

# New Automated Peristaltic Pumps Control Management of pH Level at Clay Lane WTW

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After 14 years in continuous operation, the peristaltic pumps used for lime dosing at Clay Lane Water Treatment Works (WTW) have been upgraded as part of a project to optimise performance at the site.

## THE SITUATION

The water treatment works at Clay Lane, Rochdale, receives water from four reservoirs in the Naden Valley. Following treatment, up to 18 megalitres of water a day feeds into to Bamford Service Reservoir, from where it is supplied to over 46,000 properties in the region.

An integral part of the treatment process is the addition of lime slurry, in order to control the pH of the water. Water entering the works is dosed with aluminium sulphate and a polyelectrolyte and brought to a pH of around 5.8 in order to

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facilitate the coagulation and removal of unwanted particles. If the water is lower than this pH, it is dosed with lime in order to bring it up to the required level. Later in the process, at the secondary filters, Sodium Hypochlorite is added as a disinfectant, while the alkaline lime slurry is pumped into the water just before it leaves the site. This lime dosing raises the pH to around 8/9, assisting in the removal of naturally-occurring manganese.

Clay Lane WTW had previously been using an older model of peristaltic pump supplied by Watson-Marlow Bredel for this purpose. However, in 2003 the pumps were upgraded as part of a £2 million project to improve the site.

The project, part of United Utilities commitment to improving water quality, involved the development and expansion of the water treatment works. This included enhancing the coagulation and direct filtration systems, and adding three new primary filters to the seven already in existence at the site - as well as upgrading the peristaltic pumps.

## THE OUTCOME

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The process control engineers at Clay Lane WTW opted for Watson-Marlow Bredel's SPX10 and SPX25 peristaltic pumps to handle the lime dosing. The SPX10's are used at the coagulation stage of the water treatment process, in order to raise the pH when it becomes lower than 5.8. The larger SPX25's are used later in the system, when the pH is increased to between 8 and 9 for the removal of manganese.

The previous models used had no automatic controls, and had to be manually adjusted for variable speeds. However, the new pumps are totally automated - making the management of the system much easier.

High flow peristaltic pumps work by the action of rollers that squeeze and release a hose, pushing the liquid through it. Because peristaltic pumps retain the fluid completely within the hose or tube and have no valves, seal or glands, they can be used for the accurate metering of viscous fluids such as lime slurry, without becoming blocked. As the hose or tubing is the only wearing part, and can be quickly replaced without dismantling the pump, maintenance is simple and cost-effective.

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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.

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