

Flygt Experior[®] generates 50% energy savings

Minimizing energy use at pump stations with extreme variable flows

Located in Dalarna in central Sweden, the wastewater pumping station has a Flygt pump NP3102 MT 464 and a competitor pump with a premium efficiency motor. The station was built in the early 1970's and, today, serves about 450 households. It connects to a 300 meter long \varnothing 200 mm pipe, pumping wastewater from one side of a lake to the other, and has almost only friction losses.

During the spring, when the snow is melting, as well as with heavy rainfall, the inflow to the station increases dramatically. To prevent the station from flooding, the pumps must be sized to handle that flow. This, in turn, results in over-sized pumps, consuming more energy than necessary when running at normal inflow.

“Energy consumption at our Dalarna pump station decreased by almost 50% since we installed Flygt Experior.”

Energy savings

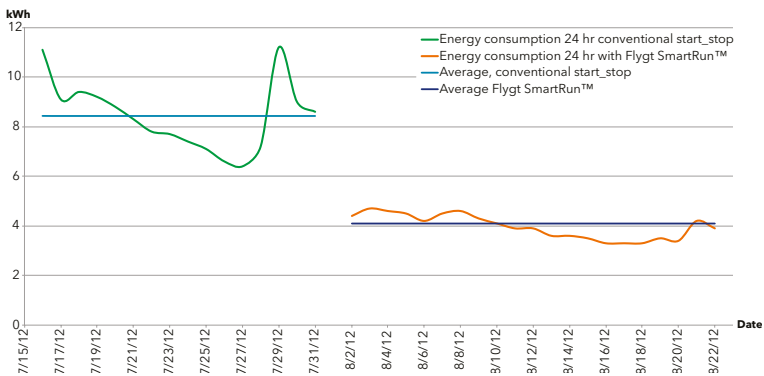
In 2012, the competitor pump was shut off and a Flygt SmartRun pump controller was installed to control the Flygt N-pump. Flygt SmartRun, a key component of Flygt Experior, is designed to always search for a duty point which minimizes the friction losses and maximizes the efficiency of the pump system. This makes it especially suitable for use in a pump station where the inflow varies considerably and most of the system losses are friction losses.

Optimized to achieve energy savings and maximum cleaning within wastewater pumping stations, Flygt SmartRun capitalizes on the benefits of variable speed pumping. A key feature is the patented energy minimizer function which reduces energy consumption compared to conventional on/off systems.



Customer: Municipality in central Sweden
Challenge: Handling variations of flow efficiently
Products: Flygt SmartRun™ control with Flygt NP3102 MT 464 pump
Benefits: 50% reduction in energy consumption

Flygt SmartRun in one of the three key components of Flygt Experior, which combines state-of-the-art hydraulics, premium efficiency motors and intelligent controls for the ultimate in reliability, efficiency and simplicity.



At the Dalarna station, energy consumption was measured with the Flygt N-pump and competitor pump operating alternately. After Flygt SmartRun was installed to control the Flygt N-pump, the competitor pump was shut off and energy consumption measured again. In this case, with Flygt SmartRun and the Flygt N-pump, energy consumption decreased by almost 50% by comparison.

Additional benefits

Energy consumption isn't the only thing that Flygt SmartRun can help to reduce. Pre-programmed functions also include pump, sump and pipe cleaning which help to cut maintenance costs.

Grease deposits on pumps and sump wall are common in wastewater pump stations. With the Flygt SmartRun sump cleaning sequence, the pump overrides the stop level to pump down to snoring level to remove oil, grease and other floating pollutants from the surface. There's no need to pump down and clean the sump manually.

With conventional variable frequency drives, another concern is that flow velocity in the pipes becomes too low, resulting in sedimentation of solids in the pipes. The Flygt SmartRun pipe cleaning cycle flushes the pipe system to minimize sedimentation.

Flygt SmartRun also makes it possible to monitor operations more precisely. In the Dalarna pump station case, a data logger was connected to Flygt SmartRun via a Modbus fieldbus. As such, operational information such as level in the sump, current absorbed by the motor, energy consumed, working frequency, alarms, etc. could be transmitted to a central server. Using a simple browser on PC, Smartphone or Tablet, a user can view all data, adjust some parameters and manage alarms.

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Flygt SmartRun is easy to install. There's no need for special competence to set operational parameters.



A cleaner pump, sump and pipe means less odor, reduced labor and maintenance costs.



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