PROPOR BR Filters

- liquid filters
- polyethersulphone

PROPOR BR filters have been specifically designed for the fast and cost-effective bioburden reduction of pharmaceutical solutions.

PROPOR BR filters feature an integral meltblown prefilter layer to maximize dirt holding capacity whilst the polyethersulphone membrane guarantees a bioburden log reduction of greater than 5 giving excellent microbial protection. This makes PROPOR BR filters ideal for bioburden reduction of LVPs prior to terminal sterilization.

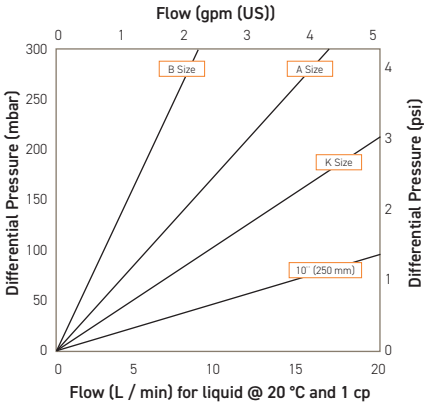
PROPOR BR filters are also ideally suited to prefiltration and bioburden reduction prior to sterilizing grade membrane filters. The robust construction of PROPOR BR filters guarantees consistent performance on multiple batches.

Note: PROPOR and DEMICAP are registered trademarks of Parker Hannifin Corporation.

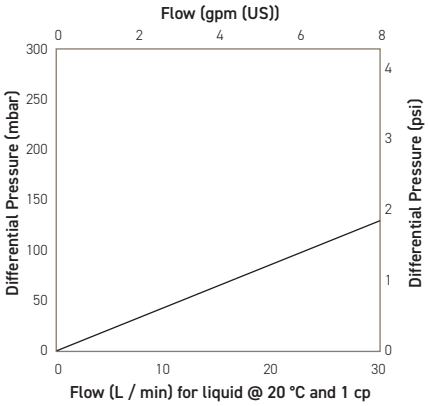
Features and Benefits

- *Brevundimonas diminuta* retention of LRV >5 for efficient bioburden reduction
- Additional prefilter layer gives excellent through-put to blockage
- Low binding for minimal product loss
- MURUS and DEMICAPs can be gamma-irradiated and autoclaved
- PFAS free options available

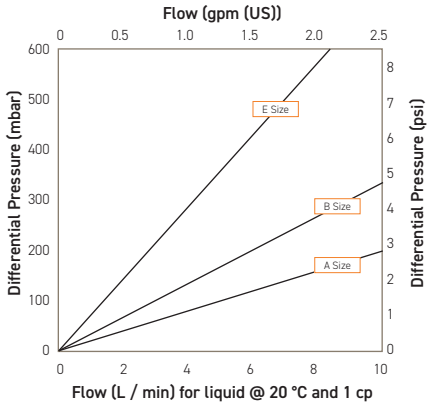
Performance Characteristics



Cartridge flow rates



MURUS flow rates (10" Size (250 mm))



DEMICAP flow rates

Specifications

Materials of Construction

- Filtration Membrane: Polyethersulphone
- Prefilter Layer: Polyester
- Upstream Support: Polyester
- Downstream Support: Polyester

Filter Cartridges

- Inner Support Core: Polypropylene
- Outer Protection Cage: Polypropylene
- End Caps: Nylon
- End Caps Insert: 316L Stainless Steel

MURUS Disposable Filter Capsules

- Core: Polypropylene
- Sleeve: Polypropylene
- End Caps Insert: 316L Stainless Steel
- Standard o-rings/gaskets: Silicone
- Capsule Body: Polypropylene
- Capsules Vent Seals: Silicone

DEMICAP Filter Capsules

- Core: Polypropylene
- Sleeve: Polypropylene
- End Caps: Nylon
- Capsule Body: Nylon
- Capsules Vent Seals: Silicone
- Filling Bell: Polycarbonate

