

Vivaspin® Turbo 4 and 15 PES and RC

Enabling the fastest
sample concentration with
highest recoveries

Benefits

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



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 micro molecules through an ultrafiltration membrane to separate macromolecular species and 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 non denaturing method that is more efficient, flexible and gentle 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's optimized design, its sleek internal profile, ensures maximum process speeds right the way down to the last few micro liters. The UV and ultrasonic joining technologies allow for a smooth joint transition between membrane and plastic housing, allowing all of your valuable sample to be collected into the unique pipette friendly dead stop pocket.

The ultimate in centrifugal ultrafiltration technology:

- Sleek internal design: Ensures maximum process speed for the complete filtration
- Large twin vertical membranes: A fouling of the membrane is avoided due to minimized protein polarization.
- Unique angular dead stop pocket: The dead stop pocket in both Vivaspin® Turbo 4 & 15 is easy to access with standard 200 µL pipette tips due to its patent pending angular design. It eliminates the risk of the sample running to dryness while allowing highest 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. Your sample is valuable, and the Vivaspin® Turbo range provides highest recovery.

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 competitive ultrafiltration units, Vivaspin® Turbo units are 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.

Technical specifications

		Vivaspin® Turbo 4 PES	Vivaspin® Turbo 15 PES	Vivaspin® Turbo 15 RC
Materials	Body	Styrene butadiene copolymere	Styrene butadiene copolymere	Styrene butadiene copolymere
	Filtrate vessel	Polypropylene	Polypropylene	Polypropylene
	Concentrator cap	Polypropylene	Polypropylene	Polypropylene
	Membrane	Polyethersulfone (PES)	Polyethersulfone (PES)	Regenerated Cellulose (RC)
Dimensions	Total length (concentrator insert)	75.5 mm	77 mm	77 mm
	Total length (in tube with cap)	122.5 mm	118 mm	118 mm
	Diameter (concentrator insert)	14.6 mm	27 mm	27 mm
	Active membrane area	3.2 cm ²	7.2 cm ²	8.1 cm ²
	Hold up volume of membrane	<10 µL	<10 µL	<10 µL
	Dead stop volume in swing out	40 µL	100 µL	100 µL
	Dead stop volume in 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]	Flushing with 1N NaOH*			

* PES variants only

Performance Characteristics

Vivaspin® Turbo 4 PES

Time to concentrate up to 30× [min.] at 20°C and solute recovery %				
Rotor	Swing bucket		Fixed angle (25°)	
Centrifugal speed	4,000 × g		7,500 × g	
Start volume	4 mL		4 mL	
	Min.	Rec.	Min.	Rec.
Cytochrome c* (12,400 MW) 3 MWCO PES	60	98	80	96
Lysozyme* (14,300 MW) 3 MWCO PES	65	95	70	93
Cytochrome c* (12,400 MW) 5 MWCO PES	40	95	50	94
Lysozyme* (14,300 MW) 5 MWCO PES	50	94	60	92
α-Chymotrypsin** (25,000 MW) 10 MWCO PES	10	95	8	95
BSA** (66,000 MW) 10 MWCO PES	10	98	7	97
30 MWCO PES	8	96	6	97
IgG** (160,000 MW) 30 MWCO PES	18	94	13	92
50 MWCO PES	16	93	12	90
100 MWCO PES****	17	94	13	92

Vivaspin® Turbo 15 PES

Time to concentrate up to 20× [min.] at 20°C and solute recovery %				
Rotor	Swing bucket		Fixed angle (25°)	
Centrifugal speed	4,000 × g		4,000 × g	
Start volume	15 mL		9 mL	
	Min.	Rec.	Min.	Rec.
Cytochrome c* (12,400 MW) 3 MWCO PES	61	98%	86	97%
Lysozyme* (14,300 MW) 3 MWCO PES	56	98%	87	97%
Cytochrome c* (12,400 MW) 5 MWCO PES	30	98%	50	98%
Lysozyme* (14,300 MW) 5 MWCO PES	33	96%	50	96%
α-Chymotrypsin** (25,000 MW) 10 MWCO PES	10	95%	10	95%
BSA** (66,000 MW) 10 MWCO PES	10	99%	10	99%
30 MWCO PES	8	98%	10	98%
IgG** (160,000 MW) 30 MWCO PES	23	95%	17	95%
50 MWCO PES	20	94%	15	94%
100 MWCO PES***	30	92%	16	92%

Vivaspin® Turbo 15 RC

Time to concentrate up to 20× [min.] at 20°C and solute recovery %

Rotor	Swing bucket		Fixed angle (25°)	
	Min.	Rec.	Min.	Rec.
Centrifugal speed	4,000 × g		7,500 × g	
Start volume	15 mL		9 mL	
Lysozyme* (14,300 MW) 5 MWCO PES	23	94%	25	92%
α-Chymotrypsin** (25,000 MW) 10 MWCO PES	7	93%	9	92%
BSA** (66,000 MW) 10 MWCO PES	8	94%	10	98%
	30 MWCO PES	4	96%	4
IgG** (160,000 MW) 50 MWCO PES	17	95%	12	96%
	100 MWCO PES****	18	89%	11

* 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.
3,000 MWCO	25	VS04T91
3,000 MWCO	100	VS04T92
5,000 MWCO	25	VS04T11
5,000 MWCO	100	VS04T12
10,000 MWCO	25	VS04T01
10,000 MWCO	100	VS04T02
30,000 MWCO	25	VS04T21
30,000 MWCO	100	VS04T22
50,000 MWCO	25	VS04T31
50,000 MWCO	100	VS04T32
100,000 MWCO	25	VS04T41
100,000 MWCO	100	VS04T42

Vivaspin® Turbo 15 PES

Cut off	Quantity	Order no.
3,000 MWCO	12	VS15T91
3,000 MWCO	48	VS15T92
5,000 MWCO	12	VS15T11
5,000 MWCO	48	VS15T12
10,000 MWCO	12	VS15T01
10,000 MWCO	48	VS15T02
30,000 MWCO	12	VS15T21
30,000 MWCO	48	VS15T22
50,000 MWCO	12	VS15T31
50,000 MWCO	48	VS15T32
100,000 MWCO	12	VS15T41
100,000 MWCO	48	VS15T42

Vivaspin® Turbo 15 RC

Cut off	Quantity	Order no.
5,000 MWCO	12	VS15TR11
5,000 MWCO	48	VS15TR12
10,000 MWCO	12	VS15TR01
10,000 MWCO	48	VS15TR02
30,000 MWCO	12	VS15TR21
30,000 MWCO	48	VS15TR22
50,000 MWCO	12	VS15TR31
50,000 MWCO	48	VS15TR32
100,000 MWCO	12	VS15TR41
100,000 MWCO	48	VS15TR42

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