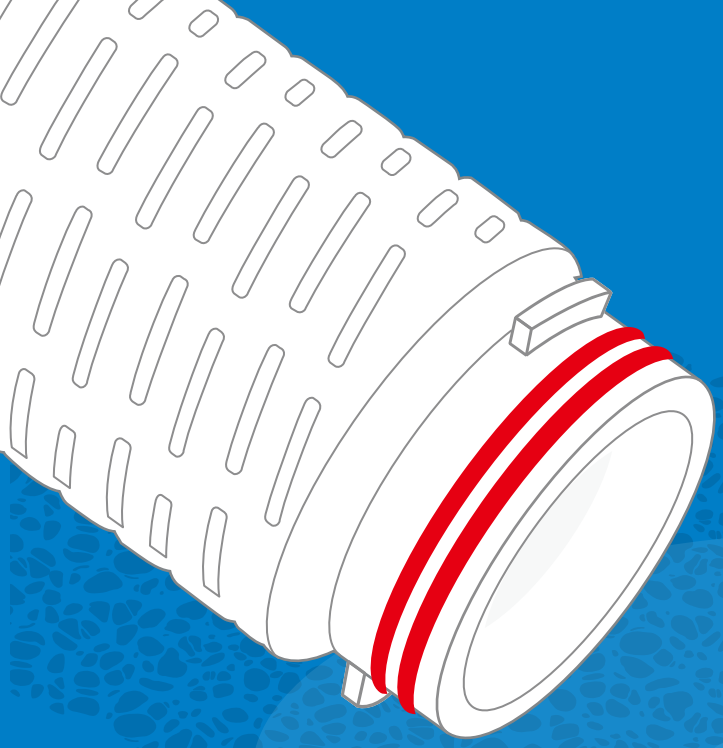
cobetter®
filtration

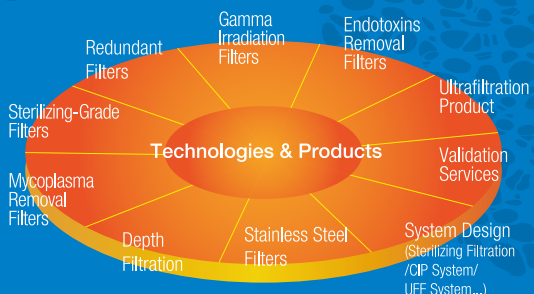
Pharmaceutical Industry
Filtration Solution

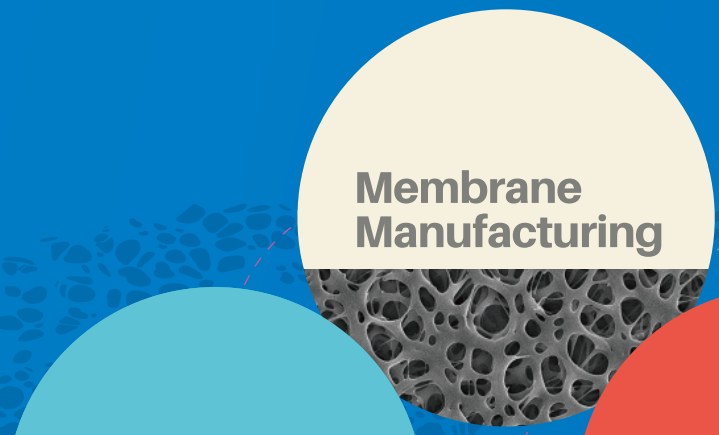


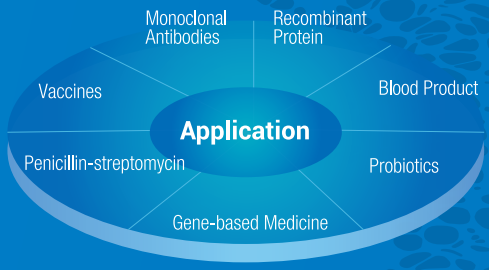
cobetter®
filtration

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 manucaturing
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

C2 Factory
Depth Filter Manufacturing
9000 SQM

C3 Factory
Semiconductor & Biological Filter Manufacturing
13500 SQM

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

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

C6 Life Center
Life Center 33000 SQM

C7 Factory
Bio-materials Research Center
1300 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 21milllion USD investment

ISO 17025

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 oligiomers in non-volatile extractable & leachables qualitatively

3 **SEM/EDS** : Analyze filter membrane defect, appearance, and impurities. SEM analysis of chemical compatibility

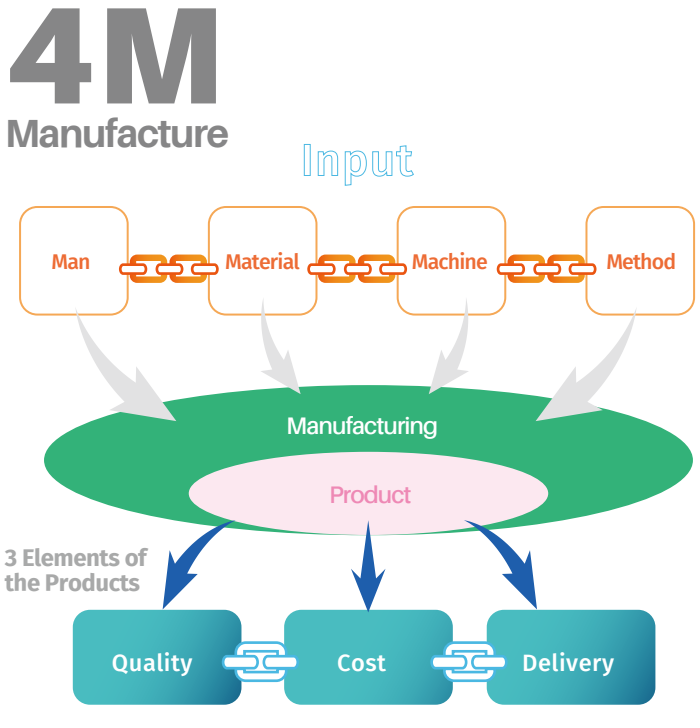
Advanced Quality Control Methods

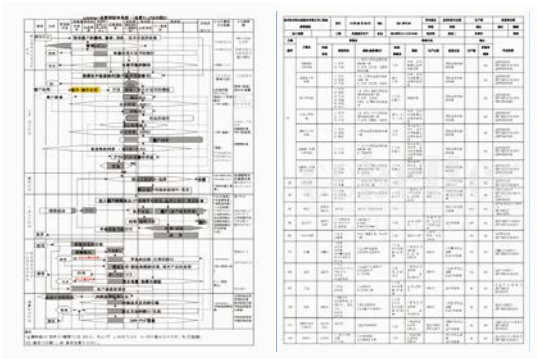
Ensure that Every Product is Safe, Reliable, and Stable

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

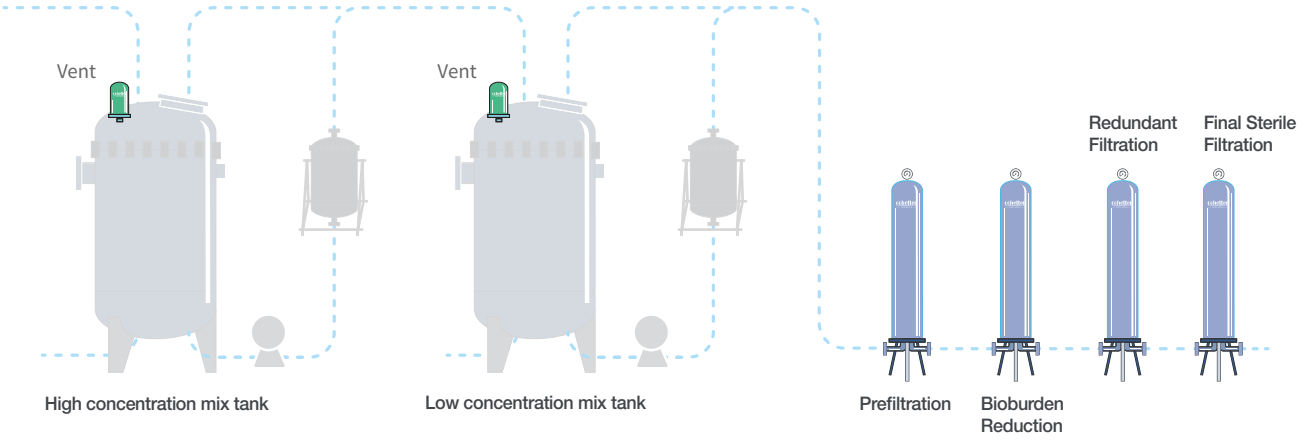
Implement 4M Quality Management Concept
- Process and System Simultaneous Completion

