SARTORIUS

Simplifying Progress

Lab Ultrafiltration Products

From Centrifuge to Crossflow:
Experience Unmatched
Versatility and Performance

DOMINIQUE DUTSCHER SA



Solutions for Any UF and DF Application

From the laboratory to the field, ultrafilters are fundamental tools in many molecule isolation and purification workflows.

To meet their diverse applications, from research and development to analysis and diagnostics, Sartorius stands at the forefront of this technology. We offer the most comprehensive range of spin filters, tangential flow filtration (TFF) cassettes, and unique pressure cell and solvent absorption ultrafilters. Our cutting-edge ultrafilter designs are combined with an extensive selection of membranes to provide optimum ultrafiltration (UF) and diafiltration (DF) process efficiency for virtually any macromolecule.

With Sartorius, you can always find the perfect ultrafilter for your specific needs, streamlining your workflow and maximizing the recovery of your protein, virus, nucleic acid, or other molecule.



Benefits of Sartorius Laboratory Ultrafilters

Superior Speed
Reduce handling time, eliminate membrane blocking, and forget process optimization.

Unrivalled Flexibility
Process one sample or many, quickly or gently, from feed volumes of 0.1 mL to 5 L.

Maximum Efficiency
Avoid transfer steps, simplify retentate collection, and prevent sample loss.

Sample Integrity
Collapse your workflow, improve laboratory safety, and eliminate carryover.

Application Support
Over 150 years of filtration expertise and an extensive library of technical guides.

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For more information, visit sartorius.com

Operating Principle and Ultrafilter Formats

Ultrafilters use semipermeable membranes to separate suspended particles or macromolecules from the liquid in a sample (feed). The membranes are anisotropic (asymmetric), consisting of a thin skin layer and a thicker substructure. When a pressure differential is applied across the membrane, pores in the skin layer function to retain molecules above a certain molecular weight or size (retentate), while liquid is forced through the membrane (permeate). During this process, the substructure provides mechanical strength and contributes to the rate of filtration.

