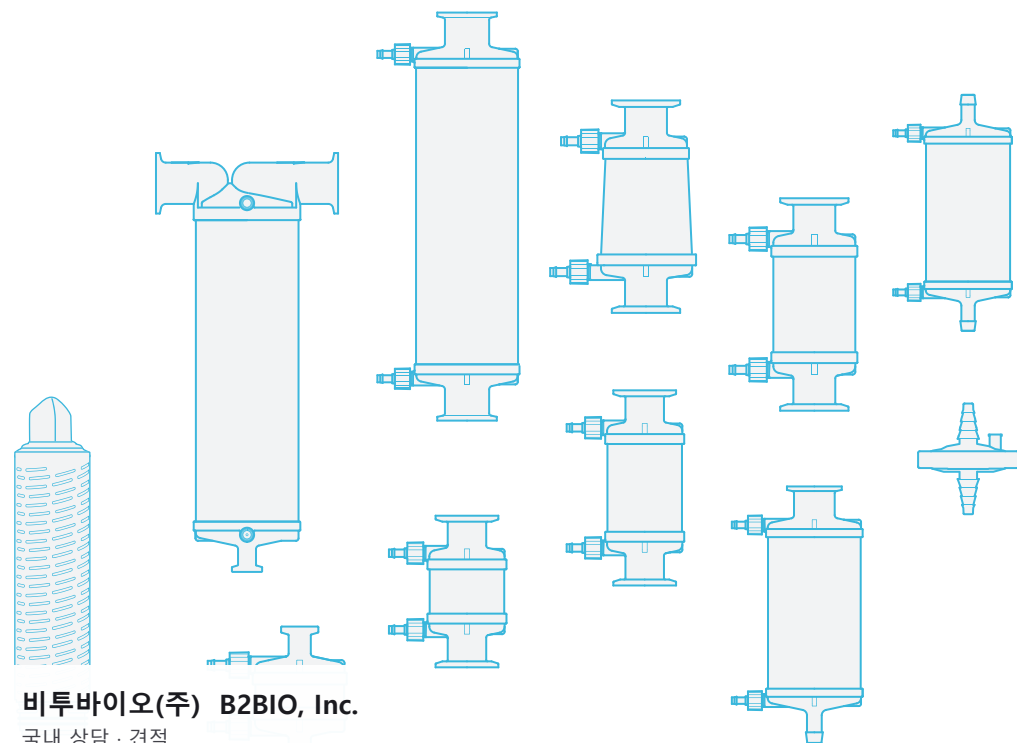


Our Mission

Through Excellent Products & Sustainable Innovative Solutions,
We Help Customers Solve Process Problems & Increase Yield.



Pharmaceutical Industry Filtration Solution



비투바이오(주) B2BIO, Inc.

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E-mail info@b2bio.co.kr
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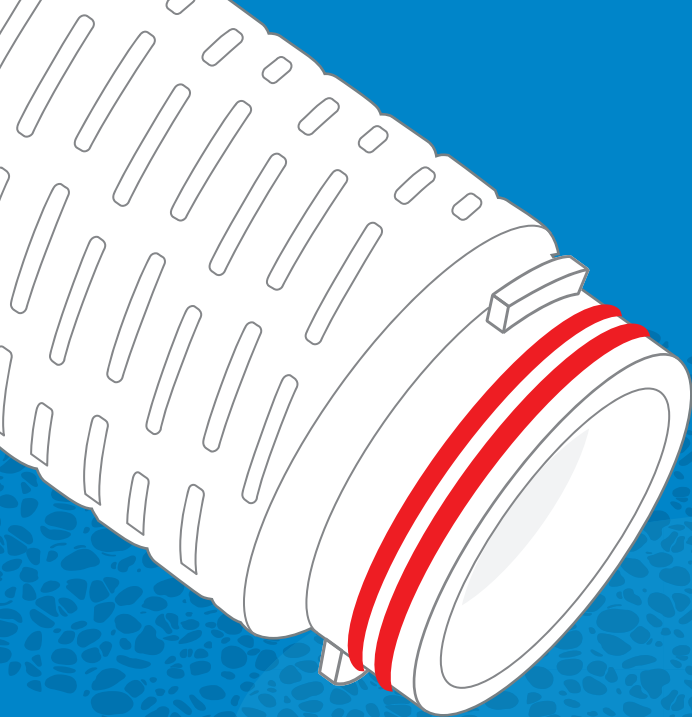
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Filtration Separation Purification

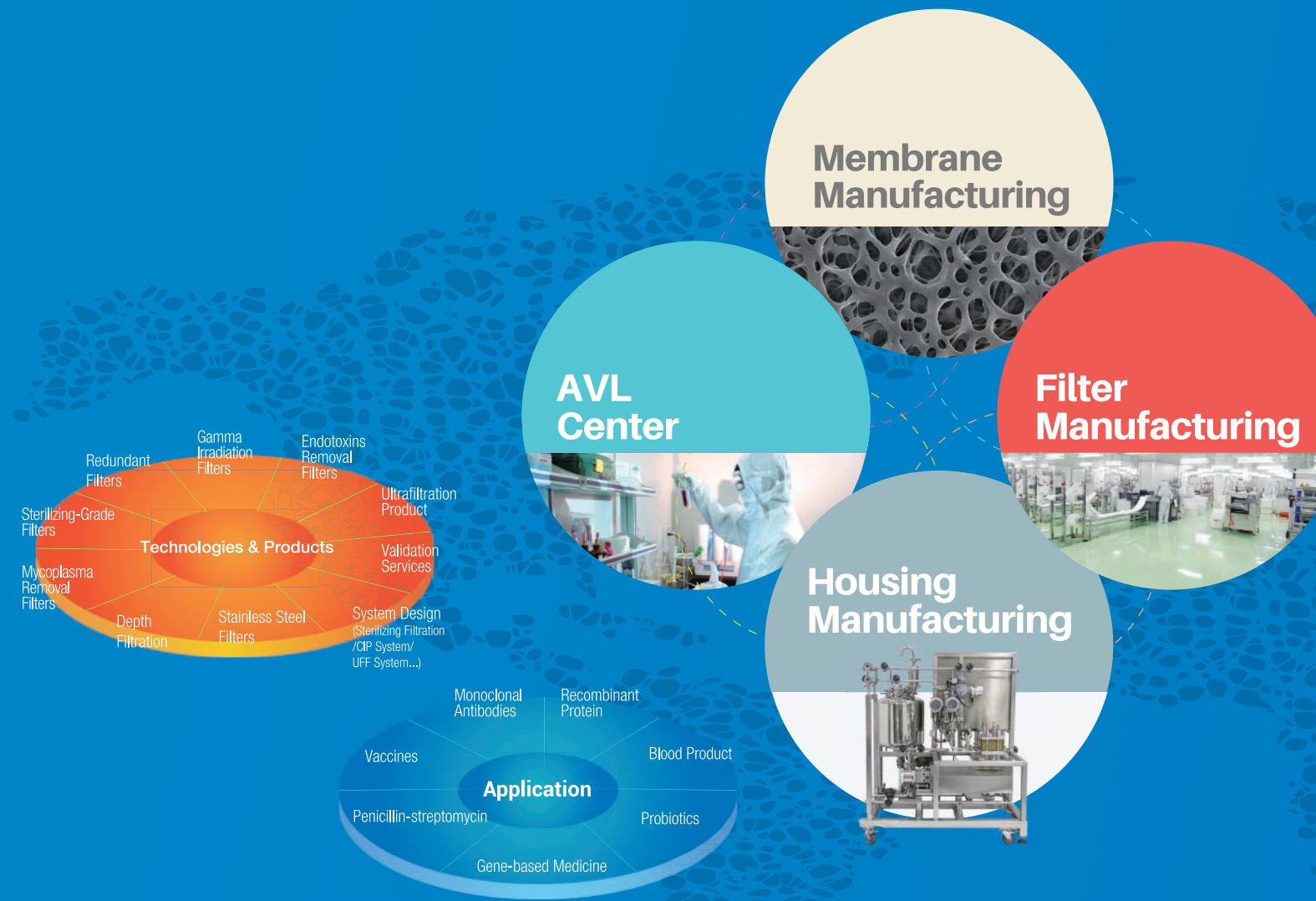


Cobetter dedicates itself to providing Filtration, Separation, & Purification

Solutions across all industries. Cobetter provides over 6,200+ technical analysis reports annually

for customers in the pharmaceutical industry and over 2,500+ technical analysis reports annually

for customers in chemical, microelectronics and life sciences industries



C11 Semiconductor Ultra-pure water Degassing Membrane 66500 SQM, 2025

C12 Biopharma & Semiconductor filtration products manufacturing 60000 SQM 2025.6

C8 R&D Headquarters Office(A tall building)

C9 Hollow-fiber Membranes for ECMO Production Plant

C10 Virus Clearance Validation Services Center Newtron Bioassay Co.,Ltd



C1 Factory Membrane Filter Manufacturing 9400 SQM

C3 Factory Semiconductor & Biological Filter Manufacturing 13500 SQM

C5 Lab & Factory AVL Center & Bio-Pharma Single-use Bag Semi-litho Filter 41,000 SQM

C7 Factory Bio-materials Research Center 1300 SQM

C2 Factory Depth Filter Manufacturing 9000 SQM

C4 Factory Stainless Filter Manufacturing & Fluoroplastics Resurtech Manufacturing & Housing Manufacturing 28000 SQM

C6 Life Center Life Center 33000 SQM



Validation Expert
Taketomi Hidetoshi, Japanese
Previous Pall Lab Expert for
More Than 30 Years.

AVL Center

Accredited by China National Accreditation Service for Conformity (CNAS)
Established with an initial 21million USD investment



1000⁺ Equipments
480⁺ SOP
350⁺ Engineers

Life & Science Validation Center

- ①⑥ **Bacterial Challenge Test** : Retention tests for Mycoplasma, B.diminuta, Serratia marcescens, lactobacillus, saccharomycetes, colibacillus and other microorganisms
- Chemical Analysis** : Extractable & Leachables , Chemical Compatibility test
- UV/PDA-HPLC** : UV/PDA scanning to determine extractables and leachables
- ④ **UPLC/MS** : Determine the nonvolatile and semivolatile of extractable & leachables quantitatively and qualitatively
- ⑤ **GC-MS** : Determine volatile/semi-volatile status of extractables and leachables quantitatively and qualitatively
- ② **IC/ICP-MS** : Analyze alkalis, halogen family, acid radicals, ammonia, and other ions quantitatively
- NVR** : Analyze non-volatile extractable from water, IPA, Acetone and other volatile solutions quantitatively
- FTIR** : Analyze polymers and oligomers in non-volatile extractable & leachables qualitatively
- ③ **SEM/EDS** : Analyze filter membrane defect, appearance, and impurities. SEM analysis of chemical compatibility

Advanced Quality Control Methods

Ensure that Every Product is Safe, Reliable, and Stable

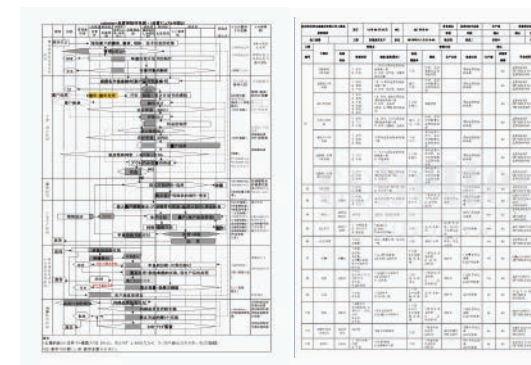
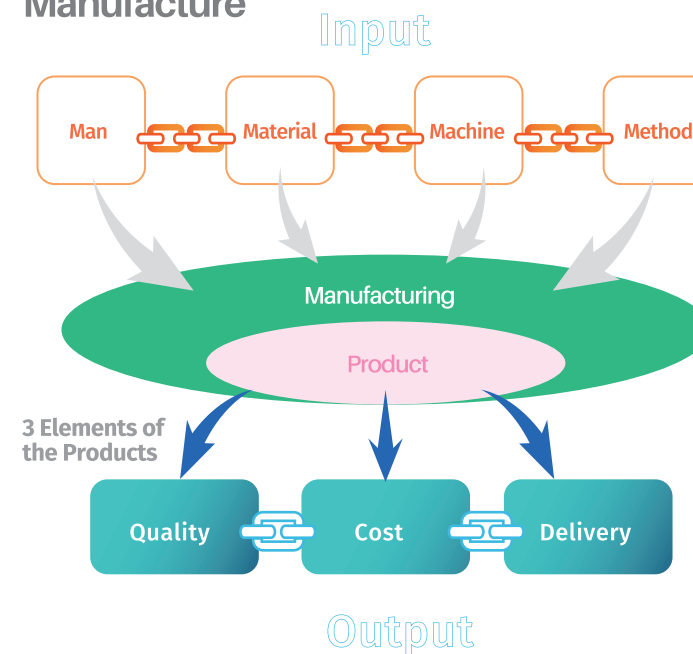
Quality Assurance is based on the Quality Assurance System
- Focus on the Production Process

Implement 4M Quality Management Concept
- Process and System Simultaneous Completion

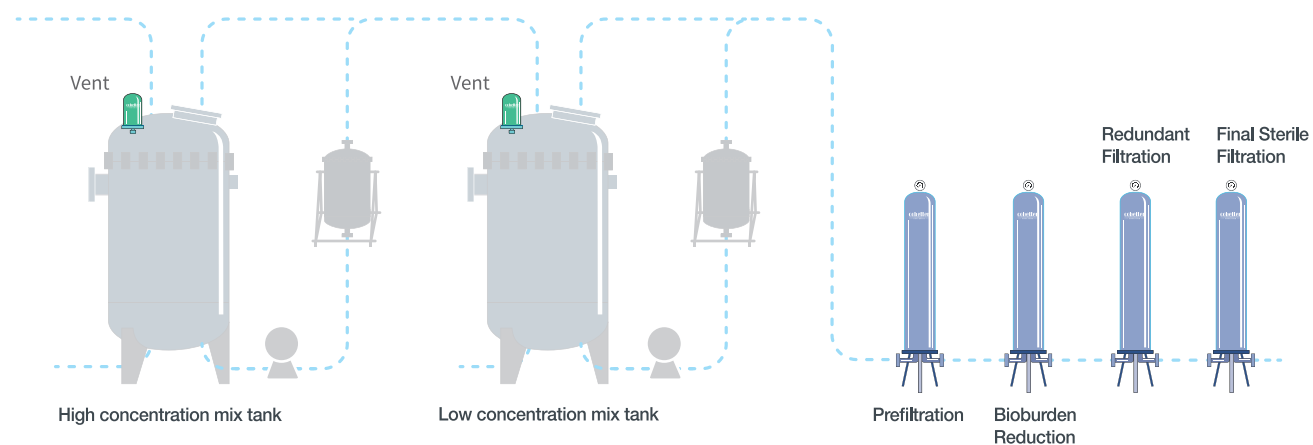
All Products are based on the QC Project Table
- Produced as per SOP for Stable Production



