

## Britvic speeds drum unloading on MasoSine

Britvic is reporting that four MasoSine SPS pumps, from Watson-Marlow, built into a bespoke drum unloading system, are now allowing its plant to unload 45 gallon (200 litre) drums of fruit juice concentrate, four at a time, in just two minutes.

Birkenhead-based controls specialist Compere Systems built Britvic's batch unloading equipment and managing director Graham Fenney says the pumps were selected, because tipping solutions couldn't match the cleanliness requirement or fit into the available space. He also recounts that the firm had successfully used Watson-Marlow before on a conventional syrup pumping application.

The custom rig uses four 5.5kW MasoSine SPS pumps piped to four suction lances, in turn mounted on a pneumatic cylinder, to allow simultaneous unloading of the four, 45-



gallon drums. Fenney describes the concept as based on a semi-circle configuration feeding six stations, with each station able to datum a pallet holding the drums.

"The unloading head pivots in the centre of the semi-circle and can rotate round to each position," explains Fenney. "This allows the operator to bring in a pallet, position it, remove the drum lids, prepare the inner plastic and insert the lance – all in the two minutes it takes for the previous pallet of four

drums to unload. It's a very efficient load and unload process."

The MasoSine pumps themselves are mounted on a mezzanine in the middle of the plant semi-circle, one metre off the ground. Fenney says they are ideal for such industrial and sanitary applications, because they can handle pressures up to 15 bar and capacities up to 91.2m<sup>3</sup>/hr, while also providing a gentle, low-shear pumping action.

Equally, the single rotor design helps preserve product integrity and eliminates the need for fragile timing gears, for example, associated with rotary lobe pumps. Moreover, the single rotor design means one shaft and one seal, resulting in lower maintenance and lifetime ownership costs.

So impressed is Britvic that the company has recently enquired about taking further, similarly equipped rigs.

## Celotex cuts compressor consumption costs

Insulation board manufacturer Celotex is reporting reduced energy consumption and improved air supply quality since replacing its compressor with an Atlas Copco variable speed drive, oil-free unit, equipped with a heat regenerative IMD dryer.

Jason Walker, process improvement manager at the Hadleigh, Suffolk, plant, says that the installation has also been a contributory factor in gaining the company its ISO 14001 accreditation.

He explains that the company, which manufactures PIR-based (polyisocyanurate) insulation board, needs dry compressed air for the production process, which sandwiches PIR foam between two layers of aluminium foil or mineral glass tissue facer.

The firm replaced two existing Atlas



Copco ZT37 fixed speed, oil-free copressors and associated refrigerant dryers with a single air-cooled ZT75VSD FF machine, incorporating the IMD heat-of-compression adsorption dryer – which eliminates moisture before it enters the air net in order to ensure

contamination-free end product.

The installation provides the completely moisture-free air blanket required and, because of its variable speed drive, has been a major factor in reducing energy consumption, says Walker.

"I was very impressed with the speed and quality of Atlas Copco's installation operation," he states. "It allowed us to make a completely seamless switchover from the old plant to the new, without any interruption to the production process itself."

And he adds: "As for the projected energy savings, with the VSD operation of both the compressor and integrated dryer unit, it looks like we can expect to gain at least £6,000 per annum over the next three years."

## Shasun Pharma slashes utilities downtime

Shasun Pharma Solutions is reporting vastly reduced maintenance, zero recalibration, and easier, more accurate and more reliable monitoring since moving to Hach Lange sensor equipment for its wastewater utilities plant.

The Newcastle upon Tyne pharmaceutical plant provides research and contract manufacturing services, and wastewater facility manager Craig Goodman explains that the facility uses three 2,500m<sup>3</sup> treatment tanks and an activated sludge process.

That uses liquid oxygen and biological floc to keep volumes and response times down.

The liquid oxygen is stored onsite and Goodman says he gets almost instantaneous control of dissolved oxygen, "made possible [by] the new



breed of dissolved oxygen sensors.

"In the past, we relied on traditional membrane-based DO [dissolved oxygen] sensors, but these required a high level of maintenance and tended to drift," he says. "It was usually necessary to recalibrate every week.

"However, the Hach Lange LDO sensors last for over a year without

recalibration and we then simply replace the sensor cap. So our monitoring activity is now significantly easier, and more accurate and reliable."

Goodman explains that the liquid oxygen is vapourised and fed into the tanks via a single entry Venturi at 7bar.

In addition to online sensors for pH and ammonium, the LDO sensors are connected to an SC1000 controller, which also monitors sensor health and interfaces with the plant's control systems, he explains.

"In addition to the waste stream from our own plant, we also treat waste from third parties, so we do not always know what is coming down the line. That is why we need to be able to respond quickly. Overdosing oxygen would kill the bugs, while underdosing may cause other problems, such as bulking."

## Pulsar ultrasonics is no slouch sensing sludge

Wessex Water is reporting success with seven new sludge blanket monitors, from Pulsar Process Measurement, at its Christchurch sewage treatment works.

Area scientist Tony Towler explains that the Sludge Finders' acoustic technology replaced outmoded dipping probes, which were unreliable and led to poor control.

At Christchurch, the final settlement tanks are set up to run at a sludge blanket level of 15–20% of tank depth, controlled by RAS (return activated sludge) valves. Before the change, the dipping probes had been showing spikes or flatlines that were activating the RAS valves unnecessarily.

Changing to Pulsar's non-contacting ultrasonics, with their self-cleaning Viper transducers, has resulted in increased reliability of the reading. "[That] means we can control the process more accurately and makes it easier for us to comply with the environmental consents," states Towler.

Indeed, he states that the improvement in RAS valve control has led to a 30% reduction in power consumption.

The Sludge Finder signal is fed back to a local PLC, with an HMI for control of RAS valves, and to a data display system (Scope-x), which can be accessed remotely for monitoring and trending.



## Pedigree steam traps save Marston's £60,000 per year

One year after upgrading its steam traps with up-to-date equipment from Spirax Sarco, Marston's Brewery is reporting savings of £60,000 in energy and hot water costs.

By preventing steam escaping into the Burton on Trent plant's condensate recovery systems, the new steam traps have also improved the site's green image by eliminating visible steam emissions.

"You used to see plumes of steam exiting the plant, but now that's all stopped," states Colin Walton, senior engineer at Marston's Brewery. And he adds that the change was instant, with escaping steam clearly reducing as more steam traps were replaced.

Spirax replaced some 70 old steam traps with its stainless steel sealed inverted bucket steam traps. Says Walton: "Price and quality were the deciding factors in choosing Spirax Sarco, but they also delivered great local support."

He also explains that Marston's took the opportunity to remove trap bypasses – often installed to enable engineers to redirect condensate around defective traps – from the steam system at the same time. In his view, they encourage bad practice by enabling the steam system to carry on operating at a suboptimal level, rather than forcing engineers to fix defects fast.

