

# Flygt Concertor delivers high efficiency and clog resilience at Heathrow Airport

WHILE HALVING STATION ENERGY CONSUMPTION

London's Heathrow Airport is one of Europe's busiest airports, with an average of 34,000 flights arriving and departing every month. Heathrow Airport's water services department, a Xylem customer for 33 years, manages an extensive network of 120 pumping stations.

## The Challenge

Aircraft toilet waste tends to have a higher proportion of non-biological solids, such as wipes, plastics, underwear, and nappies, compared to typical utility network flows. This was causing one of the airport's dual pumping stations, which manages aircraft waste, to experience chronic clogging issues. As well as frequent reactive visits to address clogging, the pumping station wet well required cleaning on a six-monthly basis.

## The Solution

In November 2015, Heathrow Airport's water services department installed and trialled Xylem's new state-of-the-art Flygt Concertor intelligent wastewater pumping system, with the intent to solve chronic clogging issues at one of the airport's more challenging wastewater pumping stations.

Flygt Concertor System is a complete pumping solution with integrated monitoring and control that senses the operating conditions of its environment and adapts performance in real-time to provide feedback to station operators. The system's patented energy minimiser function, together with patented Adaptive-N hydraulics and IE4 efficiency motor, automatically ensure that all the pumps run at their most efficient duty point.

The integrated control system makes it quicker and easier to set-up and operate functions that would otherwise require a very sophisticated monitoring and control system.

At Heathrow, one single Flygt Concertor N6020 Pump, complete with the XPC system, was set to run the station on its own, with the remaining N3127 pump set to operate just on a higher level. The station and Flygt Concertor is monitored by Heathrow Airport's telemetry system and Xylem's Avensor remote monitoring platform.



London Heathrow Airport, Terminal 5.

- Heathrow airport is one of Europe's busiest airports serving millions of passengers every year.
- Heathrow airport measures 1,227 hectares.
- Flygt Concertor has reduced energy reduction by 53%, and service and cleaning costs by 87.5%.

## The Results

As of December 2023, Heathrow's Flygt Concertor pump had required just one reactive site attendance in the eight years since installation. There had been no requirement to clean the wet well during the same period, delivering significant cost savings of approximately 87.5% of the annual costs in cleaning and site attendance. Additionally, the energy consumption of the pumping station had reduced by 53% - consistent over the eight-year period.

The system had delivered proven reliability at the lowest total cost of ownership, while reducing energy consumption, helping Heathrow to achieve its OPEX and sustainability goals.

Having experienced the benefits from the original pilot scheme, Heathrow Airport invested in the Flygt Concertor system across its asset base. As of December 2023, the team had rolled out the Flygt Concertor in a further eight assets. This investment includes complete XPC systems and a stock of Flygt Concertor pumps to replace traditional wastewater submersible pumps.

Due to Heathrow's 24/7 operations, its water services department requires a high level of autonomy to address issues quickly. The Flygt Concertor solution enables the Heathrow engineers: to deploy the Concertor Pump quickly and simply at pumping stations when needs arise. The model has been built into Heathrow's new standard of airport wastewater pumping station designs.

**"Heathrow was an early adopter of Flygt Concertor. The original pump, installed in November 2015, continues to produce cost savings and maintenance benefits, as it did from the beginning. We have rolled out the Flygt Concertor in a further eight stations across the campus and it has been built into the new standard of foul pump station design for Heathrow. We look forward to what the future brings, as larger Flygt Concertor products are released into the range, which will give us further energy and maintenance benefits, as well as reliability."** **Dan Young, Heathrow Senior Engineer - Water Systems Technical Services**

Synneve Henningson, Senior Product Marketing Manager, Xylem UK & Ireland (former Global Product Manger Concertor), commented: "Seeing the Flygt Concertor shape from an idea in 2011, to the product it is today, has been amazing. We have learned a lot from this technology and from all our customers around the world, since running the first prototype in 2013.

"Over the years, this feedback has been relayed to the development team, which is why the Flygt Concertor has evolved into the product it is today - and continues to evolve, with new models currently in development. As with Heathrow Airport, customers are impressed with the reliability of the technology and the cost and energy savings the system has delivered."



Dan Young and Lee Wren from Heathrow and Synneve Henningson from Xylem.



### FLYGT CONCERTOR N

The Flygt Concertor N is a reliable, flexible and energy efficient pump capable of being connected to DOL or Star Delta Starting - On/Off pump stations.

The pump provides user configurable adjustable pump performance, maximising asset flexibility to cover a great many pumping stations with a small number of pumps. The clog resilience and pump cleaning operates straight out of the box without the need to make any adjustments. 5 to 60 second soft start reduces the pressure surge on the rising main, and peak loading on the power supply during the pump start up all of which can lead to lower operating costs.