



# PROPOR LR Filters

- liquid filters
- polyethersulphone

PROPOR LR filters have been specifically designed for high flow and effective removal of *Ralstonia pickettii* and other diminutive organisms.

A number of studies have concluded that not all microorganisms are removed by 0.2 micron rated membranes under all conditions. PROPOR LR filters use a 0.1 micron rated membrane, which can remove diminutive organisms, while maintaining flow rates typical of a 0.2 micron filtration system.

*Ralstonia pickettii* is one organism that has frequently been shown to penetrate a 0.2 micron rated membrane and is a common contaminant in purified water systems. PROPOR LR filters have been validated directly against the removal of *Ralstonia pickettii*.

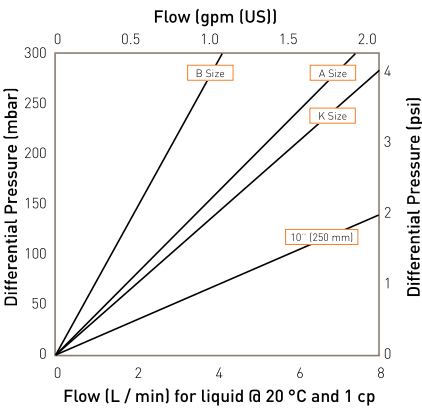
## Features and Benefits

- Fully correlated against *Ralstonia pickettii* and integrity testable
- Increases retention efficiency whilst maintaining existing 0.2 micron rated system size
- Up to 2.5 times higher flow rate than competitive 0.1 micron rated filters
- MURUS and DEMICAPs can be gamma-irradiated and autoclaved

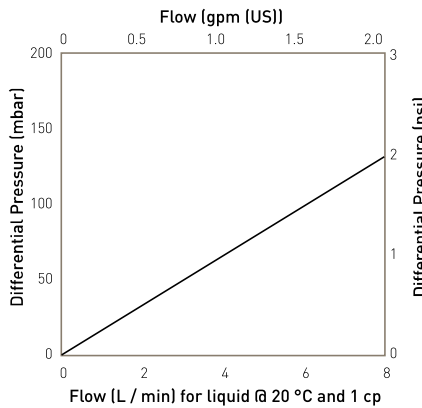


Note: PROPOR and DEMICAP are registered trademarks of Parker Hannifin Corporation.

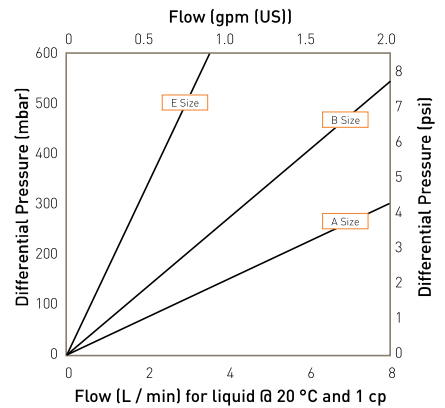
## Performance Characteristics



Cartridge flow rates



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



DEMICAP flow rates

## Specifications

### Materials of Construction

- Filtration Membrane: Polyethersulphone
- 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 <sup>2</sup>	(5.92 ft <sup>2</sup> )
K Size:	0.26 m <sup>2</sup>	(2.79 ft <sup>2</sup> )
A Size:	0.20 m <sup>2</sup>	(2.15 ft <sup>2</sup> )
B Size:	0.10 m <sup>2</sup>	(1.07 ft <sup>2</sup> )
E Size:	0.05 m <sup>2</sup>	(0.53 ft <sup>2</sup> )
Syringe ø50 mm:	14.50 cm <sup>2</sup>	(2.25 in <sup>2</sup> )

	Autoclave		Steam-in-Place	
	Cycles	Temp	Cycles	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)	-	-

### Sterilization

PROPOR LR 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 LR 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 LR 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 LR 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 LR 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

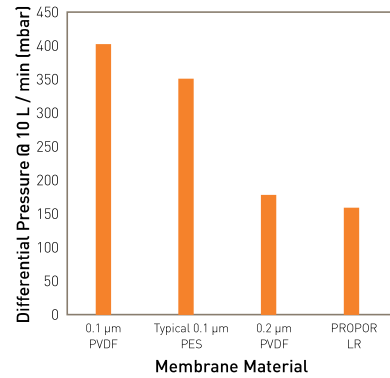
All filters are integrity testable to the following limits when wet with water (diffusional flow) and 60 / 40 : IPA / Water (bubble point) using air as the test gas.

