PROPOR LR Filter Cartridges

- 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 "sterilising" grade membranes under all conditions. PROPOR LR filters use a 0.1 micron rated membrane, which can remove diminutive organisms, whilst maintaining flow rates typical of a 0.2 micron filtration system.

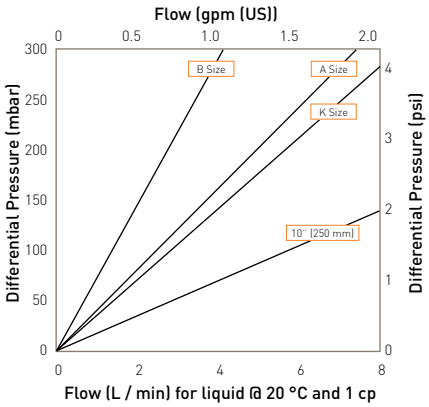
Ralstonia pickettii is one organism that has frequently been shown to penetrate a 0.2 micron rated membrane and is a common contaminant in purified water systems. PROPOR LR filters have been validated directly against the removal of *Ralstonia pickettii*.

Note: PROPOR and DEMICAP are registered trademarks of Parker domnick hunter

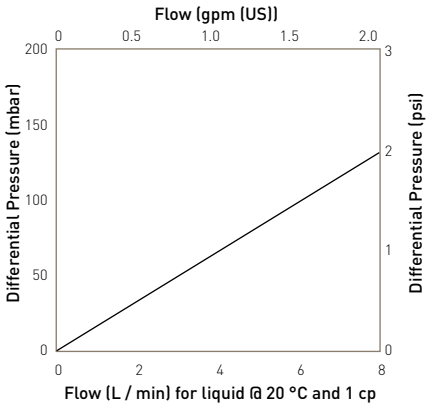
Features and Benefits

- 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 miron rated filters
- MURUS and DEMICAP's can be gamma-irradiated and autoclaved

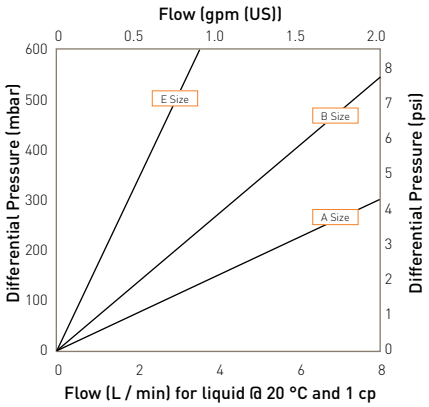
Performance Characteristics



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
- Standard o-rings/gaskets: Silicone

MURUS Disposable Filter Capsules

- Core: Polypropylene
- Sleeve: Polypropylene
- 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 European Council Pressure Equipment Directive (PED) 97/23/EC Article 3, Paragraph 3 - 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 : In compliance with PED Article 3, Paragraph 3, SEP, this product does not 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)

Sterilisation

	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 LR filter cartridges can be sanitised 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 sterilisation, please contact the Technical Support Group through your usual Parker domnick hunter contact.

Food and 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 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).

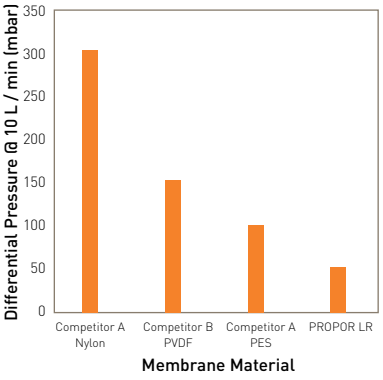
Oxidisable Substances
PROPOR LR filter cartridges meet current USP and EP quality standards for sterile purified water for oxidisable substances following a <1 litre water flush.

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 F838-05 methodology (10^7 organisms / cm^2 EFA minimum) with typical in-house challenge levels being 10^{11} organisms per 10" (250 mm) filter cartridge.



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

Ordering Information

Cartridges

ZCLR □ - □ □ - □ □

Code	Length (Nominal)
B	2.5" (65 mm)
A	5" (125 mm)
K	5" (125 mm)
1	10" (250 mm)
2	20" (500 mm)
3	30" (750 mm)
4	40" (1000 mm)

Code	Micron
010	0.1 µm

Code	Endcap (10")
C	BF / 226 Bayonet
G	Recess / 222
R	BF / 222 Bayonet

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

Code	Variant
P	Pharmaceutical

Code	O-rings[1]
E	EPDM[2]
S	Silicone
V	Viton

[1] *Silicone o-ring supplied as standard without having to specify the 'S' code*
[2] *EPDM - Ethylene Propylene Diene Monomer Rubber*

MURUS Capsules

ZLLR □ - □ □ □ - □ □ - □ □

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

Code	Micron
010	0.1 µm

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

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

Code	Variant
P	Pharmaceutical

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

Code	Design
L	In-Line
T	T-Port

Code	O-rings[1]
E	EPDM[2]
S	Silicone
V	Viton

[1] *Silicone o-ring supplied as standard without having to specify the 'S' code*
[2] *EPDM - Ethylene Propylene Diene Monomer Rubber*

DEMICAP Capsules

ZELR □ - □ □ □ - □ □ - □ □ - □

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

Code	Micron
010	0.1 µm

Code	Inlet Connection
T	1" Tri-Clamp
N	1/2" NPT Male
H	1/2" Hosebarb
G	Stepped Hosebarb
M	1/4" NPT Male
Q	Walther QC
R	Grommel / QC

Code	Outlet Connection
T	1" Tri-Clamp
N	1/2" NPT Male
H	1/2" Hosebarb
G	Stepped Hosebarb
M	1/4" NPT Male
Q	Walther QC
R	Grommel / QC

Code	Variant
P	Pharmaceutical

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

Code	Pack N°
3	Pack of 3

Code	Accessory
FB	Filling Bell

G & H styles only

Syringe Filters

ZSLR □ - □ □ - □ □ □ □

Code	Diameter
050	50 mm

Code	Micron
010	0.1 µm

Code	Inlet / 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

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