



# BEVPOR PS Filter Cartridges

- liquid filters
- polyethersulphone

Minimising the cost of microbiological stabilisation per unit volume whilst maintaining quality and product characteristics is a key requirement within beverage production.

BEVPOR PS is an advanced membrane filter cartridge designed for the beverage industry to meet and surpass these criteria.

Specifically developed as a beverage grade cartridge, BEVPOR PS utilises an advanced polyethersulphone membrane configured to provide high flow and cost effective performance. The membrane has an asymmetric pore structure which provides graded filtration throughout its depth, resulting in increased capacity to hold contaminants. Componentry has been selected to maximise mechanical strength and chemical compatibility enabling the filter to withstand repeated chemical cleaning and sterilisation.

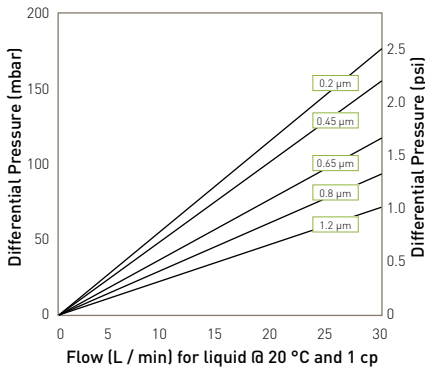
## Features and Benefits

- Removal ratings from 0.2 to 1.2 micron
- Repeatedly integrity testable
- Cartridge can be regenerated and sanitised for extended service life
- Low adsorption of protein, colour and flavour components
- Asymmetrical pore structure provides high capacity contaminant loading



Note: BEVPOR is a registered trademark of Parker domnick hunter

## Performance Characteristics



For K size for a given flow rate multiply 10" size differential pressure by 2

**10" Size (250 mm) Cartridge**

## Specifications

### Materials of Construction

- Filtration Membrane: Polyethersulphone
- Upstream Support: Polyester
- Downstream Support: Polyester
- Inner Support Core: Polypropylene
- Outer Protection Cage: Polypropylene
- End Caps: Nylon
- End Cap Insert (if applicable): 316L Stainless Steel
- Standard o-rings/gaskets: Silicone / EPDM
- Capsule Body: Nylon
- Capsule Vent Seals: Silicone

### Food and Biological Safety

Materials conform to the relevant requirements of 21CFR Part 177, EC1935 / 2004 and current USP Plastics Class VI - 121 °C and ISO10993 equivalents.

### Recommended Operating Conditions

Up to 70 °C (158 °F) continuous operating temperature and higher short-term temperatures during CIP to the following limits:

Temperature °C	Temperature °F	Max. Forward dP (bar)	Max. Forward dP (psil)
20	68	5.0	72.5
40	104	4.0	58.0
60	140	3.0	43.5
80	176	2.0	29.0
90	194	1.0	14.5
>100 (steam)	>212 (steam)	0.3	4.0

Capsules may be operated up to a temperature of 40 °C (104 °F) at line pressures up to 5.0 barg (72.51 psig) for liquids and 4.0 barg (58.01 psig) in air / gas.

### Effective Filtration Area (EFA)

10" (250 mm) 0.6 m<sup>2</sup> (6.45 ft<sup>2</sup>)

### Cleaning and Sterilisation

BEVPOR PS cartridges can be repeatedly steam sterilised in situ or autoclaved at up to 130 °C (266 °F). They can be sanitised with hot water at up to 90 °C (194 °F) and are compatible with a wide range of chemicals. Capsules can be repeatedly autoclaved up to 130 °C (266 °F).

For detailed operational procedures and advice on cleaning and sterilisation, please contact the Technical Support Group through your usual Parker domnick hunter contact.

### Retention Characteristics

The retention characteristics of BEVPOR PS have been determined by a combination of controlled laboratory tests and in-use monitoring for a number of organisms. Bacterial challenge testing is carried out to methods specified in ASTM F838-05.