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

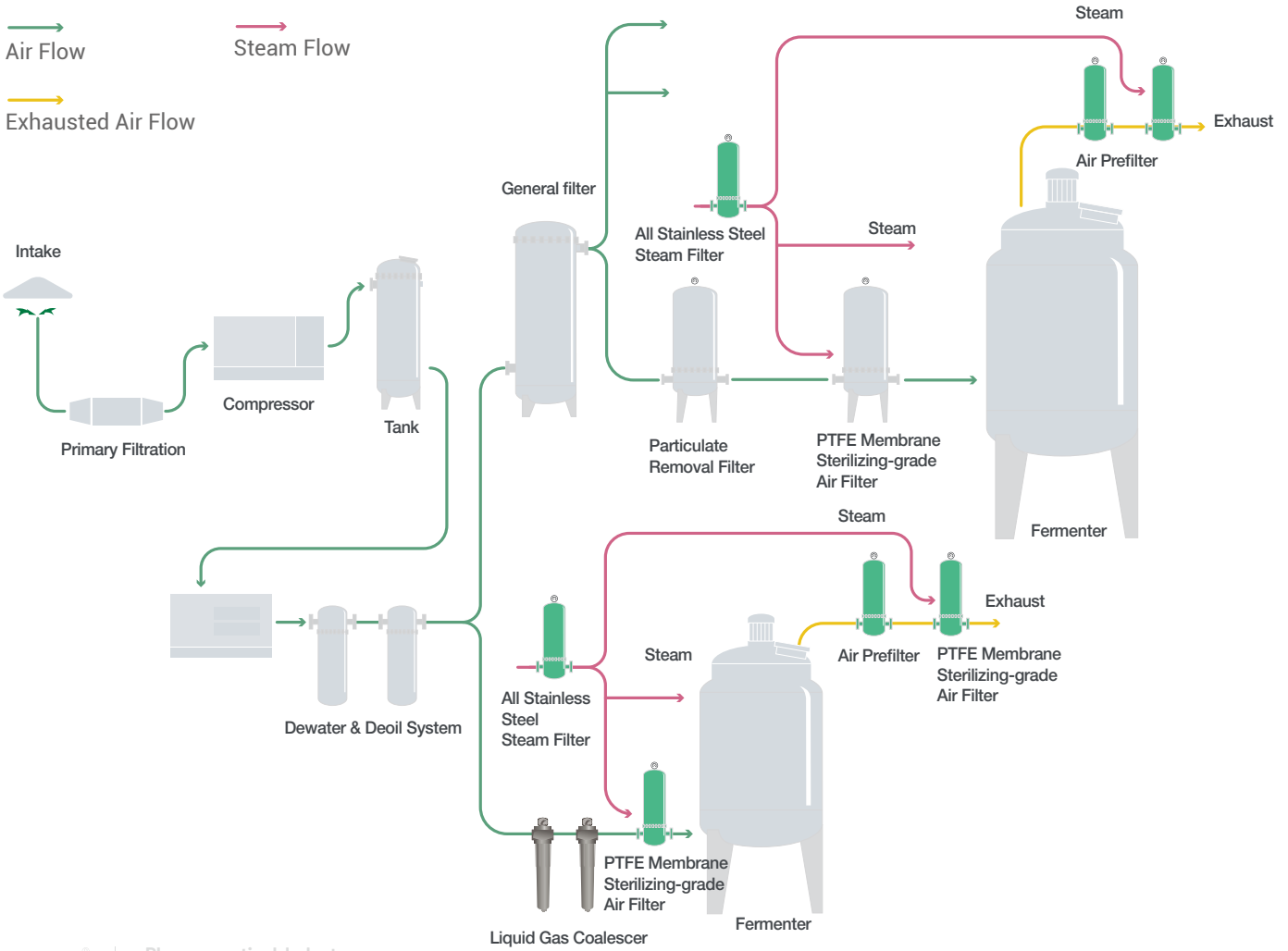




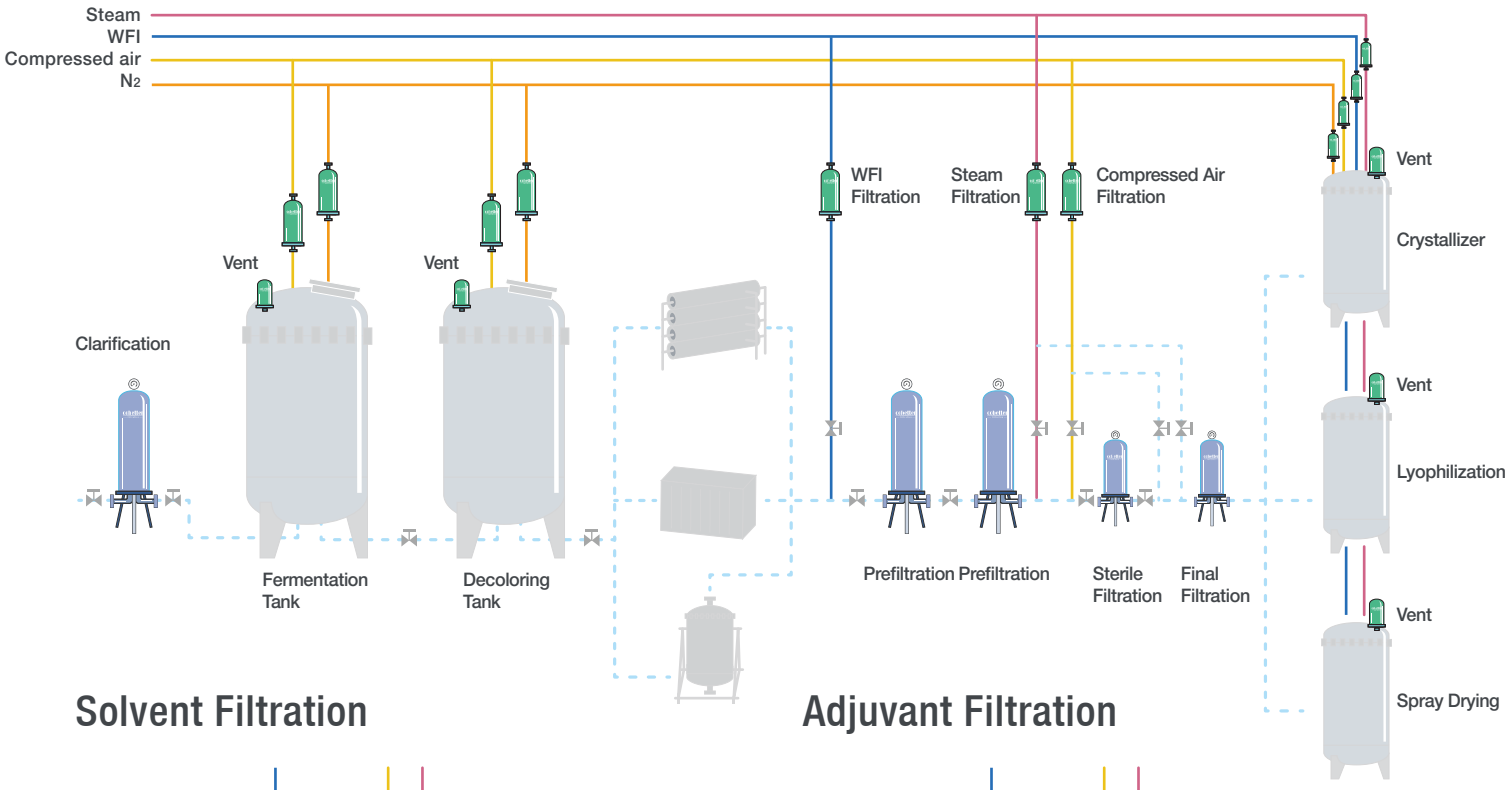
LARGE VOLUME PARENTERALS



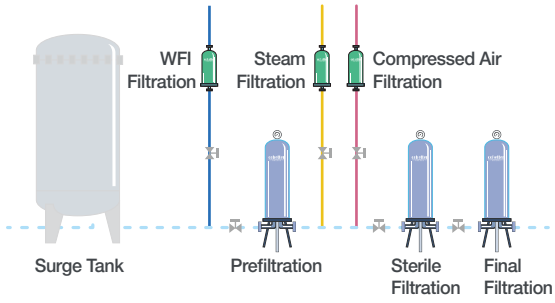
FERMENTATION GAS FILTRATION



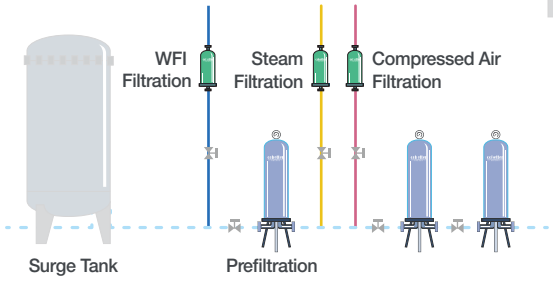
ANTIBIOTIC



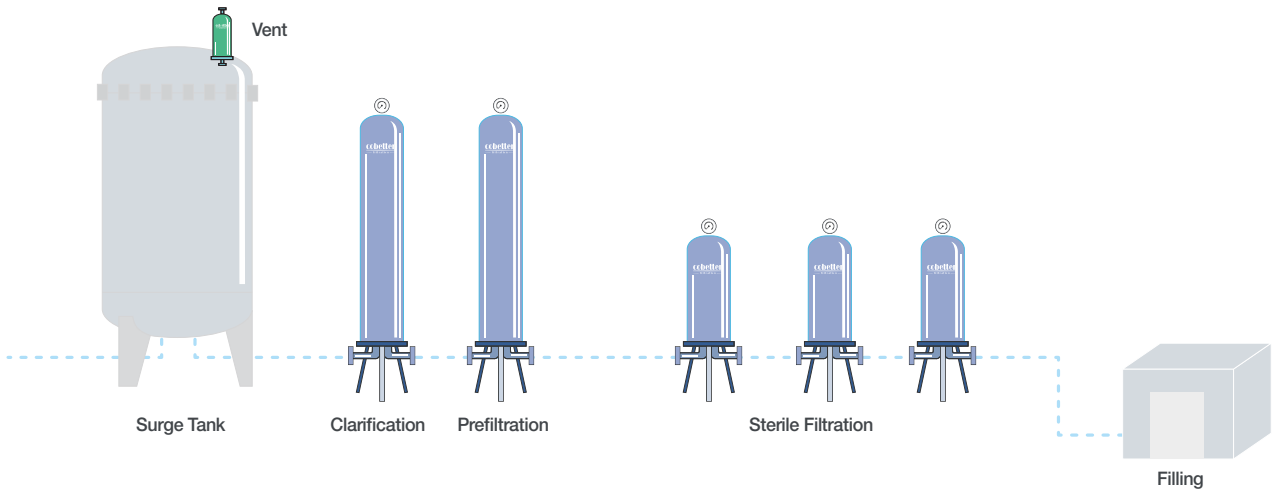
Solvent Filtration



Adjuvant Filtration



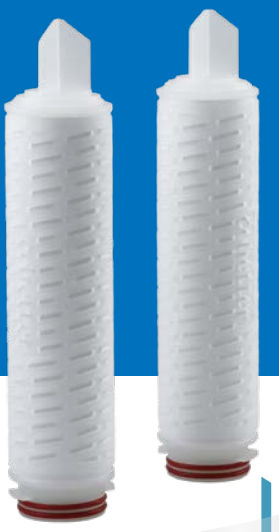
SERUM



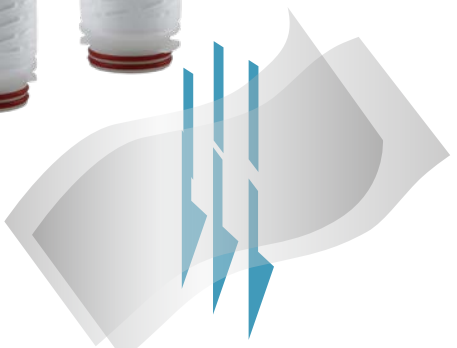
Catalog

[PES Membrane]

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

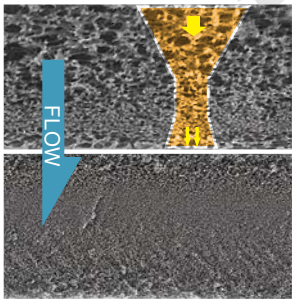


Cobetter DPSHSL is a sterilizing grade filter. The unique double-layer hydrophilic PES membrane has excellent filtration performance and reliable bacterial retention ability. It can withstand repeated steam sterilization and fully meet the filtration requirements of pharmaceutical process.



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.



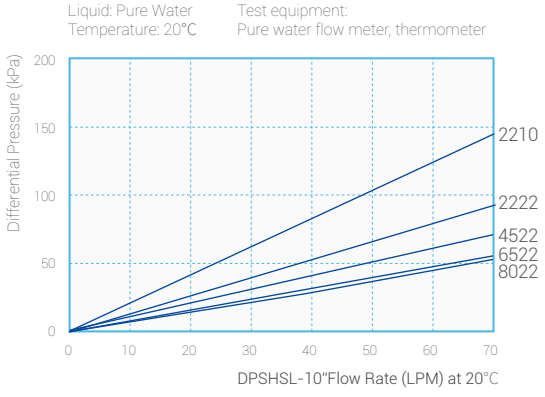
Typical Application

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

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

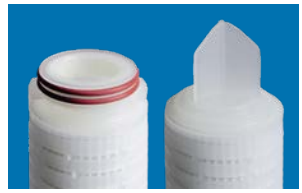
05	5 inch
10	10 inch
20	20 inch
30	30 inch
40	40 inch