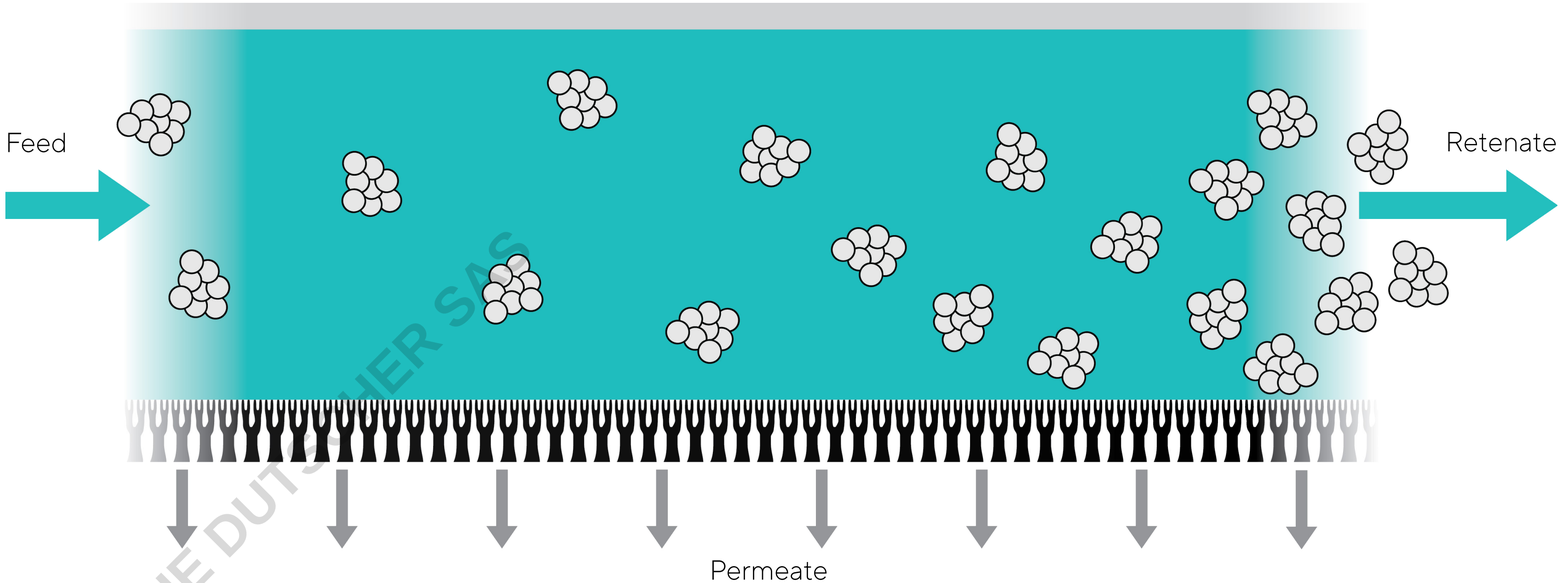


Figure 1: *Sartorius pioneered the use of TFF in centrifugal ultrafilters over thirty years ago, significantly improving process efficiency for smaller feed volumes.*

Centrifugal
12 spin filters for 0.1 to 90 mL feeds, including options with TFF, normal flow and counterflow.

Crossflow
Three modular TFF cassettes designed for single- or multi-use and rapid UF | DF of up to 5 L feeds.

Pressure
Two spin filters are easily converted to pressure cells for gentler processing of 5 to 100 mL feeds.

Static
Two solvent absorption ultrafilters for concentrating 1 to 20 mL feeds equipment-free.

Disc
Three chemistries in various diameters | MWCOs, for legacy stirred cells and custom applications.

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For more information, visit sartorius.com

View the Complete Portfolio

Ultrafiltration Membrane Selection

When choosing an ultrafilter, there are two key membrane characteristics to consider – chemistry and molecular weight cut-off (MWCO).

Polyethersulfone (PES) and regenerated cellulose (RC) are the most common chemistries and are suitable for many research applications. Sartorius offers both materials, as well as cellulose (tri)acetate (CA/CTA) options for more specialized processes.

MWCO is a measure of the nominal pore size, expressed in kilo Daltons (kDa). It is a convenient way to understand the ability of a UF membrane to retain a protein of known molecular weight. For optimal performance, select a MWCO up to half the size of the molecule to be retained.

When working with other molecules such as nanoparticles, nucleic acids and viral vectors, use our Selection Guide to easily match the target diameter or length to the recommended MWCO.

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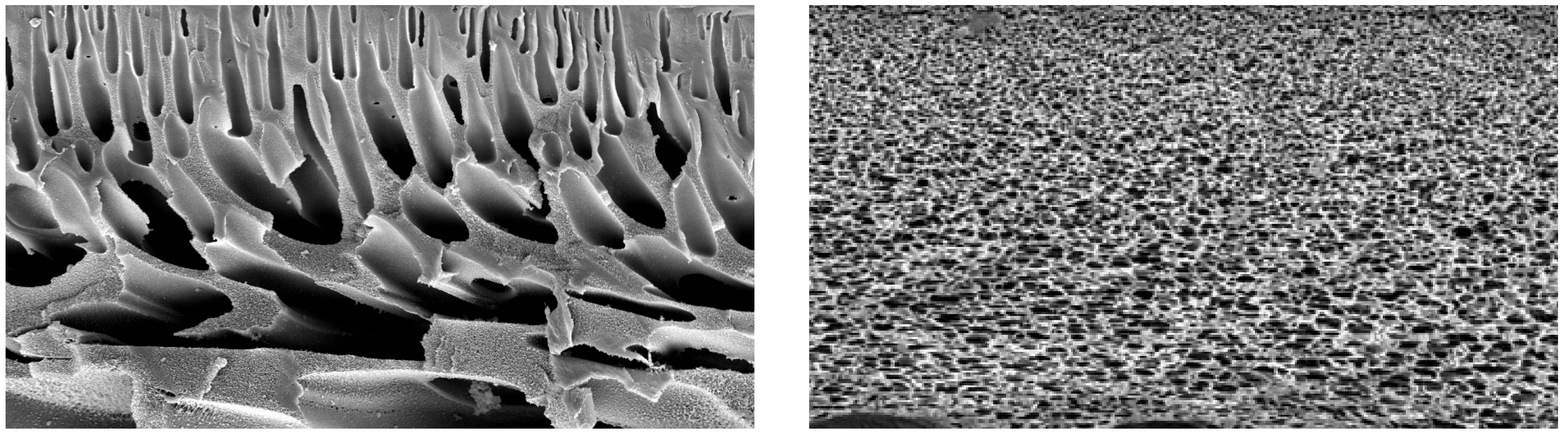


