

Sartorius x Watson-Marlow: Simplifying Tangential Flow Filtration for Research Scientists

A laboratory pump capable of delivering consistent flow rates during ultrafiltration and diafiltration is critical to the performance of Vivaflow® SU. Since this tangential flow filtration (TFF) cassette is designed for intuitive setup and ease of use, the pump used to operate it should have similar qualities. Peristaltic pump technology is particularly suited for this application because only the tubing is in contact with the process fluid, removing the risk of sample contamination during TFF. In collaboration with Watson-Marlow, the 323 series peristaltic pump was chosen as the optimal solution for concentrating and rebuffering large sample volumes with Vivaflow® SU. Customized to incorporate Sartorius branding, this pump provides precise flow control and creates a single-use fluid path. In addition, a reliable tube retention mechanism and smooth roller surfaces minimize tubing wear, preventing contamination and loss of valuable samples.

Case Profile

For the launch of Vivaflow® SU, a next generation research-dedicated TFF cassette, Sartorius chose to collaborate with Watson-Marlow Fluid Technology Solutions (WMFTS). Drawing on the combined expertise of both companies in filtration and fluid transfer technologies enabled a complete solution of consumables and equipment to be offered. Thanks to this collaboration, TFF is now more intuitive, efficient and accessible to research scientists.

Keywords:

Buffer exchange, collaboration, diafiltration, peristaltic pump, sample concentration, tangential flow filtration, ultrafiltration

Ultrafilters are important tools for concentration and buffer exchange in many molecule isolation workflows. Dr John Cashman, Product Manager for Lab Filtration at Sartorius, said: “As more labs apply these processes to larger feed volumes, they need a solution that avoids expensive equipment, high operating costs and complicated setup.”

While Vivaflow® SU cassettes are intuitive and economical, selecting the right equipment to run them is also essential for ensuring concentration and buffer exchange are straightforward and cost-effective. Sartorius collaborated with Watson-Marlow to select and customize a 323 series peristaltic pump, to support researchers with an effortless transition from spin filters to tangential flow filtration (TFF).

Cashman explains: “Watson-Marlow pumps and Vivaflow® SU share the same principles of ease of use. Vivaflow® is a plug-and-play TFF cassette, offering intuitive setup and rapid sample processing. Similarly, the 323 pump is quick and easy to set up. It has tool-free pump head mounting, adjustable clamps for reliable tubing retention, and a user interface that simplifies control of flow rate and direction.

“Carryover is also a challenge in research labs, especially those handling multiple sample types. However, increasingly stringent health and safety requirements and the additional time needed are making cleaning processes less favorable. Therefore, solutions like Vivaflow® SU - run by the 323 pump, which confines the sample to a single-use flow path - eliminate the risk of carryover while reducing user effort and increasing laboratory safety.”

Sartorius worked closely with Mario Zeizinger, Strategic Account Lead EMEA - Life Sciences at Watson-Marlow, to integrate the 323 pump with Vivaflow®. Zeizinger said: “We had a great collaboration with Dr Cashman to assist Sartorius with Vivaflow®. WMFTS provided sample pumps to help Sartorius with its testing. Dependability, supply reliability and flexibility of customizing colors to align with Sartorius’ brand were all important, as was the avoidance of tubing wear and sample contamination.”

As Sartorius continues to innovate in lab separation technologies, new features gained with the Watson-Marlow 323, such as remote control and instantly reversible flow direction, will support an increasing range of applications for this pump.



Figure 1: Vivaflow® SU (left) is operated by a Watson-Marlow 323 peristaltic pump (right), which makes it easy to concentrate and rebuffer large-volume samples in research laboratories.

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