S	Silicone
E	EPDM
V	Viton
P	FEP/ PFA encapsulated O-rings

End Cap Reference Pictures

DOE

HTF



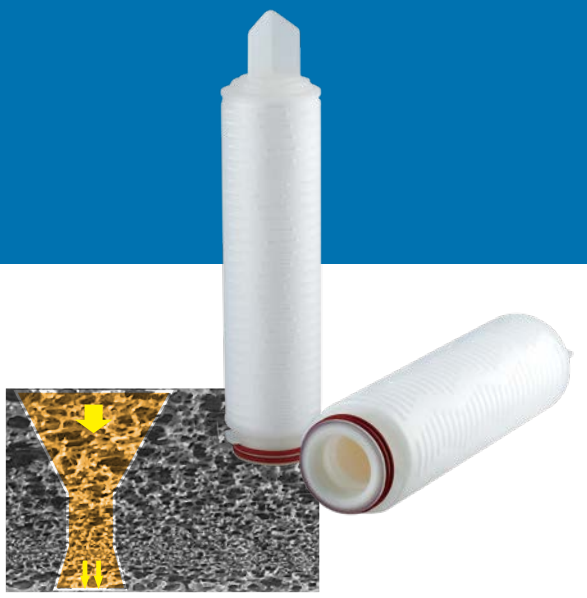
HSF

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

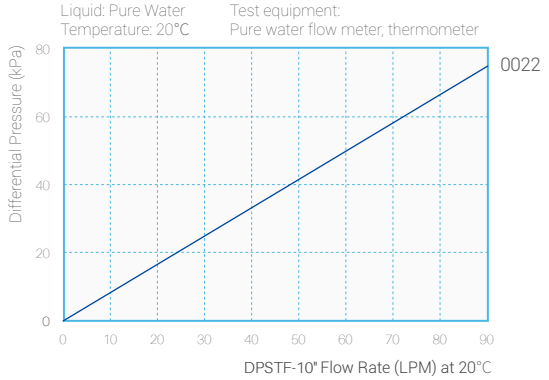
Operating Conditions

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

Flow Rate Characteristics



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 *Brevundimonas diminuta* (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

□□	D P S T F	□□□□	□	□□	□	P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter

Blank	Φ 69

Membrane Pore Size

0022	0.22μm

End Cap

DOE	Double Open End
HTF	222 / Fin
HSF	226 / Fin
HTCG	222 / Flat
HSCG	226 / Flat

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

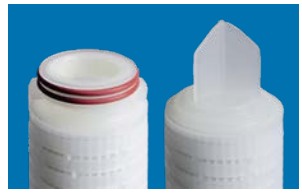
Pharmaceutical

P

End Cap Reference Pictures

DOE

HTF



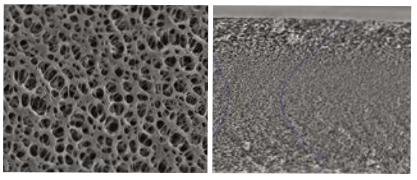
HSF

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

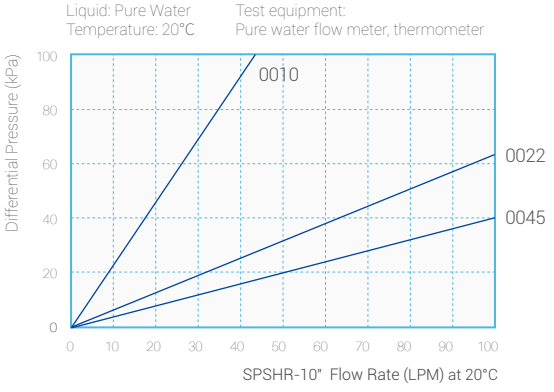
Typical Application

- 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

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

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 *Brevundimonas diminuta* (ATCC 19146) according to ASTM F838 methodology
SPSHR 0.45μm	Bacterial quantitative retention of 10^7 cfu/cm^2 *Serratia marcescens* (ATCC 14756) 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 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

Outer Diameter

- **Blank** Φ 69

Membrane Pore Size

- **0010** 0.1μm
- **0022** 0.22μm
- **0045** 0.45μm

End Cap

- **DOE** Double Open End
- **HTF** 222 / Fin
- **HSF** 226 / Fin
- **HTCG** 222 / Flat
- **HSCG** 226 / Flat

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

Pharmaceutical

End Cap Reference Pictures

DOE

HTF

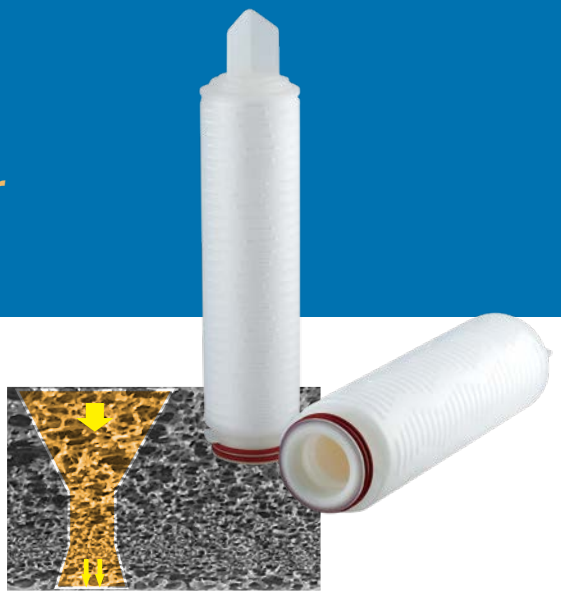
HSF

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

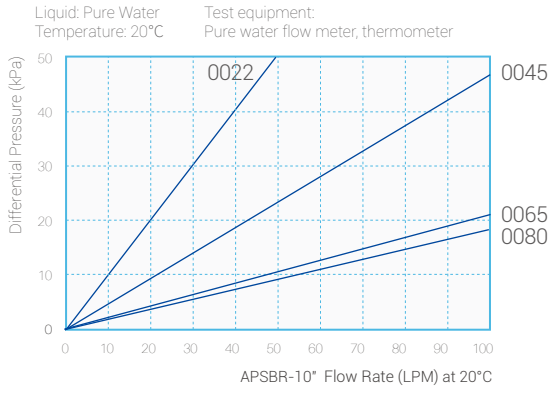
Typical Application

- 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

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

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

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

□□	A P S B R	□□□□	□□□	□□	□	P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical

Blank Φ 69

Membrane Pore Size	
0010	0.1μm
0022	0.22μm
0045	0.45μm
0065	0.65μm
0080	0.8μm
0120	1.2μm

End Cap	
DOE	Double Open End
HTF	222 / Fin
HSF	226 / Fin
HTCG	222 / Flat
HSCG	226 / Flat

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

End Cap Reference Pictures


DOE


HTF

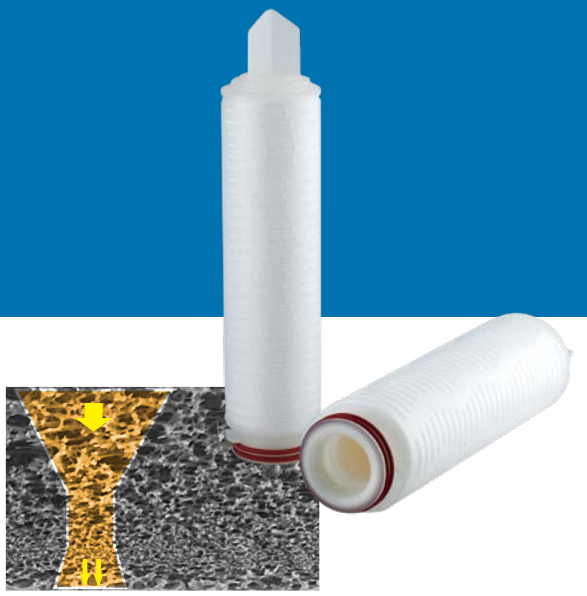

HSF


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

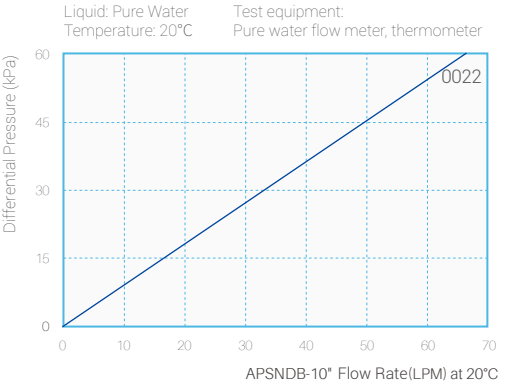
Typical Application

- 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

Flow Rate Characteristics



APSNDB-10" Flow Rate(LPM) at 20°C

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

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

Bacterial Retention

Model	Content
APSNDB 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 30 cycles (135 °C for 30 min and differential pressure < 30 kPa 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

□□	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/cm^2 > 6

Features and Benefits

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

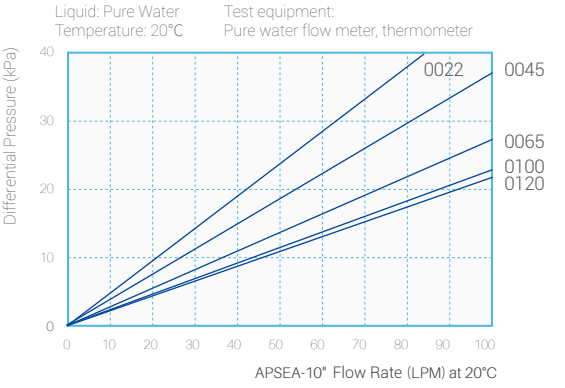
Typical Application

- 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

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

Filtration Area

Outer Diameter	Membrane Pore Size	Area / 10"
69 mm	0.22 μm	0.66 m^2
69 mm	0.45 μm	0.66 m^2
69 mm	0.65 μm	0.66 m^2
69 mm	0.8 μm	0.66 m^2
69 mm	1.0 μm	0.66 m^2
69 mm	1.2 μm	0.66 m^2
69 mm	3.0 μm	0.66 m^2
69 mm	5.0 μm	0.66 m^2
69 mm	8.0 μm	0.66 m^2
69 mm	10.0 μm	0.66 m^2

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/cm^2 >6 for 10^7 cfu/cm^2 Brevundimonas diminuta (ATCC 19146)
APSEA 0.45 µm	LRV/cm^2 >6 for 10^7 cfu/cm^2 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

☐☐ APSEA ☐☐☐☐ ☐ ☐☐ ☐ P

Outer Diameter

Blank Φ 69

Membrane Pore Size

0022	0.22 µm	**0120**	1.2 µm
0045	0.45 µm	**0300**	3.0 µm
0065	0.65 µm	**0500**	5.0 µm
0080	0.8 µm	**0800**	8.0 µm
0100	1.0 µm	**1000**	10.0 µm

End Cap

DOE	Double Open End
HTF	222 / Fin
HSF	226 / Fin
HTCG	222 / Flat
HSCG	226 / Flat

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

Pharmaceutical

End Cap Reference Pictures

DOE

HTF

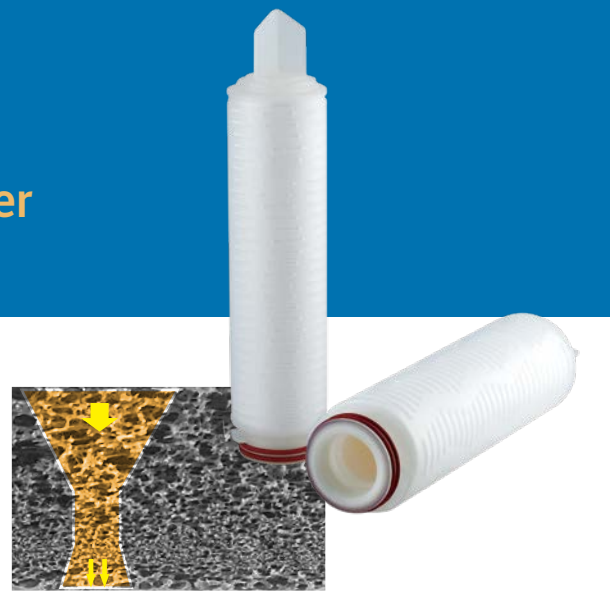
HSF

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

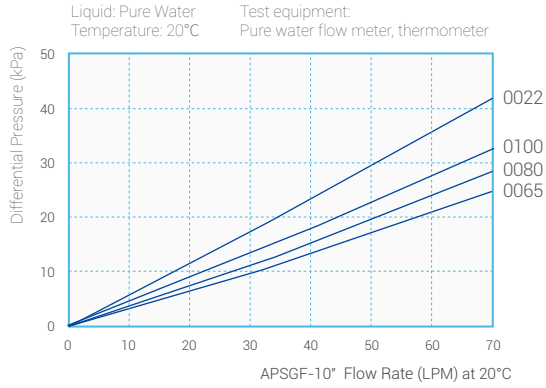
Typical Application

- 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

Flow Rate Characteristics



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

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	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

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

□□	APSGF	□□□□	□	□□	□	P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter	
Blank	Φ 69

Membrane Pore Size	
0022	0.22μm
0065	0.65μm
0080	0.8μm
0100	1.0μm

End Cap	
DOE	Double Open End
HTF	222 / Fin
HSF	226 / Fin
HTCG	222 / Flat
HSCG	226 / Flat

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

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%.

