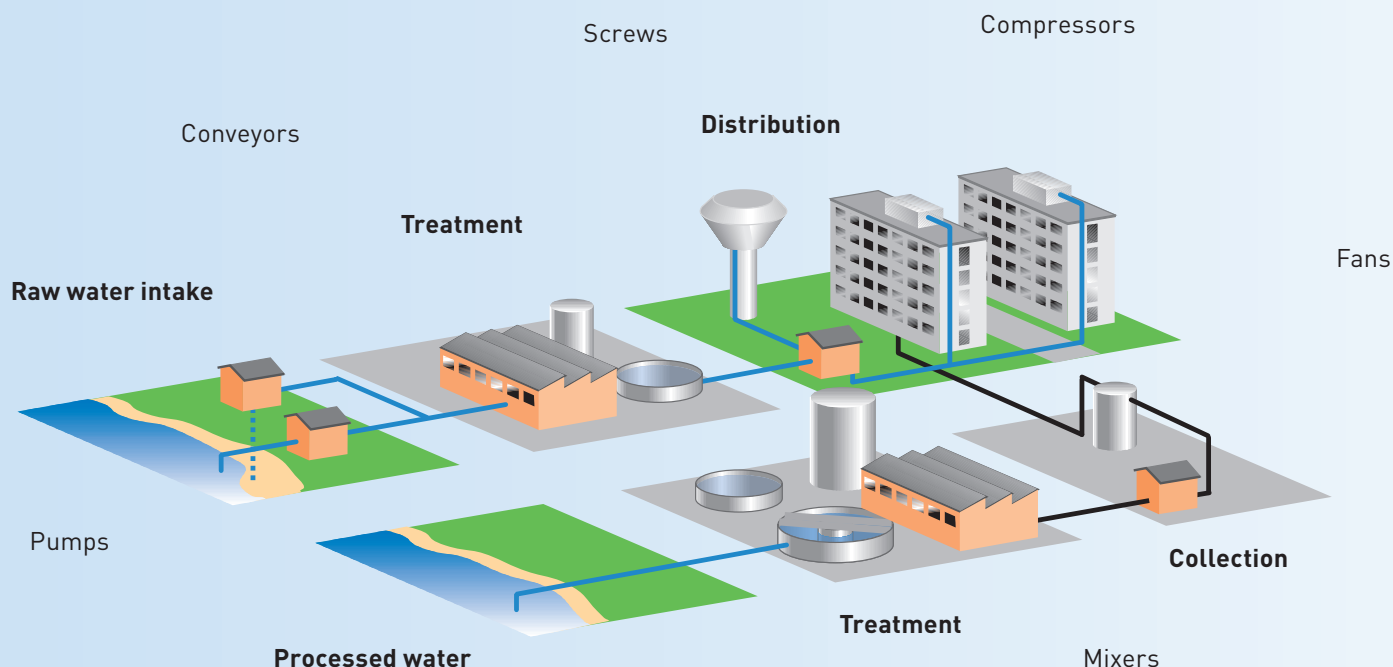




**VACON AC DRIVES  
FLEXIBILITY IN WATER HANDLING**

**VACON**  
DRIVEN BY DRIVES



Combined with increasing requirements for process quality and economy, the use of AC drives has increased in all areas of water treatment and distribution. The growing demand for water supply and water treatment systems boosts the market for pumps in both the wastewater and the drinking water sector. Between 1997 and 2004 alone, the estimated market growth in both segments was more than 50%.

Vacon's professional and innovative personnel offer the complete range of AC drives for the water industry, with global sales, support and service network. Our drives can substantially improve the quality and efficiency in all water handling applications.

### Energy savings

Rising energy prices, environmental legislation and process improvement are key issues when designing water handling systems. Use of the Vacon AC drives for flow and pressure control instead of dampers or valves gives substantial energy savings resulting in short payback time of the initial investment.

### User-friendly

The Vacon AC drive is a compact package and still have everything necessary integrated as standard. Together with well-designed mechanical construction and easy usability, this will minimize your installation time.

### System integration

The flexible connections with multiple fieldbuses, serial interfaces and expandable I/O together with proper informa-

tion and diagnostics are the native features of all Vacon AC drives. Comprehensive run-time self-supervision and alarm systems enhance the reliability and safety.

### Comprehensive support and service

Our local and global service network gives a fast and professional response wherever and whenever it is needed, 7 days a week, 24 hours a day.

### No pressure spikes

In direct online starts, the equipment is subject to a high stress. Vacon AC drives gradually ramp the motor up to the operating speed, decreasing the mechanical stress. The extended lifetime of the mechanics and pipes also means lower maintenance and repair costs.

Using single-speed starting methods results in abrupt motor starts and stops as well as in a high level of current from the supplying network to the motor. Using Vacon AC drives, the starting current from the supply will be much lower, and the high starting torque is still available when needed.

