Scale Guard
Water Engineering
The Total Water Management

ROI WITHIN
13 to 18
MONTHS

Pressure Based System (For Water Circulation)

The Pumps used for water circulation are operated based on pressure transmitter feedback depending on variation in plant load.

Temperature Based System (For Cooling Towers)

The Pumps used for Cooling Water circulation are operated based on temperature transmitter feedback depending on variation in ambient and water temperature.

VFD BASED CONTROL PANELS

ENERGY SAVING

Optimize your Pump Systems for Maximum Energy Efficiency

The plumbing system in the plant, including the pumps and motors used for water circulation and cooling towers, can lead to significant energy wastage.

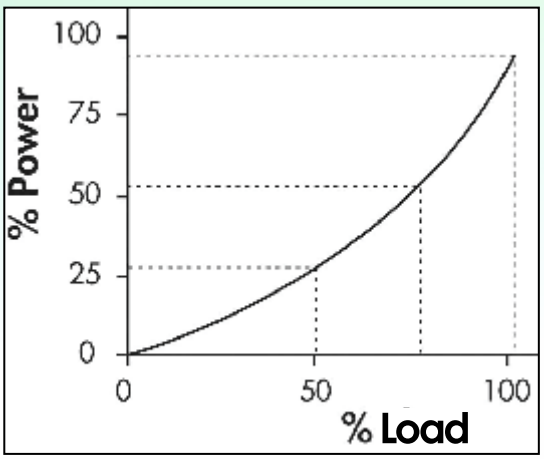
The most common causes are:

- The plumbing system & cooling tower design is based on the current plant requirements, future expansions, practical motor selection issues, and continuously changing plant load.
- Pump and motor selection is driven by market availability and standard pump models at the time of the plumbing system design.
- Precise calculations for water circulation are challenging when using a common header to circulate water between moulds, machines and chiller condensers.
- The water temperature maintained by the Cooling tower also varies as per change in atmospheric temperature.

The above factors contribute to Over-Sized pumps and a lot of energy wastage even when the plant is operating at full load capacity.

The Special Pump Program in our Complete VFD Pump Control synchronizes the operation of all connected pumps to meet the plant pressure requirements while ensuring optimal power usage at both full and partial capacity.

Why use our VFD based control panels?



Scaleguard VFD Based Pump Control Panels provide numerous benefits over standard fixed speed pump control panels for Industrial pumping applications such as Machine Cooling or Mold Cooling. Some of the benefits are mentioned below :

When using our VFD Panels, if the **Load** on the Pump is **100%**, the **power consumption** is till around **80-90%.**

But when the **Load** reduces even to **80%**, the **power consumption drops down** drastically to **50%** resulting in substantial energy savings.

Achieve Constant Pressure - Get Consistent Cooling

Our VFD Panels allow you to set the pressure setpoint for the entire pump system and maintains this pressure setpoint in-spite of variation in the load from the plant (variable flow).

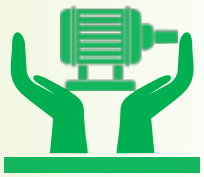
Mitigate Pressure Transients - Protect Piping Components

The VFD Panels provides a slow start and stop to the pump which reduces sudden pressure changes in the piping system and reduces the stress on the components of the piping system and prolong its life and reduces wear and tear.

Control Inrush current - Reduce Electricity Consumption Spikes

When a fixed speed motor is started, there is large electrical surge from the motor overcoming the inertia of its stationary shaft. By ramping up the speed slowly, the VFD Panel reduces the motor start-up load and drastically reduces resultant inrush current, thus protecting the motor and reducing energy consumption.

Control Full Load Amps of the Pump Motor - Protect the Motors



When operated in Fixed speed the pump motor operates close to it Full Load Amps which is its design capacity. This may damage the motor in the long run. The VFD allows the operating current of the pumps motor by controlling the pump motor RPM based on required pressure.

Detects Faults and Alarms - Protects the Pumps

The VFD Panel detects any undesirable operating conditions in the incoming power supply as well as the operating of the pumps and raises and Alarm to avoid operating the pumps in such harmful conditions, thus saving them from being damaged.

Reduce Pump RPM - Save Electricity

Industrial pump systems are designed with a factor of safety to ensure there is no shortage of water in a process. However if these pumps are operated in fixed speed then there is excess energy consumption. The VFD Panel ensures operation of each pump in the system at an optimum RPM, thus resulting in substantial energy savings and a fast ROI.

Panel Configurations

Our Variable speed pump panels deliver excellent Energy Savings along with Long Maintenance Free operation.

Complete VFD Control Panel : 3 Working + 1 Standby Pumps

Complete VFD Control Panel:
(Recommended for Highest Energy Savings)
In this control panel – each pump gets its own VFD. The pumps operate in a Lead-Lag manner. The Lead Pump changes with every duty cycle.

Single VFD Floating Cascade Control Panel:
In this control panel - there is only a single VFD. The VFD operates the Lead pump and the Lag pumps are operated using Motor contactor. The Pumps operate in a Lead-Lag manner. The Lead Pump changes with every duty cycle.

Single VFD Fixed Cascade Control Panel:
In this control panel – there is only a single VFD. The VFD operates the Lead pump and the Lag pumps are operated using Motor contactors. The pumps operate in a Lead-Lag manner. The Lead Pump remains the same however the Lag pumps alternate with every duty cycle.

Heavy Duty Variable Frequency Drives (VFD):

Our control panels are equipped with Heavy Duty Variable Frequency Drives which are rated for continuous operation in Industrial applications and deliver excellent energy savings.

Proprietary Pump Program:
Our control panels are equipped with Industrial grade PLC and HMI and a proprietary pump program which operates the pumps in a precise manner to ensure maximum energy savings, long lasting maintenance free operations.

7" Touch screen HMI
The Touch screen HMI allows the user to view the status of each pump in the system. It allows the user to monitor various parameters and make changes to the settings.

Adjustable Pressure/ Temperature Setpoint
The Pressure or Temperature setpoint can be easily adjusted from the HMI.

Alternation
Our VFD automatically alternates The Auxiliary pumps to ensure equal runtime for all Auxiliary pumps.

System Status Display
The HMI Screen Main Menu displays the operating status of each pumps, System set pressure and Actual pressure, Active alarms.

Active Alarms & History
Active alarms are displayed on the HMI and the history of alarms can be viewed in the appropriate menu which can help in identifying system issues or preventive maintenance.

Monitoring Energy Consumption
All control panels are equipped with an Energy meter which monitors the overall energy consumption of the pump system. This tool is especially useful for Maintenance Managers to evaluate the system performance.

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