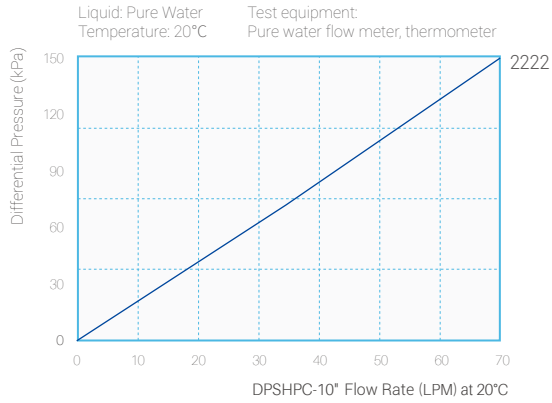
Features and Benefits

- 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

Flow Rate Characteristics



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 *Brevundimonas diminuta* (ATCC 19146) 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)

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

□□	DPSHPC	□□□□	□	□□	□	P
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

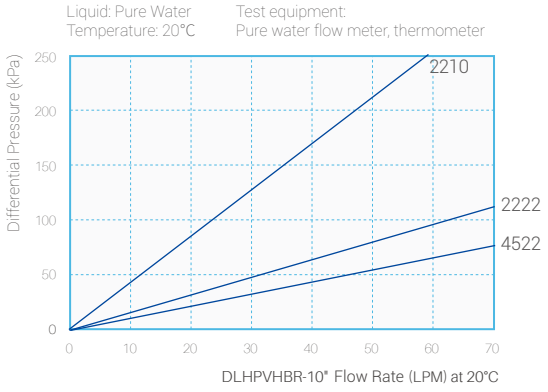
Typical Application

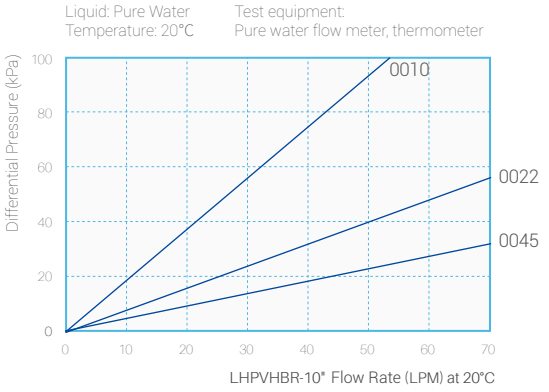
- Blood product filtration
- Antibiotic solution sterile filtration
- Biological reagent filtration
- Vaccine filtration

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 *Brevundimonas diminuta* (ATCC 19146) according to ASTM F838 methodology.
LHPVHBR 0.1μm LHPVHBR 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	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)

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

End Cap Reference Pictures

DOE

HTF

HSF

HSCG

HTCG

[PVDF Membrane]

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

Cobetter DLHPVDF series cartridges are made of double-layer hydrophilic PVDF membranes; PVDF has very low protein adsorption properties, making it especially suitable for culture fluid, biological reagents, sterile vaccine filtration. At the same time, DLHPVDF 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

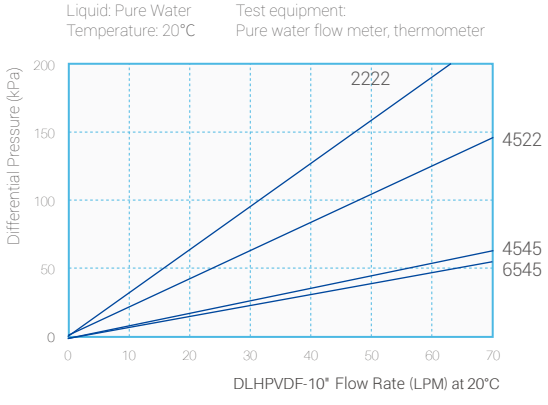
Typical Application

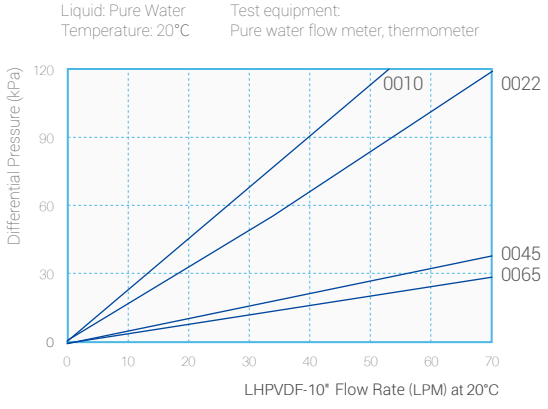
- Blood products filtration
- Culture media filtration
- Antibiotic sterile filtration
- Biological reagents filtration
- Vaccine filtration

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(DLHPVDF)

Outer Diameter	Membrane Pore Size	Area / 10"
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

Filtration Area(LHPVDF)

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 *Brevundimonas diminuta* (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 *Serratia marcescens* (ATCC 14756) according to ASTM F838 methodology.
LHPVDF 0.1μm LHPVDF 0.22μm	Bacterial quantitative retention of 10^7 cfu/cm^2 *Brevundimonas diminuta* (ATCC 19146) according to ASTM F838 methodology.
LHPVDF 0.45 μm	Bacterial quantitative retention of 10^7 cfu/cm^2 *Serratia marcescens* (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

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

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

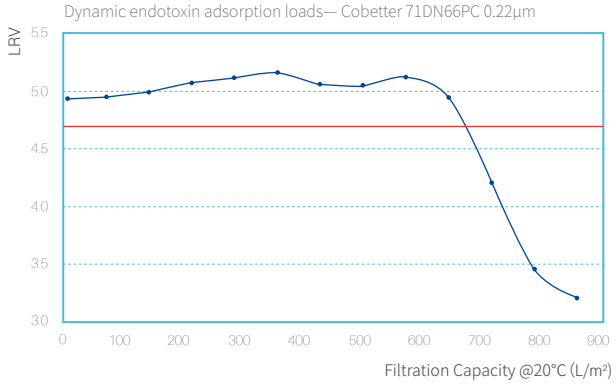
Typical Application

- 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

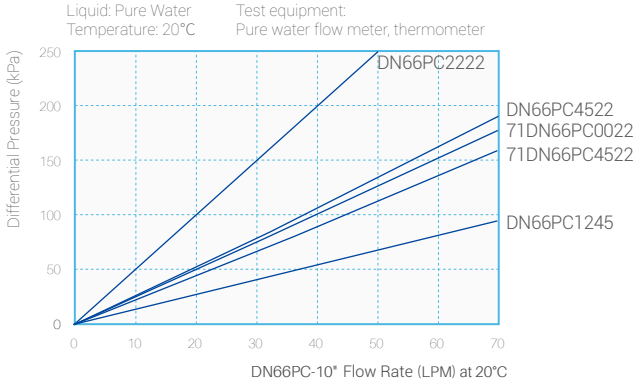
Quality Standards

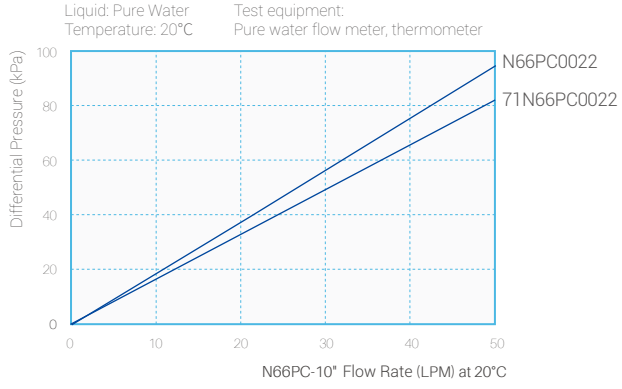
- 100% Integrity testing in manufacturing
- Each filter is fully traceable with unique serial number
- Manufactured in a facility which adheres to ISO 9001:2015 Practices

Evaluation of Endotoxin Absorption Efficiency



Flow Rate Characteristics





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 *Brevundimonas diminuta* (ATCC 19146) according to ASTM F838 methodology.
69DN66PC 1.2+0.45 μm	Bacterial quantitative retention of 10^7 cfu/cm^2 *Serratia marcescens* (ATCC 14756) according to ASTM F838 methodology.
N66PC 0.22 μm	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 10 cycles (121 °C for 30 minutes and differential pressure <30KPa per cycle))

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)

Integrity Test Standards @10inch, 20°C(N66PC)

Membrane Pore Size	Bubble Point	Air Diffusion
0.22 μm	≥ 0.30 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

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

N 6 6 P C

0022	0.22 μm
0045	0.45 μm
0120	1.2 μm

End Cap Reference Pictures

DOE

HTF

HSF

HSCG

HTCG

[Nylon 66 Membrane]

Sterilizing-grade Filter
DN66TC/NY6TC Series Filter Cartridge

The membrane of the DN66TC / NY6TC cartridge is made of hydrophilic nylon 66, which is mainly used for bio-burden reduction and sterile filtration of the final material. The nylon cartridge can filter ammonia, methyl ethyl ketone, cyclohexanone and other solvents with good chemical stability.

Features and Benefits

- Not charged
- Naturally hydrophilic
- Low adsorption

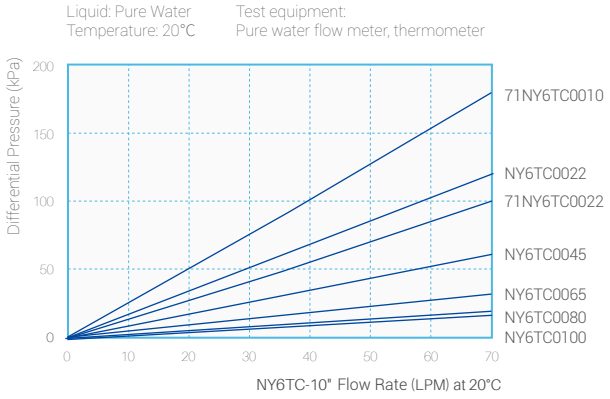
Typical Application

- Pharmaceutical sterile filtration
- Solvent filtration
- Alkaline filtration

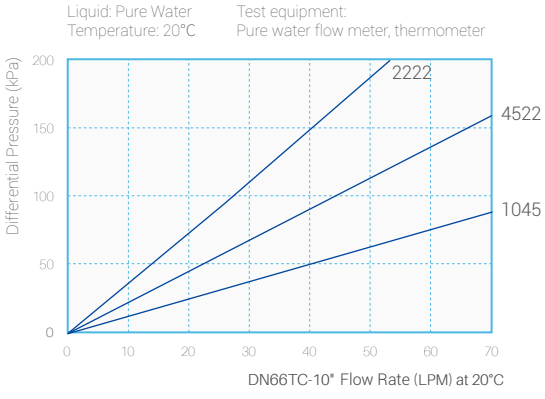
Quality Standards

- 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



NY6TC-10" Flow Rate (LPM) at 20°C



DN66TC-10" Flow Rate (LPM) at 20°C

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 *Brevundimonas diminuta* (ATCC 19146) according to ASTM F838 methodology.
71NY6TC 0.22 μm	Bacterial quantitative retention of 10^7 cfu/cm^2 *Brevundimonas diminuta* (ATCC 19146) according to ASTM F838 methodology.
71NY6TC 0.45 μm	Bacterial quantitative retention of 10^7 cfu/cm^2 *Serratia marcescens* (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))

