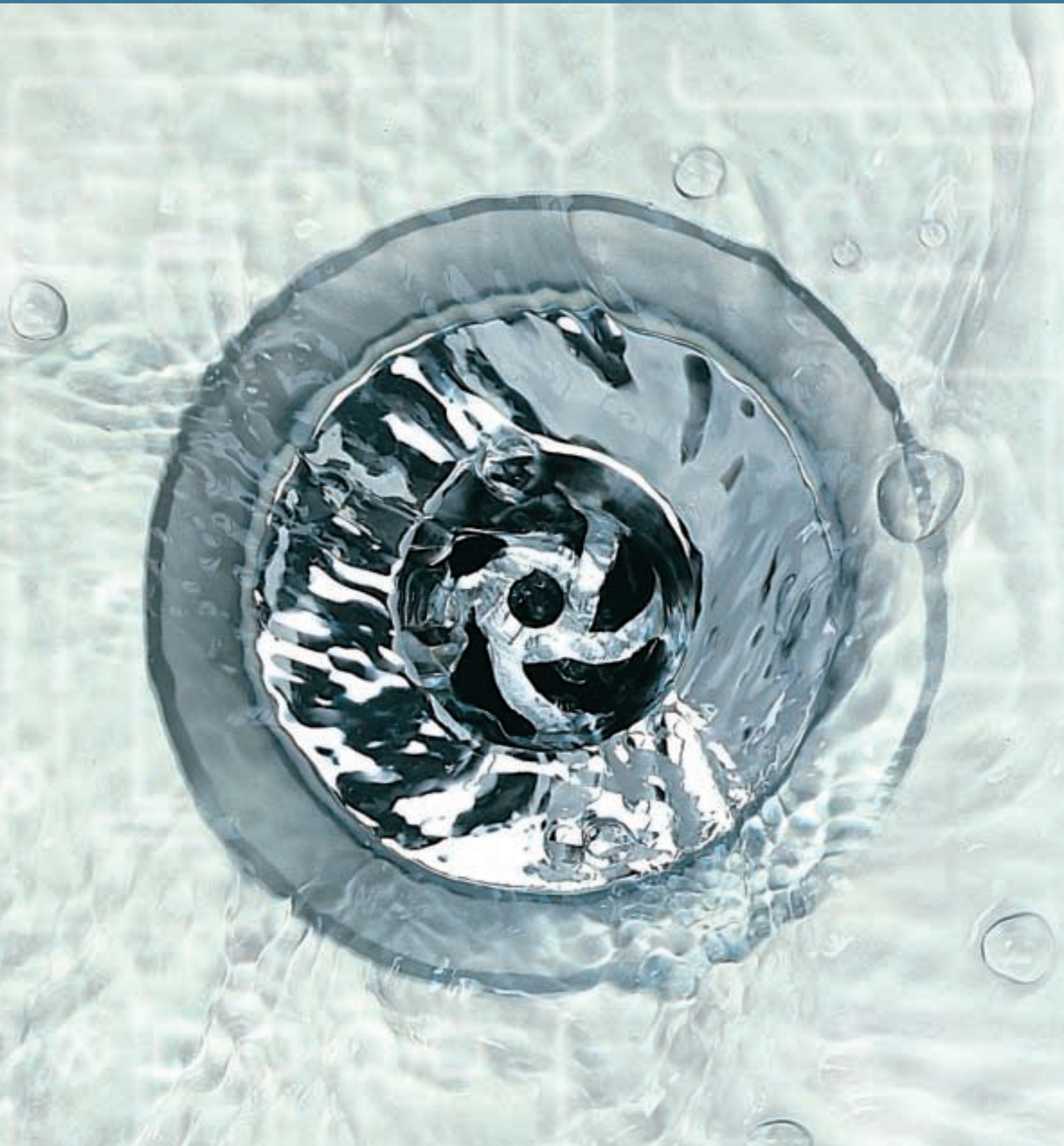


WATER and WASTE

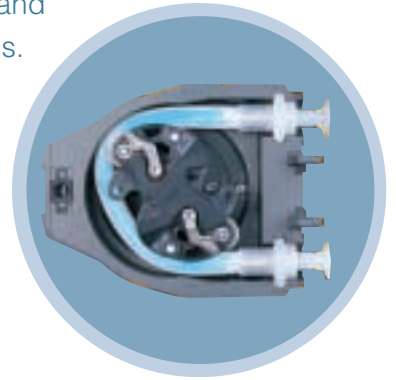
Improve your Process



Superior potable water quality and reliability ...