Syringe Filters

- Body: Polypropylene

Recommended Operating Conditions

Filter Cartridges

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

Temperature		Max. Forward dP	
°C	°F	(bar)	(psi)
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	1.7	24.6

MURUS Disposable Filter Capsules

Up to 25 °C (77 °F) @ 5.5 barg (79.7 psig)
Up to 60 °C (140 °F) @ 2.8 barg (40.6 psig)

Parker Hannifin certify that this product complies with the current European Council Pressure Equipment Directive (PED) - Sound Engineering Practice (SEP). This product is intended for use with Group 1 & 2 Dangerous and Harmless Liquids and Group 2 Harmless Gases at the operating conditions stated in this document. The Pressure Equipment Directive mandates that category SEP product cannot bear the CE mark.

DEMICAP Filter Capsules

Up to 40 °C (104 °F) at line pressures up to 5.0 barg (72 psig).

Effective Filtration Area (EFA)

10¨ (250 mm):	0.55	m^2	(5.92 ft^2)
K Size:	0.26	m^2	(2.79 ft^2)
A Size:	0.20	m^2	(2.15 ft^2)
B Size:	0.10	m^2	(1.07 ft^2)
E Size:	0.05	m^2	(0.53 ft^2)
Syringe ø50 mm:	14.50	cm^2	(2.25 in^2)

Sterilization

	Autoclave		Steam-in-Place	
	Cycles	Temp	Cycles (30 min.)	Temp
Cartridges	10	130 °C (266 °F)	30	130 °C (266 °F)
MURUS	5	130 °C (266 °F)	-	-
DEMICAP	10	130 °C (266 °F)	-	-
Syringe	1	130 °C (266 °F)	-	-

PROPOR BR filter cartridges can be sanitized with hot water at up to 90 °C (194 °F) and are compatible with a wide range of chemicals.

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

Biological Safety

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

Quality Standards

Pharmaceutical grade products are manufactured in accordance with cGMP, 100% flushed with pharmaceutical grade purified water and integrity tested prior to despatch. A sample of each lot is tested to demonstrate conformity to validated claims.

Gamma-Irradiation

PROPOR BR MURUS & DEMICAP disposable filters can be gamma-irradiated up to a maximum dosage of 40 kGy.

Performance Characteristics

TOC / Conductivity
The filtrate quality from a 10" (250 mm) PROPOR BR conforms to the requirements of current USP <643> (TOC) and USP <645> (conductivity) within the first 200 ml flush of purified water.

Endotoxins
Aqueous extracts from the 10" (250 mm) PROPOR BR contain < 0.25 EU / ml when tested in accordance with the Limulus Amoebocyte Lysate test.

Non-Volatile Extractables (NVE)
Total NVEs extracted in the first 5 litre flush of purified water for a 10" (250 mm) cartridge are <10 mg.

Total NVEs extracted in the first 5 litre flush of purified water for an A size 7.9" (200 mm) DEMICAP capsule are <5 mg.

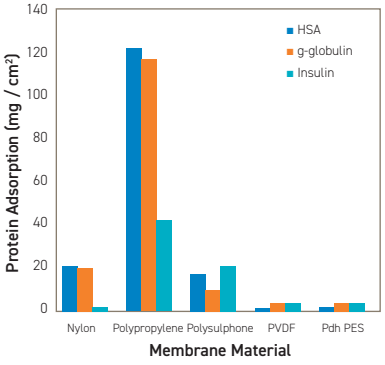
Pharmaceutical Validation
A full validation guide is available upon request from Laboratory Services Group (LSG).

Oxidizable Substances
PROPOR BR filter cartridges meet current USP and EP quality standards for sterile purified water for oxidizable substances following a <1 litre water flush.

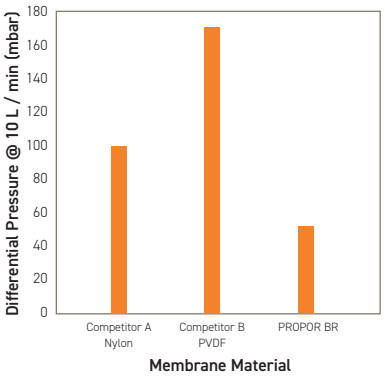
Integrity Test Data
All filters are integrity testable to the following limits when wet with water and using air as the test gas.