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

□□	DN66TC	□□□□		□□	□	P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter

Blank	Φ 69
71	Φ 71

Membrane Pore Size

2222	0.22 + 0.22μm
4522	0.45 + 0.22μm
1045	1.0+ 0.45μm

End Cap

DOE	Double Open End
HTF	222 / Fin
HSF	226 / Fin
HTCG	222 / Flat
HSCG	226 / Flat

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

Pharmaceutical

P

NY6TC

0010	0.1 μm
0022	0.22 μm
0045	0.45 μm
0065	0.65 μm
0080	0.8 μm
0100	1.0 μm
0300	3.0 μm
0500	5.0 μm

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

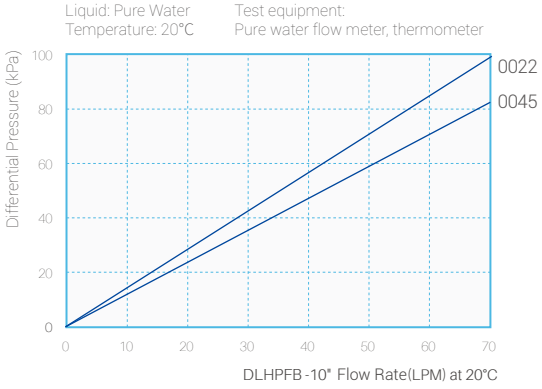
Typical Application

- 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

Flow Rate Characteristics



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

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

Bacteria Retention

Model	Content
DLHPFB 0.22 μm	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 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

□□	D L H P F B	□□□□	□	□□	□	P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter

Blank	Φ 69

Membrane Pore Size

0022	0.22μm
0045	0.45μm

End Cap

DOE	Double Open End
HTF	222 / Fin
HSF	226 / Fin
HTCG	222 / Flat
HSCG	226 / Flat

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

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

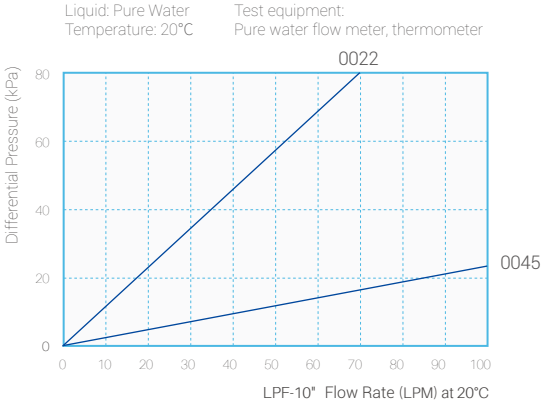
Typical Application

- 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 *Brevundimonas diminuta* (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

□□	LPF	□□□□	□	□□	□	P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter

Blank	Φ 68

Membrane Pore Size

0022	0.22μm
0045	0.45μm

End Cap

DOE	Double Open End
HTF	222 / Fin
SSF	226 / (Stainless Steel Insert)Fin
HSF	226 / (PBT Insert)Fin
SSCM	226 / (Stainless Steel Insert)Flat
HSCG	226 / (PBT Insert)Flat

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

Pharmaceutical

End Cap Reference Pictures

DOE

HTF

HSF

HSCG

HTCG

[PTFE Membrane]

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

Cobetter DGPFMP 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 fltration 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 fltration 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

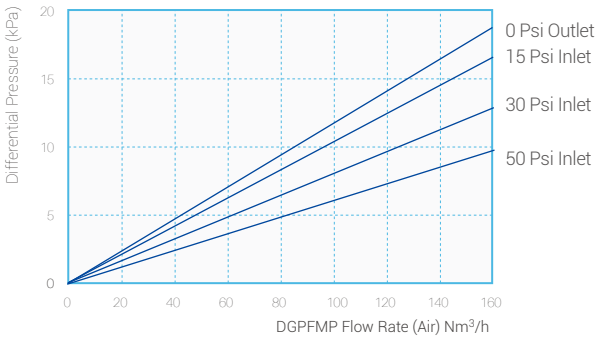
Typical Application

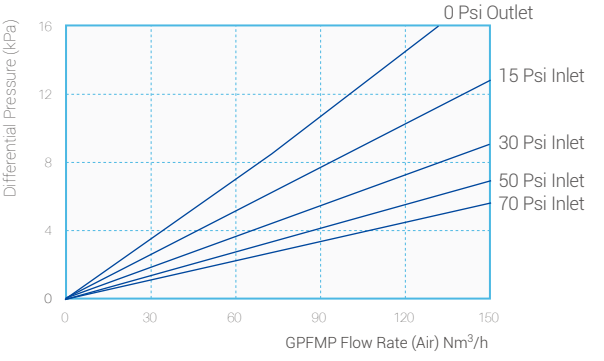
- Vent filtration for fermenter, storage tank, mix tank, etc
- Aseptic packaging air sterile filtration
- Compressed air and nitrogen gas sterile filtration
- Corrosive gases sterilization

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 *Brevundimonas diminuta* (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 *Brevundimonas diminuta* (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

□□	DGPFMP	□□□□	□	□□	□	P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter

- **Blank** Φ 68

Membrane Pore Size

- **S003** 0.003μm
- **0022** 0.22μm

End Cap

- **DOE** Double Open End
- **HTF** 222 / Fin
- **SSF** 226 / (Stainless Steel Insert)Fin
- **HSF** 226 / (PBT Insert)Fin
- **SSCM** 226 / (Stainless Steel Insert)Flat
- **HSCG** 226 / (PBT Insert)Flat

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

Pharmaceutical

GPFMP

Membrane Pore Size

- **0001** 0.01μm
- **0022** 0.22μm

End Cap

- **DOE** Double Open End
- **HTF** 222 / Fin
- **SSF** 226 / (Stainless Steel Insert)Fin
- **HSF** 226 / (PBT Insert)Fin
- **SSCM** 226 / (Stainless Steel Insert)Flat
- **HSCG** 226 / (PBT Insert)Flat
- **XHSCG** Strengthen226 / (PBT Insert)Flat

End Cap Reference Pictures

DOE

HTF

HSF

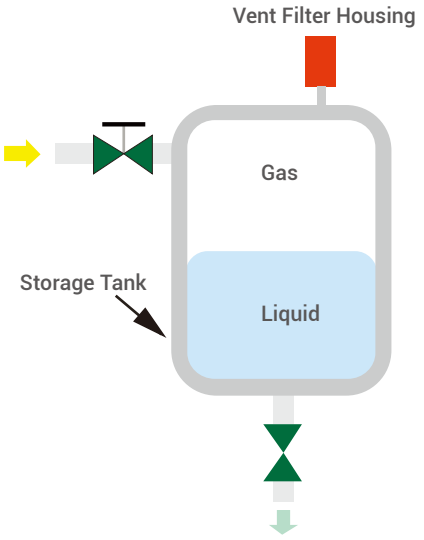
HSCG

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) accordingto ÄP (Design negative pressure value of storage tank) and V

GPFMP	5"	10"	20"	30"
△P=1KPa	6 m^3/h	12 m^3/h	24 m^3/h	36 m^3/h
△P=2KPa	12 m^3/h	23 m^3/h	40 m^3/h	61 m^3/h

For example: the maximum ventilation volume V is 21.6m^3/h, and the storage tank is designed to withstand a negative pressure value △P of 1KPa, then 20 inches GPFMP is suitable

A. H-VCF II

B. H-VCF III

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.

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.

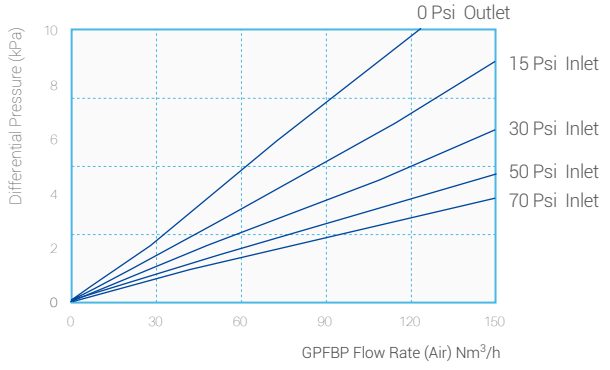
Typical Application

- 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 *Brevundimonas diminuta* (ATCC 19146) according to ASTM F838 methodology.
GPFBP 0.01 μm	Retention efficiency of >1x10^8 pfu *Bacteriophage Phi-X174* (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

□□	GPFBP	□□□□	□□□□□□	□□	□	P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter

Blank	Φ 68

Membrane Pore Size

0001	0.01μm
0022	0.22μm

End Cap

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)

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

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 sterilze 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

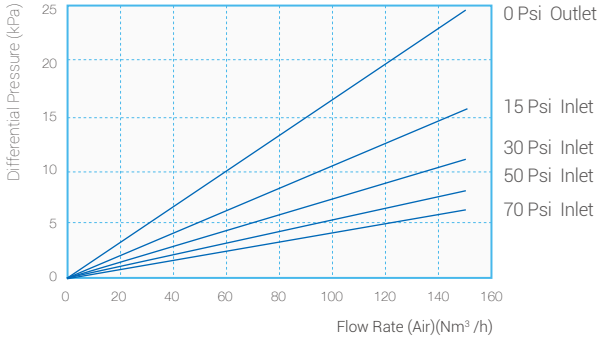
Typical Application

- 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 *Brevundimonas diminuta* (ATCC 19146) according to ASTM F838 methodology.
HSGPFP 0.01 μm	Retention efficiency of >1x10^8 pfu *Bacteriophage Phi-X174* (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

□□	HSGPFP	□□□□	□	□□	□	P
Outer Diameter		Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter

Blank	Φ 68
71	Φ 71

Membrane Pore Size

0001	0.01μm
0022	0.22μm

End Cap

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)

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

Pharmaceutical

P

End Cap Reference Pictures

DOE

HTF

SSF

HSF

SSCM

HSCG

[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

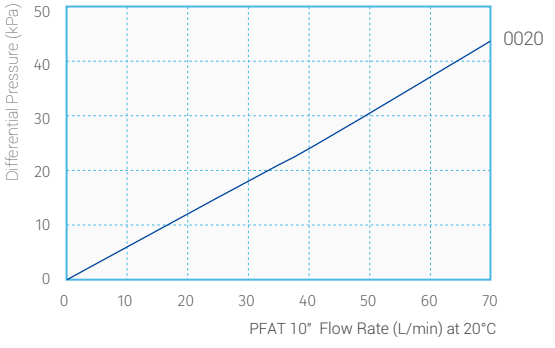
Typical Application

- 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	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 *Brevundimonas diminuta* (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 (NaC10)	-	+	+	+	+	+	+	+	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

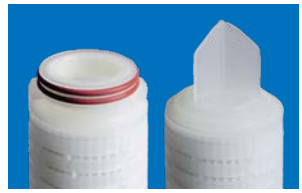
□□ **P F A T** □□□□ □ □□ □ **P**

Outer Diameter	Membrane Pore Size	End Cap	Nominal Length	Seal Material	Pharmaceutical
Blank Φ 68	**0020** 0.20μm	**SF** 226 / Fin not support In-line steam sterilization	**03** 3 inch	**S** Silicone	
		SC 226 / Flat not support In-line steam sterilization	**04** 4 inch	**E** EPDM	
		TC 222 / Flat not support In-line steam sterilization	**10** 10 inch	**K** PTFE	
		FSSC 226 / SS Insert Flat support In-line steam sterilization	**20** 20 inch	**P** FEP/ PFA encapsulated O-rings	
		FSSF 226 / SS Insert Fin support In-line steam sterilization			
		FSTC 222 / SS Insert Flat support In-line steam sterilization			

