

Troqueer Waste Water Treatment Plant

Application market	Wastewater
Market segment	Wastewater Treatment
Pumped medium	Raw, unscreened wastewater
Pump product	Submersible with Prerotation system
Country	United Kingdom



Challenge

Troqueer Wastewater Treatment Works, which serves the market town of Dumfries in Scotland, has been the recent recipient of a £14M investment in order to increase its capacity from a population of 30,000 to 50,000. The original site was constructed in the 1950's and extended again in the 1970's.

Solution

Hidrostal installed three of their shaft driven dry well Screw Centrifugal Pumps with "Prerostal" Prerotation system back in 1974 when Dumfries & Galloway Regional Council required inlet pumps to handle raw sewage across a range of flows at Troqueer WWTW. The pumps were originally chosen as they presented a solution that could achieve flow matching from the same size of pumps over a wide range through hydraulically induced turndowns. This natural and sustainable hydraulic solution uses Hidrostal Screw Centrifugal Pumps installed in harmony with unique Hidrostal Prerostal Basins. The pumps were installed in a vertical dry well configuration above the shallow wet well basins with suction bellmouths installed into the wet well area below. In addition, 2 Dry Well Submersible Low Shear RAS/SAS Pumps of type H12K-LLT and 2 Submersible Final Effluent Pumps of type C080-R01 are installed at the same location.

Benefits

The pumps are still operating successfully to this day after more than 40 years of service. The benefit of this system to Scottish Water was that fewer models of fixed speed pumps were required to achieve a wide range of flow turndowns, together with good self-cleaning. In addition a Prerostal system requires a much smaller installation footprint, particularly when compared to a conventional Archimedes screw pump, which significantly reduces the construction costs.

Quantity of units sold	3
Pump type	I16D-M
Motor data	37 kW / 7 pole / 50 Hz / 400 V
Material combination	Cast iron pump body and wear parts with nodular iron impeller
Duty point	Flow: 350 litres per second / Head: 6 meters
In operation since	1974