

Before



Retrofitted
with
HYDROVAR

Energy Saving Water Supply

HYDROVAR - A GREAT DEAL FOR WATER SUPPLY!

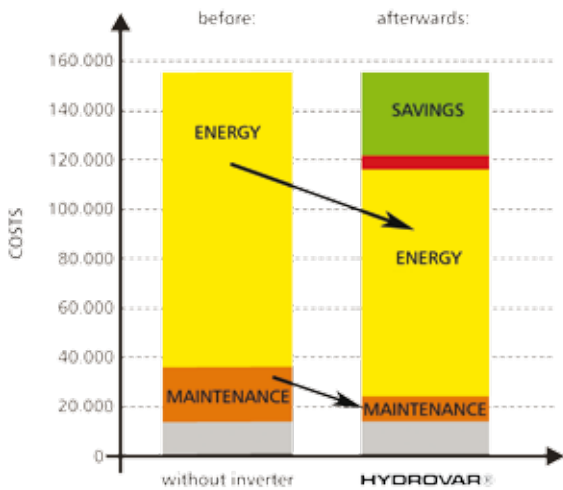
Reduced energy costs

Recently the cost of electricity has increased enormously which has seriously affected us all, particularly water suppliers and those boosting water supplies. Old pumps in water supply stations or in package booster units work very uneconomically due to their antiquated control. This is not necessary! A retrofit to a modern cost saving system is easy with a possible payback time as low as only a few months.

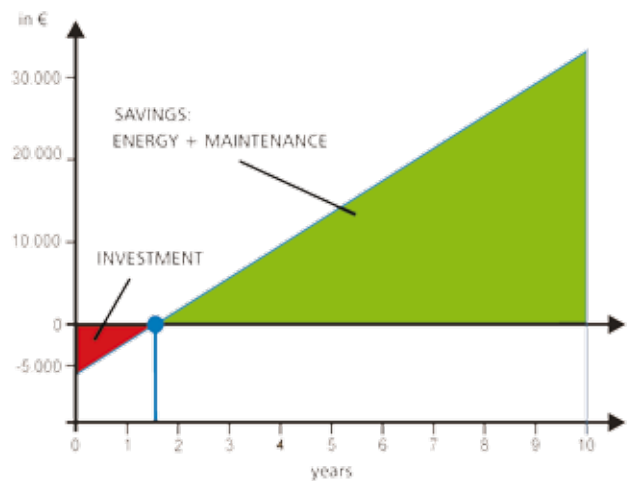
The HYDROVAR variable speed control when added to existing plant reduces energy consumption substantially and protects the environment with lower CO2 emissions. HYDROVAR can be mounted on all standard asynchronous motors.

Energy costs represent the lion's share of the life cycle costs as shown in the diagram below; yearly thousands of Kilowatts can be saved!

Life cycle costs of a pump station (10 years):



Payback time and savings:



■ First Installation ■ Retrofit



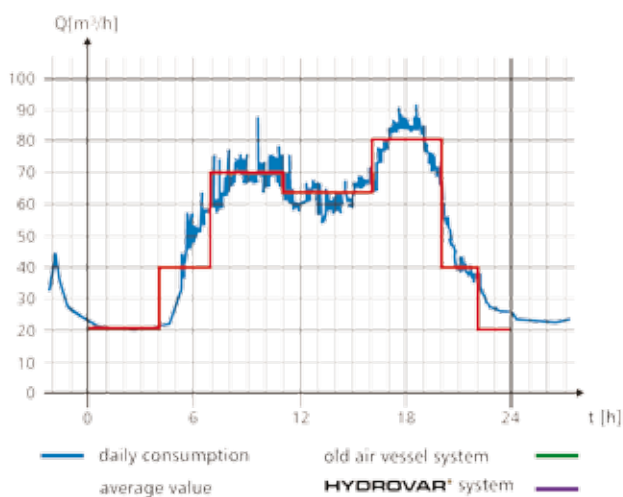
Constant pressure

Everybody knows how unpleasant it is if water pressure is varying. During the day, the total amount of water consumption changes, but the pressure should always be constant. Traditionally this problem was solved by vessels and pressure switches (green line, below). Such systems are still in use; however they are very inefficient and waste precious energy (yellow area, below).

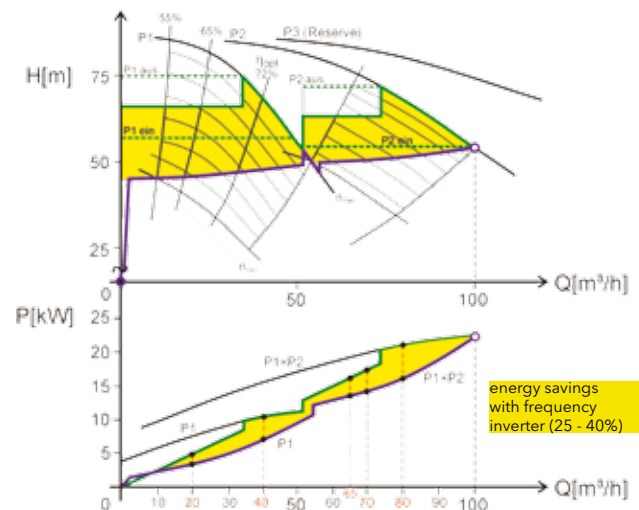
The HYDROVAR controls the speed of the pumps depending upon the flow demand (purple line, below). Pressure losses in the pipeline are compensated automatically.