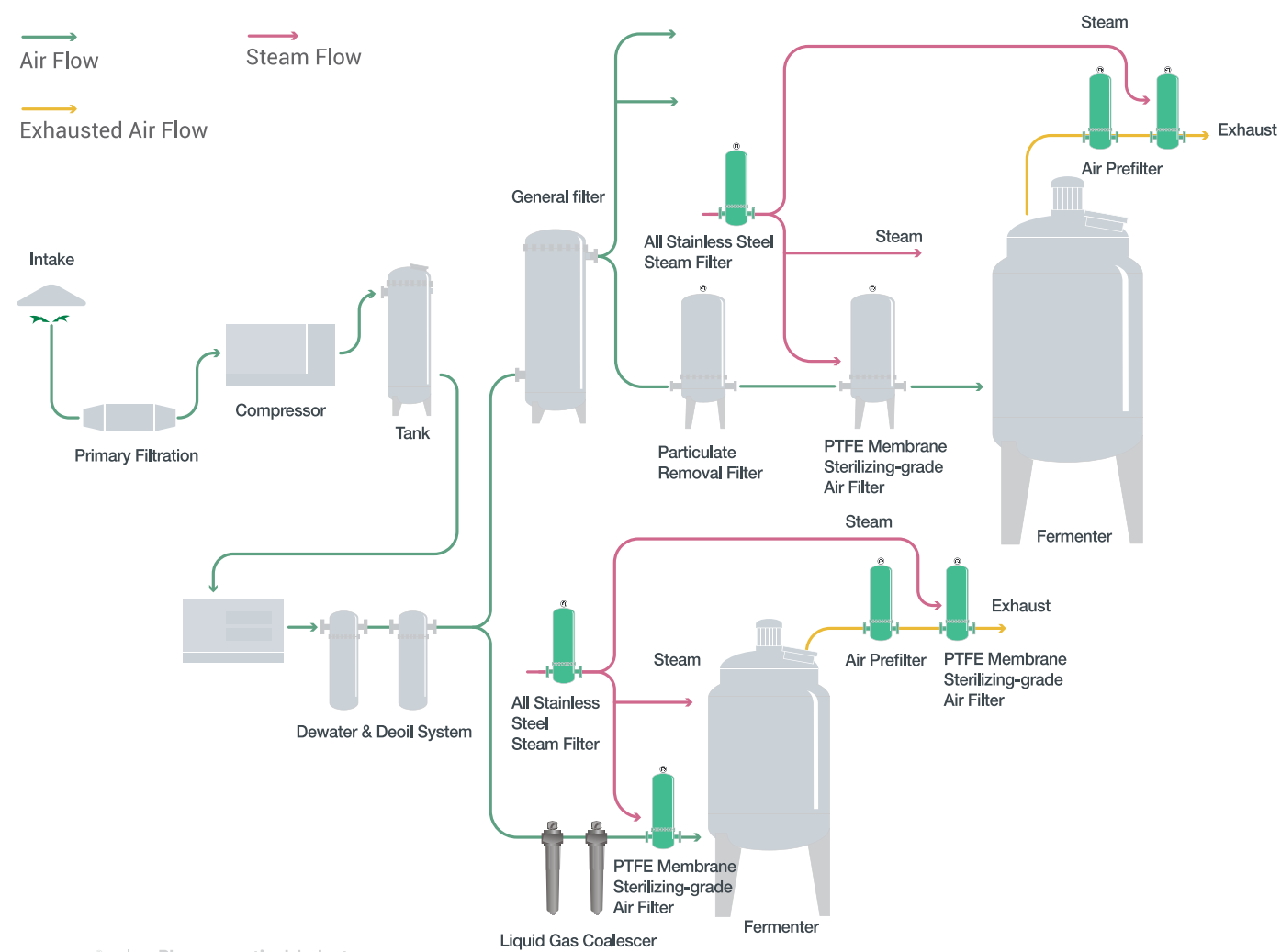
4M Manufacture



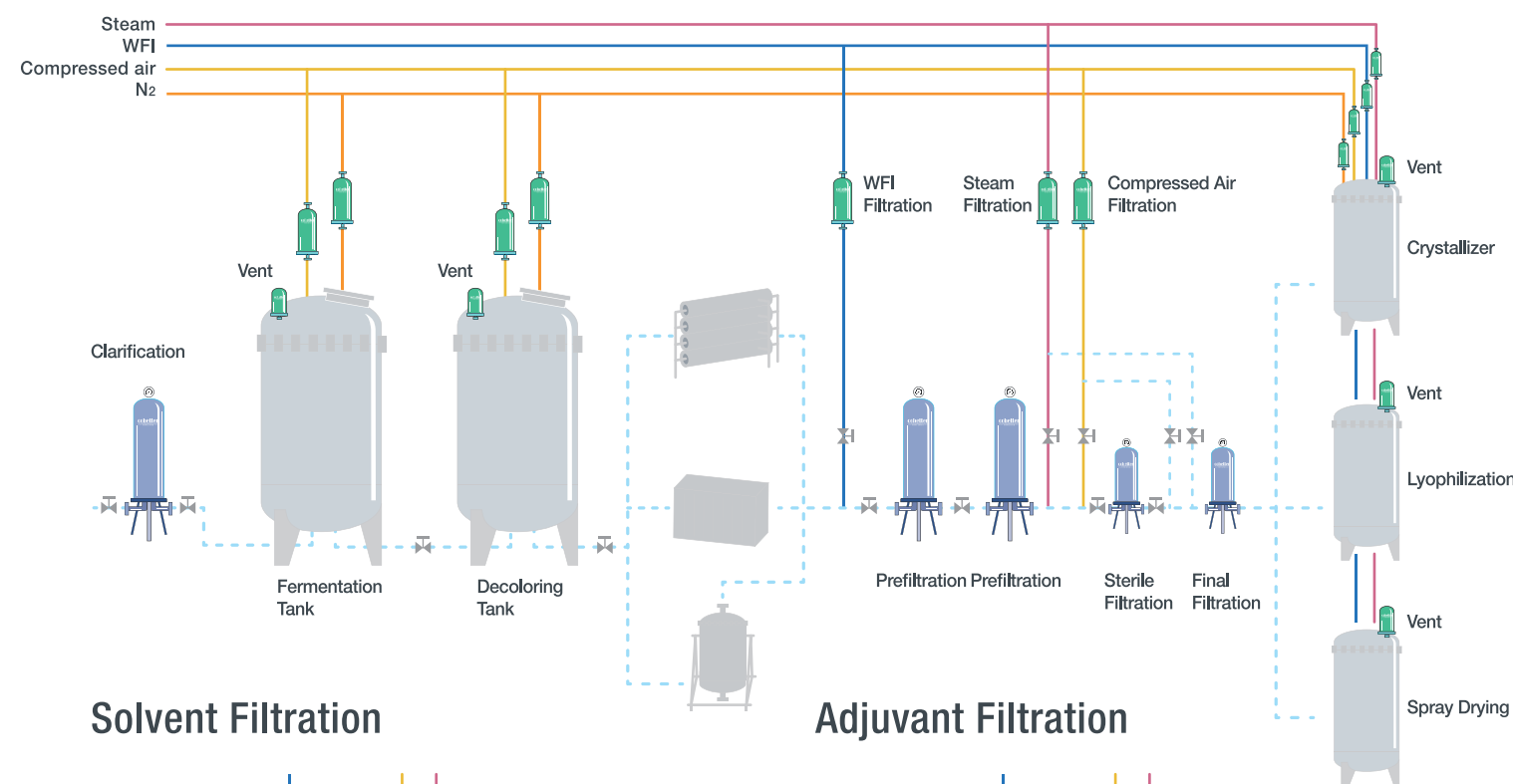
LARGE VOLUME PARENTERALS



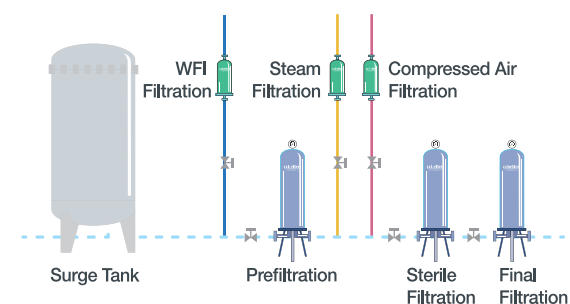
FERMENTATION GAS FILTRATION



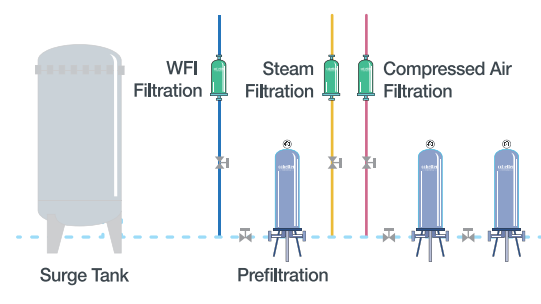
ANTIBIOTIC



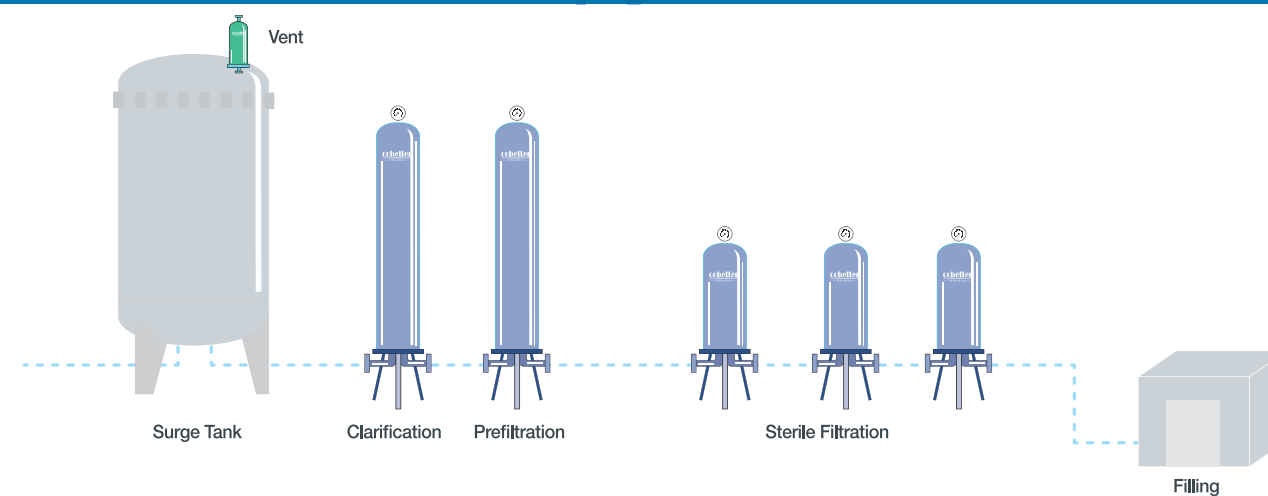
Solvent Filtration



Adjuvant Filtration



SERUM



Catalog



High Efficiency Double-layer Sterilizing Grade Filter	DPSHSL	Series	P 9
PES Sterilizing-grade Filter	DPSTF	Series	P 12
Ultra-low Diffusion Flow Liquid Sterilizing-grade Filter	SPSHR	Series	P 14
Triple the Service Time of Regular PES Sterilizing-grade Filter	APSBR	Series	P 17
Low-absorption Asymmetric PES Filter	APSNDB	Series	P 19
High-loading Asymmetric PES Filter	APSEA	Series	P 21
Triple the Service Time of Regular PES Sterilizing-grade Filter	APSGF	Series	P 23
Endotoxin-removing Sterilizing-grade Filter	DPSHPC	Series	P 25
Low-leachable, Low-adsorption, Positively-charged Sterilizing-grade Filter	DLHPVHBR / LHPVHBR	Series	P 27
Low-leachable, Low-protein Absorption Sterilizing-grade Filter	DLHPVDF / LHPVDF	Series	P 30
Positively-charged, Endotoxin-removing, Sterilizing-grade Filter	DN66PC / N66PC	Series	P 33
Solvent-resistant Sterilizing-grade Filter	DN66TC / NY6TC	Series	P 36
Organic-solvent-resistant Hydrophilic PTFE Sterilizing-grade Filter	DLHPFB	Series	P 39
Corrosion-resistant Sterilizing-grade Solvent Filter	LPF	Series	P 41
Efficient Sterilizing-grade Gas Filter	DGPFMP / GPFMP	Series	P 44
Ultra Hydrophobic Sterilization-grade Gas Filter	GPFBP	Series	P 48
High Temperature Resistance Sterilization-grade Gas Filter	HSGPFP	Series	P 51
All-teflon Type Filter with Higher Corrosion Resistance	PFAT	Series	P 54
All-teflon Type Filter with Higher Corrosion Resistance	AET / APTF	Series	P 57

Absolute-rated Polypropylene Pre-filter	APP	Series	P 58
High Dirt-holding Capacity Filter	PFSA2	Series	P 60
Nanofiber Depth Filter	H2D	Series	P 63
Ultra High-efficiency PP Filter	REPP	Series	P 65
Economical High-precision Filter	HPP	Series	P 67
High-efficiency Liquid Pre-filter	LGFP	Series	P 69
High-efficiency Gas Pre-filter	GGFP	Series	P 71
200+ L/min High Flow Filter	130	Series	P 73
Filter-bag-compatible Cartridge Filter (Large EFA)	BG160	Series	P 75
60+ m³/h Ultra High Flow Filter	HF150NB	Series	P 76
Rolled Polypropylene Filter	RMF	Series	P 77
Carbon Fiber Filter	ACF	Series	P 78
Melt-blown Filter	PPKP	Series	P 78
String Wound Filter	WDC	Series	P 78
Five-Layer Stainless Steel Sintered Mesh Filter	CSSC	Series	P 79
Pleated Stainless Steel Felt Filter	PSSF	Series	P 79
Pleated Stainless Steel Mesh Filter	PSSC	Series	P 80
Titanium Filter	TIC	Series	P 80
CoMini Filter Cartridge Series			P 82
Capsule Collection			P 85
High Dirt-holding Capacity Clarification Filter	Roheap CSD	Series	P 87
Activated Carbon Depth Filter	Claricap CSD& Roheap CSD	Series	P 89

[PES Membrane]

High Efficiency Double-layer Sterilizing Grade Filter DPSHSL Series Filter Cartridge

Cobetter DPSHSL is a sterilizing grade filter. The unique double-layer hydrophilic PES membrane has excellent filtration performance and reliable bacterial retention ability. It can withstand repeated steam sterilization and fully meet the filtration requirements of pharmaceutical process.

Features and Benefits

- The unique double-layer design ensures reliable bacterial retention.
- Excellent long service time and cost effective.
- Broad chemical compatibility (pH 1-14) to effectively handle a wide range of pharmaceutical filtration processes
- Double-layer design extends the service life, decreases the cost of use and guarantees that the filter safety factor is increased by more than 10 times.

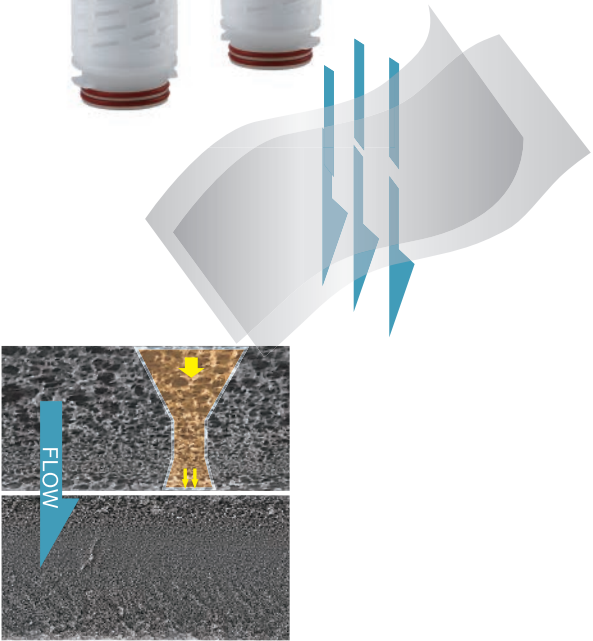
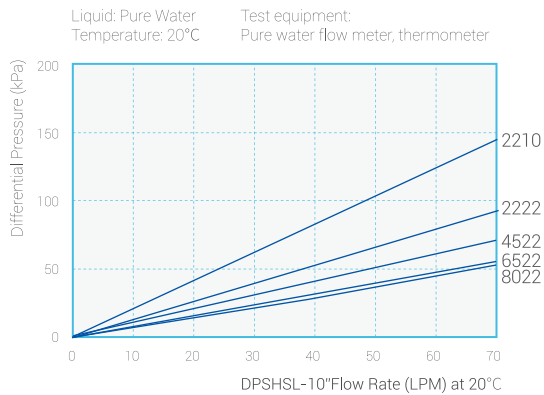
Typical Application

- Chinese medicine injection filtration
- Sterile filtration of sterile raw materials
- Sterile filtration of eye drops and liquids
- Buffer sterile filtration

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Flow Rate Characteristics



Materials of Construction

Membrane	Hydrophilic polyethersulfone (PES)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C
Max. Operating Pressure	0.69 MPa @ 25 °C 0.55 MPa @ 50 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.55 MPa @ 50 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.22+0.1 μm	0.60 m ²
69 mm	0.22+0.22 μm	0.60 m ²
69 mm	0.45+0.22 μm	0.60 m ²
69 mm	0.65+0.22 μm	0.60 m ²
69 mm	0.8+0.22 μm	0.60 m ²
69 mm	1.2+0.22 μm	0.60 m ²
69 mm	0.45+0.45 μm	0.60 m ²
69 mm	0.65+0.45 μm	0.60 m ²
69 mm	0.8+0.45 μm	0.60 m ²

Integrity Standard @10 inch, 20°C

Membrane Pore Size	Bubble Point	Diffusion Flow (Air)
0.22+0.1 μm	≥ 0.38 MPa (water), Air test	≤ 25 ml/min @ 0.30 MPa (water)
0.22+0.22 μm	≥ 0.34 MPa (water), Air test	≤ 25 ml/min @ 0.275 MPa (water)
0.45+0.22 μm	≥ 0.32 MPa (water), Air test	≤ 25 ml/min @ 0.275 MPa (water)
0.65+0.22 μm	≥ 0.32 MPa (water), Air test	≤ 25 ml/min @ 0.275 MPa (water)
0.8+0.22 μm	≥ 0.32 MPa (water), Air test	≤ 25 ml/min @ 0.275 MPa (water)
1.2+0.22 μm	≥ 0.32 MPa (water), Air test	≤ 25 ml/min @ 0.275 MPa (water)
0.45+0.45 μm	≥ 0.18 MPa (water), Air test	≤ 25 ml/min @ 0.16 MPa (water)
0.65+0.45 μm	≥ 0.18 MPa (water), Air test	≤ 25 ml/min @ 0.16 MPa (water)
0.8+0.45 μm	≥ 0.18 MPa (water), Air test	≤ 25 ml/min @ 0.16 MPa (water)

Bacterial Retention

Model	Content
DPSHSL 0.22+0.1 μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology
DPSHSL 0.22+0.22 μm	
DPSHSL 0.45+0.22 μm	
DPSHSL 0.65+0.22 μm	
DPSHSL 0.8+0.22 μm	
DPSHSL 1.2+0.22 μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Serratia marcescens</i> (ATCC 14756) according to ASTM F838 methodology
DPSHSL 0.45+0.45 μm	
DPSHSL 0.65+0.45 μm	

Sterilization

In-line steam sterilization	Up to 100 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 200 cycles (130 °C for 30 min per cycle)

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter"as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

D P S H S L					P
Outer Diameter	Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 69	2210 0.22+0.1µm 2222 0.22+0.22µm 4522 0.45+0.22µm 6522 0.65+0.22µm 8022 0.8+0.22µm 1222 1.2+0.22µm 4545 0.45+0.45µm 6545 0.65+0.45µm 8045 0.8+0.45µm	DOE Double Open End HTF 222 / Fin HSF 226 / Fin HTCG 222 / Flat HSCG 226 / Flat	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings	

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PES Membrane]

PES Sterilizing-grade Filter DPSTF Series Filter Cartridge

Sterilizing grade filter using a unique asymmetric technology coupled with a pre-filter layer. Good application with many special fluids.

Features and Benefits

- Hydrophilic PES membrane has a wide range of chemical compatibility
- Unique asymmetrical structure with excellent flow rate
- Built-in pre-filtration layer, long service life, low cost

Typical Application

- Highly viscous fluid
- Sterile filtration

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

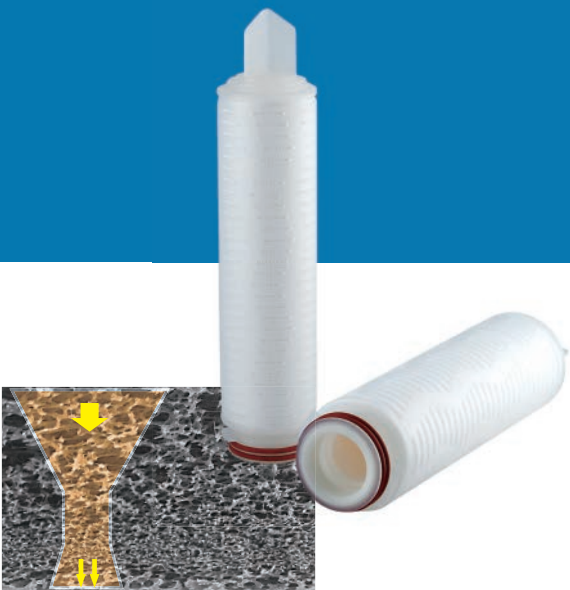
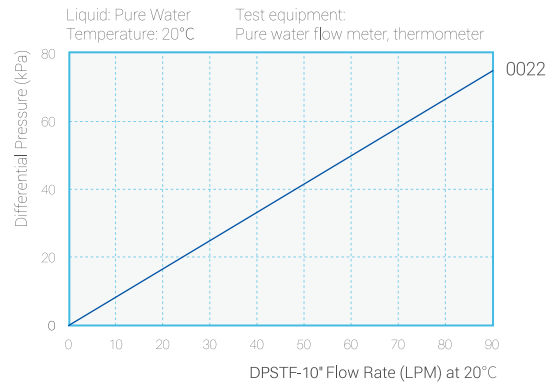
Materials of Construction

Membrane	Hydrophilic polyethersulfone (PES)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.22 µm	0.58 m ²

Flow Rate Characteristics



Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Integrity Test Standards @10inch,20°C

Membrane Pore Size	Bubble Point
0.22 μm	≥ 0.30 MPa (water), Air test

Bacterial Retention

Model	Content
DPSTF 0.22μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology

Sterilization

In-line steam sterilization	Up to 60 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 200 cycles (130 °C for 30 min per cycle)

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter"as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

Outer Diameter D P S T F Blank Φ 69	Membrane Pore Size 0022 0.22μm	End Cap DOE HTF HSF HTCG HSCG Double Open End 222 / Fin 226 / Fin 222 / Flat 226 / Flat	Nominal Length 05 10 20 30 40 5 inch 10 inch 20 inch 30 inch 40 inch	Seal Material S E V P Silicone EPDM Viton FEP/ PFA encapsulated O-rings	Pharmaceutical P
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End Cap Reference Pictures



DOE



HTF



HSF



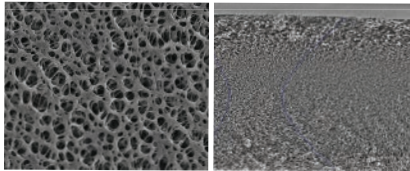
HSCG



HTCG

[PES Membrane]

Ultra-low Diffusion Flow Liquid Sterilizing-grade Filter SPSHR Series Filter Cartridge



Cobetter SPSHR series filters have ultra-low diffusion flow levels, establishing integrity values associated with bacterial challenges to ensure sterile effectiveness.

Each filter element is strictly tested for bubble point and diffusion flow during manufacturing, providing a complete set of verification guidelines for customer verification. The SPSHR series of filters has a full line of scalable products, suitable for all stages from research and development to production, to accelerate the product to market.

Features and Benefits

- Good hydrophilicity for easy wetting test
- Each filter cartridge has an independent serial number, which can fully trace the production history of the product
- Excellent temperature resistance
- 100% integrity test before delivery to ensure the integrity of the filter and sterilizing effect

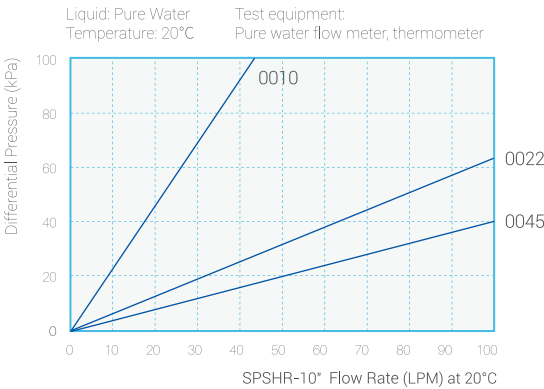
Typical Application

- Sterile filtration of LVP, SVP
- Sterile filtration of large quantities of liquid medicine
- Buffer sterile filtration
- Sterile filtration of water-based antibiotic materials

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Flow Rate Characteristics



Materials of Construction

Membrane	Hydrophilic polyethersulfone (PES)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C	
Max.Operating Pressure	0.69 MPa @ 25 °C	
	0.40 MPa @ 60 °C	
	0.24 MPa @ 80 °C	
Max. Differential Pressure	Forward	0.69 MPa @ 25 °C
		0.40 MPa @ 60 °C
		0.24 MPa @ 80 °C
	Reverse	0.30 MPa @ 25 °C
		0.10 MPa @ 80 °C

Integrity Standard @10 inch, 20°C

Membrane Pore Size	Bubble Point	Diffusion Flow (Air)
0.1 μm	≥ 0.38 MPa (water), Air test	≤ 25 ml/min @ 0.345 MPa (water)
0.22 μm	≥ 0.32 MPa (water), Air test	≤ 25 ml/min @ 0.275 MPa (water)
0.45 μm	≥ 0.20 MPa (water), Air test	≤ 25 ml/min @ 0.15 MPa (water)

Bacterial Retention

Model	Content
SPSHR 0.1μm SPSHR 0.22μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology
SPSHR 0.45μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Serratia marcescens</i> (ATCC 14756) according to ASTM F838 methodology

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.1 μm	0.58 m ²
69 mm	0.22 μm	0.58 m ²
69 mm	0.45 μm	0.58 m ²

Sterilization

In-line steam sterilization	Up to 100 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 200 cycles (130 °C for 30 min per cycle)

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter"as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	S P S H R				P
Outer Diameter	Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 69	0010 0.1μm 0022 0.22μm 0045 0.45μm	DOE Double Open End HTF 222 / Fin HSF 226 / Fin HTCG 222 / Flat HSCG 226 / Flat	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings	

End Cap Reference Pictures



DOE



HTF



HSF



HSCG

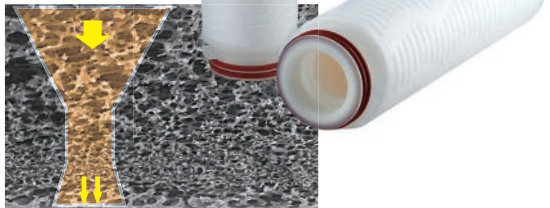


HTCG

[PES Membrane]

Triple the Service Time of Regular PES Sterilizing-grade Filter APSBR Series Filter Cartridge

The Cobetter APSBR is a sterilizing grade filter. The unique asymmetric hydrophilic polyethersulfone membrane provides excellent filtration performance and reliable filter loading. Resistant to repeated steam sterilization. It can fully meet the filtration requirements of pharmaceutical processes.



