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# Leisure centre operator cuts electrical energy costs by 30% with ABB drives

Places for People Leisure has reduced electrical energy use at 60 swimming pools by installing variable speed drives on pool circulation pumps and air handling unit fan motors.

A leisure centre operator has cut energy use at its pools by 30 percent following the installation of ABB variable speed drives (VSDs).

ABB drives rated between 4 kW and 30 kW have been installed on air handling units (AHUs) and pool circulation pumps in 60 of the leisure centres operated by Places for People Leisure. This has significantly reduced power consumption by 30 percent by matching the speed of the motors driving the applications to the required demand.

AHU fan motors in older systems are frequently oversized and will operate at full speed 100 percent of the time, regardless of demand. By installing VSDs, the fan speed can be reduced to match actual demand.

Pool pump motors are also frequently oversized because it is difficult to predict exactly what the demand will be once the system is in operation. Oversized pumps draw power unnecessarily to feed a demand that does not exist, which often results in flow having to be reduced by being manually throttled. VSDs will reduce the speed of the pool circulation pump motors, particularly during periods of low bathing loads, while ensuring water quality is maintained in line with the *Pool Water Treatment Advisory Group (PWTAG)*'s requirements.

Places for People Leisure operates the swimming pools and leisure facilities for 36 local authorities across the UK.

“Places for People Leisure is committed to achieving energy and environmental efficiencies. We continue to strive to reduce our carbon footprint and recognise the benefit of variable speed drives,” states Chris Williams, environment and sustainability manager at Places for People Leisure.

The ABB drives were retrofitted by Powermaster Leisure Limited, a company specialising in energy-saving technologies. The VSDs on both the pool circulation pumps and the AHUs reduce motor speed by 10 percent during the day and 20 percent at night, giving a total energy saving over a 24-hour period of approximately 30 percent.

John Moffatt, managing director of Powermaster, says: “Powermaster has a long and successful relationship with Places for People Leisure. Its desire to reduce energy consumption has seen our two companies work very closely on many projects. Furthermore, Powermaster has been given excellent support by ABB.”

ABB's VSDs are well designed and robust enough to withstand the demanding conditions of swimming pool plant rooms, says Moffatt. “The vast majority of Powermaster's VSD installations are in swimming pool plant rooms, where the atmosphere can be corrosive because of the chemicals used. It is therefore essential to have a product that can cope, long term, with these conditions. The ABB drives have double-coated circuit boards to protect against such environments.”

He continues: “The temperatures in pool plant rooms can be very high. The hotter the temperature, the less current the drive can deliver. ABB drives operate perfectly well in ambient temperatures up to a constant 50°C.”

The levels of energy savings of the ABB drives are increased still further using Powermaster’s Remote Drive Monitoring system (RDMi), a web-enabled solution developed in-house by Powermaster. This offers remote control of all drives connected to the system. The RDMi allows the user to adjust the speeds and the times of the drives remotely through a desktop, laptop or smartphone. The system will calculate actual energy savings over any chosen period and this information can then be emailed to selected personnel.

The RDMi offers five speed changes during any 24 hour period, so it is possible to tailor motor speeds to match bathing loads thereby maximising energy saving. As an example, Alfreton Leisure Centre had 10 ABB VSDs and an RDMi system installed on pool pumps and AHU fans. This resulted in a 36 percent reduction in energy use.

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**Caption:** Six ABB medium voltage motors are providing the compression stage for the world’s largest district-wide natural heat pump system.

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