Example on a water station with 1250m³ consumption daily:

Daily consumption:



Comparison: old system / retrofitted with HYDROVAR:



Water consumption Average	Energy consumption			Period	Savings
	Before	Afterwards	Difference		
by 20 m ³ /h	5,0 kW	3,5 kW	1,5 kW	6h	9,0 kWh
by 40 m ³ /h	10,5 kW	7,0 kW	3,5 kW	5h	17,5 kWh
by 65 m ³ /h	16,0 kW	13,0 kW	3,0 kW	5h	15,0 kWh
by 70 m ³ /h	17,0 kW	14,0 kW	3,0 kW	4h	12,0 kWh
by 80 m ³ /h	21,5 kW	16,0 kW	5,5 kW	4h	22,0 kWh
Savings per day					75,5 kWh
Yearly savings					27.557,5 kWh

Smaller maintenance costs

Traditional (vessel and pressure switch) systems cause pressure peaks by their continual start/stop operation. This causes mechanical stress to the pumps, valves and the pipe system. The final result often is a shorter life span of components.

With the HYDROVAR continuous and smooth running of the pumps is ensured. Dangerous water hammer will not occur anymore. Upon no demand, the pumps are turned off immediately.

Disadvantages of pumps without speed control:

Advantages of HYDROVAR:

Power consumption	Waste of energy caused by inefficient old system	With the intelligent speed control (patented) huge energy savings can be achieved
Pipe pressure	Troublesome pressure fluctuations	Constant water pressure
Stress	Mechanical stress for pumps, check valves and the pipe system due to permanent on/off operations	Smooth and steady operation. Soft starting means less stress for the motor and pump
Suction side	Unnecessary suction pressure fluctuations	Continuous suction and protection of the well
Incoming side	Intermittently operation also affects customers	Always constant pressure, pipe losses are compensated
Noises	Noises due to permanent closing valves	Quiet operation
System protection	Need of many additional safety devices such as motor contactor, and overload	All necessary safety features are already implemented in the HYDROVAR
Additional equipment	Costs for service and replacement of additional devices such as switchboard, compressors or the inspection of air vessels	All functions of control are included in the HYDROVAR
Multi-pump control	Only possible with a complex and expensive control system/panel	Multi pump control for up to 8 pumps with automatic pump alternation. Synchronous controlled operation
Central building control systems		Prepared for MODBUS connection



Cost effective retrofit

The HYDROVAR can easily be mounted on almost all standard asynchronous motors. No changes to the existing hydraulic system are necessary. Control panels, big vessels, compressors or pressure reduction valves are not necessary with a HYDROVAR.

HYDROVAR is available in following versions:

motor mounted version up to 22kW, wall mounted versions up to 45kW.

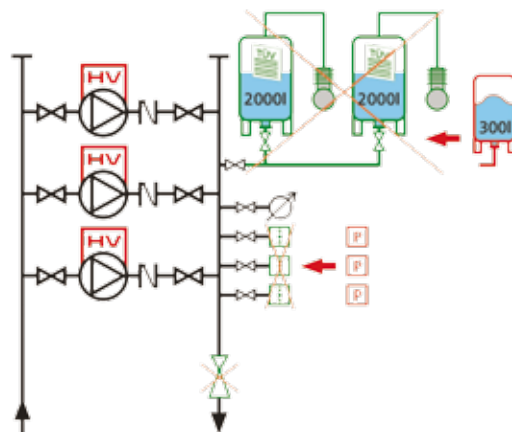
Pumps from 55kW to 525kW are also covered using the HYDROVAR SMART system.

Up to 8 pumps can be linked together without any additional control unit.



HYDROVAR - directly mountable on all standard asynchronous motors up to 22kW

Schematic: former hydraulic system → retrofitted system



Small 300 lt diaphragm tank substitutes all large air vessels

Transmitter instead of pressure switches

Pressure reduction valves are redundant with a Hydrovar

Further energy savings can be achieved when using high efficient motors IE2 and higher.

Please ask our customer service for details of HYDROVAR and the new efficient Xylem pumps.

Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're 12,000 people unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

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Xylem Water Solutions Austria GmbH
A-2000 Stockerau
Ernst Vogel-Straße 2
Tel +43-2266-604
Fax +43-2266-65 311
info.austria@xylem.com
www.xylemaustria.com