Features and Benefits

- Excellent long life and cost effective
- Broad chemical compatibility (pH 1-14) to effectively handle a wide range of pharmaceutical filtration processes
- Asymmetric membrane design for increased loading capacity

Typical Application

- Chinese medicine injection filtration
- Sterile filtration of sterile raw materials
- Sterile filtration for eye drops, liquid sterile filtration
- Buffer sterile filtration

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

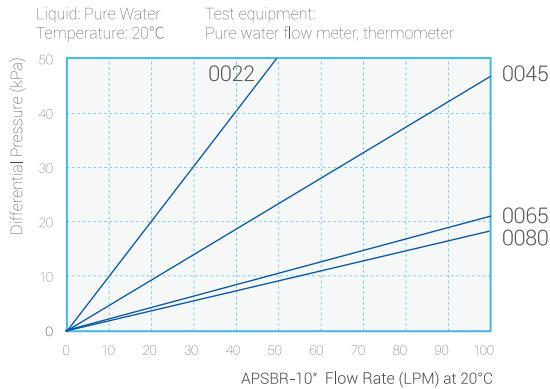
Materials of Construction

Membrane	Hydrophilic polyethersulfone (PES)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.1 μm	0.58 m ²
69 mm	0.22 μm	0.58 m ²
69 mm	0.45 μm	0.58 m ²
69 mm	0.65 μm	0.58 m ²
69 mm	0.8 μm	0.58 m ²
69 mm	1.2 μm	0.58 m ²

Flow Rate Characteristics



Operating Conditions

Max. Operating Temperature	80°C
Max. Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Integrity Standard @10 inch, 20°C

Membrane Pore Size	Bubble Point	Diffusion Flow (Air)
0.1 μm	≥ 0.38 MPa (water), Air test	≤ 30 ml/min @ 0.35 MPa (water)
0.22 μm	≥ 0.34 MPa (water), Air test	≤ 30 ml/min @ 0.25 MPa (water)
0.45 μm	≥ 0.22 MPa (water), Air test	≤ 28 ml/min @ 0.16 MPa (water)
0.65 μm	≥ 0.12 MPa (water), Air test	≤ 20 ml/min @ 0.10 MPa (water)
0.8 μm	≥ 60 kPa (water), Air test	≤ 20 ml/min @ 48kPa (water)
1.2 μm	≥ 50 kPa (water), Air test	≤ 20 ml/min @ 40 kPa (water)

Bacterial Retention

Model	Content
APSBR 0.22μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² Brevundimonas diminuta (ATCC 19146) according to ASTM F838 methodology

Sterilization

In-line steam sterilization	Up to 55 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 200 cycles (130 °C for 30 min per cycle)

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

Outer Diameter	Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 69	0010 0.1μm 0022 0.22μm 0045 0.45μm 0065 0.65μm 0080 0.8μm 0120 1.2μm	DOE Double Open End HTF 222 / Fin HSF 226 / Fin HTCG 222 / Flat HSCG 226 / Flat	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings	P

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PES Membrane]

Low-absorption Asymmetric PES Filter

APSNDB Series Filter Cartridge

Very low adsorption using a single-layer hydrophilic asymmetric polyethersulfone membrane

Features and Benefits

- Hydrophilic polyethersulfone membranes offer very low adsorption and broad chemical compatibility
- Asymmetric membranes for higher loading capacity and lower costs
- Sterilization for simple solvents, effective bacterial reduction for some complex fluid applications

Typical Application

- Buffer sterile filtration

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Materials of Construction

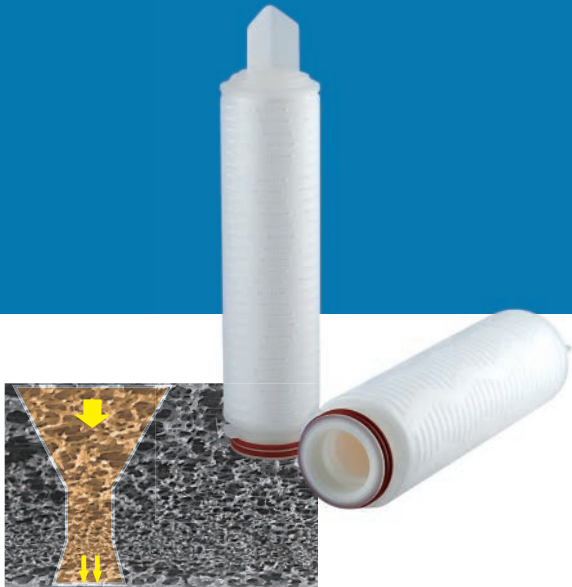
Membrane	Hydrophilic polyethersulfone (PES)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene(PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Filtration Area

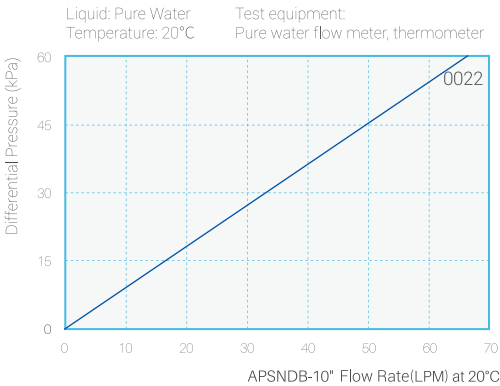
Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.22 μm	0.55 m ²

Integrity Standard @10 inch, 20°C

Membrane Pore Size	Bubble Point
0.22 μm	≥ 0.32 MPa (water), Air test



Flow Rate Characteristics



Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Bacterial Retention

Model	Content
APSNDB 0.22μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology

Sterilization

In-line steam sterilization	Up to 30 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
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Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a “Non-fiber-releasing filter”as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	A P S N D B					P
Outer Diameter	Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical	
Blank Φ 69	0022 0.22μm	DOE Double Open End HTF 222 / Fin HSF 226 / Fin HTCG 222 / Flat HSCG 226 / Flat	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings		

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PES Membrane]

High-loading Asymmetric PES Filter APSEA Series Filter Cartridge

Cobetter APSEA cartridge is a double-layer membrane filter: polypropylene pre-filtration layer and asymmetric PES membranes for bacterial reduction, LRV/cm² > 6

Features and Benefits

- Excellent long life and cost-effective
- Asymmetric, high loading capacity, bacterial reduction pre-filtration

Typical Application

- Bacterial reduction prior to final sterilization and filtration
- Reduces bacterial load

Quality Standards

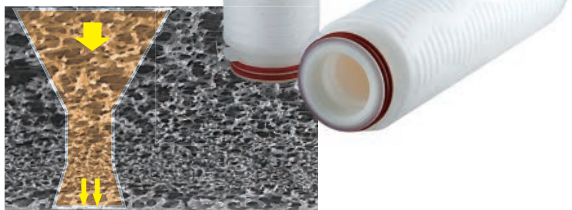
- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Materials of Construction

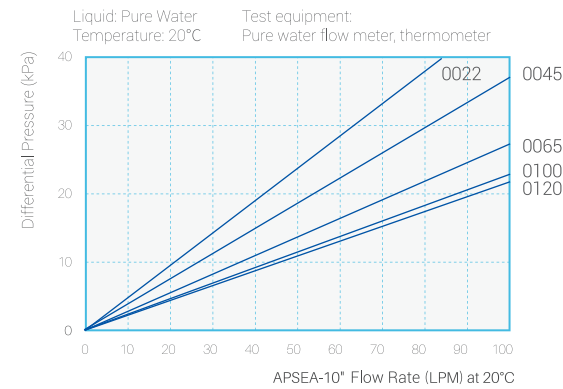
Membrane	Hydrophilic polyethersulfone (PES)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene(PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.22 µm	0.66 m²
69 mm	0.45 µm	0.66 m²
69 mm	0.65 µm	0.66 m²
69 mm	0.8 µm	0.66 m²
69 mm	1.0 µm	0.66 m²
69 mm	1.2 µm	0.66 m²
69 mm	3.0 µm	0.66 m²
69 mm	5.0 µm	0.66 m²
69 mm	8.0 µm	0.66 m²
69 mm	10.0 µm	0.66 m²



Flow Rate Characteristics



Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Integrity Test Standards @10inch,20°C

Membrane Pore Size	Bubble Point
0.22 µm	≥ 0.11 MPa , 60% IPA, 40% Water, Air test
0.45 µm	≥ 0.07 MPa , 60% IPA, 40% Water, Air test
0.65 µm	≥ 0.04 MPa , 60% IPA, 40% Water, Air test

Bacterial Retention

Model	Content
APSEA 0.22 µm	LRV/cm² >6 for 10 ⁷ cfu/cm² Brevundimonas diminuta (ATCC 19146)
APSEA 0.45 µm	LRV/cm² >6 for 10 ⁷ cfu/cm² Serratia marcescens (ATCC 14756)

Sterilization

In-line steam sterilization	Up to 100 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 200 cycles (130 °C for 30 min per cycle)

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter"as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

Outer Diameter	Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 69	0022 0.22 µm 0045 0.45 µm 0065 0.65 µm 0080 0.8 µm 0100 1.0 µm	0120 1.2 µm 0300 3.0 µm 0500 5.0 µm 0800 8.0 µm 1000 10.0 µm	DOE Double Open End HTF 222 / Fin HSF 226 / Fin HTCG 222 / Flat HSCG 226 / Flat	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PES Membrane]

Triple the Service Time of Regular PES Sterilizing-grade Filter APSGF Series Filter Cartridge

Glass fiber is used as the pre-filtration membrane and PES is used as the final filtration membrane. It is an asymmetric polyethersulfone filter cartridges suitable for high-viscosity fluids.

Features and Benefits

- Asymmetric
- High capacity
- High flow rate
- Low Differential Pressure

Typical Application

- High viscosity fluid pre-filtration

Quality Standards

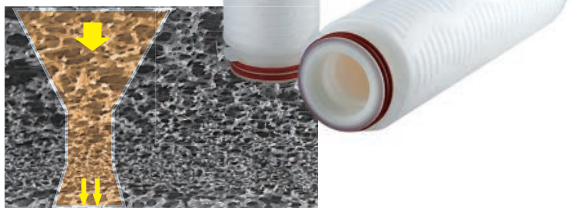
- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Materials of Construction

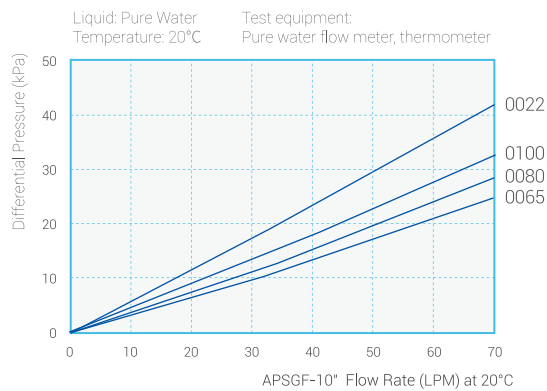
Membrane	Hydrophilic polyethersulfone (PES) Glass fiber (GF)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene(PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.22 μm	0.58 m ²
69 mm	0.65 μm	0.34 m ²
69 mm	0.8 μm	0.46 m ²
69 mm	1.0 μm	0.38 m ²



Flow Rate Characteristics



Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Integrity Test Standards @10inch,20°C

Membrane Pore Size	Bubble Point
0.22 μm	≥ 0.27 MPa (water), Air test

Sterilization

In-line steam sterilization	Up to 25 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 25 cycles (130 °C for 30 min per cycle)

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter"as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

Outer Diameter	Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 69	0022 0.22μm 0065 0.65μm 0080 0.8μm 0100 1.0μm	DOE Double Open End HTF 222 / Fin HSF 226 / Fin HTCG 222 / Flat HSCG 226 / Flat	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings	P

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PES Membrane]

Endotoxin Removal Sterilizing-grade Filter DPSHPC Series Filter Cartridge

The DPSHPC series filter cartridge is composed of a unique PES filter membrane developed and improved by Cobetter. It can remove small particles, bacteria and endotoxins in the solution. The endotoxin removal efficiency in the physiological saline solution is more than 99%.

Features and Benefits

- Modified PES
- Fast flow rate and high throughput
- pH1-14 tolerant
- Can be pre-disinfected with NaOH
- Good sterilization performance

Typical Application

- Sterile and depyrogenation filtration for LVP and SVP
- Sterile and depyrogenation filtration for antibiotic solution
- Sterile and depyrogenation filtration for physiological saline and other solvents

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Materials of Construction

Membrane	Hydrophilic polyethersulfone (PES)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene(PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Integrity Test Standards @10inch,20°C

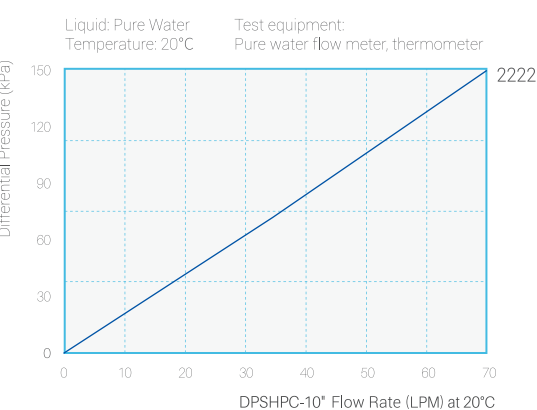
Membrane Pore Size	Bubble Point	Diffusion Flow (Air)
0.22+0.22 μm	≥ 0.32 MPa (water), Air test	≤ 28 ml/min @ 0.275 MPa (water)

Bacterial Retention

Model	Content
DPSHPC 0.22μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.



Flow Rate Characteristics



Sterilization

In-line steam sterilization	Up to 50 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 50 cycles (130 °C for 30 min per cycle)

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter"as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 69		2222 0.22 + 0.22μm	DOE Double Open End HTF 222 / Fin HSF 226 / Fin HTCG 222 / Flat HSCG 226 / Flat	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings	

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PVDF Membrane]

Low-leachable, Low-adsorption,
Positively-charged Sterilizing-grade Filter
DLHPVHBR/LHPVHBR Serie Filter Cartridge



Cobetter’s DLHPVHBR/LHPVHBR series filter cartridge is made of hydrophilic and positively-charged PVDF membrane. PVDF’s unique very low protein adsorption performance makes it particularly suitable for filtration of culture fluids, biological reagents, sterile vaccines, etc. At the same time, DLHPVHBR/LHPVHBR has low leachables, wide chemical compatibility, and very excellent temperature resistance.

Features and Benefits

- Very low protein adsorption properties
- Good corrosion, oxidation and heat resistance
- Low leachables
- Good chemical compatibility
- 100% integrity testing to ensure sterilization performance

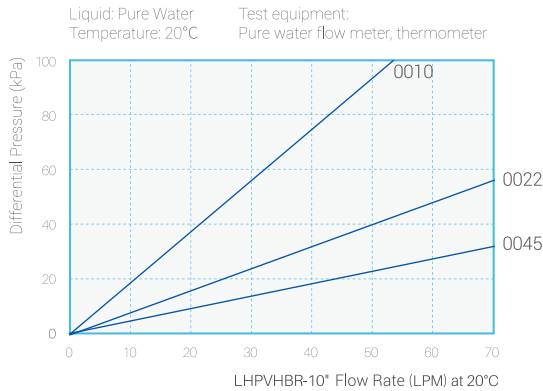
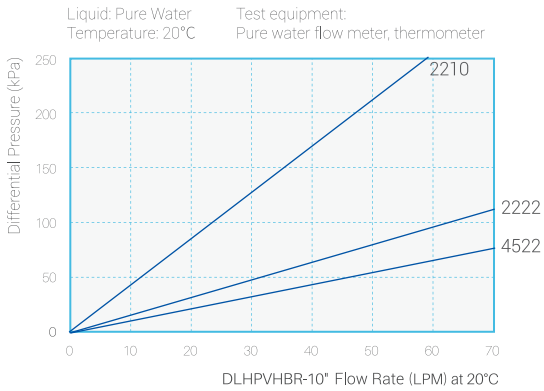
Typical Application

- Blood product filtration
- Antibiotic solution sterile filtration
- Biological reagent filtration
- Vaccine filtration

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Flow Rate Characteristics



Filtration Area (DLHPVHBR)

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.1+0.1 μm	0.58 m ²
69 mm	0.22+0.1 μm	0.58 m ²
69 mm	0.22+0.22 μm	0.58 m ²
69 mm	0.45+0.22 μm	0.58 m ²
69 mm	0.65+0.22 μm	0.58 m ²

Filtration Area (LHPVHBR)

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.22 μm	0.58 m ²
69 mm	0.45 μm	0.58 m ²

Materials of Construction

Membrane	Hydrophilic polyvinylidene fluoride (PVDF)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C
Max. Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Bacterial Retention

Model	Content
DLHPVHBR 0.1+0.1μm DLHPVHBR 0.22+0.1μm DLHPVHBR 0.22+0.22μm DLHPVHBR 0.45+0.22μm DLHPVHBR 0.65+0.22μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.
LHPVHBR 0.1μm LHPVHBR 0.22μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.

Sterilization

In-line steam sterilization	DLHPVHBR Up to 150 cycles (135°C for 30 min, differential pressure <30kPa in the forward direction with 100 cycles and <10kPa in the reverse direction with 50 cycles) LHPVHBR Up to 70 cycles (135°C for 30 min and differential pressure <30kPa)
Autoclave	Up to 400 cycles (130 °C for 30 min per cycle)

Integrity Test Standards @10inch,20°C (DLHPVHBR)

Membrane Pore Size	Bubble Point	Air Diffusion
0.1+0.1 μm	≥ 0.48 MPa (water), Air Testing	≤ 15 ml/min @ 0.386 MPa (water)
0.22+0.1 μm	≥ 0.48 MPa (water), Air Testing	≤ 20 ml/min @ 0.386 MPa (water)
0.22+0.22 μm	≥ 0.32 MPa (water), Air Testing	≤ 18 ml/min @ 0.28 MPa (water)
0.45+0.22 μm	≥ 0.32 MPa (water), Air Testing	≤ 20 ml/min @ 0.28 MPa (water)
0.65+0.22 μm	≥ 0.32 MPa (water), Air Testing	≤ 20 ml/min @ 0.28 MPa (water)

Integrity Test Standards @10inch,20°C (LHPVHBR)

Membrane Pore Size	Bubble Point	Air Diffusion
0.1 μm	/	≤ 30 ml/min @ 0.386 MPa (water)
0.22 μm	≥ 0.32 MPa (water), Air Testing	≤ 20 ml/min @ 0.28 MPa (water)
0.45 μm	≥ 0.12 MPa (water), Air Testing	≤ 10 ml/min @ 0.10 MPa (water)

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25 EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

	D L H P V H B R					P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank ϕ 69		1010 0.1+0.1 μ m	DOE Double Open End	05 5 inch	S Silicone	
		2210 0.22+0.1 μ m	HTF 222 / Fin	10 10 inch	E EPDM	
		2222 0.22+0.22 μ m	HSF 226 / Fin	20 20 inch	V Viton	
		4522 0.45+0.22 μ m	HTCG 222 / Flat	30 30 inch	P FEP/ PFA	
		6522 0.65+0.22 μ m	HSCG 226 / Flat	40 40 inch	encapsulated O-rings	
	L H P V H B R	0022 0.22 μ m				
		0045 0.45 μ m				

DOE



HTF



HSF



HSCG



HTCG

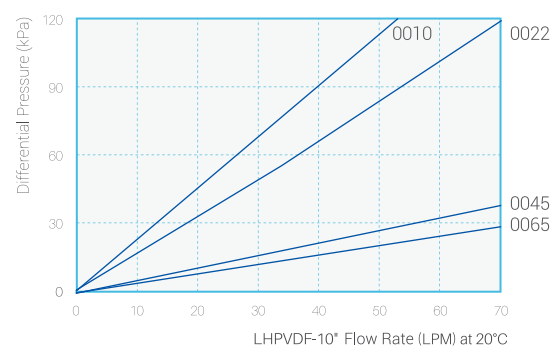
Low-leachable, Low-protein Absorption Sterilizing-grade Filter DLHPVDF/LHPVDF Series Filter Cartridge



- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

The graph plots Differential Pressure (kPa) on the y-axis (0 to 200) against DLHPVDF-10* Flow Rate (LPM) at 20°C on the x-axis (0 to 70). Four linear data series are shown, each representing a different flow rate: 2222, 4522, 4545, and 6545. The pressure increases linearly with flow rate for all series.

Flow Rate (LPM)	2222 (kPa)	4522 (kPa)	4545 (kPa)	6545 (kPa)
0	0	0	0	0
10	33.3	16.7	15.0	10.0
20	66.7	33.3	30.0	20.0
30	100.0	50.0	45.0	30.0
40	133.3	66.7	60.0	40.0
50	166.7	83.3	75.0	50.0
60	200.0	100.0	90.0	60.0
70	-	116.7	105.0	70.0



Outer Diameter	Membrane Pore Size	Area / 10 ⁴
69 mm	0.22+0.1 μm	0.55 m ²
69 mm	0.22+0.22 μm	0.55 m ²
69 mm	0.45+0.22 μm	0.55 m ²
69 mm	0.45+0.45 μm	0.58 m ²
69 mm	0.65+0.45 μm	0.58 m ²

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.1 μm	0.58 m ²
69 mm	0.22 μm	0.58 m ²
69 mm	0.45 μm	0.58 m ²
69 mm	0.65 μm	0.58 m ²

Materials of Construction

Membrane	Hydrophilic polyvinylidene fluoride (PVDF)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C		
Max.Operating Pressure		0.69 MPa @ 25 °C	
		0.40 MPa @ 60 °C	
		0.24 MPa @ 80 °C	
Max. Differential Pressure	Forward	0.69 MPa @ 25 °C	
		0.40 MPa @ 60 °C	
		0.24 MPa @ 80 °C	
	Reverse	0.30 MPa @ 25 °C	
		0.10 MPa @ 80 °C	

Bacterial Retention

Model	Content
DLHPVDF 0.22+0.22 µm DLHPVDF 0.45+0.22µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.
DLHPVDF 0.45+0.45 µm DLHPVDF 0.65+0.45 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Serratia marcescens</i> (ATCC 14756) according to ASTM F838 methodology.
LHPVDF 0.1µm LHPVDF 0.22µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.
LHPVDF 0.45 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Serratia marcescens</i> (ATCC 14756) according to ASTM F838 methodology.

Sterilization

In-line steam sterilization	Up to 50 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 50 cycles (130 °C for 30 min per cycle)

Integrity Test Standards @10inch,20°C(DLHPVDF)

Membrane Pore Size	Bubble Point	Air Diffusion
0.22+0.22 µm	≥ 0.32 MPa (water), Air Testing	≤ 16 ml/min @ 0.28 MPa (water)
0.45+0.22 µm	≥ 0.32 MPa (water), Air Testing	≤ 20 ml/min @ 0.28 MPa (water)
0.45+0.45 µm	≥ 0.16 MPa (water), Air Testing	
0.65+0.45 µm	≥ 0.12 MPa (water), Air Testing	≤ 10 ml/min @ 0.1 MPa (water)

Integrity Test Standards @10inch,20°C(LHPVDF)

Membrane Pore Size	Bubble Point	Air Diffusion
0.1 µm	≥ 0.16 MPa, 60%, Wetted with 60%IPA, Air Test	≤ 30 ml/min @ 0.386 MPa, Water Wetting
0.22 µm	≥ 0.32 MPa, Water Wetting, Air Testing	≤ 20 ml/min @ 0.28 MPa, Water Wetting
0.45 µm	≥ 0.12 MPa, Water Wetting, Air Testing	≤ 10 ml/min @ 0.10 MPa, Water Wetting
0.65 µm	≥ 0.10 MPa, Water Wetting, Air Testing	

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a “Non-fiber-releasing filter”as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	D L H P V D F				P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material Pharmaceutical
Blank ϕ 69		2210 0.22+0.1µm 2222 0.22+0.22µm 4522 0.45+0.22µm 4545 0.45+0.45µm 6545 0.65+0.45µm	DOE Double Open End HTF 222 / Fin(PBT Insert) HSF 226 / Fin(PBT Insert) HTCG 222 / Flat(PBT Insert) HSCG 226 / Flat(PBT Insert)	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings
	L H P V D F	0010 0.1µm 0022 0.22µm 0045 0.45µm 0065 0.65µm			

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[Nylon 66 Membrane]

Positively-charged, Endotoxin-removing,
Sterilizing-grade Filter
DN66PC/N66PC Series Filter Cartridge



Cobetter DN66PC/N66PC series filter cartridges are made of naturally hydrophilic nylon 66 membranes, which are modified with positively-charged N66 membranes to absorb and remove particles, bacteria and endotoxins that are smaller than the filter pore size.

