

Case story | VACON® 20

AC-drive-controlled pool pumps make cool savings



Did you know that pool pumps run 95% of the time at reduced speed? Or that AC- drive-controlled pool pumps can save energy by up to 70%? Davey – a world leader in pool and spa equipment – has selected VACON® 20 Cold Plate to control their pool pumps to save energy. Lots of energy!

Davey Water Products manufactures and distributes a comprehensive range of products for transfer, conservation, treatment and filtration of water. Davey is a market leader in Australia and New Zealand, and they also export to over 50 countries globally.

Pool pumps make up a strong contribution to the Davey business. First introduced in the mid 1980's Davey have manufactured 100's of

thousands of pool pumps over the past 30 years. Their current pool pump range operates either on fixed speed or a 3-speed mode.

Generally speaking, the disadvantage of pool pumps is that 95% of the time they run at reduced speed. Full speed is required only 5% of the time during cleaning of the filters, resulting in significant energy wastage. This is a major issue, for instance, in Australia where pool pumps are the second biggest consumers of energy after air conditioning systems.

There is, however, a simple solution to improve energy efficiency: Use an AC drive to control the motor of the pool

pump. Davey defined the following requirements for the drive:

- Power 0.75 kW, single phase in, 3 phase out
- Easy and flexible integration into pool pump housing
- Suitable for an ambient temperature up to 60°C
- Possibility to develop their own software application
- Option slots available for future features
- Suitable for indirect water cooling
- Low leakage RFI filter to make it suitable for a domestic earth leakage device (RCD)
- Possibility to run on solar power
- Availability of local technical support



Davey's Silensor® Pro VSD Controlled pool pump with water-cooled VSD and motor.

Photo courtesy of Davey.

Davey evaluated several brands and chose the VACON® 20 Cold Plate.

"The VACON® 20 Cold Plate, with its features and benefits, perfectly met our needs. It was ready to go and designed to be integrated with our pool pump. Another positive aspect was that we were able to design our own software application".

Joel Gresham, Manager Product Development, Davey

Patented design uses losses for heating the pool water

Davey's fixed-speed pump motor is cooled by using the pool water. This is a patented design. The Cold Plate construction of the VACON® 20 was ideally suited to be cooled with the pool water. This way the losses of both the motor and the AC drive will be transferred to the pool water and used for heating the water. This provides additional energy-saving benefits and is especially important in cooler parts of the world.

Happy to help

Davey set Vacon a challenging timeframe. The time between first contacts, signing the contract, developing the product and delivery of the first 1000 units was minimal. With the support of the factory in Italy Vacon met these challenges.

Flexibility and mutual understanding are important. "The Vacon team is great to work with! They are always friendly and happy to help out. Contact with the factory has also been very good and we have received responses to

questions quickly. Also our end users have responded positively to the pool pumps being integrated with VACON® 20 Cold Plate. They are easy to use and quiet," says Joel Gresham. "It's been a pleasure working with Vacon and I'm looking forward to additional projects!" he concludes.

This case story was originally released before the merger of Vacon and Danfoss Power Electronics was fully completed on 15 May 2015. As a result, Vacon as a company brand no longer exists and contact persons mentioned in the story may have changed. Future case stories on VACON® products will be released on behalf of the new organization – Danfoss Drives – which is part of the Danfoss Group.

Mr Gresham is impressed with the energy saving benefits: "When a VACON® 20 Cold Plate AC drive is used for controlling the motor of the pool pump according to changing needs, energy saving benefits can be up to 70%! This means AUD 400–700 a year (EUR 287–500)". Thanks to AC drive control, the pump is also even quieter, which is a major benefit in many installation environments. Furthermore, starting and stopping is smooth, which reduces mechanical stress to the seals and bearings and maintenance needs.