Figure 2: *Sartorius is your single source supplier for both PES, left, and Hydrosart® RC, right, membranes, ensuring optimal performance in any UF | DF application.*

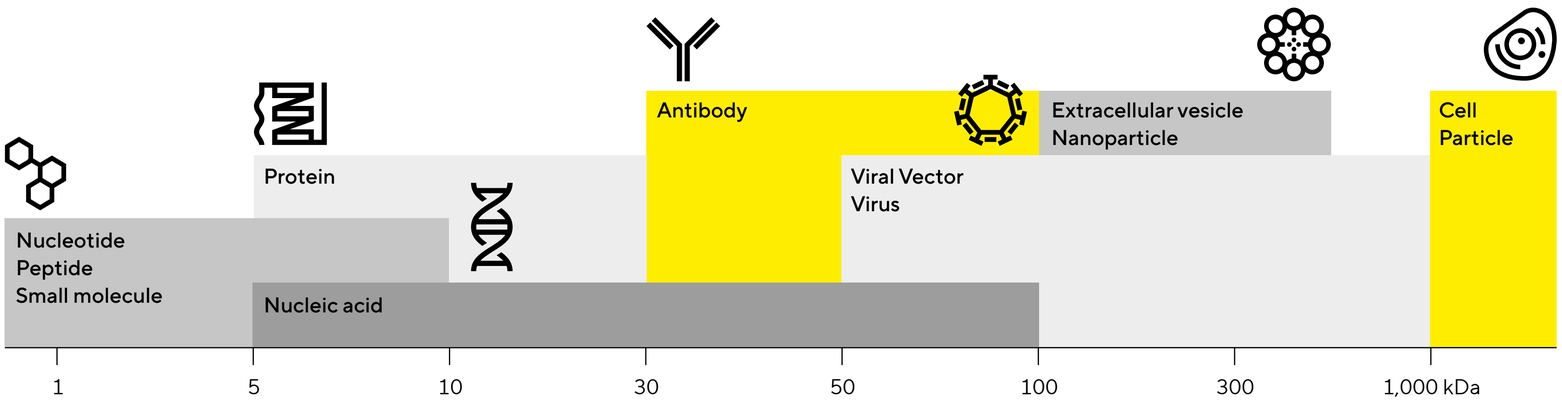


Figure 3: *The wide MWCO selection in Sartorius ultrafilters ensures maximum recovery of virtually any molecule.*

For more information, visit sartorius.com

Download the Selection Guide

Ultrafiltration Applications

Retaining, removing or separating particles and macromolecules in processes including:

- Cell culture and process fluid clarification
- Protein, nucleic acid and virus concentration
- Nanoparticle separation and enrichment
- Pathogen isolation from water samples
- Deproteinization (protein removal)
- Crude fractionation of HMW and LMW substances
- Sample volume reduction

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For more information, visit sartorius.com

Diafiltration Applications

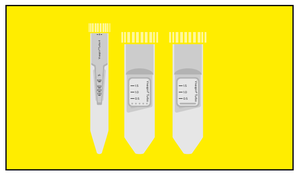
Combining ultrafiltration with the continuous or discontinuous addition of fresh solvent for:

- Cell washing
- Buffer exchange and desalting
- Protein solubilization and refolding
- Chromatography sample preparation
- Biologics formulation development
- Polishing and contaminant removal
- Protein-ligand binding studies

Read the Qualification Guide

Vivaspin®

Take Crossflow for a Spin: Revolutionary Ultrafilters for Rapid Processing and Maximum Recovery of Any Molecule



Vivaspin® Turbo

- Enhanced design delivers the fastest speeds
- PES and RC ensure maximum target recovery
- Added chemical resistance for more sample types
- Effortless, pipette-friendly retentate collection

Membrane Availability

Recommended Feed Volume	MWCO (kDa)					
	3	5	10	30	50	100
Vivaspin® Turbo 4 1 – 4 mL	■	■	■	■	■	■
Vivaspin® Turbo 15 4 – 15 mL	■	■ ■	■ ■	■ ■	■ ■	■ ■

