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Leisure centre pool set to save £4,000 a year with ABB drive

A leisure centre in Sittingbourne, Kent, is set to save £4,000 a year on the costs of air handling for its swimming pool following a trial with an ABB low voltage AC drive.

The Swallows Leisure Centre features three pools in its pool hall, including a 25 metre main swimming pool. The centre is operated on behalf of the local authority by Serco Leisure, which was concerned by the energy use of the air handling unit (AHU) in the upper pool area. To deal with a condensation problem in the pool hall, this AHU was being run 24 hours a day, 365 days a year, with no control over its output.

To improve this situation, Serco asked ABB Drives Alliance member Mid Kent Electrical (MKE) to investigate the application and determine any savings that could be made. MKE's Russel Kimpton says: "We already carry out motor and pump work for Serco at several of the leisure centres they operate locally. Serco asked their usual contact in our motor department if we could quote for fitting drives to their existing systems."

To assess the application, MKE monitored the power being consumed by the existing 22 kW supply fan in the AHU over a period of one week, revealing that the average power consumption of the fan during the period was just less than 19.5 kW.

The second stage of the trial involved replacing the star/delta starting system with a 22 kW ABB standard drive for HVAC. Running at full speed during the day, this was set to run at 30 Hz between 2220 in the evening and 0620 in the morning. This was monitored over the same period as the direct-on-line system, giving an average power consumption of 14.84 kW.

With an electricity cost to the leisure centre of 10p/kWhr, running the AHU fan unregulated would cost just over £17,000 per year and be responsible for around 92 tonnes of CO₂ per year. By contrast, operating it with the ABB drive would cost £13,000 a year, a saving of just over £4,000 per annum. It would also cut equivalent CO₂ production to 70 tonnes a year. This would give a payback period of well under one year.

Says Kimpton: "There is scope for further savings during the day. Once the full time drive is installed, its speed could be scaled back in say 5 percent increments to a point just before we start to see the condensation problem again."

As well as the upper pool hall AHU, there is another AHU in the lower pool hall and one in the gymnasium that could also potentially benefit from ABB drives.

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Caption: A leisure centre in Sittingbourne, Kent, is set to save £4,000 a year on the costs of air handling for its swimming pool following the trial with an ABB low voltage drive.

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