

Peristaltic technology overcomes vapour locking problems

Value for life



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Ray Lawrence
Process Engineer
SOUTH EAST WATER

A highly corrosive and toxic chemical with strong disinfecting properties, sodium hypochlorite plays an important role in the water industry. However, its tendency to release gas bubbles and cause gas locking of the solenoid driven diaphragm metering pumps poses a major challenge. South East Water has overcome this difficulty by opting for peristaltic pumping technology from Watson-Marlow Bredel.

THE CHALLENGE

Sodium hypochlorite is a corrosive chemical that has disinfection and bleaching properties, and is used in the purification of wastewater and the disinfection of drinking water. However, dealing with the chemical can be difficult as it is toxic and emits chlorine when in contact with acids. It naturally releases tiny bubbles of gas, which have a tendency to collect on the small ball valves found in conventional diaphragm dosing pumps. This can cause gas locks in the system, which prevent the pumps from functioning.

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THE SOLUTION

South East Water had been using diaphragm pumps to dose sodium hypochlorite into drinking water. However, they found that gas locking problems necessitated maintenance on a regular basis. When the pumps were replaced with 520UN/R IP66 cased peristaltic pumps supplied by Watson-Marlow Bredel, this problem was eliminated. South East Water found that the gas produced by sodium hypochlorite was able to pass straight through the tube without interrupting the dosing process, thereby reducing maintenance dramatically.

“We’ve worked with Watson-Marlow for years,’ explained Ray Lawrence, Process Engineer at South East Water, ‘so we understood the value of their peristaltic technology, and decided to use it in an innovative way. Because peristaltic pumps retain the fluid completely within the tube and have no valves that can leak or corrode, they can be used for the accurate metering of substances as challenging as sodium hypochlorite, without the associated gas locking and maintenance problems. Peristaltic technology has helped us to keep costly downtime to a minimum.”

South East Water is also using the pumps for dosing sodium bisulphite, in order to de-chlorinate the water after disinfection to remove the unpleasant taste. The chemical is dosed in very small quantities, which requires a high degree of precision and accuracy from the pump. Previously, it had been necessary to dilute the sodium bisulphite in order to control the dosage procedure accurately. This added an extra degree of complexity to the process, but Watson-Marlow’s 520UN/R IP66 peristaltic pump resolved the issue. The pump can be calibrated either by weight or volume, allowing very precise dosing and metering. South East Water is now able to dose small amounts reliably even at low pressure, without the need for dilution.

THE OUTCOME

Generating a flow rate of between 4µl and 3.5 litre/min, the 520 pumps ensure unrivalled levels of accuracy, reliability and control in even the harshest operating environments. Each one is rated to IP66, providing washdown protection for arduous conditions – a feature which is exclusive to Watson-Marlow Bredel. The 520 series delivers user feedback via the pump’s own display and have dual analogue input to control and scale speed. The 520 series provides users with a “drop-in” alternative for diaphragm or piston pumps with variable stroke control.

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For further information on Watson-Marlow Bredel pumps in the Water and Waste industry, please request copies of application and technical data sheets.

TELEPHONE 01326 370370 FAX 01326 376009 EMAIL info@watson-marlow.co.uk

www.watson-marlow.co.uk