Membrane chemistries:
■ PES ■ RC

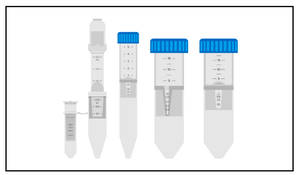
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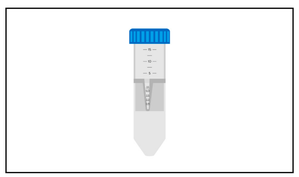
Vivaspin®

Take Crossflow for a Spin: Revolutionary Ultrafilters for Rapid Processing and Maximum Recovery of Any Molecule



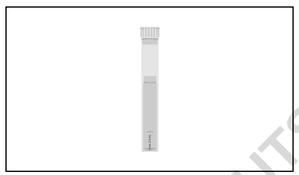
Vivaspin®

- The original crossflow spin filters for fast UF | DF
- PES, Hydrosart® RC and CTA for high recovery
- Pressure-ready options for se/nsitive samples
- Continuous DF enables gentle buffer exchange



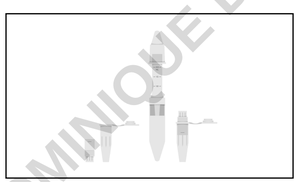
Vivaspin® Endotest

- Simple sample preparation for LAL testing
- Pyrogen-free centrifugal ultrafilter
- 20 kDa CTA maximizes endotoxin retention
- Efficient removal of interfering substances



Vivaspin® Filtrate

- Easily isolate small molecules for analysis
- Counterflow removes proteins without blocking
- Unsupported membranes prevent analyte trapping
- Direct collection of filtered samples



Vivacon®

- Improve recovery of linear and dilute molecules
- Recommended for primer removal and FASP
- Available DNA-free for forensics applications
- Pipette-free retentate collection

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Membrane Availability

Recommended Feed Volume	MWCO (kDa)								
	3	5	10	30	50	100	300	1,000	0.2 µm
Vivaspin® 500 0.1 – 0.5 mL	■	■	■	■	■	■	■	■	■
Vivaspin® 2 0.4 – 3 mL	■ ■[1]	■ ■	■ ■ ■	■ ■ ■[2]	■	■			
Vivaspin® 6 2 – 6 mL	■	■	■	■	■	■	■	■	■
Vivaspin® 15R 2 – 15 mL	■[1]	■	■	■					
Vivaspin® 20 5 – 20 mL	■	■	■	■	■	■	■	■	■
Vivaspin® 100 20 – 98 mL		■	■	■	■	■	■	■	■
Vivaspin® Endotest 2 – 15 mL				■[2]					
Vivaspin® Filtrate 0.5 – 2.5 mL		■	■	■[2]		■	■		
Vivacon® 500 0.1 – 0.5 mL	■[1]		■	■[3]	■	■[3] ■[4]			
Vivacon® 2 0.4 – 2 mL	■[1]		■	■	■	■[3] ■[4]			■

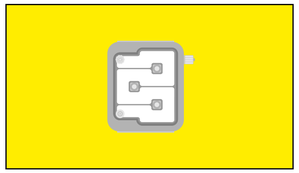
Membrane chemistries:
■ PES ■ Hydrosart® RC ■ CA | CTA

[1] 2 kDa Hydrosart® RC. [2] 20 kDa CTA. [3] Membrane also available in DNA-free, PCR grade Vivacon®. [4] 125 kDa CA.

For more information, visit sartorius.com

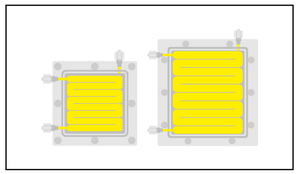
Vivaflow®

Go Against the Flow: Intuitive, Effortless and Sustainable Tangential Flow Filtration (TFF) for the Lab



Vivaflow® SU

- Easier setup with a lower environmental impact[5]
- All-in-one design runs on a standard laboratory pump
- Advanced flow path delivers optimization-free UF | DF
- More flexibility to handle any sample without carryover



Vivaflow®

- Budget-friendly TFF cassettes that are easy to use
- Hydrosart® RC and PES provide high recoveries
- Cleaning process reduces contamination risk
- Modular format ensures scalability from 0.1 to 5 L

Membrane Availability

Recommended Feed Volume[5]	MWCO (kDa)								
	3	5	10	30	50	100	300	1,000	0.2 µm
Vivaflow® SU 0.1 – 0.5 L	■ ■[1]	■ ■	■ ■	■ ■	■	■ ■	■ ■	■	■
Vivaflow® 50R 0.1 – 0.5 L		■	■	■		■			
Vivaflow® 200 0.5 – 2.5 L	■ ■[1]	■ ■	■ ■	■ ■	■	■ ■			■

Membrane chemistries:
■ PES ■ Hydrosart® RC

[1] 2 kDa Hydrosart® RC.

