

PROCLEAR GF Filter Cartridges

- liquid filters
- glass microfibre

PROCLEAR GF filters are designed for reliable and economical removal of particulate and microorganisms from pharmaceutical fluids.

The non-fibre releasing glass microfibre filter media gives excellent dirt holding capacity and high flow rates for long service life and efficient and cost-effective filter system design.

PROCLEAR GF filters have low extractable levels making them ideal for general clarification and prefiltration duties in pharmaceutical processing.

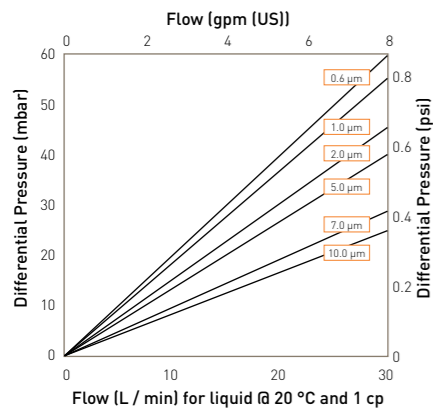
Features and Benefits

- Excellent dirt holding capacity
- Long service life for maximum throughput
- Non-fibre releasing glass microfibre media
- MURUS and DEMICAP's can be gamma-irradiated and autoclaved



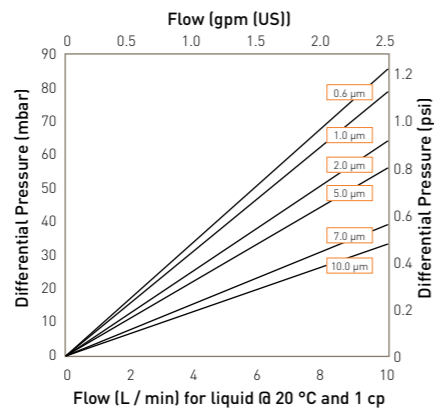
Note: PROCLEAR and DEMICAP are registered trademarks of Parker domnick hunter

Performance Characteristics



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

10" size (250 mm) Cartridge



For A size for a given flow rate divide B size differential pressure by 2
For E size for a given flow rate multiply B size differential pressure by 2

B size (65 mm) Cartridge and Capsule

PROCLEAR GF Filter Cartridges

Specifications

Materials of Construction

- Filtration Media: Glass Microfibre
- Upstream Support: Polypropylene
- Downstream Support: Polypropylene

Filter Cartridges

- Inner Support Core: Polypropylene
 - Outer Protection Cage: Polypropylene
 - End Caps: Polypropylene
 - End Caps Insert: 316L Stainless Steel
- *Not available in B & L endcap variants

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
- Capsule Body: Polypropylene
- 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 °C	Temperature °F	Max. Forward dP (bar)	Max. Forward dP (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	1.5	21.7

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):	0.56 m ²	(6.0 ft ²)
K Size:	0.27 m ²	(2.9 ft ²)
A Size:	0.20 m ²	(2.2 ft ²)
B Size:	0.10 m ²	(1.1 ft ²)
E Size:	0.05 m ²	(0.6 ft ²)
Syringe ø50 mm:	14.50 cm ²	(2.25 in ²)

Sterilization

	Cycles	Autoclave		Steam-in-Place	
		Temp		Temp	
Cartridges	10	130 °C (266 °F)		10	121 °C (249.8 °F)
MURUS	5	130 °C (266 °F)		-	-
DEMICAP	10	130 °C (266 °F)		-	-
Syringe	1	130 °C (266 °F)		-	-

PROCLEAR GF 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.

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 grade purified water.

Gamma-Irradiation

PROCLEAR GF 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) PROCLEAR GF conforms to the requirements of current USP <643> (TOC) and USP <645> (conductivity) within the first 200 ml flush of purified water.

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

Endotoxins
Aqueous extracts from the 10" (250 mm) PROCLEAR GF 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).

Ordering Information

Cartridges

PCGF [] - [] [] - [] []

Code Length (Nominal)	Code Micron	Code Endcap (10")	Code Variant	Code O-rings
B* 2.5" (65 mm)	96 0.6 µm	B* dh DOE	P Pharmaceutical	E EPDM
A* 5" (125 mm)	01 1.0 µm	C BF / 226 Bayonet		S Silicone
K 5" (125 mm)	02 2.0 µm	D Fin / 222		V Viton
1 10" (250 mm)	05 5.0 µm	E Flat Top / 222		
2 20" (500 mm)	07 7.0 µm	G Recess / 222		
3 30" (750 mm)	10 10.0 µm	H UF Retrofit		
4 40" (1000 mm)		J SOE (no o-ring)		
		L* dh DOE		
		N Internal 213		
		R BF / 222 Bayonet		

** Supplied in packs of 3.*

Ratings based on efficiencies of > or = 99.98% using internal test procedure SOP018 based on ASTM F795-88 1993

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

** EPDM gaskets supplied as standard*

MURUS Capsules

PLGF [] - [] [] - [] [] - [] [] - [] []

Code Length (Nominal)	Code Micron	Code Inlet Connection	Code Outlet Connection	Code Variant	Code Grade	Code Design	Code O-rings
K 5" (125 mm)	96 0.6 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)	01 1.0 µm	B 1 1/2" Tri-Clamp	B 1 1/2" Tri-Clamp		S Pre-sterilized	T* T-Port	S* Silicone
2 20" (500 mm)	02 2.0 µm	D 1" Hosebarb	D 1" Hosebarb		γ (>25 kGy)		V Viton
3 30" (750 mm)	05 5.0 µm	T 1" Tri-Clamp	T 1" Tri-Clamp				
	07 7.0 µm						
	10 10.0 µm						

** Only available with a 1" Tri-Clamp*

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

Ratings based on efficiencies of > or = 99.98% using internal test procedure SOP018 based on ASTM F795-88 1993

DEMICAP Capsules

PEGF [] - [] [] - [] [] - [] [] - [] []

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)	96 0.6 µm	T 1" Tri-Clamp	T 1" Tri-Clamp	P Pharmaceutical	N Non-sterile	3 Pack of 3	FB Filling Belt
B 5.5" (140 mm)	01 1.0 µm	N 1/2" NPT Male	N 1/2" NPT Male		S Pre-sterilized		
A 7.9" (200 mm)	02 2.0 µm	H 1/2" Hosebarb	H 1/2" Hosebarb		γ (>25 kGy)		
	05 5.0 µm	G Stepped Hosebarb	G Stepped Hosebarb				
	07 7.0 µm	M 1/2" NPT Male	M 1/2" NPT Male				
	10 10.0 µm	Q Walther QC	Q Walther QC				
		R Grommel / QC	R Grommel / QC				
		V 3/8" NPT Female	V 3/8" NPT Female				

Ratings based on efficiencies of > or = 99.98% using internal test procedure SOP018 based on ASTM F795-88 1993

G & H connections only

Syringe Filters

PSGF [] - [] [] - [] [] - [] [] - [] []

Code Diameter	Code Micron	Code Inlet Connection	Code Outlet Connection	Code Variant	Code Grade	Code Options	Code Pack N°
050 50 mm	96 0.6 µm	F Female Luer Lock	F Female Luer Lock	P Pharmaceutical	N Non-sterile	S Standard	025 25 per box
	01 1.0 µm	G Stepped Hosebarb	G Stepped Hosebarb				
	02 2.0 µm						
	05 5.0 µm						
	07 7.0 µm						
	10 10.0 µm						

Ratings based on efficiencies of > or = 99.98% using internal test procedure SOP018 based on ASTM F795-88 1993

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PROCLEAR GP Filter Cartridges

- liquid filters
- glass microfibre / polypropylene

PROCLEAR GP filters combine glass microfibre and polypropylene media to provide maximum protection to downstream filter membranes and equipment.

