

Variable Speed Drives

Retrofits for Chillers, Fans, Cooling Towers and Pumps



Advanced Motor Technology for Controlling Your Facility's Energy Costs

Today's energy costs coupled with rising operating expenses challenge even the most experienced building owners and managers. With approximately 40 percent of all energy being used for heating, ventilation and air conditioning operation, most typical buildings have considerable room for improvement.

Identifying these opportunities and implementing well-engineered solutions requires expert analysis — which will make a significant difference in your energy consumption and bottom line. Carrier Commercial Service has both the expertise and technologies to help you meet your energy management goals with high-efficiency solutions and cost-cutting strategies.

Motors on chillers, pumps, cooling towers and fans account for a significant portion of the energy your HVAC system consumes. To help contain this usage, one of the most effective applied technologies is the use of retrofit variable speed drives, or VSDs, on HVAC system induction motors. VSDs prevent wasted energy by precisely matching motor

speed with cooling demand. In addition, they reduce mechanical stress and motor wear, which translates into less maintenance and prolonged system life. VSDs are one of the most cost-effective ways to improve energy efficiency and reduce operating costs.

Variable Speed Drive Benefits

- Optimized efficiency at part-load conditions
- Reduced energy consumption
- Equipment operates at lowest possible motor speeds
- Added flexibility for changing building requirements
- Often qualifies for utility rebates

Variable Speed Drives

How It Works

A VSD is a solid state control that varies the speed of an AC induction motor. It converts three-phase power from fixed voltage/fixed speed to variable voltage/variable speed required to change the motor's speed without losing torque. Operation is optimized by matching the actual cooling needs or process requirements with precise motor speed. The result is energy savings, enhanced reliability and reduced equipment wear.



With gentle, "soft" starts and gradual, controlled acceleration, VSDs eliminate much of the normal electrical and mechanical start-up stress on motor components. This greatly reduces wear and tear, enhances reliability, and extends motor and system life. An added benefit is the quieter operation slower motor speeds provide at part-load operation.

- VSDs protect against harmful and potentially costly effects of power surges and fluctuations
- For air handlers, VSDs provide more precise airflow control for improved efficiency and comfort
- VSDs deliver a solid ROI coupled with a rapid payback — as little as two-to-three years on a chiller motor, depending on energy costs and hours of operation
- Ensure ongoing savings and optimal performance with Carrier predictive maintenance programs, preventive maintenance and service options



Save Energy Dollars and More

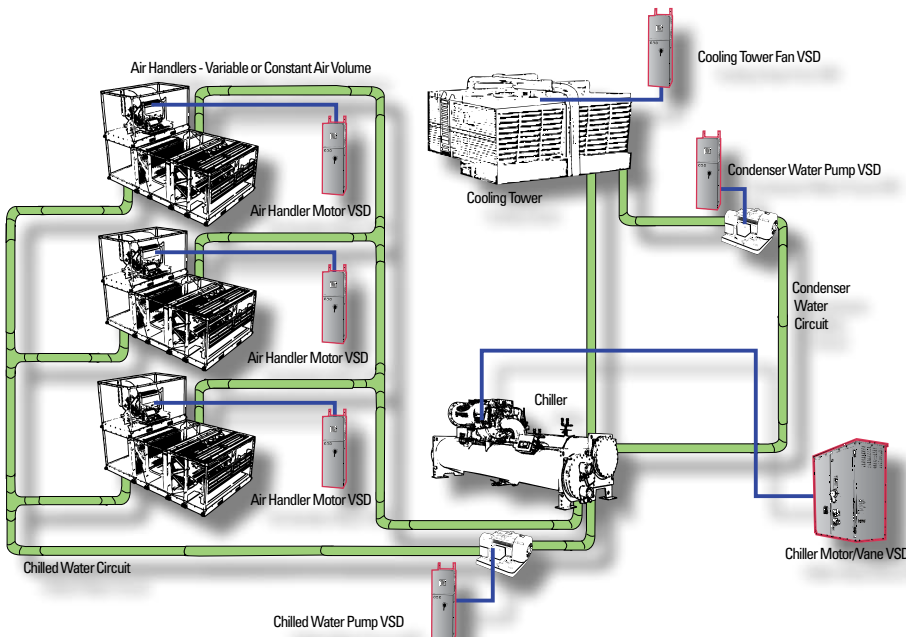
VSD's reduce both motor operating current as well as motor inrush current. This reduces your utility demand charge, which can lower your energy bills. In addition, VSDs can deliver other benefits to improve your bottom line. Local power companies are increasingly rewarding energy-conserving strategies, and a VSD installation often qualifies for a utility rebate.

Take Control of Your Energy Future

VSDs can be a key strategy in your facility's overall energy management plan.

Adding VSDs to your chillers and ancillary equipment can immediately reduce your energy usage and deliver ongoing cost containment benefits.

Carrier Commercial Service is ready to help you — from building components assessment, procurement and installation to project management and ongoing service. Variable Speed Drives protect you from the volatility of the utilities market — and reduce your anxiety in these uncertain times. Simply put, this cost-effective technology can dramatically change your current and future energy picture.



For more information about our Variable Speed Drives, contact your local Carrier representative or go to: www.commercial.carrier.com

