

Case Evides Waterbedrijf  
Energy efficiency and reliability for drinking water





Evides has pioneered the first use of ABB's low-energy SynRM motor and variable frequency drive technology in the Netherlands.

The Nieuwdorp water pumping station is built according to the 'two street' principle, ensuring that there is always at least one pump set completely redundant to secure continuous water supply.

Customer benefits with the SynRM motor-drive package:	
<b>Lower energy consumption</b>	Helps save money, while also helping Evides meet its ambitious energy and CO <sub>2</sub> emissions targets
<b>Lower noise and heat emissions</b>	Runs quieter and cooler, for a better working environment
<b>Easy-to-use operation</b>	Intuitive control panel makes it accessible to all operators
<b>Less maintenance</b>	Due to fewer moving parts, less heat and less wear

**Evides Waterbedrijf has a proactive philosophy of looking for new technologies that can give both operational as well as environmental benefits. Their latest pumping station project, where the company pioneered the first use of the low-energy SynRM motor and variable frequency drive (VFD) technology in the Netherlands, is a good example. The result is reduced energy consumption and CO<sub>2</sub> emissions, as well as cost savings.**

integration into the landscape as well as silent operation. The station building is hidden under grass banks on three sides, blending nicely into the green countryside.

The capacity expansion was done both to ensure water supply for the future, while at the same time giving savings in energy consumed for pumping. The project involved a completely new "two-street" pumping station which replaced several older stations. Each street includes three 250 kW motors pumping water from three storage reservoirs with total capacity of approximately 12,000 m<sup>3</sup> of purified water.

### Pioneering new technology for water industry

Evides is the first company in the water-supply business to apply ABB's energy-saving synchronous reluctance motor (SynRM) technology, controlled by ABB ACS880 industrial drives. The water sector is known to be very careful about taking any risks that might disrupt water supply, but Evides immediately saw that the advantages clearly outweighed any risks.

The SynRM rotor geometry means it has no rotor-current energy losses, which in an induction motor can add up to a 40% total energy loss. The result is

While many companies in many industries are often hesitant to try new technologies, Evides instead chooses to be a leader in implementing new technologies to improve energy efficiency. "The philosophy of Evides," says Joost van Belzen, a Project Engineer at Evides, "is to lower our carbon footprint and look for energy savings in innovative ways such as energy-saving drives and motor combinations, or the solar panels that we are installing on buildings."

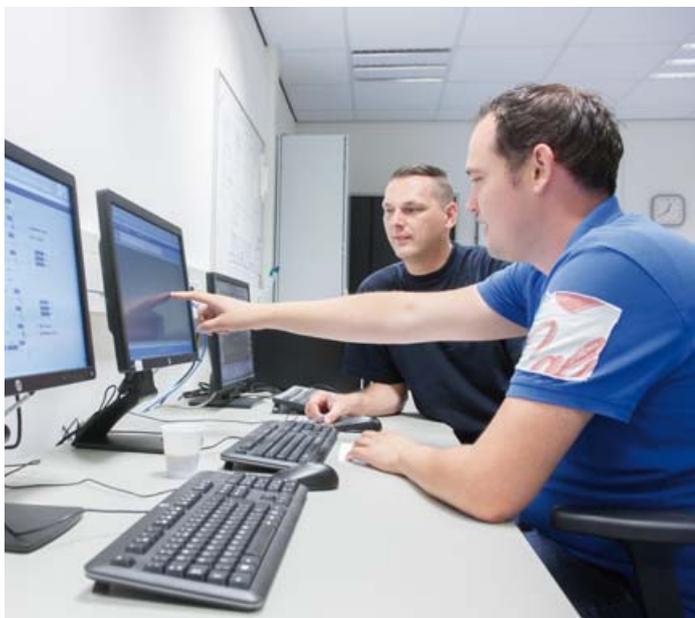
### Consideration for nature, environment and landscape

Evides recently built a new pumping station near the small village of Nieuwdorp in the province of Zeeland. The modern station was designed in cooperation with the local municipality and residents to ensure a natural



**Toine Rijdsdijk, Process Automation Engineer at Evides**

"We wanted to be the first one in the Netherlands to experience the benefits that the SynRM motor gives in combination with the variable frequency drives," says Toine. "We were convinced early about the significant energy savings benefits, as well as cooler and quieter operation due to the fact that the motor has a special rotor design without any losses. After two years of running we have not had any problems."



Reliability and energy efficiency of SynRM motor and drive package were key factors in choosing the equipment for the next 20-30 years, say Joost van Belzen and Toine Rijdsijk who were closely involved in the building process of the station.



Dietrich Houtepen finds the operating system of the drive very easy to use for everyone from operators such as himself to other Evides staff.

greater efficiency with reduced energy losses, lower dissipated heat loss from the motor and a longer bearing lifetime.

#### Estimated 20% energy savings

Energy savings achieved with the new motor-drive solution are estimated to be around 20% compared to the induction motors used in the old stations. “Energy is a hot topic within the company and the SynRM solution helps us save energy,” says Joost, who worked as the Site Manager responsible for building the new plant. “It is clear that the new motors are much cooler, meaning heat and energy losses are lower. In addition, the noise levels are much more reduced as well.

**Another advantage, explains Toine is that “the operating system of the drive is very easy to use, for everyone. So it is accessible to everyone. Overall we are very satisfied and the motor is a success for us. We call it ‘the Golden Motor’.”**

A key reason Evides was comfortable trying this new technology was its trust in the quality that ABB has offered for many years. “Over a long time,” states Toine, “we have had the best experience with ABB quality concerning reliability, service, and engineering. The SynRM

package convinced us that this was the best solution for the new Nieuwdorp station, and quality was the common denominator.”

#### Day-to-day responsibility to deliver water

The operational people at Evides are also happy with the SynRM. “We are required to deliver water to our customers with absolutely no interruption in supply,” says Dietrich Houtepen, the Production Engineer at the new Nieuwdorp plant. “The access to fresh water is a civil right required by law in the Netherlands. Therefore, we can take no risks when implementing new technology.”

Ultimately it is his day-to-day responsibility to ensure stations run smoothly, guaranteeing the continuous supply of the water without any problems. “Downtime, meaning time which we cannot actually deliver drinking water to our customers’ homes in the region, is counted in seconds per year. When we saw the SynRM package we were confident of the long-term reliability of the technology. It is important when we are selecting equipment that it will run for years without any trouble.”



#### About Evides

Evides Waterbedrijf supplies much of the drinking water and industrial water in the southern half of the Netherlands. It provides reliable and tasty drinking water to 2.5 million clients in its home market which includes the southern part of the province of Zuid-Holland, the entire province of Zeeland, and the Brabantse Wal. Evides also supplies industrial water for manufacturing processes to companies throughout the Netherlands, as well as offering industrial water consulting services in numerous countries.

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