Dirt holding capacity is maximized through use of a graded density media making PROCLEAR GP cartridge filters an economical and reliable choice for prefiltration.

PROCLEAR GP filters have low extractable levels and are suitable for bioburden reduction and fine prefiltration of pharmaceutical fluids and are ideal for high contamination applications.

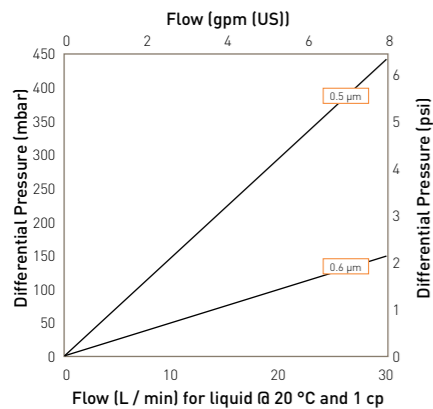
Features and Benefits

- Dual layer media or increased capacity and assurance
- Maximizes retention for protection of downstream membranes
- Ideal for difficult to filter solutions
- MURUS and DEMICAP's can be gamma-irradiated and autoclaved

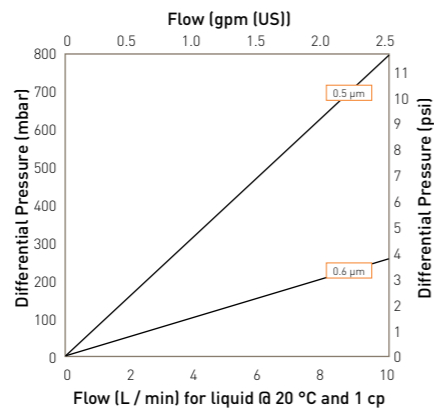


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Performance Characteristics



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



For A size for a given flow rate divide B size differential pressure by 2
For E size for a given flow rate multiply B size differential pressure by 2

10" size (250 mm) Cartridge

B size (65 mm) Cartridge and Capsule

PROCLEAR GP Filter Cartridges

Specifications

Materials of Construction

- Filtration Media: Glass Microfibre / Polypropylene
- Upstream Support: Polypropylene
- Downstream Support: Polypropylene

Filter Cartridges

- Inner Support Core: Polypropylene
 - Outer Protection Cage: Polypropylene
 - End Caps: Polypropylene
 - End Caps Insert: 316L Stainless Steel
- *Not available in B & L endcap variants

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
- Capsule Body: Polypropylene
- Capsules Vent Seals: Silicone

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 °C	Temperature °F	Max. Forward dP	
		(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	1.5	21.7

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)

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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):	0.34 m ²	(3.7 ft ²)
K Size:	0.16 m ²	(1.7 ft ²)
A Size:	0.12 m ²	(1.3 ft ²)
B Size:	0.06 m ²	(0.6 ft ²)
E Size:	0.03 m ²	(0.3 ft ²)
Syringe ø50 mm:	14.50 cm ²	(2.25 in ²)

Sterilization

	Autoclave		Steam-in-Place	
	Cycles	Temp	Cycles	Temp
Cartridges	10	130 °C (266 °F)	10	121 °C (249.8 °F)
MURUS	5	130 °C (266 °F)	-	-
DEMICAP	10	130 °C (266 °F)	-	-
Syringe	1	130 °C (266 °F)	-	-

PROCLEAR GP 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.

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 grade purified water.

Gamma-Irradiation

PROCLEAR GP 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) PROCLEAR GP 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) PROCLEAR GP 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

PROCLEAR GP filter cartridges meet current USP and EP quality standards for sterile purified water for oxidizable substances following a <1 litre water flush.

Ordering Information

Cartridges

PCGP [] - [] - [] - [] - []

Code	Length (Nominal)	Code	Micron	Code	Endcap (10")	Code	Variant	Code	O-rings
B*	2.5" (65 mm)	95	0.5 µm	B*	dh DOE	P	Pharmaceutical	E	EPDM
A*	5" (125 mm)	96	0.6 µm	C	BF / 226 Bayonet			S	Silicone
K	5" (125 mm)			D	Fin / 222			V	Viton
1	10" (250 mm)	<i>Ratings based on efficiencies of > or = 99.98% using internal test procedure SOP018 based on ASTM F795-88 1993</i>							
2	20" (500 mm)								
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								
* EPDM gaskets supplied as standard									

MURUS Capsules

PLGP [] - [] - [] - [] - [] - [] - [] - []

Code	Length (Nominal)	Code	Micron	Code	Inlet Connection	Code	Outlet Connection	Code	Variant	Code	Grade	Code	Design	Code	O-rings
K	5" (125 mm)	95	0.5 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)	96	0.6 µm	B	1 1/2" Tri-Clamp	B	1 1/2" Tri-Clamp	S	Pre-sterilized	T*	Pre-sterilized	T*	T-Port	S*	Silicone
2	20" (500 mm)			D	1" Hosebarb	D	1" Hosebarb				γ (>25 kGy)			V	Viton
3	30" (750 mm)			T	1" Tri-Clamp	T	1" Tri-Clamp								
<i>Ratings based on efficiencies of > or = 99.98% using internal test procedure SOP018 based on ASTM F795-88 1993</i>										* Only available with a 1" Tri-Clamp		* Silicone o-ring supplied as standard without having to specify the 'S' code.			

DEMICAP Capsules

PEGP [] - [] - [] - [] - [] - [] - [] - []

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)	95	0.5 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)	96	0.6 µm	N	1/2" NPT Male	N	1/2" NPT Male			S	Pre-sterilized				
A	7.9" (200 mm)			H	1/2" Hosebarb	H	1/2" Hosebarb				γ (>25 kGy)				
				G	Stepped Hosebarb	G	Stepped Hosebarb								
				M	1/4" NPT Male	M	1/4" NPT Male								
				V	3/8" NPT Female	V	3/8" NPT Female								
<i>Ratings based on efficiencies of > or = 99.98% using internal test procedure SOP018 based on ASTM F795-88 1993</i>										G & H connections only					

Syringe Filters

PSGP [] - [] - [] - [] - [] - [] - []

Code	Diameter	Code	Micron	Code	Inlet Connection	Code	Outlet Connection	Code	Variant	Code	Grade	Code	Options	Code	Pack N°
050	50 mm	95	0.5 µm	F	Female Luer Lock	F	Female Luer Lock	P	Pharmaceutical	N	Non-sterile	S	Standard	025	25 per box
		96	0.6 µm	G	Stepped Hosebarb	G	Stepped Hosebarb								

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PROCLEAR PP Filter Cartridges

- liquid filters
- polypropylene

PROCLEAR PP filters are designed for a wide range of prefiltration duties within the production of pharmaceuticals and are particularly suited to applications where chemical compatibility is an issue.

The optimum pleat configuration and graded density polypropylene media used in PROCLEAR PP filters ensure the filters have the highest possible throughput to blockage resulting in long service life.

