SARTORIUS

Product Datasheet

Vivaspin® Turbo 4 and 15 PES and RC

Enabling the Fastest Sample Concentration with Highest Recoveries



DOMINIQUE DUTSCHER SAS

Benefits

- Complete Recoveries
- Fastest Concentrations
- Highest Chemical Resistance
- Unique PES and RC Device Range
- Optimal Sample to Membrane Compatability

Product Information

Vivaspin® Turbo 4 and 15 PES and RC centrifugal concentrators offer the optimal solution to any concentration or buffer exchange application with their broad range of MWCOs and unique membrane choice.

Highest flow rates are achieved due to their twin vertical membranes which minimize protein polarization and subsequent fouling of the membrane. Additionally, their sleek internal profile ensures maximum process speeds right down to the last 100 µL.

Working Principle
Centrifugation provides the vector to clear solvent and microsolutes through an ultrafiltration membrane, enabling separation of macromolecular species from solvents primarily on the basis of size. It is particularly appropriate for the concentration of macromolecules and can also be used to purify molecular species or for solvent exchange. Ultrafiltration is a gentle, non-denaturing method that is more efficient and flexible than alternative processes.

High Performance
In a single spin, 4 or 15 mL solutions can be concentrated up to 150×. Samples can be typically concentrated in 10–30 minutes with macromolecular recoveries in excess of 90%.

Optimized Design for Fastest Concentration Results
The Vivaspin® Turbo optimized design with sleek internal profile ensures maximum process speeds all the way down to the last few microlitres. UV and ultrasonic joining technologies provide a smooth transition between membrane and plastic housing, allowing all of your valuable sample to be collected from the unique, pipette friendly angular dead-stop pocket.

The ultimate in centrifugal ultrafiltration technology

- Sleek internal design: Ensures maximum process speed for complete ultrafiltration
- Large twin vertical membranes: Avoids fouling of the membrane thanks to minimized protein polarization.
- Unique angular dead stop pocket: Eliminates the risk of the sample concentrating to dryness, whilst being easily accessible to standard 200 µL pipette tips for convenient and complete recovery of the concentrate.

Optimized Choice of Materials for High Chemical Compatibility
The combination of polyethersulfone (PES) | regenerated cellulose (RC), polystyrene and polypropylene (PP) allows sterilization and depyrogenization of the Vivaspin® Turbo units.

PES membranes are preferred for their low fouling characteristics, exceptional flux and broad pH range compatibility.

RC membranes offer a neutral membrane charge and broad chemical compatibility well suited to general sample types.

Applications

Sample preparation
- Sample (protein, lipid, exosomes, virus, nanoparticle, macromolecule) concentration
- Desalting | dialysis
- Buffer exchange

Your sample is often the result of several months of research. It is valuable, and the Vivaspin® Turbo range provides the highest recoveries.

Summary
For scientists and lab technicians who need to quickly and safely concentrate a wide range of biological samples of 2 mL to 15 mL initial volume up to 150-fold, Sartorius offers the Vivaspin® Turbo 4 and 15 PES and RC ultrafilters.

Unlike alternative ultrafiltration units, Vivaspin® Turbo is equipped with an angular dead-stop pocket, that enables reproducible and complete recoveries, while being the fastest in the market.

Now with the choice between both PES and RC membrane variants, the Vivaspin® Turbo range enables users to choose the best membrane for their target, in the same super-fast device.

