

Vivaflow® System

Intuitive Lab Scale TFF,
Intuitively Automated



Product Information

Tangential flow filtration (TFF) is the most efficient and scalable method to concentrate and rebuffer samples >100 mL. Yet TFF processes naturally take longer to run because the feed and exchange volumes are higher than those applied to spin filters. To avoid over-concentration, these processes must be monitored, shifting your focus away from other experiments. However, process-oriented automation is expensive and adds complexity to your work.

Vivaflow® System is the economical and simple solution to these challenges. Ease-of-use has always been at the core of Vivaflow® cassettes, so setting up and starting a TFF process with Vivaflow® System is also deliberately effortless. In just a

few taps, your chosen process runs automatically, requiring only minor flow path adjustments between steps. You can also check TFF status such as the estimated time remaining, at any moment, in the lab or remotely.

To help maximize target yields, we combine our widest selection of membranes in any Vivaflow® cassette with the precision of Cubis® III and the Vivaflow® QApp. This ensures accurate control over each process step endpoint, preventing adsorption, over-concentration, and molecule loss. In addition, process reports document your configuration and results for easier recordkeeping, SOP development and reproducibility.

Features and Benefits

Free Time

Easily Set Up, Then Hand-Off to Automation

- Intuitive set up
- Automated processing
- Real-time monitoring

High Yield

Any Configuration, Precise Endpoint Control

- Extensive membrane choice
- Comprehensive cassette options
- Accurate process volumes

Easy Repeat

Reports Out, Process Standardization In

- Process records
- Simple SOP development
- Reproducible results

System Configuration

Whether just starting out with Vivaflow® or already a seasoned user, each Vivaflow® System can be configured to your needs. Simple by design, no auxiliary pumps or secondary balances are needed – even for multi-step processes – helping your research budget go even further.



1. Feed Reservoir

More than just a vessel for your feed sample, the feed reservoir ensures the most secure tubing connections. In addition, airtight sealing makes this an essential accessory for TFF processes that include a diafiltration step.

2. Pump

Developed by Watson-Marlow, the peristaltic pump has been selected for its precise flow rates, low pulsation, and remote input capability. By confining the sample to single use pump tubing, the risk of carryover is also eliminated.

3. Pump Head

The pump head is simple and reliable to use, thanks to tool-free mounting, easy loading and secure tubing retention. Choose between two models – one that accepts the 1.6 mm wall thickness (WT) tubing used in most Vivaflow® configurations, or the 2.4 mm WT version for running two Vivaflow® 200 cassettes in parallel.

4. Cassette Stand

For users of Vivaflow® SU TFF cassettes, this optional accessory ensures a tidy workspace.

5. Balance

A Cubis® III precision balance pre-installed with the Vivaflow® QApp and supplied with an RS232 data cable provides the main user and hardware interface. Together, these components accurately control the pump to automate TFF processes. With an 8 kg capacity and 100 mg readability, any UF or DF process step configured within the recommended operating conditions for Vivaflow® can be left to run automatically, with precision and without interruption. For fast and convenient set up, several settings in the software use predefined default values that can also be modified when more flexibility is required.

System Specifications

Software	Vivaflow®
Supported languages	Chinese, Czech, Dutch, English, French, German, Hungarian, Italian, Japanese, Korean, Polish, Portuguese, Russian, Spanish, Turkish
Supported hardware	Cubis® III 8.2 kg capacity balance, CUB8201S-1**-0 Watson-Marlow 323 Du pump, VF-APD0001-1 Watson-Marlow 313D pump head, VF-APH0001-1 or VF-APH0002-1
Supported consumables	Vivaflow® SU, Vivaflow® 50R, Vivaflow® 200
User interface	Touch (operating display), Remote (web browser)
Hardware interfaces ¹	RS232 (pump control), Ethernet (remote control, report export), USB (report export)
Report data	Start and end date/time, process mode (including prewashing and retentate collection settings), cassette configuration, feed volume and density, exchange buffer density, pump speed (per process step, configured and actual), average process rate (per UF/DF process step), endpoint (definition and value per process step, configured and actual)
Report formats	CSV, JSON, PDF, SBI, TXT

Operating Environment

System footprint ²	725 x 402 mm
Protection rating ³	IP31
Power requirements	2x power outlets supplying 100-120 V/200-240 V at 50/60 Hz
Temperature	5-40 °C
Relative humidity, non-condensing	80 % up to 31 °C decreasing linearly to 50 % at 40 °C

TFF Process Configuration

Process modes ⁴	UF, DF, UF/UF, DF/UF, UF/DF/UF
Prewashing	On, Off
Process speed	High or low, user-adjustable
Recommended feed volume ⁵	0.1-5 L (UF) 0.1-1.5 L (DF)
Endpoint definition	Concentration factor or retentate volume (UF) Number of exchange volumes or exchange efficiency (DF)
Retentate collection	Air purge, Buffer flush, None

¹ For process reports, CSV, JSON, PDF or TXT formats can be exported via ethernet cable or USB storage device. Reports in SBI format can be exported via ethernet or USB cable. Reports can also be printed wirelessly to the lab printer (order number YDP30-NET), sold separately.

² Based on an ultrafiltration process configuration with up to two Vivaflow® SU cassettes, including a cassette stand, excluding power and data cables.

³ Lowest protection rating for the complete system. For hardware-specific protection ratings, refer to the relevant operating instructions.

⁴ UF = ultrafiltration, used for applications including sample concentration and volume reduction. DF = diafiltration, a more efficient and scalable alternative to dialysis and gel filtration, used for applications including buffer exchange, desalting and low molecular weight impurity removal.

⁵ Limits depend on total membrane area of the chosen cassette configuration. For further information, refer to the relevant Vivaflow® operating instructions. Recommended feed volume range for DF based on a standard process using 5x exchange volumes. To run DF for larger feed volumes, choose the UF/DF or UF/DF/UF process mode to first concentrate the sample to 1.5 L or less.

Ordering Information

To configure a system or add-on kit, and benefit from special pricing, visit www.sartorius.com. When up to two components are required to automate an existing set up, select them from the list below.

Description	Package Contents	Order No.
Feed reservoir, 500 mL	1 unit	VF-ARV0500-1
Peristaltic pump	1 unit 1 country-specific power lead	VF-APD0001-1
Peristaltic pump head for 1.6 mm WT tubing	1 unit 1 user guide	VF-APH0001-1
Peristaltic pump head for 2.4 mm WT tubing	1 unit 1 user guide	VF-APH0002-1
Cassette stand	1 unit	VF-AST0001-1
Balance, 8.2kg ⁶	1 unit 1 country-specific power lead 1 user guide	CUB8201S-1**-0
Data cable	1 unit	YCC-D09MM-EC-2.9M

⁶ Replace asterisks in the order number with your country/region-specific code (BR, CN, IN, S0, S1, S2 or S3).

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