Features and Benefits

- Naturally hydrophilic
- The use of modified positively-charged N66 membranes removes endotoxins from water, absorbing particles and endotoxins smaller than the filter membrane pore size.
- Good integrity and high bubble point values ensure excellent sterilization and particle removal efficiency
- Low pressure drop, high flow rates, long-life

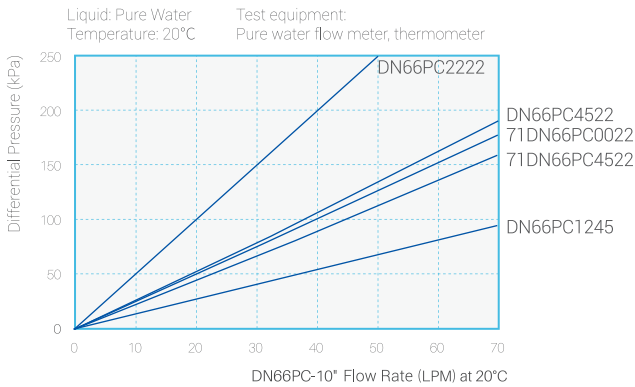
Typical Application

- Sterile filtration for LVP, SVP and antibiotic solutions
- Sterile filtration of saline and other solvents
- Filtration of pharmaceutical water and removal of pyrogens
- Pharmaceutical sterile filtration
- Solvent filtration
- Alkaline solution filtration

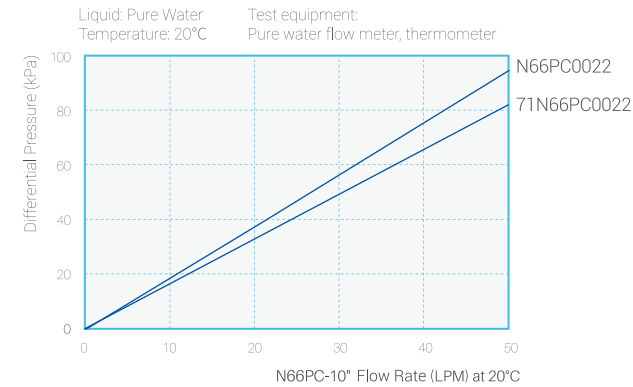
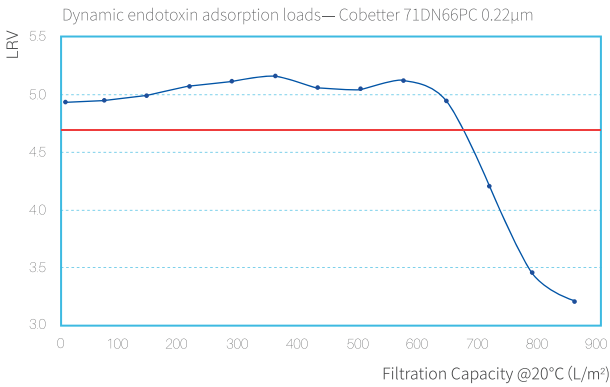
Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Flow Rate Characteristics



Evaluation of Endotoxin Absorption Efficiency



Materials of Construction

Membrane	Nylon 66
Support	Polypropylene (PP), polyester (PET)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C
Max. Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Bacterial Retention

Model	Content
69DN66PC 0.22+0.22 µm 69DN66PC 0.45+0.22 µm 71DN66PC 0.45+0.22 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.
69DN66PC 1.2+0.45 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Serratia marcescens</i> (ATCC 14756) according to ASTM F838 methodology.
N66PC 0.22 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.

Sterilization

In-line steam sterilization	Up to 10 cycles (121 °C for 30 minutes and differential pressure <30KPa per cycle))
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Filtration Area(DN66PC)

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.22+0.22 µm	0.58 m ²
69 mm	0.45+0.22 µm	0.68 m ²
71 mm	0.45+0.22 µm	0.82 m ²
69 mm	1.2+0.45 µm	0.84 m ²

Filtration Area(N66PC)

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.22 µm	0.65 m ²

Integrity Test Standards @10inch, 20°C(DN66PC)

Membrane Pore Size	Bubble Point	Air Diffusion
0.22+0.22 µm	≥ 0.30 MPa (water), Air test	≤ 16 ml/min @ 0.275 MPa (water)
0.45+0.22 µm (outer diameter 69mm)	≥ 0.30 MPa (water), Air test	≤ 20 ml/min @ 0.275 MPa (water)
0.45+0.22 µm (outer diameter 71mm)	≥ 0.30 MPa (water), Air test	≤ 24 ml/min @ 0.275 MPa (water)
1.2+0.45 µm	≥ 0.12 MPa (water), Air test	≤ 18 ml/min @ 0.1 MPa (water)

Membrane Pore Size	Bubble Point	Air Diffusion
0.22 μm	≥ 0.30 MPa,Wetted with water, Air test	/

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25 EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

	D N 6 6 P C					P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 69		0022 0.22 μ m	DOE Double Open End	05 5 inch	S Silicone	
71 Φ 71		2222 0.22+0.22 μ m	HTF 222 / Fin(PBT Insert)	10 10 inch	E EPDM	
		4522 0.45+0.22 μ m	HSF 226 / Fin(PBT Insert)	20 20 inch	V Viton	
		1245 1.2+0.45 μ m	HTCG 222 / Flat(PBT Insert)	30 30 inch	P FEP/ PFA	
			HSCG 226 / Flat(PBT Insert)	40 40 inch	encapsulated O-rings	
	N 6 6 P C	0022 0.22 μ m				
		0045 0.45 μ m				
		0120 1.2 μ m				



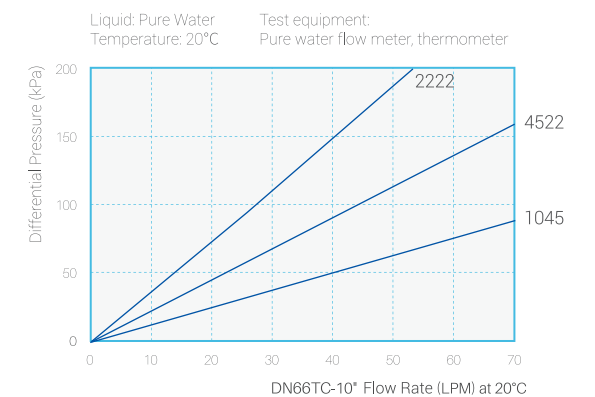
Sterilizing-grade Filter DN66TC/NY6TC Series Filter Cartridge



Liquid: Pure Water
Temperature: 20°C

Test equipment:
Pure water flow meter, thermometer

NY6TC-10' Flow Rate (LPM) at 20°C	71NY6TC0010	NY6TC0022	71NY6TC0022	NY6TC0045	NY6TC0065	NY6TC0080	NY6TC0100
0	0	0	0	0	0	0	0
10	20	12	10	8	6	4	3
20	40	24	20	16	12	8	6
30	60	36	30	24	18	12	9
40	80	48	40	32	24	16	12
50	100	60	50	40	30	20	15
60	120	72	60	48	36	24	18
70	140	84	70	56	42	28	21



Materials of Construction

Membrane	Nylon 66
Support	Polypropylene (PP), polyester (PET)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Bacterial Retention

Model	Content
DN66TC 0.22+0.22 µm DN66TC 0.45+0.22 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.
71NY6TC 0.22 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.
71NY6TC 0.45 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Serratia marcescens</i> (ATCC 14756) according to ASTM F838 methodology.

Sterilization

In-line steam sterilization	Up to 50 cycles (121 °C for 30 minutes and differential pressure <30KPa per cycle))
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Filtration Area(DN66TC)

Outer Diameter	Membrane Pore Size	Area / 10"
71 mm	0.22+0.22 µm	0.62 m ²
71 mm	0.45+0.22 µm	0.62 m ²
71 mm	1.0+0.45 µm	0.62 m ²

Filtration Area(NY6TC)

Outer Diameter	Membrane Pore Size	Area / 10"
71 mm	0.22 µm	0.84 m ²
69 mm	0.45 µm	0.68 m ²

Integrity Test Standards @10inch, 20°C(DN66TC)

Membrane Pore Size	Bubble Point	Diffusion Flow (Air)
0.22+0.22 µm	≥ 0.30 MPa (water), Air test	/
0.45+0.22 µm	≥ 0.30 MPa (water), Air test	/
1.0+0.45 µm	≥ 0.14 MPa (water), Air test	/

Integrity Test Standards @10inch, 20°C (NY6TC)

Membrane Pore Size	Bubble Point	Diffusion Flow (Air)
(outer diameter 71mm) -0.22 µm	≥ 0.32 MPa, Wetted with water, Air test	/
0.45 µm	≥ 0.14 MPa, Wetted with water, Air test	/

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a “Non-fiber-releasing filter”as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	D N 6 6 T C					P					
Outer Diameter		Membrane Pore Size		End Cap		Nominal Length		Seal Material		Pharmaceutical	
Blank Φ 69		2222 0.22 + 0.22 μ m		DOE Double Open End		05 5 inch		S Silicone			
71 Φ 71		4522 0.45 + 0.22 μ m		HTF 222 / Fin(PBT Insert)		10 10 inch		E EPDM			
		1045 1.0+ 0.45 μ m		HSF 226 / Fin(PBT Insert)		20 20 inch		V Viton			
				HTCG 222 / Flat(PBT Insert)		30 30 inch		P FEP/ PFA			
				HSCG 226 / Flat(PBT Insert)		40 40 inch				encapsulated O-rings	
				</							

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PTFE Membrane]

Organic-solvent-resistant Hydrophilic PTFE Sterilizing-grade Filter DLHPFB Series Filter Cartridge



Cobetter DLHPFB filter is designed for sterile filtration of the majority of pharmaceutical liquids, especially for solvent-containing liquids and ophthalmic solutions.

Features and Benefits

- Hydrophilic PTFE membrane which requires no pre-wetting
- Excellent chemical compatibility(pH 1-14), especially suitable for solvent-containing liquid filtration
- Low preservative-adsorption with ophthalmic solutions
- Very low extractables/leachables

Typical Application

- Antibiotic sterile filtration
- Disinfectant and sanitizing agent sterile filtration
- Water-based or organic solvent-based liquid sterile filtration
- Ophthalmic solution sterile filtration
- Liquid sterile filtration

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

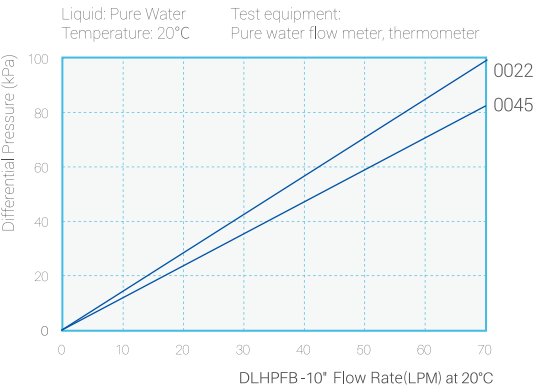
Materials of Construction

Membrane	Hydrophilic polytetrafluoroethylene (PTFE)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.22 µm	0.56 m ²
69 mm	0.45 µm	0.65 m ²

Flow Rate Characteristics



Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Bacteria Retention

Model	Content
DLHPFB 0.22 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.

Sterilization

In-line steam sterilization	Up to 35 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 120 cycles (130 °C for 30 min per cycle)

Integrity Test Standards @10inch, 20°C

Membrane Pore Size	Bubble Point
0.22 µm	≥ 0.30 MPa (water), Air test
0.45 µm	≥ 0.20 MPa (water), Air test

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter"as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

Outer Diameter	Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 69	0022 0.22µm 0045 0.45µm	DOE Double Open End HTF 222 / Fin(PBT Insert) HSF 226 / Fin(PBT Insert) HTCG 222 / Flat(PBT Insert) HSCG 226 / Flat(PBT Insert)	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings	P

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PTFE Membrane]

Corrosion-resistant Sterilizing-grade Solvent Filter LPF Series Filter Cartridge



Cobetter LPF series filter cartridges are composed of PTFE membrane. Its characteristics include organic & inorganic corrosion resistance and it's inherently hydrophobic. It is ideally suitable for the sterile filtration of strong solvents, strong corrosive and strong oxidizing liquids.

Features and Benefits

- Inherently hydrophobic
- Excellent resistance for corrosion, oxidation and organic solvent, compatible with a variety of corrosive liquids
- Broad chemical compatibility - pH 1-14, compatible with strong acid and alkali
- High flow rates
- Low extractables
- 100% integrity testing to ensure sterilization performance

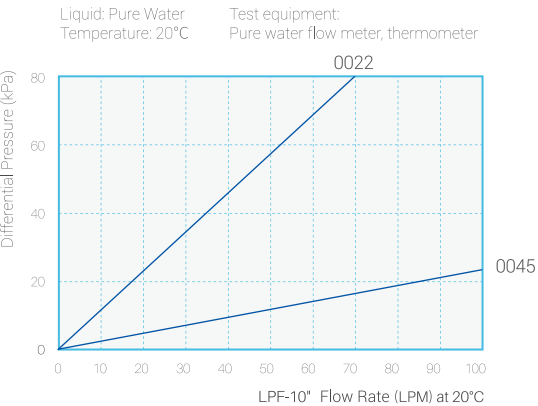
Typical Application

- Solvent sterile filtration
- Corrosive liquid sterile filtration and particle removal
- Strong oxidizing liquid

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Flow Rate Characteristics



Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
68 mm	LPF 0.22 μm	0.68 m ²
68 mm	LPF 0.45 μm	0.78 m ²

Materials of Construction

Membrane	Hydrophobic polytetrafluoroethylene (PTFE)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	316L Stainless Steel, Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Bacterial Retention

Model	Content
LPF 0.22 μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.

Sterilization

In-line steam sterilization	Up to 100 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 400 cycles (130 °C for 30 min per cycle)

Integrity Test Standards @10inch,20°C

Membrane Pore Size	Bubble Point	Diffusion Flow (Air)	Water Flow Test
LPF 0.22 μm	≥ 0.11 MPa, 60% IPA, 40% Water, Air test	≤ 16 ml/min @ 0.08 MPa, 60% IPA, 40% Water	≤ 0.38 ml/min @ 0.25 Mpa
LPF 0.45 μm	≥ 0.05 MPa, 60% IPA, 40% Water, Air test	/	/

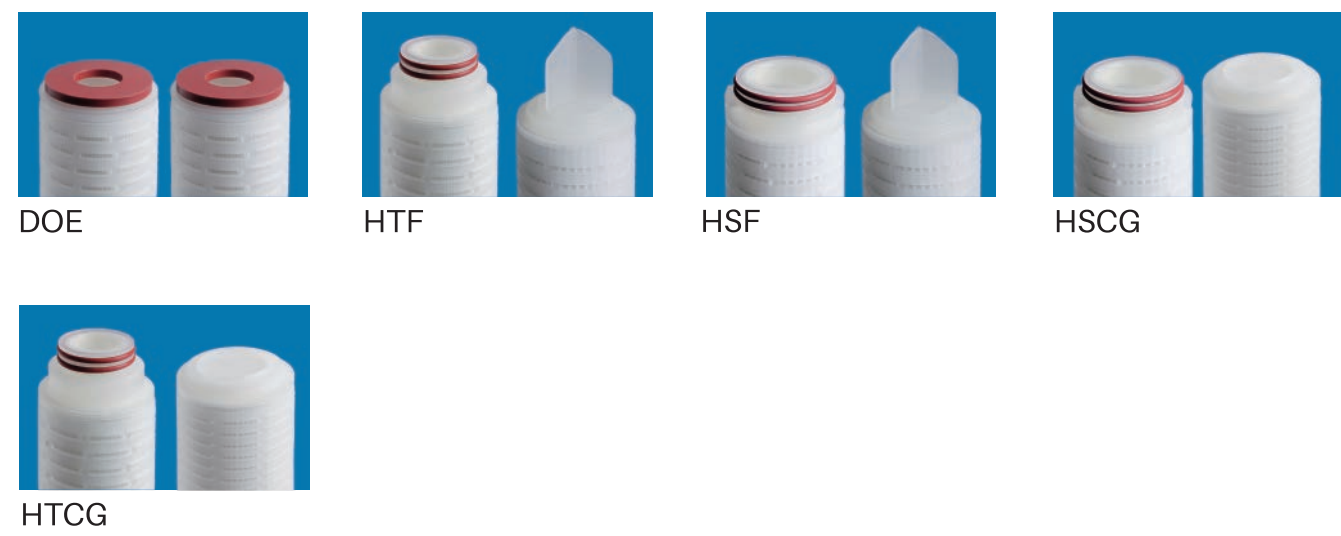
Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a "Non-fiber-releasing filter"as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	L P F					P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 68		0022 0.22µm 0045 0.45µm	DOE Double Open End HTF 226 / Fin SSF 226 / (Stainless Steel Insert)Fin HSF 226 / (PBT Insert)Fin SSCM 226 / (Stainless Steel Insert)Flat HSCG 226 / (PBT Insert)Flat	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings	

End Cap Reference Pictures



[PTFE Membrane]

Efficient Sterilizing-grade Gas Filter
DGPFP / GPFMP Series Filter Cartridge



Cobetter DGPFP Series Filter Cartridges are composed of double-layer hydrophobic PTFE membrane and a thick thermal resistant polypropylene core. They are highly recommended for air and gas sterile filtration of pharmaceutical, biopharmaceutical and fermentation industries. Both inherently hydrophobic and 100% integrity testing ensure absolute sterilization.

Cobetter GPFMP Series Filter Cartridges are composed of single-layer hydrophobic PTFE membrane and a thick thermal-resistant polypropylene core. They are highly recommended for air and gas sterile filtration of pharmaceutical,biopharmaceutical and fermentation industries. Both inherently hydrophobic and 100% integrity testing ensure absolute sterilization.

Features and Benefits

- Absolute sterilization in dry or wet conditions
- High flow rates, low pressure drop, higher retention efficiency
- Better temperature and pressure resistance with a thick thermal-resistance polypropylene core
- High temperature resistance, optional SIP or repeated autoclave
- 100% integrity tested before delivery ensure filter's integrity and sterilization performance when using

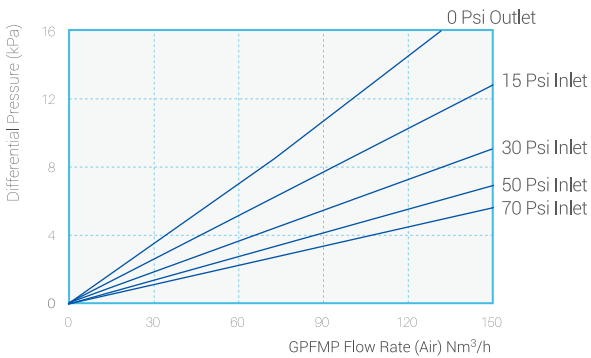
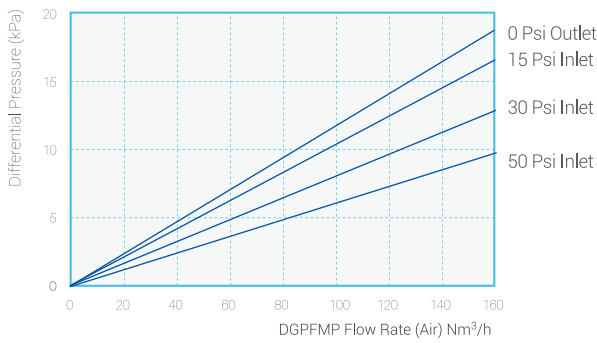
Typical Application

- Vent filtration for fermenter, storage tank, mix tank, etc
- Aseptic packaging air sterile filtration
- Compressed air and nitrogen gas sterile filtration
- Corrosive gases sterilization

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Flow Rate (Air)



Materials of Construction

Membrane	Double-layer hydrophobic polytetrafluoroethylene (PTFE)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	316L Stainless Steel, Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Materials of Construction

Membrane	Single-layer hydrophobic polytetrafluoroethylene (PTFE)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	316L Stainless Steel, Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C	
Max.Operating Pressure	0.69 MPa @ 25 °C	
	0.40 MPa @ 60 °C	
	0.24 MPa @ 80 °C	
Max. Differential Pressure	Forward	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
	Reverse	0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Bacterial Retention

Model	Content
DGPFMP 0.22 μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology .
DGPFMP 0.003 μm	Retention efficiency for > 1×10 ⁸ pfu Bacteriophage Phi-X174 (ATCC 13706-B1) phage aerosol LRV > 7
GPFMP 0.22 μm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology .
GPFMP 0.01 μm	Retention efficiency for > 1×10 ⁸ pfu Bacteriophage Phi-X174 (ATCC 13706-B1) phage aerosol LRV > 7

Filtration Area(DGPFMP)

Outer Diameter	Membrane Pore Size	Area / 10"
68 mm	0.003 μm(gas)	0.75 m ²
68 mm	0.22 μm(liquid)	0.75 m ²

Filtration Area(GPFMP)

Outer Diameter	Membrane Pore Size	Area / 10"
68 mm	0.01 μm(gas)	0.68 m ²
68 mm	0.22 μm(liquid)	0.68 m ²

Sterilization

In-line steam sterilization	Up to 100 forward cycles and 50 reverse cycles (145 °C for 30 min, differential pressure < 30 kPa per forward cycle and differential pressure < 10 kPa per reverse cycle)
Autoclave	Up to 400 cycles (130 °C for 30 min per cycle)

Integrity Test Standards @10inch,20°C(DGPFMP)

Membrane Pore Size	Bubble Point	Diffusion Flow (Air)	Water Flow Test
0.003 μm/0.22 μm	≥ 0.11 MPa, 60% IPA, 40% Water, Air test	≤ 20 ml/min @ 0.08 MPa, 60% IPA, 40% Water	≤ 0.50 ml/min @ 0.25 Mpa

Integrity Test Standards @10inch,20°C(GPFMP)

Membrane Pore Size	Bubble Point	Diffusion Flow (Air)	Water Flow Test
0.01 μm/0.22 μm	≥ 0.10 MPa, 60% IPA, 40% Water, Air test	≤ 24 ml/min @ 0.095 MPa, 60% IPA, 40% Water	≤ 0.75 ml/min @ 0.25 Mpa

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a “Non-fiber-releasing filter”as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	D G P F M P
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End Cap Reference Pictures



DOE



HTF



HSF



HSCG

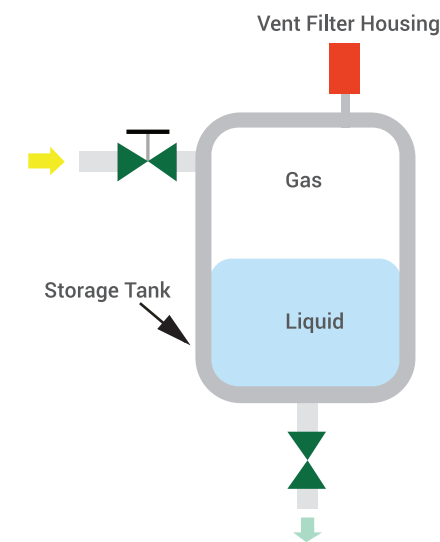


HTCG

Specification Selection of Sterilizing-grade Vent Filter

Sterilizing-grade vent filters are mainly used for gas sterile filtration during gas exchange in storage tanks. The gas inside the tank is isolated from the outside by the vent filter and discharged smoothly, while outside microorganisms and particles do not enter the tank with the gas and are trapped outside the vent filter. Cobetter GPF-P Series Filter Cartridges are composed of a hydrophobic PTFE membrane, both inherently hydrophobic and 100% integrity testing ensure absolute sterilization.

