



**COGEN  
SYSTEMS**

**V.F.Ds SAVES 50% ELECT. BILLS**

**USE VARIABLE FREQUENCY DRIVES**

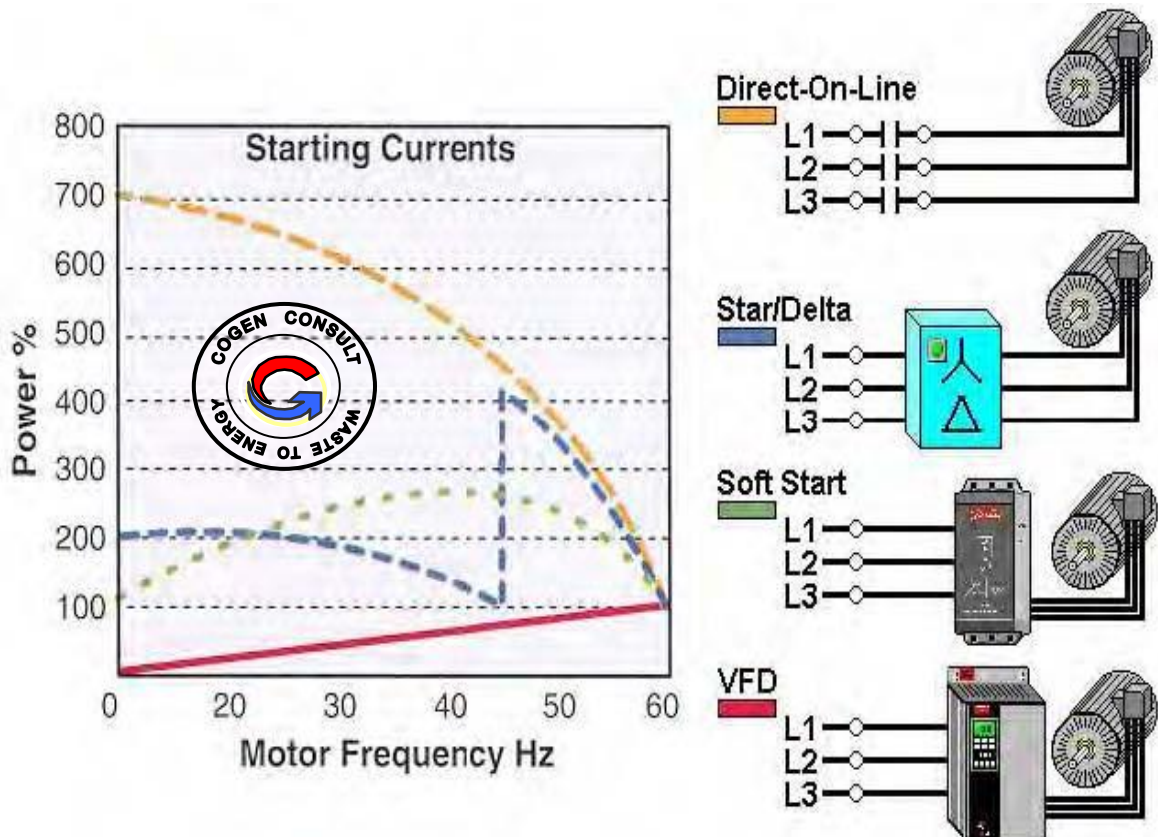
**ON YOUR MOTORS TO SAVE ELECTRICAL POWER**



## **SAVE 50 - 75% ELECTRICAL BILL – INSTALL V.F.D**

SYSTEMS DESIGN ED BY **COGEN SYSTEMS**

- V.F.D = VARIABLE - FREQUENCY - DRIVES .
- REDUCES THE CONTINUOUS RUNNING MOTORS UNLOADED POWER.
- REDUCE 50-75 % ELECTRIC BILLS.
- VFD APPLY AT ALL MOTORS FOR PUMPS ,BLOWERS,FANS, MOUNDLING MACHINES MOOTORS,
- ALL PROCESS INTERMITTENT- STARTING STOPPING- PROCESS MOTORS
- VFC SAVE MILLIONS RS/MONTH