The PROCLEAR PP range of filters are fully supported by a comprehensive validation guide to simplify its specification into new and existing processes.

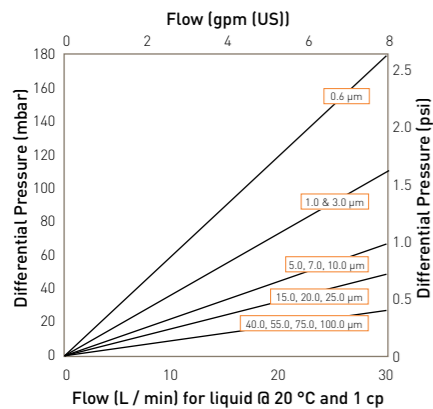


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Features and Benefits

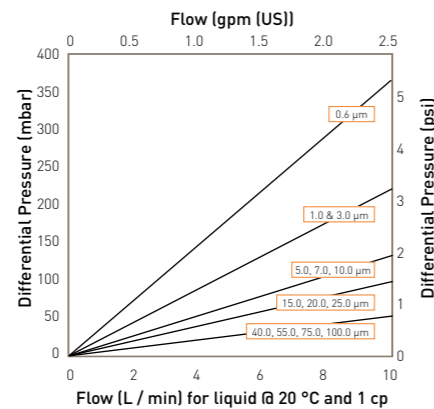
- Graded density polypropylene media for high capacity
- Extremely robust to withstand aggressive conditions
- All polypropylene construction
- MURUS and DEMICAP's can be gamma-irradiated and autoclaved

Performance Characteristics



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

10" size (250 mm) Cartridge



For A size for a given flow rate divide B size differential pressure by 2
For E size for a given flow rate multiply B size differential pressure by 2

B size (65 mm) Cartridge and Capsule

PROCLEAR PP Filter Cartridges

Specifications

Materials of Construction

- Filtration Membrane: Polypropylene
- Upstream Support: Polypropylene
- Downstream Support: Polypropylene

Filter Cartridges

- Inner Support Core: Polypropylene
 - Outer Protection Cage: Polypropylene
 - End Caps: Polypropylene
 - End Caps Insert: 316L Stainless Steel
- *Not available in B & L endcap variants*

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
- Capsule Body: Polypropylene
- 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 °C	Temperature °F	Max. Forward dP	
		[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	1.5	21.7

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)

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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) up to 0.79m² (8.5 ft²)

Sterilization

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

	Cycles	Autoclave		Steam-in-Place	
		Temp	Temp	Cycles	Temp
Cartridges	10	130 °C (266 °F)	135 °C (275 °F)	30	135 °C (275 °F)
MURUS	5	130 °C (266 °F)	-	-	-
DEMICAP	10	130 °C (266 °F)	-	-	-
Syringe	1	130 °C (266 °F)	-	-	-

For detailed operational procedures and advice on cleaning and sterilization, 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 grade purified water.

Gamma-Irradiation

PROCLEAR PP 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) PROCLEAR PP 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) PROCLEAR PP 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

PROCLEAR PP filter cartridges meet current USP and EP quality standards for sterile purified water for oxidizable substances following a <1 litre water flush.

Ordering Information

Cartridges

PCPP [] - [] - [] - [] - []

Code Length (Nominal)	Code Micron	Code Endcap (10")	Code Variant	Code O-rings
B* 2.5" (65 mm)	96 0.6 µm	B* dh DOE	P Pharmaceutical	E EPDM
A* 5" (125 mm)	01 1.0 µm	C BF / 226 Bayonet		S Silicone
K 5" (125 mm)	03 3.0 µm	D Fin / 222		V Viton
1 10" (250 mm)	05 5.0 µm	E Flat Top / 222		
2 20" (500 mm)	07 7.0 µm	G Recess / 222		
3 30" (750 mm)	10 10.0 µm	H UF Retrofit		
4 40" (1000 mm)	15 15.0 µm	J SOE (no o-ring)		
	20 20.0 µm	L* dh DOE		
	25 25.0 µm	N Internal 213		
	40 40.0 µm	R BF / 222 Bayonet		
	55 55.0 µm			
	75 75.0 µm			
	100* 100.0 µm			

** Supplied in packs of 3.*

Ratings based on efficiencies of > or = 99.98% using internal test procedure SOP918 based on ASTM F795-88 1993

**Not available with A and B Size formats*

**EPDM gaskets supplied as standard*

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

MURUS Capsules

PLPP [] - [] - [] - [] - [] - [] - [] - [] - []

Code Length (Nominal)	Code Micron	Code Inlet Connection	Code Outlet Connection	Code Variant	Code Grade	Code Design	Code O-rings
K 5" (125 mm)	96 0.6 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)	01 1.0 µm	B 1 1/2" Tri-Clamp	B 1 1/2" Tri-Clamp		S Non-sterilized	T* T-Port	S* Silicone
2 20" (500 mm)	03 3.0 µm	D 1" Hosebarb	D 1" Hosebarb		γ (>25 kGy)		V Viton
3 30" (750 mm)	05 5.0 µm	T 1" Tri-Clamp	T 1" Tri-Clamp				
	07 7.0 µm						
	10 10.0 µm						
	15 15.0 µm						
	20 20.0 µm						
	25 25.0 µm						
	40 40.0 µm						
	55 55.0 µm						
	75 75.0 µm						
	100 100.0 µm						

Ratings based on efficiencies of > or = 99.98% using internal test procedure SOP918 based on ASTM F795-88 1993

**Only available with a 1" Tri-Clamp*

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

DEMICAP Capsules

PEPP [] - [] - [] - [] - [] - [] - [] - [] - []

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)	96 0.6 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)	01 1.0 µm	N 1/2" NPT Male	N 1/2" NPT Male		S Pre-sterilized		
A 7.9" (200 mm)	03 3.0 µm	H 1/2" Hosebarb	H 1/2" Hosebarb		γ (>25 kGy)		
	05 5.0 µm	G Stepped Hosebarb	G Stepped Hosebarb				
	07 7.0 µm	M 1/4" NPT Male	M 1/4" NPT Male				
	10 10.0 µm	Q Walther QC	Q Walther QC				
	15 15.0 µm	R Grommel / QC	R Grommel / QC				
	20 20.0 µm	V 3/8" NPT Female	V 3/8" NPT Female				
	25 25.0 µm						
	40 40.0 µm						
	55 55.0 µm						
	75 75.0 µm						

Ratings based on efficiencies of > or = 99.98% using internal test procedure SOP918 based on ASTM F795-88 1993

G & H connections only

Syringe Filters

PSPF [] - [] - [] - [] - [] - [] - [] - []

Code Diameter	Code Micron	Code Inlet Connection	Code Outlet Connection	Code Variant	Code Grade	Code Options	Code Pack N°
050 50 mm	96 0.6 µm	F Female Luer Lock	F Female Luer Lock	P Pharmaceutical	N Non-sterile	S Standard	025 25 per box
	01 1.0 µm	G Stepped Hosebarb	G Stepped Hosebarb				
	03 3.0 µm						
	05 5.0 µm						
	07 7.0 µm						
	10 10.0 µm						
	15 15.0 µm						
	20 20.0 µm						
	25 25.0 µm						
	40 40.0 µm						
	55 55.0 µm						
	75 75.0 µm						

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PROPOR BR Filter Cartridges

- 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.