Micron Rating		0.2
Filter Cartridges / MURUS / DEMICAP		
Min. Bubble Point	(barg)	2.5
	(psig)	36.0
Filter Cartridges / MURUS / DEMICAP / Syringe Filters		
Diffusional Flow	(barg)	1.7
Test Pressure	(psig)	24.7
Filter Cartridges / MURUS / DEMICAP / Syringe Filters		
Max. Diffusional Flow	(10")	16.0
(ml / min)	(K)	7.4
	(A)	6.0
	(B)	2.9
	(E)	1.2

Retention Characteristics
PROPOR BR filter cartridges are validated to an LRV > 5 by bacterial challenge testing with *Brevundimonas diminuta* to current ASTM F838 methodology (10^7 organisms / cm^2 EFA minimum) with typical in-house challenge levels being 10^{11} organisms per 10" (250 mm) module.



Protein binding on membrane materials



Flow rate comparison for bioburden reduction filters

Ordering Information

Cartridges

ZCBR □ - □ □ - □ □

Code	Length (Nominal)
K	5" (125 mm)
1	10" (250 mm)
2	20" (500 mm)
3	30" (750 mm)
4	40" (1000 mm)

Code	Micron
020	0.20 µm

Code	Endcap (10")
C	BF / 226 Bayonet
D	Fin / 222

Code	Variant
P	Pharmaceutical

Code	O-rings
E	EPDM
S	Silicone
V*	Viton

*Not PFAS free

MURUS Capsules

ZLBR □ - □ □ □ - □ □ □ - □

Code	Length (Nominal)
K	5" (125 mm)
1	10" (250 mm)
2	20" (500 mm)
3	30" (750 mm)

Code	Micron
020	0.2 µm

Code	Inlet Connection
A	3/4" Tri-Clamp
B	1 1/2" Tri-Clamp
D	1" Hosebarb
T	1" Tri-Clamp
H	1/2" Hosebarb

Code	Outlet Connection
A	3/4" Tri-Clamp
B	1 1/2" Tri-Clamp
D	1" Hosebarb
T	1" Tri-Clamp
H	1/2" Hosebarb

Code	Variant
P	Pharmaceutical

Code	Grade
N	Non-sterile
S	Pre-sterilized γ (>25 kGy)

Code	Design
L	In-Line
T*	T-Port

*Only available with a 1" Tri-Clamp

Code	O-rings
E	EPDM
S	Silicone
V*	Viton

*Not PFAS free

DEMICAP Capsules

ZEBR □ - □ □ □ - □ □ □ - □

Code	Length (Nominal)
E	4.4" (113 mm)
B	5.5" (140 mm)
A	7.9" (200 mm)

Code	Micron
020	0.2 µm

Code	Inlet Connection
T	1" Tri-Clamp
H	1/2" Hosebarb
G	Stepped Hosebarb

Code	Outlet Connection
T	1" Tri-Clamp
H	1/2" Hosebarb
G	Stepped Hosebarb

Code	Variant
P	Pharmaceutical

Code	Grade
N	Non-sterile
S	Pre-sterilized γ (>25 kGy)

Code	Pack N°
3	Pack of 3

Code	Accessory
FB	Filling Bell

E & B-Size
G & H connections only

Syringe Filters

ZSBR □ - □ □ □ □ - □ □ □ □ □

Code	Diameter
050	50 mm

Code	Micron
020	0.2 µm

Code	Inlet Connection
F	Female Luer Lock
G	Stepped Hosebarb

Code	Outlet Connection
F	Female Luer Lock
G	Stepped Hosebarb

Code	Variant
P	Pharmaceutical

Code	Grade
N	Non-sterile

Code	Options
S	Standard

Code	Pack N°
025	25 per box