

The world's first wastewater pumping system with integrated intelligence solves chronic clogging problems and halves energy usage at Heathrow Airport

London's Heathrow Airport is one of Europe's busiest airports catering for more than 200,000 passengers each day with an average of 1,200 flights arriving and departing from the airport daily. Heathrow Airport Water Services Department has an extensive network of 120 pumping stations to manage and has been a Xylem customer for 25 years.

Heathrow Airport Water Services Department agreed to install and trial Xylem's new state-of-the-art Flygt wastewater pumping system in an effort to solve chronic clogging issues at one of the airport's wastewater pumping stations.

As well as delivering consistently clog-free pumping, Flygt Concertor, dramatically reduced energy consumption by 53% at the pumping station.

The Challenge

The central Area Sanitation Unit adjacent to Terminal 1 is a receiving station for aircraft toilet waste which contains a high level of non-biological solids including various plastic material, wipes, nappies and clothing. This stringy material can be difficult to pump since it can easily get caught on the impeller and partially block the pump - leading to increased energy consumption and in the worst case, a full blockage of the pump.

This challenging wastewater application led to regular clogging and the sump requiring significant operational activity to try to keep it clean.

"We would usually have to deal with two or three clogging issues during a three month period," said Ian Jolly, Systems Specialist for Water, Heathrow Airport Water Services Department. "We also used to see a shelf of fat and material deposits build up on the walls of the sump as well as floating debris. This presented a very tough challenge to our existing wastewater pumps which we frequently had to de-clog."

New integrated clog-free technology

Heathrow Airport required a solution that would solve the operational costs and environmental problems caused by:

- High levels of floating debris on the surface of the wet well
- Higher than normal percentages of rag/non-biological solids in the wastewater.

As a loyal customer, the Heathrow team trusted Xylem's expertise in solving these particularly challenging problems and agreed to trial Flygt Concertor, a new wastewater pumping system with integrated intelligence: "We have used a number of Flygt technologies over the years and have found the Flygt team to be very willing to listen to our needs, always eager to find a solution to our particular challenge," said Ian.

Customer: Heathrow Airport Water Services Department

Challenge: To deliver clog-free pumping of aircraft wastewater - some of the most challenging wastewater to pump

System: Flygt Concertor™, the world's first wastewater pumping system with integrated intelligence

Results: Clog-free pumping with no emergency call outs | Energy consumption reduced by 53 percent | No extra investment in enlarged cabinets was required | Possibility to reduce inventory



Flygt Concertor™



One of Heathrow's aircraft wastewater vehicles, transporting sludge to the Central Area Sanitation unit.

As a world's first, Flygt's new wastewater pumping system combines built-in sump and pipe cleaning functionalities in a single integrated solution; capable of tackling sump floating debris as well as pipe sedimentation. Furthermore, the pump cleaning function together with Adaptive N-hydraulics effectively detects and solves clogging from large debris.

It is precisely the integration of "intelligent" functionalities and state-of-the-art technology that makes Flygt Concertor a unique wastewater pumping system; providing unparalleled results and long term positive benefits for many applications.

Since its installation at the Heathrow Central Area Sanitation Unit in November 2015, Concertor has provided absolute clog-free operation, as well as a remarkable improvement in the wet well environment. "Since installing Concertor we have had absolutely no clogging and the sump remains clean with no fat build-up," said Ian. "As well as peace of mind - which really is priceless - the cost savings are significant at approximately 87.5% of the annual costs in cleaning and servicing."

Energy reduced by over 50%

Clog-free operations and a clean wastewater pumping station are however, not the only ways that Flygt Concertor improves wastewater operations. The system aims to deliver proven reliability at the lowest total cost of ownership and to achieve this it also, among other benefits, drastically reduces energy consumption.

In the case of the once-troublesome Central Area Sanitation Unit pumping station, energy savings are up to 53%, which again, is a result of both sophisticated software and cutting-edge components.

The Energy Minimizer function, together with the patented Adaptive-N hydraulics and the IE4 efficiency motor, automatically ensure that all the pumps run at their most efficient duty point. Additionally, since there is no need for ventilation, cooling or heating of cabinets, customers benefit from substantial energy savings over the system's total lifecycle.

Compact design and more functionality

Flygt Concertor is proof that new and sophisticated technologies for wastewater pumping do not require more components or complexities. On the contrary, this groundbreaking new system is user friendly, simple to install, commission and operate.

"Concertor's compact design allowed it to fit into the existing position within the pump station, without any extra investment required to enlarge the cabinet. From an aesthetic and practical consideration the reduced panel requirement size will be of great benefit," said Ian. "It was simple to install and very user friendly. Actually, the trial pump was installed by one of the airport's water services mechanical technicians, who was not experienced in the commissioning of wastewater pumping systems and quickly gained confidence in the ease of installation and operation." he concluded.



Ian Jolly, System Specialist for Water Services at Heathrow Airport, pleased with Flygt Concertor's™ trial results.

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