As professionals in the water and waste water industry, your customers often need stand alone, UL Type 1 or 12, multi-purpose workhorse drives. The ACS550 is the drive of choice for many of those customers and is available in wall-mount or floor-standing 6-pulse solutions, as well as packaged 18-pulse, and NEMA rated 3R (N3R) solutions.

The ACS550 is designed for simple installation, commissioning, and use, making it the ideal drive for applications where extensive custom programming is not required.

In addition to saving time at installation, variable speed control can save up to 50% over traditional fixed speed operation. The ACS550 - simple, reliable, and proven - is an ideal variable speed choice for you and your customers.

Highlights
- Readily available
- Powerful pump control features
- Extensive horsepower range
- Multiple enclosure options
- Numerous Fieldbus Adapter Options
- Suitable for cabinet installations
- Customized enclosure options and 18-pulse solutions available

Power and Voltage Range
- 3-phase, 208 to 240 V +10/-15%
  0.75 to 100 hp
- 3-phase, 380 to 480 V +10/-15%
  1 to 550 hp
- 3-phase, 500 to 600 V +10/-15%
  1.5 to 150 hp

Standard Options
- UL Type/ NEMA 1, UL Type/NEMA 12, NEMA 3R
- Packaged Drive options include
  - Wall-mount/free standing configurations
  - Integrated circuit breaker or disconnect switch
  - Drive with bypass
- DriveWindow Light 2 software interface
- Expandable relay output and digital interface
- Additional modular communication protocols
- Flange mounting kits

Features
- Integral energy savings monitor and load analyzer provide real time payback and performance information
- Advanced intuitive control panel
- Patented swinging choke for superior harmonic reduction (R1-R4)
- AC line reactor (R5-R8)
- Scalar (V/Hz), Closed Loop, Flux Vector, or Sensorless Vector
- Built-in Modbus RTU and numerous internally mountable fieldbus adapters
- Coated boards for harsh environments
- UL and cUL approved
- Built-in brake chopper (10Hp, 230V / 15Hp, 480V and 600 V)
- Embedded assistants including Start-up, Drive Optimizer, Real-time Clock, Diagnostics, Maintenance, Serial and PID
- Seismic Certification to ICC AC-156 Criteria (VMA-44407-1)
- American Recovery Reinvestment Act of 2009 ("Buy American" or “ARRA”) compliant
Advanced Energy Efficiency in pumping systems
Variable frequency drives (VFDs) save energy compared to other flow control methods such as throttling. There are additional efficiencies achieved through monitoring, analyzing and optimizing VFD system operation. In combination these features contribute to real energy efficiency and value.

The drives software has standard and pump specific features allowing the drive to analyze and optimize the energy efficiency of the pumping process - saving energy, water and time, as well as increasing the equipment life and decreasing maintenance costs. Energy efficiency achieved with the ACS550 can be easily monitored using built-in counters, which display energy savings in kilowatt hours, carbon dioxide emissions or local currencies.

Pump Specific Functions and Features
- Two PID Controllers
  - Process – Used when the speed of the motor needs to be controlled based on pressure, flow, or temperature
  - External – Eliminates the need for additional PID controller hardware, typically used when the load of the motor changes considerably from one situation to another. It can be used in two different ways:
    1) set to control a field instrument (like a valve or damper)
    2) used to trim or fine tune the speed of the ACS550

- Pump-Fan Control mode of operation
  - Control the speed of one motor to vary pump capacity as required
  - Start / Stop one or more auxiliary motor(s) as required with variations in pump demand

- Autochange function – Equalizes duty time between multiple pump motors, reducing wear and tear on single unit, extending life of system.

- Timed Functions – Using the real time clock in the Advanced Control Panel, you can program up to four daily start/stop times, four weekly start/stop/boost times, and connect them together. For example, a user can program hotel pool pumps to start and stop to coincide with different opening and closing hours. (weekdays/weekends).

- Start Delay - After the conditions for start have been fulfilled, the drive waits until the set delay has elapsed and then starts the motor. The start delay function can be used, for example, to control a valve before actually starting the pump.

- Load Analyzer – The built-in statistical tool Load Analyzer saves process data, such as current and torque values, which can be used to analyze energy efficiency of the pumping process.

Chart 1 - Energy Savings

<table>
<thead>
<tr>
<th>Flow</th>
<th>0</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
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<tbody>
<tr>
<td>VFD</td>
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<td>Throttling</td>
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<tr>
<td>Pump</td>
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<td>Cyclic control</td>
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<td>Recirculation</td>
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<tr>
<td>Saving potential</td>
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<tr>
<td>Typical flow range</td>
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</table>

Pumps are often used without speed control. Instead, water flow is controlled by throttling, recirculation, or cyclical control. Chart 1 demonstrates the energy savings of varying the pump speed with a Variable Frequency Drive (VFD). The power consumed is proportional to the cube of the speed. This means even minimal reductions in speed can provide significant savings in consumed power.
Typical Applications

**Aeration Basins** are used in a process referred to as activated sludge. Activated sludge is the biological process whereby microorganisms are mixed through the waste water in the basin using tiny air bubbles.

The ACS550 saves installation and other maintenance costs through the use of built in Pump/Fan Control mode which make it easier to program the drive, and two PID loops, one of which can be used to eliminate other PID controller hardware, saving time and space.

**Pumping Stations**, when combined with a water tower, can save communities large amounts of money. The pumping station is designed to meet the average demand and the water tower compensates during peak demands. When the demand lessens, the pump refills the tank. This process ensures that adequate water pressure is maintained, without investing in excess pump capacity to maintain the peak demand.

The ACS550’s offers a wide horsepower range, simplified user interface, real time clock control, fault logger, and ready availability make it the ideal choice for your lift station operators.

**Irrigation Systems**, whether agricultural, horticultural, or recreational (i.e. golf courses), have a common demand for a reliable and cost-effective water flow. The ACS550 can meet these demands, while offering a variety of additional benefits including an optional NEMA 3R rated enclosure, as standard. In addition, a built-in real-time clock provides actual time and date stamps that control the start and stop times of watering based on the daily demand profile. These features, combined with its ready availability, make the ACS550 the ideal variable frequency drive for outdoor irrigation systems.

**Centrifugal Pumps** transfer fluids, usually through pipes, from one location to another. This is done by sending the fluid into a pump with a spinning impeller which forces the fluid outward against the enclosure and ultimately to the outlet. The spinning motion increases the speed of the fluid and pushes it further along through the pipes. Centrifugal pumps are very common in water applications including well pumps, fountain pumps, and mixing pumps.

With multiple digital and analog I/O options, the ACS550 provides the flexibility to handle the multiple functions often found in centrifugal pump applications. The I/O options, and built-in Modbus RTU (with options for most major communications protocols), allow communication and control connectivity to the desired network. Other important features include lengthy power loss ride-through capability and “flying” start, which ensure process continuity even if the power supply may dip.

No matter where your equipment serves in the water cycle, if you need simple, reliable, and readily available VFDs, the ACS550 may be the drive for you. This drive is only one of the many solutions ABB has for you in the water industry, for more information visit www.abb.us/drives.
Contact us

ABB Inc.
Low Voltage Drives
New Berlin, WI 53151

Phone: (800) 752-0696
Fax: (262) 785-0397
www.abb.us/drives