KRS-Vesi is responsible for water supply in the Kristinestad area on the west coast of Finland. Controlling the pumps – the workhorse in the water supply – with VACON® 100 FLOW AC drives results in an even flow and reduces pressure spikes in the pipes. The VACON® 100 FLOW is the newest range in Vacon’s third-generation VACON® 100 product family, and is dedicated to improving flow control in pump applications.

VACON® 100 FLOW combines the core design of VACON® 100 with dedicated functions that benefit flow control processes. The new AC drive also improves the efficiency and redundancy of pump systems, offering advanced features such as Multimaster and Multifollower for controlling multiple pumps simultaneously.

When KRS-Vesi saw that modernization was necessary at their Friiveli booster station and Osvald waste water pumping station, their pump supplier Grundfos included seven VACON® 100 FLOW AC drives in the power range 5-15 kW in its offer. Three of the VACON® 100 FLOW units are installed at the Friiveli booster station and four units are at the Osvald waste water pumping station.

Each pump is controlled by an AC drive – smoothly
Before modernization, a conventional pump solution was used at the Friiveli booster station: the main pump was controlled by an AC drive, and a separate contactor unit was required to switch on two auxiliary pumps. After modernization, each of the three pumps is controlled by its own
"The Multipump Multidrive system improves redundancy. Starting the pumps smoothly decreases the stress on the electrical network and mechanical parts and reduces pressure spikes in the pipeline,” says Kimmo Äijö, Service Technician at Grundfos Pumps.

Commissioning the VACON® 100 FLOW drives is easy and quick and does not require any special skills. “Multipump Multidrive is a modern solution whereas an AC drive-contactor-combination is yesterday’s technology. We have found the AC drive application to be very good and recommend it to our pump customers,” says Kimmo Äijö, who has been working together with Vacon for more than 10 years.

Even flow and pressure

Pump control with the help of AC drives also brings other benefits, such as improved process control and optimum pump control. According to Grundfos’ Kimmo Äijö, the most important benefits of the VACON® 100 FLOW units at KRS-Vesi are a steady flow and pressure. “Thanks to the process control enabled by the VACON® 100 FLOW AC drives, the flow rate from the Osvald wastewater pumping station to the wastewater treatment plant is steady. At the Friiveli booster station the VACON® 100 FLOW drives keep the pressure stable.”

Energy and space savings

Energy savings are one of the most important benefits that AC drives bring. Process control with the help of AC drives can reduce energy consumption by 20-50%. The greatest savings are seen in pump and fan applications, when the speed of the motor is constantly adjusted according to process requirements. The power required by the drive is proportional to the third power of the speed. This means that even a small drop in speed leads to huge energy savings. AC drives technology also reduces the need for space and cabling. All VACON® 100 FLOW drives delivered to KRS-Vesi were provided in splash-proof IP54 enclosures, which can be installed on the wall in the close vicinity of the process. This brings space savings in cramped electrical rooms and reduces the need for cabling.

The VACON® 100 FLOW drives have been controlling pumps at KRS-Vesi since May-June 2013. “We are very satisfied with the solution,” says Ari Hakala, Maintenance Manager at KRS-Vesi.

KRS-Vesi was familiar with VACON® AC drives technology even before the VACON® 100 FLOW units were installed. The VACON® CX and VACON® NXS range of drives have been used for years at their water treatment plant and other water intake plants.

OY GRUNDFOS PUMPUT AB is the Finnish sales and service company of Grundfos Group. Grundfos is one of the leading pump manufacturers in the world and employs about 80 pump professionals in Finland. The company offers energy-efficient pump solutions for facility, building and municipal needs, as well as for industrial use. The most important product segments are circulators, booster submersible, drainage, dosage distribution and sewage pumps and pumping stations, as well as mixers, homogenizers, automation equipment and monitoring/control units.

This case story was originally released before the merger of Vacon and Danfoss Power Electronics was fully completed on 15 May 2013. 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.
Danfoss Drives

Danfoss Drives is a world leader in variable speed control of electric motors. We aim to prove to you that a better tomorrow is driven by drives. It is as simple and as ambitious as that.

We offer you unparalleled competitive edge through quality, application-optimized products targeting your needs – and a comprehensive range of product lifecycle services.

You can rely on us to share your goals. Striving for the best possible performance in your applications is our focus. We achieve this by providing the innovative products and application know-how required to optimize efficiency, enhance usability, and reduce complexity.

From supplying individual drive components to planning and delivering complete drive systems; our experts are ready to support you all the way.

We draw on decades of experience within industries that include:

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- Food and Beverage
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You will find it easy to do business with us. Online, and locally in more than 50 countries, our experts are never far away, reacting fast when you need them.

Since 1968, we have been pioneers in the drives business. In 2014, Vacon and Danfoss merged, forming one of the largest companies in the industry. Our AC drives can adapt to any motor technology and we supply products in a power range from 0.18 kW to 5.3 MW.