End Cap Reference Pictures

DOE

HTF



SSF

HSF

SSCM

HSCG

[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	+	+	+	+	+	+
	Hydrofluoric acid	40	+	+	+	+	+	+
Bases	Ammonium hydroxide	-	+	+	+	+	+	+
	Sodium hydroxide	pH<12	+	+	+	+	+	+
		pH12 or more	+	+	+	+	+	+
	Amine	-	+	+	+	+	+	+
Salt	General	-	+	+	+	+	+	+
	Chloryl salt (NaC10)	-	+	+	+	+	+	+
Solvent	Aromatics compound		+	+	+	+	+	+
	Aliphatic compound		+	+	+	+	+	+
	Ketone, Lipid		+	+	+	+	+	+
	Alcohols(Ethyl alcohol)		+	+	+	+	+	+
	Chlorinated		+	+	+	+	+	+
	Dimethylformamide(DMF/DMAC)		+	+	+	+	+	+
Halogen Gas / Gas	Fluorine		+	+	+	0	0	0
	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

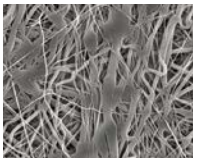
Ordering Information

Outer Diameter		Wettability		Removal Rating		End Cap		Nominal Length		Seal Material		Pharmaceutical
Blank	Φ68	_	Hydrophobic	**0010**	0.1μm	**DTF**	D222/Fin	**10**	10 inch	**P**	FEP/ PFA encapsulated O-rings	P
		I	Hydrophilic	**0022**	0.22μm	**DTC**	D222/Flat	**20**	20 inch			
				0045	0.45μm	**SF**	226/Fin	**30**	30 inch			
				0500	5.0μm	**SC**	226/Flat	**40**	40 inch			

AET APTF

[PP Membrane]

Absolute-rated Polypropylene Pre-filter APP Series Filter Cartridge



Nanofiber

Uncalended Meltblown

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.

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

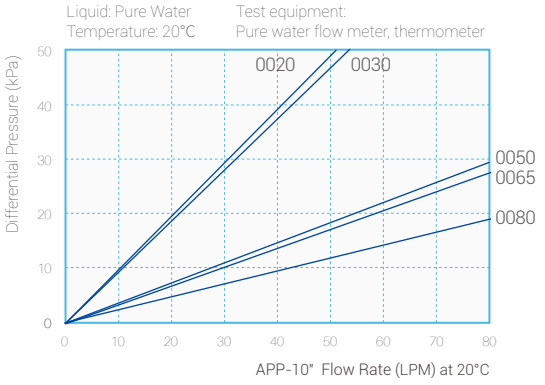
Typical Application

- 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



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

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

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)

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

□□	APP	□□□	□□□□	□□	□	P
Outer Diameter		Removal Rating	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter

71	Φ 71

Removal Rating

0020	0.2μm	**0100**	1.0μm
0030	0.3μm	**0300**	3.0μm
0050	0.5μm	**0500**	5.0μm
0065	0.65μm	**0600**	6.0μm
0080	0.8μm	**1000**	10.0μm
		2000	20.0μm

End Cap

DOE	Double Open End
HTF	222/Fin
HSF	226/Fin
HSCG	226/Flat
HTCG	222/Flat

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

Pharmaceutical

P

End Cap Reference Pictures

DOE

HTF

HSF

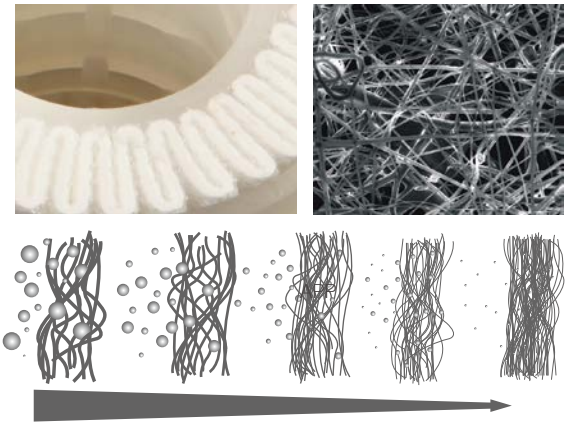
HSCG

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

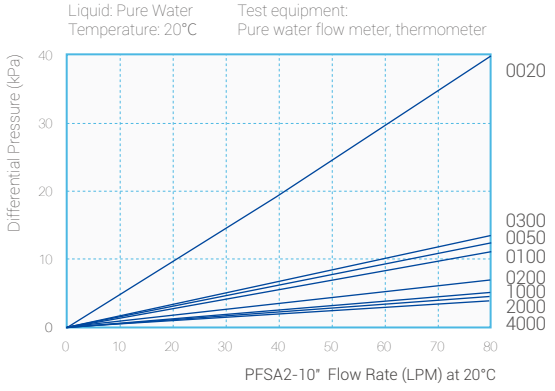
Typical Application

- 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

Filtration Area

Outer Diameter	Removal Rating	Area / 10"
71 mm	0.2 μm	0.21 m^2
71 mm	0.5 μm	0.29 m^2
71 mm	1.0 μm	0.26 m^2
71 mm	2.0 μm	0.26 m^2
71 mm	3.0 μm	0.20 m^2
71 mm	5.0 μm	0.26 m^2
71 mm	10 μm	0.26 m^2
71 mm	20 μm	0.29 m^2
71 mm	40 μm	0.29 m^2
71 mm	70 μm	0.29 m^2

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).

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

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

□□	PFSA2	□□□	□	□□	□	P
Outer Diameter		Removal Rating	End Cap	Nominal Length	Seal Material	Pharmaceutical

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

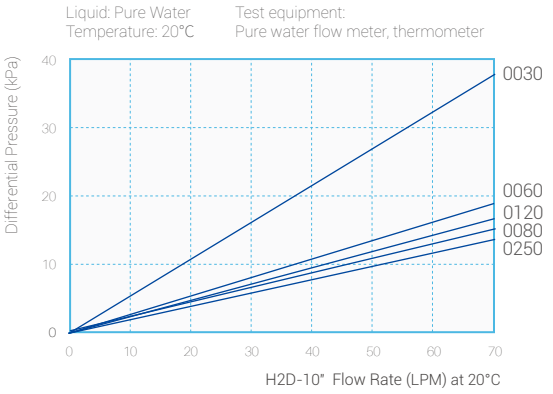
Typical Application

- 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

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).

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

□□	H 2 D	□□□	□	□□	□	P
Outer Diameter		Removal Rating	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter

Blank	Φ 68

Removal Rating

0030	0.3 μm	**0600**	6.0 μm
0060	0.6 μm	**1000**	10 μm
0080	0.8 μm	**1500**	15 μm
0120	1.2 μm	**2000**	20 μm
0250	2.5 μm	**3000**	30 μm
0450	4.5 μm	**4000**	40 μm
		100H	100 μm

End Cap

DOE	Double Open End
HTF	222/Fin
HSF	226/Fin
HSCG	226/Flat
HTCG	222/Flat

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

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

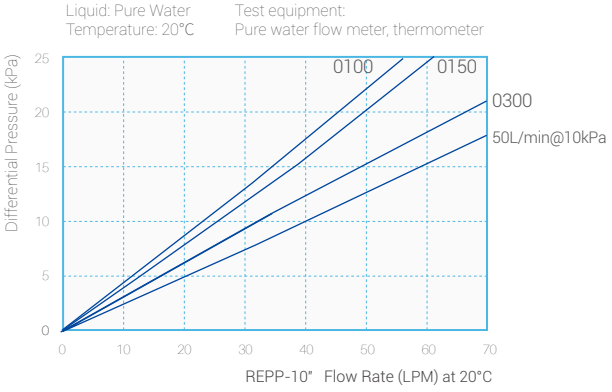
Typical Application

- 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

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 cyde).

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

	R E P P				
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 **HSF** 226/Fin **HSCG** 226/Flat **HTCG** 222/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

[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

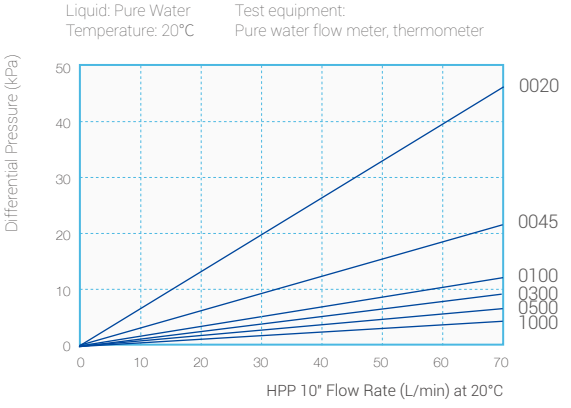
Typical Application

- 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

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

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

Sterilization

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

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

□□	HPP	□□	□	□□	□	P
Outer Diameter		Removal Rating	End Cap	Nominal Length	Seal Material	Pharmaceutical

Outer Diameter

Blank	Φ 68
71	Φ 71

Removal Rating

0020	0.2μm	**0500**	5.0μm
0045	0.45μm	**1000**	10μm
0100	1.0μm	**2000**	20μm
0300	3.0μm		

End Cap

DOE	Double Open End
HTF	222/Fin
HSF	226/Fin
HSCG	226/Flat
HTCG	222/Flat

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

Pharmaceutical

End Cap Reference Pictures

DOE

HTF

HSF

HSCG

HTCG

[Glass Fiber Membrane]

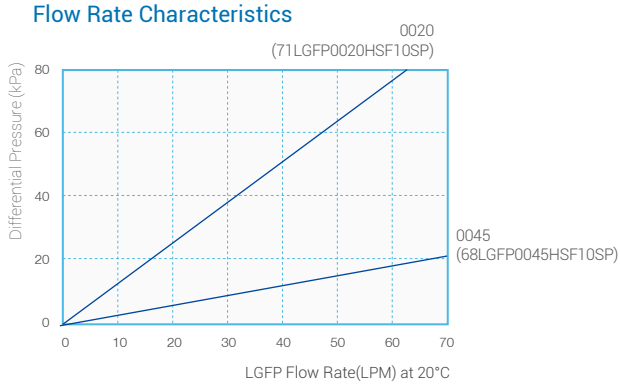
High-efficiency Liquid Pre-filter LGFP Series Filter Cartridge

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

Flow Rate Characteristics



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

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)

Filtration Area

Outer Diameter	Removal Rating	Area / 10"
71 mm	LGFP 0.2 μm	0.29 m^2
68mm	LGFP 0.45 μm	0.28 m^2

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	Pharmaceutical
Blank Φ 68		**0022** 0.22μm	**DOE** Double Open End	**05** 5 inch	**S** Silicone	
71 Φ 71		**0045** 0.45μm	**HTF** 222/Fin	**10** 10 inch	**E** EPDM	
		0100 1.0μm	**HSF** 226/Fin	**20** 20 inch	**V** Viton	
			HSCG 226/Flat	**30** 30 inch	**P** FEP/ PFA encapsulated O-rings	
			HTCG 222/Flat	**40** 40 inch		

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.