Supply of quality potable water within current consent levels is paramount, and the efficient operation of plant is essential in meeting these critical standards. Dosing or metering applications, typically with lime or polyelectrolyte, often place arduous demands on pumps. These chemicals can cause abrasive wear and pump clogging, leading to poor performance and premature failure of traditional positive displacement pumps. Watson-Marlow Bredel pumps are a proven solution and exceed performance expectations by:

- **Self-priming and dry-running**
- **Extensive control options**
- **Superior accuracy**
- **Outstanding reliability and low operating cost**



- Dosing and metering ferric chloride, sodium hypochlorite, chlorine, carbon, lime and kalic
- Sampling cryptosporidium, raw water and final potable water
- Transfer of settled sludge

... with greater plant control and 24 hour confidence ...

Accuracy

Primary/secondary disinfection and pH control require accurate dosing for assured potable water quality. The nature of the chemicals used demand that the pump must be able to handle conditions such as salt settlement, gassing, abrasive wear and clogging. These conditions can cause loss of performance in traditional pump types, however Watson-Marlow Bredel pumps unique design mean they do not suffer from these problems and are accurate up to $\pm 0.5\%$ for their service life.

Low shear

Coagulants are shear sensitive and their performance can be dramatically reduced by high velocities or arduous pump paths, such as impellers, lobes, vanes or valves. Watson-Marlow Bredel pumps are exceptionally low shear, ensuring chemical quality, accurate and predictable performance with subsequent cost savings.

Self-priming and dry-running

Unexpected occurrences of self-priming and dry-running can cause premature pump failure and system fault. Watson-Marlow Bredel pumps are guaranteed to self prime up to 9.5 metres and can run dry indefinitely so pumping performance is assured.

Control options

Dosing, metering and sampling requirements often demand the pump to be easily and reliably controlled, ensuring quick response to changes in plant throughput. Watson-Marlow Bredel pumps will accept RS232, RS485, 4-20mA, 0-5V signals and are fitted with volt free and two analogue contacts for proportional stroke and speed equivalent. Simple set-up and pump flexibility guarantees accurate plant control.



Whitbourne WTW selected sodium hypochlorite for their new treatment plant and reliable pumps were needed to cope with salt settlement and gas locking, typical of this chemical. Watson-Marlow Bredel IP55 rated 504U/RL pumps were installed as they are not susceptible to these problems. Unplanned maintenance has been eliminated with

increased process security and **significant cost saving.**

... using a unique design ...

The most effective engineering solutions are the simplest. The peristaltic pump action is low-shear and is created by compressing the hose or tube between rotating shoes or rollers. In between each pass of a shoe, the hose recovers to create a vacuum and draws in fluid. This simple dynamic effect requires no seals or valves and the fluid is totally contained within the hose, separated from the pump. No other positive displacement pump offers this unique separation of pump and fluid. Watson-Marlow Bredel pumps clearly outperform other pump types, such as piston, progressive cavity, lobe or diaphragm pumps.

The hose is the core of our pump and is resistant to abrasive wear. Its unique four-ply structure ensures excellent suction and pressure performance, and extends service life beyond other pump designs. The rapid wear of metallic pumps means a quick drop in performance even before eventual failure. Watson-Marlow Bredel pumps provide a metering accuracy of up to $\pm 1\%$ for the whole of their pump life.



... working together to give the best system and installation ...

For perfect results, experienced selection and installation advice is essential. A Watson-Marlow Bredel engineer will carry out a full consultation to ensure that we know your precise needs, and are able to select a suitable pump with clear benefits and payback. These quotations were given to an independent marketing organisation by customers who are delighted to have found Watson-Marlow Bredel.

Team Leader

"It's the most efficient pump for sludge that we have ever had"

Projects Engineer

"I like the fitness for the job. The pumps are excellent; they perform very well with very little maintenance"

Technical Support Manager

"It's a package - quick response by sales, we had a unit on trial to prove it was the right pump for the job, quick delivery"

