

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*.

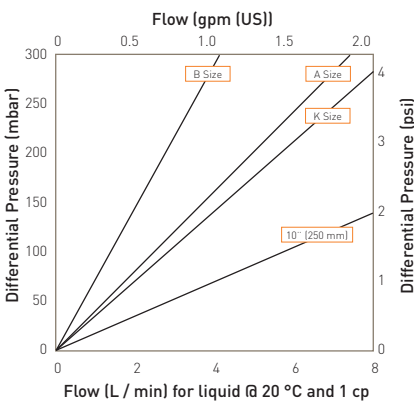
Features and Benefits

- 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

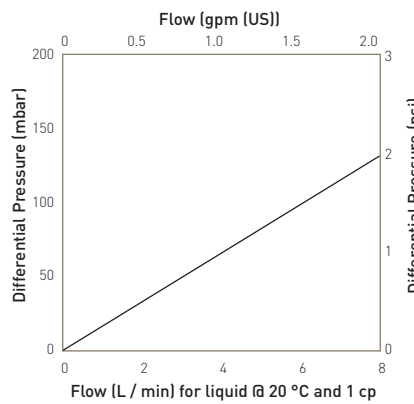


Note: PROPOR and DEMICAP are registered trademarks of Parker Hannifin Corporation.

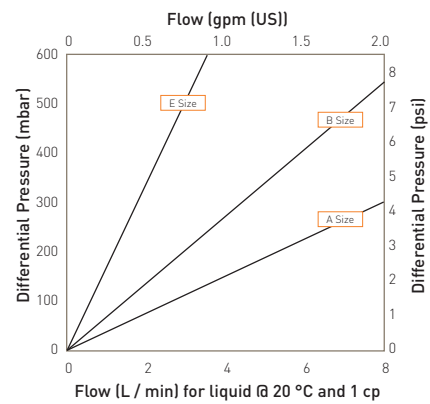
Performance Characteristics



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

DEMICALP 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.

DEMICALP 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)

	Autoclave		Steam-in-Place	
	Cycles	Temp	Cycles	Temp
			(30 min.)	
Cartridges	10	130 °C [266 °F]	30	130 °C [266 °F]
MURUS	5	130 °C [266 °F]	-	-
DEMICALP	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 domnick hunter 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 & DEMICALP 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

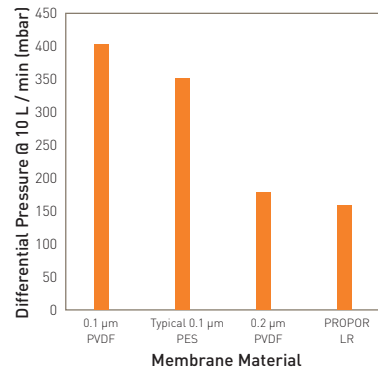
All filters are integrity testable to the following limits when wet with water (diffusional flow) and 60 / 40 : IPA / Water (bubble point) using air as the test gas.

Micron Rating		0.1
Filter Cartridges / MURUS / DEMICAP		
Min. Bubble Point	(barg)	2.1
	(psig)	30.0
Filter Cartridges / MURUS / DEMICAP / Syringe Filters		
Diffusional Flow	(barg)	4.2
Test Pressure	(psig)	61.0
Filter Cartridges / MURUS / DEMICAP / Syringe Filters		
Max. Diffusional Flow (10")		27.0
(ml / min)	(K)	12.6
	(A)	10.1
	(B)	4.9
	(E)	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 (10⁷ organisms / cm² EFA minimum) with typical in-house challenge levels being 10¹¹ 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							V	Viton
3	30" (750 mm)			T	1" Tri-Clamp	T	1" Tri-Clamp								

*Only available with a 1" Tri-Clamp

*Silicone o-ring supplied as standard without having to specify the 'S' code.

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 & H connections only
				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								

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								