

## Vivaspin® 500 and Vivaspin® 2

Concentration & Purification of Clinical Biological Samples



Vivaspin® ultrafiltration concentrators are disposable devices for biological samples. Vivaspin® 500 is suitable for sample volumes from 100-500 µl while Vivaspin® 2 can handle samples up to 2 ml. The patented vertical membrane design and thin channel filtration chamber (US 5,647,990) minimizes membrane fouling and provides high speed concentrations.

### Vivaspin® Applications

- Concentrate spinal fluid prior to electrophoresis for diagnosis of meningitis and multiple sclerosis.
- Concentrate antigens in urine & serum (*Legionella*, *Pneumonia*, *Streptococcus B*, *Coccidioides*) prior to immunoassays.
- Protein removal from serum & cell / tissue lysates.
- Exchange buffers for proteomic peptide samples.
- Prepare samples for mass spectrometry.

| Features                          | Benefits   |
|-----------------------------------|--|
| Vertical membrane design          | Fast filtration rates.   |
| Integrated dead stop              | Reduces risk of concentration to dryness.                          |
| Low binding materials             | High sample recovery.  |
| Wide range of MW cutoffs          | Choose MW cutoff for your specific application.                    |
| Large Vivaspin® family of devices | Can process samples from 100 µl to 20 ml with similar methodology. |

### Technical Specifications

| Concentrator Capacity | Vivaspin® 500 | Vivaspin® 2 |
|-----------------------|---------------|-------------|
| Fixed angle rotor     | 0.5 ml        | 2.0 ml      |
| Swinging bucket rotor | N/A           | 3.0 ml      |

### Dimensions

|  |                     |                     |
|--|---------------------|---------------------|
| Total Length   | 50 mm               | 126 mm              |
| Width  | 11 mm               | 17 mm               |
| Active membrane area   | 0.5 cm <sup>2</sup> | 1.2 cm <sup>2</sup> |
| Hold-up volume   | < 5 µl              | < 10 µl             |
| (membrane & support)   |                     |                     |
| Dead stop volume**   | 5 µl                | 8 µl                |
| **Dead stop volume may vary depending on sample, temperature and rotor |                     |                     |

### Materials of Construction

|                  |           |              |
|------------------|-----------|--------------|
| Body             | Polycarb. | Polycarb.    |
| Filtrate vessel  | Polyprop. | Polycarb.    |
| Concentrator cap | Polycarb. | Polycarb.    |
| Membrane *       | PES       | PES, CTA, HY |

Polycarb. = Polycarbonate, Polyprop. = Polypropylene  
\* See other side for membrane descriptions

### Equipment Required

#### Centrifuge

|                             |  |   |
|-----------------------------|--|---|
| Rotor cavity                | To fit 2.2 ml (11 mm) conical bottom tubes | To fit 15 ml (17 mm) conical bottom tubes |
| Fixed Rotor - Minimum Angle | 40°  | 25°                                       |
| Fixed Rotor - Max. Speed    | 12,000 g                                   | 8,000 g                                   |
| Swinging Bucket -Max. Speed | N/A  | 4,000 g                                   |

### Pipettes for Sample Delivery & Recovery

Fixed or variable volume may be used.  
For maximum recovery, a thin gel loader type is recommended.

## Membrane Selection Guide

### Polyethersulfone (PES)

A good general purpose membrane for most solutions. Has low fouling characteristics with very good flow rates. Tolerates a broad pH range (from 1 to 9).

### Cellulose Triacetate (CTA)

Good hydrophilic properties with very low non-specific binding. Cast without a membrane support that could bind filtered solutes. Use when recovery of filtrate is most important (free drug or hormone testing).

### Hydrosart® (HY)

Similar to regenerated cellulose but with better performance characteristics and low protein binding. Good choice for concentration and desalting of proteins that may bind to other membranes such as immunoglobulin fractions.

