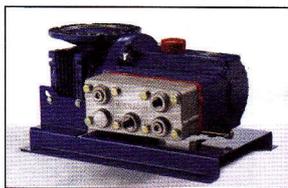


Getting more for less

As most mills are only too aware, the cost of a pump over its lifetime is a lot more than its purchase price. Amanda Marcus reports.



Speaking at a press conference organised by pump manufacturer Wanner International, an independent authority on pump engineering, Dr Ing Friedrich-Wilhelm Hennecke, explained that the true cost involves factors such as the pump's installation and commissioning, the energy it uses, operating, maintenance and repair costs, and environmental, decommissioning and disposal costs.

In a detailed study of five different pumps (Hydra-Cell, Centrifugal, Sidechannel, Peristaltic and Membrane Piston) over a range of pressures and flow capacities, Hennecke found a significant variation in the difference between the least and most expensive lifecycle costs (LCC) – from €22,908 for the most expensive, Membrane Piston, to the least expensive, €8021 for the Hydra-Cell.

The Hydra-Cell pump itself, designed by Wanner, is not new to the market, but its application as a cost effective alternative to traditional metering applications is. The company began to realise that the pump was increasingly being used in applications for which it was not originally intended – replacing piston, progressive cavity, lobe, peristaltic and centrifugal pumps – and also traditional metering pumps. So, it decided to develop a competitively priced pump package to incorporate the Hydra-Cell pump for metering applications with performance characteristics that exceed API 675. The result is Hydra-Cell Metering Solutions, which is being launched this year.

Part of the cost savings come from the fact that the Hydra-Cell is a seal-less design, immediately eliminating the need to replace worn out seals that occur with mechanical and rotary seal pumps. The absence of a seal also means that abrasive, corrosive, and recycled liquids (backwater, for example) do not present a problem, as there is no seal in contact with the liquid being pumped. This means it can pump particles of at least 500 microns in suspension. It can even run dry.

Hydraulically balanced

The Hydra-Cell pump uses the principle of hydraulically balanced diaphragms. System pressure is balanced with the pressure of the hydraulic fluid within the hydraulic cells of the pump. This enables the diaphragms to operate

unstressed at high pressures – and allows use of a wide range of flexible diaphragms in different materials. Wanner's patented 'Kel-Cell' technology keeps the diaphragms in hydraulic balance even with adverse inlet conditions, such as a blocked filter or accidental closure of a valve on the inlet.

The compact pump head design contains a multi-diaphragm arrangement and avoids the need for expensive pulsation dampeners in many cases. 'Multiplexing' a traditional metering pump to get this result is very expensive. The Hydra-Cell 'single pump solution' is less costly, more energy efficient and a lot more compact than other models.

The company has taken advantage of the latest technology to reduce costs. A good example of this – and one of the major differences of Hydra-Cell metering solutions versus traditional metering pumps – is that the latter uses stroke adjustment to change flow output, whereas Hydra-Cell has a variable speed drive (VSD) controller and motor to alter pump speed to change flow. It makes use of the fact that the discharge flow of the Hydra-Cell pump is directly proportional to its shaft speed. This technology, the company claims, is more accurate and eliminates the potential leak path of traditional pumps and operator error. It also has the advantage of dispensing with the need for an expensive electronic actuator to automate a manual stroke adjuster. Response times to changes in required flow can take one second per 1% change in stroke length for traditional metering pumps. With the Hydra-Cell metering solution the change can be considered instantaneous, increasing the accuracy.

The Hydra-Cell metering solutions pump range covers flows from zero to 6000 l/hr and pressures up to 170 bar.

There is certainly no shortage of metering applications for Hydra-Cell in the paper and allied industries. Among them are latex and other coating processes and dosing of many types of chemical. But with features like high pressure capability, tolerance of abrasives and suspended solids, modest repair costs and low energy requirement, it is not surprising that the pumps are also well established in other applications in the industry. They include felt cleaning, high pressure washing of filters and stock chests and wet end web trimming. ■