DOMINIQUE DUTSCHER SAS

Technical specifications

		Vivaspin® Turbo 4 PES	Vivaspin® Turbo 15 PES	Vivaspin® Turbo 15 RC
Materials	Body	Styrene butadiene copolymer	Styrene butadiene copolymer	Styrene butadiene copolymer
	Filtrate vessel	Polypropylene	Polypropylene	Polypropylene
	Concentrator cap	Polypropylene	Polypropylene	Polypropylene
	Membrane	Polyethersulfone	Polyethersulfone	Regenerated Celloluse
Dimensions	Total length, concentrator insert	75.5 mm	77 mm	77 mm
	Total length, assembled	122.5 mm	118 mm	118 mm
	Diameter, concentrator insert	14.6 mm	27 mm	27 mm
	Active membrane area	3.2 cm²	7.2 cm²	8.1 cm²
	Hold up volume, membrane	<10 µL	<10 µL	<10 µL
	Dead-stop volume. swing out	40 µL	100 µL	100 µL
	Dead-stop volume, fixed angle	30 µL	60 µL	60 µL
Concentrator capacity	Swing bucket rotor	4 mL	15 mL	15 mL
	Fixed angle rotor (25°)	4 mL	9 mL	9 mL
Maximum speed 3 kDa – 50 kDa	Swing bucket rotor	4,000 *g*	4,000 *g*	4,000 *g*
	Fixed Angle rotor (25°)	7,500 *g*	4,000 *g*	6,000 *g*
Maximum speed 100 kDa	Swing bucket rotor	3,000 *g*	2,000 *g*	3,000 *g*
	Fixed Angle rotor (25°)	5,000 *g*	2,000*g*	6,000 *g*
Sterilization	EtO or 70% EtOH			
Removal of endotoxins [Depyrogenization]	1N NaOH*			

* PES variants only

DOMINIQUE DUTSCHER SAS

Performance Characteristics

Vivaspin® Turbo 4 PES

Time to concentrate up to 30× at 20°C and solute recovery				
Rotor	Swing bucket		Fixed angle (25°)	
Centrifugal force	4,000 *g*		7,500 *g*	
Start volume	4 mL		4 mL	
	Time	Recovery	Time	Recovery
Cytochrome c* (12.4 kDa)				
3 kDa MWCO PES	60 min.	98%	80 min.	96%
5 kDa MWCO PES	40 min.	95%	50 min.	94%
Lysozyme* (14.3 kDa)				
3 kDa MWCO PES	65 min.	95%	70 min.	93%
5 kDa MWCO PES	50 min.	94%	60 min.	92%
α-Chymotrypsin** (25 kDa)				
10 kDa MWCO PES	10 min.	95%	8 min.	95%
BSA** (66 kDa)				
10 kDa MWCO PES	10 min.	98%	7 min.	97%
30 kDa MWCO PES	8 min.	96%	6 min.	97%
IgG** (160 kDa)				
30 kDa MWCO PES	18 min.	94%	13 min.	92%
50 kDa MWCO PES	16 min.	93%	12 min.	90%
100 kDa MWCO PES****	17 min.	94%	13 min.	92%

Vivaspin® Turbo 15 PES

Time to concentrate up to 20× at 20°C and solute recovery				
Rotor	Swing bucket		Fixed angle (25°)	
Centrifugal force	4,000 *g*		4,000 *g*	
Start volume	15 mL		9 mL	
	Time	Recovery	Time	Recovery
Cytochrome c* (12.4 kDa)				
3 kDa MWCO PES	61 min.	98%	86 min.	97%
5 kDa MWCO PES	30 min.	98%	50 min.	98%
Lysozyme* (14.3 kDa)				
3 kDa MWCO PES	56 min.	98%	87 min.	97%
5 kDa MWCO PES	33 min.	96%	50 min.	96%
α-Chymotrypsin** (25 kDa)				
10 kDa MWCO PES	10 min.	95%	10 min.	95%
BSA** (66 kDa)				
10 kDa MWCO PES	10 min.	99%	10 min.	99%
30 kDa MWCO PES	8 min.	98%	10 min.	98%
IgG** (160,000 MW)				
30 kDa MWCO PES	23 min.	95%	17 min.	95%
50 kDa MWCO PES	20 min.	94%	15 min.	94%
100 kDa MWCO PES***	30 min.	92%	16 min.	92%

