

VFD

Variable Frequency Drive Pump Station Retrofitting

Go Green With Green Tech!

Are your existing pump stations

- Unreliable?
- Costly?
- Requiring constant maintenance?

The qualified Pump Station Retrofit Technicians at **SiteOne Green Tech** can evaluate every aspect of your existing pump station components, providing cost-effective recommendations for retrofit possibilities.

SiteOne Green Tech offers a complete Turn-Key Solution: Our team will determine if an existing pump system at your location is operating properly and efficiently. A SiteOne Green Tech technician will provide an expert analysis and offer solutions to retrofit and upgrade your pump station to maximize cost savings. Rebuilding seals and motors, and installing a SiteOne Green Tech VFD greatly increases energy efficiency, and with most applications, the cost is recovered within two years.



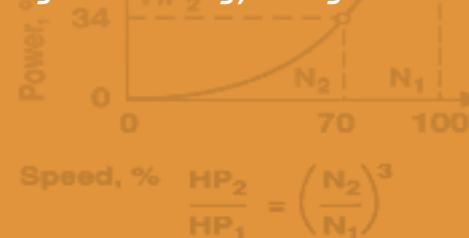
Exterior mounted touch pad for ease of programming.



FEATURES & BENEFITS

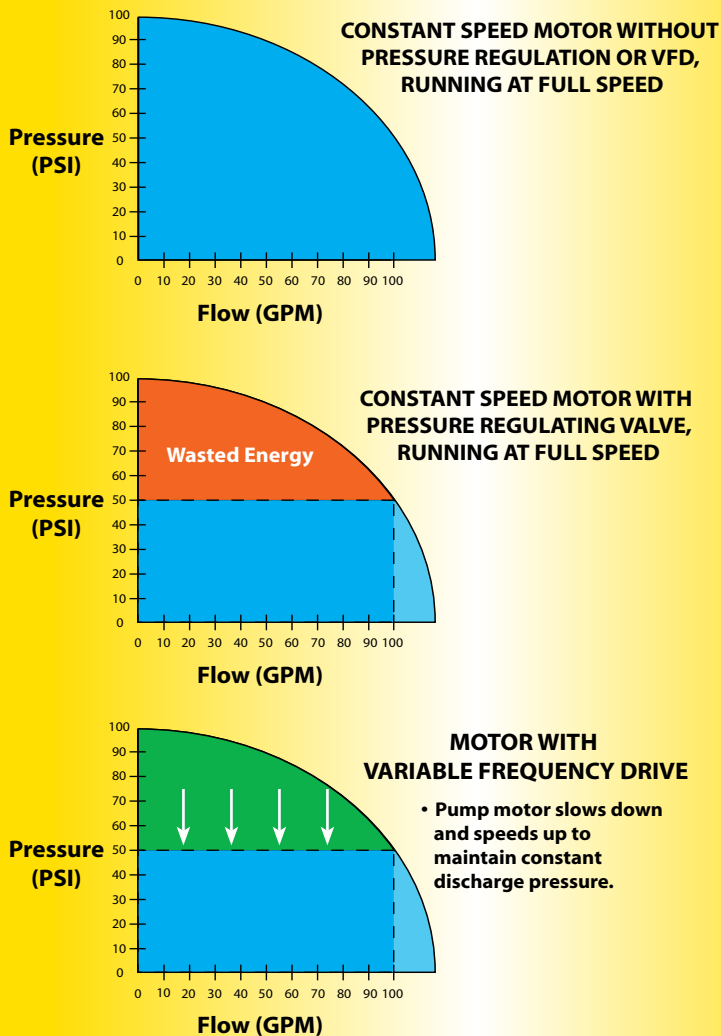
- Improved reliability
- Significant energy savings
- Large scale preventive maintenance
- Less expensive than a new pump
- Less invasive than a new pump
- Fits with most existing pumps
- Protects the motor and wiring from overload currents
- Generates full torque from the motor at very low speed
- Possible rebates through your utilities company or government stimulus funds
- Limits inrush current providing soft-starts and soft stops, greatly reducing the stress placed on piping, fittings, valves, joints, sprinklers, and other in-line components

By applying the **Affinity Laws for Centrifugal Equipment** to your particular circumstance, the use of a **SiteOne Green Tech VFD** can significantly reduce the electrical energy consumption by simply reducing the pump station's motor speed, providing the opportunity for **significant energy savings**.



VFD Variable Frequency Drive

VFD ENERGY SAVINGS COMPARISON



Examples of Affinity Laws at Work

- A motor running at 50% of full speed capacity has a motor torque of 25% of full speed.
- The electricity required to operate the motor at 50% of full speed is 12.5% of the amount of the electricity required if the motor was running at 100% full speed capacity.
- The electricity required to operate the motor at 80% of full speed is 55% of the amount of the electricity required if the motor was running at 100% full speed capacity.
- Thus, reducing the motor speed can significantly reduce the electrical energy consumption.

Affinity Laws of Centrifugal Loads

FLOW is proportional to motor speed.

PRESSURE is proportional to the motor speed squared.

POWER is proportional to the motor speed cubed.

Affinity Laws of Centrifugal Loads

VFD COST SAVINGS EXAMPLE

- A 20 horsepower Centrifugal Pump operating
- 10 hours a day
- 260 days a year
- Energy cost is of \$0.10 cents per kilowatt-hour.
- Cost of running at full speed = \$3879.20/year

Assuming the Pump does not need to run at full speed all of the day, we will use an example of:

- Running full speed [100%] for 25% of the day
- 80% speed for 50% of the day
- 60% speed for the remaining 25% of the day

Cost of running with an VFD controlling the motor:

\$2172.36/year



With Green Tech's turn-key Retrofit solutions, pump stations such as these result in immediate savings of energy, water usage, and cost of operations.

Call your local SiteOne Green Tech Service Representative at **800-427-0779** for a consultation on the ways a VFD Retrofit can benefit your pump stations, and start saving money and energy.

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www.greentech.siteone.com