Design Parameters



Selection Steps

- **STEP1**
Calculate the maximum ventilation volume (V) required for the tank
 $V = |V_{Inlet} - V_{Outlet}|_{max}$
- **STEP2**
Determine the type and pore size of the sterilization grade filter based on gas cleanliness requirement
- **STEP3**
Select filter size by checking filter specification table (see below) according to ΔP (Design negative pressure value of storage tank) and V

GPFMP	5"	10"	20"	30"
$\Delta P=1KPa$	6 m³/h	12 m³/h	24 m³/h	36 m³/h
$\Delta P=2KPa$	12 m³/h	23 m³/h	40 m³/h	61 m³/h

For example: the maximum ventilation volume V is 21.6m³/h, and the storage tank is designed to withstand a negative pressure value ΔP of 1KPa, then 20 inches GPFMP is suitable



A. H-VCF II

H-VCF II Vent Filter Housing is superior vent filter housing with an anticondensation function for air filtration. It is composed of the following parts: vent, heated jacket, jacket protection layer, and constant electronic temperature system.



B. H-VCF III

The advantages when compared to common vent filter housings are:

1. Filter cartridges are kept dry by heat which helps guarantee their flowrates.
2. High temperature environment prevents germ growth.
3. An advanced constant electronic temperature system.
4. Elbow design prevents particles from flowing into the vent housing, thus protecting the filter housing from damage.

- A. H-VCF II Used in General Zone
- B. H-VCF III Used in Clean Zone

[PTFE Membrane]

Hydrophobic and Oleophobic Sterilization-grade Gas Filter GPFBP Series Filter Cartridge



Cobetter GPFBP series filter are made of PTFE membrane, featuring special treatment and super hydrophobicity, as well as excellent resistance to organic and inorganic chemical corrosion. Its intrinsic hydrophobicity making it suitable for sterilization and filtration of strong solvents, strong corrosive liquids and strong oxidative liquids.

Features and Benefits

- Though the filter membrane is intrinsically hydrophobic, it is further processed and ultra hydrophobic, ensuring absolute sterilization under dry or wet conditions.
- Exceptionally high flow rates with low pressure drops
- Adopting temperature-resistant PP thickened core with superior temperature and pressure resistance.
- High temperature resistant, with options for in-line, autoclave repeated steam sterilization.
- The filter is 100% integrity tested before delivery and can be tested during use to ensure the integrity of the filter and the effect of bacteria removal.

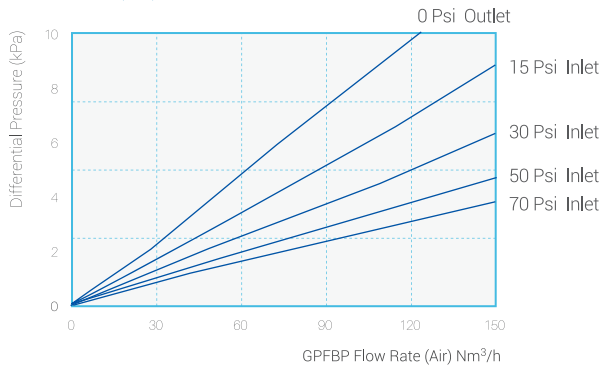
Typical Application

- Aseptic air intake and exhaust filtration for fermenters, storage tanks, batch tanks, etc.
- Aseptic packaging gases sterile filtration
- Compressed air and nitrogen sterile filtration
- Corrosive gases sterile filtration

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Flow Rate (Air)



Materials of Construction

Membrane	Hydrophobic polytetrafluoroethylene (PTFE)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	316L Stainless Steel, Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C
	0.40 MPa @ 60 °C
	0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C
	0.40 MPa @ 60 °C
	0.24 MPa @ 80 °C
	Reverse 0.30 MPa @ 25 °C
	0.10 MPa @ 80 °C

Bacteria Retention

Model	Content
GPFBP 0.22 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.
GPFBP 0.01 µm	Retention efficiency of >1x10 ⁸ pfu <i>Bacteriophage Phi-X174</i> (ATCC 13706-B1) phage aerosol LRV>7

Sterilization

In-line steam sterilization	Up to 100 forward cycles and 50 reverse cycles(145 °C for 30 min, differential pressure<30 kPa per forward cycle and differential pressure < 10kPa per reverse cycle)
Autoclave	Up to 400 cycles (130 °C for 30 min per cycle)

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
68 mm	0.01 µm(According to gas particle retention efficiency)	0.80 m ²
68 mm	0.22 µm(According to liquid bacterial challenge retention efficiency)	0.80 m ²

Integrity Test Standards @10inch, 20°C

Membrane Pore Size	Water Flow Test
0.01 µm/0.22 µm	≤ 0.84 ml/min @ 0.25 Mpa

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a “Non-fiber-releasing filter”as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	G P F B P					P
Outer Diameter	Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical	
Blank Φ 68	0001 0.01µm 0022 0.22µm	DOE Double Open End HTF 222 / Fin SSF 226/Fin(SS Insert) HSF 226/Fin(PBT nsert) SSCM 226/Flat(SS Insert) HSCG 226/Flat(PBT Insert) XHSCG 226/Reinforce Flat (PBT Insert)	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings		

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PTFE Membrane]

High Temperature Resistance Sterilization-grade Gas Filter HSGPFP Series Filter Cartridge

Cobetter HSGPFP series filter cartridge is made of PTFE membrane. Its support is made of polyphenylene sulphide and can resist higher temperature. It is widely used in gas sterile filtration in pharmaceutical, biological products, fermentation industry. The intrinsic hydrophobicity as well as 100% integrity testing ensure absolute sterilization.



Features and Benefits

- Filter membranes are intrinsically hydrophobic, ensuring absolute sterilization under dry or wet conditions
- Antioxidant components and support layer for longer service life time
- Polyphenylene sulphide support for high temperature resistance
- Option of repeated steaming sterilize in-line and autoclave
- 100% integrity test of the cartridge before delivery and can be tested during use to ensure the integrity of the cartridge and the effect of sterilization

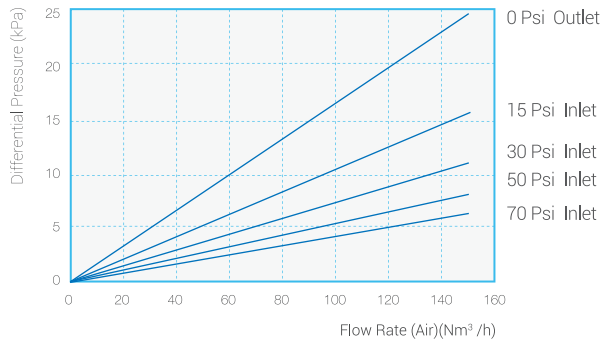
Typical Application

- Aseptic air inlet and exhaust filtration for fermentation tanks, storage tanks, batching tanks, etc.
- Sterile filtration of aseptic packaging gases
- Sterile filtration of compressed air and nitrogen
- Sterile filtration of corrosive gases

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Flow Rate (Air)



Materials of Construction

Membrane	Hydrophobic polytetrafluoroethylene (PTFE)
Support	Polyphenylene sulfide (PPS)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	316L Stainless Steel, Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C
Max. Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.34 MPa @ 90 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.34 MPa @ 90 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 90 °C

Bacterial Retention

Model	Content
HSGPFP 0.22 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology.
HSGPFP 0.01 µm	Retention efficiency of >1x10 ⁸ pfu <i>Bacteriophage Phi-X174</i> (ATCC 13706-B1) phage aerosol LRV>7

Sterilization

In-line steam sterilization	Up to 100 cycles (145 °C for 30 min and differential pressure < 30 kPa per cycle)+ up to 50 cycles (for reverse, differential pressure < 10 kPa), in total up to 150 cycles
Autoclave	Up to 400 cycles (130 °C for 30 min per cycle)

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
68 mm	0.01 µm(According to gas particle retention efficiency)	0.68 m ²
68 mm	0.22 µm(According to liquid bacterial challenge retention efficiency)	0.68 m ²

Integrity Test Standards @10inch, 20°C

Membrane Pore Size	Bubble Point	Diffusion Flow (Air)	Water Flow Test
0.01 µm/0.22 µm	≥ 0.11 MPa, 60% IPA, 40% Water, Air test	≤ 16 ml/min @ 0.08 MPa, 60% IPA, 40% Water	≤ 0.53 ml/min @ 0.25 Mpa

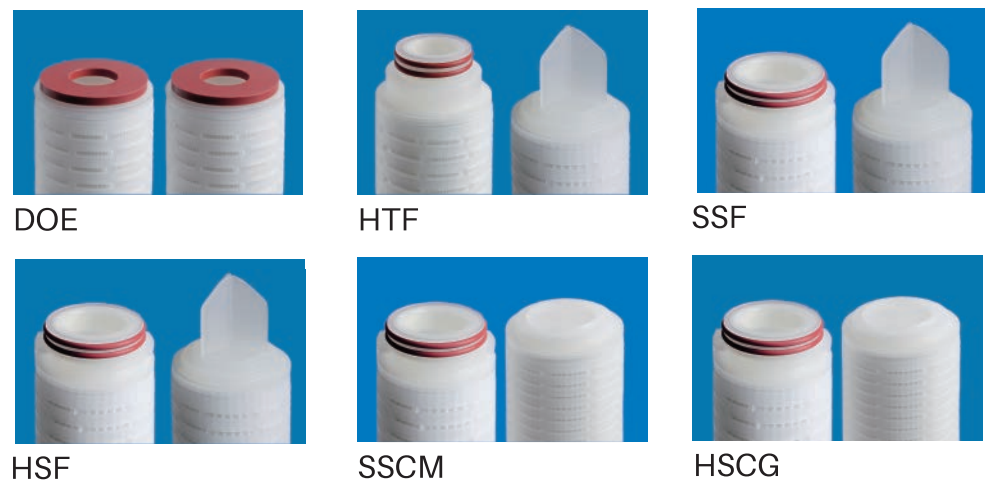
Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a “Non-fiber-releasing filter”as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	H S G P F P					P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 68		0001 0.01µm	DOE Double Open End	05 5 inch	S Silicone	
71 Φ 71		0022 0.22µm	HTF 222 / Fin	10 10 inch	E EPDM	
			SSF 226/Fin(SS Insert)	20 20 inch	V Viton	
			HSF 226/Fin(PBT nsert)	30 30 inch	P FEP/ PFA	
			SSCM 226/Flat(SS Insert)	40 40 inch	encapsulated O-rings	
			HSCG 226/Flat(PBT Insert)			

End Cap Reference Pictures



[PTFE Membrane]

All-teflon Type Filter with Higher Corrosion Resistance PFAT Series Filter Cartridge



Cobetter PFAT series cartridges are manufactured with PTFE tensile membrane, PFA cage and shell to meet the filtration needs of most harsh environments. PFAT cartridges have superior corrosion resistance and durability in environments resistant to corrosive acids, alkalis and organics. Suitable for filtration of strongly corrosive acids, alkalis and organic solvents.

Features and Benefits

- 100% all fluoropolymer construction
- Excellent chemical compatibility
- 100% integrity testing to ensure the integrity of the cartridge
- Better resistance to high temperature and pressure
- High flow rate
- Low differential pressure
- Low leachables

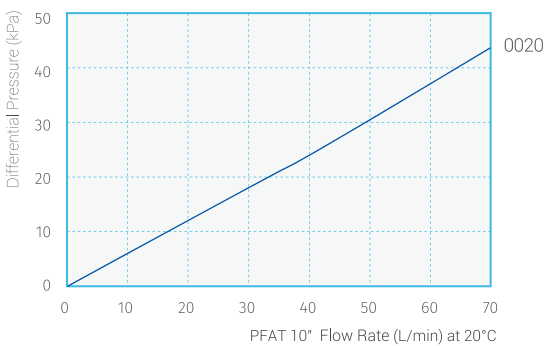
Typical Application

- Ozone filtration
- Filtration of strong oxidising solvents, strong acids and bases, organic solvents

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Flow Rate Characteristics



Materials of Construction

Membrane	Hydrophobic polytetrafluoroethylene (PTFE)
Support	Polyfluoroalkoxy (PFA)
Core/Cage/End Caps	Polyfluoroalkoxy (PFA)
End Cap Inserts	316L (With FSSC, FSSF, FSTC) End Caps
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C		
Max.Operating Pressure	Forward	0.69 MPa @ 25 °C	
		0.40 MPa @ 60 °C	
		0.24 MPa @ 80 °C	
Max. Differential Pressure	Forward	0.69 MPa @ 25 °C	
		0.40 MPa @ 60 °C	
		0.24 MPa @ 80 °C	
	Reverse	0.30 MPa @ 25 °C	
		0.10 MPa @ 80 °C	

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
68 mm	0.2 µm	0.91 m ²

Bacterial Retention

Model	Content
0.2 µm	Bacterial quantitative retention of 10 ⁷ cfu/cm ² <i>Brevundimonas diminuta</i> (ATCC 19146) according to ASTM F838 methodology

Sterilization

In-line steam sterilization	Up to 15 cycles (135 °C for 30 min and differential pressure < 30 kPa per cycle)
Autoclave	Up to 120 cycles (130 °C for 30 min per cycle)

Integrity Standard @10 inch, 20°C

Membrane Pore Size	Bubble Point	Diffusion Flow(Air)
0.22 µm	≥ 0.10 MPa , 60% IPA 40% Water, Air test	/

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.
- Component materials meet the criteria for a “Non-fiber-releasing filter”as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Chemical Compatibility

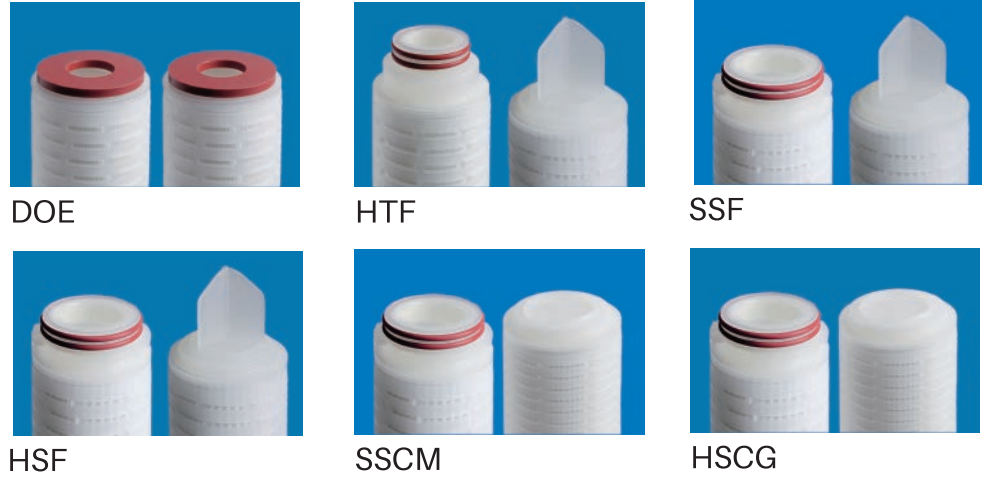
Classification			PTFE			PFAT			ECTFE		
	Medium	Concentration(%)	20°C	60°C	90°C	20°C	60°C	90°C	20°C	60°C	90°C
Acid	Hydrochloric acid	37	+	+	+	+	+	+	+	+	+
	Sulfuric acid	96	+	+	+	+	+	+	+	+	+
		>97	+	+	+	+	+	+	+	0	0
	Nitric acid	65	+	+	+	+	+	+	+	+	+
	Phosphoric acid	86	+	+	+	+	+	+	+	+	+
	Hydrofluoric acid	40	+	+	+	+	+	+	+	+	+
Bases	Ammonium hydroxide	-	+	+	+	+	+	+	0	0	0
	Sodium hydroxide	pH<12	+	+	+	+	+	+	+	+	+
		pH12 or more	+	+	+	+	+	+	0	0	0
	Amine	-	+	+	+	+	+	+	+	0	-
Salt	General	-	+	+	+	+	+	+	+	+	+
	Chloryl salt (NaCl10)	-	+	+	+	+	+	+	+	0	0
Solvent	Aromatics compound		+	+	+	+	+	+	+	0	-
	Aliphatic compound		+	+	+	+	+	+	+	0	-
	Ketone, Lipid		+	+	+	+	+	+	+	0	-
	Alcohols(Ethyl alcohol)		+	+	+	+	+	+	+	+	0
	Chlorinated		+	+	+	+	+	+	+	0	0
	Dimethylformamide)DMF/DMAC)		+	+	+	+	+	+	+	0	0
Halogen Gas / Gas	Fluorine		+	+	+	0	0	0	0	-	-
	Chlorine		+	+	+	+	+	+	+	0	0
	Bromine		+	+	+	+	+	+	+	0	0
	Ozone		+	+	+	+	+	+	+	+	+
Other	Hydraulic Oil (sky diol special hydraulic working oil		+	+	+	+	+	+	+	+	0
	Mineral oil		+	+	+	+	+	+	+	+	+
	Alkali metals(melted or dissolved		-	-	-	-	-	-	-	-	-

“+” Resistant “0” Limited Resistant “- ” Not Recommended

Ordering Information

Outer Diameter P F A T	Membrane Pore Size 0020 0.20µm SF SC TC FSSC FSSF FSTC 226 / Fin not support In-line steam sterilization 226 / Flat not support In-line steam sterilization 222 / Flat not support In-line steam sterilization 226 / SS Insert Flat support In-line steam sterilization 226 / SS Insert Fin support In-line steam sterilization 222 / SS Insert Flat support In-line steam sterilization	End Cap	Nominal Length 03 04 10 20 3 inch 4 inch 10 inch 20 inch	Seal Material S E K P Silicone EPDM PTFE FEP/ PFA encapsulated O-rings	Pharmaceutical P
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End Cap Reference Pictures



[PTFE Membrane]

All-teflon Type Filter with Higher Corrosion Resistance
AET, APTF Series Filter Cartridge

Cobetter AET, APTF series filter cartridges are composed of PTFE membrane and fluoroplastic core, support and seal material, making it all-teflon, and especially suitable for the filtration of strong chemical corrosion at high temperature.



Typical Application

- Hydrofluoric acid, Nitric acid, Sulfuric acid, Hydrochloric acid and other acids filtration
- Various kinds of high temperature gas filtration over 100°C
- Chloroform, Dimethyl, Isopropyl alcohol and other aggressive solvents filtration
- Not suitable for strong alkali filtration
- Not resistant to steam sterilization

Chemical Compatibility

Classification		APTF			AET		
Medium	Concentration(%)	20°C	60°C	90°C	20°C	60°C	90°C
Acid	Hydrochloric acid	37	+	+	+	+	+
	Sulfuric acid	96	+	+	+	+	+
		>97	+	+	+	+	+
	Nitric acid	65	+	+	+	+	+
	Phosphoric acid	86	+	+	+	+	+
Bases	Hydrofluoric acid	40	+	+	+	+	+
	Ammonium hydroxide	-	+	+	+	+	+
	Sodium hydroxide	pH<12	+	+	+	+	+
		pH12 or more	+	+	+	+	+
	Amine	-	+	+	+	+	+
Salt	General	-	+	+	+	+	+
	Chloryl salt (NaClO)	-	+	+	+	+	+
Solvent	Aromatics compound		+	+	+	+	+
	Aliphatic compound		+	+	+	+	+
	Ketone, Lipid		+	+	+	+	+
	Alcohols(Ethyl alcohol)		+	+	+	+	+
	Chlorinated		+	+	+	+	+
	Dimethylformamide(DMF/DMAC)		+	+	+	+	+
	Fluorine		+	+	+	0	0
Halogen Gas / Gas	Chlorine		+	+	+	+	+
	Bromine		+	+	+	+	+
	Ozone		+	+	+	+	+
Other	Hydraulic Oil (sky diol special hydraulic working oil		+	+	+	+	+
	Mineral oil		+	+	+	+	+
	Alkali metals(melted or dissolved		-	-	-	-	-

"+" Resistant "0" Limited Resistant "- " Not Recommended

Ordering Information

Outer Diameter

Blank Φ 68

A

E

T

A

P

T

F

Wettability

-

 Hydrophobic

I

 Hydrophilic

0010

0022

0045

0500

0.1µm
0.22µm
0.45µm
5.0µm

DTF

DTC

SF

SC

D222/Fin
D222/Flat
226/Fin
226/Flat

10

20

30

40

10 inch
20 inch
30 inch
40 inch

Nominal Length

Seal Material

P FEP/ PFA encapsulated O-rings

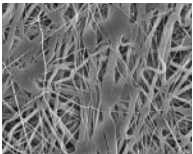
P

Pharmaceutical

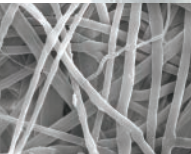
[PP Membrane]

Absolute-rated Polypropylene Pre-filter
APP Series Filter Cartridge

Cobetter APP series pleated polypropylene filter cartridge features double gradient precision polypropylene membrane, high dirt holding capacity, long service life, and high efficiency characteristics. The nanofiber inner layer ensures the filtration performance. Notable features: High efficiency.