DOMINIQUE DUTSCHER SAS

Vivaspin® Turbo 15 RC

Time to concentrate up to 20× at 20°C and solute recovery				
Rotor	Swing bucket		Fixed angle (25°)	
Centrifugal force	4,000 *g*		7,500 *g*	
Start volume	15 mL		9 mL	
	Time	Recovery	Time	Recovery
Lysozyme* (14.3 kDa) 5 kDa MWCO RC	23 min.	94%	25 min.	92%
α-Chymotrypsin** (25 kDa) 10 kDa MWCO RC	7 min.	93%	9 min.	92%
BSA** (66 kDa) 10 kDa MWCO RC 30 kDa MWCO RC	 8 min. 4 min.	 94% 96%	 10 min. 4 min.	 98% 93%
IgG** (160 kDa) 50 kDa MWCO RC 100 kDa MWCO RC****	 17 min. 18 min.	 95% 89%	 12 min. 11 min.	 96% 89%

* 0.25 mg/mL
** 1 mg/mL
*** 3,000 *g* centrifugal speed
**** 3,000 *g* swing-out | 5,000 *g* fixed angle
***** 3,000 *g* swing-out | 4,000 *g* fixed angle

Ordering Information

Vivaspin® Turbo 4 and 15 centrifugal concentrators, disposable ultrafiltration units, for processing sample volumes of 2 – 4 mL and 15 mL, Polyethersulfone UF membrane.

Vivaspin® Turbo 4 PES

Cut off	Quantity	Order no.
3 kDa MWCO	25	VS04T91
3 kDa MWCO	100	VS04T92
5 kDa MWCO	25	VS04T11
5 kDaMWCO	100	VS04T12
10 kDa MWCO	25	VS04T01
10 kDa MWCO	100	VS04T02
30 kDa MWCO	25	VS04T21
30 kDa MWCO	100	VS04T22
50 kDa MWCO	25	VS04T31
50 kDa MWCO	100	VS04T32
100 kDa MWCO	25	VS04T41
100 kDa MWCO	100	VS04T42

Vivaspin® Turbo 15 PES

Cut off	Quantity	Order no.
3 kDa MWCO	12	VS15T91
3 kDa MWCO	48	VS15T92
5 kDa MWCO	12	VS15T11
5 kDa MWCO	48	VS15T12
10 kDa MWCO	12	VS15T01
10 kDa MWCO	48	VS15T02
30 kDa MWCO	12	VS15T21
30 kDa MWCO	48	VS15T22
50 kDa MWCO	12	VS15T31
50 kDa MWCO	48	VS15T32
100 kDa MWCO	12	VS15T41
100 kDa MWCO	48	VS15T42

Vivaspin® Turbo 15 RC

Cut off	Quantity	Order no.
5 kDa MWCO	12	VS15TR11
5 kDa MWCO	48	VS15TR12
10 kDa MWCO	12	VS15TR01
10 kDa MWCO	48	VS15TR02
30 kDa MWCO	12	VS15TR21
30 kDa MWCO	48	VS15TR22
50 kDa MWCO	12	VS15TR31
50 kDa MWCO	48	VS15TR32
100 kDa MWCO	12	VS15TR41
100 kDa MWCO	48	VS15TR42

DOMINIQUE DUTSCHER SAS

Sales and Service Contacts

For further contacts, visit
www.sartorius.com

Germany
Sartorius Lab Instruments
GmbH & Co. KG
Otto-Brenner-Strasse 20
37079 Goettingen
Phone +49 551 308 0

USA
Sartorius Corporation
565 Johnson Avenue
Bohemia, NY 11716
Phone +1 631 254 4249
Toll-free +1 800 635 2906

DOMINIQUE DUTSCHER SAS

Specifications subject to change without notice.
Printed and copyrighted by Sartorius Stedim Biotech GmbH.
Status: 08 | 2021