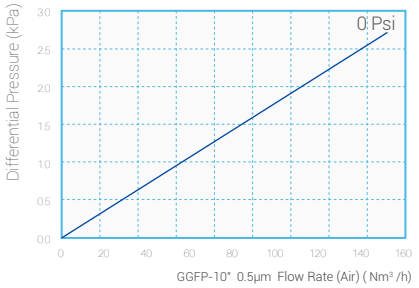
Features and Benefits

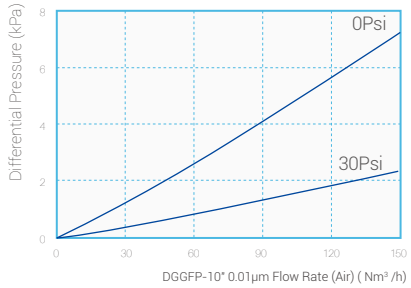
- High porosity (High voids volume filter media)
- High Flow rates
- Low Pressure Drops
- Good adsorption and high filtration efficiency
- High aerosol interception efficiency of defective bacteria, effectively reducing bacteria

Typical Application

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

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

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)

Bacterial Retention

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

Filtration Area

Outer Diameter	Removal Rating	Area / 10"
71 mm	GGFP 0.5 μm	0.34 m^2

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

□□ **G G F P** □□□ □ □□ □ **P**

Outer Diameter

Blank	Φ 68
71	Φ 71

Removal Rating

0050	0.5μm

End Cap

DOE	Double Open End
HTF	222/Fin
HSF	226/Fin
HSCG	226/Flat
HTCG	222/Flat

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

Pharmaceutical

□□ **D G G F** □□ □□□

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 2.0m^2
- 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 m^2
	PES	2.0 m^2
	PTFE	2.5 m^2

Removal Rating

PP	0.2, 0.6, 1.0, 2.0, 5.0, 10, 20, 40μm
PES	0.1, 0.22, 0.45, 0.65, 1.2μm
PTFE	0.1, 0.22, 0.45, 1.0, 3.0, 5.0, 10μm

Operating Conditions

Max. Operating Temperature	80°C
Max.Operating Pressure	0.69 MPa @ 25 °C
	0.24 MPa @ 80 °C

Ordering Information

1	3	0									

Filter Media

PP	PP
APSL	APSL
PF	PTFE
LHPF	LHPF

Removal Ratings

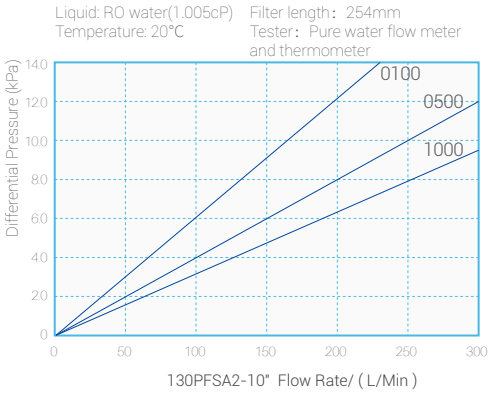
0010	0.1μm	**0500**	5.0μm
0022	0.22μm	**1000**	10μm
0045	0.45μm	**2000**	20μm
0065	0.65μm	**3000**	30μm
0100	1.0μm	**4000**	40μm
0300	3.0μm		

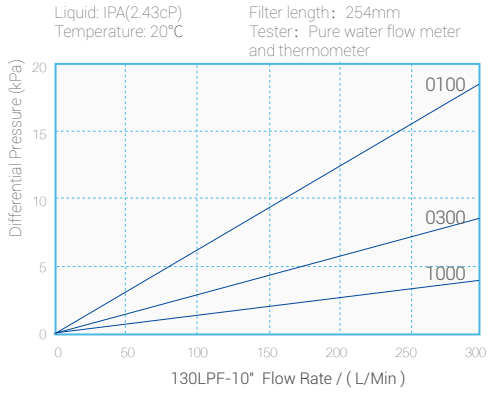
End Cap

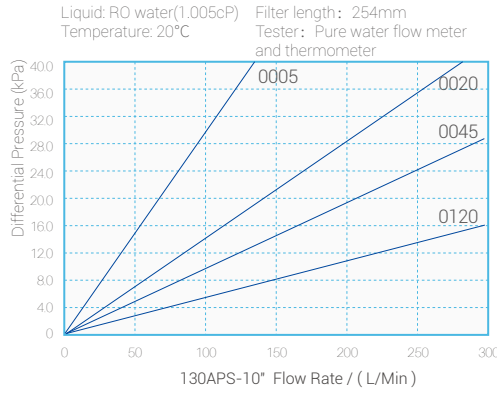
U	EPDM(U-CUP)
UN	NBR(U-CUP)
O	EPDM(O-ring)
V	Viton(O-ring)
P	PFA/ Viton(O-ring)

P Pharmaceutical

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 Connectior	Flange or TC

Operating Conditions

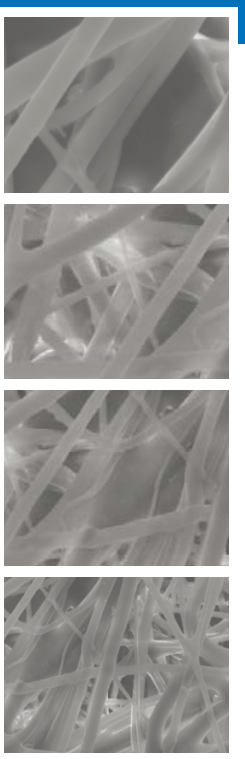
Max. Operating Pressure	0.6MPa or 1.0MPa

H	-	1	3	0	☐	☐☐	☐	☐	☐☐☐	P
					Material	Length	Inlet/Outlet	Pressure	Seal Material	Pharmaceutical

Material	Length	Inlet/Outlet	Pressure	Seal Material
A SS304	**10** 10 inch	**T** TC	**P** 0.6Mpa	**U** EPDM(U-CUP)
B SS316L		**F** Flange	**G** 1.0Mpa	**UN** NBR(U-CUP)
		N Thread	**F** 1.6Mpa	**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 Cartrdge



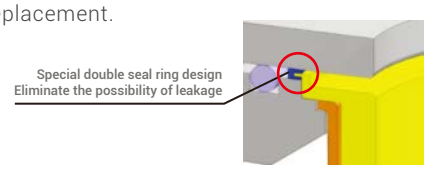
Cobetter BG160 filter's EFA is more than 2.96m^2, which is over 8 times of ordinary filter bags. It has advantages such as high flow rate, long service time and convenient usage. It can be replaced and installed on the original standard filter bag housing reducing the frequency of system replacement 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



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	□	□	□	□	□	□	□	□	□	P

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)

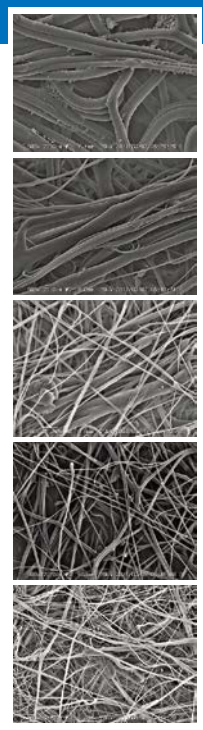
Seal Material

- **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

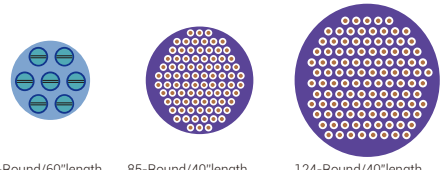
60m³/ h

1-Round/60" length OD 6" cartridge 8" HF150NB housing

18-Round/40" length OD 2.5" length OD 14" housing

24-Round/40"length OD 2.5" cartridge OD 16" housing

400m³/ h



7-Round/60"length OD 6" cartridge 26" HF150NB housing

85-Round/40"length OD 2.5" cartridge OD 30" housing

124-Round/40"length OD 2.5" cartridge OD 36" housing

Ordering Information

H	F	1	5	0	N	B	□□	□□□□	□□	□	P

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

RMF-CRN
RMF-PR

Removal Rating		End cap		Nominal Length		Seal Material		Pharmaceutical
0050	0.5μm	N	Double Open End, No Gasket	05	5 inch	S	Silicone	P
0100	1.0μm	H	Double Open End, HPE Gaskets	10	10 inch	E	EPDM	
0200	2.0μm	HTCG	222/Flat(PBT Insert)	20	20 inch	V	Viton	
0300	3.0μm	HTF	222/Fin(PBT Insert)	30	30 inch	P	FEP/PFA encapsulated O-rings	
0500	5.0μm	HSF	226/Fin(PBT Insert)	40	40 inch	N	None	
		DOE	Double Open End					

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, Stainess 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

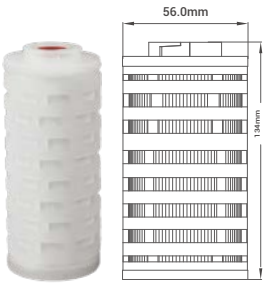
Features

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

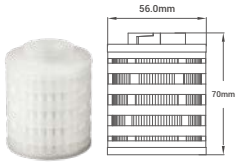
Benefits

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

56

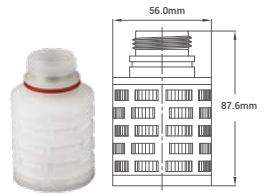


56 - 70

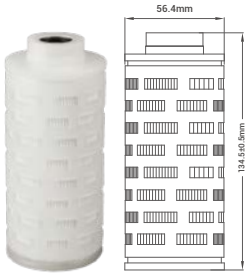


56-84

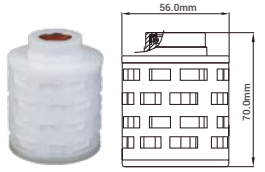
56-70-OBC



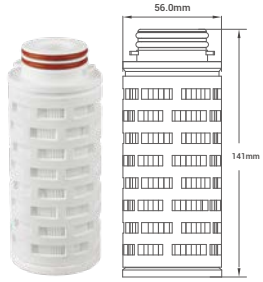
DH 56



DH 56 -70

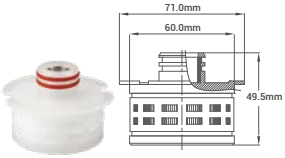


126

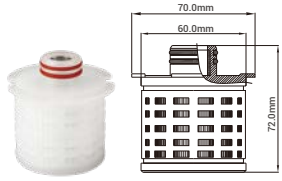


126-70

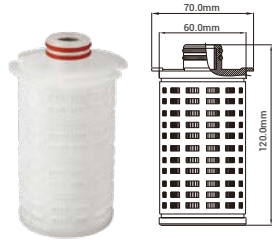
SLVP/SLVF



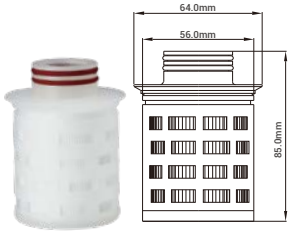
SLVP-72/SLVF-72



SLVP-120/SLVF-120



PCF



PCF - 134

PCF II - 69

PCF II - 127

OCF

OCF-1

OCFM

Ordering Information

Code	Membrane	Removal Rating
56	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
56-70	DPSTF	0022-0.22 μm
56-84	SPSHR	0010-0.10 μm 0022-0.22 μm 0045-0.45 μm
56-70-OBC	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
DH56	APSNDB	0022-0.22 μm
DH56-70	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
126	APSGF	0022-0.22 μm 0065-0.65 μm 0080-0.80 μm 0100-1.0 μm
126-70	DPSHSC	2222-0.22+0.22 μm
SLV	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
SLV-72	LHPVHBR	0022 - 0.22μm 0045 - 0.45μm
SLV-120	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
SLVP	LHPVDF	0010 - 0.10μm 0022 - 0.22μm 0045 - 0.45μm 0065 - 0.65μm
SLVP-72		
SLVP-120		
SLVF		
SLVF-72		
SLVF-120		
PCF		
PCF-134		
PCFII-69(noo-ring)		
PCFII-127(noo-ring)		
OCF		
OCF-1		
OCFM		

