



## Variable Frequency Drives (VFD)



Variable Frequency Drive

**What is a Variable Frequency Drive (VFD)?** A VFD is a system that regulates the rotational speed of a motor by controlling the input supplied to it. VFD's can also be known Adjustable Frequency Drives (AFD) or Variable Voltage Variable Frequency Drives (VVVFD).

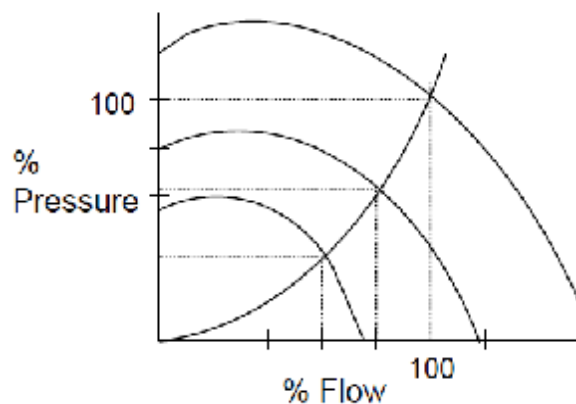
**What are VFD's used for?** VFD's are used in many different applications, the most common include fan blower, and HVAC systems. A VFD can be attached to a fan/blower system to help conserve energy by supplying only the amount of air that the process requires. Variable frequency drives can also be used on pumps, conveyors, and machine tool drives.



## Advantages of Using a VFD

**Advantages of a Variable Frequency Drives** – The main reason/advantage for implementing a VFD into a system is to save money by reducing the overall system energy being consumed. Along with saving money in energy reduction here are some more advantages of using a VFD in a system.

- Able to control the processes of the system better, giving the operator a bypass option in the case of an inverter failure.
- System starts up “softer” than normal, meaning it will decrease the average 6 to 7 up to 20 times inrush current during start up.
- Saves money on the electricity costs of a system.
- By better controlling a motor’s speed, life of V-belt and or coupling devices is increased.
- No appurtenance loss for using this control device in a system.
- Device can include a braking feature (Check with manufacturer)
- Reduces the costs of a system eliminating the need to buy an anti-rotational device. (Check with manufacturer)



VFD – (%Flow Vs %Pressure)



## Disadvantages of Using a VFD

**Disadvantages of Variable Frequency Drives** – VFD's, though useful in making a system more efficient also bring with them some disadvantages.

- Upfront cost of a VFD can be relatively high depending on how large your system is.
- Adding a VFD device may lead to a system resonance at certain speeds, leading to;
  1. Dramatically increased noise
  2. Excessive vibration.
- VFD device have been known to shorten the life
- Can reduce the service factor on the motor it's used on.