ENGINEERING TOMORROW

Case story | VLT® Solutions

Energy costs down and plant **reliability up** with Danfoss VLT® AQUA Drive in Brazil

Installation of a new automated effluent tank pumping system in a unit belonging to the BIGNARDI Group saved 30% on energy costs. VLT® AQUA drive speed-controlled pumps contribute to a more reliable system operation.

Considered to be one of the largest industrial system manufacturers for pumping water and effluents, ITT Water & Wastewater is growing in the Brazilian market and works in sectors that involve the reception, transportation, handling and treatment of fluids in general.

ITT develops projects based on the specific requirements of each client and considers all the stages in the running of their operations, whether that be public sector companies working in basic health services, the modernisation of treatment plants for water and wastewater from industry or the agro-industry dealing with irrigation. Its services cover every aspect of the process, from the planning and installation to after-sales, and come with the added advantage of using the most important product brands on the market for transportation and treatment of water and effluents: Flygt®, Sanitaire®, Leopold® and Wedeco®.
ITT currently has an excellent relationship with Danfoss, both parties making a focused effort in sales and applied engineering in the aforementioned sectors in the market.
A current example of the superb success that has been attained by this synergy was the full installation of the new automated effluent tank pumping system in a unit belonging to the BIGNARDI Group in Jundiaí (State of São Paulo, Brazil). A recycled paper factory is located in the city, which manufactures excellent paper for the graphics printing industry and school jotters.

New pumps from the ITT's Flygt range are now used, which are speed-controlled by VLT® AQUA Drive frequency converters. They pump industrial effluents that come from the main paper manufacturing machine in addition to effluents from the stages that take place before this process.

These effluents are pumped to the treatment station (ETE) and, after being extensively treated, are reused in BIGNARDI's industrial processes.
Before the Danfoss VLT® AQUA Drive was installed, BIGNARDI found it difficult to operate its pumps. More specifically, switching the operations on and off was sometimes done automatically and then manually using float level switches, which were intended to make the operations run automatically. There were constant flaws concerning the float level switches in the everyday running of the installation, which made the situation more complicated and put the operational efficiency of the whole system at risk.

Another crucial point that caused BIGNARDI to invest and implement a completely automated and more reliable system to pump effluents, was checking and comparing conventional systems with ITT's new automated system. Thanks to acquiring electricity consumption figures, it could be seen that significant savings were possible, in addition to large advantages in operational costs due to installing frequency converters. "The opportunity arose to buy the complete system; what I mean is the pump and the control panel with Danfoss VLT® AQUA Drive FC 202 frequency converters" Arnaldo O. Francisco remembers, a Product Engineer at ITT Water & Wastewater Brazil.

In this case, the client explained its requirements and then ITT suggested the use of frequency converters dedicated to water and wastewater applications so that the pumps operated in a perfect modulated frequency in closed loop operation (a necessary measure due to the unstable effluent outflow). "We planned the ideal system for Bignardi using our pumps, together with the expertise of José Fábio Rodrigues and Renato Monticelli from Danfoss's W&WW division", Arnaldo commented.

Tangible advantages boost investments aimed at modernisation

By installing the solution's high performance hydraulic pumps and frequency converters from Danfoss with PLC intelligence, the reliability of operation of the paper machinery was enhanced and the possibility of the system collapsing was eliminated, which had been mainly caused due to the bottom parts of the machines overflowing.. This kind of occurrence, in addition to causing production losses, damaged machines and equipment, and wasted a lot of time rectifying the situation.

The environment appreciates the creators of friendly technology

ITT performs an important function for society as it manufactures systems relating to water supply, water treatment and effluents, which are directly related to guaranteeing a healthy life and the conservation of a finite resource: water, an element that is essential for the survival of humankind and nature. As these are important topics for the sustainability of our planet, companies in this sector are required to constantly update and innovate their tools, investing in technological research and complicated engineering solutions. Obviously, as part of its values, ITT is committed to providing the best technology to provide efficient pumping and treatment systems: "For us, Danfoss was the best global partner so that we could offer our clients the best automated solutions for pumping systems", ITT's Arnaldo concluded.

"We still do not know exactly what the financial benefit is after installing the system, but in relation to energy costs, indices over 30% were obtained. What we know for sure is that the client is now happy as it can now monitor 100% of the pumps' working hours. The pumps no longer stop unexpectedly due to problems with the float switches. These were replaced by a Flygt pressure sensor, which essentially eliminated unexpected maintenance costs for the pumping system, a constant problem with the previous system using float switches, which regularly interrupted Bignardi's production", says Arnaldo O. Francisco, Product Engineer at ITT Water & Wastewater Brazil.

ITT Water & Wastewater is ready to become the world market leader. The company is determined to reduce production costs of transportation and in the treatment of water and effluents. "With first-class teams, specialised services and a constant focus on the client, we guarantee that essential pumping and treatment functions and systems are effective and reliable in accordance with the requirements of the client and the environment", Arnaldo Francisco concluded.

The VLT® AQUA Drive controls motor speed in accordance with pumping requirements.

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