Nanofiber



Uncalended Meltblown

Features and Benefits

- The unique double layer gradient precision structure (Constant density tapered pores) provides high dirt holding capacity and long service life
- Nanofiber media ensured the removal of penetrated colloid and bacteria, which significantly improves the filtration efficiency

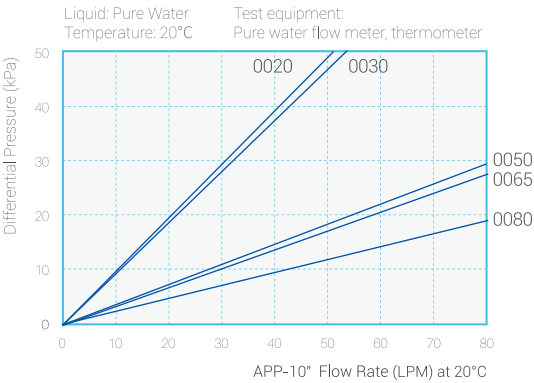
Typical Application

- Gel Material pre-filtration
- Blood Product pre-filtration
- API pre-filtration
- Dispensing System pre-filtration

Quality Standards

- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Flow Rate Characteristics



Operating Conditions

Max. Operating Temperature	80°C	
Max.Operating Pressure		0.69 MPa @ 25 °C
		0.40 MPa @ 60 °C
		0.24 MPa @ 80 °C
Max. Differential Pressure	Forward	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
	Reverse	0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Filtration Area

Outer Diameter	Removal Rating	Area / 10"
71 mm	0.2 µm	0.55 m ²
71 mm	0.3 µm	0.44 m ²
71 mm	0.5 µm	0.44 m ²
71 mm	0.65 µm	0.60 m ²
71 mm	0.8 µm	0.62 m ²
71 mm	1.0 µm	0.60 m ²
71 mm	3.0 µm	0.60 m ²
71 mm	5.0 µm	0.65 m ²
71 mm	6.0 µm	0.55 m ²
71 mm	10 µm	0.69 m ²

Materials of Construction

Membrane	Polypropylene (PP)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Sterilization

In-line steam sterilization	Up to 20 cycles (125 °C for 30 min and differential pressure < 30 kPa per cycle)
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Particle Retention

Retention Rates of Each Particle Size (%)								
APP	1.0 μm	3.0 μm	4.0 μm	5.0 μm	6.0 μm	7.0 μm	10 μm	20 μm
0.2 μm	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
0.3 μm	≥99.98	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
0.5 μm	≥99.90	≥99.98	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
0.65 μm	≥99.50	≥99.90	≥99.98	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
0.8 μm	≥99.20	≥99.50	≥99.90	≥99.98	≥99.99	≥99.99	≥99.99	≥99.99
1.0 μm	≥99.00	≥99.20	≥99.50	≥99.90	≥99.98	≥99.99	≥99.99	≥99.99
3.0 μm	-	≥99.00	≥99.20	≥99.50	≥99.90	≥99.98	≥99.99	≥99.99
5.0 μm	-	-	-	≥99.00	≥99.20	≥99.50	≥99.90	≥99.98
6.0 μm	-	-	-	-	≥99.00	≥99.20	≥99.50	≥99.90
10 μm	-	-	-	-	-	-	≥99.00	≥99.20

Regulatory Compliance

- Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	A P P				P
Outer Diameter		Removal Rating	End Cap	Nominal Length	Seal Material Pharmaceutical
71 Φ 71		0020 0.2μm 0100 1.0μm	DOE Double Open End	05 5 inch	S Silicone
		0030 0.3μm 0300 3.0μm	HTF 222/Fin(PBT Insert)	10 10 inch	E EPDM
		0050 0.5μm 0500 5.0μm	HSF 226/Fin(PBT Insert)	20 20 inch	V Viton
		0065 0.65μm 0600 6.0μm	HSCG 226/Flat(PBT Insert)	30 30 inch	P FEP/ PFA
		0080 0.8μm 1000 10.0μm	HTCG 222/Flat(PBT Insert)	40 40 inch	encapsulated O-rings
		2000 20.0μm			

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PP Membrane]

High Dirt-holding Capacity Filter PFSA2 Series Filter Cartridge

Cobetter PFSA2 adopts gradual pore size fibre depth filtration technology, with the collocation of multi-layer membrane, greatly improves the dirt-holding capacity and slows surface clogging. The graded pore size distribution from coarse(upstream) to fine(downstream) removes particles gradually and extends the filter's service time, making it especially suitable for high suspended particulates, colloids, and viscous liquids.
Notable features: high dirt holding capacity + high efficiency



Features and Benefits

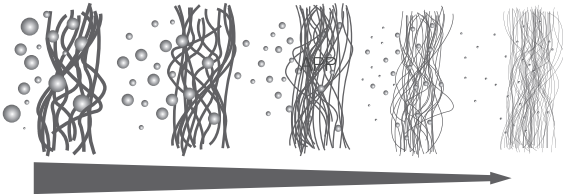
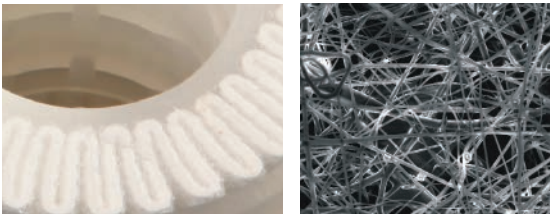
- High dirt holding capacity and inherent adsorption ensure high particle retention efficiency
- Low pressure drops, high flow rates, long service life, economical and practical
- Excellent particle retention efficiency to protect the final sterilization cartridge
- Polypropylene construction yields excellent chemical compatibility

Typical Application

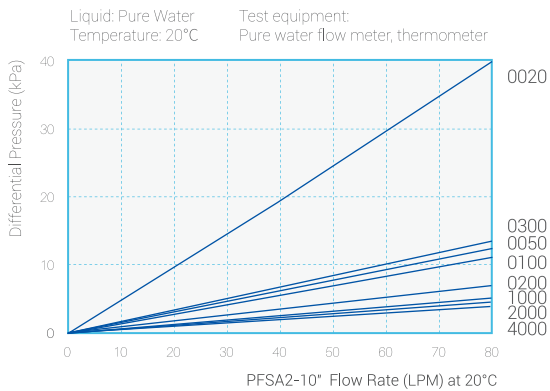
- Colloid material filtration
- Culture media filtration
- High viscosity material filtration
- Fermentation liquid filtration
- Blood product pre-filtration

Quality Standards

- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices



Flow Rate Characteristics



Materials of Construction

Membrane	Polypropylene (PP)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C	
Max.Operating Pressure	0.69 MPa @ 25 °C	
	0.40 MPa @ 60 °C	
	0.24 MPa @ 80 °C	
Max. Differential Pressure	Forward	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
	Reverse	0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Sterilization

In-line steam sterilization	Up to 20 cycles (125°C for 30 minutes < 30 kPa per cycle).
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Particle Retention

Retention Rates of Each Particle Size (%)								
PFSA2	1.0 μm	2.0 μm	3.0 μm	5.0 μm	10 μm	20 μm	40 μm	70 μm
0.2 μm	≥99.90	≥99.90	≥99.90	≥99.90	≥99.99	≥99.99	≥99.99	≥99.99
0.5 μm	≥99.00	≥99.50	≥99.90	≥99.90	≥99.90	≥99.99	≥99.99	≥99.99
1.0 μm	≥98.00	≥99.00	≥99.50	≥99.50	≥99.90	≥99.98	≥99.99	≥99.99
2.0 μm	-	≥98.00	≥99.00	≥99.00	≥99.50	≥99.90	≥99.98	≥99.99
3.0 μm	-	-	≥98.00	≥99.00	≥99.50	≥99.50	≥99.90	≥99.98
5.0 μm	-	-	-	≥98.00	≥99.00	≥99.50	≥99.90	≥99.98
10 μm	-	-	-	-	≥98.00	≥99.00	≥99.50	≥99.90
20 μm	-	-	-	-	-	≥98.00	≥99.00	≥99.50
40 μm	-	-	-	-	-	-	≥98.00	≥99.00
70 μm	-	-	-	-	-	-	-	≥98.00

Filtration Area

Outer Diameter	Removal Rating	Area / 10"
71 mm	0.2 μm	0.21 m²
71 mm	0.5 μm	0.29 m²
71 mm	1.0 μm	0.26 m²
71 mm	2.0 μm	0.26 m²
71 mm	3.0 μm	0.20 m²
71 mm	5.0 μm	0.26 m²
71 mm	10 μm	0.26 m²
71 mm	20 μm	0.29 m²
71 mm	40 μm	0.29 m²
71 mm	70 μm	0.29 m²

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121 °C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	P F S A 2				P
Outer Diameter		Removal Rating	End Cap	Nominal Length	Seal Material
71 Φ 71		0020 0.2μm 0050 0.5μm 0100 1.0μm 0200 2.0μm 0300 3.0μm	0500 5.0μm 1000 10μm 2000 20μm 4000 40μm 7000 70μm	DOE Double Open End HTF 222/Fin(PBT Insert) HSF 226/Fin(PBT Insert) HSCG 226/Flat(PBT Insert) HTCG 222/Flat(PBT Insert)	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch
					S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PP Membrane]

Nanofiber Depth Filter H2D Series Filter Cartridge

Cobetter H2D series pleated polypropylene cartridges use single-layer polypropylene membrane with support layer, featuring high dirt-holding capacity and high efficiency.

Notable features: High efficiency (similar to APP).

Features and Benefits

- High Efficiency

Typical Application

- Colloid material pre-filtration
- Blood product pre-filtration
- API pre-filtration
- Dispensing system pre-filtration

Quality Standards

- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Materials of Construction

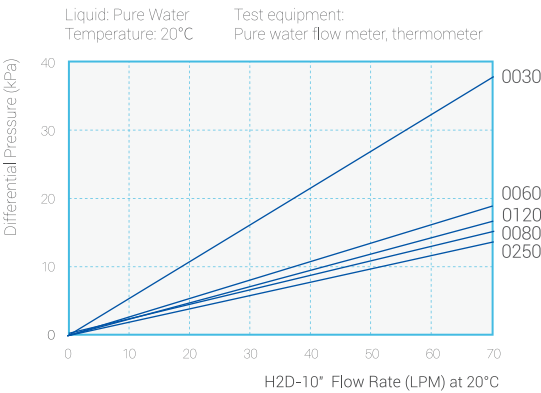
Membrane	Polypropylene (PP)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Sterilization

In-line steam sterilization Up to 20 cycles (125°C for 30 minutes < 30 kPa per cycle).



Flow Rate Characteristics



Operating Conditions

Max. Operating Temperature	80°C
Max. Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Particle Retention

Retention Rates of Each Particle Size (%)										
H2D	1.2 μm	2.5 μm	4.5 μm	6.0 μm	10 μm	15 μm	20 μm	30 μm	40 μm	100 μm
0.3 μm	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
0.6 μm	≥99.5	≥99.90	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
0.8 μm	≥99.20	≥99.50	≥99.90	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
1.2 μm	≥99.00	≥99.20	≥99.50	≥99.90	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
2.5 μm	-	≥99.00	≥99.20	≥99.50	≥99.90	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
4.5 μm	-	-	≥99.00	≥99.20	≥99.50	≥99.90	≥99.99	≥99.99	≥99.99	≥99.99
6.0 μm	-	-	-	≥99.00	≥99.20	≥99.50	≥99.90	≥99.99	≥99.99	≥99.99
10 μm	-	-	-	-	≥99.00	≥99.20	≥99.50	≥99.90	≥99.99	≥99.99
15 μm	-	-	-	-	-	≥99.00	≥99.20	≥99.50	≥99.90	≥99.99
20 μm	-	-	-	-	-	-	≥99.00	≥99.20	≥99.50	≥99.90
30 μm	-	-	-	-	-	-	-	≥99.00	≥99.20	≥99.50
40 μm	-	-	-	-	-	-	-	-	≥99.00	≥99.20
100 μm	-	-	-	-	-	-	-	-	-	≥99.00

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection. Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

Outer Diameter	Removal Rating	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 68	0030 0.3 μm 0060 0.6 μm 0080 0.8 μm 0120 1.2 μm 0250 2.5 μm 0450 4.5 μm	0600 6.0 μm 1000 10 μm 1500 15 μm 2000 20 μm 3000 30 μm 4000 40 μm 100H 100 μm	DOE Double Open End HTF 222/Fin(PBT Insert) HSF 226/Fin(PBT Insert) HSCG 226/Flat(PBT Insert) HTCG 222/Flat(PBT Insert)	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PP Membrane]

Ultra High-efficiency PP Filter REPP Series Filter Cartridge

The combination of Cobetter REPP multi-layer membrane greatly improves the dirt-holding capacity and prevents the surface layer of the filter element from quickly clogging. The upstream pore size of the filter element is coarser and the downstream pore size is finer, which can intercept particles in a graded manner and greatly extend the service life. Suitable for filtering highly suspended particles, colloidal substances, and high-viscosity liquids. Distinctive features: high dirt holding capacity + ultra-high efficiency

Features and Benefits

- High dirt holding capacity, long service life, economical and practical
- Ultra-high particle interception efficiency, good protection of the terminal sterilization filter element
- Excellent chemical compatibility

Typical Application

- Filtration of colloidal materials
- Medium filtration
- High viscosity material filtration
- Fermentation broth filtration
- Blood product prefiltration

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001: 2015 Practices

Materials of Construction

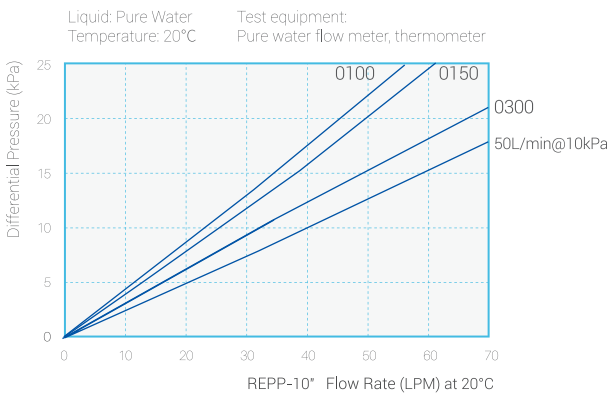
Membrane	Polypropylene (PP)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Sterilization

In-line steam sterilization Up to 20 cycles (125°C for 30 minutes < 30 kPa per cycle).



Flow Rate Characteristics



Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Filtration Area

Outer Diameter	Removal Rating	Area / 10"
68 mm	1.0 μm	0.19 m ²
68 mm	1.5 μm	0.19 m ²
68 mm	3.0 μm	0.19 m ²
68 mm	5.0 μm	0.19 m ²

Particle Retention

Retention Rates of Each Particle Size (%)								
REPP	1.0 μm	1.5 μm	3.0 μm	5.0 μm	10 μm	20 μm	40 μm	70 μm
1.0 μm	≥99.98	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
1.5 μm	-	≥99.98	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
3.0 μm	-	-	≥99.98	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
5.0 μm	-	-	-	≥99.98	≥99.99	≥99.99	≥99.99	≥99.99

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

Outer Diameter	Removal Rating	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 68	0100 1.0μm 0150 1.5μm 0300 3.0μm 0500 5.0μm	DOE Double Open End HTF 222/Fin(PBT Insert) HSF 226/Fin(PBT Insert) HSCG 226/Flat(PBT Insert) HTCG 222/Flat(PBT Insert)	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings	P

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[PP Membrane]

Economical High-precision Filter HPP Series Filter Cartridge

Cobetter HPP series filter makes high-accuracy and low-cost filtration a reality. High flow rate and high dirt-holding capacity characteristics make HPP series filter an economical pre-filtration filter.



Features and Benefits

- Continuously reliable high filtration efficiency
- Filter media that can withstand high backlash pressure differences reduce filter replacement cycles and production costs.
- Wide chemical compatibility, suitable for filtering various acids, bases and solvents
- A series of removal ratings from 0.1um to 70um meet various filtering situations

Typical Application

- Pre-filtration of infusion solutions, biological products and fermentation solutions
- Pre-filtration and fine filtration of process water
- Security filtration of reverse osmosis water treatment process

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001: 2015 Practices

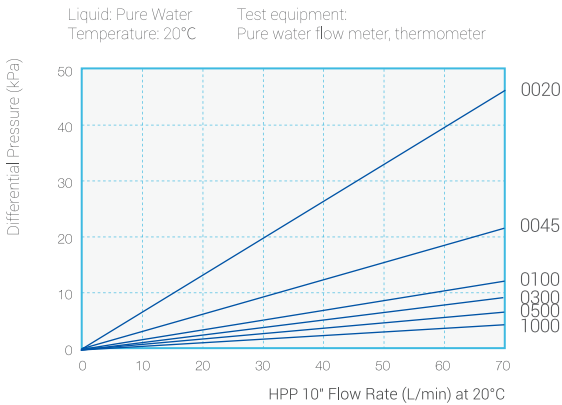
Materials of Construction

Membrane	Polypropylene (PP)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Filtration Area

Outer Diameter	Removal Rating	Area / 10"
68 mm	0.2 μm	0.50 m ²
68 mm	0.45 μm	0.48 m ²
68 mm	1.0 μm	0.53 m ²
68 mm	3.0 μm	0.57 m ²
68 mm	5.0 μm	0.57 m ²
68 mm	10 μm	0.62 m ²
68 mm	20 μm	0.63 m ²

Flow Rate Characteristics



Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Sterilization

In-line steam sterilization	Up to 20 cycles (125°C for 30 minutes < 30 kPa per cycle).
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Particle Retention

Retention Rates of Each Particle Size (%)					
HPP	1.0 μm	3.0 μm	5.0 μm	10 μm	20 μm
0.2 μm	≥99.90	≥99.90	≥99.90	≥99.90	≥99.90
0.45 μm	≥99.00	≥99.50	≥99.90	≥99.90	≥99.90
1.0 μm	≥90.00	≥95.00	≥99.00	≥99.50	≥99.90
3.0 μm	-	≥90.00	≥95.00	≥99.00	≥99.50
5.0 μm	-	-	≥90.00	≥95.00	≥99.00
10 μm	-	-	-	≥90.00	≥95.00
20 μm	-	-	-	-	≥90.00

Regulatory Compliance

- Component materials meet the criteria for a " Non-fiber-releasing filter " as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

Outer Diameter	Removal Rating	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 68 71 Φ 71	0020 0.2μm 0045 0.45μm 0100 1.0μm 0300 3.0μm	0500 5.0μm 1000 10μm 2000 20μm	DOE Double Open End HTF 222/Fin(PBT Insert) HSF 226/Fin(PBT Insert) HSCG 226/Flat(PBT Insert) HTCG 222/Flat(PBT Insert)	05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[Glass Fiber Membrane]

High-efficiency Liquid Pre-filter LGFP Series Filter Cartridge



Cobetter’s LGFP series filter element is made of ultra-fine glass fiber material. It is a depth filter element with adsorption effect. It is especially suitable for filtration of liquids containing colloids, grease, and protein materials. High dirt holding capacity and excellent particle retention efficiency, well protect the terminal sterilization filter element. Particularly suitable for filtration of liquids with high colloid and particle content

Features and Benefits

- Extraordinarily high dirt-holding capacity
- Longer service life
- Low pressure drops, high flow rates
- Rigid fiber material ensures high throughput and excellent filtration efficiency during filtration

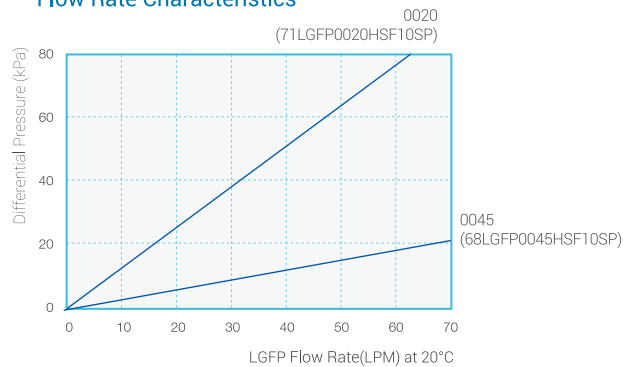
Typical Application

- Extraordinarily high dirt-holding capacity
- Longer service life
- Low pressure drops, high flow rates
- Rigid fiber material ensures high throughput and excellent filtration efficiency during filtration

Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001: 2015 Practices

Flow Rate Characteristics



Materials of Construction

Membrane	Glass fiber (GF)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

Operating Conditions

Max. Operating Temperature	80°C
Max. Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Sterilization

In-line steam sterilization	Up to 20 cycles (121°C for 30 min and differential pressure< 30kPa per cycle)
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Filtration Area

Outer Diameter	Removal Rating	Area / 10"
71 mm	LGFP 0.2 μm	0.29 m²
68mm	LGFP 0.45 μm	0.28 m²

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection. Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121°C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

	L G F P				P
Outer Diameter		Removal Rating	End Cap	Nominal Length	Seal Material
Blank ϕ 68		0022 0.22μm	DOE Double Open End	05 5 inch	S Silicone
71 ϕ 71		0045 0.45μm	HTF 222/Fin(PBT Insert)	10 10 inch	E EPDM
		0100 1.0μm	HSF 226/Fin(PBT Insert)	20 20 inch	V Viton
			HSCG 226/Flat(PBT Insert)	30 30 inch	P FEP/ PFA
			HTCG 222/Flat(PBT Insert)	40 40 inch	encapsulated O-rings

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

[Glass Fiber Membrane]

High-efficiency Gas Pre-filter GGFP/DGGF Series Filter Cartridge

Cobetter's GGFP series filter is made of ultra-fine glass fiber material, with up to more than 90% dirtholding space, and are suitable for gas pretreatment and precision filtration.

The GGFP series filter element has the unique ability to intercept particles and effectively protect and extend the service time of the terminal sterilizing filter.



Features and Benefits

- High porosity (High voids volume filter media)
- High Flow rates
- Low Pressure Drops
- Good adsorption and high filtration efficiency
- High aerosol interception efficiency of defective bacteria, effectively reducing bacteria

Typical Application

- Compressed air oil and particle removal filtration
- Antibiotic fermentation air pretreatment
- Bioengineering fermentation air pretreatment

Materials of Construction

Membrane	Glass fiber (GF)
Support	Polypropylene (PP)
Core/Cage/End Caps	Polypropylene (PP)
End Cap Inserts	Polybutylene terephthalate (PBT)
Seal Material	Silicone / EPDM / Viton FEP/ PFA encapsulated O-rings

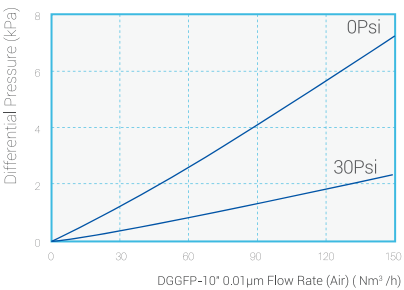
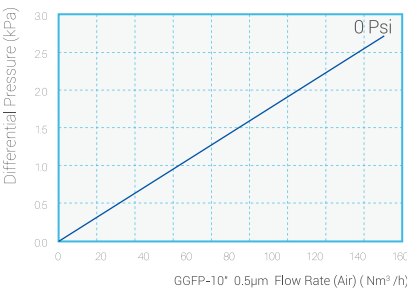
Sterilization

In-line steam sterilization	Up to 20 cycles (121 °C for 30 min and differential pressure< 30kPa per cycle)
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Bacterial Retention

Model	Content
DGGFP 0.1	LRV> 7 for aerosol contains more than 1×10 ⁹ cfu/10 inch <i>Brevundimonas diminuta</i> (ATCC 19146)

Flow Rate (Air)



Quality Standards

- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001: 2015 Practices

Operating Conditions

Max. Operating Temperature	80 °C
Max.Operating Pressure	0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C
Max. Differential Pressure	Forward 0.69 MPa @ 25 °C 0.40 MPa @ 60 °C 0.24 MPa @ 80 °C Reverse 0.30 MPa @ 25 °C 0.10 MPa @ 80 °C

Filtration Area

Outer Diameter	Removal Rating	Area / 10"
71 mm	GGFP 0.5 µm	0.34 m²

Regulatory Compliance

- Autoclaved filter effluent meets the USP<788> requirement of particulate matter in large volume injection.Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Component materials meet the criteria for a "Non-fiber-releasing filter" as defined in 21 CFR 210.3(b)(6).
- Aqueous extraction from a cartridge contains less than 0.25EU/ml as determined by Limulus Amebocyte Lysate (LAL), meeting requirements of USP<85>.
- Meet the requirement of USP <87> In Vitro Cytotoxicity Test.
- Component materials meet the requirements of the current USP<88> for plastic class VI-121 °C.
- All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.
- Based on the current information from our suppliers, all component materials used in the manufacture of this product are animal-free.

