

Energy Saving Case Study – Portaflow 300 measurements facilitate major savings

Micronics Portaflow 300 portable flow meter used to measure actual flow rates on an existing 75kW motor pump circuit in a process application, which led to the replacement of the pump with a smaller 11kW unit and major savings!

Energy Saved
Annual Energy Consumption reduced from £5698.00 to £926.00!
Capital Cost £1500.00 and payback in 4 months!

Potential for Replication – 1000's in Industrial Process and Building Services applications where pumps are frequently oversized and cost effective non-invasive monitoring can identify the potential for significant savings without the costs and disruption associated with drain downs, process disruption and down time!

Company

Micronics Ltd is a UK based company established for 20 years with customers in over 40 countries. They can help solve most flow and energy metering and monitoring requirements with their range of non-invasive "Ultrasonic Clamp on" flow and energy meters, offering significantly lower cost installation and operating costs than alternative in-line meters.



Application Details

Installed pump: Ingersoll Rand 150-125-250 end suction pump,
75kW 2900-rpm motor

The installed pump was supplied from a high level suction tank (CLT1) and delivered process water through a two stage condenser back to a balance tank (CLT2). It was observed that a flow control valve, installed in the discharge pipework, was only 20% open! Process flow requirements were relatively constant.

INVESTIGATION PROCEDURE

- 1) The flow required to the condenser was recorded using a Micronics Portaflow 300 non-invasive flow meter.
- 2) Pressure gauges were fitted:
 - a) at the pump to determine actual generated pressure head.
 - b) before and after the condenser to determine actual pressure requirement.
- 3) Power input was recorded using a kW power analyser.

CONCLUSION

After obtaining the manufacturers data curve and analysis of the existing pump recorded performance, it was concluded that:

- 1) The pump was too large for the flow rate required, this was resulting in poor efficiency as the operating point was back-up' the curve in an inefficient area.
- 2) 33m head was being wasted across the control valve = 66% wasted energy!
- 3) The pump was providing a 50m head but the total head requirement was only 17m!
- 4) The pump should be changed to an appropriate size for the circuit load.

Micronics Portaflow 300

The Portaflow 300 measures the flow of liquid within a pipeline through two sound transmitter/receivers clamped to the outside of the pipe wall. The sound is directed through the pipe wall into the flowing liquid where the speed of the sound wave is modulated by the flowing liquid. This modulation is converted into volume flow rate by the electronics in the flow meter. There are no mechanical moving parts required either inside or outside the pipe to make the measurement.



Portaflow 300

- Compact, lightweight, rugged, waterproof.
- Large graphics display - 64x240 pixels.
- User friendly, menu driven set up.
- Choice of English, German, French.
- Internal battery, mains or DC powered.

'A' Transducers in mounting rail:- 13mm ID to 89mm ID pipes.

'B' Transducers in mounting rail:- 90mm ID to 1000mm ID pipes.

Guide rail for diagonal operation using 'B' or 'C' Transducers for pipes larger than 300 mm.

Optional Transducers:- 'C' and 'D' for pipes > 300mm up to 5000mm

Transducer Operating Temp:- 'A' 'B' 'C' -25°C to +125°C.

'D' -25°C to +80°C. Optional Hi-Temp.

Transducers for operation above +125°C to 175°C.

Outputs:- Opto Isolated 0/4 -20mA; RS 232; 5v pulse @ 1 pulse/sec max.

Power:- 110 - 240V AC +/-10% supply via Battery charger. 12V DC input supply converter (optional).

Battery Life:- 24-38 hours from fully charged battery.

Display:- 64 x 240 pixels Graphic display. Size 48 x 125mm viewable area. Backlight.

Programming:- Via 16 key control panel.

Data Logging:- 50000 data points. Up to 20 named recording blocks.

Data displayed locally in text or graph format. Real time or stored.

Can be downloaded via RS232 port to Windows based PC.