



sartorius

Vivaspin® Turbo 4 and 15

Allow fastest sample concentration
with highest recoveries

Benefits

- Complete Recoveries
- Fastest Concentrations
- Highest Chemical Resistance



Product Information

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

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 150x. Samples can be typically concentrated in 10–30 minutes with macromolecular recoveries in excess of 95%.

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 joining technology allows 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), Polystyrene and Polypropylene (PP) allows sterilization and depyrogenization of the Vivaspin® Turbo 4 and 15 units.

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

Applications

Sample preparation

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

Your sample is often the result of several months of research. Your sample is valuable, and Vivaspin® Turbo 15 provides highest recovery.

Summary

For scientists and lab technicians who need to quickly and safely concentrate biological samples of 2 ml to 15 ml initial volume up to 150 fold, Sartorius offers the Vivaspin® Turbo 4 and 15 ultrafilters.

Unlike competitive ultrafiltration units, Vivaspin® Turbo 4 and 15 are equipped with an angular dead stop pocket, that enables reproducible and complete recoveries, while being the fastest in the market.

Technical specifications

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

Performance Characteristics

Vivaspin® Turbo 4

| Time to concentrate up to 30x [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

| Time to concentrate up to 20x [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% |

* 0.25 mg/ml

** 1 mg/ml

*** 3,000 × g centrifugal speed

**** 3,000 × g swing-out | 5,000 × 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

| 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

| 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 |

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