



### “We save over 50% energy by using NFO Sinus®”

Karlskrona Municipality has conducted several energy saving projects in the municipality’s water, sewage and cleaning works, where pumps in the raw water wells are controlled by NFO Sinus® frequency inverters.

“By installing NFO Sinus® we can reduce the energy consumption of the pumps by over 50%,” says Anders Nilsson who is leading the electrical installation project at the municipality’s water and sewage works. “This means that the installations will rapidly pay for themselves, often between one and two years. NFO Sinus® was the only inverter that could cope with the technical conditions in our applications.”

“Groundwater is collected into our network via raw water wells,” says Anders Nilsson. “These pumps are often located at a depth of 50 metres or more, and the distance to the circuit panel is several hundred metres in some cases. As the NFO inverters can be installed in unshielded cabling and can also handle long cable distances, we can use the existing cabling. We therefore avoided the difficulty and expense of laying more than 250 m shielded cabling, which would have been the case if we had chosen conventional inverters. In addition, the signal cable to the sensors could remain together with the power cable at the bottom of the well without any interference to the surrounding electronic apparatus.”

“Previously we ran the pumps by an engine drive, which was choked with a manual valve. This consumed far too much energy. We had problems controlling the pumps in the optimum way and also risked them dry pumping. We were forced to drive out to the raw water well to change the setting manually – now we can take care of everything centrally.”

“Being able to situate the NFO inverters in the circuit panel several hundred metres from the pumps has been a major advantage in our purification work. This is a very aggressive environment due to the hydrogen sulphide in the air; however we can now situate the inverters in a considerably “nicer” environment. The new way of running our pumps means that we achieve a much better function with higher operational safety whilst simultaneously saving a lot of energy,” says Gunnar Pettersson, head of the electrical department at Karlskrona Water and Sewage Works. “NFO Sinus® is the only inverter that we could install in this way. We have now completed one part of the project and will continue to make energy efficiencies at more works in the municipality.



The measured value		
Raw water pump	Flow	Energy consumption
Fully open valve	17 m <sup>3</sup> / h	4,31 kW
Choked valve	8,6 m <sup>3</sup> / h	3,53 kW
Controlled with NFO Sinus®	8,6 m <sup>3</sup> / h	1,67 kW
Energy saving is approximately 53% at flow controlled with NFO Sinus® compared with choked flow.		

Photo: NFO Drives AB



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From the left: Anders Nilsson, project leader and Gunnar Pettersson, head of the electrical department at Karlskrona Water Water and Sewage Works.



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