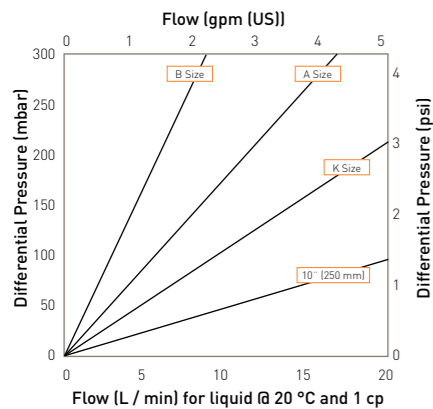
Features and Benefits

- *Brevundimonas diminuta* retention of LRV >5 for efficient bioburden reduction
- Additional prefilter layer gives excellent throughput to blockage
- Low binding for minimal product loss
- MURUS and DEMICAP's can be gamma-irradiated and autoclaved

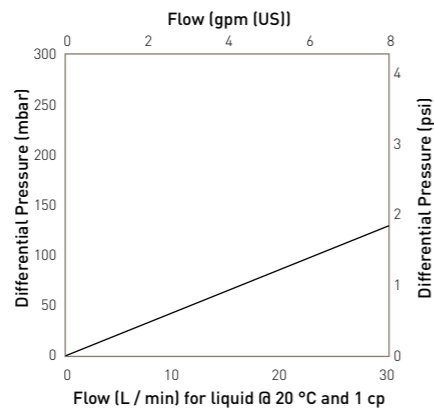


Note: PROPOR and DEMICAP are registered trademarks of Parker domnick hunter

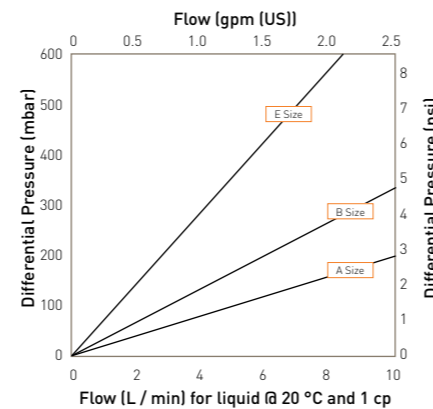
Performance Characteristics



Cartridge flow rates



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



DEMICAP flow rates

PROPOR BR Filter Cartridges

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

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	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 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.

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 °C	Temperature °F	Max. Forward dP (bar)	Max. Forward dP (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).

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.

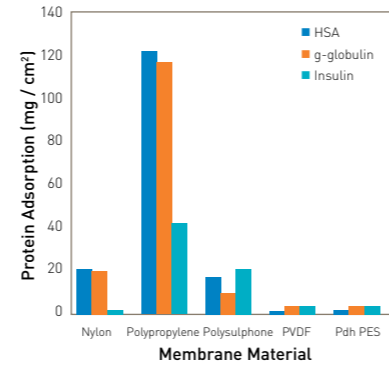
Pharmaceutical Validation
A full validation guide is available upon request from Laboratory Services Group (LSG).

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.

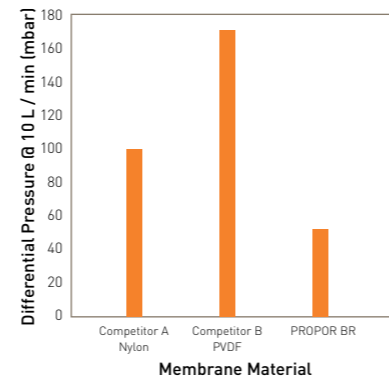
Integrity Test Data
All filters are integrity testable to the following limits when wet with water and using air as the test gas.

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 ³) (ml / min)	(K)	16.0
	(A)	7.5
	(B)	6.0
	(E)	2.9
		1.2

Retention Characteristics
PROPOR BR filter cartridges are validated to an LRV > 5 by bacterial challenge testing with *Brevundimonas diminuta* to current ASTM F838-05 methodology (10⁷ organisms / cm² EFA minimum) with typical in-house challenge levels being 10¹¹ 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)	Micron	Endcap (10")	Variant	O-rings
B*	2.5" (65 mm)	020 0.20 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

ZLBR [] - [] - [] - [] - [] - [] - [] - [] - []

Code	Length (Nominal)	Micron	Inlet Connection	Outlet Connection	Variant	Grade	Design	O-rings
K	5" (125 mm)	020 0.2 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	T* T-Port	S* Silicone
2	20" (500 mm)		D 1" Hosebarb	D 1" Hosebarb		γ (>25 kGy)		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

ZEBR [] - [] - [] - [] - [] - [] - [] - [] - []

Code	Length (Nominal)	Micron	Inlet Connection	Outlet Connection	Variant	Grade	Pack N°	Accessory
E	4.4" (113 mm)	020 0.2 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		
A	7.9" (200 mm)		H 1/2" Hosebarb	H 1/2" Hosebarb		γ (>25 kGy)		G & H connections only
			G Stepped Hosebarb	G Stepped Hosebarb				
			M 1/2" NPT Male	M 1/2" NPT Male				
			Q Walther QC	Q Walther QC				
			R Grommet / QC	R Grommet / QC				

Syringe Filters

ZSBR [] - [] - [] - [] - [] - [] - [] - []

Code	Diameter	Micron	Inlet Connection	Outlet Connection	Variant	Grade	Options	Pack N°
050	50 mm	020 0.2 µm	F Female Luer Lock Stepped Hosebarb	F Female Luer Lock Stepped Hosebarb	P Pharmaceutical	N Non-sterile	S Standard	025 25 per box

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PROPOR SG Filter Cartridges

- liquid filters
- polyethersulphone

PROPOR SG sterilizing grade filters feature a microbially retentive polyethersulphone membrane for fast, reliable and cost-effective sterile filtration of pharmaceutical fluids.

The asymmetric pore structure and high voids volume of the PROPOR SG membrane allow high throughputs and exceptionally high flow rates compared with competitive PES and alternative membranes. Low protein and preservative binding properties minimize product loss due to adsorption.

PROPOR SG filters are optimized for pharmaceutical processing. They have low extractable levels and broad chemical compatibility across the full pH range including organic solvents.

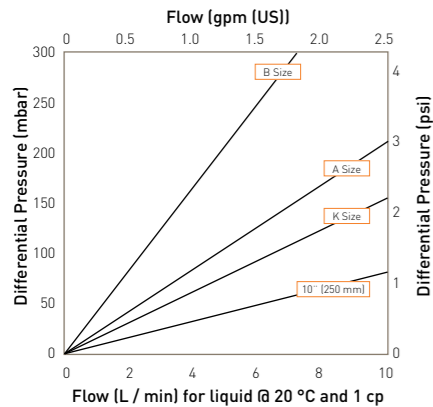
Features and Benefits

- Up to 3.5 times higher flow rates than competitive sterilizing grade filters
- Fully validated and integrity testable membrane for assurance of sterility
- Low binding for minimal product loss
- MURUS and DEMICAP's can be gamma-irradiated and autoclaved