[5] We support the bioeconomy. An amount of bio-circular material equivalent to 79% of each Vivaflow® SU cassette is sourced and allocated to the plastic housing through the ISCC mass balance approach.

[6] All Vivaflow® SU and Vivaflow® cassettes are modular, allowing the feed volume to be doubled to 1 or 5 L.

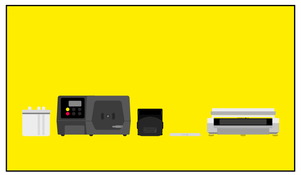
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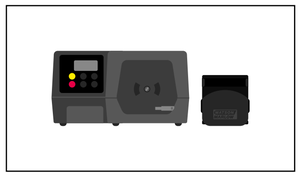
Vivaflow® System

Your Virtual Helping Hand: Intuitive Lab Scale TFF, Intuitively Automated



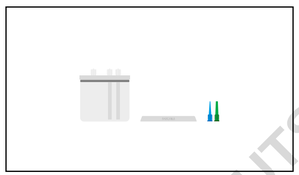
Vivaflow® System ☆ NEW

- All the hardware and software needed to easily automate TFF
- Run any Vivaflow® cassette to maximize efficiency and yield
- Precise endpoint control prevents over-concentration
- Process reports support SOP development and reproducibility



Vivaflow® Pumps

- Standalone equipment to run TFF processes manually
- Tool-free pump head mounting and easy tube loading
- Accurate digital control provides consistent flow rates
- Low maintenance with no risk of sample contamination