Ordering Information

GGFP Outer Diameter Blank ϕ 68 71 ϕ 71	Removal Rating 0050 0.5µm	End Cap DOE Double Open End HTF 222/Fin(PBT Insert) HSF 226/Fin(PBT Insert) HSCG 226/Flat(PBT Insert) HTCG 222/Flat(PBT Insert)	Nominal Length 05 5 inch 10 10 inch 20 20 inch 30 30 inch 40 40 inch	P Seal Material S Silicone E EPDM V Viton P FEP/ PFA encapsulated O-rings	Pharmaceutical
DGGF Outer Diameter Blank ϕ 68 71 ϕ 71	Core Material Blank Stainless Steel P PP	Removal Rating 0001 0.01µm			

End Cap Reference Pictures



DOE



HTF



HSF



HSCG



HTCG

200+ L/min High Flow Filter
130 Series Filter Cartridge

Cobetter 130 series filter cartridge with special design, have the advantages of high flow rate, long service time, and convenient usage. It is particularly suitable for clarification and sterile filtration for pharmaceutical applications with high flow requirement.

Features and Benefits

- Large size and more pleats, EFA is more than 2.0m²
- Super large flow rate of more than 200L/min
- Asymmetric PES enables 3 times the lifespan than normal filter under the same process conditions
- Simpler and faster installation method

Typical Application

- LVP filtration
- Buffer, disinfectant, and cleaner filtration
- Injection water filtration

Materials of Construction

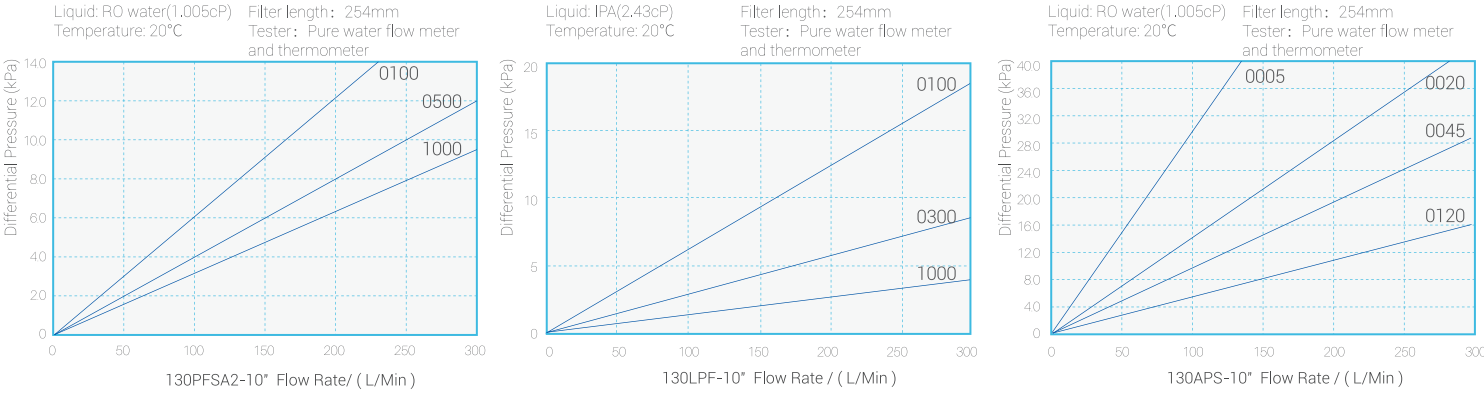
Filter Media	Polypropylene (PP) Polyethersulfone (PES) Polytetrafluoroethylene (PTFE)	
Core/End Cap/Cage	Polypropylene (PP)	
Distribution Layer	Polypropylene (PP)	
O-ring	See Ordering Information	
EFA	PP	0.76 m²
	PES	2.0 m²
	PTFE	2.5 m²

Ordering Information

130						P
Filter Media		Removal Ratings		End Cap		Pharmaceutical
PP	PP	0010	0.1µm	0500	5.0µm	U EPDM(U-CUP)
APSL	APSL	0022	0.22µm	1000	10µm	UN NBR(U-CUP)
PF	PTFE	0045	0.45µm	2000	20µm	O EPDM(O-ring)
LHPF	LHPF	0065	0.65µm	3000	30µm	V Viton(O-ring)
		0100	1.0µm	4000	40µm	P PFA/ Viton(O-ring)
		0300	3.0µm			



Flow Rate Characteristics



130 Filter Housing

Features and Benefits

- Cost effective: One 130 filter can replace 3 pieces of 68mm filters
- Easy installation and changeout
- Simple structure, easy operation, and easy cleaning

Materials of Construction

Housing Body	316L, 304 Stainless steel, PP
Clamp	304 Stainless steel
O-ring	EPDM/Silicone/Viton/PTFE
Surface Finish	Body surface mechanical polishing, inner side<0.4µm

Connection

Drain	1/4"NPT
End Cap	334
Inlet/Outlet	Flange or TC
Body Connector	Flange or TC

Operating Conditions

Max. Operating Pressure	0.6MPa or 1.0MPa
-------------------------	------------------



H-130						P
Material		Length		Inlet/Outlet		Pressure
A	SS304	10	10 inch	T	TC	P 0.6Mpa
B	SS316L			F	Flange	G 1.0Mpa
				N	Thread	F 1.6Mpa
Seal Material						Pharmaceutical
U	EPDM(U-CUP)					
UN	NBR(U-CUP)					
O	EPDM(O-ring)					
V	Viton(O-ring)					
P	PFA/ Viton(O-ring)					

[Filter-bag-compatible Cartridge Filter]

Filter-bag-compatible Cartridge Filter (Large EFA)
BG160 Series Filter Cartridge

Cobetter BG160 filter's EFA is more than 2.96m², which is over 8 times of ordinary filter bags. It has advantages such as high flow rate, long service time and convenient usage. It can be replaced and installed on the original standard filter bag housing reducing the frequency of system replacement and lower the system maintenance costs. It is a good choice for your filtration system.

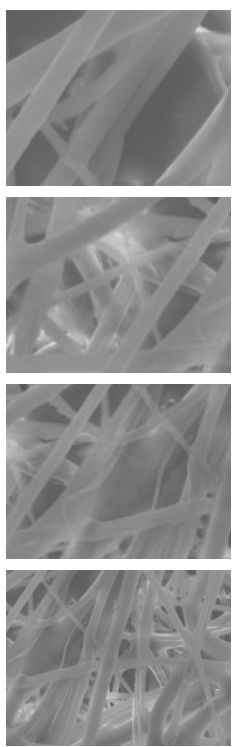
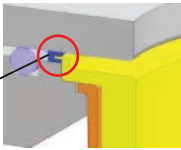
Features and Benefits

- Ultra large EFA and gradient-pore filter material: high flow rate and long service time;
- Absolute filtration rating: ensures excellent interception efficiency;
- Double seal ring design: O-ring seal+U-shape seal, eliminating the possibility of leakage;
- Easy to operate: End cap with expandable design to increase intensity, and end handle design makes it convenient to install and remove;
- Lower system maintenance costs: strong compatibility, can be installed to existing filter bag replacement.

Typical Application

- High flow material filtration
- Pharmaceutical water filtration

Special double seal ring design
Eliminate the possibility of leakage



Materials of Construction

Filter Media	Depth PP
Support/Distribution Layer	Polypropylene (PP)
Cage/End Cap	Glass fiber reinforced PP
End Cap OD	183mm or 186mm
Filter OD	148mm
Length	1# (330mm) 2# (660mm)

Operating Conditions

Flow Data	No.	Design Flow Rate	Max. Flow Rate	EFA
	1#	10m ³ /h	25m ³ /h	1.45 m ²
	2#	20m ³ /h	50m ³ /h	2.96 m ²
Suggest Change-out Differential Pressure	0.1 MPa / 21°C (From the inside out)			
Max. Differential Pressure	0.35 MPa/21°C (From the inside out)			
Max. Temperature	82°C / 180°F (Flowing hot water sterilization:77~82°C/20min)			

Ordering Information

B G 1 6 0



Removal Rating

0150	1.5µm	2000	20µm
0200	2.0µm	4000	40µm
0500	5.0µm	7000	70µm
1000	10µm	9000	90µm



End Cap

- N No expandable
- F Expandable



Filter Size

- 01 01 # (330mm)
- 02 02 # (660mm)



Seal Material

- E EPDM
- V Viton



Pharmaceutical

[Filter-bag-compatible Filter Cartridge]

60+ m³/h Ultra High Flow Filter
HF150NB Series Filter Cartridge

Cobetter HF150NB series ultra large flow filter has 6 inch diameter, maximum EFA is over 6m², and flow rate can be up to 60 tons per hour. It is an ideal choice for high flow rate demand applications, such as water treatment. The optimized membrane structure and flow direction design reduce the demand for filter size and quantity of filters during use, providing longer replacement time and more convenient operation.

Features and Benefits

- The super large filtration area provides high flow rate, long service time and high dirt holding capacity.
- Multi layer nano membrane structure ensures high retention rate and reduces the cost of filter replacement.
- No core rod, large diameter and flow direction design from inside to outside ensure good filtration performance.
- Withstand more reverse pressure difference due to PP internal support
- Seal handle design, easy to install and change out
- Easy to operate, with a small required space

Typical Application

- High flow material filtration
- Pharmaceutical water filtration

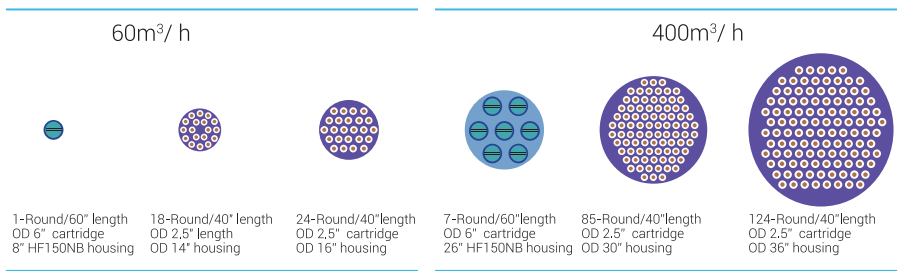
Materials of Construction

	Filter Media	Support/Drainage	End Caps	Outside Material	Specification
PP	Pleated Polypropylene depth structure	Polypropylene	Glass-fiber reinforced	Polyester/Polypropylene	Single opening type Filter OD: 6"/159mm
GF	Rein-bonded glass fiber /Polyester	Polyester/ Polypropylene	Polypropylene	Polyester	

Operating Conditions

Max. Operating Temperature	PP: 80°C GF: 130°C
Max. Differential Pressure	3.8bar/21°C 1.5bar/80°C

Comparison chart between the number of filters and the space required



Ordering Information

H F 1 5 0 N B



Filter Media

- PP
- GF



Removal Ratings

0050	0.5µm
0100	1.0µm
0300	3.0µm
....	



Filter Length

- 20 20inch
- 40 40inch
- 60 60inch

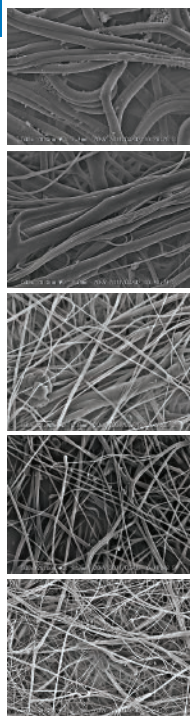


Seal Material

- S Silicone
- E EPDM
- V Viton



Pharmaceutical



[PP Membrane]

Rolled Polypropylene Filter RMF Series Filter Cartridge

RMF series filter cartridge is made of a continuously rolled polypropylene. Optional gradient pore size polypropylene brings higher efficiency than ordinary melt-blown filters. Meanwhile, it has much bigger filtration area and longer service life than ordinary melt-blown filters because of multi-layer polypropylene rolled.

RMF-CRN: Composed of two-stage gradient filter material, the efficiency is more than 2 times comparing with ordinary melt-blown filters, and the service life is 3 times comparing with ordinary melt-blown filters.

RMF-PR: Made of micro polypropylene fiber, the entire filter has a filtration efficiency of more than 99.9%.

Features and Benefits

- Full polypropylene structure, without any adhesive, less leachables, and the raw materials meet NSF requirements.
- High dirt holding capacity and longer service life
- Layer-by-layer filtration, RMF-PR can achieve absolute filter efficiency

Typical Application

- Large flow-rate filtration
- Pharmaceutical process water filtration

Materials of Construction

Filter Medium	Polypropylene (PP)
Support	Polypropylene (PP)
Core/Cage/End Cap	Polypropylene (PP)

Operating Conditions

Max. Operating Temperature	80°C
Max. Operating Pressure	3.0 bar / 21°C
	1.2 bar / 80°C

Ordering Information

R	M	F	-	C	R	N
R	M	F	-	P	R	



Removal Rating

0050 0.5µm
0100 1.0µm
0200 2.0µm
0300 3.0µm
0500 5.0µm



End cap

N Double Open End, No Gasket
H Double Open End, HPE Gaskets
HTCG 222/Flat(PBT Insert)
HTF 222/Fin(PBT Insert)
HSF 226/Fin(PBT Insert)
DOE Double Open End



Nominal Length

05 5 inch
10 10 inch
20 20 inch
30 30 inch
40 40 inch



Seal Material

S Silicone
E EPDM
V Viton
P FEP/PFA encapsulated O-rings
N None



Pharmaceutical



Carbon Fiber, Melt-blown, String Wound Filter

ACF-Carbon Fiber Filter Cartridge

Cobetter carbon fiber filter ACF is made of new generation highly efficient active adsorption and environmentally friendly functional materials. It is an updated product of activated carbon, with especially strong adsorption capacity against chlorine, organic odors, etc.

Typical Applications

- Water treatment, odor removal, decolorization, organic matter removal etc.
- Removal of residual chlorine

Technical Parameters

Removal Rating	5.0 µm
Operating Temperature	≤80°C



PPKP- Melt-blown Filter Cartridge

Cobetter PPKP melt-blown filter is made of microfibers that are melted and self-adhesive in space forming a curved diameter three-dimensional microporous structure.The multi-layer gradient structure, loose on the outside and tight on the inside, offers layer-by-layer filtration. It has high filtration precision, stable high efficiency and low cost.

Typical Applications

- Guard filter for RO system
- Pre-filtration for various types of fine filtration

Technical Parameters

Removal Rating	1.0、3.0、5.0、10、15、20、25、30、40、60、70µm
Material	PP
Operating Temperature	≤ 50°C
Flowing hot water sterilization	75°C / 30min



WDC-String Wound Filter Cartridge

Cobetter String wound filter WDC is suitable for solid-liquid separation of materials with high solid content and high viscosity.The depth filter layer and honeycomb structure provide superior dirt holding capacity.

Typical Applications

- Guard filter for RO system
- Pre-filtration for various types of fine filtration

Technical Parameters

Removal Ratings	1.0、3.0、5.0、10、15、20、25、30、40、60、70µm
Materiala	PP, Absorbent cotton, Glass fiber
Core	PP, Stainless Steel (304, 316L)



Thermal-resistant and Pressure-Resistant Filter

CSSC Five-Layer Stainless Steel Sintered Mesh Filter Cartridge

Cobetter five-layer stainless steel sintered mesh filter-CSSC is sintered of multi-layer 316L or 304 stainless steel in vacuum. Its excellent pressure resistance, thermal resistance, corrosion resistance, and great backwash advantages make it an alternative to titanium rod product, applied to materials containing rigid particles. It is also a better choice for solid-liquid separation.

Technical Parameters

Nominal Removal ratings	1.0 \ 2.0 \ 3.0 \ 5.0 \ 10 \ 20 \ 30 50 \ 70 \ 100 \ 200 μm
Filter Material	316L Stainless Steel\ 304 Stainless Steel
Operating Temperature	≤480°C

Typical Applications

- Steam filtration
- High polarity solvent filtration
- Liquid decarbonization filtration
- Viscous liquid filtration
- Oxidizing liquid filtration
- Corrosive liquid filtration
- Liquid and gas filtration in high temperature and high pressure



PSSF Pleated Stainless Steel Felt Filter Cartridge

Cobetter pleated stainless steel felt filter -PSSF adopts stainless steel fiber sintered filter felt. After being pleated and formed, it has a larger filtration area. Stainless steel fiber sintered felt is a porous depth filter material made of stainless steel fibers sintered in high temperature. From coarse to fine, it forms a gradient pore size, with absolute filtration efficiency, high porosity, and high dirt holding capacity and other advantages.

Technical Parameters

Absolute Removal Ratings	3.0 \ 5.0 \ 7.0 \ 10 \ 15 \ 20 \ 40 μm
Filter Material	316L Stainless Steel
Operating Temperature	≤480°C

Typical Applications

- Steam filtration
- High polarity solvent filtration
- Liquid decarbonization filtration
- Viscous liquid filtration
- Oxidizing liquid filtration
- Corrosive liquid filtration
- Liquid and gas filtration in high temperature and high pressure



Thermal-resistant and Pressure-Resistant Filter

PSSC Pleated Stainless Steel Mesh Filter Cartridge

Cobetter pleated stainless steel mesh filter -PSSC is made of 316L stainless steel mesh. The pleated structure enables it to have a large filtration area, high dirt holding capacity and high flow rate. The great capacity of thermal-resistance and pressure-resistance make it the excellent choice when filtering fluids under high temperature and high pressure conditions.

Technical Parameters

Nominal Removal ratings	1.0 \ 2.0 \ 3.0 \ 5.0 \ 10 \ 15 \ 20 \ 30 60 \ 100 μm
Filter Material	316L Stainless Steel
Operating Temperature	≤480°C

Typical Applications

- Steam filtration
- High polarity solvent filtration
- Liquid decarbonization filtration
- Viscous liquid filtration
- Oxidizing liquid filtration
- Corrosive liquid filtration
- Liquid and gas filtration in high temperature and high pressure



TIC Titanium Filter Cartridge

Cobetter titanium filter is made of industrial high-purity titanium powder (above 99.4%) raw material, sintered at high temperature into microporous filter. Cobetter titanium filter is resitant to chemical corrosion, high temperature and oxidation, has long service time, is easy to clean and reuse.

Technical Parameters

Nominal Removal ratings	0.45 \ 1.0 \ 3.0 \ 5.0 \ 10 \ 20 \ 30 50 \ 80 \ 100 μm
Filter Material	Titanium
Operating Temperature	≤280°C

Typical Applications

- Liquid decarbonization filtration
- Chemical reagent filtration
- Steam filtration



CoMini Filter Cartridge Series

Features

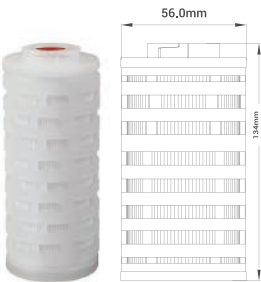
- Wide option of filtration media (PTFE/PES/PVDF/PP)
- Different endcap configuration
- No surfactants or binders
- Materials of construction are list FDA listed

Benefits

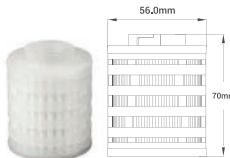
- Low extractables
- Cartridge is appropriate for use in the pharmaceutical, biological and food & beverage industries



56



56 - 70



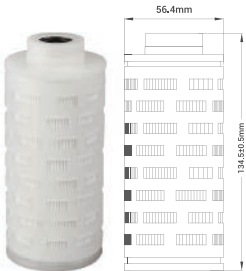
56-84



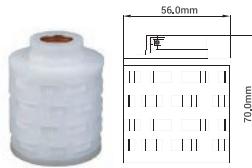
56-70-OBC



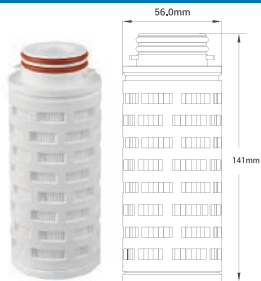
DH 56



DH 56 - 70



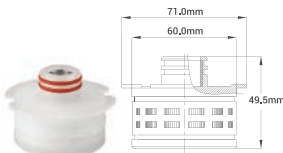
126



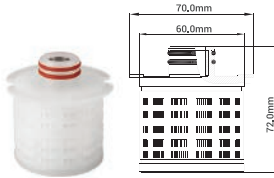
126-70



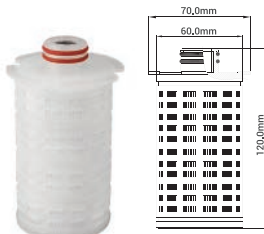
SLVP/SLVF



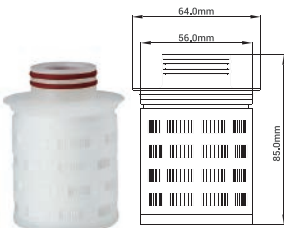
SLVP-72/SLVF-72



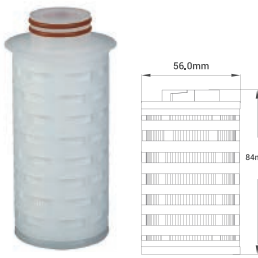
SLVP-120/SLVF-120



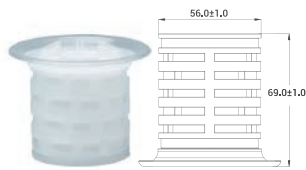
PCF



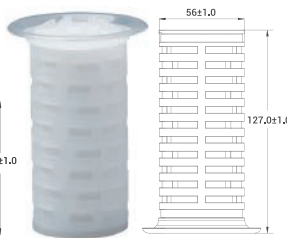
PCF - 134



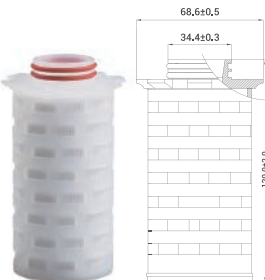
PCF II - 69



PCF II - 127



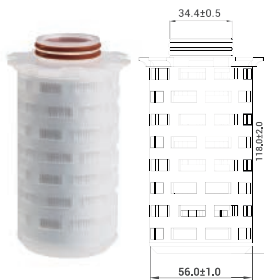
OCF



OCF-1



OCFM

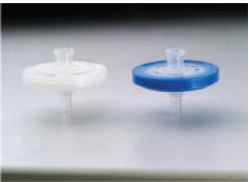


Ordering Information

				P
Code	Membrane	Removal Rating	Seal Material	Pharmaceutical
56	DPSHSL	2210 - 0.22+0.1 µm	S Silicone E EPDM V Viton P FEP/PFA encapsulated O-rings N None	
56-70		2222 - 0.22+0.22 µm		
56-84		4522 - 0.45+0.22 µm		
56-70-OBC		8022 - 0.8+0.22 µm		
DH56		6522 - 0.65+0.22 µm		
DH56-70		1222 - 1.2+0.22 µm		
126		4545 - 0.45+0.45 µm		
126-70		6545 - 0.65+0.45 µm		
126-70		8045 - 0.8+0.45 µm		
SLV				
SLV-72	DPSTF	0022-0.22 µm		
SLV-120				
SLVP	SPSHR	0010-0.10 µm		
SLVP-72		0022-0.22 µm		
SLVP-120		0045-0.45 µm		
SLVF				
SLVF-72	APSBR	0010-0.10 µm		
SLVF-120		0022-0.22 µm		
PCF		0045-0.45 µm		
PCF-134		0065-0.65 µm		
PCFII-69(no-o-ring)	PCFII-127(no-o-ring)	0080-0.80 µm		
PCFII-127(no-o-ring)		0120-1.2 µm		
OCF				
OCF-1				
OCFM	APSNDB	0022-0.22 µm		
	APSEA	0022-0.22 µm		
		0045-0.45 µm		
		0065-0.65 µm		
		0080-0.80 µm		
		0100-1.0 µm		
		0120-1.2 µm		
		0300-3.0 µm		
		0500-5.0 µm		
		0800-8.0 µm		
		1000-10.0 µm		
	APSGF	0022-0.22 µm		
		0065-0.65 µm		
		0080-0.80 µm		
		0100-1.0 µm		
	DPSHSC	2222-0.22+0.22 µm		
	DLHPVHBR	1010-0.1+0.1 µm		
		2210 - 0.22+0.1 µm		
		2222 - 0.22+0.22 µm		
		4522 - 0.45+0.22 µm		
		6522 - 0.65+0.22 µm		
	LHPVHBR	0022 - 0.22µm		
		0045 - 0.45µm		
	DLHPVDF	2210 - 0.22+0.1 µm		
		2222 - 0.22+0.22 µm		
		4522 - 0.45+0.22 µm		
		4545 - 0.45+0.45 µm		
		6545 - 0.65+0.45 µm		
	LHPVDF	0010 - 0.10µm		
		0022 - 0.22µm		
		0045 - 0.45µm		
		0065 - 0.65µm		