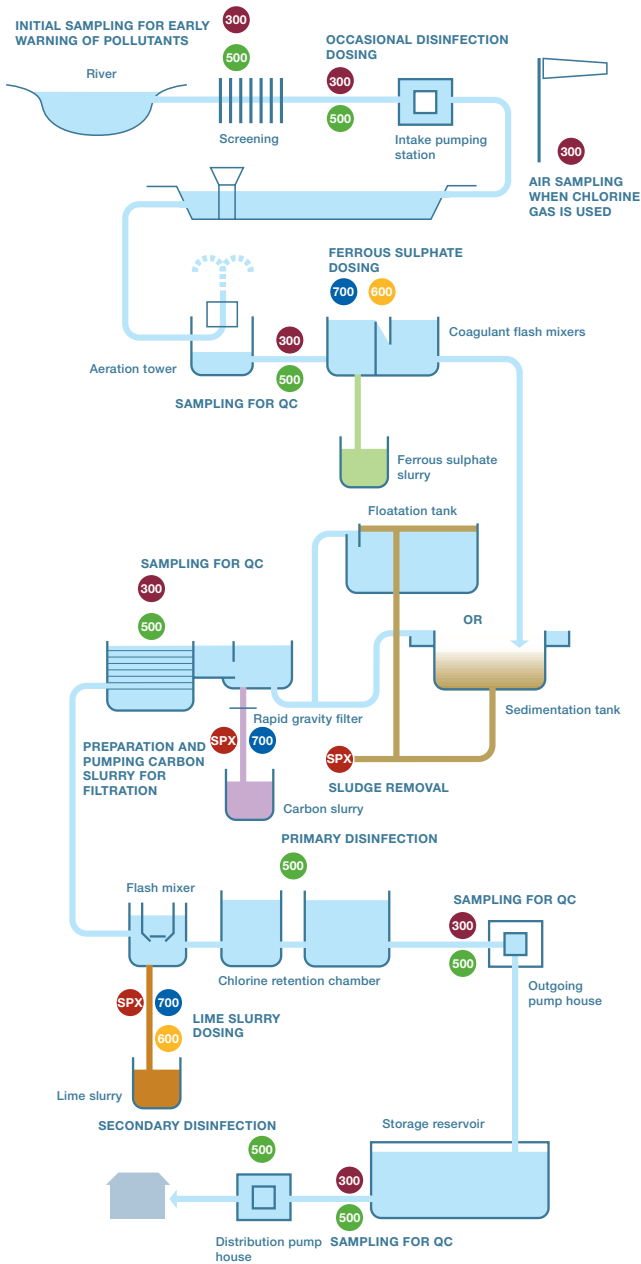
... to produce results that exceed expectations.



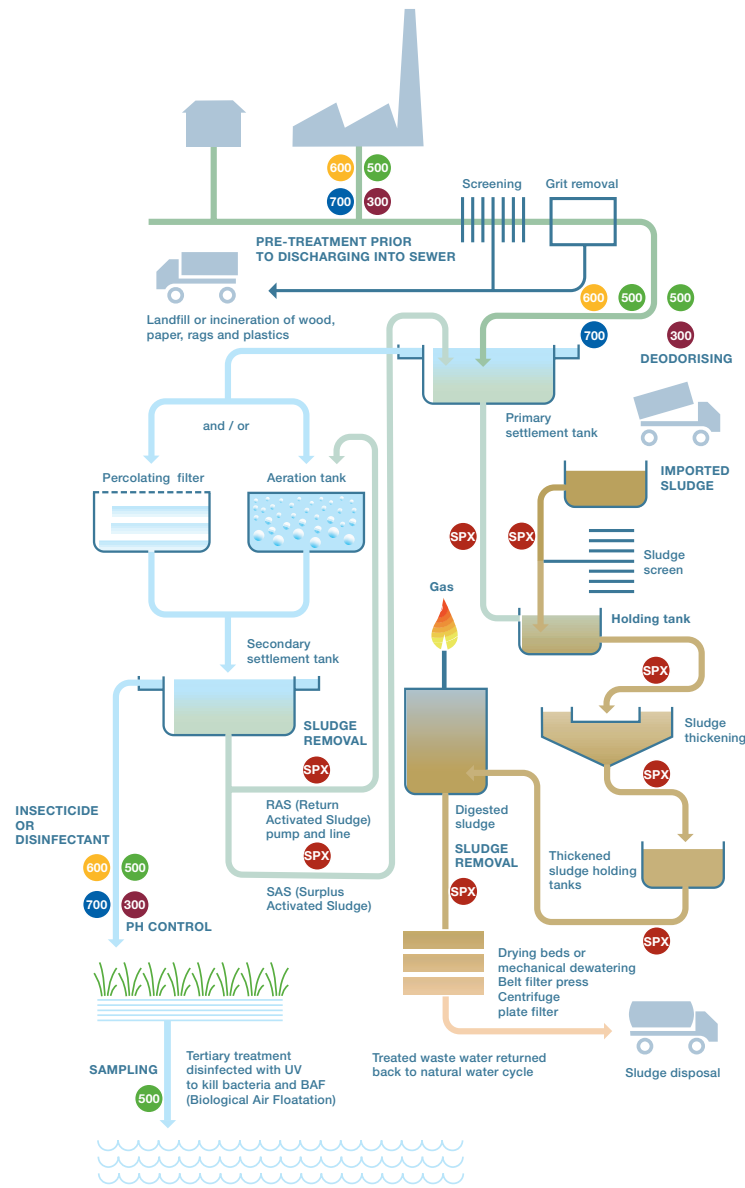
All our customers have made major improvements in process performance and reduced maintenance, resulting in cost savings previously thought unattainable.