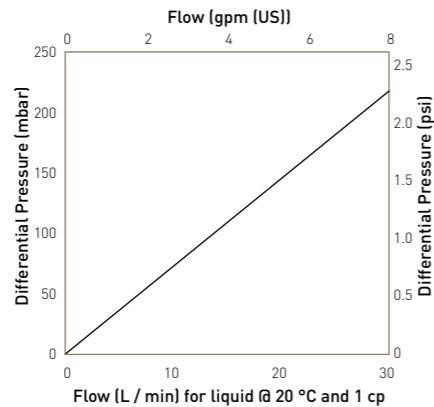


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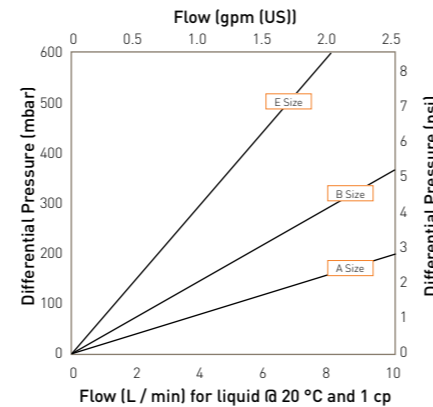
Performance Characteristics



Cartridge flow rates
0.2 µm Cartridge



MURUS flow rates (10" Size (250 mm))
0.2 µm Capsule



DEMICAP flow rates
0.2 µm Capsule

PROPOR SG Filter Cartridges

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 °C	Temperature °F	Max. Forward dP (bar)	Max. Forward dP (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)

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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 SG 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.

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 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 SG 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 SG 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 SG 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).

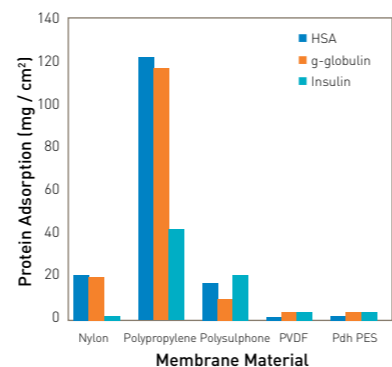
Oxidizable Substances
PROPOR SG filter cartridges meet current USP and EP quality standards for sterile purified water for oxidizable substances following a <1 litre water flush.

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

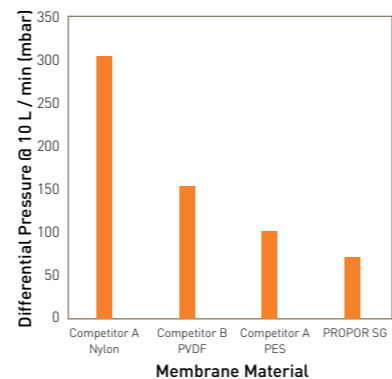
Micron Rating	0.1	0.2	0.45
Filter Cartridges / MURUS / DEMICAP / Syringe Filters			
Min. Bubble Point* (barg)	2.36	3.38	2.48
(psig)	34.2	49.0	36.0
Filter Cartridges / MURUS / DEMICAP / Syringe Filters			
Diffusional Flow (barg)	4.8	2.8	1.7
Test Pressure (psig)	69.6	40.6	24.9
Filter Cartridges / MURUS / DEMICAP / Syringe Filters			
Max. Diffusional Flow (10") (ml / min)	27.0	16.0	16.0
(K)	12.6	7.5	7.5
(A)	10.1	6.0	6.0
(B)	4.9	2.9	2.9
(E)	2.1	1.2	1.2

*Bubble point for 0.1 µm product is in 60/40 v/v IPA/Water.

Retention Characteristics
PROPOR SG filter cartridges are validated by bacterial challenge testing with *Brevundimonas diminuta* to current ASTM F838-05 methodology (10⁷ organisms / cm² EFA minimum) with typical in-house challenge levels being 10¹¹ organisms per 10" (250 mm) filter cartridge.



Protein binding on membrane materials



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

Ordering Information

Cartridges

ZCSG [] - [] - [] - [] - [] - []

Code Length (Nominal)	Code Micron	Code Endcap (10")	Code Variant	Code O-rings	Code Componentry
B* 2.5" (65 mm)	010 0.10 µm	C BF / 226 Bayonet	P Pharmaceutical	E EPDM	X All polypropylene componentry
A* 5" (125 mm)	020 0.20 µm	D Fin / 222		S Silicone	
K 5" (125 mm)	045 0.45 µm	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)
SK Retrofit
T TRUESEAL
Y Demi Stub
Z Demi A & B Std

MURUS Capsules

ZLSG [] - [] - [] - [] - [] - [] - [] - [] - []

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 0.10 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)	020 0.20 µm	B 1 1/2" Tri-Clamp	B 1 1/2" Tri-Clamp		S Non-sterilized γ (>25 kGy)	T* T-Port	S* Silicone
2 20" (500 mm)	045 0.45 µm	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

ZESG [] - [] - [] - [] - [] - [] - [] - [] - []

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 0.10 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)	020 0.20 µm	N 1/2" NPT Male	N 1/2" NPT Male		S Non-sterilized γ (>25 kGy)	X* All polypropylene componentry	
A 7.9" (200 mm)	045 0.45 µm	H 1/2" Hosebarb	H 1/2" Hosebarb				G & H connections only
		G Stepped Hosebarb	G Stepped Hosebarb				
		M 1/2" NPT Male	M 1/2" NPT Male				
		Q Walther QC	Q Walther QC				
		R Grommet / QC	R Grommet / QC				

*Note: Supplied in Packs of 3.

Syringe Filters

ZSSG [] - [] - [] - [] - [] - [] - [] - []

Code Diameter	Code Micron	Code Inlet Connection	Code Outlet Connection	Code Variant	Code Grade	Code Options	Code Pack N°
050 50 mm	010 0.10 µm	F Female Luer Lock	F Female Luer Lock	P Pharmaceutical	N Non-sterile	S Standard	025 25 per box
	020 0.20 µm	G Stepped Hosebarb	G Stepped Hosebarb				
	045 0.45 µm						

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PROPOR HC Filter Cartridges

- liquid filters
- polyethersulphone

PROPOR HC sterilizing grade filters have been specifically designed for the effective and economical processing of difficult to filter solutions.

The optimised PROPOR HC PES membrane configuration features a highly asymmetric membrane prefilter layer, which significantly extends throughput and prevents the problems associated with premature filter blockage with complex solutions.

PROPOR HC filters are high capacity and fast flowing. The PES membrane is inherently low binding, which minimizes product loss due to protein or preservative adsorption. The filters have low extractable levels and broad chemical compatibility.

