

## Use of variable speed drives

- Of all the applications of variable speed control, centrifugal fans and pumps with variable torque load characteristics offer the greatest potential for energy savings.
- Typically installations are designed for worst-case load conditions that normally occur less than 5% of the time. Some form of process control is required for the other 95% of the time and there is no other method of control that can match the energy saving potential of a variable speed drive.
- HVAC and pump sets with a throttle or damper controller have constant power input regardless of changes in the load output over time. Variable speed drives are tailored to match the input power to the output load so no excess energy is wasted and maintenance is reduced due to the elimination of the throttle or damper.

Application: On all electric motors including Fans, pumps, lifts, HVAC and refrigeration units.

Ease: 3/5

Availability: 4/5

### *Factors to consider:*

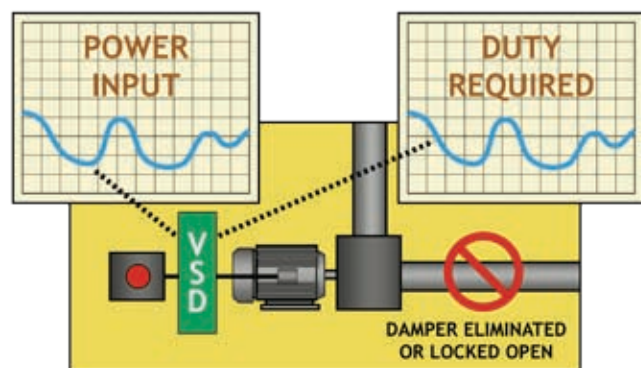
Installing a VSD only makes sense in places where the motor doesn't need to run at full capacity all the time. In this case the only saving will be on a power factor correction basis.

Cost: R1000/kW

Payback: between 8 months and 2 years depending on duty cycles and energy costs.

### *Requirements to meet criteria:*

- Either 20% of all potential uses have to be converted to VSD's or one area must be completely converted, such as the kitchen.
- Potential uses for VSD's are: HVAC, pumps, extractor fans, in fact any electric motor which does not have to run at peak all the time.



### *Savings:*

*Highest savings can be achieved when: pumps are operated at low flow rates, existing system has bypass control, system has low static head, local electricity costs are high and pumps have steep curve design.*