**Call for Industrial Survey and Advised to Design the VFDs on all motors and save Electric Bills , for Energy – Efficiency –Economy.  
Engr. Khalid Saeed – Cogen Systems – 0300 8287009 - [cogenpak@gmail.com](mailto:cogenpak@gmail.com)**



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## Variable Frequency Drives

- Are connected between the grid and the motor
- VFD's are not limited to specific types of motors



Fixed  
Frequency



Variable  
Frequency



## V.F.D FOR Industrial

- **Textile Mills , Garments, Towel Factories , Cement Factories, Ceramic factories , all Industries**
- **Food & Beverage , Mining , Chemical ,Material Handling**
- **Pump cycles ON/OFF, wearing the pump and wasting energy**
- **Causes additional “stress” to pipes and the pump**
- **Pump rides up the pump curve – wasting energy**
- **Pump cycles ON/OFF, wearing the pump and wasting energy**

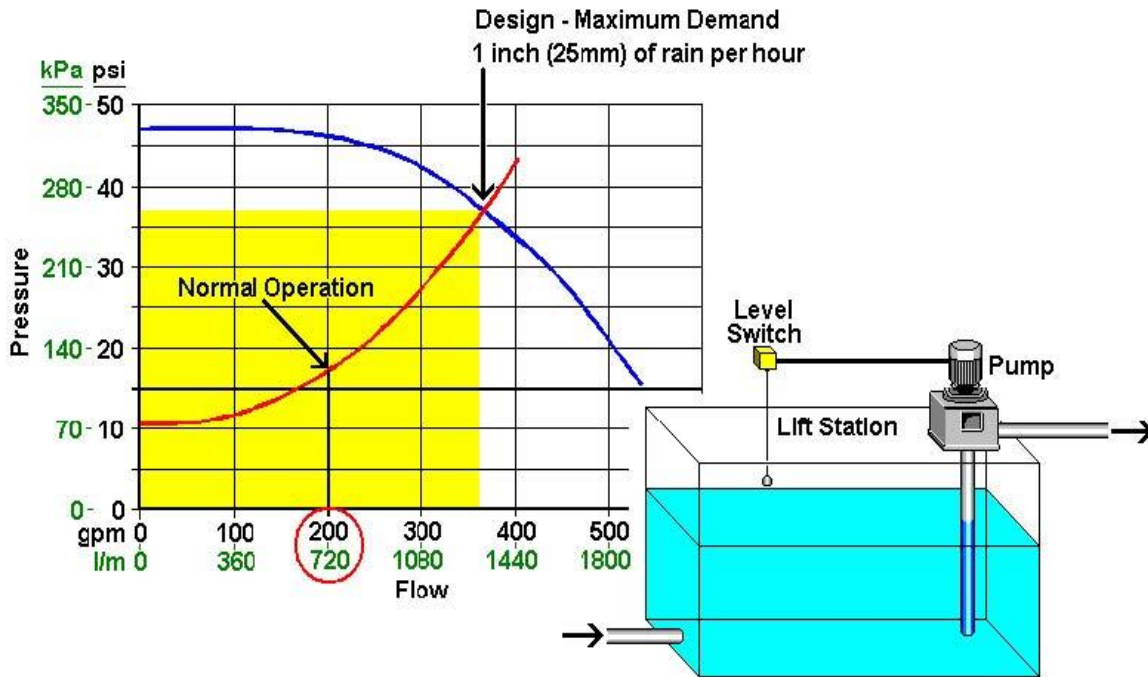
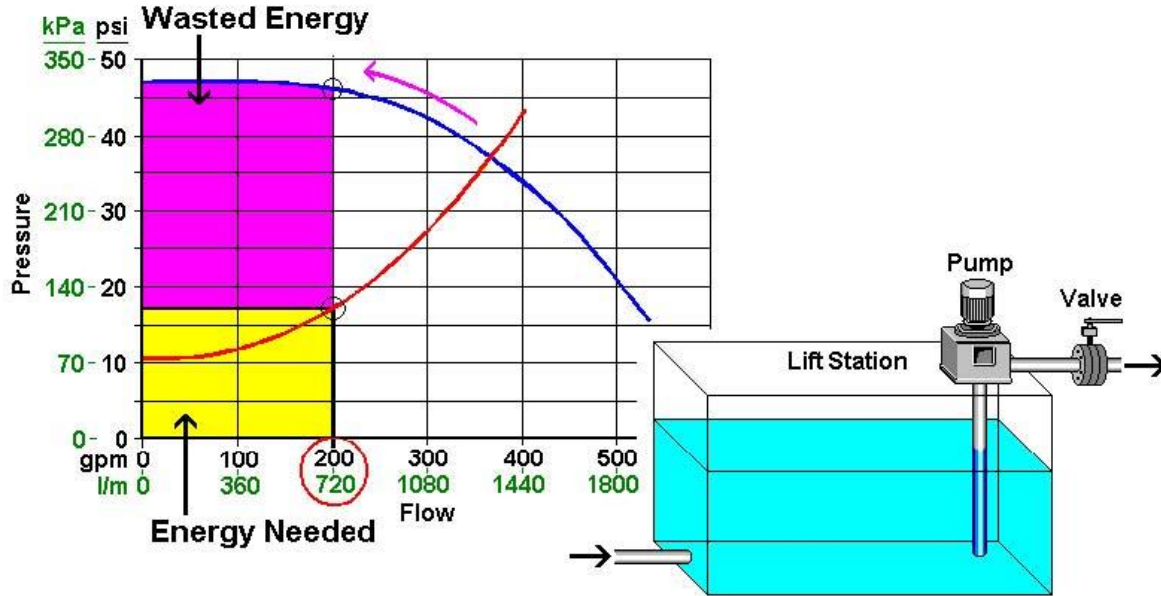


