets
- Grundfos iSOLUTIONS intelligence
- Control MPC
- Energy Check Advanced

Read more about Grundfos solutions for the food and beverage industry.

**Topic:** Water treatment optimisation

**Location:** Beckton, London, UK

**Customer:** Britvic Soft Drinks Ltd..

**Sources:** The facts in this story come from interviews on site at Britvic Soft Drinks Ltd. in Beckton, East London, UK, on 25 October 2023, and from a follow-up online interview with Maintenance Manager Martin Campbell on 9 November 2023.



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