

IVF Hartmann AG, Neuhausen a.R.

In 2016, IVF Hartmann decided to replace its ageing pumps by more recent and efficient models. These three pumps are responsible for about 5% of its electricity consumption, with an annual consumption of 170 MWh (approx. 25 600 CHF). An analysis of the system showed that the required redundancy (n+1) was no longer guaranteed with the current design.

With the replacement of the pumps by three more efficient close-coupled pumps with a highly efficient IE4 induction motor and a frequency converter, as well as the replacement of the whole control system, the pumps also run smoother.

The electricity consumption can thus be reduced by 53 MWh to 117 MWh, resulting in a saving of more than 8000 CHF per year. With a total investment cost of 31 000 CHF, the payback period is just under four years.



In addition to replacing the pumps, the whole piping (from the reservoir to the feed point of the internal distribution network) will also be refurbished. The investment costs for the general overhaul of the entire pumping station are estimated at 200 000 CHF.

Comparison before / after		
	Before	After
Pumps	<ul style="list-style-type: none"> ■ Häny 4504/3 modular pumps at several levels with standard IE1 Leroy Somer F motor ■ Lovara SV808 pump with standard IE1 motor 	<ul style="list-style-type: none"> ■ Flowserve SIHI close-coupled pumps with 160M IE4 Siemens motor
Quantity	Two 15 kW pumps and one 4 kW pump	3 pumps at 15 kW IE4
Operating hours	4400, resp. 5400 h/year	4400, resp. 5400 h/year
Energy consumption	170 846 kWh/year	117 377 kWh h/year
Electricity cost	25 627 CHF/year	17 606 CHF/year
<ul style="list-style-type: none"> ■ Electricity saving per year: 53 468 kWh/year ■ Cost saving per year: 8020 CHF ■ Payback: 4 years 		



Former high-pressure installation with 2 Häny 4504/3 pumps (from 1992) and 1 Lowara SV808 pump for maintaining the pressure (2001).

The pumps ensure a constant pressure in the distribution network. In addition to the whole drinking water system for the staff, the network supplies the installation for producing ultra-pure water for the production process, as well as various cooling processes. An Olaer expansion tank of 300 litres, anti-shock and pressure equaliser, will be installed in order to protect the pumps and the network against pressure surges.

The project will be implemented by the company QSW Ingenieure GmbH. 30% of the costs for replacing the pumps will be covered thanks to a subsidy from the pumps support programme of Energie Zukunft Schweiz (www.pumpind.ch), which makes the project financially attractive.

Topmotors

About one-third of the electricity consumption in Switzerland comes from the industry. More than 70% is due to electric motor systems. Topmotors' priority is to give an impulse by encouraging the use of highly efficient motors and intelligent controls. All the Topmotors events, together with practical information, can be found here:

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New system with redundant pumps and renewed pipework.
Picture: Stefan Hartmann, Presseladen.