## Performance Characteristics

**Time (in min.) to concentrate 30x at 20° C with rotor type shown. Also showing sample % recovery.**

|   | Vivaspin® 500<br>0.5 ml@12,000 g<br>Fixed angle |      | Vivaspin® 2<br>2.0 ml@5,000 g<br>Fixed angle |      |
|---|---|------|--|------|
|   | Time  | Rec. | Time   | Rec. |
| Aprotinin-0.25 mg/ml (6,500 MW)<br>3,000 MWCO PES | 30  | 96%  | 50   | 96%  |
| BSA-1.0 mg/ml (66,000 MW)                         |   |      |  |      |
| 5,000 MWCO PES                                    | 15  | 96%  | 12   | 98%  |
| 10,000 MWCO PES                                   | 5   | 96%  | 8  | 98%  |
| 10,000 MWCO CTA                                   | N/A   |      | 10   | 96%  |
| 10,000 MWCO HY                                    | N/A   |      | 12   | 98%  |
| 20,000 MWCO CTA                                   | N/A   |      | 5  | 96%  |
| 30,000 MWCO PES                                   | 5   | 95%  | 8  | 97%  |
| 30,000 MWCO HY                                    | N/A   |      | 5  | 97%  |
| IgG-0.25 mg/ml (160,000 MW)                       |   |      |  |      |
| 20,000 MWCO CTA                                   | N/A   |      | 6  | 97%  |
| 30,000 MWCO PES                                   | 10  | 96%  | 10   | 96%  |
| 50,000 MWCO PES                                   | 10  | 96%  | 10   | 96%  |
| 100,000 MWCO PES                                  | 10  | 96%  | 8  | 95%  |

## Ordering Information

| Molecular Weight Cutoff (MWCO) | Pack Size | Vivaspin® 500 PES membrane | Vivaspin® 2 PES membrane | Vivaspin® 2 CTA membrane | Vivaspin® 2 HY membrane |
|--------------------------------|-----------|----------------------------|--------------------------|--------------------------|-------------------------|
| 2,000 MWCO                     | 25        |                            |                          |                          | VS02H91                 |
| 2,000 MWCO                     | 100       |                            |                          |                          | VS02H92                 |
| 3,000 MWCO                     | 25        | VS0191                     | VS0291                   |                          |                         |
| 3,000 MWCO                     | 100       | VS0192                     | VS0292                   |                          |                         |
| 5,000 MWCO                     | 25        | VS0111                     | VS0211                   |                          | VS02H11                 |
| 5,000 MWCO                     | 100       | VS0112                     | VS0212                   |                          | VS02H12                 |
| 10,000 MWCO                    | 25        | VS0101                     | VS0201                   | VS02V1                   | VS02H01                 |
| 10,000 MWCO                    | 100       | VS0102                     | VS0202                   | VS02V2                   | VS02H02                 |
| 20,000 MWCO                    | 25        |                            |                          | VS02X1                   |                         |
| 20,000 MWCO                    | 100       |                            |                          | VS02X2                   |                         |
| 30,000 MWCO                    | 25        | VS0121                     | VS0221                   |                          | VS02H21                 |
| 30,000 MWCO                    | 100       | VS0122                     | VS0222                   |                          | VS02H22                 |
| 50,000 MWCO                    | 25        | VS0131                     | VS0231                   |                          |                         |
| 50,000 MWCO                    | 100       | VS0132                     | VS0232                   |                          |                         |
| 100,000 MWCO                   | 25        | VS0141                     | VS0241                   |                          |                         |
| 100,000 MWCO                   | 100       | VS0142                     | VS0242                   |                          |                         |
| 300,000 MWCO                   | 25        | VS0151                     | VS0251                   |                          |                         |
| 300,000 MWCO                   | 100       | VS0152                     | VS0252                   |                          |                         |
| 1,000,000 MWCO                 | 25        | VS0161                     | VS0261                   |                          |                         |
| 1,000,000 MWCO                 | 100       | VS0162                     | VS0262                   |                          |                         |
| 0.2 µm                         | 25        | VS0171                     | VS0271                   |                          |                         |
| 0.2 µm                         | 100       | VS0172                     | VS0272                   |                          |                         |

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