Water treatment - Potable Water



Waste treatment - Sewage



Pumps series normally used

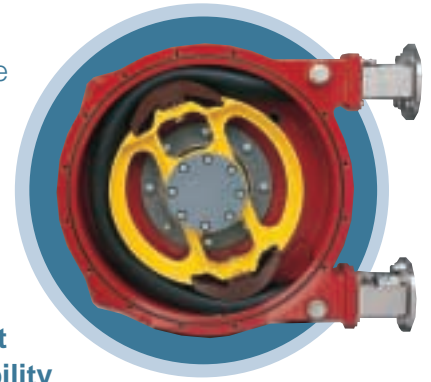
- 300 300 Series
- 500 500 Series
- 600 600 Series
- 700 700 Series
- SPX SPX Series



Increased reliability and cost reductions for sewage and waste treatment ...

All treatment works must meet increasingly stringent levels of discharge consent, whilst reducing operating costs. Critical processes such as primary sludge transfer and digester feed must be carried out reliably. Watson-Marlow Breedel pumps are able to meet these demanding performance levels by their:

- **Consistent and predictable performance**
- **Lowest whole life cost**
- **Simple pump installation**
- **Increased pump life and greater reliability**



- Transfer of primary, secondary, humus, returned and activated sludges
- Digester, filter press and centrifuge feed
- Sampling, metering and dosing of additives

... with simple installation, enhanced pump operation and system performance...

Longer life and greater reliability

Pump failures can cause major problems resulting in downtime and high call out charges. Watson-Marlow Breedel pumps totally contain the pumped medium within the hose. It is resistant to abrasive wear, has a clear flow path and operates without the need for seals or valves. Pump operation is predictable, and even when transferring fibrous and solids laden materials, the risk of clogging and blockage is avoided, ensuring breakdowns are eliminated.

Maintenance

All pumps require servicing throughout their working life. Dismantling and assembly of traditional positive displacement pumps can be time consuming, difficult and expensive. Watson-Marlow Breedel pumps require only one component, the hose, to be replaced. Hose replacement can be carried out in-situ without the need for special tools. No other pump is able to offer such ease of maintenance, low spares inventory and lowest whole life cost.

Installation

Many pumps require careful positioning and expensive civil engineering costs for correct operation, the construction of a dry sump, for example. Watson-Marlow Breedel pumps allow easy and flexible installation with their complete dry-running and full self-priming capabilities. This allows pump positioning to suit site layout giving easy maintenance access with low initial capital costs.

Consistent and predictable pump performance

Changes in pumped medium viscosity can cause slip and backflow in traditional positive displacement pumps, resulting in process fluctuations. Watson-Marlow Breedel pumps provide true linear volumetric accuracy which aids system control regardless of fluid viscosity changes.

Welsh Water, Greenfield WTW installed an SP80 for primary tank auto-desludging. Up to 19,000 litres per day is pumped, and over an 8 year period the pump has exceeded all

performance and reliability

expectations. With total maintenance costs of £2,490, Watson-Marlow Breedel has proved to be the best and lowest whole life cost pump for Welsh Water.



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The information contained in this document is believed to be correct, but Watson-Marlow Bredel accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.



HBO121

Pump Series

Flow Rates

Put a peristaltic in your process **Improve your performance**

100	Single channel, low flow pumps. Fixed or variable speed.	1µl/min - 50ml/min	101U
200	Near pulseless, multi-channel pumps with up to 32 channels.	0.5µl/min - 21ml/min	205U
300	Single or multi-channel pumps with manual, remote or dispensing control.	0.07ml/min - 2 litre/min	313U
500	Microprocessor controlled and IP55 process pumps with manual, auto and digital control.	10µl/min - 4.37 litre/min	505S
600	IP55 mid-flow process pumps with full CIP and SIP capability. Fixed or variable speed.	50ml/min - 18.3 litre/min	624U
700	IP55 industrial pumps with manual or auto control, single or twin channel.	1.6 litre/min - 66 litre/min	704U
800	High flow hygienic pumps with full CIP and SIP capability.	2 litre/min - 133 litre/min	840
SPX	Bredel: High flow industrial pumps operating at pressures up to 16 bar (230 psi).	0.3 litre/min - 80m ³ /hr	SPX



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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TIMOTHY GUY DESIGN