

DESIGN &  
ENGINEERING  
SERVICES

# VARIABLE SPEED DRIVE DELIVERS ENERGY SAVINGS IN CHILLED WATER SYSTEM



*College of the Desert  
Palm Desert, California*

“Comparing energy use at a constant-flow versus the variable flow rate was a real eye opener. The results led me to question how many other areas at the College could benefit from more efficient use of equipment.”

*Paul S. O'Donnell,  
Director of Operation,  
College of the Desert*



*Variable speed drives save money compared to conventional drives.*

**W**ith assistance from Edison's Technical and Design Services, the College of the Desert in Palm Desert, California is reducing electric usage, electric demand, and lowering costs. The energy-efficient variable speed drive (VSD) installed at the campus chiller plant not only saves more

money than conventional drives, it reduces air emissions as well.

Variable speed drives prove that energy efficiency can be a smarter way to do business. Read further to find out how VSDs can help you reduce chiller plant energy use and cost.



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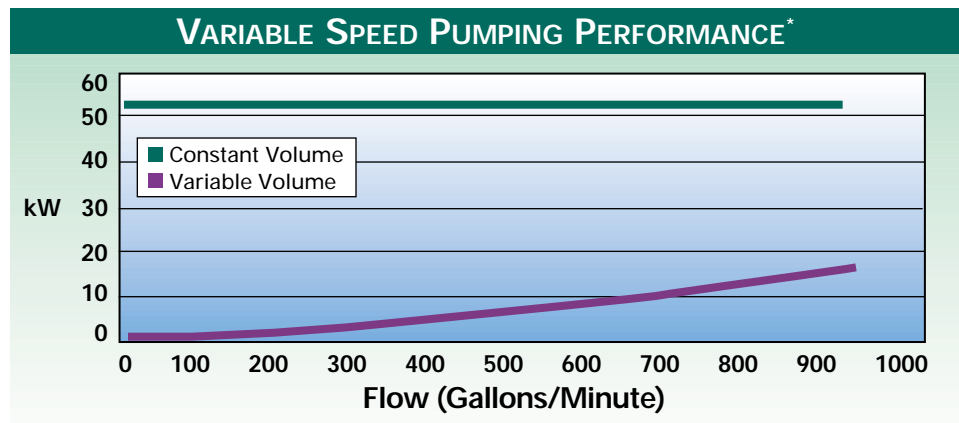
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# USE ONLY THE ENERGY YOU NEED WITH VARIABLE SPEED PUMPING

If you operate a multi-building facility, you too can benefit from a cooling system supplied by a variable speed pump. At the College of the Desert and sites across the country, variable speed pumps are proven to save money and reduce air emissions.

Conventional chilled water plants distribute water at a constant flow rate,

regardless of the actual cooling demand. Since most air conditioning systems only reach peak load a few hours a year, excess energy is often used to run the pumps. You can achieve substantial energy savings by reducing the flow rate proportionately with the system's needs.



\*College of the Desert VSD Monitoring

## RESULTS

College of the Desert installed a variable speed pumping system and monitored its energy consumption first at maximum flow rate, then at normal levels that were proportionate to daily cooling demands. In its variable speed mode, the system proved its energy and emission saving potential. Results after one year of testing showed:

- Energy savings of 276,500 kWh
- Demand savings of 53 kW
- Total cost savings of \$28,860 annually, with a 2.8 year payback period
- Power plant emission savings of 448 pounds of NO<sub>x</sub>, 321 pounds of SO<sub>x</sub>, and 13.8 pounds of PM<sub>10</sub>

Another good way to measure and compare chiller system savings is to determine dollars saved per horsepower. In this scenario, the 75-horsepower system demonstrated a cost savings of \$385 per horsepower, per year.

## OTHER APPLICATIONS

Variable speed drives can reduce energy use and expenses in a variety of chilled water systems for hospitals, colleges and prisons. Pumping applications also include variable flow water systems such as domestic water booster pumps and hydropic heating and cooling systems where two-way valves control loads.

### FOR MORE INFORMATION

about variable speed drives or other energy saving industrial heating, cooling and pumping systems, please call your Southern California Edison account representative or visit [www.sce.com](http://www.sce.com)



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