# ROBUST PROCESS CONTROL WITH VACON NX

## Quality and reliability

- Unique modularity and robust construction
- Each drive tested at maximum temperature and at full motor load prior to shipment
- All drives made of high-quality components for long lifetime
- Varnished PCBs available as option for better protection in a harsh environment
- Comprehensive run-time self-supervision and alarm system for enhanced reliability and safety

## Versatile control and integration

- Motor flux optimisation for reduced energy consumption during low-load hours
- Wide range of special application software available, e.g.
  - Integrated PID
  - Multiple pump and fan PFC solutions
- Flexibility in communication via multiple fieldbuses (Profibus DP, DeviceNet, Modbus, CANopen, etc.)
- A large selection of I/O cards available for different applications
- Parallel operation of motors with a single AC drive

The Vacon NX product family is designed to fulfil the requirements of all water handling needs with a single product line.

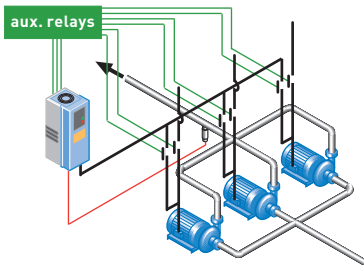
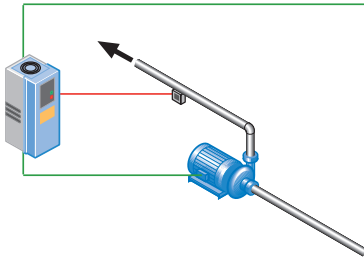
## Easy installation, commissioning and service

- Integrated RFI filters for all environments
- Integrated AC choke for maximum protection and reduced harmonics
- Compact, IP54/IP21 same dimensions
- Start-up wizard for easy commissioning
- Dedicated preset parameters
- Parameter back up
- Separated power and control for fast service
- Easily changeable cooling fan
- Fault logger with fault time monitoring data
- Versatile PC tools for loading, setting and comparing parameters and calculating energy savings
- Professional worldwide service and support available 24/7



Vacon AC drives are available from 0.25 kW to 3 MW. The voltage ranges are 208-240 V, 380-500 V and 525-690 V.

# WATER SOLUTIONS APPLICATIONS



The default “All in One” application package and the Vacon NXL Multi-Control Application includes applications for water segment needs as standard:

## PID CONTROL for general pumping applications

The PID control is used in applications where it is necessary to keep one variable, for example the pressure in the water mains, constant in spite of changes in the consumption. The actual value can be selected from analogue inputs, fieldbus or through mathematical functions of these. A direct frequency reference can also be used.

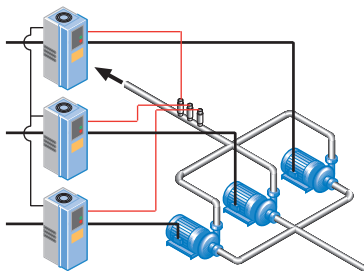
## PFC WITH AUTOCHANGE for pumping with several pumps

In PFC with Autochange mode the converter can define which pump takes the control and which pumps are auxiliary pumps. The pumps are alternated automatically by the frequency converter, guaranteeing equal usage of the system in all load situations.

The Water Solutions application package includes unique applications specifically developed for water handling needs. These applications are available for Vacon NXS as a loadable software package or can be ordered as factory default.

## MULTIMASTER PFC for redundant pumping with several frequency converters

The unique Multimaster PFC application handles PFC logic and autochange with one frequency converter for each pump, providing soft starts and stops also for auxiliary pumps. This in turn results in increased redundancy by allowing the creation of a fully duplicated system from pressure transmitter to pump. Solutions with only one pressure transmitter can also be made.

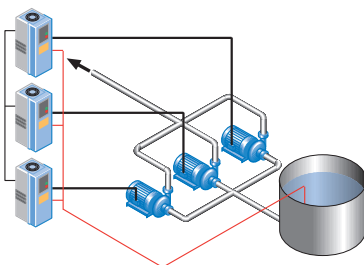


## MULTIFOLLOWER PFC with multi-control of frequency converters

The Multifollower PFC application is based on the Multimaster PFC with simultaneous control of all frequency converters instead of one at a time. This results in smoother process control, quieter operation and, in some cases, increased system efficiency.

## LEVEL CONTROL APPLICATION for sewage basins

Based on the unique Multimaster PFC concept, the Level Control Application is designed to control the water level in a sewage tank. The Level Control Application alternates the water level in the tank to reduce the amount of build-up inside the tank. It also maximizes the buffering capacity of the tank to ensure a stable output to the sewage system and sewage treatment process.



For more information on Vacon Water Solutions: <http://www.water.vacon.com>

Vacon Partner

[www.vacon.com](http://www.vacon.com)