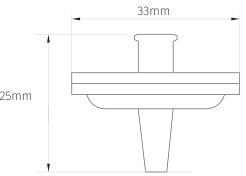
				P
Code	Membrane	Removal Rating	Seal Material	Pharmaceutical
56	DN66PC	0022-0.22 µm	S Silicone E EPDM V Viton P FEP/PFA encapsulated O-rings N None	
56-70		2222 - 0.22+0.22 µm		
56-84		4522 - 0.45+0.22 µm		
56-70-OBC		1245 - 1.2+0.45 µm		
DH56				
DH56-70	N66PC	0022 - 0.22µm		
126		0045 - 0.45µm		
126-70	DN66TC	2222 - 0.22+0.22 µm		
SLV		4522 - 0.45+0.22 µm		
SLV-72		1045 - 1.0+0.45 µm		
SLV-120				
SLVP	NY6TC	0010 - 0.10µm		
SLVP-72		0022 - 0.22µm		
SLVP-120		0045 - 0.45µm		
SLVF		0065 - 0.65µm		
SLVF-72		0080 - 0.80µm		
SLVF-120		0100 - 1.0µm		
PCF	DLHPFB	0022-0.22 µm		
PCF-134		0045 - 0.45 µm		
PCFII-69(no-o-ring)				
PCFII-127(no-o-ring)				
OCF	LPF	0022 - 0.22 µm		
OCF-1		4522 - 0.45+0.22 µm		
OCFM		1045 - 1.0+0.45 µm		
	DGPFMP	S003 - 0.003 µm		
		0022 - 0.22 µm		
	GPFMP	0001 - 0.1 µm		
		0022 - 0.22 µm		
	GPFBP			
	HSGPFP			
	APP	0020-0.20 µm		
		0030 - 0.30 µm		
		0050 - 0.50 µm		
		0065 - 0.65 µm		
		0080 - 0.80 µm		
		0100 - 1.0 µm		
		0300 - 3.0 µm		
		0500 - 5.0 µm		
		0600 - 6.0 µm		
		1000 - 10.0 µm		
	PFSA2	0020-0.20 µm		
		0030 - 0.30 µm		
		0050 - 0.50 µm		
		0070 - 0.70 µm		
		0100 - 1.0 µm		
		0200 - 2.0 µm		
		0500 - 5.0 µm		
		1000 - 10.0 µm		
		2000 - 20.0 µm		
		4000 - 40.0 µm		
	HPP	0020-0.20 µm		
		0045 - 0.45 µm		
		0100 - 1.0 µm		
		0300 - 3.0 µm		
		0500 - 5.0 µm		
		1000 - 10.0 µm		
		2000 - 20.0 µm		

Capsule Collection



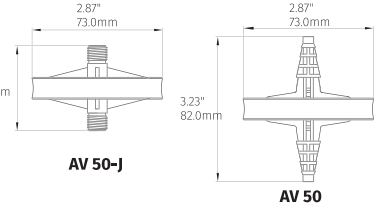
Syringe Filters

Material of Construction	Filter Membrane	PTFE / PES / CA / PVDF / Nylon
Connections	Shell	PP
	Dimensions	Diameter Φ13 / 25 / 33 / 50mm
	Inlet/Outlet	Inlet Hose Barb / Female Luer-lok / 1/ 8" NPT
		Outlet Hose Barb / Male Luer Slip



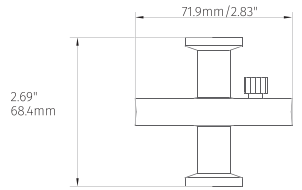
AV 50 Series

Material of Construction	Filter Membrane	PP / PTFE
Connections	Shell	PP
	Dimensions	AV50 Length: 82mm Diameter: Φ73mm
	Inlet/Outlet	AV50~J Length: 48mm Diameter: Φ73mm
		AV50 Inlet/Outlet: 1/4"-1/2"Hose Barb
		AV50~J Inlet/Outlet: 1/4" Jaco



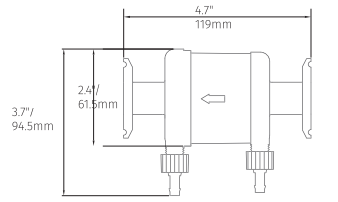
KZ 50 Series

Material of Construction	Filter Membrane	PP / PTFE / GF
Connections	Shell	PP
	Dimensions	Nominal Length 68.4mm
	Inlet/Outlet	Diameter Φ71.9mm
		Inlet/Outlet 25mm Tri-clamp



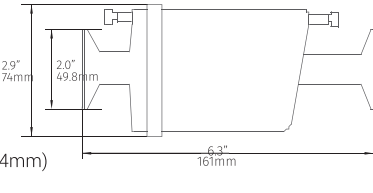
PKZ Capsules

Material of Construction	Filter Membrane	PES / PTFE / PP / Nylon / PVDF / PP
Connections	Shell	PP
	Dimensions	Nominal Length 119mm
	Inlet/Outlet	Diameter Φ94.5mm
		Inlet/Outlet 50mm Tri-clamp



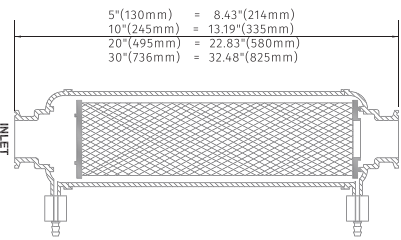
STKZ Capsules

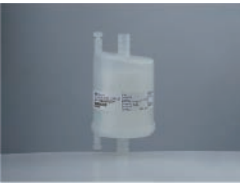
Material of Construction	Filter Membrane	PP / PTFE / PES / Nylon
Connections	Shell	PP
	Dimensions	Nominal Length 6.3\"/>
	Inlet/Outlet	Diameter Φ2.7\"/>
		Inlet/Outlet 50mm Tri-clamp



WSF Capsules

Material of Construction	Filter Membrane	PTFE / PP / PES / GFC / Nylon
Connections	Shell	PP
	Dimensions	Nominal Length 8.43\"/>
	Inlet/Outlet	Diameter Φ2.42\"/>
		Inlet/Outlet 50mm Tri-clamp

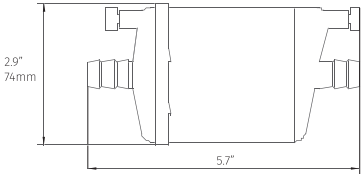




STBT1 Capsules

Material of Construction	Filter Membrane	PP / PTFE / PES / Nylon
	Shell	PP
	Connections	Dimensions
		Inlet/Outlet

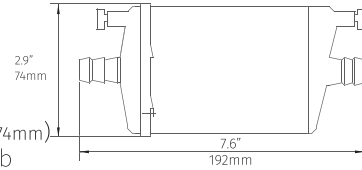
5.7"(145mm)
Φ2.7"(69.5mm)-Φ2.9"(74mm)
1/2"(12mm)Hose Barb



STBT2 Capsules

Material of Construction	Filter Membrane	PP / PTFE / PES / Nylon
	Shell	PP
	Connections	Dimensions
		Inlet/Outlet

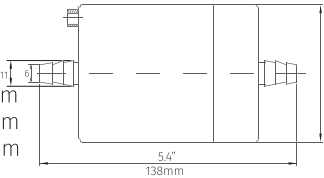
Nominal Length	7.6"(192mm)
Diameter	Φ2.7"(69.5mm)-Φ2.9"(74mm)
Inlet/Outlet	1/2"(12mm)Hose Barb



WM Capsules

Material of Construction	Filter Membrane	PP / PTFE / PES / Nylon
	Shell	PP
	Connections	Dimensions
		Inlet/Outlet

92 WM	Length: 92mm	Diameter: Φ70mm
WM	Length: 138mm	Diameter: Φ65mm
195 WM	Length: 195mm	Diameter: Φ65mm
Inlet/Outlet	1/4"-3/8"Hose Barb	



Ordering Information

				P
Code	Membrane	Removal Rating	Seal Material	Pharmaceutical
AV50 KZ50 PKZ STKZ WSF-03 WSF-05 WSF-10 STBT1 STBT2 WM 92WM 195WM	DPSHSL	2210 - 0.22+0.1 μm 2222 - 0.22+0.22 μm 4522 - 0.45+0.22 μm 8022 - 0.8+0.22 μm 6522 - 0.65+0.22 μm 1222 - 1.2+0.22 μm 4545 - 0.45+0.45 μm 6545 - 0.65+0.45 μm 8045 - 0.8+0.45 μm	S Silicone E EPDM V Viton P FEP/PFA encapsulated O-rings N None	
	DPSTF	0022-0.22 μm		
	SPSHR	0010-0.10 μm 0022-0.22 μm 0045-0.45 μm		
	APSBR	0010-0.10 μm 0022-0.22 μm 0045-0.45 μm 0065-0.65 μm 0080-0.80 μm 0120-1.2 μm		
	APSNDB	0022-0.22 μm		
AV50 KZ50 PKZ STKZ WSF STBT1 STBT2 WM	APSEA	0022-0.22 μm 0045-0.45 μm 0065-0.65 μm 0080-0.80 μm 0100-1.0 μm 0120-1.2 μm 0300-3.0 μm 0500-5.0 μm 0800-8.0 μm 1000-10.0 μm		
	APSGF	0022-0.22 μm 0065-0.65 μm 0080-0.80 μm 0100-1.0 μm		
	DPSHSC	2222-0.22+0.22 μm		
AV50 KZ50 PKZ STKZ WSF-03 WSF-05 WSF-10 STBT1 STBT2 WM 92WM 195WM	DLHPVHBR	1010 - 0.1+0.1 μm 2210 - 0.22+0.1 μm 2222 - 0.22+0.22 μm 4522 - 0.45+0.22 μm 6522 - 0.65+0.22 μm		
	LHPVHBR	0022 - 0.22μm 0045 - 0.45μm		
	DLHPVDF	2210 - 0.22+0.1 μm 2222 - 0.22+0.22 μm 4522 - 0.45+0.22 μm 4545 - 0.45+0.45 μm 6545 - 0.65+0.45 μm		
	LHPVDF	0010 - 0.10μm 0022 - 0.22μm 0045 - 0.45μm 0065 - 0.65μm		

				P
Code	Membrane	Removal Rating	Seal Material	Pharmaceutical
AV50 KZ50 PKZ STKZ WSF-03 WSF-05 WSF-10 STBT1 STBT2 WM 92WM 195WM	DN66PC	0022-0.22 μm 2222 - 0.22+0.22 μm 4522 - 0.45+0.22 μm 1245 - 1.2+0.45 μm	S Silicone E EPDM V Viton P FEP/PFA encapsulated O-rings N None	
	N66PC	0022 - 0.22μm 0045 - 0.45μm 0120 - 1.2μm		
	DN66TC	2222 - 0.22+0.22 μm 4522 - 0.45+0.22 μm 1045 - 1.0+0.45 μm		
	NY6TC	0010 - 0.10μm 0022 - 0.22μm 0045 - 0.45μm 0065 - 0.65μm 0080 - 0.80μm 0100 - 1.0μm 0300 - 3.0μm 0500 - 5.0μm		
	DLHPFB	0022-0.22 μm 0045 - 0.45 μm		
	LPF	0022 - 0.22 μm 4522 - 0.45+0.22 μm 1045 - 1.0+0.45 μm		
	DGPFMP	S003 - 0.003 μm 0022 - 0.22 μm		
	GPFMP GPFBP HSGPFP	0001 - 0.1 μm 0022 - 0.22 μm		
	APP	0020-0.20 μm 0030 - 0.30 μm 0050 - 0.50 μm 0065 - 0.65 μm 0080 - 0.80 μm 0100 - 1.0 μm 0300 - 3.0 μm 0500 - 5.0 μm 0600 - 6.0 μm 1000 - 10.0 μm		
	PFSA2	0020-0.20 μm 0030 - 0.30 μm 0050 - 0.50 μm 0070 - 0.70 μm 0100 - 1.0 μm 0200 - 2.0 μm 0500 - 5.0 μm 1000 - 10.0 μm 2000 - 20.0 μm 4000 - 40.0 μm 7000 - 70.0 μm		
	HPP	0020-0.20 μm 0045 - 0.45 μm 0100 - 1.0 μm 0300 - 3.0 μm 0500 - 5.0 μm 1000 - 10.0 μm 2000 - 20.0 μm		

[Clarification Filter]

High Dirt-holding Capacity Clarification Filter

Roheap CSD Series Filter



Features

- Filter media composed of lignocellulose and inorganic filter aids
- Gradient filter structure provides high dirt holding capacity and retention efficiency
- Low initial pressure difference and long service life
- Positive Zeta charge results in removal efficiency for host DNA, HCP,etc.

Applications

- Clarification of fermentation broth/cell cultures
- Filtration of serum and blood products
- Filtration of enzyme preparation
- Filtration of colloids/viscous liquids

Material of Construction

Filter Media	Cellulose, diatomite filter aid and ionic wet-strength resin	
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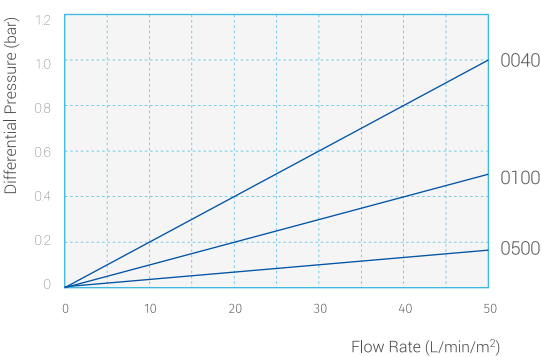
Operating Conditions

	Roheap CSD filter	CDF Capsule Filter
Max.Temperature	80°C	40°C
Max.Differential Pressure	0.24 MPa /80°C	0.3 MPa /40°C
Flusing before use	Flush Single-layer: 50L/m² Double-layer: 100L/m²	Flow rate 10L/min/m²

Biological Safety

Endotoxins	<0.25 EU/ml
Bio-compatibility	Meet the requirement of USP <87> In Vitro Cytotoxicity Test; Meet the requirement of criteria of the USP<88> Biological Reactivity Test for Class VI-121°C plastics

Flow Rate Characteristics



Chemical Compatibility

Chemicals	Concentration	@20°C	@80°C
NaOH	2%	G	P
HCl	5%	G	P
HNO ₃	5%	G	P
H ₂ SO ₄	10%	G	P
Acetic acid	38%	G	G
Citric acid	10%	G	G
Peracetic acid	0.1%	G	G
Butanol	80%	G	G
Ethanol	80%	G	G

G=Recommended; P=Not recommended

Extractable Metal Ions

PC	Ion	ppb	Ion	ppb
	Mg	0.263	Ni	0.364
	Al	0.069	Cu	N.D
	Ca	0.624	As	0.079
	Cr	N.D	Pb	N.D
	Fe	0.209		

Notes: N.D<0.05ppb

Ordering Information

CSD Depth Filter

C S D

Filter Format
CSD Single-Layer

Removal Ratings

0004 0.04-0.2µm
0020 0.2-0.4µm
0040 0.4-0.6µm
0060 0.6-0.8µm
0100 0.8-1.5µm
0150 1.5-3.0µm
0300 3.0-6.0µm
0400 4.0-9.0µm
0500 5.0-12.0µm
0600 6.0-15.0µm
0700 7.0-18.0µm

Type

PC

D O E

End Cap

DOE Double Open End

1

Diameter

12 12inch
16 16inch

Cells

A 1Cell
W 2Cells
Y 3Cells
G 4Cells
B 5Cells
N 9Cells
X 10Cells
Q 11Cells
T 12Cells
F 15Cells
D 16Cells

Seal Material

S Silicone
E EPDM
V Viton
T FEP/PFA encap-sulated O-rings
F Fluorinated Polymer

P

Pharmaceutical

CDFC Capsules

C D F C

Code

S

Number of Layer

S Single-Layer

C S D

Filter Media

Removal Ratings

0004 0.04-0.2µm
0020 0.2-0.4µm
0040 0.4-0.6µm
0060 0.6-0.8µm
0100 0.8-1.5µm
0150 1.5-3.0µm
0300 3.0-6.0µm
0400 4.0-9.0µm
0500 5.0-12.0µm
0600 6.0-15.0µm
0700 7.0-18.0µm

Type

PC Positive Charge

P

Pharmaceutical

C D F C

Code

D

Number of Layer

D Double-Layer

Removal Ratings

01 0.04-0.2µm
02 0.2-0.4µm
04 0.4-0.6µm
06 0.6-0.8µm
10 0.8-1.5µm
15 1.5-3.0µm
30 3.0-6.0µm
40 4.0-9.0µm
50 5.0-12.0µm
60 6.0-15.0µm
70 7.0-18.0µm
80 8.0-20.0µm
H0 0.02-0.2µm
HP 0.02-0.2µm

[Clarification Filter]

Claricap CSD & Roheap CSD Activated Carbon Depth Filter Series

Cobetter Claricap CSD & Roheap CSD series depth filters utilize filtration media that are made of high-purity cross-weaved lignocellulose and activated carbon powder. The internal porous three-dimensional structure with large internal surface area delivers excellent filtration performance and high dirt holding capacity for depth filtration applications. The filter media are manufactured with our highly automated proprietary process. All raw materials are controlled through our world class quality system to ensure robust product quality and consistent filtration performance.

Applications

**Pharmaceutical**

Decolorization of API
Endotoxin removal
Filtration of blood products
Clarification of biochemical products

**Food and Beverage**

Deodorization of saccharide and amino acids
Decolorization of wine and juice
Clarification and purification of fluids

**Chemicals**

Decolorization and Deodorization of APIs
Purification of fine chemicals,
chemical reagents and organic solvents.

Material of Construction & Process Type

Material of Construction	Cellulose, activated carbon powder, ionic wet-strength resin
Process Type	PC Positively charged

Operating Conditions

	Roheap Filter Cartridge	Claricap Filter Capsule
Max.Temperature	80°C	40°C
Max.Differential Pressure	0.24 MPa /80°C	0.3 MPa /40°C
Flush Before Use	Recommended flush volume 50L / m², 200-400LMH	

Biological Safety

Endotoxins	<0.25 EU/ml
Bio-compatibility	Meets the specifications of the USP <88> Biological Reactivity Test for Class VI-121 °C plastics.

Chemical Compatibility

Chemicals	Concentration	@20°C	@80°C
NaOH	2%	G	P
HCl	5%	G	P
HNO ₃	5%	G	P
H ₂ SO ₄	10%	G	P
Acetic acid	38%	G	G
Citric acid	10%	G	G
Peracetic acid	0.1%	G	G
Butanol	80%	G	G
Ethanol	80%	G	G

G=Recommended; P=Not recommended

Extractable Metal ions

Ion	ppb	Ion	ppb	Ion	ppb	Ion	ppb
Mg	3.242	Ni	0.389	Mn	0.526	Zn	0.157
Al	1.468	Cu	0.019	Cd	0.001		
Ca	15.514	As	0.004	K	0.646		
Cr	0.069	Pb	0.004	Na	81.223		
Fe	1.526	Co	0.011	Ti	0.046		

Ordering Information

Claricap CSD Lab Activated Carbon Depth Filter Capsule

C D F C

Depth Filter Capsule Type

CDFC Claricap Lab

S

Number of Layers

S Single layer

C S D

Filtration Media

CSD Roheap CSD series activated carbon depth filtration cardboard

Removal Ratings

AC01 0.5-1.0µm
AC02 1.0-2.0µm
AC03 2.0-4.0µm

Type

PC Positively charged

P

Pharmaceutical



Roheap CSD Activated Carbon Depth Filter Cartridge

C S D

Removal Ratings

AC01 0.5-1.0µm
AC02 1.0-2.0µm
AC03 2.0-4.0µm

PC

Type

Positively charged

DOE
TCT

Adaptor

12 12 inch
16 16 inch

Diameter

N 9 cells
T 12 cells
C 13 cells
E 14 cells

Number of Cells

Seal Material

S Silicone
E EPDM
V Viton
T FEP/PFA Encapsulated O-rings
F Fluorinated Polymer

P

Pharmaceutical

F

Food & Beverage

C

Chemical industry