Seal Material

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

Pharmaceutical: P

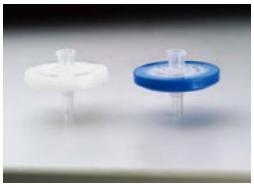
Code	Membrane	Removal Rating
56	DN66PC	0022-0.22 μm 2222 - 0.22+0.22 μm 4522 - 0.45+0.22 μm 1245 - 1.2+0.45 μm
56-70	N66PC	0022 - 0.22μm 0045 - 0.45μm 0120 - 1.2μm
56-84	DN66TC	2222 - 0.22+0.22 μm 4522 - 0.45+0.22 μm 1045 - 1.0+0.45 μm
56-70-OBC	NY6TC	0010 - 0.10μm 0022 - 0.22μm 0045 - 0.45μm 0065 - 0.65μm 0080 - 0.80μm 0100 - 1.0μm 0300 - 3.0μm 0500 - 5.0μm
DH56	DLHPFB	0022-0.22 μm 0045 - 0.45 μm
DH56-70	LPF	0022 - 0.22 μm 4522 - 0.45+0.22 μm 1045 - 1.0+0.45 μm
126	DGPFMP	S003 - 0.003 μm 0022 - 0.22 μm
126-70	GPFMP GPFBP HSGPFP	0001 - 0.1 μm 0022 - 0.22 μm
SLV	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
SLV-72	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
SLV-120	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
SLVP		
SLVP-72		
SLVP-120		
SLVF		
SLVF-72		
SLVF-120		
PCF		
PCF-134		
PCFII-69(noo-ring)		
PCFII-127(noo-ring)		
OCF		
OCF-1		
OCFM		

Seal Material

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

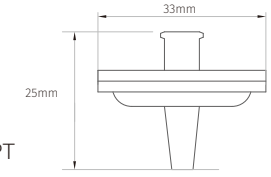
Pharmaceutical: P

Capsule Collection



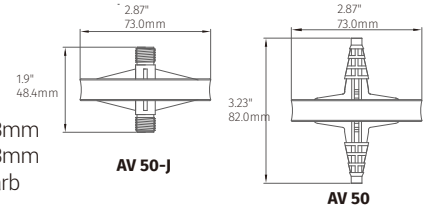
Syringe Filters

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



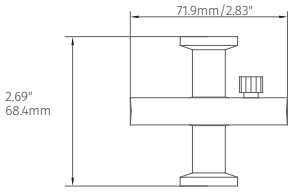
AV 50 Series

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



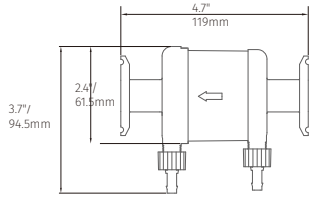
KZ 50 Series

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



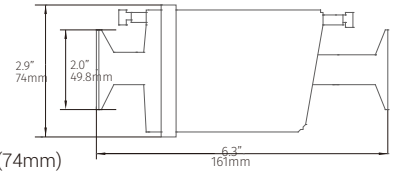
PKZ Capsules

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



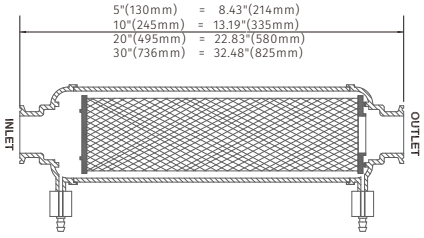
STKZ Capsules

Material of Construction	Filter Membrane	PP / PTFE / PES / Nylon
	Shell	PP
Connections	Dimensions	Nominal Length 6.3"(161mm)
		Diameter Φ2.7"(69.5mm)~Φ2.9"(74mm)
	Inlet/Outlet	Inlet/Outlet 50mm Tri-clamp



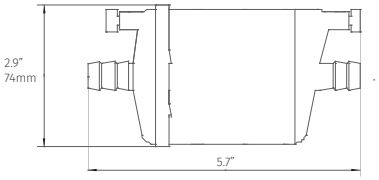
WSF Capsules

Material of Construction	Filter Membrane	PTFE / PP / PES / GFC / Nylon
	Shell	PP
Connections	Dimensions	Nominal Length 8.43" (214mm)
		Diameter Φ2.42" (87.0mm)
	Inlet/Outlet	Inlet/Outlet 50mm Tri-clamp



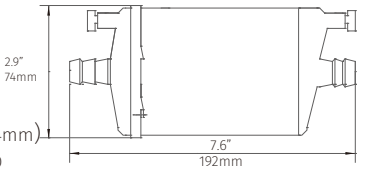
STBT1 Capsules

Material of Construction	Filter Membrane	PP / PTFE / PES / Nylon
	Shell	PP
Connections	Dimensions	5.7"(145mm) Φ2.7"(69.5mm)~Φ2.9"(74mm)
	Inlet/Outlet	1/2"(12mm)Hose Barb



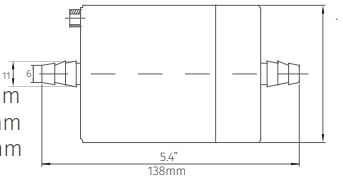
STBT2 Capsules

Material of Construction	Filter Membrane	PP / PTFE / PES / Nylon
	Shell	PP
Connections	Dimensions	Nominal Length 7.6"(192mm) Diameter Φ2.7"(69.5mm)~Φ2.9"(74mm)
	Inlet/Outlet	Inlet/Outlet 1/2"(12mm)Hose Barb



WM Capsules

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

Code	Membrane	Removal Rating	P 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	
	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	
AV50 KZ50 PKZ STKZ WSF STBT1 STBT2 WM	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	
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	

Code	Membrane	Removal Rating	P 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	
	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

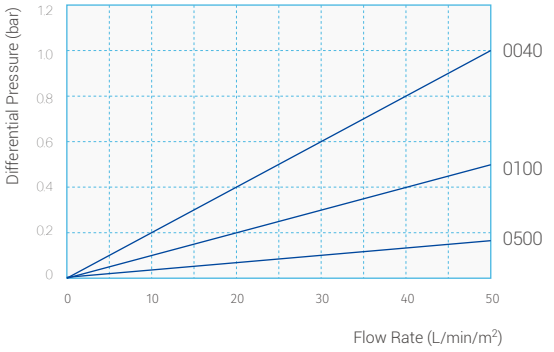
Features

- 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 efficieny 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

Flow Rate Characteristics



Material of Construction

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

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

Chemical Compatibility

Chemicals	Concentration	@20°C	@80°C
NaOH	2%	G	P
HCl	5%	G	P
HNO_3	5%	G	P
H_2SO_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

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

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	□□□□	□□	D O E	1 □	□	□	P
Filter Format	Removal Ratings	Type	End Cap	Diameter	Cells	Seal Material	Pharmaceutical

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

End Cap

DOE Double Open End

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

Pharmaceutical

P

C S D D	□□□□
Filter Format	Removal Ratings

Filter Format

CSDD 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

CDFC Capsules

C D F C	S	C S D	□□□□	□□	P
Code	Number of Layer	Filter Media	Removal Ratings	Type	Pharmaceutical

Code

CDFC

Number of Layer

S Single-Layer

Filter Media

CSD

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

Pharmaceutical

P

C D F C	D	□□□□
Code	Number of Layer	Removal Ratings

Code

CDFC

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 / m^2, 200-400LMH	

Chemical Compatibility

Chemicals	Concentration	@20°C	@80°C
NaOH	2%	G	P
HCl	5%	G	P
HNO_3	5%	G	P
H_2SO_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

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.

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	S	C S D	□□□□	□□	P
Depth Filter Capsule Type	Number of Layers	Filtration Media	Removal Ratings	Type	
CDFC Claricap Lab	**S** Single layer	**CSD** Roheap CSD series activated carbon depth filtration cardboard	**AC01** 0.5-1.0μm **AC02** 1.0-2.0μm **AC03** 2.0-4.0μm	**PC** Positively charged	**P** Pharmaceutical

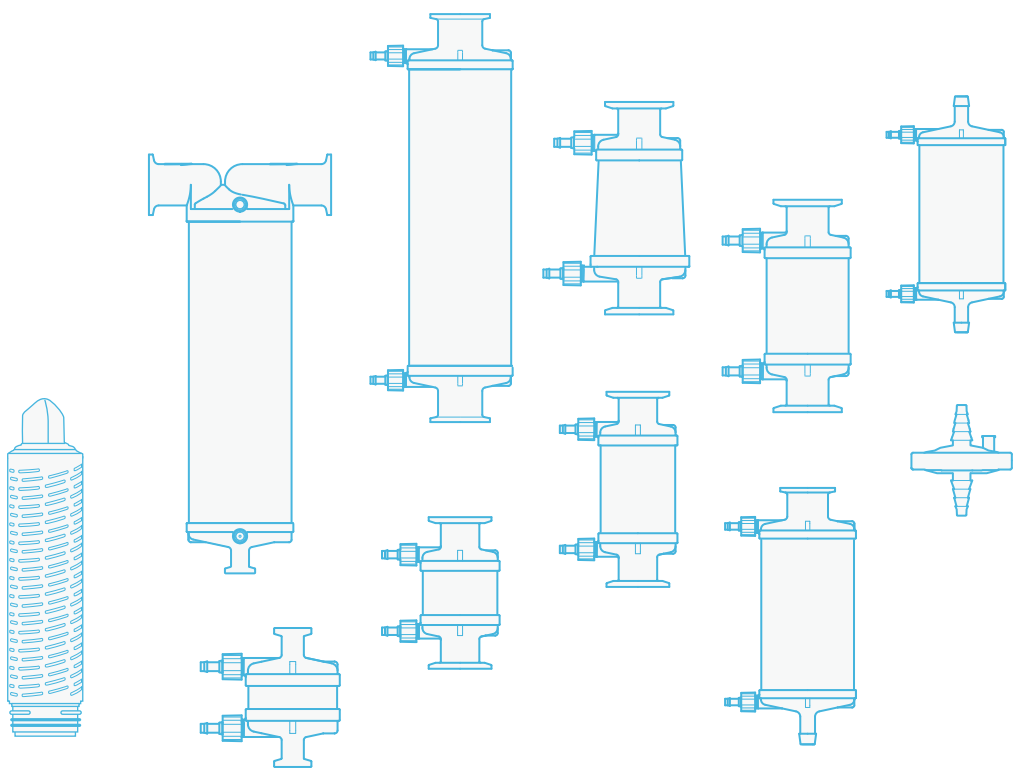
Roheap CSD Activated Carbon Depth Filter Cartridge

C S D	□□□□	□□	□□	□□	□	□
	Removal Ratings	Type	Adaptor	Diameter	Number of Cells	Seal Material
CSD Roheap CSD Cartridge	**AC01** 0.5-1.0μm **AC02** 1.0-2.0μm **AC03** 2.0-4.0μm	**PC** Positively charged	**DOE** **TCT**	**12** 12 inch **16** 16 inch	**N** 9 cells **T** 12 cells **C** 13 cells **E** 14 cells	**S** Silicone **E** EPDM **V** Viton **T** FEP/PFA Encapsulated O-rings **F** Fluorinated Polymer

P
P Pharmaceutical **F** Food & Beverage **C** Chemical industry

Our Mission

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



cobetter®
filtration

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