Organism	Approx. Cell Size* (diameter x length µm)
<i>Brevundimonas diminuta</i> <sup>a</sup>	0.3 x 0.6 - 0.8
<i>Serratia marcescens</i>	0.5 - 0.8 x 0.9 - 2.0
<i>Escherichia coli</i>	1.1 - 1.5 x 2.0 - 6.0
<i>Lactobacillus brevis</i>	0.5 - 1.2 x 1.0 - 10.0
<i>Saccharomyces cerevisiae</i>	1.0 (Spherical Buds)
<i>Brettanomyces</i> <sup>c</sup>	1.5 - 3.5 x 2.0 - 19.0

Organism	0.2		0.45		0.65		0.8		1.2	
	LRV	Titre	LRV	Titre	LRV	Titre	LRV	Titre	LRV	Titre
<i>Brevundimonas diminuta</i>	6	10 <sup>6</sup>	-	-	-	-	-	-	-	-
<i>Serratia marcescens</i>	9	10 <sup>7</sup>	8	10 <sup>7</sup>	6*	10 <sup>6*</sup>	-	-	-	-
<i>Escherichia coli</i>	>9	>10 <sup>7</sup>	>9	>10 <sup>7</sup>	6	10 <sup>6</sup>	2	10 <sup>6</sup>	1	10 <sup>6</sup>
<i>Lactobacillus brevis</i>	>9	>10 <sup>7</sup>	>9	>10 <sup>7</sup>	5	10 <sup>6</sup>	-	-	-	-
<i>Saccharomyces cerevisiae</i>	>7	>10 <sup>6</sup>	>7	>10 <sup>6</sup>	-	-	-	-	-	-
<i>Brettanomyces</i>	>6	>10 <sup>6</sup>	>6	>10 <sup>6</sup>	4	10 <sup>6</sup>	2	10 <sup>6</sup>	1	10 <sup>6</sup>

\*Results based on BEVPOR PT

### Integrity Test Data

All filters are flushed with pharmaceutical grade purified water prior to despatch. They are integrity tested to the following limits:

Micron Rating		0.2	0.45	0.65	0.8	1.2
Diffusional Flow (barg)		1.7	1.4	1.0	0.8	0.6
Test Pressure (psig)		25.0	20.0	15.0	12.0	9.0
Max. Diffusional Flow (10 <sup>-1</sup> ) (ml / min)	(K)	7.5	7.5	7.5	7.5	7.5
	(A)	6.1	6.1	6.1	6.1	6.1
	(B)	3.0	3.0	3.0	3.0	3.0
	(E)	1.4	1.4	1.4	1.4	1.4

### Recommended Rinse Volume

Prior to use - 5 litres per 10" (250 mm) filter cartridge.

## Ordering Information

### Cartridges

BPS - [ ] - [ ] - [ ] [ ] [ ]

Code	Length (Nominal)	Code	Micron	Code	Endcap (10")	Code	Format	Code	O-rings
B	2.5" (65 mm)	02	0.2 µm	B	dh DOE	A	10" Modular	E	EPDM
A	5" (125 mm)	04	0.45 µm	C	BF / 226 Bayonet	D	Demi	S	Silicone
K	5" (125 mm)	06	0.65 µm	G	Recess / 222				
1	10" (250 mm)	08	0.8 µm	R	BF / 222 Bayonet				
2	20" (500 mm)	12	1.2 µm						
3	30" (750 mm)								
4	40" (1000 mm)								

Code	Endcap (Demi)
T	TRUESEAL
Y	Demi Stub
Z	Demi A & B Std

### Capsules

BPS - [ ] N - [ ] - [ ]

Code	Length (Nominal)	Code	Micron	Code	Inlet Connection	Code	Outlet Connection	Code	Vent / Drain Seals
E	4.4" (113 mm)	02	0.2 µm	T	1" Tri-Clamp	T	1" Tri-Clamp	S	Silicone
B	5.5" (140 mm)	04	0.45 µm	N	1/2" NPT Male	N	1/2" NPT Male		
A	7.9" (200 mm)	06	0.65 µm	H	1/2" Hosebarb	H	1/2" Hosebarb		
		08	0.8 µm	G	Stepped Hosebarb	G	Stepped Hosebarb		
		12	1.2 µm	M	1/4" NPT Male	M	1/4" NPT Male		

Parker domnick hunter has a continuous policy of product development and although the Company reserves the right to change specifications, it attempts to keep customers informed of any alterations. This publication is for general information only and customers are requested to contact our Process Filtration Sales Department for detailed information and advice on a products suitability for specific applications. All products are sold subject to the company's Standard conditions of sale.

\* Approx. values as in Holt, J.G., Krieg, N.R., Sneath, P.H.A., Staley, J.T., Williams, S.T., 1994. *Bergey's Manual of Determinative Bacteriology*, Ninth Edition, Williams & Wilkins.  
 \* Kurzmann, C.P., Fell, J.W., 1998 *The Yeasts. A Taxonomic Study*, Elsevier Science Publisher BV, Amsterdam, The Netherlands.  
 © PDA Technical Report 24, Sterilizing Filtration of Liquids