



KelairPumps

PumpAction..... Issue 58 Mar 09

Case Study

Pulsafeeder pumps perfect in pyrethrum plant

Sales Engineer Michael Waters TAS

Our client is the Australian grower and producer of over 45% of the world's pyrethrum, the botanical insecticide, and runs the most high-tech pyrethrum industry in the world.

They contacted us regarding pumps for their new plant upgrade, some of which were Pulsafeeder Pulsa series metering pumps which they are currently using in other parts of their plant. The decision to use Pulsafeeder pumps again in their new upgrade was mainly based upon exceptional accuracy and trouble-free operation of the existing pumps. This is achieved by precisely controlling the motion of the diaphragm by the drive mechanism and fail-

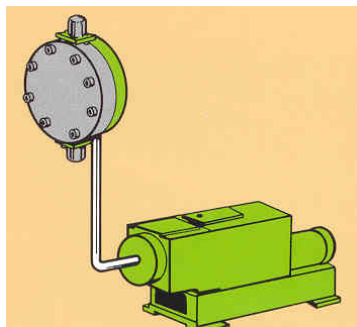
safe protection built in by three valves which keep the entire system hydraulically balanced.



The basic workings are similar for all Pulsa series metering pumps; the pump drive mechanism transmits a reciprocating action to a piston operating in a hydraulic reservoir. The piston's forward movement transmits hydraulic force against a diaphragm / membrane separating the pumping mechanism from the liquid being pumped. The diaphragm moves in direct relationship to the piston and displaces

process liquid through the outer check valve. Backward movement of the piston reverses the cycle, allowing fresh liquid to enter the metering head through the inlet check valve.

One of the two pumps required was fitted with a remote head due to a low temperature liquid being pumped; the remote diaphragm isolates the fluid in a controlled environment that is separated from the pumping mechanism. This design,



equipped with a metal diaphragm also permits safe,

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isolated metering of radioactive liquids.

Pulsafeeder pumps are available in a large range of sizes to cover varied pumping requirements, and with a variety of material options on diaphragms and heads they can meet any corrosive pumping problem.

Case Study

Sandpiper very cool in ice slurry application

Sales Engineer Cory Jessop WA

We received a call from one of Kelair's customers, with the question, "have you pumped ice slurry and if so what did you use?" The customer asked this question because they had been hand-shovelling the ice into the chillers and this wasn't very efficient as well as costly to their business, due to the failure of another pump.

The problem was solved by using a Sandpiper S20B1AGTABS100. In consultation with Kelair WA the customer drilled two 5mm holes into the top of each side of the pump's diaphragm



chambers so the holes are in line with the diaphragms. They then had two 5mm hoses glued in place, level with

the holes, then the hoses were fitted to a tank which was set to spray bursts of water at intervals of 15 seconds at 65 degrees centigrade. This prevents the ice from forming and freezing within the pump.

They will only need to replace the wet end every twelve to eighteen months, as well as being a safer option than using electric pumps and there is no man power involved.

The system may be interfaced with brine-type cooling systems used for food preservation to maintain food temperatures under emergency conditions such as power outages due to its non-electrical energy source.

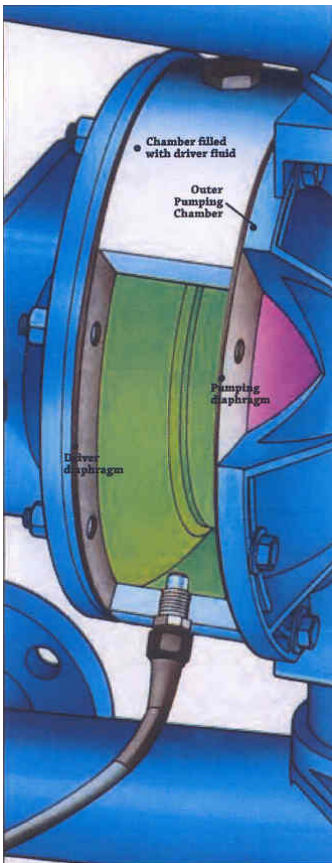
Diaphragm Failure in Air-Operated Double Diaphragm Pumps

Electronic Leak Detection

How electronic leak detection works.

At a point the pumping diaphragm fails, pumped liquid enters the spill chamber displacing driver fluid. The leak detector, working on the principle of conductance, senses the conductivity change. This activates a warning light on the control box. The device can also be wired into the pump user's existing system, for an audible or visual alarm, or pump shut-down response. It is important to specify an appropriate drive fluid which is both chemically compatible with the pumped fluid and displays the opposite conductance properties. Polarity of the leak detector can be set to sense conductive or non-conductive fluid. If a leak occurs, pumpage is contained in the spill chamber. The pump will continue to work, and in many cases, repairs can be done when the batch is completed.

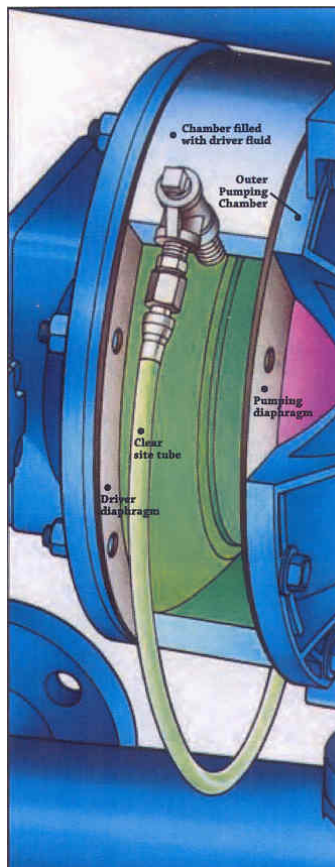
The air valve and work environment are protected.



Visual Leak Detection

How visual leak detection works.

At a point the pumping diaphragm fails, pumped liquid enters the spill chamber, displacing driver fluid. The exchange of pumpage and driver fluid displays a color change in the sight tube, giving a visible signal. Driver fluid should be chemically compatible with the pumped fluid, with an obvious difference in color. In the event a leak occurs, pumpage is contained in the spill chamber. The pump will continue to work, and in many cases, repairs can be done when the batch is completed. The air valve and work environment are protected



Electronic Leak Detector

Working on the principle of conductance, this monitor can be wired for visual, audible or pump shut-down response. The electronic leak detector is an optional accessory which can be installed on all models.



Visual Leak Detector

A sight tube style leak detector is installed on each driver chamber. If a pumping diaphragm break occurs, liquid in the sight tube changes colour.



Mechanical Leak Detector

When a leak chemically attacks an internal o-ring on this detector, it actuates a plunger. This opens an air valve, which in turn activates a customer-supplied solenoid (or similar device) to trigger a signal.