Micron Rating		0.1
<b>Filter Cartridges / MURUS / DEMICAP</b>		
Min. Bubble Point (barg)		2.1
	(psig)	30.0
<b>Filter Cartridges / MURUS / DEMICAP / Syringe Filters</b>		
Diffusional Flow (barg)		4.2
Test Pressure (psig)		61.0
<b>Filter Cartridges / MURUS / DEMICAP / Syringe Filters</b>		
Max. Diffusional Flow (10") (ml / min)	(K)	27.0
	(A)	12.6
	(B)	10.1
	(E)	4.9
		2.1

(Maximum allowable diffusional flows are directly correlated to full retention of *Ralstonia pickettii*.)

### Retention Characteristics

PROPOR LR filters are validated by bacterial challenge testing with *Ralstonia pickettii* and *Brevundimonas diminuta* to current ASTM F838 methodology (10<sup>7</sup> organisms / cm<sup>2</sup> EFA minimum) with typical in-house challenge levels being 10<sup>11</sup> organisms per 10" (250 mm) filter cartridge.



Differential pressure comparison of 10" (250 mm) sterilizing grade filters

## Ordering Information

### Cartridges

ZCLR  -   -

Code	Length (Nominal)	Code	Micron	Code	Endcap (10")	Code	Variant	Code	O-rings
B*	2.5" (65 mm)	010	0.1 µm	C	BF / 226 Bayonet	P	Pharmaceutical	E	EPDM
A*	5" (125 mm)			D	Fin / 222			S	Silicone
K	5" (125 mm)			E	Flat Top / 222			V	Viton
1	10" (250 mm)			G	Recess / 222				
2	20" (500 mm)			R	BF / 222 Bayonet				
3	30" (750 mm)								
4	40" (1000 mm)								

\* Supplied in packs of 3.

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

### MURUS Capsules

ZLLR  -   -   -   -

Code	Length (Nominal)	Code	Micron	Code	Inlet Connection	Code	Outlet Connection	Code	Variant	Code	Grade	Code	Design	Code	O-rings
K	5" (125 mm)	010	0.1 µm	A	3/4" Tri-Clamp	A	3/4" Tri-Clamp	P	Pharmaceutical	N	Non-sterile	L	In-Line	E	EPDM
1	10" (250 mm)			B	1 1/2" Tri-Clamp	B	1 1/2" Tri-Clamp			S	Pre-sterilized γ (>25 kGy)	T*	T-Port	S	Silicone
2	20" (500 mm)			D	1" Hosebarb	D	1" Hosebarb					M**	Streamline Valves	V	Viton
3	30" (750 mm)			T	1" Tri-Clamp	T	1" Tri-Clamp								
				H	1/2" Hosebarb	H	1/2" Hosebarb								

\* Only available with a 1" Tri-Clamp  
\*\* Not available with a 1" or 1.5" Tri-Clamp fittings

### DEMICAP Capsules

ZELR  -   -   -   -

Code	Length (Nominal)	Code	Micron	Code	Inlet Connection	Code	Outlet Connection	Code	Variant	Code	Grade	Code	Pack N°	Code	Accessory
E	4.4" (113 mm)	010	0.1 µm	T	1" Tri-Clamp	T	1" Tri-Clamp	P	Pharmaceutical	N	Non-sterile	3	Pack of 3	FB	Filling Bell
B	5.5" (140 mm)			N	1/2" NPT Male	N	1/2" NPT Male			S	Pre-sterilized γ (>25 kGy)				
A	7.9" (200 mm)			H	1/2" Hosebarb	H	1/2" Hosebarb								
				G	Stepped Hosebarb	G	Stepped Hosebarb								
				M	1/4" NPT Male	M	1/4" NPT Male								
				Q	Walther QC	Q	Walther QC								
				R	Grommel / QC	R	Grommel / QC								

F & B-Size  
G & H connections only

### Syringe Filters

ZSLR  -   -   -

Code	Diameter	Code	Micron	Code	Inlet Connection	Code	Outlet Connection	Code	Variant	Code	Grade	Code	Options	Code	Pack N°
050	50 mm	010	0.1 µm	F	Female Luer Lock	F	Female Luer Lock	P	Pharmaceutical	N	Non-sterile	S	Standard	025	25 per box
				G	Stepped Hosebarb	G	Stepped Hosebarb								