

Applications for VFD at Car Washes

Properly Operating Your VFD Motor Control to Maximum Advantage

Centrifugal loads, such as those on pumps and fans, offer the greatest potential for energy savings for Car Washers. However, they will only generate savings when operating at less than 100% of flow or pressure to match demand. The key is to understand the application and find points during operation to slow the motor down.

Smart Start has pioneered three variable frequency drive (VFD) applications at car washes to take drastically reduce energy use by taking advantage of the Affinity Laws; see [Slightly Slower Equals Big Savings](#);

VFD for Dryers – Electrical savings of 30% - 50% depending on use profile

Smart Start Auto.Drive Control for Dryers combines temperature, fan performance optimization and merchandising to automatically and dynamically control dryer motor speed for optimum performance creating significant energy savings.

Speed Tune™ - tune motor speed down to match performance satisfaction for high set point
Service Tune™ - tune motor speed to create good, better, best drying aligned with wash offer
TempSoft™ - Vary tuned settings with temperature...hi-temps lower speed, lo-temps higher speed

VFD for Vacuums - Electrical savings of 40%-60% depending on use profile

Smart Start Auto.Drive Control for Vacuums uses a manifold pressure transducer feedback signal to constantly monitor and dynamically adjust the vacuum suction pressure so the vacuum motors always operate at maximum efficiency creating tremendous energy savings.

VFD for High Pressure Pumps – Electrical savings of 20% depending on use profile

Smart Start Auto.Drive Control for pumps adjusts based on user determined parameters using Speed Tune™ and Service Tune™ to modify motor speed, flow and pressure depending on the work to be performed by the equipment. For instance, a wheel cleaning system maybe run at 100% speed, flow and pressure for a “wheel Cleaning” upgrade but at only 70% speed, flow and pressure for the base wash as a rocker panel assist. Multipurpose use of the same equipment saves on equipment acquisition cost, line space and electrical costs.

Additional Benefits of VFD Control

SOFT-STARTING: Ramping the motor up to speed eliminates the peak current and shock-load conditions that stress the driven equipment. Effectively, this reduces energy costs by lowering peak demand penalties where they exist and reduces maintenance costs and downtime.

POWER FACTOR ALIGNMENT: Using a VFD aligns apparent power and real power toward unity power effectively lowering power factor penalties where they exist.