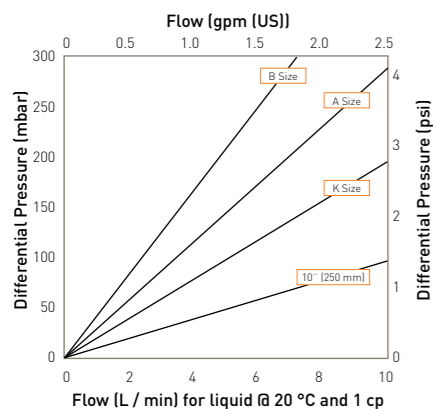
Features and Benefits

- Optimized membrane configuration allows up to ten times the throughput compared to single layer membrane products
- Integral prefilter layer can condense filter trains for greater processing economy
- Incorporates a fully validated and integrity testable 0.2 micron membrane for assurance of sterility
- Low binding for minimal product loss

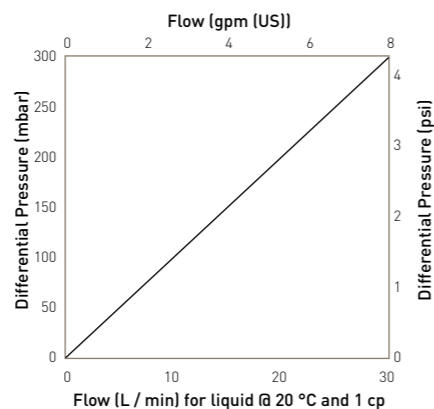


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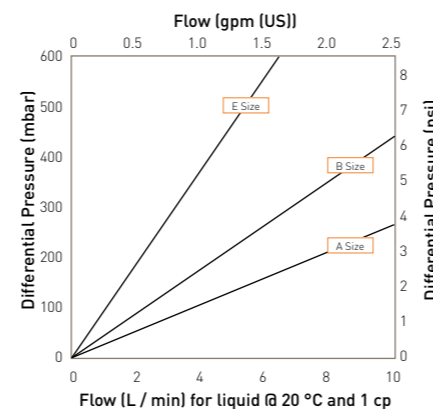
Performance Characteristics



Cartridge flow rates



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



DEMICAP flow rates

PROPOR HC Filter Cartridges

Specifications

Materials of Construction

- Filtration Membrane: Polyethersulphone
- Prefilter 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 °C	Temperature °F	Max. Forward dP (bar)	Max. Forward dP (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)

Sterilization

	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)	-	-
DEMICAP	10	130 °C (266 °F)	-	-
Syringe	1	130 °C (266 °F)	-	-

PROPOR HC 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.

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

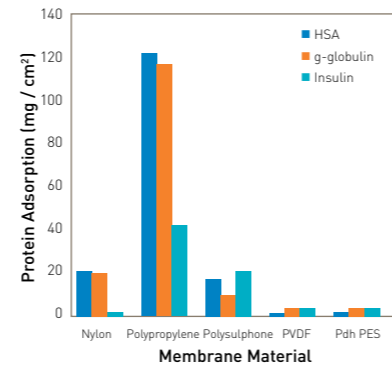
Integrity Test Data

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

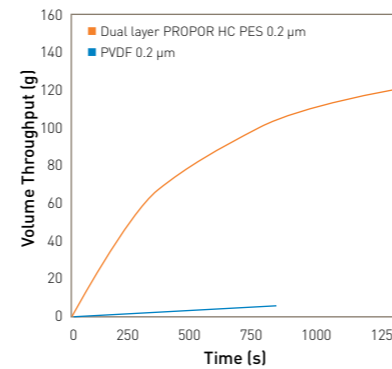
Micron Rating		0.2
Filter Cartridges / MURUS / DEMICAP / Syringe Filters		
Min. Bubble Point (barg)		3.4
	(psig)	49.0
Filter Cartridges / MURUS / DEMICAP / Syringe Filters		
Diffusional Flow (barg)		2.8
Test Pressure (psig)		40.6
Filter Cartridges / MURUS / DEMICAP / Syringe Filters		
Max. Diffusional Flow (10 ⁻¹) (ml / min)	(K)	18.0
	(A)	8.4
	(B)	6.7
	(E)	3.2
	(E)	1.4

Retention Characteristics

PROPOR HC filter cartridges are validated by bacterial challenge testing with *Brevundimonas diminuta* to current ASTM F838-05 methodology (10⁷ organisms / cm² EFA minimum) with typical in-house challenge levels being 10¹¹ organisms per 10" (250 mm) filter cartridge.



Protein binding on membrane materials



Total volume throughput (g) vs time (s) for an insulin intermediate solution

Ordering Information

Cartridges

ZCHC [] - [] - [] - [] - []

Code	Length (Nominal)	Micron	Endcap (10 ⁻¹)	Variant	O-rings
B*	2.5" (65 mm)	620 0.2 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

ZLHC [] - [] - [] - [] - [] - [] - [] - []

Code	Length (Nominal)	Micron	Inlet Connection	Outlet Connection	Variant	Grade	Design	O-rings
K	5" (125 mm)	620 0.2 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	T* T-Port	S* Silicone
2	20" (500 mm)		D 1" Hosebarb	D 1" Hosebarb		γ (>25 kGy)		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

ZEHC [] - [] - [] - [] - [] - [] - [] - []

Code	Length (Nominal)	Micron	Inlet Connection	Outlet Connection	Variant	Grade	Pack N°	Accessory
E	4.4" (113 mm)	620 0.2 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		
A	7.9" (200 mm)		H 1/2" Hosebarb	H 1/2" Hosebarb		γ (>25 kGy)		G & H connections only
			G Stepped Hosebarb	G Stepped Hosebarb				
			M 1/2" NPT Male	M 1/2" NPT Male				
			Q Walther QC	Q Walther QC				
			R Grommet / QC	R Grommet / QC				

Syringe Filters

ZSHC [] - [] - [] - [] - [] - [] - []

Code	Diameter	Micron	Inlet Connection	Outlet Connection	Variant	Grade	Options	Pack N°
050	50 mm	620 0.2 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				

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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 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*.

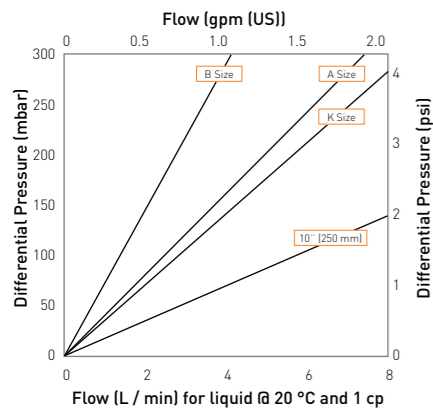
Features and Benefits

- 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 DEMICAP's can be gamma-irradiated and autoclaved

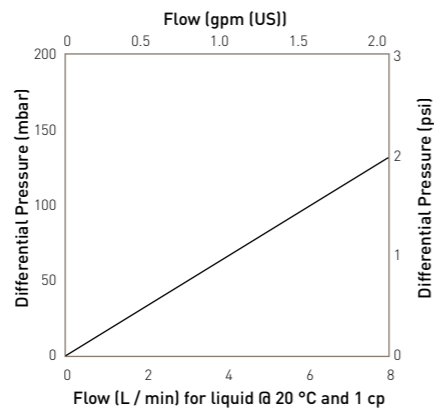


Note: PROPOR and DEMICAP are registered trademarks of Parker domnick hunter

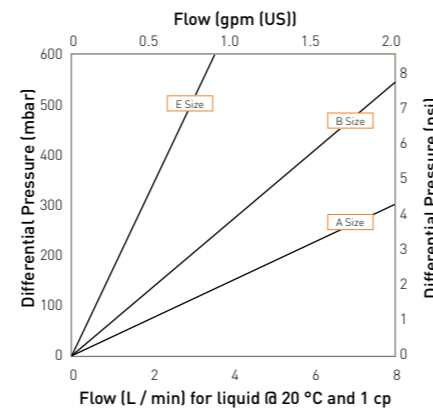
Performance Characteristics



Cartridge flow rates



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



DEMICAP flow rates

PROPOR LR Filter Cartridges

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 °C	Temperature °F	Max. Forward dP (bar)	Max. Forward dP (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 certifies 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)

Sterilization

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

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.