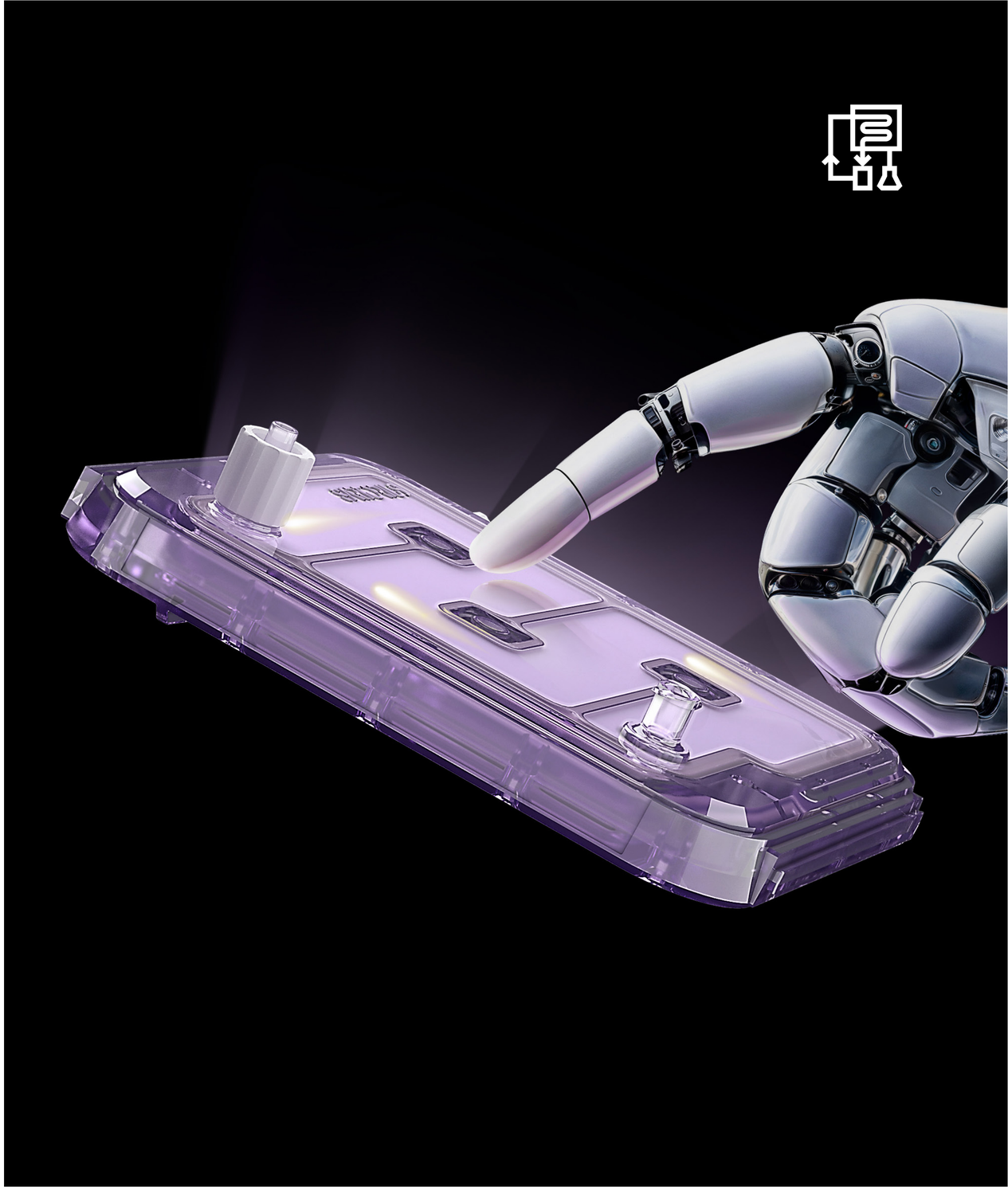


Vivaflow® Accessories

- Feed reservoir and dedicated tubing kit for continuous DF
- Optional Vivaflow® cassette stand for a tidier set up[7]
- Complete replacement tubing kits for multi-use cassettes
- Alternative flow restrictors to refine process speed or pressure[8]

[7] Vivaflow® SU only.
[8] Blue flow restrictors can increase the rate of UF | DF, green flow restrictors reduce pressure for high-viscosity or aggregation-prone samples.

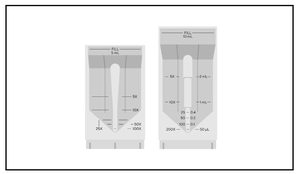
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Vivapore®

Sit Still and Concentrate: Solvent Absorption Ultrafilters for High Throughput, Equipment-Free Handling



Vivapore®

- Benchtop protein concentration for research
- No risk of sample loss or cross contamination
- Optional reservoir for doubled capacity or combined UF | DF
- Easily check retentate volume and concentration factor

Membrane Availability

Recommended Feed Volume	MWCO (kDa)
	7.5
Vivapore® 5 1 – 5 mL	■
Vivapore® 10 2 - 10 mL°	■

Membrane chemistries:
■ PES
° 20 mL with optional expansion reservoir.

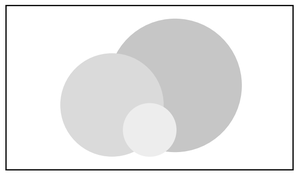
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Ultrafiltration Membranes

Tailor Your Process: Comprehensive Chemistries, Cut-Offs and Diameters for Custom UF | DF Applications



Ultrafiltration Membranes

- Disc format to easily customize, test and optimize UF | DF
- Recommended for use with legacy stirred cells or filter holders
- PES, Hydrosart® RC and CTA to suit any process
- Wide range of MWCOs and filter diameters

Membrane Availability

Disc Diameter	MWCO (kDa)						
	1	5	10	30	50	100	300
25 mm		■ ■ ■	■ ■	■ ■ ■ [2]			
44 mm		■	■ [10]				
47 mm	■	■ ■ ■	■ ■ ■	■ ■ ■ [2]	■	■ ■	■
63 mm	■ ■ [1]	■ ■	■ ■	■ ■ ■ [2]		■	
76 mm	■	■ ■	■ ■	■ ■	■		■
150 mm			■				

Membrane chemistries:
■ PES ■ Hydrosart® RC ■ CTA
[1] 2 kDa Hydrosart® RC. [2] 20 kDa CTA. [10] 43 mm diameter.

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DOMINIQUE DUTSCHER SAS



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