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### USE VARIABLE FREQUENCY DRIVES

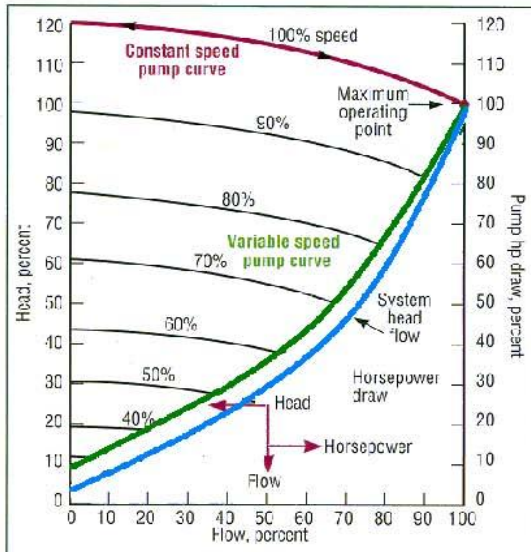
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### Affinity laws for pumps and blowers

- FLOW  $\propto$  RPM
- HEAD  $\propto$  RPM<sup>2</sup>
- POWER  $\propto$  RPM<sup>3</sup>

RPM	FLOW	HEAD	POWER
100%	100%	100%	100%
90%	90%	81%	73%
80%	80%	64%	51%
70%	70%	49%	34%
60%	60%	36%	22%
50%	50%	25%	13%
40%	40%	16%	6%

- Drives (VFDs) save 50 - 75% Electrical Energy per 24 Hrs operation.
- VFD is an electronic device that changes the frequency of the AC power going to a motor, there by varying the motor speed.
- When attached to a pump, the change in motor speed

affects the flow and pressure of the pump discharge.

#### VFD ADVANTAGES & ELECTRIC COST SAVING

- Any time the demand is lower than the design point of the system, VFDs reduce the motor speed (and therefore horsepower), resulting in a reduction in energy.
- The amount saved depends on the design of the system, actual demand and other factors.

#### CONTACT :FOR FREE ENERGY AUDIT ADVISES SYSTEM DESIGN

Engr. KHALID SAEED PRINCIPAL ENGINEER (CEO)

COGEN CONSULT - Mob- 0300 8287009 Email: [cogenpak@gmail.com](mailto:cogenpak@gmail.com),



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