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 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

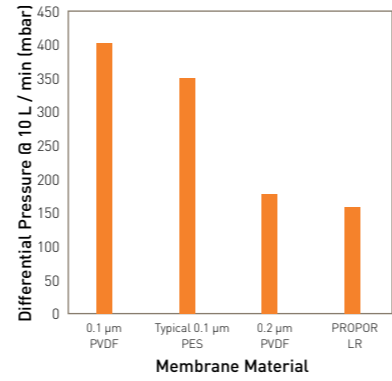
All filters are integrity testable to the following limits when wet with water (diffusional flow) and 60 / 40 : IPA / Water (bubble point) using air as the test gas.

Micron Rating		0.1
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" (ml / min)	(K)	27.0
	(A)	12.6
	(B)	10.1
	(E)	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 (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) sterilising 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*	Pre-sterilized γ (>25 kGy)	S*	T-Port	S*	Silicone
2	20" (500 mm)			D	1" Hosebarb	D	1" Hosebarb					V		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	Stepped Hosebarb	G	Stepped Hosebarb								
				M	1/2" NPT Male	M	1/2" NPT Male								
				Q	Walther QC	Q	Walther QC								
				R	Grommet / QC	R	Grommet / QC								

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								

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TETPOR HP Filter Cartridges

- liquid filters
- hydrophilic PTFE

TETPOR HP filter cartridges have been specially designed to minimize protein and preservative binding in the sterilization of pharmaceutical and multi-dose ophthalmic solutions.

Adsorption of proteins or preservatives from a pharmaceutical preparation onto the filter membrane can complicate the manufacturing process and lead to costly product wastage. The unique hydrophilic PTFE membrane featured in the TETPOR HP exhibits lower levels of binding than other commonly used filtration membranes such as PES and PVDF which can prevent product loss during processing.

The TETPOR HP exhibits low extractable levels and the sterilizing grade membrane has comparative flow rates to PES and PVDF products. Its hydrophilicity is stable to both chemicals and heat. The product also offers an exceptionally broad range of chemical compatibility making it well suited to the processing of aggressive aqueous liquids.

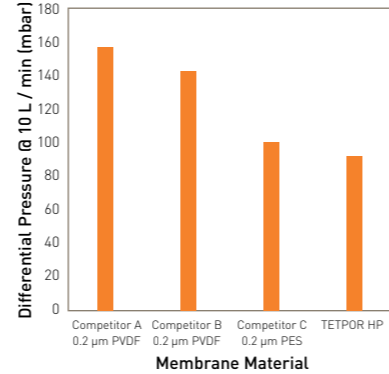
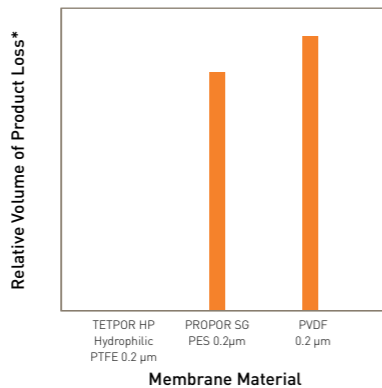
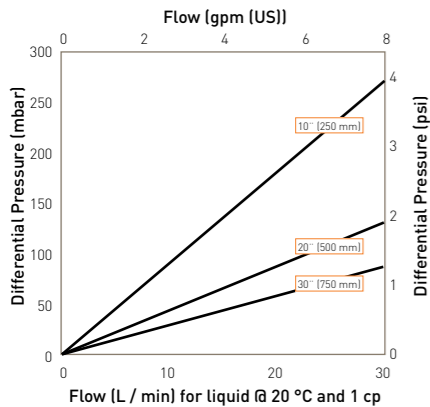
Features and Benefits

- Exceptionally low binding membrane to prevent costly product loss and process down time
- Fast flowing membrane for increased process efficiency
- Incorporates a fully validated and integrity testable 0.2 micron membrane for assurance of sterility



Note: TETPOR is a registered trademark of Parker domnick hunter

Performance Characteristics



Cartridge flow rates

Comparison of product loss due to preservative binding on different filter membranes for a 0.001% solution of benzalkonium chloride (BAK)

Comparison of differential pressure of 10" (250 mm) sterilising grade cartridges filtering water

* The relative volume of product loss represents the volume at which the concentration of BAK in the filtrate recovers back to 95% of the original concentration, which is typically the point at which the filling operation can begin.

TETPOR HP Filter Cartridges

Specifications

Materials of Construction

- Filtration Membrane: Hydrophilic PTFE
- Upstream Support: Polypropylene
- Downstream Support: Polypropylene
- Inner Support Core: Polypropylene
- Outer Protection Cage: Polypropylene
- End Caps: Polypropylene
- Standard o-rings: Silicone

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 (psi)
20	68	5.0	72.5
40	104	4.0	58.0
60	140	3.0	43.5
80	179	2.0	29.0
90	194	1.7	24.6

Effective Filtration Area (EFA)

10" (250 mm)	0.88 m ² [9.47 ft ²]
20" (500 mm)	1.76 m ² [18.94 ft ²]
30" (750 mm)	2.64 m ² [28.42 ft ²]

Sterilization

TETPOR HP filter cartridges are validated to withstand 10 steam-in-place cycles at 135 °C (275 °F).

TETPOR HP 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.

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.

TOC / Conductivity

The filtrate quality from a 10" (250 mm) TETPOR HP 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) TETPOR HP contain < 0.25 EU / ml when tested in accordance with the Limulus Amoebocyte Lysate test.

Non-Volatile Extractables (NVE)

The quantity of NVE's obtained from a TETPOR HP cartridge during a 24 hour static soak was undetectable compared to a control sample.

Oxidizable Substances

TETPOR HP 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 (a minimum 20 minute purified water flush is recommended prior to integrity testing in water).

Micron Rating	0.2
Min. Bubble Point (barg)	1.5
60 / 40 IPA / Water (v/v) (psig)	21.0
Diffusional Flow (barg)	2.2
Test Pressure (psig)	31.9
Max. Diffusional Flow* (10" (ml / min)	37.0

*Note: It is also possible to integrity test the TETPOR HP in 60 / 40 IPA / Water (v/v). Maximum allowable diffusional flow for a 10" (250 mm) TETPOR HP in 60 / 40 IPA / Water is 16.8 ml / min.

Retention Characteristics

TETPOR HP filter cartridges are validated by bacterial challenge testing with *Brevundimonas diminuta* to current ASTM F838-05 methodology (10⁷ organisms / cm² EFA minimum) with typical in-house challenge levels being 10¹¹ organisms per 10" (250 mm) module.

Pharmaceutical Validation

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

Ordering Information

Code	Length (Nominal)	Code Micron	Code Endcap (10")	Code Variant	Code O-rings
1	10" (250 mm)	020 0.2 µm	C P-7	HP Hydrophilic PTFE	E EPDM
2	20" (500 mm)				P PTFE Encapsulated Silicone
3	30" (750 mm)				S Silicone
					V Viton

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TETPOR LIQUID Filter Cartridges

- Liquid filters
- PTFE

TETPOR LIQUID filters are particularly suitable for sterilization and particulate removal from aggressive chemicals (including acids, bases and solvents) within a wide range of critical processing industries.

The superior performance, strength and durability of TETPOR LIQUID filters stems from the use of a single layer, high security PTFE membrane, which has a high dirt holding capacity due to its high voids volume. This results in low pressure drops and long service life.

