

## Pump Control & Monitoring

A standard range of starter panels from TT Controls which offer automatic control based on pressure or level switches. Either for single pumps or dual pump operation.



Also available is a range of remote monitoring equipment which give alarm, call telephones or send a text message on failure of the pump or the electricity supply.



Variable speed drives are also offered. By reducing the speed of a pump by 10% an energy saving of over 30% will be made.

This is often achieved because the process and/or pipeline designer adds a margin over the flow rate and head that is actually required by the system.



There is a valid argument that every industrial pump should be supplied with a variable speed drive. The costs of the drive will quickly be repaid by energy savings.



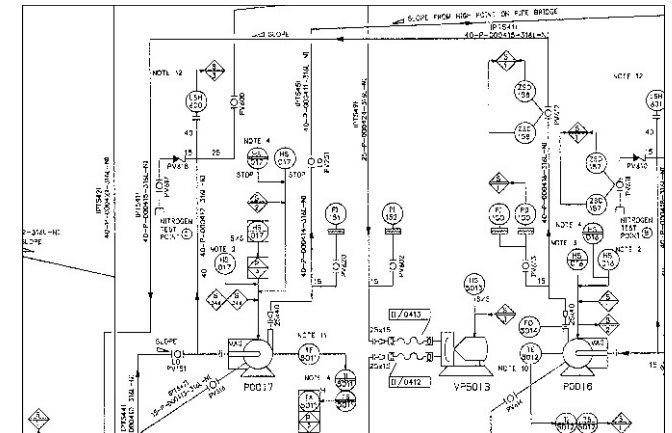
14, Rolling Mill  
Consett  
Co Durham  
DH8 6NH

Tel: 01207 589500 Mobile: 0794 427 3654

[www.epump.co.uk](http://www.epump.co.uk)  
[www.pumpgear.co.uk](http://www.pumpgear.co.uk)



[Pumpgear.co.uk](http://Pumpgear.co.uk)



## Pump Protection, Monitoring and Control

## Pump Protection

Why do pumps fail ? The most common reasons are:

- Dry run, because tank empties or suction valve is closed
- Running against a closed valve until vapourisation occurs with consequential dry running.
- Performance outside the safe performance envelope of the pump resulting in cavitation, poor seal lubrication and vibration damage.
- Bearing failure, which can result in collapse and damage to seals, shafts, impellers and wear rings



The first three reasons can be avoided by fitting the control panel with a simple inexpensive power control monitor.

Pumpgear offers both analogue and digital monitors which can be set to shut down the pump at the safe minimum and maximum flow points.

A delay timer prevents any nuisance trips caused by transient conditions or at start up.

Dry run conditions can also be avoided using IFM Flow Monitors. Typically the control monitor and display unit can be set for flow

velocity between 0.03 and 3 metres/second and mounted on the suction pipework. The switch point can be easily set by pressing a button.

If the flow decreases below this set point a signal is provided which is used to shut down the pump. This works for thick and thin liquids and is suitable for operation up to 120 degrees C.



## Bearing Monitoring

Pump bearing failure can be catastrophic and result in very costly repairs. Bearing monitors can prevent this from happening by detecting the early stages of wear and warning of future failure.

Until recently, it has been normal practice to use portable equipment to perform time consuming monitoring. But now permanent low cost monitoring is now available from IFM. The simplest method is to install a VK compact vibration monitor is mounted on the pump.



This constantly measures the r.m.s. vibration velocity. When the adjustable limit value is exceeded the unit sets to alarm via a switching contact. Two radial setting rings give easy

set up of switch point and response delay. A 4-20 mA signal provides input to controller.

IFM effector octavis VE1001 is a compact vibration diagnostic unit which is easy to set up using PC software.



The unit is sited in a radial direction to the axis of rotation, typically on the motor behind the terminal box or pump bearing housing, and is fixed with a screw mounting.

The detector continuously measures the vibration of 2 to 5 different bearings and gives early warning and main alarm via the switching outputs. Meanwhile the progressive wear is visible on the units integrated LED bar graph.

Further systems are available which can monitor up to four separate machines. This reduces costs considerably as only one diagnostic unit is used.

## Pump Performance Monitoring & Control

Pumpgear provide a range of quality equipment to monitor and control your pumps.



Gauges, from low cost small diameter to premium stainless Steel analogue gauges, manufactured by SM Gauge Co.

Digital Gauges by Keller, suitable from -1 to 30 or 0 to 300 bar. Available Atex approved, intrinsically safe if required.



IFM Pressure sensors with switching capability. The range includes a combined digital/analogue gauge that can be used as a pressure switch.

LED's clearly show the set points.

Epump Ltd. Pump audit calculators are also offered.

These comprise spreadsheets that will calculate energy savings and payback time from system changes such as installation of variable speed drive, trimming impeller and changing motor to an energy efficient type. Based on either gauge readings or by calculation of system curve.

