

Wairoa saves 60,000 kWh annually with Electric Blood Pump

Affco Wairoa replaced its pneumatic blood pump system with a more energy efficient electric blood pump, saving 60,000 kWh a year and reducing its annual energy bill by \$7,000.

The Opportunity

Affco Wairoa pumps blood more than 5m high and a distance of 200m from where it drains off the slaughter floors to its rendering plant. This was previously done by a 2.5m³ blow tank that filled up with compressed air and then discharged once every six minutes. Compressed air is an inefficient way to produce mechanical work, therefore there was potential to replace the air-blown pump with a more energy efficient system.

The Solution

Paul Sullivan, along with other members of Wairoa's energy team, developed a system that features a filter, a holding tank and an electric pump. Blood passes through the filter and into the holding tank. Once the tank is filled to a certain level the pump cycles on and pumps the blood from the tank across to the rendering plant. This completely removed the need for compressed air in the blood pumping system.

The old blow tank system was corroded and due to be replaced anyway, which would have cost \$35,000. The new electric pump system cost \$29,850 installed. The pump is a Mono POO1745 model with rubber stator.

The Savings

The new electric system has a 4kW motor on the pump which cycles on and off. It is on approximately 6.5% of the time. The filter uses a 0.75kW motor that runs continuously, bringing the total system average load to about 1kW.

The previous air-blown system used on average 3.1Nm³/min of compressed air, requiring more than 20kW in electricity to produce! The new energy efficient system saves 60,000 kWh a year, reducing Wairoa's annual electricity bill by more than \$7,000.



- *60,000 kWh saved each year*
- *\$7,000 annual energy savings*
- *Automated system, only pumps when needed*
- *Instant payback, \$5,150 less expensive solution*



Blue Mono pump and 1,800 litre holding tank with level switch (above)