

October 2007

Customer: *McAlpine*

Location: *Yorkshire Water plants at Knostrop, Selby, Masham, Carleton*

The issue

Improving belt drive performance for critical sewage treatment operation

The solution

After attending one of BRAMMER'S many regional energy seminars, Paul Mayfield of Alfred McAlpine asked BRAMMER and Gates to look at the drive applications on the aeration blowers at three sites where they carry out a facilities maintenance service for Yorkshire Water.

The blowers are used to deliver a carefully controlled flow of air into large sewage tanks, keeping alive the free-floating micro-organisms which do the vital job of feeding on the bacteria. The air flow also maintains the right mixture to prevent sludge from settling, and is therefore a critical 24/7 operation where uptime and reliability are essential.

Dave Cullern, BRAMMER account development manager - utilities, visited the sites with experts from Gates and worked with the innovation team from McAlpine to carry out efficiency surveys, make recommendations, conduct training and trials of new equipment, and report on results.

The critical change involved replacing V-belt drives which transmit the power from the blower to the motor, enabling air to pump into the tanks. Conventional V-belts require regular maintenance and re-tensioning to rectify stretching and slippage. Efficiency can also be compromised, with the percentage of power actually transmitted sometimes dropping by 20% or more.



The existing V-belts were replaced with Gates' unique Polychain® belt drive system. Built with a polyurethane body, aramid fibre tensile cords and nylon tooth facing, this provides greater strength and durability.

Maintenance-free, it requires no lubrication or re-tensioning and offers long, smooth-running, dependable service with accurate and precise operation, high productivity, and low lifetime overall cost.

The result

Successful trials at Knostrop, Selby, Masham and Carleton, in Yorkshire, have demonstrated that this is a highly energy-efficient drive solution which, if applied throughout the business on this type of equipment, would have the potential to achieve a substantial six figure energy cost saving.

Power consumption is significantly reduced, since the new belts have a lower power requirement and 100% of it is transmitted, with no wastage.

McAlpine technical support engineer Paul Mayfield said: "Our key objective is to save on energy and maintenance cost throughout Yorkshire Water sites, and through working closely with Brammer and its manufacturer partner, Gates, we are now seeing huge benefits and savings.

"The relationship with Brammer has grown over the last 12 months, and working closely with David Cullern has enabled us to develop and achieve mutually agreed goals.

"Attending the Brammer water industry seminar, which focused on applications relevant to our industry, introduced us to manufacturers' new and innovative products and solutions, and has enabled us to embrace energy efficient technology to assist with our future planning and objectives.



“The aeration blower application is a typical example of the close relationship we have with Brammer and its manufacturer partners. Since then, we have converted more blower applications to energy efficient models at different sites, and have introduced maintenance-free belts.

“Brammer has arranged for on-site training sessions and further site surveys in an effort to provide frontline maintenance solutions, including lubrication methods, maintenance-free products, and innovative new products. “

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