High flow rates are achieved due to the optimized pleat pack density and the superior design construction of TETPOR LIQUID filters.

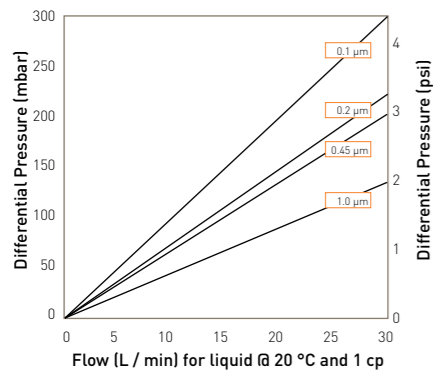
Features and Benefits

- Superior chemical resistance of PTFE membrane combined with polypropylene hardware
- Validated to ASTM F838-05 methodology
- Integrity tested prior to despatch
- Comprehensive range of end cap configurations for retrofitting



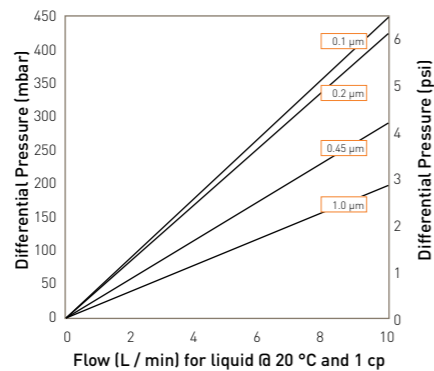
Note: TETPOR is a registered trademark of Parker domnick hunter

Performance Characteristics



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

10" Size (250 mm) Cartridge



For A size for a given flow rate divide B size differential pressure by 2
For E size for a given flow rate multiply B size differential pressure by 2

B Size (65 mm) Cartridge and Capsule

TETPOR LIQUID Filter Cartridges

Specifications

Materials of Construction

- Filtration Membrane: PTFE
- Upstream Support: Polypropylene
- Downstream Support: Polypropylene

Filter Cartridges

- Inner Support Core: Polypropylene
- Outer Protection Cage: Polypropylene
- End Caps: Polypropylene
- End Caps Insert: 316L Stainless Steel
- *Not available in B endcap variant
- Standard o-rings/gaskets: Viton

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: Polypropylene
- Capsule Body: Polypropylene
- Capsules Vent Seals: Silicone
- Filling Bell: Polycarbonate

Syringe Filters

- Body: Polypropylene

Effective Filtration Area (EFA)

10" (250 mm):	0.77 m ²	(8.28 ft ²)
K Size:	0.36 m ²	(3.87 ft ²)
A Size:	0.25 m ²	(2.69 ft ²)
B Size:	0.12 m ²	(1.29 ft ²)
E Size:	0.06 m ²	(0.64 ft ²)
Syringe ø50 mm:	14.50 cm ²	(2.25 in ²)

Sterilization

	Autoclave		Steam-in-Place	
	Cycles	Temp	Cycles	Temp
Cartridges	120	142 °C (287.6 °F)	120	142 °C (287.6 °F)
MURUS	5	130 °C (266 °F)	-	-
DEMICAP	10	135 °C (275 °F)	-	-
Syringe	1	130 °C (266 °F)	-	-

TETPOR LIQUID 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.

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.

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 °C	Temperature °F	Max. Forward dP (bar)	Max. Forward dP (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).

Performance Characteristics

TOC / Conductivity

The filtrate quality from a 10" (250 mm) TETPOR LIQUID conforms to the requirements of current USP <643> (TOC) and USP <645> (conductivity).

Endotoxins

Aqueous extracts from the 10" (250 mm) TETPOR LIQUID 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 <5 mg.

Pharmaceutical Validation

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

Oxidizable Substances

TETPOR LIQUID 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 60 / 40 IPA / Water and using air as the test gas.

Micron Rating	0.1	0.2	0.45	1.0
Filter Cartridges / MURUS / DEMICAP / Syringe Filters				
Min. Bubble Point (barg)	1.3	1.0	0.7	-
(psig)	18.8	14.5	10.1	-
Filter Cartridges / MURUS / DEMICAP / Syringe Filters				
Diffusional Flow (barg)	1.0	0.8	0.4	-
(psig)	14.5	11.6	5.8	-
Filter Cartridges / MURUS / DEMICAP / Syringe Filters				
Max. Diffusional Flow (10") (ml / min)	27.0	18.0	18.0	-
(K)	12.7	8.5	8.5	-
(A)	9.0	6.0	6.0	-
(B)	4.5	3.0	3.0	-
(E)	2.3	1.5	1.5	-

Retention Characteristics

TETPOR LIQUID filter cartridges are validated by bacterial challenge testing with *Brevundimonas diminuta* to current ASTM F838-05 methodology (10⁷ organisms / cm² EFA minimum) with typical in-house challenge levels being 10¹¹ organisms per 10" (250 mm) filter cartridge.

Ordering Information

Cartridges

ZCMT [] - [] [] [] []

Code	Length (Nominal)	Code	Micron	Code	Endcap (10")	Code	Variant	Code	O-rings
B*	2.5" (65 mm)	010	0.1 µm	B*	dh DOE	L	Liquid	E	EPDM
A*	5" (125 mm)	020	0.2 µm	C	BF / 226 Bayonet	P	Pharmaceutical	P	PTFE Encapsulated Silicone
K	5" (125 mm)	045	0.45 µm	D	Fin / 222	S	Steam Sterilizable	S	Silicone
1	10" (250 mm)	100	1.0 µm	E	Flat Top / 222			V*	Viton
2	20" (500 mm)			G	Recess / 222			* Viton o-ring supplied as standard without having to specify the 'V' code.	
3	30" (750 mm)			R	BF / 222 Bayonet				
4	40" (1000 mm)								

* Supplied in packs of 3.

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

* EPDM gaskets supplied as standard
Note: Viton supplied as standard on all other endcap options.

MURUS Capsules

ZLMT [] - [] [] [] [] [] [] [] [] []

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 T-Port	E	EPDM
1	10" (250 mm)	020	0.2 µm	B	1 1/2" Tri-Clamp	B	1 1/2" Tri-Clamp					T*	T-Port	S*	Silicone
2	20" (500 mm)	045	0.45 µm	D	1" Hosebarb	D	1" Hosebarb							V	Viton
3	30" (750 mm)	100	1.0 µm	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

ZEMT [] - [] [] [] [] [] [] [] [] []

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)	020	0.2 µm	N	1/2" NPT Male	N	1/2" NPT Male								
A	7.9" (200 mm)	045	0.45 µm	H	1/2" Hosebarb	H	1/2" Hosebarb								
		100	1.0 µm	G	Stepped Hosebarb	G	Stepped Hosebarb								
				M	1/2" NPT Male	M	1/2" NPT Male								
				Q	Walther QC	Q	Walther QC								
				R	Grommel / QC	R	Grommel / QC								
				V	3/8" NPT Female	V	3/8" NPT Female								

G & H connections only

Syringe Filters

ZSMT [] - [] [] [] [] [] [] [] [] []

Code	Diameter	Code	Micron	Code	Inlet Connection	Code	Outlet Connection	Code	Variant	Code	Grade	Code	Options	Code	Pack N°
050	50 mm	020	0.2 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								

Parker donmick 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.